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Reference 19

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TYPE: **EMISSION TEST REPORT**

EMISSION TEST RESULTS FOR NO. 2 AGGREGATE KILN SOLITE CORPORATION, HUBERS PLANT BROOKS, KENTUCKY

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RUN 1	8.64	tons/hr feed
RUN 2	8.54	
RUN 3	8.61	

1. INTRODUCTION

Emission tests were conducted at the No. 2 Rotary Aggregate Kiln of the Solite Corporation's Hubers plant in Brooks, Kentucky on July 8, 1992. Stack sampling was conducted by personnel from Industrial & Environmental Analysts, Inc. (IEA) and their subcontractor DEECO, Inc. Process samples were collected by personnel from Solite. Sample analysis was performed at Triangle Laboratories, Inc. in Research Triangle Park, NC; Research Triangle Institute in Research Triangle Park, NC; Ross Analytical Services, Inc. in Strongsville, OH; and CAE Analytical Services in Palatine, IL.

Testing was conducted on the kiln to demonstrate compliance with the Resource Conservation and Recovery Act (RCRA) 40 CFR Parts 266.104(b) through 266.107 performance standards for carbon monoxide, particulate matter, metals, hydrogen chloride and chlorine emissions. The objective of this compliance test program was to demonstrate that each Lightweight Aggregate Kiln is capable of burning hazardous waste within the following emission limits:

- Particulate matter (PM) emissions less than 180 mg/dscm (0.08 gr/dscf) corrected to 7 percent oxygen.
- Compliance with EPA's tiered screening emission limits for selected metals (Sb, As, Ba, Be, Cd, Cr, Pb, Hg, Ag and Tl), hydrogen chloride (HCl), and chlorine (Cl_2).
- Compliance with a 100 ppmv carbon monoxide (CO) emission limit based on a 60-minute rolling average and continuous correction to 7% oxygen.

The trial burn program was designed by Solite Corporation and their contractor (Four Nines, Inc.) to demonstrate the capabilities of each Aggregate Kiln to effectively utilize waste fuel materials within the performance parameters set forth in the applicable regulations. To demonstrate compliance with the applicable Tier III requirements, the Liquid Burnable Material (LBM) feed was spiked with tetrachloroethene, arsenic,beryllium, cadmium, chromium, and lead.

Process samples of LBM feed were collected for analyses of metals, chlorine, ash, Btu content, density, and water content and the LBM flow rate was determined. Process samples of raw feed, aggregate product, and baghouse dust were collected for analyses of metals analysis, chlorine, and water content.

2. SUMMARY OF RESULTS

The No. 2 kiln was tested with triplicate test runs while operated at one process condition. Each test run was approximately three hours long. Each test involved sampling the stack gas emissions with three separate manual sampling trains; a combined particulate matter/HCl/Cl_2 train; a multiple metals train; and a hexavalent chromium train. A continuous emission monitoring system was also operated during each test run to measure stack gas concentrations of oxygen (O_2), carbon dioxide (CO_2), carbon monoxide (CO), and total hydrocarbons (THC).

Table 2-1 presents a summary of the mass emission rates (three-run averages) for PM (corrected to 7% O_2), HCl, Cl_2, metals, hexavalent chromium, and the CO and THC concentrations (rolling one-hour average corrected to 7% O_2). All the measured stack emission rates and concentrations were below the applicable emission standards for these two sources for all sampling runs. Any values shown as "less than" (<) indicate that one or more of the results were below the detectable limit for a given analyte, with the detection limit being used when calculating the average. In particular, the metals sampling train analysis was performed on two fractions, the probe wash and filter fraction and the impinger solutions, with the analytical results for the two fractions being summed. If one or the other fraction was below the detection limit, then the results for the entire sample train were reported as "less than", with the detection limit value used in the calculation.

Table 2-2 presents a summary of the stack gas conditions measured during each test run for Kiln No. 2. With the exception of the moisture results for the hexavalent chromium sampling, the measured and calculated stack gas parameters for Kiln No. 2 were in good agreement among the three trains for each sampling run. The low moisture values for the hexavalent chromium train will cause a high bias in the calculated dry volumetric flow rate of the flue gas, and results in high bias in the mass emission rate for that train. All sampling runs on Kiln No. 2 were performed within the acceptable isokinetic variation range.

Table 2-3 presents the results for each particulate matter/HCl/Cl_2 sampling run for Kiln No. 2 in milligrams per dry standard cubic meter (mg/M^3), grains per dry standard cubic feet corrected to seven percent oxygen for particulate matter, and grams/hour (g/hr) for HCl and Cl_2.

Table 2-4 presents the results for each multiple metals sampling run and hexavalent chromium sampling run for Kiln No. 2 in micrograms per cubic meter ($\mu g/M^3$) and grams/hour (g/hr). The results for the multiple metals results were blank corrected following the specified procedures in Method 0012. These procedures do not allow for direct blank correction for blank values exceeding 1 μg, and other blank correction values are calculated. The values reported for multiple metals were not blank corrected. And because the front half acetone rinses were inadvertently not set off for analysis at the same time all other multiple metals samples were sent out for analysis, the results reported are the results from two lab reports.

TABLE 2-1. SUMMARY OF MEASURED AND ALLOWABLE EMISSION RATES AND CONCENTRATIONS

Constituent	Kiln No. 2	
	Measured[1]	Allowable[2]
Particulate Matter (gr/dscf)[3]	0.017	0.08
HCl (g/hr)	19908	26,928
Cl_2 (g/hr)	84.4	828
Antimony (g/hr)	0.210	1,153.77
Arsenic (g/hr)	0.140	5.66
Barium (g/hr)	0.286	192,295.38
Beryllium (g/hr)	<0.029	0.58
Cadmium (g/hr)	0.155	4.98
Total Chromium (g/hr)	<0.154	N/A[4]
Hexavalent Chromium (g/hr)	<0.050	0.27
Lead (g/hr)	4.736	346.13
Mercury (g/hr)	0.168	307.67
Silver (g/hr)	0.054	11,537.72
Thallium (g/hr)	<0.029	1,922.95
Carbon Monoxide (ppm)[5]	96.8	100
Total Hydrocarbons (ppm)[5]	5.25	20

[1]Average of three test runs.
[2]Based on Tier III dispersion monitoring.
[3]Corrected to 7% oxygen.
[4]Not Applicable
[5]Continuous 60-minute rolling average corrected to 7% oxygen.

TABLE 2-2. STACK GAS CONDITIONS FOR KILN NO. 2

Sampling Train	Stack Gas Parameters							Isokinetic Variation
	Temp. (°F)	O_2	CO_2	Moisture	Velocity (ft/s)	Gas Flow Rate (dscfm)	Gas Flow Rate (acfm)	
Kiln No. 2, Sampling Run 1, July 8, 1992, 11:15 to 14:14								
$PM/HCl/Cl_2$	317.1	17.6%	2.4%	12.7%	34.95	27,800	47,600	97.0%
Metals	319.3	17.7%	2.3%	11.2%	35.28	28,500	48,000	94.7%
Hex. Cr	313.3	17.4%	2.6%	10.7%[1]	35.00	28,700	47,600	92.4%
Average	316	17.6%	2.4%	11.5%	35.10	28,833	47,733	---
Kiln No. 2, Sampling Run 2, July 8, 1992, 14:50 to 17:36								
$PM/HCl/Cl_2$	298	17.8%	2.3%	12.5%	32.96	26,900	44,900	94.7%
Metals	311	17.7%	2.4%	12.3%	35.51	28,600	48,300	93.3%
Hex. Cr	316	17.8%	2.3%	11.9%[1]	37.28	30,000	50,800	94.8%
Average	308	17.8%	2.3%	12.2%	35.25	28,500	48,000	---
Kiln No. 2, Sampling Run 3, July 8, 1992, 19:00 to 21:53								
$PM/HCl/Cl_2$	315	17.7%	2.4%	13.0%	34.88	27,700	47,500	98.9%
Metals	320	17.8%	2.3%	11.9%	36.20	28,900	49,300	95.2%
Hex. Cr	319	17.5%	2.6%	12.8%[1]	36.92	29,200	50,300	96.6%
Average	318	17.7%	2.4%	12.6%	36.00	28,600	49,033	---

[1]Apparent outlier, not included in the average.

TABLE 2-3. PARTICULATE MATTER, HCl, AND CHLORINE STACK GAS RESULTS

Test Run	Particulate Matter		Hydrogen Chloride		Chlorine	
	mg/cu.M	gr/dscf[1]	mg/cu.M	g/hr	mg/cu.M	g/hr
Kiln No. 2						
Run 1	5.28	0.013	439	20,735	3.10	146.4
Run 2	9.98	0.026	400	18,281	1.48	67.6
Run 3	6.50	0.016	440	20,708	0.835	39.3
Average	7.25	0.017	426.33	19,908	1.805	84.4

[1]Corrected to 7% oxygen

TABLE 2-4 MULTIPLE METALS AND HEXAVALENT CHROMIUM STACK GAS RESULTS

Metal	Run 1		Run 2		Run 3		Average	
	ug/cu.M	g/hr	ug/cu.M	g/hr	ug/cu.M	g/hr	ug/cu.M	g/hr
Kiln No. 2								
Antimony	1.31	0.063	7.01	0.341	4.62	0.226	4.313	0.210
Arsenic	1.95	0.094	6.25	0.304	0.42	0.021	2.747	0.140
Barium	4.98	0.240	2.96	0.144	9.69	0.475	5.877	0.286
Beryllium	<0.50	<0.024	<0.82	<0.040	<0.47	<0.023	<0.597	<0.029
Cadmium	2.17	0.105	1.24	0.060	6.13	0.300	3.180	0.155
Chromium	1.78	0.086	<4.90	<0.239	<2.81	<0.138	<3.163	<0.154
Hex. Cr	1.44	0.070	<0.97	<0.046	<0.67	<0.033	<1.024	<0.050
Lead	194.67	9.426	43.14	2.101	54.71	2.681	97.507	4.736
Mercury	4.94	0.239	2.62	0.128	2.81	0.138	4.203	0.168
Silver	1.01	0.049	0.69	0.034	1.59	0.078	1.097	0.054
Thallium	<0.50	<0.024	<0.82	<0.040	<0.47	<0.023	<0.597	<0.029

For the Brooks Kentucky, kiln No. 2, Beryllium and Thallium were not detected in any sample. Antimony, Arsenic, Barium, Cadmium, Lead, Mercury, and Silver were detected in all samples. Chromium was not detected in the second or third runs. Lead had the highest stack concentration of all target metals, for all three runs. The metals results for each kiln were fairly consistent for each run, with lead having the greatest run-to-run variation in quantity of target metal, and Arsenic having the greatest run-to-run variation by percent. Hexavalent chromium was only detected the first run sample, and, in all cases, the results for hexavalent chromiu were lower than the total chromium emissions.

3. PROCESS OPERATION PARAMETERS

The No. 2 rotary aggregate kiln burn liquid waste as fuel from the ECSI storag tank farm. Kiln No. 2 is 8 ft. in diameter and 125 ft. long with a typical estimate heat release rate of 30.0 mmBtu/hr. The typical feed material is a mixture of clay, shale, and slate mined from an adjacent quarry, which is crushed and sized before feeding at the cold end of the kiln. Lightweight aggregate is produced by heating the shale to a temperature of at least 1800°F, the temperature at which the material expands, or "bloats." Exhaust gases from the kilns go to ducting for gas cooling, then to fabric filter baghouses for particulate removal. Kilns 1 and 2 share a common baghouse, with the ducting designed is such that only one kiln uses the baghouse at a time. The system uses an induced draft fan at the exit of the baghous which discharges to a single exhaust stack.

Figure 3-1 provides a diagram depicting the various locations where the proces sample were collected. Tables 3-1 presents a summary of the analytical results for the product, baghouse dust, LBM, and raw feed samples collected during each test run for Kiln No. 2.

Analysis of the raw feed showed: chlorides, beryllium, cadmium, total chromium mercury and silver, to all be below detection limits. thallium, lead, barium, and arsenic results were consistent for all three runs of the raw feed. Antimony was only detected in the first run of the raw feed.

Analysis of the product gave non-detects for Chlorides, Antimony, Cadmium, Mercury, and Silver. All others had consistent results for all three runs.

Baghouse Dust gave a non-detect for all runs of silver, and run 1 of antimony. All other results are consitent for the three runs. Baghouse dust averaged 21.1 grams per kilogram of Lead.

LBM gave non-detects for the first and third runs for antimony, the first run of Lead, and for all three runs for:Arsenic, Barium, Beryllium, Cadmium, and Thallium. The first run of mercury was twice the third run, but otherwise results were consistant for all three runs.

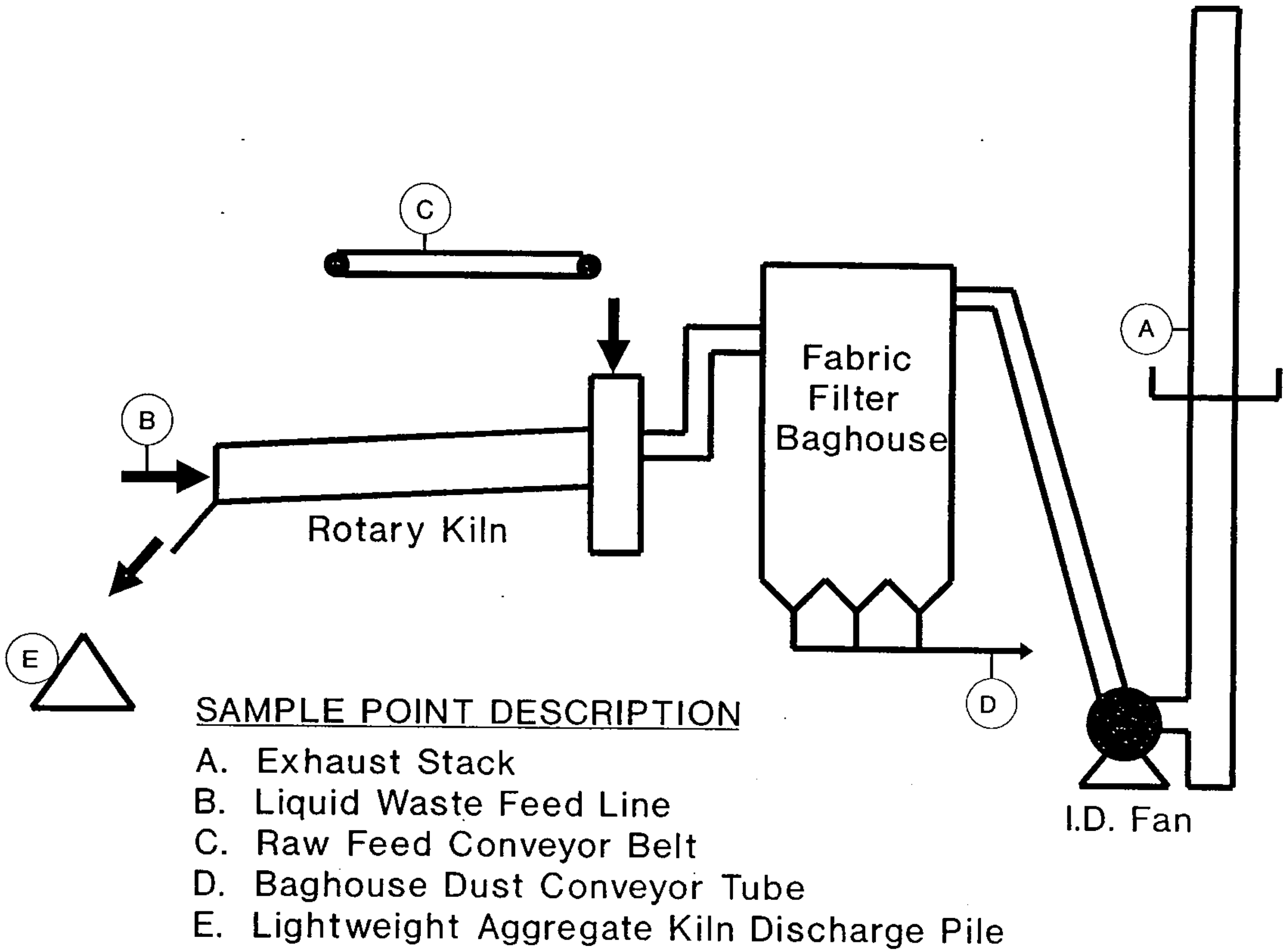

Figure 3-1. Diagram of process sampling locations.

TABLE 3-1. SUMMARY OF PROCESS SAMPLE ANALYSES FOR KILN NO. 2

	Raw Feed				Product				Baghouse Dust				LBM			
Analytical Parameter	Run 1	Run 2	Run 3	Avg.	Run 1	Run 2	Run 3	Avg.	Run 1	Run 2	Run 3	Avg.	Run 1	Run 2	Run 3	Avg.
Chlorides (%)	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	NR[1]	NR[1]	NR[1]	N/A	0.6	0.6	0.8	0.67
Density (g/mL)	N/A[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.900	0.900	0.898	0.899
Heating Value (BTU/lb)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8310	8010	7940	8087
Ash (% by weight)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.17	0.08	0.17	0.14
Antimony (mg/kg)	0.340	<0.0028	<0.0028	<0.115	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	0.860	0.454	<0.439	<0.0028	0.379	<0.0028	<0.128
Arsenic (mg/kg)	7.37	6.21	8.24	7.27	5.04	5.50	4.64	5.06	299	221	303	274	<0.026	<0.026	<0.026	<0.026
Barium (mg/kg)	17.7	23.0	21.9	20.9	240	145	142	176	286	323	352	320	<0.07	<0.07	<0.07	<0.07
Beryllium (mg/kg)	<0.07	<0.07	<0.07	<0.07	0.91	0.88	0.86	0.88	10.9	8.68	11.2	10.26	<0.07	<0.07	<0.07	<0.07
Cadmium (mg/kg)	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	356	337	410	368	<0.45	<0.45	<0.45	<0.45
Total Chromium (mg/kg)	<0.8	<0.80	<0.8	<0.8	26.2	23.8	20.9	23.6	58.3	65.7	80.2	68.1	1.39	1.00	1.09	1.16
Lead (mg/kg)	8.10	7.47	8.33	7.97	185	222	190	199	22000	19500	21800	21100	<0.021	3.61	4.07	<2.57
Mercury (mg/kg)	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.07	0.05	0.07	0.06	0.14	0.06	0.07	0.09
Silver (mg/kg)	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.07	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70
Thallium (mg/kg)	0.728	0.711	0.765	0.735	0.853	1.01	0.885	0.914	1.51	1.15	1.25	1.30	<0.0030	<0.0030	<0.030	<0.030

[1] Data not requested fron lab.
[2] Sample was not analyzed for this parameter.

4. SAMPLING AND ANALYTICAL PROCEDURES

Table 4-1 presents a summary of the overall sampling and analytical protocols used for the Certificate of Compliance test program for Kiln No. 2. All sampling and analytical methods employed for this test program were performed in accordance with the procedures outlined in the Methods Manual for Compliance with the BIF Regulations - Burning Hazardous Waste in Boilers and Industrial Furnaces EPA/530-SW-91-010, December 1990, and those referenced in EPA-SW-846.

4.1 Sampling Point, Flue Gas Velocity, and Volumetric Flow Rate Determination

The stack gas sampling ports were located at the exhaust stack 21.8 ft. (4.1 duct diameters) above the flow straighting vains located just above the junction of the duct breaching, and 3.4 stack diameters from the nearest upstream disturbence. The CEM port was located slightly above the isokinetic ports. This location meets the minimum specifications for selection of a measurement site as outlined in EPA Method 1. Schematics of each sampling location are shown in Figure 4-1.

A 24-point velocity/particulate traverse in each of two 90° directions was made at the sampling location using a type-S pitot tube and sampling nozzle (glass) in accordance with EPA Methods 2 and 5 procedures. Gas temperatures were measured using calibrated Type K thermocouples and digital readou devices.

Dry gas molecular weight was determined using the oxygen and carbon dioxide measurements following EPA Method 3A employing the IEA continuous emission monitoring system (CEMS). Stack gas moisture was measured in accordance with EPA Method 4 procedures for the condensation option contained within Methods 12, 13, and 0050.

4.2 Sampling and Analysis for Flue Gas Metals

EPA Method 0012 sampling trains were used to collect metals stack gas samples from the Kiln No. 2 sampling location. A glass nozzle and glass probe liner were used with a quartz fiber filter and a Teflon filter support. The first of two impingers each contained 100 ml of 5% nitric acid/10% hydroge peroxide solution, the third impinger was empty, the fourth and fifth impingers each contained 100 ml o 10% sulfuric acid/4% potassium permanganate solution, and the last impinger contained silica gel.

Analytical procedures followed those outlined in EPA Methods 0012 in Methods Manual for Compliance with the BIF Regulations - Burning Hazardous Waste in Boilers and Industrial Furnaces, EPA/530-SW-91-010, December 1990, and those referenced in EPA-SW-846. The probe and nozzle rinses and the quartz filter were subjected to microwave digestion with concentrated hydrogen fluoride and nitric acid. After an aliquot was removed for mercury analysis, the 5% nitric acid/10% hydrogen peroxide solution was reduced to near dryness, and digested with nitric acid and hydrogen peroxide. The metals, except mercury, in these solutions were measured employing Inductively-Coupled Plasmography (ICP).

TABLE 4-1. SUMMARY OF SAMPLING AND ANALYTICAL METHODS USED FOR CERTIFICATION OF COMPLIANCE TEST PROGRAM ON LIGHTWEIGHT AGGREGATE KILN NO. 2

Test Parameter	Sampling Procedure or Method	No. of Samples	Analytical Parameters	Analytical Procedure
<u>Stack Gas Streams</u> Stack gas flow	EPA Method 2 pitot tube	During each isokinetic test run	N/A	EPA Method 2 Inclined manometer
Dry gas molecular weight	EPA Method 3A continuous	During whole testing period	O_2, CO_2	EPA Method 3A electrochemical & nondispersive IR
Stack gas moisture	EPA Method 4 traverse integrated	During each isokinetic test run	Moisture content	EPA Method 4 condensation and gravimetric
Particulate matter concentration	EPA Method 5 isokinetic traverse integrated	Three 120-min test runs; 60 ft^3 minimum gas sample	Particulate matter	EPA Method 5 desiccation and gravimetric
Hydrogen chloride and chlorine gas concentration	EPA Method 0050 isokinetic traverse integrated back-half of EPA Method 5	Three 120-min test runs; 60 ft^3 minimum gas sample	HCl and Cl_2	EPA Method 9057 ion chromatography
Metals concentration	EPA Method 0012 Multiple Metals isokinetic traverse integrated	Three 60-min test runs; 45 ft^3 minimum gas sample	Sb, As, Ba, Be, Cd, Cr, Pb, Hg, Ag, and Tl	Microwave digestion EPA 6010 ICP GFAAS EPA 7041 (Sb) EPA 7060 (As) EPA 7241 (Pb) EPA 7841 (Tl) CVAAs EPA 7470 (Hg)
Hexavalent Chromium (Cr^{+6}) concentration	EPA Method 0013 isokinetic traverse integrated	Three 60-min test runs; 45 ft^3 minimum gas sample	Cr^{+6}	EPA 0013 ion chromatography with a post column reactor
Carbon monoxide concentration	EPA Method 10 continuous	During whole testing period	Carbon monoxide	EPA Method 10 gas filter correlation NDIR
Total hydrocarbons concentration	EPA Method 25A continuous	During whole testing period	THC as C_3H_8	EPA Method 25A FID

(continued)

TABLE 4-1 (Continued).

Test Parameter	Sampling Procedure or Method	No. of Samples	Analytical Parameters	Analytical Procedure
Waste Feed Stream Liquid Burnable Materials	S004 tap	One grab every 15 minutes field composite 500-mL glass container	Metals Sb, As, Ba, Be, Cd, Cr, Pb, Hg, Ag, and Tl	EPA 3040 solvent dilution EPA 3050 acid digestion EPA 6010 ICP GFAAS EPA 7041 (Sb) EPA 7060 (As) EPA 7241 (Pb) EPA 7841 (Tl) CVAAs EPA 7470 (Hg)
		One grab every 15 minutes field composite 500-mL glass container	Chlorine	ASTM D808 bomb combustion absorption and titration
			Ash	ASTM D482 combustion and gravimetry
			Btu Content	ASTM D2382 high-precision bomb calorimetry
			Density	Std Method 213 calibrated flask
			Water Content	Karl Fisher titration
LBM Flow Rate	Mass flow meters	Continuous	Flow rate	N/A
APCE Residuals Baghouse dust concentration	S004 tap	One grab every 30 minutes field composite 1-L glass container	Metals	EPA 6010, 7000s ICAP & AAS

(continued)

TABLE 4-1 (Continued).

Test Parameter	Sampling Procedure or Method	No. of Samples	Analytical Parameters	Analytical Procedure
<u>**Kiln Feed Stream**</u> Raw Feed	S007 trowel scoop	One grab every 30 minutes field composite 500-mL glass container	Metals Sb, As, Ba, Be, Cd, Cr, Pb, Hg, Ag, and Tl	EPA 3050 acid digestion EPA 6010 ICP GFAAS EPA 7041 (Sb) EPA 7060 (As) EPA 7241 (Pb) EPA 7841 (Tl) CVAAs EPA 7470 (Hg)
		One grab every 30 minutes field composite 500-mL glass container	Chlorine	ASTM D4208 bomb combustion ion selective electrode
			Water Content	ASTM D3173 modified pulverize, dry and gravimetry
<u>**Product Stream**</u> Lwt. Aggregate	S006 trier-corer	One grab every 30 minutes field composite 500-mL glass container	Metals Sb, As, Ba, Be, Cd, Cr, Pb, Hg, Ag, and Tl	EPA 3050 acid digestion EPA 6010 ICP GFAAS EPA 7041 (Sb) EPA 7060 (As) EPA 7241 (Pb) EPA 7841 (Tl) CVAAs EPA 7470 (Hg)
		One grab every 30 minutes field composite 500-mL glass container	Chlorine	ASTM D4208 bomb combustion ion selective electrode
			Water Content	ASTM D3173 modified pulverize, dry and gravimetry

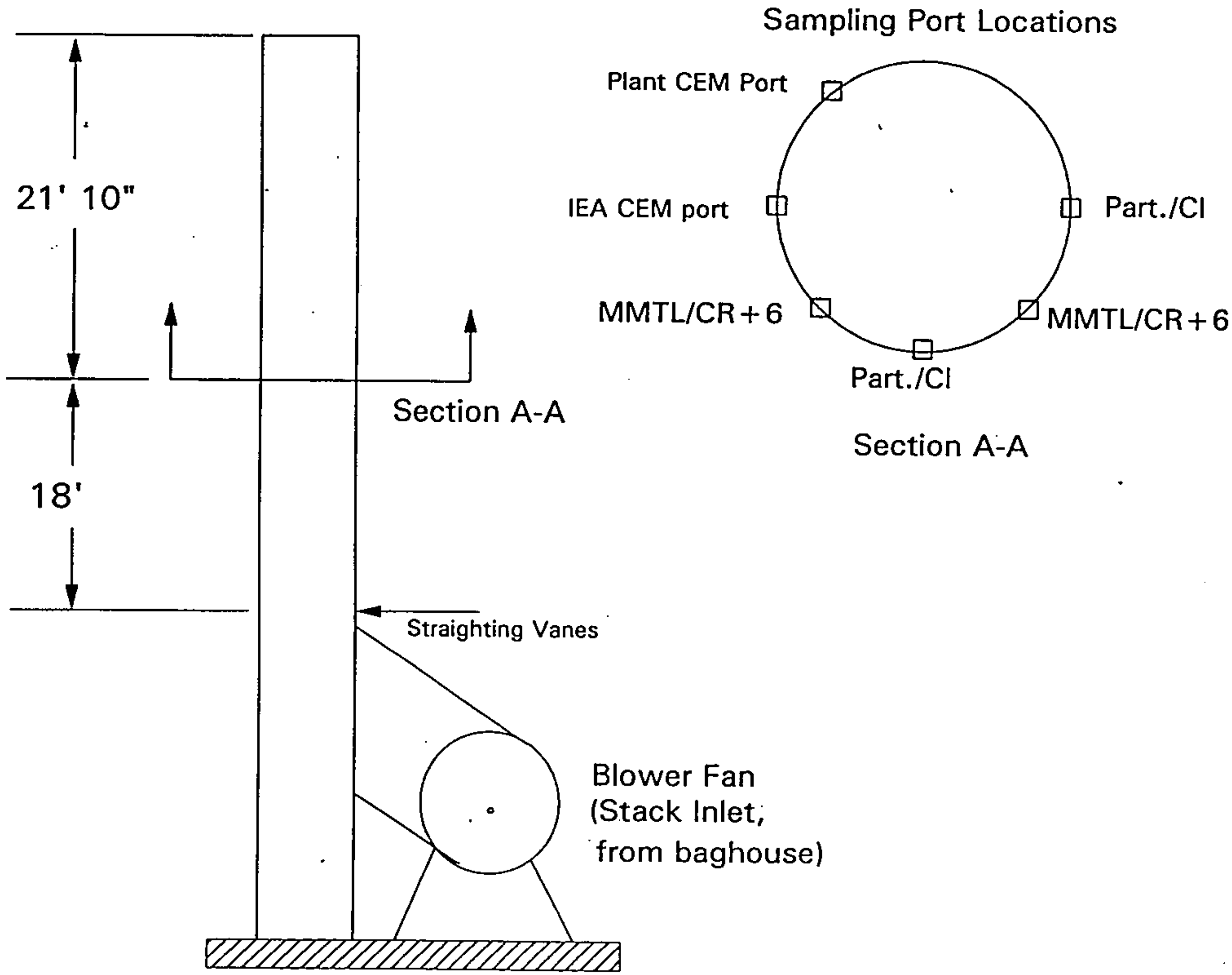

Figure 4-1. Schematic of stack sampling location for Kiln No. 2.

Mercury analysis was performed by Cold-Vapor Atomic Absorption Spectroscopy (CVASS). Samples with low levels of antimony, arsenic, lead, and thallium were subjected to addition analysis employing the more-sensitive Graphite Furnace Atomic Absorption Spectroscopy (GFAAS).

4.3 Sampling and Analysis for Flue Gas Hexavalent Chromium

EPA Method 0013 sampling trains were used to collect stack gas samples for hexavalent chromium from the Kiln No. 2 sampling locations. After the glass nozzle, a Teflon union tee, a Teflon probe and recirculation line, and a peristaltic pump fitted with C-flex tubing were used for recirculation of the impinger solution. Due to the high acid gas levels in the stack gas, the first Teflon impinger contained 250 ml of 0.5 N potassium hydroxide solution. The second and third Teflon impingers each contained 75 ml of 0.1 N potassium hydroxide solution, the fourth Teflon impinger was empty, and the last impinger contained silica gel.

At the conclusion of sampling, each sample train was purged with nitrogen, at ten liters of nitrogen per minute, for a minimum of 30 minutes. During sample recovery, the pHs of all impinger solutions were checked, and found to be above 8.5. Following sampling recovery, the impinger solutions were filtered though 0.45 μm Teflon membrane filters.

Analytical procedures followed those outlined in EPA Methods 0013 in Methods Manual for Compliance with the BIF Regulations - Burning Hazardous Waste in Boilers and Industrial Furnaces, EPA/530-SW-91-010, December 1990. The filtered impinger solutions were analyzed by ion chromatography, with the separated hexavalent chromium being reacted with a diphenylcarbizide solution to form a hexavalent chromium specific chromophore that was measured with a spectrophotometer set at 520 nm.

4.4 Sampling and Analysis for Flue Gas Particulate Matter, HCl, and Cl_2

EPA Method 0050 sampling trains were used to stack gas samples for particulate matter, hydrogen chloride, and chlorine (PM/HCl/Cl_2) from the Kiln No. 2 sampling locations. A glass nozzle and glass probe liner were used with a tare-weighed quartz fiber filter and a Teflon filter support. The first of two impingers each contained 100 ml of 0.1 N sulfuric acid solution, the third and fourth impingers each contained 100 ml of 0.1 N sodium hydroxide solution, and the last impinger contained silica gel. The sampling procedures and chloride analysis followed those outlined in EPA Methods 0050 and 9057 in Methods Manual for Compliance with the BIF Regulations - Burning Hazardous Waste in Boilers and Industrial Furnaces, EPA/530-SW-91-010, December 1990. Particulate matter was determined by gravimetric analysis. HCl was determined by measuring the chloride ion content of the sulfuric acid impinger solutions. Cl_2 was determined by measuring the chloride ion content of the sodium hydroxide impinger solutions. The chloride ions in these solutions were measured by ion chromatography, with the separated chloride ions being measured with a conductivity detector.

4.5 Continuous Measurement of Carbon Monoxide and Total Hydrocarbons

Carbon monoxide was measured continuously in the flue gas using the procedures outlined in EPA Method 10. A gas sample was transferred continuously to a Thermo Electron Model 48 gas filter correlation NDIR analyzer. Output from the analyzer was directed to a data acquisition system which corrects to 7% oxygen (using the Method 3A values) and records one-minute averages.

Total hydrocarbons were measured continuously in the flue gas using the procedures outlined in EPA Method 25A. A heated sample line was used to transfer the gas sample to a JUM Model VE-7 THC instrumental analyzer using flame ionization detection. Output from the analyzer was directed to a data acquisition system which corrects to 7% oxygen (using the Method 3A values) and records one-minute averages.

4.6 Waste Feed Sampling

Waste feed liquid stream samples were obtained from an in-line sample tap already present at the site. All liquid waste samples were collected at 15-minute intervals in conjunction with the flue gas sampling. Sample collection of the process streams was coordinated with the flue gas sampling such that sampling for the same analyte was completed at the same time (e.g., process samples for a test run were collected during the same time period as the flue gas sampling test run).

At each 15 minute interval, a 100-mL grab sample for metals and a 100-mL grab sample for physical parameter analysis were collected. The 100-mL grab samples were composited immediately after collection into a 1-gallon jar at the sampling location, with the lid placed on the 1-gallon container between grab sampling events. At the end of a test run, aliquots for different analyses were taken from the gallon composite jar and stored in 500-mL amber glass bottles with Teflon-lined caps.

The following is a brief summary of the general procedures followed during the collection of liquid process stream samples:

1. The sample line was purged appropriately to assure the sample was not collected from a static line.

2. The precleaned container was rinsed with liquid from the sample stream.

3. The required volume (typically 100 mL) was collected and transferred to the compositing container.

4. The compositing container was placed in the cooler. Custody of the sample was maintained until it was transferred to the designated field sample custodian.

4.7 Baghouse Dust Sampling

During each test run, the baghouse dust was collected in an empty silo. At the completion of each test run, the baghouse dust was emptied into a truck, and a sample was taken from the truck, for metals and physical analytical parameters.

4.8 Raw Feed Sampling

Samples of the raw feed stream were collected at 30-minute intervals from the belt feeder to the kiln's cold end using a scoop. The grab samples were field composited into two containers -- one for metals analysis and the other for chlorine and moisture analysis.

4.9 Aggregate Product Sampling

Samples of the hot aggregate product were collected with a shovel at 30-minute intervals, and placed in an aluminum pan to cool. After cooling, about 100 mL was taken from each subsample, and composited in a 950 mL sample jar. The composited samples were submitted for for metals, chlorine, and moisture analyses.

5. QA/QC PROCEDURES

The objective of a quality assurance/quality control (QA/QC) program is to assure that the precision and accuracy of all environmental data generated by IEA for clients are commensurate with data quality objectives (DQO's). DQO's are based on a common understanding of the intended end use(s) of the data, the measurement process, and the availability of resources. Once DQO's are established, formally or informally, QC protocol can be defined for the measurements.

In this project, the final data user will be Solite Corporation. The data quality objectives in this project are to generate scientifically sound data to be used to demonstrate compliance with emission limits established under the Resource Conservation and Recovery Act (RCRA) 40 CFR 266.103

All of the equipment used was calibrated according to the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, EPA-600/4-77-027b.

5.1 Method 5-Type Sampling Equipment Calibrations

For sampling Methods 0012, 0013, and 0050, the procedures and equipment used to measure stack gas velocity and temperature measurements and the metering system used to maintain isokinetic sampling conditions and to determine the sample gas volume were subjected to pretest and posttest calibrations and/or inspections as required by the appropriate EPA methods.

5.1.1 Barometer - Barometric pressure values were obtained from a calibrated Airguide barometer, verified by phone call to a local airport, and corrected for elevation to sample port level (0.01 inches Hg per 10 ft. elevation).

5.1.2 Probe Nozzle - The probe nozzles used during testing were calibrated initially by the manufacturer and thereafter by the field sampling crew by checking for dimensional roundness. This was done by taking three separate measurements using alternative inside diameters and calculating the average. A micrometer with a minimum tolerance of 0.001 inch is used for measuring. If a deviation of more than 0.004 inch is found between any measurements, the nozzle is either discarded or repaired and remeasured. The nozzle calibration data sheets for this test program are include in Appendix E.

5.1.3 Pitot Tubes - Each pitot tube used in sampling meets the design specifications for type-S pitot tubes in EPA Method 2. Therefore, a maximum value baseline coefficient (C_p) of 0.84 is assigned to each pitot tube. Calibration by the manufacturer for pitot face-opening alignment included measuring the external tubing diameter (dimension D_t), the base-to-opening plane distance (dimensions P_a and P_b), and the face opening misalignment angles, with all terms as described in Figures 2-2 and 2-3 of EPA Method 2. Pitot tubes were visually inspected for structural integrity at the completion of each test. Inspection sheets for pitot tubes are included in Appendix E.

5.1.4 Calibration Meter and Metering System - The secondary reference meter equipment arrangement for calibration is shown in Figure 5.7 of EPA Method 5. The following prescribed procedures were followed. A wet test meter with a 1 ft^3/rev capacity and $\pm$ 1 percent accuracy is used as the primary calibrant. The dry gas meter's pump is run for a minimum of 5 minutes at a flow rate of 0.35 cfm to condition the interior surface of the wet test meter. Leak checks are performed and if satisfactory, triplicate runs at no less than five different flow rates are done. A calibration curve is prepared and the meter is recalibrated after 200 hours of operation or annually, whichever comes first.

The calibration set-up for the dry gas metering system using the secondary reference meter in lieu of the wet test meter is given in Figure 5.5 of EPA Method 5. A leak check of the metering system before calibration was performed as shown in Figure 5.4 of EPA Method 5. The metering systems's pump was operated for 5 minutes at an orifice manometer setting of 0.5 inches H_20 to heat up the pump and system to stabilize the meter inlet and outlet temperatures. Values for the orifice setting (delta H), wet test meter volume (V_w), corresponding dry test meter volume (V_d) dry test meter inlet and outlet gas temperatures (t_{di} and t_{dn}), and time were recorded for the initial calibration. Then the ratio of the wet test meter to the dry test meter (gamma) and the orifice pressure differential that equates to 0.75 cfm at standard conditions (delta H@) were calculated.

A post-test meter calibration was made on the dry gas meter used during the test to check its accuracy against the pre-test calibration. This post-test calibration check was made using the average orifice setting obtained during each test run and setting the vacuum at the maximum value obtained during each test run. These test runs were made against IEA's secondary reference dry gas meter which was calibrated against a wet test meter.

The calibration data sheets for the dry gas meters are included in Appendix E.

5.1.5 Thermocouples and Digital Indicators - Thermocouples were calibrated by comparing them against an ASTM-3F mercury-in-glass thermometer at approximately 32°F (ice water), ambient temperature, approximately 100°F (hot oil). Each thermocouple was calibrated against temperature ranges to which it is typically exposed during test conditions, and they agreed within 1.5 percent (expressed in °R) of the reference thermometer throughout the entire calibration range. Also, thermocouples were checked at ambient temperature at the test site to verify calibration.

Digital indicators were checked by feeding a series of millivolt signal strengths to the input and comparing the indicator reading with the reading the signal should have generated. Acceptable calibration error did not exceed 0.5 percent when temperatures are expressed in °R.

The calibration data sheets for the thermocouples and digital indicators are included in Appendix E.

5.1.6 Pretest and Posttest Leak Checks of Sampling Trains

Each Method 0012, 0013, and 0050 sampling trains were subjected to pretest and posttest leak checks. The leak check results are summarized in Table 5-1, for all sampling runs.

5.2 Analytical QA/QC Results

Analytical measurements of precision were made on stack gas and process samples by means of replicate analyses. The analytical accuracies were demonstrated by spike compound recoveries; no correction to analysis results was made. A Lab Control Sample (LCS) was also prepared and analyzed with the samples from this project. Blanks of each reagent and/or filter used in each sample train were submitted for analysis of the appropriate target analyte. The results for replicate analyses, spike analyses, LCS analyses, and analyses of reagent blanks are summarized in Table 5-2 for the stack gas samples and Table 5-3 for the process samples, and discussed below in the appropriate section for each analytical procedure.

5.2.1 Analyses for Hydrogen Chloride and Chlorine

Stack Gas Samples - Hydrogen chloride and chlorine are measured in the stack gas samples as the chloride ion in the dilute sulfuric acid solution and the dilute sodium hydroxide solution, respectively. The duplicate analysis reported for two samples, with relative percent differences (RPDs) of 3.0% and 0.2%, were well within the 5% criteria required by the method. The spike recovery was 97%, and the results for the LCS analysis were within 1.9% of the expected value. The reagent blanks submitted for analysis were both less than the analytical detection limit.

5.2.2 Analyses for Metals and Hexavalent Chromium

Stack Gas Samples - Analysis for hexavalent chomium involves the use of an ion chromatograph with a post-column reactor (IC/PCR). The duplicate analysis for one sample resulted in a RPD of 2.8%, well within the required 5% criteria required for the method. The spike recovery was 105%, and the results for the LCS analyses were within -9.7% and -2.7% of the expected value. The reagent blank submitted for analysis was less than the analytical detection limit.

Analysis for metals in the flue gas samples involved complex digestion steps generating several fractions for subsequent analysis by three different procedures. Except for mercury analysis, duplicate analysis was performed on only one sample, the reagent blank, and generally gave meaningless results for most analytes. For barium the RPD was 6.4% and, for lead, was 2.1%. For mercury analysis, all sample fractions were analyzed in duplicate, with RPDs ranging from 0.0% to 24.0%. Generally the higher RPDs were associated with sample fractions with low levels of mercury.

Matrix spikes are not required for ICP analysis. Only thalium required a post digestion spike prior to GFAA analysis, which had a recovery of 86.2% in one front half sample. The spike of the corresponding back half sample had a low recovery, and all back half samples were analyzed for thalium by Method of Standard Addition (MSA). Spike recoveries for mercury analysis ranged form 102% to 114% for the three types of sample fractions, and were within 25% of the expected value as required by the method.

Results for the analyses of LCSs for metals ranged from -7.8% to +5.7%, all well within the 25% required by the method.

The reagent blank submitted for analysis had levels below the detection limits for all metals except for antimony, barium, beryllium, cadmimum, total Chromium, lead, and silver, which had levels of 3.9 μg, 17.0 μg, 0.29 μg, 6.6 μg, 2.9 μg, 10.8 μg, and 2.0 μg respectively. The blank correction procedures for the method do not permit subtratction of high blank values. Blank correction values were not used.

Process Samples

5.2.3 Moisture, Total Chlorine, Ash, Btu Content, and Density Analyses

Moisture results were consistant in the raw feed, with an average of 6.5%. Chlorine in the raw feed was non-detectable in all samples. Moisture and chlorides were non-detectable in all product samples. Analysis of LBM showed the three run average density to be 0.899g/ml, the three run average heating value to be 8087 BTU/lb, and the ash content to average 0.14% over the three runs. Averages of LBM, including the second run duplicate, for density, heating value, and ash yielding: 0.901 g/mL, 8010 BTU/lb, and 0.1125% respectivly.

TABLE 5-1. SUMMARY OF SAMPLE TRAIN LEAK CHECKS FOR KILN NO.2

Sample Train	Initial Leak Rate		Final Leak Rate	
	CFM	inches Hg	CFM	inches Hg
Kiln No. 2, Run 1				
Part./Cl/HCl	.007	10	.003	5
Hex. Chrome	.000	11	.001	7
Multi Metals	.006	11	.002	4
Kiln No. 2, Run 2				
Part./Cl/HCl	.005	11	.003	5
Hex. Chrome	.005	10	.000	9
Multi Metals	.010	10	.008	8
Kiln No. 2, Run 3				
Part./Cl/HCl	.003	10	.001	7.5
Hex. Chrome	.000	10	.000	8
Multi Metals	.004	13	.002	5

TABLE 5-2. SUMMARY ANALYTICAL QA/QC RESULTS FOR STACK GAS SAMPLES

Analytical Parameter	Duplicate Analysis (RPD)	Spike Recovery	Laboratory Control Sample	Reagent Blank
Chlorides	0.7% 0.2%	97% 92%	+1.9%	<0.05 (mg/L)
Hexavalent Cr	2.8%	105%	-7.2%	<0.0015 (μg/ml)
Antimony	N/A[1]	NR[2]	+5.7%	3.9 μg
Arsenic	N/A	103% 95%	-7.8%	<0.6 μg
Barium	N/A	NR	-3.4%	17.0 μg
Beryllium	N/A	NR	+0.2%	0.29 μg
Cadmium	N/A	NR	+0.7%	6.64 μg
Total Chromium	N/A	NR	+3.7%	2.87 μg
Lead	N/A	NR	-0.5%	10.8 μg
Mercury	0% to 24%[4]	88%	+0.4%	<3.8 μg
Silver	N/A	NR	-1.5%	2.02 μg
Thallium	N/A	59.4% 83.8%	+1.8%	<0.6 μg

[1] Not applicable due to sample value being below the detection limit.
[2] Matrix spike not required by the method.
[3] High imprecision due to one of the duplicates being less than the detection limit.
[4] All mercury samples analyzed in duplicate. Samples with higher imprecision at or near the analytical detection limit.

TABLE 5-3 SUMMARY ANALYTICAL QA/QC RESULTS FOR PROCESS SAMPLES

Analytical Parameter	Duplicate Analysis (RPD)	Spike Recovery	Laboratory Control Sample
Chlorides	17 17	57% 66%	NR[1]
Ash	19	N/A[3]	NR
Heating Value	5	N/A	NR
Density	2	N/A	NR
Moisture	0	N/A	NR
Antimony	NC 18 31 13 8	0% 80% 109% 103% 104%	NR
Arsenic	35 9 3 0 0	150% 80% 109% 103% 104%	NR
Barium	3 7 7 0 0	97% 94% 115% 87% 93%	NR
Beryllium	3 3 1 1	94% 94% 98% 98%	NR
Cadmium	4 4 1 2 0	94% 94% 98% 93%	NR
Total Chromium	3 4 5 0 0	99% 96% 107% 94% 101%	NR

Analytical Parameter	Duplicate Analysis (RPD)	Spike Recovery	Laboratory Control Sample
Lead	4 1 3 2 1	134% 106% 500% 243% 97%	NR
Mercury	9 1 0 1 2	104% 102% 99% 98% 94%	NR
Silver	3 5 20 1 1	102% 102% 84% 102% 91%	NR
Thallium	1 9 3 2 8	112% 94% 91% 92% 96%	NR

[1]Not Required
[2]Not Calculable
[3]Not Applicable

5.3 Oxygen, Carbon Dioxide, Carbon Monoxide, and Total Hydrocarbons CEMS Calibrations

Calibration procedures were performed in accordance with those outlined in EPA Reference Method 3A for oxygen and carbon dioxide, EPA Method 10 for carbon monoxide, and EPA Method 25A for total hydrocarbons. Each analyzer was calibrated before, after test run #1, and after the end of the test series. The results of the CEM calibration checks are included in Appendix C.

The pre-test calibrations consisted of the following two steps:

- o Internal (direct to instrument) calibration of each analyzer to adjust calibration and check linearity.
- o External (through the entire sampling system) calibration to check the system bias on zero and span gases.

The post-test calibration consisted of an external system bias calibration check.

5.3.1 Internal Calibration - Each analyzer was calibrated using a certified zero and span (mid range) gas. Zero and span gases were directed to each analyzer through the appropriate plumbing, the calibration gas flow rates were adjusted to the correct flow rate and the analyzer was adjusted with the appropriate span potentiometer

After the analyzer was properly adjusted, the linearity was checked using a low and high range calibration gas. The maximum allowable limit for linearity ±2% of the analyzer range. All analyzers were demonstrated to be linear within these limits.

5.3.2 External Calibration - The external calibration bias check was performed by placing the CEM system in the sampling mode and injecting a zero and span gas into the sample line at the probe exit. This check shows if there is any sampling system related bias, and also serves as a check of the sample line integrity.

5.3.3 Calibration Gases - EPA Protocol #1 and/or ±2% NIST-traceable gases were used for calibration as required by the various Reference Methods used in this test project. The log of the calibration gases used for this test program is included in Appendix C.

5.4 Sample Chain-of-Custody

Sample chain-of-custody records for sample transfer to laboratory, log-in, identification assignment, analysis request, and sample storage are given in Appendix D.

Appendix A

Equations Used and Calculations

Appendix B

Field Sampling Data Sheets

Appendix C

Continuous Emission Monitoring Field Data and Recorder Output

Appendix D

Analytical Reports and Chain-of-Custody Records

Appendix E

Equipment Calibration Data Sheets

Appendix F

Test Participants

Appendix A

Equations Used and Calculations

BAGHOUSE DUST SAMPLING DATA SHEET

Metals

FACILITY: *Kentucky Solite* SAMPLE TYPE: *Baghouse Dust*

LOCATION: *Brooks, KY*

DATE: 7/8/93 RUN NO.: K2-DUST-2

TEST DESCRIPTION: *No. Kiln BIF Compliance Test*

SAMPLER: B Dewees SAMPLE I.D. NO. DUST-2-MTL

Equipment: One 32-oz glass wide-mouth bottle for compositing.
One 500-mL amber glass bottle for metals sample.

Instructions

1. *Assemble bottles and labels for test run sampling.*
2. *At each 30-minute interval during the test run, collect enough sample from the dust conveyor to place about 100-mL into the compositing jar.*
3. *Close the sample container after placing sample in bottle.*
4. *Record sampling time on field data sheet.*
5. *At end of test run, fill to 3/4ths the 500-mL sample bottle from the composite container for metals. Affix sample labels to these bottles.*
6. *Deliver the sample containers to the field sample custodian for packaging and shipment.*

Grab No.	Composite Grab Time	Composite Grab Time
1	1510	
2	1535	
3	1604	
4	1637	
5	1700	
6	1739	
7		
8		
9		
10		
11		
12		

6-000540

LIQUID WASTE FEED SAMPLING DATA SHEET

Metals, Chlorine, and Physical Parameters

FACILITY: *Kentucky Solite* SAMPLE TYPE: *Liquid Waste Feed*

LOCATION: *Brooks, KY*

DATE: 7/8/92 RUN NO.: K2-LBM-2

TEST DESCRIPTION: *No. Kiln BIF Compliance Test*

SAMPLER: Bill Dewees SAMPLE I.D. NO. LBM-2

Equipment: One 32-oz glass wide-mouth bottle for compositing.
One 500-mL amber glass bottle for metals sample.
One 500-mL amber glass bottle for chlorine/physicals sample.

Instructions

1. *Assemble bottles and labels for test run sampling; don protective gear.*
2. *At each 15-minute interval during the test run, collect enough sample from the waste feed tap to place about 100-mL into the compositing jar.*
3. *Close the sample container after placing sample in bottle.*
4. *Record sampling time on field data sheet.*
5. *At end of test run, fill to 3/4ths the 500-mL sample bottles from the composite container for metals and chlorine/physicals. Affix sample labels to these bottles.*
6. *Deliver the sample containers to the field sample custodian for packaging and shipment.*

Grab No.	Composite Grab Time	Composite Grab Time
1	1459	
2	1519	
3	1531	
4	1545	
5	~~15~~58	
6	1617	
7	16~~4~~5	
8	1658	
9	1716	
10	1736	
11		
12		

6-[illegible]

AGGREGATE PRODUCT SAMPLING DATA SHEET

Metals, Chlorine, and Moisture

FACILITY: *Kentucky Solite* SAMPLE TYPE: *Aggregate Product*

LOCATION: *Brooks, KY*

DATE: 7/8/92 RUN NO.: K2-PROD-3

TEST DESCRIPTION: *No. Kiln BIF Compliance Test*

SAMPLER: B DEWEES SAMPLE I.D. NO. PROD-3

Equipment: One 32-oz glass wide-mouth bottle for compositing.
One 500-mL amber glass bottle for metals sample.
One 500-mL amber glass bottle for chlorine/moisture sample.

Instructions

1. *Assemble bottles and labels for test run sampling.*
2. *At each 30-minute interval during the test run, collect enough sample from the product discharge pile to place about 200-mL onto the cooling pan.*
3. *Allow the sample to cool on the cooling pan during each test run.*
4. *Record sampling time on field data sheet.*
5. *At end of test run, fill to 3/4ths the 500-mL sample bottles from the cooling pan for metals and chlorine/moisture. Affix sample labels to these bottles.*
6. *Deliver the sample containers to the field sample custodian for packaging and shipment.*

Grab No.	Composite Grab Time	Composite Grab Time
1	1907	
2	1931	
3	2005	
4	2034	
5	2103	
6	2134	
7	2205	
8		
9		
10		
11		
12		

feedds.wk1

BAGHOUSE DUST SAMPLING DATA SHEET

Metals

FACILITY: *Kentucky Solite* SAMPLE TYPE: *Baghouse Dust*

LOCATION: *Brooks, KY*

DATE: 7/8/92 RUN NO.: K2-Dust-3

TEST DESCRIPTION: *No. Kiln BIF Compliance Test*

SAMPLER: B Dewees SAMPLE I.D. NO. DUST-3-MTL

Equipment: One 32-oz glass wide-mouth bottle for compositing.
One 500-mL amber glass bottle for metals sample.

Instructions

1. *Assemble bottles and labels for test run sampling.*
2. *At each 30-minute interval during the test run, collect enough sample from the dust conveyor to place about 100-mL into the compositing jar.*
3. *Close the sample container after placing sample in bottle.*
4. *Record sampling time on field data sheet.*
5. *At end of test run, fill to 3/4ths the 500-mL sample bottle from the composite container for metals. Affix sample labels to these bottles.*
6. *Deliver the sample containers to the field sample custodian for packaging and shipment.*

Grab No.	Composite Grab Time	Composite Grab Time
1	1804	
2	1939	
3	2004	
4	2032	
5	2102	
6	2132	
7	2203	
8		
9		
10		
11		
12		

RAW FEED SAMPLING DATA SHEET

Metals, Chlorine, and Moisture

FACILITY: *Kentucky Solite* SAMPLE TYPE: *Raw Feed*

LOCATION: *Brooks, KY*

DATE: 7/8/92 RUN NO.: K2 - RFeed - 3

TEST DESCRIPTION: *No. Kiln BIF Compliance Test*

SAMPLER: B DEWEES SAMPLE I.D. NO. RFEED-3

Equipment: One 32-oz glass wide-mouth bottle for compositing.
One 500-mL amber glass bottle for metals sample.
One 500-mL amber glass bottle for chlorine/moisture sample.

Instructions

1. *Assemble bottles and labels for test run sampling.*
2. *At each 30-minute interval during the test run, collect enough sample from the feed belt conveyor to place about 100-mL into the compositing jar.*
3. *Close the sample container after placing sample in bottle.*
4. *Record sampling time on field data sheet.*
5. *At end of test run, fill to 3/4ths the 500-mL sample bottles from the composite container for metals and chlorine/moisture. Affix sample labels to these bottles.*
6. *Deliver the sample containers to the field sample custodian for packaging and shipment.*

Grab No.	Composite Grab Time	Composite Grab Time
1	1905	
2	1930	
3	2002	
4	2034	
5	2104	
6	2132	
7	2202	
8		
9		
10		
11		
12		

LIQUID WASTE FEED SAMPLING DATA SHEET

Metals, Chlorine, and Physical Parameters

FACILITY: *Kentucky Solite* SAMPLE TYPE: *Liquid Waste Feed*

LOCATION: *Brooks, KY*

DATE: 9/8/92 RUN NO.: K2-LBM-3

TEST DESCRIPTION: *No. Kiln BIF Compliance Test*

SAMPLER: BDewees SAMPLE I.D. NO. LBM-3

Equipment: One 32-oz glass wide-mouth bottle for compositing.
One 500-mL amber glass bottle for metals sample.
One 500-mL amber glass bottle for chlorine/physicals sample.

Instructions

1. *Assemble bottles and labels for test run sampling; don protective gear.*
2. *At each 15-minute interval during the test run, collect enough sample from the waste feed tap to place about 100-mL into the compositing jar.*
3. *Close the sample container after placing sample in bottle.*
4. *Record sampling time on field data sheet.*
5. *At end of test run, fill to 3/4ths the 500-mL sample bottles from the composite container for metals and chlorine/physicals. Affix sample labels to these bottles.*
6. *Deliver the sample containers to the field sample custodian for packaging and shipment.*

Grab No.	Composite Grab Time	Composite Grab Time
1	1902	
2	1915	
3	1928	
4	1945	
5	2000	
6	2016	
7	2030	
8	2044	
9	2058	
10	2115	
11	2131	
12	2146	
	2200	

RAW FEED SAMPLING DATA SHEET

Metals, Chlorine, and Moisture

FACILITY: *Kentucky Solite* SAMPLE TYPE: *Raw Feed*

LOCATION: *Brooks, KY*

DATE: 7-8-92 RUN NO.: K2-RFeed-1

TEST DESCRIPTION: *No. Kiln BIF Compliance Test*

SAMPLER: Chris Outlaw SAMPLE I.D. NO. RFEED-1

Equipment: One 32-oz glass wide-mouth bottle for compositing.
One 500-mL amber glass bottle for metals sample.
One 500-mL amber glass bottle for chlorine/moisture sample.

Instructions
1. *Assemble bottles and labels for test run sampling.*
2. *At each 30-minute interval during the test run, collect enough sample from the feed belt conveyor to place about 100-mL into the compositing jar.*
3. *Close the sample container after placing sample in bottle.*
4. *Record sampling time on field data sheet.*
5. *At end of test run, fill to 3/4ths the 500-mL sample bottles from the composite container for metals and chlorine/moisture. Affix sample labels to these bottles.*
6. *Deliver the sample containers to the field sample custodian for packaging and shipment.*

Grab No.	Composite Grab Time	Composite Grab Time
1	1122	
2	1153	
3	1218	
4	1250	
5	1321	
6	1350	
7	1420	
8		
9		
10		
11		
12		

6-000034

BAGHOUSE DUST SAMPLING DATA SHEET

Metals

FACILITY: *Kentucky Solite* SAMPLE TYPE: *Baghouse Dust*

LOCATION: *Brooks, KY*

DATE: 7-8-92 RUN NO.: K2-Dust-1

TEST DESCRIPTION: *No. Kiln BIF Compliance Test*

SAMPLER: Chris Outlaw SAMPLE I.D. NO. DUST-1-MTL

Equipment: One 32-oz glass wide-mouth bottle for compositing.
One 500-mL amber glass bottle for metals sample.

Instructions

1. *Assemble bottles and labels for test run sampling.*
2. *At each 30-minute interval during the test run, collect enough sample from the dust conveyor to place about 100-mL into the compositing jar.*
3. *Close the sample container after placing sample in bottle.*
4. *Record sampling time on field data sheet.*
5. *At end of test run, fill to 3/4ths the 500-mL sample bottle from the composite container for metals. Affix sample labels to these bottles.*
6. *Deliver the sample containers to the field sample custodian for packaging and shipment.*

Grab No.	Composite Grab Time	Composite Grab Time
1	1118	
2	1150	
3	1216	
4	1248	
5	1319	
6	1348	
7	1418	
8		
9		
10		
11		
12		

AGGREGATE PRODUCT SAMPLING DATA SHEET

Metals, Chlorine, and Moisture

FACILITY: *Kentucky Solite* SAMPLE TYPE: *Aggregate Product*

LOCATION: *Brooks, KY*

DATE: 7-8-92 RUN NO.: KZ-PROD-1

TEST DESCRIPTION: *No. Kiln BIF Compliance Test*

SAMPLER: Chris Outlaw SAMPLE I.D. NO. PROD-1

Equipment: One 32-oz glass wide-mouth bottle for compositing.
One 500-mL amber glass bottle for metals sample.
One 500-mL amber glass bottle for chlorine/moisture sample.

Instructions

1. *Assemble bottles and labels for test run sampling.*
2. *At each 30-minute interval during the test run, collect enough sample from the product discharge pile to place about 200-mL onto the cooling pan.*
3. *Allow the sample to cool on the cooling pan during each test run.*
4. *Record sampling time on field data sheet.*
5. *At end of test run, fill to 3/4ths the 500-mL sample bottles from the cooling pan for metals and chlorine/moisture. Affix sample labels to these bottles.*
6. *Deliver the sample containers to the field sample custodian for packaging and shipment.*

Grab No.	Composite Grab Time	Composite Grab Time
1	11:17	
2	1146	
3	1217	
4	1246	
5	1318	
6	1346	
7	1417	
8		
9		
10		
11		
12		

LIQUID WASTE FEED SAMPLING DATA SHEET

Metals, Chlorine, and Physical Parameters

FACILITY: *Kentucky Solite* SAMPLE TYPE: *Liquid Waste Feed*

LOCATION: *Brooks, KY*

DATE: 7-8-92 RUN NO.:

TEST DESCRIPTION: *No. Kiln BIF Compliance Test*

SAMPLER: SAMPLE I.D. NO. LBM-1

Equipment: One 32-oz glass wide-mouth bottle for compositing.
One 500-mL amber glass bottle for metals sample.
One 500-mL amber glass bottle for chlorine/physicals sample.

Instructions
1. *Assemble bottles and labels for test run sampling; don protective gear.*
2. *At each 15-minute interval during the test run, collect enough sample from the waste feed tap to place about 100-mL into the compositing jar.*
3. *Close the sample container after placing sample in bottle.*
4. *Record sampling time on field data sheet.*
5. *At end of test run, fill to 3/4ths the 500-mL sample bottles from the composite container for metals and chlorine/physicals. Affix sample labels to these bottles.*
6. *Deliver the sample containers to the field sample custodian for packaging and shipment.*

Grab No.	Composite Grab Time	Composite Grab Time
1	11:15	
2	1130	
3	1145	
4	1159	
5	1213	
6	1229	
7	1245	
8	1300	
9	1316	
10	1330	
11	1345	
12	1359	
	1415	

1459

AGGREGATE PRODUCT SAMPLING DATA SHEET

Metals, Chlorine, and Moisture

FACILITY: *Kentucky Solite* SAMPLE TYPE: *Aggregate Product*

LOCATION: *Brooks, KY*

DATE: 7/8/92 RUN NO.: K2-PROD-2

TEST DESCRIPTION: *No. Kiln BIF Compliance Test*

SAMPLER: B DEWEES SAMPLE I.D. NO. PROD-~~1~~ 2 2

Equipment: One 32-oz glass wide-mouth bottle for compositing.
One 500-mL amber glass bottle for metals sample.
One 500-mL amber glass bottle for chlorine/moisture sample.

Instructions

1. *Assemble bottles and labels for test run sampling.*
2. *At each 30-minute interval during the test run, collect enough sample from the product discharge pile to place about 200-mL onto the cooling pan.*
3. *Allow the sample to cool on the cooling pan during each test run.*
4. *Record sampling time on field data sheet.*
5. *At end of test run, fill to 3/4ths the 500-mL sample bottles from the cooling pan for metals and chlorine/moisture. Affix sample labels to these bottles.*
6. *Deliver the sample containers to the field sample custodian for packaging and shipment.*

Grab No.	Composite Grab Time	Composite Grab Time
1	1509	
2	1533	
3	1606	
4	1635	
5	1702	
6	1737	
7		
8		
9		
10		
11		
12		

feedds.wk1

6-000030

PARTICULATE / CHLORIDES EPA 0050 SAMPLE RECOVERY AND INTEGRITY DATA SHEET

Plant: Salite, Ky
Sample Date: 7/8/92
Sample Location: Kiln #2
Recovery Date: 7/8/92
Run No.: K2-MS-3
Recovered by: Chris Outlaw
Filter Number(s): G228

MOISTURE

Impingers	798.6 1	645.3 2	3	4	5	Silica Gel	
Final Weight	~~[illegible]~~	~~[illegible]~~	584.0	616.7		781.7	g
Initial Weight	613.4	612.1	580.6	615.8		766.0	g
Net Weight	185.2	33.2	3.4	0.9		15.7	g

Description of impinger water ________ 35 % spent

________ Blue Sil gel color

Total moisture = 238.4 g

RECOVERED SAMPLE

Filter container number(s): K2-MS-3-PF Sealed: ✓

Description of particulate on filter: very light

Probe rinse container no.	K2-MS-3-FHACE	Liquid level marked/sealed	✓
Acetone blank container no.		Liquid level marked/sealed	
H2SO4 Impinger contents container no.	K2-MS-3-H2SO4 Imp 1–3	Liquid level marked/sealed	✓
H2SO4 blank container no.		Liquid level marked/sealed	
NaOH Impinger contents container no.	K2-MS-3-H2SO4 Imp 4–5	Liquid level marked/sealed	✓
NaOH blank container no.		Liquid level marked/sealed	

Samples stored and locked ________

Remarks ________

Relinquished by ________ Date ________

S- 000003

PARTICULATE / CHLORIDES EPA 0050 SAMPLE RECOVERY AND INTEGRITY DATA SHEET

Plant: Solite Ky — Sample Date: 7-8-92

Sample Location: Kiln #2 — Recovery Date: 7-8-92

Run No.: K2-M5-2 — Recovered by: Chris Cithan

Filter Number(s): 000191

MOISTURE

Impingers	1	2	3	4	5	Silica Gel	
Final Weight	708.6	564.7	609.4	560.4	X	736.8	g
Initial Weight	536.6	540.6	607.4	560.0	X	722.8	g
Net Weight	172.0	24.1	2.0	0.4	X	14.0	g

Description of impinger water ______ 30% % spent

______ Blue Sil gel color

Total moisture = 212.5 g

RECOVERED SAMPLE

Filter container number(s): K2-M5-2-PF — Sealed: ✓

Description of particulate on filter: Very light

Probe rinse container no.	K2-M5-2-FHACE	Liquid level marked/sealed	✓
Acetone blank container no.		Liquid level marked/sealed	
H2SO4 Impinger contents container no.	K2-M5-2-H2SO4 Imp 1–3	Liquid level marked/sealed	✓
H2SO4 blank container no.		Liquid level marked/sealed	
NaOH Impinger contents container no.	K2-M5-2-NaOH Imp 4–5	Liquid level marked/sealed	✓
NaOH blank container no.		Liquid level marked/sealed	

Samples stored and locked ______

Remarks ______

Relinquished by ______ Date ______

PARTICULATE / CHLORIDES EPA 0050 SAMPLE RECOVERY AND INTEGRITY DATA SHEET

Plant: Solite, Ky
Sample Date: 7-8-92
Sample Location: Kiln # 2
Recovery Date: 7-8-92
Run No.: K2-MS-1
Recovered by: Chris [illegible]
Filter Number(s): Q190

MOISTURE

Impingers	1	2	3	4	5	Silica Gel	
Final Weight	793.2	647.6	584.3	618.6		766.8	g
Initial Weight	611.2	613.9	581.6	617.4		751.7	g
Net Weight	182.0	33.7	2.7	1.2		15.1	g

Description of impinger water: ______ 30% % spent

Bl[illegible] Sil gel color

Total moisture = 234.7 g

RECOVERED SAMPLE

Filter container number(s): K2-MS-1-PF Sealed ✓

Description of particulate on filter: Very light

Probe rinse container no.	K2-MS-1-FHACE	Liquid level marked/sealed	✓
Acetone blank container no.		Liquid level marked/sealed	
H2SO4 Impinger contents container no.	K2-MS-1-H_2SO_4 Imp 1-3	Liquid level marked/sealed	✓
H2SO4 blank container no.		Liquid level marked/sealed	
NaOH Impinger contents container no.	K2-MS-1-NaOH Imp 4-5	Liquid level marked/sealed	✓
NaOH blank container no.		Liquid level marked/sealed	

Samples stored and locked ______

Remarks ______

Relinquished by ______ Date ______

HEXAVALENT CHROMIUM EPA 0013 SAMPLE RECOVERY
AND INTEGRITY DATA SHEET

Plant: Sublle- Brooks KY Sample Date: 7-8-92

Sample Location: Kiln #2 Stack Recovery Date:

Run No.	KOH Solution Volume Initial	KOH Solution Volume Final	Increase	pH Measure	Filtered?
K2-CR6-1	400 ml	485	85	10	✓

N_2 purge for	Silica Gel weight Initial	Silica Gel weight Final	Silica Gel Increase	Total Moisture	Recovered By:
42 min	677.6	703.4	25.8	110.8	WCB

Run No.	KOH Solution Volume Initial	KOH Solution Volume Final	Increase	pH Measure	Filtered?
K2-CR6-2	400	504	104	10	✓

N_2 purge for	Silica Gel weight Initial	Silica Gel weight Final	Silica Gel Increase	Total Moisture	Recovered By:
43 min	769.6	799.7	30.1	134.1	[illegible]

Run No.	KOH Solution Volume Initial	KOH Solution Volume Final	Increase	pH Measure	Filtered?
K2-CR6-3	400	511	111	9.5	✓

N_2 purge for	Silica Gel weight Initial	Silica Gel weight Final	Silica Gel Increase	Total Moisture	Recovered By:
30 min	737.2	772.0	34.8	145.8	

Comments:

Relinquished By: Date:

MULTIPLE METALS EPA 0012 SAMPLE RECOVERY AND INTEGRITY DATA SHEET

Plant Solite - Brooks KY

Sample Date 7-8-92

Sample Location kiln #2 stack

Recovery Date 7-8-92

Run No. K2-MTL-3

Recovered by WDB

Filter Number(s) Q3

MOISTURE

Impingers	1	2	3	4	5	6	Silica Gel	
Final Weight	663.7	537.5	465.1	566.7	540.9		713.6	g
Initial Weight	550.6	526.9	464.7	567.9	540.3		707.1	g
Net Weight	113.1	10.6	0.4	-1.2	0.6		6.5	g

Description of impinger water Clear

25 % spent

Blue Sil gel color

Total moisture = 130 g

RECOVERED SAMPLE

Filter container number(s) K2-MTL-3-PF

Sealed

Description of particulate on filter Very light

Probe rinse container no.	K2-MTL-3-FHACE K2-MTL-3-FHAR	Liquid level marked/sealed	✓
NA Acetone blank? container no.		Liquid level marked/sealed	NA
Impingers 1–3 contents container no.	K2-MTL-3-H2O2IMP Imp 1–3	Liquid level marked/sealed	✓
NA HNO3/H2O2 blank? container no.		Liquid level marked/sealed	NA
Nitric rinse container no.	K2-MTL-3-BHAR 0.1N HNO3	Liquid level marked/sealed	✓
Impingers 4–5 contents container no.	K2-MTL-3-KMNO4IMP Imp 4–5	Liquid level marked/sealed	✓
NA KMnO4 blank? container no.		Liquid level marked/sealed	NA
HCl rinse container no.	K2-MTL-3-HCL 8N HCl	Liquid level marked/sealed	✓

Samples stored and locked

Remarks

Relinquished by

Date

MULTIPLE METALS EPA 0012 SAMPLE RECOVERY AND INTEGRITY DATA SHEET

Plant: Solite - Brooks, KY
Sample Date: 7-8-92
Sample Location: Kiln #2 stack
Recovery Date: 7-8-92
Run No.: K2-MTL-2
Recovered by: WDB
Filter Number(s): Q37

MOISTURE

Impingers	1	2	3	4	5	6	Silica Gel	
Final Weight	650.0	552.6	457.7	558.9	539.0	X	766.1	g
Initial Weight	550.3	536.0	456.5	558.7	539.2	X	759.2	g
Net Weight	99.7	16.6	1.2	0.2	-0.2	X	6.9	g

Description of impinger water: Clear
10 % spent
Blue Sil gel color

Total moisture = 124.4 g

RECOVERED SAMPLE

Filter container number(s): K2-MTL-2-PF
Sealed: ✓
Description of particulate on filter: Very light

Probe rinse container no.	K2-MTL-2-FHACE K2-MTL-2-FHAR	Liquid level marked/sealed	✓ ✓
NA Acetone blank? container no.		Liquid level marked/sealed	
Impingers 1–3 contents container no.	K2-MTL-2-H2O2 IMP Imp 1–3	Liquid level marked/sealed	✓
NA HNO3/H2O2 blank? container no.		Liquid level marked/sealed	
Nitric rinse container no.	K2-MTL-2-BHAR 0.1N HNO3	Liquid level marked/sealed	✓
Impingers 4–5 contents container no.	K2-MTL-2-KMNO4 IMP Imp 4–5	Liquid level marked/sealed	✓
NA KMnO4 blank? container no.		Liquid level marked/sealed	
HCl rinse container no.	K2-MTL-2-HCL 8N HCl	Liquid level marked/sealed	✓

Samples stored and locked

Remarks

Relinquished by

Date

MULTIPLE METALS EPA 0012 SAMPLE RECOVERY AND INTEGRITY DATA SHEET

Plant: Solite - KY

Sample Date: 7-8-92

Sample Location: Kiln #2 Stack

Recovery Date: 7-8-92

Run No.: K2-MTL-1

Recovered by: WMB

Filter Number(s): Q33

MOISTURE

Impingers	1	2	3	4	5	6	Silica Gel	
Final Weight (g)	627.7	547.8	463.4	555.8	547.4		707.1	g
Initial Weight (g)	528.4	542.1	462.2	555.8	547.4	~~6~~	699.8	g
Net Weight	99.3	5.7	1.2	0	0		7.3	g

Description of impinger water: Clear

5 % spent

Blue Sil gel color

Total moisture = 113.5 g

RECOVERED SAMPLE

Filter container number(s): K2-MTL-1-PF

Sealed: ✓

Description of particulate on filter: Very light

Probe rinse container no.	K2-MTL-1-FHAR K2-MTL-1-FHACE	Liquid level marked/sealed	✓ ✓
✓ Acetone blank? container no.	K2-MTL-BLK-FHAR K2-MTL-BLK-FHACE	Liquid level marked/sealed	✓
Impingers 1–3 contents container no.	K2-MTL-1-H2O2IMP Imp 1–3	Liquid level marked/sealed	✓
✓ HNO3/H2O2 blank? container no.	K2-MTL-1-H2O2	Liquid level marked/sealed	✓
Nitric rinse container no.	K2-MTL-1-BHAR 0.1N HNO3	Liquid level marked/sealed	✓
Impingers 4–5 contents container no.	K2-MTL-1-KMNO4IMP Imp 4–5	Liquid level marked/sealed	✓
✓ KMnO4 blank? container no.	K2-MTL-BLK-KMNO4	Liquid level marked/sealed	✓
HCl rinse container no.	K2-MTL-1-HCL 8N HCl	Liquid level marked/sealed	✓

Samples stored and locked

Remarks

Relinquished by

Date

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EMISSION TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	1 /92	No. Kiln Exhaust Stack	Multi-Metals	3

OPERATORS	BAROM PRESS (In. Hg)	STATIC PRESS (In. H2O)	AMBIENT TEMP (F)	FILTER TYPE & FILTER NUMBER(S)	STACK ID (In.)	PITOT TUBE Cp	PROBE LENGTH AND LINER TYPE	NOZZLE I.D.	NOZZLE Diameter
Jm GB	29.80	-0.67	85	Q-3	64.5	0.84	7 ft glass		0.308

ASSUMED MOIST. (%)	DGM BOX NO.	DGM H@	DGM CAL FACTOR (Y)	STACK THERM NO.	STACK PITOT NO.	IMPINGER THERM NO.	ORSAT NO.	TRAIN LEAK CHECK (INITIAL) In. Hg	TRAIN LEAK CHECK (INITIAL) CFM	TRAIN LEAK CHECK (FINAL) In. Hg	TRAIN LEAK CHECK (FINAL) CFM	K FACTOR
10.4	M3	1.935	1.000				N/A	13	0.004	5	0.002	6.17

EPA METHOD 3
Collection Method ____
Analysis Method ____

	RUN 1	RUN 2	RUN 3	AVG	AMBIENT
%O2					
%CO2					

PITOT SYSTEM LEAK CHECK INIT	PITOT SYSTEM LEAK CHECK FINAL
ok	ok

TRAV. POINT NO.	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	P VELOCITY HEAD (In. H2O)	H ORIFICE (In. H2O)	STACK TEMP (F)	PROBE TEMP (F)	FILTER OVEN TEMP (F)	SIL GEL IMPINGER TEMP (F)	DGM IN/OUT TEMP (F)	AUX. TEMP. (F)	SAMPLE TRAIN VAC (In. Hg)
C1	0	1900	16.420	0.46	2.8	318	251	225	69	97		4
2	3		19.07	0.45	2.8	320	260	262	45	98		4
3	6		21.67	0.48	3.0	321	272	249	42	98		5
4	9		24.35	0.50	3.1	323	271	248	44	99		5
5	12		27.20	0.41	2.5	324	269	240	45	101		5
6	15		29.62	0.31	1.9	323	254	254	46	101		4
7	18		31.78	0.17	1.0	323	250	253	47	101		2
8	21		33.42	0.16	0.99	322	248	251	48	101		2
9	24		35.02	0.14	0.86	321	245	250	49	101		2
10	27		36.51	0.12	0.74	321	249	256	49	102		2
11	30		37.90	0.11	0.68	317	248	258	51	101		2
12	33		39.22	0.12	0.74	315	248	259	52	101		2
	36	1936	40.590									

Run Totals	TOTAL TIME	DGM VOLUME	AVG SQRT P	AVG H	AVG STK F	AVG DGM F

Sheet Checked By: ____ Date ____

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EMISSION TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite - Brooks, KY	1 /92	No. Kiln Exhaust Stack	Multi - Metals	3

OPERATORS	BAROM PRESS (in. Hg)	STATIC PRESS (in. H2O)	AMBIENT TEMP (F)	FILTER TYPE & FILTER NUMBER(S)	STACK ID (in.)	PITOT TUBE Cp	PROBE LENGTH AND LINER TYPE	NOZZLE I.D.	NOZZLE Diameter
AM, GB	29.50	-0.67		Q 3	64.5	0.84	7 ft glass		0.301

ASSUMED MOIST. (%)	DGM BOX NO.	DGM H@	DGM CAL FACTOR (Y)	STACK THERM NO.	STACK PITOT NO.	IMPINGER THERM NO.	ORSAT NO.	TRAIN LEAK CHECK (INITIAL) in. Hg	TRAIN LEAK CHECK (INITIAL) CFM	TRAIN LEAK CHECK (FINAL) in. Hg	TRAIN LEAK CHECK (FINAL) CFM	K FACTOR
10.4	M3	1.935	1.000									6.17

EPA METHOD 3
Collection Method ______
Analysis Method ______

	RUN 1	RUN 2	RUN 3	AVG	AMBIENT
%O2					
%CO2					

PITOT SYSTEM LEAK CHECK INIT	FINAL

TRAV. POINT NO.	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	P VELOCITY HEAD (in. H2O)	H ORIFICE (in. H2O)	STACK TEMP (F)	PROBE TEMP (F)	FILTER OVEN TEMP (F)	SIL GEL IMPINGER TEMP (F)	DGM IN/OUT TEMP (F)	AUX. TEMP (F)	SAMPLE TRAIN VAC. (in. Hg)
D 1	36	1936/1940	40.590	0.22	1.4	317	268	255	63	100		3
2	39		42.40	0.23	1.4	319	258	252	50	100		3
3	42		44.28	0.25	1.5	319	250	251	48	101		3
4	45		46.29	0.28	1.7	318	266	255	47	101		3
5	48		48.32	0.30	1.9	319	257	253	47	102		3
6	51		50.36	0.32	2.0	319	258	256	47	101		3
7	54		52.62	0.28	1.7	322	248	258	48	101		3
8	57		54.65	0.28	1.7	321	249	252	48	101		3
9	60		56.68	0.28	1.7	322	255	250	48	103		3
10	63		58.72	0.27	1.7	321	245	251	48	102		3
11	66		60.76	0.26	1.6	321	242	255	48	101		3
12	69		62.78	0.27	1.7	319	232	249	48	101		3
	72		64.769									

Run Totals	TOTAL TIME		DGM VOLUME	AVG SQRT P	AVG H	AVG STK F	AVG DGM F
		2016					

Sheet Checked By: ______ Date ______

EPA METHOD 0012 TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7-8	No. Kiln Exhaust Stack	Multi-Metals	2

OPERATORS	BAROM PRESS (in. Hg)	STATIC PRESS (in. H2O)	AMBIENT TEMP (°F)	FILTER TYPE & FILTER NUMBER(S)	STACK ID (in.)	PITOT TUBE Cp	PROBE LENGTH AND MATERIAL	NOZZLE Diameter	NOZZLE ID No.
AM, GB	29.50	-.67	82	Q37	64.5	.84	7' Glass	.301	

ASSUMED MOISTURE (%)	DGM BOX NO.	DGM ΔH@	DGM CAL FACTOR (Y)	STACK THERM NO.	STACK PITOT NO.	IMPINGER THERM NO.	ORSAT NO.	TRAIN LEAK CHECK (INITIAL) in. Hg	TRAIN LEAK CHECK (INITIAL) CFM	TRAIN LEAK CHECK (FINAL) in. Hg	TRAIN LEAK CHECK (FINAL) CFM	K FACTOR
10.4	M.3	1.935	1.0				—	10	.010	8	0.008	5.49

EPA METHOD 3

Collection Method CEMS 3A

Analysis Method CEMS 3A

	RUN 1	RUN 2	RUN 3	AVG	AMBIENT
%O2					
%CO2					

PITOT SYSTEM LEAK CHECK INITIAL	FINAL
ok	ok

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
C1	0	~~1449~~ 1450	918.999	0.57	3.1	308	200	243		64	98	6
2	3		921.75	0.57	3.1	308	225	248		45	99	6
3	6		924.50	0.57	3.1	308	220	255		45	99	6
4	9		927.25	0.52	2.9	309	215	252		45	101	6
5	12		929.89	0.41	2.3	309	200	248		46	101	5
6	15		932.29	0.33	1.8	310	200	253		48	101	4
7	18		934.41	0.22	1.2	311	200	258		49	102	3
8	21		936.15	0.13	0.71	313	200	261		50	102	3
9	24		937.55	0.12	0.66	314	200	250		51	102	2
10	27		938.87	0.12	0.66	316	200	258		52	102	2
11	30		940.17	0.09	0.49	309	200	251		52	102	2
12	33		941.37	0.10	0.55	303	200	249		56	102	2
	TOTAL TIME	1526	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F					AVG DGM °F	MAX VAC in.Hg

EPA METHOD 0012 TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7/8/92	No. Kiln Exhaust Stack	Multi-Metals	2

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
D 1	36	1526/1530	942.532	0.18	0.99	307	248	210		72	101	3
2	39		944.12	0.17	0.93	316	253	252		50	102	3
3	42		945.66	0.20	1.1	316	245	256		45	102	3
4	45		947.31	0.22	1.2	315	237	250		45	102	3
5	48		949.04	0.25	1.4	313	256	253		46	102	4
6	51		950.86	0.30	1.6	313	211	257		47	103	4
7	54		952.86	0.27	1.5	312	204	249		47	103	4
8	57		954.80	0.28	1.5	311	199	253		48	103	4
9	60		956.72	0.27	1.5	310	200	245		49	103	4
10	63		958.65	0.25	1.4	309	200	245		50	103	4
11	66		960.50	0.25	1.4	307	200	250		51	104	4
12	69		962.38	0.26	1.4	308	200	250		51	104	4
	72	1606	964.235									
				0.51								

TOTAL TIME	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F	AVG DGM °F	MAX VAC in.Hg
	45.236	0.51 gm	1.5	311 gm	102 gm	

Sheet Checked By: ______

EPA METHOD 0012 TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7/8/92	No. Kiln Exhaust Stack	Multi-Metals	1

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
C-1	39	1154	850.1	0.50	2.82	321	272	251		44	95	4
2	42	36	852.7	0.50	2.82	321	318	261		48	96	4
3	45		855.3	0.51	2.87	321	322	262		46	96	4
4	48		857.9	0.51	2.87	321	322	251		48	97	4
5	51		860.3	0.46	2.59	319	311	257		49	97	4
6	54		862.6	0.36	2.03	319	277	254		50	98	3
7	57		864.4	0.20	1.13	318	219	254		52	98	3
8	60		865.8	0.14	0.79	318	201	260		55	98	2
9	63		867.3	0.14	0.79	318	197	241		56	98	2
10	66		868.7	0.13	0.73	318	194	260		57	98	2
11	69		870.0	0.11	0.62	315	191	267		57	98	2
12	72	1230	871.134	0.11	0.62	305	191	248		57	98	2

TOTAL TIME	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F	AVG DGM °F	MAX VAC in.Hg

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EPA METHOD 0012 TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	4/8/92	No. Kiln Exhaust Stack	Multi-Metals	1

OPERATORS	BAROM PRESS (in. Hg)	STATIC PRESS (in. H2O)	AMBIENT TEMP (°F)	FILTER TYPE & FILTER NUMBER(S)	STACK ID (in.)	PITOT TUBE Cp	PROBE LENGTH AND MATERIAL	NOZZLE Diameter	NOZZLE ID No.
BD	29.55	.67	78	Q 33	64.5	.84	7' Glass	~~.310~~ .301	

ASSUMED MOISTURE (%)	DGM BOX NO.	DGM ΔH@	DGM CAL FACTOR (Y)	STACK THERM NO.	STACK PITOT NO.	IMPINGER THERM NO.	ORSAT NO.	TRAIN LEAK CHECK (INITIAL) in. Hg	TRAIN LEAK CHECK (INITIAL) CFM	TRAIN LEAK CHECK (FINAL) in. Hg	TRAIN LEAK CHECK (FINAL) CFM	K FACTOR
10	M-3	1.935	1.00					11	.006	4	0.002	WSA 4.435.64

EPA METHOD 3

			RUN 1	RUN 2	RUN 3	AVG	AMBIENT
Collection Method	CEMS 3A	%O2					
Analysis Method	CEMS 3A	%CO2					

826.057

PITOT SYSTEM LEAK CHECK INITIAL	PITOT SYSTEM LEAK CHECK FINAL
OK	OK

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
1	3	1115	~~825.40~~	0.18	1.02	312	250	256		69	92	2
2	6		827.9	0.18	1.02	318	260	251		60	90	2
3	9		829.7	0.20	1.13	317	253	275		56	90	2
4	12		831.1	0.20	1.13	319	294	254		55	91	2
5	15		832.9	0.24	1.35	323	320	249		55	92	2
6	18		834.7	0.26	1.46	320	316	252		57	93	2
7	21		836.5	0.26	1.43	322	285	251		57	93	2
8	24		838.4	0.28	1.58	323	232	246		55	94	2
9	27		840.5	0.26	1.43	323	221	253		52	94	2
10	30		842.2	0.25	1.4	322	208	267		52	94	2
11	33		8440	0.26	1.43	321	188	255		53	95	2
12	36		845.9	0.22	1.24	317	195	262		54	95	2
	TOTAL TIME	1154	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F					AVG DGM °F	MAX VAC in.Hg
	36		847.591									

6- 000316

EMISSION TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite - Brooks, KY	7/18/92	No. Kiln Exhaust Stack	Hexavalent Chromium	3

OPERATORS	BAROM PRESS (in. Hg)	STATIC PRESS (in. H2O)	AMBIENT TEMP (F)	FILTER TYPE & FILTER NUMBER(S)	STACK ID (in.)	PITOT TUBE Cp	PROBE LENGTH AND LINER TYPE	NOZZLE I.D.	NOZZLE Diameter
Jon GB	29.33	-0.67		N/A	64.5	0.84	Teflon		0.309

ASSUMED MOIST. (%)	DGM BOX NO.	DGM H@	DGM CAL FACTOR (Y)	STACK THERM NO.	STACK PITOT NO.	IMPINGER THERM NO.	ORSAT NO.	TRAIN LEAK CHECK (INITIAL) in. Hg	TRAIN LEAK CHECK (INITIAL) CFM	TRAIN LEAK CHECK (FINAL) in. Hg	TRAIN LEAK CHECK (FINAL) CFM	K FACTOR
10.4	M3	1.935	1.000									6.4

EPA METHOD 3
Collection Method ____
Analysis Method ____

	RUN 1	RUN 2	RUN 3	AVG	AMBIENT
%O2					
%CO2					

PITOT SYSTEM LEAK CHECK: INIT ____ FINAL ____

TRAV. POINT NO.	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	P VELOCITY HEAD (in. H2O)	H ORIFICE (in. H2O)	STACK TEMP (F)	PROBE TEMP (F)	FILTER OVEN TEMP (F)	SIL GEL IMPINGER TEMP (F)	DGM IN/OUT TEMP (F)	AUX. TEMP. (F)	SAMPLE TRAIN VAC (in. Hg)
D 1	36	2112/2117	90.040/90.120	0.22	1.4	316			61	97		4
2	39		92.10	0.20	1.2	320			54	98		4
3	42		93.69	0.26	1.6	320			54	98		5
4	45		95.63	0.29	1.8	320			56	98		5
5	48		97.68	0.31	2.0	320			57	98		5
6	51		99.95	0.32	2.0	319			60	98		5
7	54		102.15	0.26	1.7	318			62	99		5
8	57		104.28	0.28	1.8	318			63	99		5
9	60		106.35	0.30	1.9	318			64	99		5
10	63		108.52	0.31	2.0	317			64	99		5
11	66		110.75	0.29	1.9	318			62	98		5
12	69		112.91	0.27	1.7	318			60	98		5
	72	2153 *	115.080									

Run Totals	TOTAL TIME	DGM VOLUME	AVG SQRT P	AVG H	AVG STK F	AVG DGM F

stop pump

Sheet Checked By: ____ Date ____

EMISSION TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7/8/92	No. Kiln Exhaust Stack	Hexavalent Chromium	3

OPERATORS	BAROM PRESS (In. Hg)	STATIC PRESS (In. H2O)	AMBIENT TEMP (F)	FILTER TYPE & FILTER NUMBER(S)	STACK ID (In.)	PITOT TUBE Cp	PROBE LENGTH AND LINER TYPE	NOZZLE I.D.	NOZZLE Diameter
[illegible]	[illegible]	0.61	86	NA	64.5	0.84	Teflon	~~0.309~~	0.309

ASSUMED MOIST. (%)	DGM BOX NO.	DGM H@	DGM CAL FACTOR (Y)	STACK THERM NO.	STACK PITOT NO.	IMPINGER THERM NO.	ORSAT NO.	TRAIN LEAK CHECK (INITIAL) In. Hg	TRAIN LEAK CHECK (INITIAL) CFM	TRAIN LEAK CHECK (FINAL) In. Hg	TRAIN LEAK CHECK (FINAL) CFM	K FACTOR
10.4	M3	1.935	1.000					10	0	8	0.	6.4

EPA METHOD 3
Collection Method ______
Analysis Method ______

	RUN 1	RUN 2	RUN 3	AVG	AMBIENT
%O2					
%CO2					

PITOT SYSTEM LEAK CHECK INIT	FINAL
ok	ok

TRAV. POINT NO.	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	P VELOCITY HEAD (In. H2O)	H ORIFICE (In. H2O)	STACK TEMP (F)	PROBE TEMP (F)	FILTER OVEN TEMP (F)	SIL GEL IMPINGER TEMP (F)	DGM IN/OUT TEMP (F)	AUX. TEMP. (F)	SAMPLE TRAIN VAC (In. Hg)
C 1	0	2036	64.917	0.43	2.8	318			68	99		5
2	3		67.54	0.43	2.8	319			50	99		6
3	6		70.16	0.47	~~20~~ 2.9	318			49	100		7
4	9		72.89	0.53	3.3	318			53	100		7
5	12		75.65	0.45	2.8	319			58	100		7
6	15		78.26	0.36	2.2	320			59	101		6
7	18		80.70	0.18	1.1	321			58	100		5
8	21		82.41	0.17	1.0	322			57	100		4
9	24		84.10	0.16	0.99	323			50	100		3
10	27		85.65	0.15	0.93	322			58	100		3
11	30		87.17	0.13	0.80	316			59	99		3
12	33		88.65	0.13	0.80	320			58	99		3
	36	2112	90.040									

Run Totals	TOTAL TIME	DGM VOLUME	AVG SQRT P	AVG H	AVG STK F	AVG DGM F

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6- 000015

EPA METHOD 0013 TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7/8/92	No. Kiln Exhaust Stack	Hexavalent Chromium	2

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
D1	36	1656/1700	990.535	0.22	1.4	312				68	102	4
2	39		992.37	0.22	1.4	314				56	102	4
3	42		994.22	0.25	1.6	315				51	102	5
4	45		996.20	0.25	1.6	317				51	102	5
5	48		998.22	0.30	1.9	318				53	102	5
6	51		000.33	0.27	1.7	320				56	103	5
7	54		2.40	0.28	1.8	320				57	103	5
8	57		4.52	0.29	1.9	320				57	103	5
9	60		6.70	0.29	1.9	319				58	103	5
10	63		8.87	0.30	1.9	319				60	103	5
11	66		11.10	0.28	1.8	318				60	103	5
12	69		13.22	0.26	1.7	318				60	103	5
	72	1736	15.233									
				0.53	1.9	316						

TOTAL TIME	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F	AVG DGM °F	MAX VAC in.Hg
	50.781	0.53 4m	1.9 4m	316 4m	103 4m	8

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EPA METHOD 0013 TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7/8/92	No. Kiln Exhaust Stack	Hexavalent Chromium	2

OPERATORS	BAROM PRESS (in. Hg)	STATIC PRESS (in. H2O)	AMBIENT TEMP (°F)	FILTER TYPE & FILTER NUMBER(S)	STACK ID (in.)	PITOT TUBE Cp	PROBE LENGTH AND MATERIAL	NOZZLE Diameter	NOZZLE ID No.
JM GB	29.50	-0.67	88		64.5	0.84	Teflon	0.309	

ASSUMED MOISTURE (%)	DGM BOX NO.	DGM ΔH@	DGM CAL FACTOR (Y)	STACK THERM NO.	STACK PITOT NO.	IMPINGER THERM NO.	ORSAT NO.	TRAIN LEAK CHECK (INITIAL) in. Hg	TRAIN LEAK CHECK (INITIAL) CFM	TRAIN LEAK CHECK (FINAL) in. Hg	TRAIN LEAK CHECK (FINAL) CFM	K FACTOR
10.4	M3	1.935	1.000					10	0.005	9	0	6.4

EPA METHOD 3

			RUN 1	RUN 2	RUN 3	AVG	AMBIENT
Collection Method	CEMS 3A	%O2					
Analysis Method	CEMS 3A	%CO2					

PITOT SYSTEM LEAK CHECK INITIAL	PITOT SYSTEM LEAK CHECK FINAL
ok	ok

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
C1	0	1620	964.452	0.47	3.0	317 ~~328~~				84	101	5
2	3		967.03	0.53	3.4	317				57	102	7
3	6		969.82	0.50	3.2	317				52	102	7
4	9		972.63	0.51	3.3	317				53	103	8
5	12		975.50	0.46	2.9	317				59	103	7
6	15		978.19	0.38	2.4	317				64	103	7
7	18		980.65	0.20	1.3	316				64	103	4
8	21		982.50	0.17	1.1	316				64	103	4
9	24		984.18	0.17	1.1	315				64	103	4
10	27		985.81	0.16	1.0	313				63	103	3
11	30		987.41	0.16	1.0	302				63	103	3
12	33		988.99	0.15	0.96	308				64	103	3
	TOTAL TIME	1656	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F					AVG DGM °F	MAX VAC In.Hg

EPA METHOD 0013 TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7-8-9[illegible]	No. Kiln Exhaust Stack	Hexavalent Chromium	~~2~~ 1

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
D-1	36	1338	897.38	0.24	1.54	313				60	99	4
2	39		899.13	0.19	1.21	315				52	99	4
3	42		899.13	0.19	1.21	315				52	99	4
4	45		900.85	0.24	1.66	315				54	100	4
5	48		902.74	0.25	1.6	315				55	100	5
6	51		904.7	0.25	1.6	315				57	100	5
7	54		906.78	0.27	1.72	315				62	100	5
8	57		908.73	0.25	1.6	314				63	100	~~5~~4 5
9	60		910.72	0.26	1.66	312				63	100	4
10	63		912.72	0.28	1.8	304				64	100	4.5
11	66		914.8	0.25	1.6	300				64	100	4
12	69		916.79	0.25	1.6	300				64	100	4
	72	[illegible]	918.786									

TOTAL TIME	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F	AVG DGM °F	MAX VAC in.Hg

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EPA METHOD 0013 TESTING FIELD DATA

Jay Morgan

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7/7	No. Kiln Exhaust Stack	Hexavalent Chromium	1

OPERATORS	BAROM PRESS (in. Hg)	STATIC PRESS (in. H2O)	AMBIENT TEMP (°F)	FILTER TYPE & FILTER NUMBER(S)	STACK ID (in.)	PITOT TUBE Cp	PROBE LENGTH AND MATERIAL	NOZZLE Diameter	NOZZLE ID No.
BD	29.54	-0.3			64.5	0.84	Teflon	0.309	

ASSUMED MOISTURE (%)	DGM BOX NO.	DGM ΔH@	DGM CAL FACTOR (Y)	STACK THERM NO.	STACK PITOT NO.	IMPINGER THERM NO.	ORSAT NO.	TRAIN LEAK CHECK (INITIAL) in. Hg	TRAIN LEAK CHECK (INITIAL) CFM	TRAIN LEAK CHECK (FINAL) in. Hg	TRAIN LEAK CHECK (FINAL) CFM	K FACTOR
10.4	M-3	1.935	1.000					11	.000	7	.001	6.4

EPA METHOD 3

			RUN 1	RUN 2	RUN 3	AVG	AMBIENT
Collection Method	CEMS 3A	%O2					
Analysis Method	CEMS 3A	%CO2					

PITOT SYSTEM LEAK CHECK INITIAL	PITOT SYSTEM LEAK CHECK FINAL
OK	OK

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
C-1	0	01256	871.726	0.37	2.37	316				68	95	5
2	3	3	873.6	0.45	2.89	319				51	97	6
3	6	6	876.1	0.49	3.13	319				50	97	7
4	9	9	878.8	0.46	2.94	319				60	98	7
5	12	12	881.5	0.41	2.64	319				68	99	6
6	15	15	883.9	0.34	2.2	317				72	99	5
7	18	18	886.4	0.16	1.02	317				71	100	4
8	21	21	888.1	0.16	1.02	317				66	100	4
9	24	24	889.8	0.15	0.96	314				61	99	3
10	27	27	891.3	0.15	0.96	309				58	99	3
11	30	30	893.0	0.14	0.90	310				55	99	3
12	33		894.2	0.10	0.64	310				56	99	3
	TOTAL TIME	1332	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F					AVG DGM °F	MAX VAC in.Hg
	36		895.440									

895.440

EPA METHOD 0050 TESTING FIELD DATA

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PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY		No. Kiln Exhaust Stack	Particulate/Chlorides	3

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
1	60	~~2000~~	211.625	.34	2.2	301	239	240		57	100	3
2	65	20:03	214.87	.31	2.0	323	238	251		47	100	3
3	70		218.57	.37	2.43	323	231	241		45	100	3
4	75		222.7	.38	2.5	321	228	253		48	100	3
5	80		226.81	.39	2.55	320	233	253		49	100	3
6	85		231.02	.31	2.0	320	234	244		50	100	3
7	90		234.75	.22	1.44	319	236	248		52	100	2
8	95		237.93	.19	1.24	319	230	253		53	101	2
9	100		240.89	.19	1.24	318	229	241		53	101	2
10	105		243.88	.22	1.44	316	224	252		53	101	2.5
11	110		246.95	.17	1.1	310	225	251		54	100	2
12	115		249.75	.18	1.2	295	222	243		55	100	
	120		252.647									
		2103										

TOTAL TIME	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F	AVG DGM °F	MAX VAC in.Hg
120						

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0110900 - 2

Q-228 .313 6.17

1936
1741

EPA METHOD 0050 TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7-8-92	No. Kiln Exhaust Stack	Particulate/Chlorides	3

OPERATORS	BAROM PRESS (in. Hg)	STATIC PRESS (in. H2O)	AMBIENT TEMP (°F)	FILTER TYPE & FILTER NUMBER(S)	STACK ID (in.)	PITOT TUBE Cp	PROBE LENGTH AND MATERIAL	NOZZLE Diameter	NOZZLE ID No.
JAB	29.53	-.67	95	Q-228	64.5	.84	7' Glass	.313	

ASSUMED MOISTURE (%)	DGM BOX NO.	DGM ΔH@	DGM CAL FACTOR (Y)	STACK THERM NO.	STACK PITOT NO.	IMPINGER THERM NO.	ORSAT NO.	TRAIN LEAK CHECK (INITIAL) in. Hg	TRAIN LEAK CHECK (INITIAL) CFM	TRAIN LEAK CHECK (FINAL) in. Hg	TRAIN LEAK CHECK (FINAL) CFM	K FACTOR
	M-3	~~2.37~~ 1.93	1.00				NA	10	.003	7.5	.001	6.56

EPA METHOD 3
Collection Method: CEMS 3A
Analysis Method: CEMS 3A

	RUN 1	RUN 2	RUN 3	AVG	AMBIENT
%O2					
%CO2					

PITOT SYSTEM LEAK CHECK: INITIAL ✓ FINAL ✓

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
1	0	19:00	171.819	.37	2.42	302	204	251		63	98	3
2	5		175.9	.36	2.36	324	224	251		44	100	3
3	10		179.95	.41	2.68	325	234	246		47	101	3
4	15		174.25	.38	2.49	325	235	246		49	101	3
5	20		188.39	.34	2.23	325	238	241		51	102	3
6	25		192.35	.31	2.0	324	242	253		52	102	3
7	30		196.07	.16	1.0	324	242	241		48	102	2
8	35		198.85	.15	.98	321	245	250		50	102	2
9	40		201.52	.15	.98	313	243	252		51	102	2
10	45		204.16	.11	.72	310	245	248		51	102	1.5
11	50		206.53	.11	.72	296	241	251		52	101	2
12	55		208.9	.10	.65	292	246	243		52	101	1.5

TOTAL TIME	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F	AVG DGM °F	MAX VAC in.Hg
60						

EPA METHOD 0050 TESTING FIELD DATA

Page 2

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7-8-92	No. Kiln Exhaust Stack	Particulate/Chlorides	2

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
B 1	60	1550/1555	133.145	.29	1.8	290	224	249		64	99	2.5
2	65		136.66	.29	1.8	311	213	242		52	100	2.5
3	70		140.23	.34	2.1	312	216	255		53	101	3
4	75		144.15	.32	1.97	314	214	247		55	101	2.5
5	80		147.68	.34	2.2	316	215	243		56	102	3
6	85		151.6	.30	1.84	317	218	254		58	102	2.5
7	90		155.15	.18	1.1	316	216	253		57	102	2
8	95		158.0	.18	1.1	316	212	254		57	102	2
9	100		160.79	.18	1.1	314	210	241		59	103	2
10	105		163.59	.19	1.17	308	214	256		59	102	2
11	110		166.45	.14	.86	278	214	256		59	102	2
12	115		169.0	.14	.86	228	212	250		61	102	2
	120	1655	171.520									

TOTAL TIME	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F	AVG DGM °F	MAX VAC in.Hg
120						

Sheet Checked By:

Q 37 .301

EPA METHOD 0050 TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7-8-92	No. Kiln Exhaust Stack	Particulate/Chlorides	2

OPERATORS	BAROM PRESS (in. Hg)	STATIC PRESS (in. H2O)	AMBIENT TEMP (°F)	FILTER TYPE & FILTER NUMBER(S)	STACK ID (in.)	PITOT TUBE Cp	PROBE LENGTH AND MATERIAL	NOZZLE Diameter	NOZZLE ID No.
JAD	29.50	-.67	82	191	64.5	.84	7' Glass	.308	'

ASSUMED MOISTURE (%)	DGM BOX NO.	DGM ΔH@	DGM CAL FACTOR (Y)	STACK THERM NO.	STACK PITOT NO.	IMPINGER THERM NO.	ORSAT NO.	TRAIN LEAK CHECK (INITIAL) in. Hg	TRAIN LEAK CHECK (INITIAL) CFM	TRAIN LEAK CHECK (FINAL) in. Hg	TRAIN LEAK CHECK (FINAL) CFM	K FACTOR
10.4	M-4	~~2.13~~ 3	1.00				NA	11	.005	5	.003	6.16

EPA METHOD 3

Collection Method CEMS 3A

Analysis Method CEMS 3A

	RUN 1	RUN 2	RUN 3	AVG	AMBIENT
%O2					
%CO2					

PITOT SYSTEM LEAK CHECK INITIAL	FINAL
✓	✓

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)
A 1	0	14:50	096.363	.36	2.21	309	211	240
2	5		100.27	.37	2.27	310	222	250
3	10		104.22	.38	2.3	310	230	247
4	15		108.2	.37	2.27	311	234	255
5	20		112.13	.35	2.1	315	241	244
6	25		115.93	.30	1.8	317	244	243
7	30		119.49	.17	1.05	318	245	251
8	35		122.28	.12	.73	317	245	253
9	40		124.62	.11	.67	311	243	245
10	45		126.84	.11	.67	305	244	246
11	50		129.07	.09	.55	254	244	244
12	55		131.11	.09	.55	252	239	255
	TOTAL TIME	1550	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F		
	60							

TRAVERSE POINT NUMBER	SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
A 1	58	96	2.5
2	47	97	2.5
3	49	97	3
4	51	98	3
5	52	99	2.5
6	53	100	2.5
7	53	100	2
8	55	100	2
9	57	100	2
10	59	100	2
11	60	100	2
12	61	101	1.5
		AVG DGM °F	MAX VAC in.Hg

EPA METHOD 0050 TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7-8-92	No. Kiln Exhaust Stack	Particulate/Chlorides	1

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
B1	60	~~1222~~ 1223	54.644	0.30	1.97	293	201	242		63	95	3
2	65	1228	58.31	0.36	2.36	322	198	251		57	96	3
3	70	1233	62.32	0.35	2.3	324	201	245		59	96	3
4	75	1238	66.28	0.35	2.3	324	199	246		61	98	3
5	80	1243	70.29	0.40	2.6	323	211	248		58	98	3.5
6	85	1248	74.5	0.31	2.0	322	204	252		58	99	3
7	90	1253	78.25	0.24	1.57	320	208	251		59	99	3
8	95	1258	81.6	0.19	1.25	319	208	241		60	100	2.5
9	100	1303	84.56	0.2	1.3	319	206	251		61	100	2.5
10	105	1308	87.55	0.19	1.25	317	201	245		62	100	2.5
11	110	1313	90.48	0.19	1.25	314	200	251		63	100	2.5
12	115	1318	93.5	0.17	1.1	297	200	249		64	100	2.5
	120	1323	96.203									

TOTAL TIME	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F	AVG DGM °F	MAX VAC In.Hg

Sheet Checked By: ______________

EPA METHOD 0050 TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Kentucky Solite, Brooks, KY	7-8-92	No. Kiln Exhaust Stack	Particulate/Chlorides	1

OPERATORS	BAROM PRESS (in. Hg)	STATIC PRESS (in. H2O)	AMBIENT TEMP (°F)	FILTER TYPE & FILTER NUMBER(S)	STACK ID (in.)	PITOT TUBE Cp	PROBE LENGTH AND MATERIAL	NOZZLE Diameter	NOZZLE ID No.
JAB	29.55	-.67	78	Q 190	64.5	.94	7' Glass	.313	

ASSUMED MOISTURE (%)	DGM BOX NO.	DGM ΔH@	DGM CAL FACTOR (Y)	STACK THERM NO.	STACK PITOT NO.	IMPINGER THERM NO.	ORSAT NO.	TRAIN LEAK CHECK (INITIAL) in. Hg	TRAIN LEAK CHECK (INITIAL) CFM	TRAIN LEAK CHECK (FINAL) in. Hg	TRAIN LEAK CHECK (FINAL) CFM	K FACTOR
10	M-4	2.31	1.00				NA	10	.007	~~10~~ ~~15~~ 5	.003 ~~.007~~	c.57 / 4.41/2.8

EPA METHOD 3

Collection Method CEMS 3A

Analysis Method CEMS 3A

	RUN 1	RUN 2	RUN 3	AVG	AMBIENT
%O2					
%CO2					

PITOT SYSTEM LEAK CHECK INITIAL	PITOT SYSTEM LEAK CHECK FINAL
✓	✓

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
1A	0	11:17	14.768	0.41	3.26	322	200	245		64	86	3.5
2	5	11:22	19.5	0.41	2.69	322	221	241		51	89	3.0
3	10	11:27	23.8	.42	2.76	323	226	241		56	91	3.5
4	15	11:32	28.15	0.40	2.62	324	224	253		59	92	3.5
5	20	11:37	32.4	0.37	2.43	326	224	253		57	93	3
6	25	11:42	36.51	0.31	2.04	326	220	251		58	93	3
7	30	11:47	40.27	0.21	1.38	326	220	241		59	94	2.5
8	35	11:52	43.21	0.14	0.92	324	221	253		61	95	2
9	40	11:57	46.03	0.11	0.72	323	220	240		62	95	2
10	45	12:02	48.35	0.10	0.65	322	215	244		63	95	2
11	50	12:07	50.55	0.09	0.59	290	212	240		63	96	2
12	55	12:12	52.65	0.08	0.525	288	212	246		63	96	2
	TOTAL TIME 60	12:17	DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F					AVG DGM °F	MAX VAC in.Hg

EPA METHOD 0012 TESTING FIELD DATA

PLANT AND CITY	DATE	SAMPLING LOCATION	SAMPLE TYPE	RUN NUMBER
Virginia Solite, Cascade, VA	7-7-92	No. 2 Kiln Exhaust Stack	~~Multi-Metals~~	1 Moisture

OPERATORS	BAROM PRESS (in. Hg)	STATIC PRESS (in. H2O)	AMBIENT TEMP (°F)	FILTER TYPE & FILTER NUMBER(S)	STACK ID (in.)	PITOT TUBE Cp	PROBE LENGTH AND MATERIAL	NOZZLE Diameter	NOZZLE ID No.
C.O.	29.68		78.0°F	Moist	64.5	.84	6ft Glass	.308	10

ASSUMED MOISTURE (%)	DGM BOX NO.	DGM ΔH@	DGM CAL FACTOR (Y)	STACK THERM NO.	STACK PITOT NO.	IMPINGER THERM NO.	ORSAT NO.	TRAIN LEAK CHECK (INITIAL) in. Hg	TRAIN LEAK CHECK (INITIAL) CFM	TRAIN LEAK CHECK (FINAL) in. Hg	TRAIN LEAK CHECK (FINAL) CFM	K FACTOR
13.5	M3	2.31	1.00	G-B	G-B	G-4		10 in	.02	10 in	.02	5.73

EPA METHOD 3

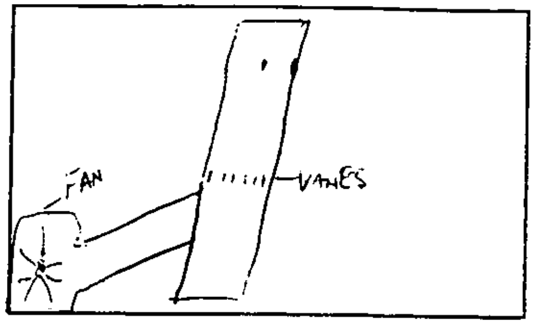
			RUN 1	RUN 2	RUN 3	AVG	AMBIENT
Collection Method	CEMS 3A	%O2					
Analysis Method	CEMS 3A	%CO2					

PITOT SYSTEM LEAK CHECK INITIAL	PITOT SYSTEM LEAK CHECK FINAL

TRAVERSE POINT NUMBER	ELAPSED TEST TIME (min)	CLOCK TIME (24-hr)	GAS METER READING Vm (ft3)	ΔP VELOCITY HEAD (in. H2O)	ΔH ORIFICE (in. H2O)	STACK TEMP (°F)	PROBE TEMP (°F)	FILTER OVEN TEMP (°F)		SIL GEL IMPINGER TEMP (°F)	DGM IN/OUT TEMP (°F)	SAMPLE TRAIN VACUUM (in. Hg)
C 1	0	15.28	966.434	.42	2.4	275	250	~~225~~ 250		65	88	2
2	2.5		968.554	.47	2.69	306	251	250		53	88	2
3	5		970.642	.45	2.57	309	250	250		53	88	2
4	7.5		972.828	.41	2.34	307	250	256		55	89	2
5	10		974.912	.34	1.94	307	250	280		59	90	2
6	12.5		976.815	.31	1.77	308	230	280		61	90	2
7	15		978.576	.18	1.03	308	200	330		62	90	2
8	17.5		980.148	.14	.801	308	119	370		63	90	1
9	20		981.456	.12	.687	307	116	379		65	90	1
10	22.5		982.588	.11	.630	301	115	385		66	90	1
11	25		983.674	.09	.515	278	112	389		65	90	1
12	27.5		984.704	.09	.515	244	110	394		66	90	1
30.	TOTAL TIME		DGM VOLUME	AVG SQRT ΔP	AVG ΔH	AVG STACK °F					AVG DGM °F	MAX VAC in.Hg
			985.704									

PRELIMINARY VELOCITY TRAVERSE
EPA METHOD 2

PLANT/CLIENT Solite (Brooks Ky)
SOURCE Outlet (Bag House)
DATE 7-7-92
STACK I.D. (inches) 64.5
BAROMETRIC PRESSURE (in. Hg) 29.45
STACK GAUGE PRESSURE (in. H2O) .35
OPERATORS CM, JB, JB
PITOT NO. | TYPE S | COEFF .84



TRAVERSE POINT LAYOUT SCHEMATIC

TRAVERSE POINT NUMBER	VELOCITY HEAD (in. H2O)	STACK TEMP (°F)	Horiz.	null
A 1	.32	308	.03	5
2	.40	306	.15	7
3	.41	306	.15	6
4	.37	305	.11	5
5	.37	305	.13	4
6	.30	305	0.0	0.0
7	.18	301	0.0	0.0
8	.17	298	.03	7
9	.13	296	.03	4
10	.12	293	0.0	0.0
11	.10	292	0.0	0.0
12	.10	278	0.0	0.0
AVERAGE	SQRT			

TRAVERSE POINT NUMBER	VELOCITY HEAD (in. H2O)	STACK TEMP (°F)	%	null
B 1	.24	303	0.06	5
2	.38	305	0.02	2
3	.34	303	0.03	1
4	.36	304	0.0	0.0
5	.35	304	0.0	0.0
6	.34	305	0.02	2
7	.23	304	0.02	3
8	.23	303	0.0	0.0
9	.26	305	-0.02	2
10	.25	305	-0.02	5
11	.22	301	-0.02	2
12	.15	301	0.0	0.0
AVERAGE	SQRT			

POST PITOT LEAK CHECK PASSED ☐ ☐ FAILED

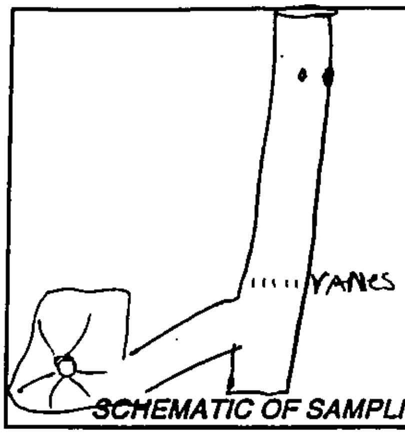
MEASUREMENT DEVICE
MICROMETER ☐
0-10" MANOMETER ☐
MAGNEHELIC ☐
OTHER ☐ EXPLAIN:

6-000093

:1

EPA METHOD 1
TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT Solite
CITY Brooks STATE Ky
SAMPLING LOCATION Outlet Stack
INSIDE OF FAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE A) 64.5
INSIDE OF NEAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE B) 0
NEAREST UPSTREAM DISTURBANCE DISTURBANCE 220
NEAREST DOWNSTREAM DISTURBANCE DISTURBANCE 262
SAMPLER MM JB JB DATE 7-7-92



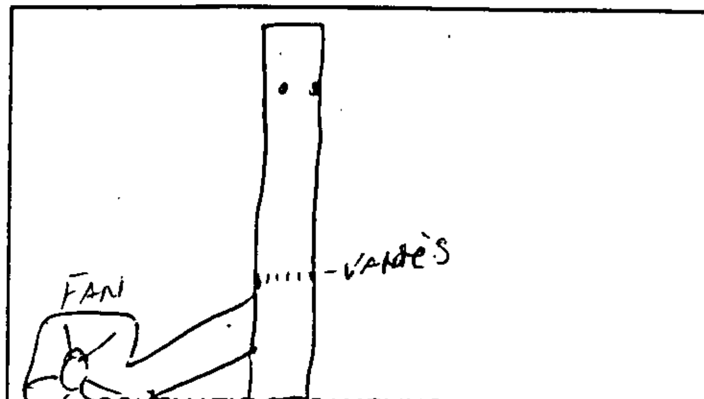
SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8-INCH)	DISTANCE B	TRAVERSE DISTANCE FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
C+D 1		64.5			1.35
2					4.32
3					7.61
4					11.4
5					16.1
6					22.9
7					41.5
8					48.3
9					53.0
10					56.8
11					60.1
12					63.1

iea

EPA METHOD 1
TRAVERSE POINT LOCATION FOR CIRCULAR DUCTS

PLANT Solite (Brooks ky)
CITY Brooks STATE Ky
SAMPLING LOCATION Outlet stack
INSIDE OF FAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE A) 64.5
INSIDE OF NEAR WALL TO OUTSIDE OF NIPPLE, (DISTANCE B) O
NEAREST UPSTREAM DISTURBANCE 240 in
DISTURBANCE
NEAREST DOWNSTREAM DISTURBANCE
DISTURBANCE 28.7 in
SAMPLER JB (MSB DATE 7-7-92



SCHEMATIC OF SAMPLING LOCATION

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 2 AND 3 (TO NEAREST 1/8-INCH)	DISTANCE B	TRAVERSE DISTANCE FROM OUTSIDE OF NIPPLE (SUM OF COLUMNS 4 & 5)
AB1		64.5			1.35
2					4.32
3					7.61
4					11.4
5					16.1
6					22.9
7					41.5
8					48.3
9					53.0
10					56.8
11					60.1
12					63.1

epa1circ.wk1

Appendix B

Field Sampling Data Sheets

filename:BIGMETH5.wk1

RUN NO.==>	K8-1	K8-2	K8-3
DATE==>	6/2/92	6/2/92	6/3/92

Symbol	SAMPLING PARAMETERS	RUN TIME==>	1612-1818	2047-2311	1016-1224	AVERAGE
Symbol	PARTICULATE COLLECTION ANALYSIS	Units				
(Wfi)	Tare Weight of Filter	g	0.36500	0.37060	0.36220	
(Wff)	Final Filter Weight	g	0.36670	0.38070	0.36420	
(mf)	Weight on Filter	mg	1.7	10.1	2	
(Wai)	Acetone Rinse Tare Weight	g	101.0617	104.585	104.901	
(Waf)	Acetone Rinse Final Weight	g	101.0714	104.5946	104.9128	
(ma)	Weight in Acetone Rinse	mg	9.7	9.6	11.8	
(Vaw)	Acetone Volume Used in Rinse	mL	118	82	101	
(Va)	Acetone Volume Used in Blank	mL	100	100	100	
(Wa)	Weight in Acetone Blank	g	-0.0003	-0.0003	-0.0003	
(Ca)	Acetone Blank Correction	g/mL	0.00000	0.00000	0.00000	
(mn)	Total Particulate Collected	mg	11.40	19.70	13.80	14.97
	Conc. of Particulate in Gas Sample	mg/CMeter	5.28	9.981556	6.500758	7.25
	Total Particulate flow in Stack	Lbs./hr.	0.549973	1.00234	0.673075	0.74
	CHLORINE AND HCL RECOVERY DATA					
	Volume in H2SO4 Impinger	mL	664	620	620	
	Concentration of Cl In H2SO4 Impinger	mg/L	1387.91	1240.77	1467.81	
	Total Cl in H2SO4 Impinger	mg	921.5722	769.2774	910.0422	
	Volume in NaOH Impinger	mL	400	389	398	
	Concentration in NaOH Impinger	mg/L	8.41	7.34	4.38	
	Total Cl in NaOH Impinger	mg	3.364	2.85526	1.74324	
	Concentration of Cl in H2SO4 blank	mg/L	< 0.05	< 0.05	< 0.05	
	Concentration of Cl in NaOH blank	mg/L	< 0.05	< 0.05	< 0.05	
	Total HCl recovered	mg	947.7143	791.0959	935.859	
	Total Cl2 recovered	mg	6.688377	2.916358	1.772289	
	Concentration of HCl in Gas Sample	mg/CMeter	438.9413	400.8309	440.8545	426.88
	Concentration of Cl2 in Gas Sample	mg/CMeter	3.097775	1.477654	0.834871	1.80
	Total HCl flow in Stack	Lbs./hr.	45.72082	40.25113	45.64513	43.87
	Total Cl2 flow in Stack	Lbs./hr.	0.322669	0.148385	0.086441	0.19

PARTICULATE EMISSIONS SUMMARY
Kiln #2, Exhaust Stack
Solite Hubers Plant, Brooks, KY

filename:BIGMETH5.wk1

SYMBOL	SAMPLING PARAMETERS	RUN NO.==>	K2-1	K2-2	K2-3	
		DATE==>	7/8/92	7/8/92	7/8/92	
		RUN TIME==>	1117-1323	1450-1655	1900-2103	AVERAGE
SYMBOL	MEASURED DATA AT STACK	UNITS				
(Y)	Dry Gas Meter Calibration Factor	--	1	1	1	
(Vi)	Initial Meter Volume	cf	14.768	96.363	171.819	
	IF NO INTERMEDIATE LEAK CHECK WAS DONE ENTER 0		0			
	Volume Before Intermed Leak Check	cf	0			
	Volume After Intermed Leak Check	cf	0	0	0	
(Vf)	Final Meter Volume	cf	96.203	171.520	252.647	
(Lp)	Leak Check Correction	cfm	0	0	0	
(Vm)	Total Meter Volume	cf	81.435	75.157	80.828	79.140
(t)	Sampling Time	min.	120	120	120	120
(Vwc)	Volume of Water Collected	mL	219.6	198.5	222.7	213.6
(Vwsg)	Silica Gel Weight Increase	g	15.1	14.0	15.7	14.9
(Vlc)	Total Water Collected	mL	234.7	212.5	238.4	228.5
(Pbar)	Barometric Pressure	in. Hg	29.55	29.50	29.53	29.53
(Pg)	Stack Static Pressure	in. H2O	-0.67	-0.67	-0.67	
(¯H)	Avg. Orifice Pressure Drop ¯H	in. H2O	1.74	1.46	1.69	
(Ts)	Avg. Stack Gas Temperature	¯F	317.1	297.9	315.3	310.1
(Tm)	Avg. Dry Gas Meter Temperature	¯F	95.8	100.2	100.7	
(Dn)	Nozzle Diameter	inches	0.313	0.308	0.308	
	FOR STACK DIMENSIONS, ENTER 0 WHERE SIZE IS NOT APPROPRIATE					
(Ds)	Diameter of Stack	inches	64.500	64.500	64.500	
(W)	Width of Stack	inches	0.000	0.000	0.000	
(L)	Length of Stack	inches	0.000	0.000	0.000	
(Cp)	Pitot Tube Coefficient	--	0.84	0.84	0.84	
(¯p)§	Avg. Square Root Velocity Head ¯p	(in. H2O)§	0.499	0.476	0.498	
(%O2)	Stack Gas Oxygen	%	17.6	17.8	17.7	13.3
(%CO2)	Stack Gas Carbon Dioxide	%	2.4	2.4	2.4	2.4
(%N2)	Stack Gas Nitrogen	%	80.0	79.8	80.0	79.9
(ppmCO)	Stack Gas Carbon Monoxide	ppm	24.2	24.2	24.2	24.2
	CALCULATED STACK GAS DATA					
(Ps)	Stack Gas Pressure	in. Hg	29.50	29.45	29.48	29.48
(%Bws)	Stack Gas Moisture	%	12.7	12.5	13.0	12.7
(%B'w)	Moisture at Saturation	%	97.5	97.6	97.5	
(Vmstd)	Standard Dry Gas Meter Volume	dscf	76.247	69.698	74.967	73.637
(Md)	Dry Gas Molecular Weight	lb/lb-mole	29.09	29.10	29.09	29.09
(Ms)	Wet Gas Molecular Weight	lb/lb-mole	27.69	27.70	27.64	27.68
(vs)	Stack Gas Velocity	ft/s	34.95	32.95	34.88	34.3
(A)	Stack Area	ft2	22.69	22.69	22.69	
(Qsd)	Volumetric Gas Flow Rate	dscfs	464	448	462	458
(Qsd)	Volumetric Gas Flow Rate	dscfm	27,800	26,900	27,700	27,467
(Qsd)	Volumetric Gas Flow Rate	dscfh	1.67E+06	1.61E+06	1.66E+06	1.65E+06
(Qa)	Volumetric Gas Flow Rate	acfm	47,600	44,900	47,500	46,667
(%EA)	Percent Excess Air	%	496.4	536.2	508.3	513.6
(I)	Isokinetic Variation	%	97.0	94.8	98.9	

HEXAVALENT CHROMIUM EMISSIONS SUMMARY

Kiln #8, Exhaust Stack
Solite A.F. Old plant, Arvonia, VA

filename:HEXCHROM.WQ1		RUN NO.==>	K2-1	K2-2	K2-3	
		DATE==>	7/8/92	7/8/92	7/8/92	
	SAMPLING PARAMETERS	RUN TIME==>	1256-1414	1620-1736	2036-2153	AVERAGE
SYMBOL	MEASURED DATA AT STACK	UNITS				
(Y)	Dry Gas Meter Calibration Factor	--	1	1	1	
(Vi)	Initial Meter Volume	cf	** 871.776	964.452	64.917	
(Vf)	Final Meter Volume	cf	918.786	1015.233	115.080	
(Lp)	Leak Check Correction	cfm	0	0	0	
(Vm)	Total Meter Volume	cf	47.010	50.781	50.163	49.318
(t)	Sampling Time	min.	72	72	72	72
(Vwc)	Volume of Water Collected	mL	85.0	104.0	111.0	100.0
(Vwsg)	Silica Gel Weight Increase	g	25.8	30.1	34.8	30.2
(Vlc)	Total Water Collected	mL	110.8	134.1	145.8	130.2
(Pbar)	Barometric Pressure	in. Hg	29.54	29.50	29.50	29.51
(Pg)	Stack Static Pressure	in. H2O	-0.67	-0.67	-0.67	
(~H)	Avg. Orifice Pressure Drop ~H	in. H2O	1.69	1.89	1.81	
(Ts)	Avg. Stack Gas Temperature	~F	313.3	315.9	319.1	316.1
(Tm)	Avg. Dry Gas Meter Temperature	~F	99.1	102.6	99.0	
(Dn)	Nozzle Diameter	inches	0.309	0.309	0.309	
(Ds)	Diameter of Stack	inches	64.500	64.500	64.500	
(W)	Width of Stack	inches	0.000	0.000	0.000	
(L)	Length of Stack	inches	0.000	0.000	0.000	
(Cp)	Pitot Tube Coefficient	--	0.84	0.84	0.84	
(~p)§	Avg. Square Root Velocity Head ~p	(in. H2O)§	0.503	0.533	0.526	
(%O2)	Stack Gas Oxygen	%	17.4	17.8 **	17.5	18.4
(%CO2)	Stack Gas Carbon Dioxide	%	2.6	2.3	2.6	2.5
(%N2)	Stack Gas Nitrogen	%	80.0	79.9	79.9	79.9
	CALCULATED STACK GAS DATA					
(Ps)	Stack Gas Pressure	in. Hg	29.49	29.45	29.45	29.46
(%Bws)	Stack Gas Moisture	%	10.7	11.9	12.8	11.8
(%B'w)	Moisture at Saturation	%	97.5	97.6	97.6	
(Vmstd)	Standard Dry Gas Meter Volume	dscf	43.741	46.892	46.619	45.751
(Md)	Dry Gas Molecular Weight	lb/lb-mole	29.12	29.08	29.11	29.10
(Ms)	Wet Gas Molecular Weight	lb/lb-mole	27.93	27.77	27.69	27.80
(vs)	Stack Gas Velocity	ft/s	35.00	37.28	36.92	36.4
(A)	Stack Area	ft2	22.69	22.69	22.69	
(Qsd)	Volumetric Gas Flow Rate	dscfm	28,700	30,000	29,200	29,300
(Qa)	Volumetric Gas Flow Rate	acfm	47,600	50,800	50,300	49,567
(I)	Isokinetic Variation	%	92.4	94.8	96.6	

HEXAVALENT CHROMIUM Emissions Analysis

Volume in Impinger	mL	786	860	585	
Concentration of Chromium in KOH Impinger	mg/L	0.00226	< 0.0015	< 0.0015	
Total Chromium Recovered	mg	0.001776	< 0.00129	<0.000878	
Volume of Blank	ml	396	396	396	
Concentration of Chromium in blank	mg/L	0.00179	0.00179	0.00179	
Concentration of Chromium in Gas Sample	mg/CMeter	0.000862	<0.000438	<0.000128	<0.000476
Total Flow of Chromium in Stack	Lbs./hr.	9.25E-05	<4.91E-05	<1.39E-05	<5.18E-05

Metals Emissions Summary
Kiln #2, Exhaust Stack
Solite Hubers Plant, Brooks, KY

filename:METALS.WQ1

SYMBOL	SAMPLING PARAMETERS	RUN NO.==> DATE==> RUN TIME==>	K8-1 7/8/92 1115-1230	K8-2 7/8/92 1450-1606	K8-3 7/8/92 1900-2016	AVERAGE
	MEASURED DATA AT STACK	UNITS				
(Y)	Dry Gas Meter Calibration Factor	--	1	1	1	
(Vi)	Initial Meter Volume	cf	826.057	918.999	16.420	
(Vf)	Final Meter Volume	cf	871.134	964.235	64.769	
(Lp)	Leak Check Correction	cfm	0	0	0	
(Vm)	Total Meter Volume	cf	45.077	45.236	48.349	46.221
(t)	Sampling Time	min.	72	72	72	72
(Vwc)	Volume of Water Collected	mL	106.2	117.5	123.5	115.7
(Vwsg)	Silica Gel Weight Increase	g	7.3	6.9	6.5	6.9
(Vlc)	Total Water Collected	mL	113.5	124.4	130.0	122.6
(Pbar)	Barometric Pressure	in. Hg	29.55	29.50	29.50	29.52
(Pg)	Stack Static Pressure	in. H2O	-0.67	-0.67	-0.67	
(¯H)	Avg. Orifice Pressure Drop ¯H	in. H2O	1.51	1.52	1.38	
(Ts)	Avg. Stack Gas Temperature	¯F	319.3	310.6	320.3	316.7
(Tm)	Avg. Dry Gas Meter Temperature	¯F	95.0	101.8	95.9	
(Dn)	Nozzle Diameter	inches	0.301	0.301	0.308	
(Ds)	Diameter of Stack	inches	64.500	64.500	64.500	
(W)	Width of Stack	inches	0.000	0.000	0.000	
(L)	Length of Stack	inches	0.000	0.000	0.000	
(Cp)	Pitot Tube Coefficient	--	0.84	0.84	0.84	
(¯p)§	Avg. Square Root Velocity Head ¯p	(in. H2O)§	0.505	0.509	0.516	
(%O2)	Stack Gas Oxygen	%	19.3	17.7	17.8	13.7
(%CO2)	Stack Gas Carbon Dioxide	%	2.5	2.4	2.3	2.4
(%N2)	Stack Gas Nitrogen	%	78.3	79.9	79.9	79.4
	CALCULATED STACK GAS DATA					
(Ps)	Stack Gas Pressure	in. Hg	29.50	29.45	29.45	29.47
(%Bws)	Stack Gas Moisture	%	11.2	12.3	11.9	11.8
(%B'w)	Moisture at Saturation	%	97.5	97.6	97.6	
(Vmstd)	Standard Dry Gas Meter Volume	dscf	42.266	41.831	45.184	43.094
(Md)	Dry Gas Molecular Weight	lb/lb-mole	29.17	29.09	29.08	29.11
(Ms)	Wet Gas Molecular Weight	lb/lb-mole	27.91	27.73	27.76	27.80
(vs)	Stack Gas Velocity	ft/s	35.28	35.51	36.20	35.7
(A)	Stack Area	ft2	22.69	22.69	22.69	
(Qsd)	Volumetric Gas Flow Rate	dscfm	28,500	28,600	28,900	28,667
(Qa)	Volumetric Gas Flow Rate	acfm	48,000	48,300	49,300	48,533
(I)	Isokinetic Variation	%	94.7	93.3	95.2	

```
J63: (F1) [W9] 100*(J44-(0.05*J45))/((0.264*J46)-J44+(0.5*(J47/10^4)))
L63: (F1) [W9] @AVG(F63..J63)



B64: [W9] ^(I)
C64: [W41] 'Isokinetic Variation
D64: [W10] ^%
F64: (F1) [W9] (0.0945*(F35+460)*F53/((F50)*F56*((0.5*F37)^2*3.1417/144)*F28*(1-F51/100)))
H64: (F1) [W9] (0.0945*(H35+460)*H53/((H50)*H56*((0.5*H37)^2*3.1417/144)*H28*(1-H51/100)))
J64: (F1) [W9] (0.0945*(J35+460)*J53/((J50)*J56*((0.5*J37)^2*3.1417/144)*J28*(1-J51/100)))
```

```
J54: (F2) [W9] (0.44*(J45)+0.32*(J44)+0.28*(J46+J47/10000))
L54: (F2) [W9] @AVG(F54..J54)
B55: [W9] ^(Ms)
C55: [W41] 'Wet Gas Molecular Weight
D55: [W10] ^lb/lb-mole
F55: (F2) [W9] (F54*(1-((F58*F51)+((-F58+1)*F52))/100))+18*(((F58*F51)+((-F58+1)*F52))/100)
H55: (F2) [W9] (H54*(1-((H58*H51)+((-H58+1)*H52))/100))+18*(((H58*H51)+((-H58+1)*H52))/100)
J55: (F2) [W9] (J54*(1-((J58*J51)+((-J58+1)*J52))/100))+18*(((J58*J51)+((-J58+1)*J52))/100)
L55: (F2) [W9] @AVG(F55..J55)
B56: [W9] ^(vs)
C56: [W41] 'Stack Gas Velocity
D56: [W10] ^ft/s
F56: (F2) [W9] (85.49*(F42)*(F43)*((F35+460)/((F50)*(F55)))^0.5)
H56: (F2) [W9] (85.49*(H42)*(H43)*((H35+460)/((H50)*(H55)))^0.5)
J56: (F2) [W9] (85.49*(J42)*(J43)*((J35+460)/((J50)*(J55)))^0.5)
L56: (F1) [W9] @AVG(F56..J56)
B57: [W9] ^(A)
C57: [W41] 'Stack Area
D57: [W10] ^ft2
F57: (F2) [W9] (+F39/24)^2*@PI+(F40*F41/144)
H57: (F2) [W9] (+H39/24)^2*@PI+(H40*H41/144)
J57: (F2) [W9] (+J39/24)^2*@PI+(J40*J41/144)
A58: U [W1] ||
F58: (H) [W9] +F51<=F52
H58: (H) [W9] +H51<=H52
J58: (H) [W9] +J51<=J52
A59: U [W1] ||
B59: [W9] ^(Qsd)
C59: [W41] 'Volumetric Gas Flow Rate
D59: [W10] ^dscfs
F59: (F0) [W9] (F$57)*F$56*(1-((F$58*F51)+((-F58+1)*F52))/100)*528/(460+F35)*((F32+(F33/13.6))/29.92)
H59: (F0) [W9] (H$57)*H$56*(1-((H$58*H51)+((-H58+1)*H52))/100)*528/(460+H35)*((H32+(H33/13.6))/29.92)
J59: (F0) [W9] (J$57)*J$56*(1-((J$58*J51)+((-J58+1)*J52))/100)*528/(460+J35)*((J32+(J33/13.6))/29.92)
L59: (F0) [W9] @AVG(F59..J59)
B60: [W9] ^(Qsd)
C60: [W41] 'Volumetric Gas Flow Rate
D60: [W10] ^dscfm
F60: (,0) [W9] @ROUND(60*F59,-2)
H60: (,0) [W9] @ROUND(60*H59,-2)
J60: (,0) [W9] @ROUND(60*J59,-2)
L60: (,0) [W9] @AVG(F60..J60)
A61: U [W1] ||
B61: [W9] ^(Qsd)
C61: [W41] 'Volumetric Gas Flow Rate
D61: [W10] ^dscfh
F61: (S2) [W9] @ROUND(60*F60,-4)
H61: (S2) [W9] @ROUND(60*H60,-4)
J61: (S2) [W9] @ROUND(60*J60,-4)
L61: (S2) [W9] @AVG(F61..J61)
B62: [W9] ^(Qa)
C62: [W41] 'Volumetric Gas Flow Rate
D62: [W10] ^acfm
F62: (,0) [W9] @ROUND(60*F56*F57,-2)
H62: (,0) [W9] @ROUND(60*H56*H57,-2)
J62: (,0) [W9] @ROUND(60*J56*J57,-2)
L62: (,0) [W9] @AVG(F62..J62)
A63: U [W1] ||
B63: [W9] ^(%EA)
C63: [W41] 'Percent Excess Air
D63: [W10] ^%
F63: (F1) [W9] 100*(F44-(0.05*F45))/((0.264*F46)-F44+(0.5*(F47/10^4)))
H63: (F1) [W9] 100*(H44-(0.05*H45))/((0.264*H46)-H44+(0.5*(H47/10^4)))
```

```
C44: [W41] 'Stack Gas Oxygen
D44: [W10] ^%
F44: (F1) U [W9] 19.27
H44: (F1) U [W9] 17.71
I44: (F1) U [W2] '
J44: (F1) U [W9] 17.76
```

```
L44: (F1) [W9] @AVG(F44..J44)
B45: [W9] ^(%CO2)
C45: [W41] 'Stack Gas Carbon Dioxide
D45: [W10] ^%
F45: (F1) U [W9] 2.47
H45: (F1) U [W9] 2.36
J45: (F1) U [W9] 2.3
L45: (F1) [W9] @AVG(F45..J45)
B46: [W9] ^(%N2)
C46: [W41] 'Stack Gas Nitrogen
D46: [W10] ^%
F46: (F1) U [W9] 100-F44-F45
H46: (F1) U [W9] 100-H44-H45
J46: (F1) U [W9] 100-J44-J45
L46: (F1) [W9] @AVG(F46..J46)
A47: U [W1] ||
B47: [W9] ^(ppmCO)
C47: [W41] 'Stack Gas Carbon Monoxide
D47: [W10] ^ppm
F47: U [W9] 28.44
H47: U [W9] 22.39
J47: U [W9] 32.53
L47: (F1) [W9] @AVG(F47..J47)
C49: [W41] 'CALCULATED STACK GAS DATA
B50: [W9] ^(Ps)
C50: [W41] 'Stack Gas Pressure
D50: [W10] ^in. Hg
F50: (F2) [W9] (F33/13.6+F32)
H50: (F2) [W9] (H33/13.6+H32)
J50: (F2) [W9] (J33/13.6+J32)
L50: (F2) [W9] @AVG(F50..J50)
B51: [W9] ^(%Bws)
C51: [W41] 'Stack Gas Moisture
D51: [W10] ^%
F51: (F1) [W9] (F31*0.04707)/((F31*0.04707)+F53)*100
H51: (F1) [W9] (H31*0.04707)/((H31*0.04707)+H53)*100
J51: (F1) [W9] (J31*0.04707)/((J31*0.04707)+J53)*100
L51: (F1) [W9] @AVG(F51..J51)
B52: [W9] ^(%B'w)
C52: [W41] 'Moisture at Saturation
D52: [W10] ^%
F52: (F1) [W9] (@VLOOKUP(F35,$AJ$4..$AK$164,1)/(F50)*100)
H52: (F1) [W9] (@VLOOKUP(H35,$AJ$4..$AK$164,1)/(H50)*100)
J52: (F1) [W9] (@VLOOKUP(J35,$AJ$4..$AK$164,1)/(J50)*100)
B53: [W9] ^(Vmstd)
C53: [W41] 'Standard Dry Gas Meter Volume
D53: [W10] ^dscf
F53: (F3) [W9] (17.64*(F27)*F19*(F50)/(F36+460))
H53: (F3) [W9] (17.64*(H27)*H19*(H50)/(H36+460))
J53: (F3) [W9] (17.64*(J27)*J19*(J50)/(J36+460))
L53: (F3) [W9] @AVG(F53..J53)
B54: [W9] ^(Md)
C54: [W41] 'Dry Gas Molecular Weight
D54: [W10] ^lb/lb-mole
F54: (F2) [W9] (0.44*(F45)+0.32*(F44)+0.28*(F46+F47/10000))
H54: (F2) [W9] (0.44*(H45)+0.32*(H44)+0.28*(H46+H47/10000))
```

A-000019

```
F33: U [W9] -0.67
G33: U [W2] '
H33: U [W9] -0.67
J33: U [W9] -0.67
B34: [W9] ^(¯H)
C34: [W41] 'Avg. Orifice Pressure Drop ¯H
D34: [W10] ^in. H2O
F34: (F2) [W9] 1.51
```

```
H34: (F2) [W9] 1.52
J34: (F2) [W9] 1.38
B35: [W9] ^(Ts)
C35: [W41] 'Avg. Stack Gas Temperature
D35: [W10] +"     "&@CHAR(176)&"F"
F35: (F1) [W9] 319.3
H35: (F1) [W9] 310.6
J35: (F1) [W9] 320.3
L35: (F1) [W9] @AVG(F35..J35)
B36: [W9] ^(Tm)
C36: [W41] 'Avg. Dry Gas Meter Temperature
D36: [W10] +"     "&@CHAR(176)&"F"
F36: (F1) [W9] 95
H36: (F1) [W9] 101.8
J36: (F1) [W9] 95.9
B37: [W9] ^(Dn)
C37: [W41] 'Nozzle Diameter
D37: [W10] ^inches
F37: (F3) U [W9] 0.301
H37: (F3) U [W9] 0.301
J37: (F3) U [W9] 0.308
A38: U [W1] ||
C38: [W41] '  FOR STACK DIMENSIONS, ENTER 0 WHERE SIZE IS NOT APPROPRIATE
B39: [W9] ^(Ds)
C39: [W41] 'Diameter of Stack
D39: [W10] ^inches
F39: (F3) U [W9] 64.5
H39: (F3) U [W9] 64.5
J39: (F3) U [W9] 64.5
B40: [W9] ^(W)
C40: [W41] 'Width of Stack
D40: [W10] ^inches
F40: (F3) U [W9] 0
H40: (F3) U [W9] 0
J40: (F3) U [W9] 0
B41: [W9] ^(L)
C41: [W41] 'Length of Stack
D41: [W10] ^inches
F41: (F3) U [W9] 0
H41: (F3) U [W9] 0
J41: (F3) U [W9] 0
B42: [W9] ^(Cp)
C42: [W41] 'Pitot Tube Coefficient
D42: [W10] ^--
F42: (F2) U [W9] 0.84
H42: (F2) U [W9] +F42
J42: (F2) U [W9] +F42
B43: [W9] ^(¯p)§
C43: [W41] 'Avg. Square Root Velocity Head ¯p
D43: [W10] ^(in. H2O)§
F43: (F3) [W9] 0.505
H43: (F3) [W9] 0.509
J43: (F3) [W9] 0.516
B44: [W9] ^(%O2)
```

A-000018

```
B24: [W9] ^(Vf)
C24: [W41] 'Final Meter Volume
D24: [W10] ^cf
F24: (F3) U [W9] 871.134
H24: (F3) U [W9] 964.235
J24: (F3) U [W9] 64.769
B25: [W9] ^(Lp)
C25: [W41] 'Leak Check Correction
D25: [W10] ^cfm
F25: U [W9] 0



H25: U [W9] 0
J25: U [W9] 0
A26: U [W1] ||
C26: [W41] ||
F26: (H) [W9] @IF(F25-0.02>0,F25,0)
H26: (H) [W9] @IF(H25-0.02>0,H25,0)
J26: (H) [W9] @IF(J25-0.02>0,J25,0)
B27: [W9] ^(Vm)
C27: [W41] 'Total Meter Volume
D27: [W10] ^cf
F27: (F3) [W9] (F24-F23)+(F22-F20)-(0.02-F24)*F26
H27: (F3) [W9] (H24-H23)+(H22-H20)-(0.02-H24)*H26
J27: (F3) [W9] (J24-J23)+(J22-J20)-(0.02-J24)*J26
L27: (F3) [W9] @AVG(F27..J27)
B28: [W9] ^(t)
C28: [W41] 'Sampling Time
D28: [W10] ^min.
F28: U [W9] 72
H28: U [W9] 72
J28: U [W9] 72
L28: (F0) [W9] @AVG(F28..J28)
B29: [W9] ^(Vwc)
C29: [W41] 'Volume of Water Collected
D29: [W10] ^mL
F29: (F1) U [W9] 106.2
H29: (F1) U [W9] 117.5
J29: (F1) U [W9] 123.5
L29: (F1) [W9] @AVG(F29..J29)
B30: [W9] ^(Vwsg)
C30: [W41] 'Silica Gel Weight Increase
D30: [W10] ^g
F30: (F1) U [W9] 7.3
H30: (F1) U [W9] 6.9
J30: (F1) U [W9] 6.5
L30: (F1) [W9] @AVG(F30..J30)
B31: [W9] ^(Vlc)
C31: [W41] 'Total Water Collected
D31: [W10] ^mL
F31: (F1) [W9] 113.5
H31: (F1) [W9] 124.4
J31: (F1) [W9] 130
L31: (F1) [W9] @AVG(F31..J31)
B32: [W9] ^(Pbar)
C32: [W41] 'Barometric Pressure
D32: [W10] ^in. Hg
F32: (F2) U [W9] 29.55
H32: (F2) U [W9] 29.5
J32: (F2) U [W9] 29.5
L32: (F2) [W9] @AVG(F32..J32)
B33: [W9] ^(Pg)
C33: [W41] 'Stack Static Pressure
D33: [W10] ^in. H2O
```

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C10: U [W41] 'Metals Emissions Summary
C11: U [W41] 'Kiln #2, Exhaust Stack
C12: U [W41] 'Solite Hubers Plant, Brooks, KY
H12: [W9] '
B14: [W9] 'filename:
C14: U [W41] 'METALS.WQ1
D14: [W10] "RUN NO.==>
F14: U [W9] 'K8-1
H14: U [W9] 'K8-2
I14: U [W2] '
J14: U [W9] 'K8-3
D15: [W10] "DATE==>
F15: U [W9] '7/8/92
H15: U [W9] '7/8/92
J15: U [W9] '7/8/92
C16: [W41] 'SAMPLING PARAMETERS
D16: [W10] "RUN TIME==>
F16: U [W9] '1115-1230
H16: U [W9] '1450-1606
J16: U [W9] '1900-2016
L16: [W9] ^AVERAGE
B17: [W9] \-
C17: [W41] \-
D17: [W10] \-
E17: [W2] \-
F17: [W9] \-
G17: [W2] \-
H17: [W9] \-
I17: [W2] \-
J17: [W9] \-
K17: [W2] \-
L17: [W9] \-
B18: [W9] ^SYMBOL
C18: [W41] 'MEASURED DATA AT STACK
D18: [W10] ^UNITS
B19: [W9] ^(Y)
C19: [W41] 'Dry Gas Meter Calibration Factor
D19: [W10] ^--
F19: U [W9] 1
H19: U [W9] +F19
J19: U [W9] +F19
B20: [W9] ^(Vi)
C20: [W41] 'Initial Meter Volume
D20: [W10] ^cf
E20: U [W2] '
F20: (F3) U [W9] 826.057
H20: (F3) U [W9] 918.999
J20: (F3) U [W9] 16.42
A21: U [W1] ||
C21: [W41] '  IF NO INTERMEDIATE LEAK CHECK WAS DONE ENTER 0
E21: U [W2] '
F21: [W9] 0
A22: U [W1] ||
C22: [W41] 'Volume Before Intermed Leak Check
D22: [W10] ^cf
F22: U [W9] 0
A23: U [W1] ||
C23: [W41] 'Volume After Intermed Leak Check
D23: [W10] ^cf
F23: U [W9] 0
H23: U [W9] 0
J23: U [W9] 0
```

A-00[illegible]

```
J63: (F1) [W9] 100*(J44-(0.05*J45))/((0.264*J46)-J44+(0.5*(J47/10^4)))
L63: (F1) [W9] @AVG(F63..J63)
B64: [W9] ^(I)
C64: [W41] 'Isokinetic Variation
D64: [W10] ^%
F64: (F1) [W9] (0.0945*(F35+460)*F53/((F50)*F56*((0.5*F37)^2*3.1417/144)*F28*(1-F51/100)))
H64: (F1) [W9] (0.0945*(H35+460)*H53/((H50)*H56*((0.5*H37)^2*3.1417/144)*H28*(1-H51/100)))
J64: (F1) [W9] (0.0945*(J35+460)*J53/((J50)*J56*((0.5*J37)^2*3.1417/144)*J28*(1-J51/100)))
C68: [W41] 'HEXAVALENT CHROMIUM Emissions Analysis
C70: [W41] 'Volume in Impinger
D70: [W10] ^mL
```

```
F70: [W9] 786
H70: [W9] 860
J70: [W9] 585
C71: [W41] 'Concentration of Chromium in KOH Impinger
D71: [W10] ^mg/L
E71: [W2] '
F71: [W9] 0.00226
G71: [W2] ' <
H71: [W9] 0.0015
I71: [W2] ' <
J71: [W9] 0.0015
C72: [W41] 'Total Chromium Recovered
D72: [W10] ^mg
E72: [W2] '
F72: [W9] (F70*F71/1000)
G72: [W2] (G71)
H72: [W9] (H70*H71/1000)
I72: [W2] (I71)
J72: [W9] (J70*J71/1000)
C73: [W41] 'Volume of Blank
D73: [W10] ^ml
F73: [W9] 0
H73: [W9] 0
J73: [W9] 0
C74: [W41] 'Concentration of Chromium in blank
D74: [W10] ^mg/L
F74: [W9] 0
H74: [W9] 0
J74: [W9] 0
C76: [W41] 'Concentration of Chromium in Gas Sample
D76: [W10] ^mg/CMeter
E76: [W2] (E72)
F76: [W9] ((F72-(F73*F74/1000))*35.3145/F53)
G76: [W2] (G72)
H76: [W9] ((H72-(H73*H74/1000))*35.3145/H53)
I76: [W2] (I72)
J76: [W9] ((J72-(J73*J74/1000))*35.3145/J53)
K76: [W2] " <
L76: [W9] ((F76+H76+J76)/3)
C78: [W41] 'Total Flow of Chromium in Stack
D78: [W10] ^Lbs./hr.
E78: [W2] (E76)
F78: [W9] ((F76/454000)*F61/35.3145)
G78: [W2] (G76)
H78: [W9] ((H76/454000)*H61/35.3145)
I78: [W2]-(I76)
J78: [W9] ((J76/454000)*J61/35.3145)
K78: [W2] ' <
L78: [W9] ((F78+H78+J78)/3)
```

```
J54: (F2) [W9] (0.44*(J45)+0.32*(J44)+0.28*(J46+J47/10000))
L54: (F2) [W9] @AVG(F54..J54)
B55: [W9] ^(Ms)
C55: [W41] 'Wet Gas Molecular Weight
D55: [W10] ^lb/lb-mole
F55: (F2) [W9] (F54*(1-((F58*F51)+((-F58+1)*F52))/100))+18*(((F58*F51)+((-F58+1)*F52))/100)
H55: (F2) [W9] (H54*(1-((H58*H51)+((-H58+1)*H52))/100))+18*(((H58*H51)+((-H58+1)*H52))/100)
J55: (F2) [W9] (J54*(1-((J58*J51)+((-J58+1)*J52))/100))+18*(((J58*J51)+((-J58+1)*J52))/100)
L55: (F2) [W9] @AVG(F55..J55)
B56: [W9] ^(vs)
C56: [W41] 'Stack Gas Velocity
D56: [W10] ^ft/s
F56: (F2) [W9] (85.49*(F42)*(F43)*((F35+460)/((F50)*(F55)))^0.5)
```

```
H56: (F2) [W9] (85.49*(H42)*(H43)*((H35+460)/((H50)*(H55)))^0.5)
J56: (F2) [W9] (85.49*(J42)*(J43)*((J35+460)/((J50)*(J55)))^0.5)
L56: (F1) [W9] @AVG(F56..J56)
B57: [W9] ^(A)
C57: [W41] 'Stack Area
D57: [W10] ^ft2
F57: (F2) [W9] (+F39/24)^2*@PI+(F40*F41/144)
H57: (F2) [W9] (+H39/24)^2*@PI+(H40*H41/144)
J57: (F2) [W9] (+J39/24)^2*@PI+(J40*J41/144)
A58: U [W1] ||
F58: (H) [W9] +F51<=F52
H58: (H) [W9] +H51<=H52
J58: (H) [W9] +J51<=J52
A59: U [W1] ||
B59: [W9] ^(Qsd)
C59: [W41] 'Volumetric Gas Flow Rate
D59: [W10] ^dscfs
F59: (F0) [W9] (F$57)*F$56*(1-((F$58*F51)+((-F58+1)*F52))/100)*528/(460+F35)*((F32+(F33/13.6))/29.92)
H59: (F0) [W9] (H$57)*H$56*(1-((H$58*H51)+((-H58+1)*H52))/100)*528/(460+H35)*((H32+(H33/13.6))/29.92)
J59: (F0) [W9] (J$57)*J$56*(1-((J$58*J51)+((-J58+1)*J52))/100)*528/(460+J35)*((J32+(J33/13.6))/29.92)
L59: (F0) [W9] @AVG(F59..J59)
B60: [W9] ^(Qsd)
C60: [W41] 'Volumetric Gas Flow Rate
D60: [W10] ^dscfm
F60: (,0) [W9] @ROUND(60*F59,-2)
H60: (,0) [W9] @ROUND(60*H59,-2)
J60: (,0) [W9] @ROUND(60*J59,-2)
L60: (,0) [W9] @AVG(F60..J60)
A61: U [W1] ||
B61: [W9] ^(Qsd)
C61: [W41] 'Volumetric Gas Flow Rate
D61: [W10] ^dscfh
F61: (S2) [W9] @ROUND(60*F60,-4)
H61: (S2) [W9] @ROUND(60*H60,-4)
J61: (S2) [W9] @ROUND(60*J60,-4)
L61: (S2) [W9] @AVG(F61..J61)
B62: [W9] ^(Qa)
C62: [W41] 'Volumetric Gas Flow Rate
D62: [W10] ^acfm
F62: (,0) [W9] @ROUND(60*F56*F57,-2)
H62: (,0) [W9] @ROUND(60*H56*H57,-2)
J62: (,0) [W9] @ROUND(60*J56*J57,-2)
L62: (,0) [W9] @AVG(F62..J62)
A63: U [W1] ||
B63: [W9] ^(%EA)
C63: [W41] 'Percent Excess Air
D63: [W10] ^%
F63: (F1) [W9] 100*(F44-(0.05*F45))/((0.264*F46)-F44+(0.5*(F47/10^4)))
H63: (F1) [W9] 100*(H44-(0.05*H45))/((0.264*H46)-H44+(0.5*(H47/10^4)))
```

A-000[illegible]4

```
C44: [W41] 'Stack Gas Oxygen
D44: [W10] ^%
F44: (F1) U [W9] 17.41
H44: (F1) U [W9] 17.84
I44: (F1) U [W2] 20.8
J44: (F1) U [W9] 17.5
L44: (F1) [W9] @AVG(F44..J44)
B45: [W9] ^(%CO2)
C45: [W41] 'Stack Gas Carbon Dioxide
D45: [W10] ^%
F45: (F1) U [W9] 2.62
H45: (F1) U [W9] 2.3
J45: (F1) U [W9] 2.57
L45: (F1) [W9] @AVG(F45..J45)
B46: [W9] ^(%N2)
```

```
C46: [W41] 'Stack Gas Nitrogen
D46: [W10] ^%
F46: (F1) U [W9] 100-F44-F45
H46: (F1) U [W9] 100-H44-H45
J46: (F1) U [W9] 100-J44-J45
L46: (F1) [W9] @AVG(F46..J46)
A47: U [W1] ||
B47: [W9] ^(ppmCO)
C47: [W41] 'Stack Gas Carbon Monoxide
D47: [W10] ^ppm
F47: U [W9] 15.74
H47: U [W9] 19.94
J47: U [W9] 16.56
L47: (F1) [W9] @AVG(F47..J47)
C49: [W41] 'CALCULATED STACK GAS DATA
B50: [W9] ^(Ps)
C50: [W41] 'Stack Gas Pressure
D50: [W10] ^in. Hg
F50: (F2) [W9] (F33/13.6+F32)
H50: (F2) [W9] (H33/13.6+H32)
J50: (F2) [W9] (J33/13.6+J32)
L50: (F2) [W9] @AVG(F50..J50)
B51: [W9] ^(%Bws)
C51: [W41] 'Stack Gas Moisture
D51: [W10] ^%
F51: (F1) [W9] (F31*0.04707)/((F31*0.04707)+F53)*100
H51: (F1) [W9] (H31*0.04707)/((H31*0.04707)+H53)*100
J51: (F1) [W9] (J31*0.04707)/((J31*0.04707)+J53)*100
L51: (F1) [W9] @AVG(F51..J51)
B52: [W9] ^(%B'w)
C52: [W41] 'Moisture at Saturation
D52: [W10] ^%
F52: (F1) [W9] (@VLOOKUP(F35,$AJ$4..$AK$164,1)/(F50)*100)
H52: (F1) [W9] (@VLOOKUP(H35,$AJ$4..$AK$164,1)/(H50)*100)
J52: (F1) [W9] (@VLOOKUP(J35,$AJ$4..$AK$164,1)/(J50)*100)
B53: [W9] ^(Vmstd)
C53: [W41] 'Standard Dry Gas Meter Volume
D53: [W10] ^dscf
F53: (F3) [W9] (17.64*(F27)*F19*(F50)/(F36+460))
H53: (F3) [W9] (17.64*(H27)*H19*(H50)/(H36+460))
J53: (F3) [W9] (17.64*(J27)*J19*(J50)/(J36+460))
L53: (F3) [W9] @AVG(F53..J53)
B54: [W9] ^(Md)
C54: [W41] 'Dry Gas Molecular Weight
D54: [W10] ^lb/lb-mole
F54: (F2) [W9] (0.44*(F45)+0.32*(F44)+0.28*(F46+F47/10000))
H54: (F2) [W9] (0.44*(H45)+0.32*(H44)+0.28*(H46+H47/10000))
```

A-000013

```
F33: U [W9] -0.67
G33: U [W2] '
H33: U [W9] -0.67
J33: U [W9] -0.67
B34: [W9] ^(¯H)
C34: [W41] 'Avg. Orifice Pressure Drop ¯H
D34: [W10] ^in. H20
F34: (F2) [W9] 1.69
H34: (F2) [W9] 1.89
J34: (F2) [W9] 1.81
B35: [W9] ^(Ts)
C35: [W41] 'Avg. Stack Gas Temperature
D35: [W10] +"     "&@CHAR(176)&"F"
F35: (F1) [W9] 313.3
H35: (F1) [W9] 315.9
J35: (F1) [W9] 319.1
L35: (F1) [W9] @AVG(F35..J35)



B36: [W9] ^(Tm)
C36: [W41] 'Avg. Dry Gas Meter Temperature
D36: [W10] +"     "&@CHAR(176)&"F"
F36: (F1) [W9] 99.1
H36: (F1) [W9] 102.6
J36: (F1) [W9] 99
B37: [W9] ^(Dn)
C37: [W41] 'Nozzle Diameter
D37: [W10] ^inches
F37: (F3) U [W9] 0.309
H37: (F3) U [W9] 0.309
J37: (F3) U [W9] 0.309
A38: U [W1] ||
C38: [W41] ' FOR STACK DIMENSIONS, ENTER 0 WHERE SIZE IS NOT APPROPRIATE
B39: [W9] ^(Ds)
C39: [W41] 'Diameter of Stack
D39: [W10] ^inches
F39: (F3) U [W9] 64.5
H39: (F3) U [W9] 64.5
J39: (F3) U [W9] 64.5
B40: [W9] ^(W)
C40: [W41] 'Width of Stack
D40: [W10] ^inches
F40: (F3) U [W9] 0
H40: (F3) U [W9] 0
J40: (F3) U [W9] 0
B41: [W9] ^(L)
C41: [W41] 'Length of Stack
D41: [W10] ^inches
F41: (F3) U [W9] 0
H41: (F3) U [W9] 0
J41: (F3) U [W9] 0
B42: [W9] ^(Cp)
C42: [W41] 'Pitot Tube Coefficient
D42: [W10] ^--
F42: (F2) U [W9] 0.84
H42: (F2) U [W9] +F42
J42: (F2) U [W9] +F42
B43: [W9] ^(¯p)§
C43: [W41] 'Avg. Square Root Velocity Head ¯p
D43: [W10] ^(in. H20)§
F43: (F3) [W9] 0.503
H43: (F3) [W9] 0.533
J43: (F3) [W9] 0.526
B44: [W9] ^(%O2)
```

```
B24: [W9] ^(Vf)
C24: [W41] 'Final Meter Volume
D24: [W10] ^cf
F24: (F3) U [W9] 918.786
H24: (F3) U [W9] 1015.233
J24: (F3) U [W9] 115.08
B25: [W9] ^(Lp)
C25: [W41] 'Leak Check Correction
D25: [W10] ^cfm
F25: U [W9] 0
H25: U [W9] 0
J25: U [W9] 0
A26: U [W1] ||
C26: [W41] ||
F26: (H) [W9] @IF(F25-0.02>0,F25,0)
H26: (H) [W9] @IF(H25-0.02>0,H25,0)
J26: (H) [W9] @IF(J25-0.02>0,J25,0)
B27: [W9] ^(Vm)
C27: [W41] 'Total Meter Volume
```

```
D27: [W10] ^cf
F27: (F3) [W9] (F24-F23)+(F22-F20)-(0.02-F24)*F26
H27: (F3) [W9] (H24-H23)+(H22-H20)-(0.02-H24)*H26
J27: (F3) [W9] (J24-J23)+(J22-J20)-(0.02-J24)*J26
L27: (F3) [W9] @AVG(F27..J27)
B28: [W9] ^(t)
C28: [W41] 'Sampling Time
D28: [W10] ^min.
F28: U [W9] 72
H28: U [W9] 72
J28: U [W9] 72
L28: (F0) [W9] @AVG(F28..J28)
B29: [W9] ^(Vwc)
C29: [W41] 'Volume of Water Collected
D29: [W10] ^mL
F29: (F1) U [W9] 85
H29: (F1) U [W9] 104
J29: (F1) U [W9] 111
L29: (F1) [W9] @AVG(F29..J29)
B30: [W9] ^(Vwsg)
C30: [W41] 'Silica Gel Weight Increase
D30: [W10] ^g
F30: (F1) U [W9] 25.8
H30: (F1) U [W9] 30.1
J30: (F1) U [W9] 34.8
L30: (F1) [W9] @AVG(F30..J30)
B31: [W9] ^(Vlc)
C31: [W41] 'Total Water Collected
D31: [W10] ^mL
F31: (F1) [W9] 110.8
H31: (F1) [W9] 134.1
J31: (F1) [W9] 145.8
L31: (F1) [W9] @AVG(F31..J31)
B32: [W9] ^(Pbar)
C32: [W41] 'Barometric Pressure
D32: [W10] ^in. Hg
F32: (F2) U [W9] 29.54
H32: (F2) U [W9] 29.5
J32: (F2) U [W9] 29.5
L32: (F2) [W9] @AVG(F32..J32)
B33: [W9] ^(Pg)
C33: [W41] 'Stack Static Pressure
D33: [W10] ^in. H2O
```

A-0[illegible]

```
C10: U [W41] 'HEXAVALENT CHROMIUM EMISSIONS SUMMARY
C11: U [W41] 'Kiln #8, Exhaust Stack
C12: U [W41] 'Solite A.F. Old plant, Arvonia, VA
H12: [W9] '
B14: [W9] 'filename:
C14: U [W41] 'HEXCHROM.WQ1
D14: [W10] "RUN NO.==>
F14: U [W9] 'K2-1
H14: U [W9] "K2-2
I14: U [W2] '
J14: U [W9] 'K2-3
D15: [W10] "DATE==>
F15: U [W9] '7/8/92
H15: U [W9] '7/8/92
J15: U [W9] '7/8/92
C16: [W41] 'SAMPLING PARAMETERS
D16: [W10] "RUN TIME==>
F16: U [W9] '1256-1414
H16: U [W9] '1620-1736
J16: U [W9] '2036-2153
L16: [W9] ^AVERAGE
```

```
B17: [W9] \-
C17: [W41] \-
D17: [W10] \-
E17: [W2] \-
F17: [W9] \-
G17: [W2] \-
H17: [W9] \-
I17: [W2] \-
J17: [W9] \-
K17: [W2] \-
L17: [W9] \-
B18: [W9] ^SYMBOL
C18: [W41] 'MEASURED DATA AT STACK
D18: [W10] ^UNITS
B19: [W9] ^(Y)
C19: [W41] 'Dry Gas Meter Calibration Factor
D19: [W10] ^--
F19: U [W9] 1
H19: U [W9] +F19
J19: U [W9] +F19
B20: [W9] ^(Vi)
C20: [W41] 'Initial Meter Volume
D20: [W10] ^cf
E20: U [W2] 812.297
F20: (F3) U [W9] 871.776
H20: (F3) U [W9] 964.452
J20: (F3) U [W9] 64.917
A21: U [W1] ||
C21: [W41] '  IF NO INTERMEDIATE LEAK CHECK WAS DONE ENTER 0
E21: U [W2] 812.297
F21: [W9] 0
A22: U [W1] ||
C22: [W41] 'Volume Before Intermed Leak Check
D22: [W10] ^cf
F22: U [W9] 0
A23: U [W1] ||
C23: [W41] 'Volume After Intermed Leak Check
D23: [W10] ^cf
F23: U [W9] 0
H23: U [W9] 0
J23: U [W9] 0
```

```
J128: [W9] ((J121-J125)*(J120/1000)*36.46/35.453)
C130: [W41] 'Concentration of HCl in Gas Sample
D130: [W10] ^mg/CMeter
F130: [W9] ((F127/F53)*35.3145)
H130: [W9] ((H127/H53)*35.3145)
J130: [W9] ((J127/J53)*35.3145)
L130: (F2) [W9] @AVG(F130..J130)
C131: [W41] 'Concentration of Cl2 in Gas Sample
D131: [W10] ^mg/CMeter
F131: [W9] ((F128/F53)*35.3145)
H131: [W9] ((H128/H53)*35.3145)
J131: [W9] ((J128/J53)*35.3145)
L131: (F2) [W9] @AVG(F131..J131)
L132: (F2) [W9] '
C133: [W41] 'Total HCl flow in Stack
D133: [W10] ^Lbs./hr.
F133: [W9] ((F130/35.3145)*F61/454000)
H133: [W9] ((H130/35.3145)*H61/454000)
J133: [W9] ((J130/35.3145)*J61/454000)
L133: (F2) [W9] @AVG(F133..J133)
C134: [W41] 'Total Cl2 flow in Stack
D134: [W10] ^Lbs./hr.
F134: [W9] ((F131/35.3145)*F61/454000)
H134: [W9] ((H131/35.3145)*H61/454000)
J134: [W9] ((J131/35.3145)*J61/454000)
L134: (F2) [W9] @AVG(F134..J134)
```

```
F112: [W9] ((F111/35.3145)*F61/454000)
H112: [W9] ((H111/35.3145)*H61/454000)
J112: [W9] ((J111/35.3145)*J61/454000)
L112: (F2) [W9] @AVG(F112..J112)
A113: U [W1] ||
A114: U [W1] ||
C116: [W41] 'CHLORINE AND HCL RECOVERY DATA
C117: [W41] 'Volume in H2SO4 Impinger
D117: [W10] ^mL
F117: [W9] 664
H117: [W9] 620
J117: [W9] 620
C118: [W41] 'Concentration of Cl In H2SO4 Impinger
D118: [W10] ^mg/L
F118: [W9] 1387.91
H118: [W9] 1240.77
J118: [W9] 1467.81
C119: [W41] 'Total Cl in H2SO4 Impinger
D119: [W10] ^mg
F119: [W9] ((F117/1000)*F118)
H119: [W9] ((H117/1000)*H118)
J119: [W9] ((J117/1000)*J118)
C120: [W41] 'Volume in NaOH Impinger
D120: [W10] ^mL
F120: [W9] 400
H120: [W9] 389
J120: [W9] 398
C121: [W41] 'Concentration in NaOH Impinger
D121: [W10] ^mg/L
F121: [W9] 8.41
H121: [W9] 7.34
J121: [W9] 4.38
C122: [W41] 'Total Cl in NaOH Impinger
D122: [W10] ^mg
F122: [W9] ((F120/1000)*F121)
H122: [W9] ((H120/1000)*H121)
J122: [W9] ((J120/1000)*J121)
C124: [W41] 'Concentration of Cl in H2SO4 blank
D124: [W10] ^mg/L
E124: [W2] '<
F124: [W9] 0.05
G124: [W2] '<
H124: [W9] 0.05
I124: [W2] '<
J124: [W9] 0.05
C125: [W41] 'Concentration of Cl in NaOH blank
D125: [W10] ^mg/L
E125: [W2] '<
F125: [W9] 0.05
```

```
G125: [W2] '<
H125: [W9] 0.05
I125: [W2] '<
J125: [W9] 0.05
C127: [W41] 'Total HCl recovered
D127: [W10] ^mg
F127: [W9] ((F118-F124)*(F117/1000)*36.46/35.453)
H127: [W9] ((H118-H124)*(H117/1000)*36.46/35.453)
J127: [W9] ((J118-J124)*(J117/1000)*36.46/35.453)
C128: [W41] 'Total Cl2 recovered
D128: [W10] ^mg
F128: [W9] ((F121-F125)*(F120/1000)*70.91/35.453)
H128: [W9] ((H121-H125)*(H120/1000)*36.46/35.453)
```

A-000[illegible]

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C102: [W41] 'Weight on Filter
D102: [W10] ^mg
F102: [W9] ((F101-F100)*1000)
H102: [W9] ((H101-H100)*1000)
J102: [W9] ((J101-J100)*1000)
B103: [W9] ^(Wai)
C103: [W41] 'Acetone Rinse Tare Weight
D103: [W10] ^g
F103: U [W9] 101.0617
H103: U [W9] 104.585
J103: U [W9] 104.901
B104: [W9] ^(Waf)
C104: [W41] 'Acetone Rinse Final Weight
D104: [W10] ^g
F104: U [W9] 101.0714
H104: U [W9] 104.5946
J104: U [W9] 104.9128
B105: [W9] ^(ma)
C105: [W41] 'Weight in Acetone Rinse
D105: [W10] ^mg
F105: [W9] ((F104-F103)*1000)
H105: [W9] ((H104-H103)*1000)
J105: [W9] ((J104-J103)*1000)
B106: [W9] ^(Vaw)
C106: [W41] 'Acetone Volume Used in Rinse
D106: [W10] ^mL
F106: U [W9] 118
H106: U [W9] 82
J106: U [W9] 101
B107: [W9] ^(Va)
C107: [W41] 'Acetone Volume Used in Blank
D107: [W10] ^mL
F107: U [W9] 100
H107: U [W9] 100
J107: U [W9] 100
B108: [W9] ^(Wa)
C108: [W41] 'Weight in Acetone Blank
D108: [W10] ^g
F108: U [W9] -0.0003
H108: U [W9] -0.0003
J108: U [W9] -0.0003
B109: [W9] ^(Ca)
C109: [W41] 'Acetone Blank Correction
D109: [W10] ^g/mL
F109: (F5) [W9] 0
H109: (F5) [W9] 0
J109: (F5) [W9] 0
B110: [W9] ^(mn)
C110: [W41] 'Total Particulate Collected
D110: [W10] ^mg
F110: (F2) [W9] (F102+F105-F106*($F$109))
```

```
H110: (F2) [W9] (H102+H105-H106*($F$109))
J110: (F2) [W9] (J102+J105-J106*($F$109))
L110: (F2) [W9] @AVG(F110..J110)
C111: [W41] 'Conc. of Particulate in Gas Sample
D111: [W10] ^mg/CMeter
F111: [W9] ((F110/F53)*35.3145)
H111: [W9] ((H110/H53)*35.3145)
J111: [W9] ((J110/J53)*35.3145)
L111: (F2) [W9] @AVG(F111..J111)
C112: [W41] 'Total Particulate flow in Stack
D112: [W10] ^Lbs./hr.
```

```
C63: [W41] 'Percent Excess Air
D63: [W10] ^%
F63: (F1) [W9] 100*(F44-(0.05*F45))/((0.264*F46)-F44+(0.5*(F47/10^4)))
H63: (F1) [W9] 100*(H44-(0.05*H45))/((0.264*H46)-H44+(0.5*(H47/10^4)))
J63: (F1) [W9] 100*(J44-(0.05*J45))/((0.264*J46)-J44+(0.5*(J47/10^4)))
L63: (F1) [W9] @AVG(F63..J63)
B64: [W9] ^(I)
C64: [W41] 'Isokinetic Variation
D64: [W10] ^%
F64: (F1) [W9] (0.0945*(F35+460)*F53/((F50)*F56*((0.5*F37)^2*3.1417/144)*F28*(1-F51/100)))
H64: (F1) [W9] (0.0945*(H35+460)*H53/((H50)*H56*((0.5*H37)^2*3.1417/144)*H28*(1-H51/100)))
J64: (F1) [W9] (0.0945*(J35+460)*J53/((J50)*J56*((0.5*J37)^2*3.1417/144)*J28*(1-J51/100)))
D87: [W10] ^F - 3
C90: U [W41] 'TABLE X-X
C91: U [W41] 'PARTICULATE EMISSIONS SUMMARY
C92: U [W41] 'Kiln #2, Exhaust Stack, Page 2
C93: U [W41] 'Solite Hubers Facility, Brooks, KY
H93: [W9] '
B95: [W9] 'filename:
C95: U [W41] 'BIGMETH5.wk1
D95: [W10] "RUN NO.==>
F95: U [W9] 'K8-1
H95: U [W9] 'K8-2
I95: U [W2] '
J95: U [W9] 'K8-3
D96: [W10] "DATE==>
F96: U [W9] '6/2/92
H96: U [W9] '6/2/92
J96: U [W9] '6/3/92
C97: [W41] 'SAMPLING PARAMETERS
D97: [W10] "RUN TIME==>
F97: U [W9] '1612-1818
H97: U [W9] '2047-2311
J97: U [W9] '1016-1224
L97: [W9] ^AVERAGE
B98: [W9] \-
C98: [W41] \-
D98: [W10] \-
E98: [W2] \-
F98: [W9] \-
G98: [W2] \-
H98: [W9] \-
I98: [W2] \-
J98: [W9] \-
K98: [W2] \-
L98: [W9] \-
B99: [W9] ^Symbol
C99: [W41] 'PARTICULATE COLLECTION ANALYSIS
D99: [W10] ^Units
B100: [W9] ^(Wfi)
C100: [W41] 'Tare Weight of Filter
D100: [W10] ^g
F100: (F5) U [W9] 0.365
```

```
H100: (F5) U [W9] 0.3706
J100: (F5) U [W9] 0.3622
B101: [W9] ^(Wff)
C101: [W41] 'Final Filter Weight
D101: [W10] ^g
F101: (F5) U [W9] 0.3667
H101: (F5) U [W9] 0.3807
J101: (F5) U [W9] 0.3642
B102: [W9] ^(mf)
```

A-006026

```
C54: [W41] 'Dry Gas Molecular Weight
D54: [W10] ^lb/lb-mole
F54: (F2) [W9] (0.44*(F45)+0.32*(F44)+0.28*(F46+F47/10000))
H54: (F2) [W9] (0.44*(H45)+0.32*(H44)+0.28*(H46+H47/10000))
J54: (F2) [W9] (0.44*(J45)+0.32*(J44)+0.28*(J46+J47/10000))
L54: (F2) [W9] @AVG(F54..J54)
B55: [W9] ^(Ms)
C55: [W41] 'Wet Gas Molecular Weight
D55: [W10] ^lb/lb-mole
F55: (F2) [W9] (F54*(1-((F58*F51)+((-F58+1)*F52))/100))+18*(((F58*F51)+((-F58+1)*F52))/100)
H55: (F2) [W9] (H54*(1-((H58*H51)+((-H58+1)*H52))/100))+18*(((H58*H51)+((-H58+1)*H52))/100)
J55: (F2) [W9] (J54*(1-((J58*J51)+((-J58+1)*J52))/100))+18*(((J58*J51)+((-J58+1)*J52))/100)
L55: (F2) [W9] @AVG(F55..J55)
B56: [W9] ^(vs)
C56: [W41] 'Stack Gas Velocity
D56: [W10] ^ft/s
F56: (F2) [W9] (85.49*(F42)*(F43)*((F35+460)/((F50)*(F55)))^0.5)
H56: (F2) [W9] (85.49*(H42)*(H43)*((H35+460)/((H50)*(H55)))^0.5)
J56: (F2) [W9] (85.49*(J42)*(J43)*((J35+460)/((J50)*(J55)))^0.5)
L56: (F1) [W9] @AVG(F56..J56)
B57: [W9] ^(A)
C57: [W41] 'Stack Area
D57: [W10] ^ft2
F57: (F2) [W9] (+F39/24)^2*@PI+(F40*F41/144)
H57: (F2) [W9] (+H39/24)^2*@PI+(H40*H41/144)
J57: (F2) [W9] (+J39/24)^2*@PI+(J40*J41/144)
A58: U [W1] ||
F58: (H) [W9] +F51<=F52
H58: (H) [W9] +H51<=H52
J58: (H) [W9] +J51<=J52
A59: U [W1] ||
B59: [W9] ^(Qsd)
C59: [W41] 'Volumetric Gas Flow Rate
D59: [W10] ^dscfs
F59: (F0) [W9] (F$57)*F$56*(1-((F$58*F51)+((-F58+1)*F52))/100)*528/(460+F35)*((F32+(F33/13.6))/29.92)
H59: (F0) [W9] (H$57)*H$56*(1-((H$58*H51)+((-H58+1)*H52))/100)*528/(460+H35)*((H32+(H33/13.6))/29.92)
J59: (F0) [W9] (J$57)*J$56*(1-((J$58*J51)+((-J58+1)*J52))/100)*528/(460+J35)*((J32+(J33/13.6))/29.92)
L59: (F0) [W9] @AVG(F59..J59)
B60: [W9] ^(Qsd)
C60: [W41] 'Volumetric Gas Flow Rate
D60: [W10] ^dscfm
F60: (,0) [W9] @ROUND(60*F59,-2)
H60: (,0) [W9] @ROUND(60*H59,-2)
J60: (,0) [W9] @ROUND(60*J59,-2)
L60: (,0) [W9] @AVG(F60..J60)
A61: U [W1] ||
B61: [W9] ^(Qsd)
C61: [W41] 'Volumetric Gas Flow Rate
D61: [W10] ^dscfh
F61: (S2) [W9] @ROUND(60*F60,-4)
H61: (S2) [W9] @ROUND(60*H60,-4)
J61: (S2) [W9] @ROUND(60*J60,-4)
L61: (S2) [W9] @AVG(F61..J61)
B62: [W9] ^(Qa)
C62: [W41] 'Volumetric Gas Flow Rate
```

```
D62: [W10] ^acfm
F62: (,0) [W9] @ROUND(60*F56*F57,-2)
H62: (,0) [W9] @ROUND(60*H56*H57,-2)
J62: (,0) [W9] @ROUND(60*J56*J57,-2)
L62: (,0) [W9] @AVG(F62..J62)
A63: U [W1] ||
B63: [W9] ^(%EA)
```

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```
F43: (F3) [W9] 0.499
H43: (F3) [W9] 0.476
J43: (F3) [W9] 0.498
B44: [W9] ^(%O2)
C44: [W41] 'Stack Gas Oxygen
D44: [W10] ^%
F44: (F1) U [W9] 17.6
H44: (F1) U [W9] 17.78
I44: (F1) U [W2] '
J44: (F1) U [W9] 17.66
L44: (F1) [W9] @AVG(F44..J44)
B45: [W9] ^(%CO2)
C45: [W41] 'Stack Gas Carbon Dioxide
D45: [W10] ^%
F45: (F1) U [W9] 2.4
H45: (F1) U [W9] 2.4
J45: (F1) U [W9] 2.38
L45: (F1) [W9] @AVG(F45..J45)
B46: [W9] ^(%N2)
C46: [W41] 'Stack Gas Nitrogen
D46: [W10] ^%
F46: (F1) U [W9] 100-F44-F45
H46: (F1) U [W9] 100-H44-H45
J46: (F1) U [W9] 100-J44-J45
L46: (F1) [W9] @AVG(F46..J46)
A47: U [W1] ||
B47: [W9] ^(ppmCO)
C47: [W41] 'Stack Gas Carbon Monoxide
D47: [W10] ^ppm
F47: U [W9] 24.2
H47: U [W9] 24.2
J47: U [W9] 24.2
L47: (F1) [W9] @AVG(F47..J47)
C49: [W41] 'CALCULATED STACK GAS DATA
B50: [W9] ^(Ps)
C50: [W41] 'Stack Gas Pressure
D50: [W10] ^in. Hg
F50: (F2) [W9] (F33/13.6+F32)
H50: (F2) [W9] (H33/13.6+H32)
J50: (F2) [W9] (J33/13.6+J32)
L50: (F2) [W9] @AVG(F50..J50)
B51: [W9] ^(%Bws)
C51: [W41] 'Stack Gas Moisture
D51: [W10] ^%
F51: (F1) [W9] (F31*0.04707)/((F31*0.04707)+F53)*100
H51: (F1) [W9] (H31*0.04707)/((H31*0.04707)+H53)*100
J51: (F1) [W9] (J31*0.04707)/((J31*0.04707)+J53)*100
L51: (F1) [W9] @AVG(F51..J51)
B52: [W9] ^(%B'w)
C52: [W41] 'Moisture at Saturation
D52: [W10] ^%
F52: (F1) [W9] (@VLOOKUP(F35,$AJ$4..$AK$164,1)/(F50)*100)
H52: (F1) [W9] (@VLOOKUP(H35,$AJ$4..$AK$164,1)/(H50)*100)
J52: (F1) [W9] (@VLOOKUP(J35,$AJ$4..$AK$164,1)/(J50)*100)
B53: [W9] ^(Vmstd)
C53: [W41] 'Standard Dry Gas Meter Volume
D53: [W10] ^dscf


F53: (F3) [W9] (17.64*(F27)*F19*(F50)/(F36+460))
H53: (F3) [W9] (17.64*(H27)*H19*(H50)/(H36+460))
J53: (F3) [W9] (17.64*(J27)*J19*(J50)/(J36+460))
L53: (F3) [W9] @AVG(F53..J53)
B54: [W9] ^(Md)
```

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```
L32: (F2) [W9] @AVG(F32..J32)
B33: [W9] ^(Pg)
C33: [W41] 'Stack Static Pressure
D33: [W10] ^in. H2O
F33: U [W9] -0.67
G33: U [W2] '
H33: U [W9] -0.67
J33: U [W9] -0.67
B34: [W9] ^(~H)
C34: [W41] 'Avg. Orifice Pressure Drop ~H
D34: [W10] ^in. H2O
F34: (F2) [W9] 1.74
H34: (F2) [W9] 1.46
J34: (F2) [W9] 1.69
B35: [W9] ^(Ts)
C35: [W41] 'Avg. Stack Gas Temperature
D35: [W10] +"     "&@CHAR(176)&"F"
F35: (F1) [W9] 317.1
H35: (F1) [W9] 297.9
J35: (F1) [W9] 315.3
L35: (F1) [W9] @AVG(F35..J35)
B36: [W9] ^(Tm)
C36: [W41] 'Avg. Dry Gas Meter Temperature
D36: [W10] +"     "&@CHAR(176)&"F"
F36: (F1) [W9] 95.8
H36: (F1) [W9] 100.2
J36: (F1) [W9] 100.7
B37: [W9] ^(Dn)
C37: [W41] 'Nozzle Diameter
D37: [W10] ^inches
F37: (F3) U [W9] 0.313
H37: (F3) U [W9] 0.308
J37: (F3) U [W9] 0.308
A38: U [W1] ||
C38: [W41] '  FOR STACK DIMENSIONS, ENTER 0 WHERE SIZE IS NOT APPROPRIATE
B39: [W9] ^(Ds)
C39: [W41] 'Diameter of Stack
D39: [W10] ^inches
F39: (F3) U [W9] 64.5
H39: (F3) U [W9] 64.5
J39: (F3) U [W9] 64.5
B40: [W9] ^(W)
C40: [W41] 'Width of Stack
D40: [W10] ^inches
F40: (F3) U [W9] 0
H40: (F3) U [W9] 0
J40: (F3) U [W9] 0
B41: [W9] ^(L)
C41: [W41] 'Length of Stack
D41: [W10] ^inches
F41: (F3) U [W9] 0
H41: (F3) U [W9] 0
J41: (F3) U [W9] 0
B42: [W9] ^(Cp)
C42: [W41] 'Pitot Tube Coefficient
D42: [W10] ^--
F42: (F2) U [W9] 0.84
H42: (F2) U [W9] +F42
J42: (F2) U [W9] +F42



B43: [W9] ^(~p)§
C43: [W41] 'Avg. Square Root Velocity Head ~p
D43: [W10] ^(in. H2O)§
```

```
F23: U [W9] 0
H23: U [W9] 0
J23: U [W9] 0
B24: [W9] ^(Vf)
C24: [W41] 'Final Meter Volume
D24: [W10] ^cf
F24: (F3) U [W9] 96.203
H24: (F3) U [W9] 171.52
J24: (F3) U [W9] 252.647
B25: [W9] ^(Lp)
C25: [W41] 'Leak Check Correction
D25: [W10] ^cfm
F25: U [W9] 0
H25: U [W9] 0
J25: U [W9] 0
A26: U [W1] ||
C26: [W41] ||
F26: (H) [W9] @IF(F25-0.02>0,F25,0)
H26: (H) [W9] @IF(H25-0.02>0,H25,0)
J26: (H) [W9] @IF(J25-0.02>0,J25,0)
B27: [W9] ^(Vm)
C27: [W41] 'Total Meter Volume
D27: [W10] ^cf
F27: (F3) [W9] (F24-F23)+(F22-F20)-(0.02-F24)*F26
H27: (F3) [W9] (H24-H23)+(H22-H20)-(0.02-H24)*H26
J27: (F3) [W9] (J24-J23)+(J22-J20)-(0.02-J24)*J26
L27: (F3) [W9] @AVG(F27..J27)
B28: [W9] ^(t)
C28: [W41] 'Sampling Time
D28: [W10] ^min.
F28: U [W9] 120
H28: U [W9] 120
J28: U [W9] 120
L28: (F0) [W9] @AVG(F28..J28)
B29: [W9] ^(Vwc)
C29: [W41] 'Volume of Water Collected
D29: [W10] ^mL
F29: (F1) U [W9] 219.6
H29: (F1) U [W9] 198.5
J29: (F1) U [W9] 222.7
L29: (F1) [W9] @AVG(F29..J29)
B30: [W9] ^(Vwsg)
C30: [W41] 'Silica Gel Weight Increase
D30: [W10] ^g
F30: (F1) U [W9] 15.1
H30: (F1) U [W9] 14
J30: (F1) U [W9] 15.7
L30: (F1) [W9] @AVG(F30..J30)
B31: [W9] ^(Vlc)
C31: [W41] 'Total Water Collected
D31: [W10] ^mL
F31: (F1) [W9] 234.7
H31: (F1) [W9] 212.5
J31: (F1) [W9] 238.4
L31: (F1) [W9] @AVG(F31..J31)
B32: [W9] ^(Pbar)
C32: [W41] 'Barometric Pressure
D32: [W10] ^in. Hg
F32: (F2) U [W9] 29.55
H32: (F2) U [W9] 29.5

J32: (F2) U [W9] 29.53
```

```
C9: U [W41] 'TABLE X-X
C10: U [W41] 'PARTICULATE EMISSIONS SUMMARY
C11: U [W41] 'Kiln #2, Exhaust Stack
C12: U [W41] 'Solite Hubers Plant, Brooks, KY
H12: [W9] '
B14: [W9] 'filename:
C14: U [W41] 'BIGMETH5.wk1
D14: [W10] "RUN NO.==>
F14: U [W9] 'K2-1
H14: U [W9] 'K2-2
I14: U [W2] '
J14: U [W9] 'K2-3
D15: [W10] "DATE==>
F15: U [W9] '7/8/92
H15: U [W9] '7/8/92
J15: U [W9] '7/8/92
C16: [W41] 'SAMPLING PARAMETERS
D16: [W10] "RUN TIME==>
F16: U [W9] '1117-1323
H16: U [W9] '1450-1655
J16: U [W9] '1900-2103
L16: [W9] ^AVERAGE
B17: [W9] \-
C17: [W41] \-
D17: [W10] \-
E17: [W2] \-
F17: [W9] \-
G17: [W2] \-
H17: [W9] \-
I17: [W2] \-
J17: [W9] \-
K17: [W2] \-
L17: [W9] \-
B18: [W9] ^SYMBOL
C18: [W41] 'MEASURED DATA AT STACK
D18: [W10] ^UNITS
B19: [W9] ^(Y)
C19: [W41] 'Dry Gas Meter Calibration Factor
D19: [W10] ^--
F19: U [W9] 1
H19: U [W9] +F19
J19: U [W9] +F19
B20: [W9] ^(Vi)
C20: [W41] 'Initial Meter Volume
D20: [W10] ^cf
E20: U [W2] '
F20: (F3) U [W9] 14.768
H20: (F3) U [W9] 96.363
J20: (F3) U [W9] 171.819
A21: U [W1] ||
C21: [W41] '  IF NO INTERMEDIATE LEAK CHECK WAS DONE ENTER 0
E21: U [W2] '
F21: [W9] 0
A22: U [W1] ||
C22: [W41] 'Volume Before Intermed Leak Check
D22: [W10] ^cf
F22: U [W9] 0
A23: U [W1] ||
C23: [W41] 'Volume After Intermed Leak Check
D23: [W10] ^cf
```

RAW FEED SAMPLING DATA SHEET

Metals, Chlorine, and Moisture

FACILITY: *Kentucky Solite* SAMPLE TYPE: *Raw Feed*

LOCATION: *Brooks, KY*

DATE: 7/8/92 RUN NO.: K2-R Feed-2

TEST DESCRIPTION: *No. Kiln BIF Compliance Test*

SAMPLER: B DeWees SAMPLE I.D. NO. RFEED-2

Equipment: One 32-oz glass wide-mouth bottle for compositing.
One 500-mL amber glass bottle for metals sample.
One 500-mL amber glass bottle for chlorine/moisture sample.

Instructions
1. *Assemble bottles and labels for test run sampling.*
2. *At each 30-minute interval during the test run, collect enough sample from the feed belt conveyor to place about 100-mL into the compositing jar.*
3. *Close the sample container after placing sample in bottle.*
4. *Record sampling time on field data sheet.*
5. *At end of test run, fill to 3/4ths the 500-mL sample bottles from the composite container for metals and chlorine/moisture. Affix sample labels to these bottles.*
6. *Deliver the sample containers to the field sample custodian for packaging and shipment.*

Grab No.	Composite Grab Time	Composite Grab Time
1	1502	
2	1537	
3	1601	
4	1634	
5	1702	
6	1742	
7		
8		
9		
10		
11		
12		

Appendix C

Continuous Emission Monitoring Field Data and Recorder Output

CEM Data - 1 Minute Averages

Time	O2 %	CO2 %	CO ppm	THC ppm	CO @ 7% O2	THC @ 7% O2
11:13:59	17.6	2.4	24.7	1.7	105.2	7.4
11:14:59	17.7	2.4	24.8	1.8	107.4	7.8
11:15:59	17.1	2.3	25.8	1.8	113.6	7.9
11:16:59	17.7	2.4	25.0	1.8	107.3	7.6
11:17:59	17.8	2.3	24.9	1.8	110.9	8.0
11:18:59	18.0	2.1	28.2	1.8	133.1	8.5
11:19:59	17.9	2.1	29.7	1.8	139.2	8.4
11:20:59	17.9	2.2	27.7	1.8	126.8	8.2
11:21:59	17.8	2.2	27.6	1.8	125.4	8.0
11:22:59	17.7	2.4	27.3	1.7	118.9	7.4
11:23:59	17.8	2.2	26.3	1.7	118.8	7.8
11:24:59	17.8	2.2	27.9	1.7	126.5	7.8
11:25:59	17.8	2.2	26.9	1.7	121.2	7.8
11:26:59	17.9	2.1	29.0	1.8	135.8	8.3
11:27:59	17.7	2.3	27.0	1.7	118.0	7.4
11:28:59	17.6	2.4	25.1	1.7	106.0	7.2
11:29:59	17.7	2.4	25.4	1.7	109.4	7.3
11:30:59	17.6	2.4	24.8	1.7	105.7	7.2
11:31:59	17.7	2.4	26.2	1.7	112.4	7.1
11:32:59	17.7	2.4	26.1	1.7	112.0	7.2
11:33:59	17.5	2.5	25.6	1.6	105.0	6.6
11:34:59	17.6	2.4	25.4	1.6	108.0	6.9
11:35:59	17.7	2.3	26.6	1.7	115.8	7.2
11:36:59	17.6	2.4	26.9	1.7	113.7	7.1
11:37:59	17.7	2.4	26.6	1.8	116.0	7.7
11:38:59	17.7	2.4	25.9	1.7	111.4	7.4
11:39:59	17.6	2.4	26.1	2.2	111.5	9.3
11:40:59	17.6	2.5	24.6	1.7	102.9	7.1
11:41:59	17.6	2.4	24.1	1.6	101.0	6.7
11:42:59	17.6	2.4	25.7	1.6	109.0	6.8
11:43:59	17.6	2.5	25.1	1.6	105.4	6.7
11:44:59	17.6	2.5	22.9	1.6	95.4	6.8
11:45:59	17.6	2.4	24.2	1.6	103.0	6.8
11:46:59	17.8	2.2	25.4	1.7	114.9	7.6
11:47:59	17.9	2.2	27.1	1.9	124.2	8.6
11:48:59	17.9	2.1	28.2	1.7	132.2	8.2
11:49:59	17.9	2.1	28.5	1.7	133.5	8.0
11:50:59	18.0	2.1	29.6	1.7	140.3	8.1
11:51:59	17.7	2.3	28.1	1.6	123.6	7.0
11:52:59	17.8	2.3	26.8	1.6	118.8	7.1
11:53:59	17.7	2.4	26.9	1.6	117.1	7.0
11:54:59	17.6	2.5	23.7	1.6	98.5	6.7
11:55:59	17.7	2.4	23.8	1.6	101.7	6.8
11:56:59	17.6	2.4	23.6	1.6	99.3	6.6
11:57:59	17.6	2.4	24.6	1.6	104.8	6.8
11:58:59	17.7	2.3	26.0	1.6	113.6	7.0
11:59:59	17.8	2.3	26.4	1.6	117.8	7.2
12:00:59	17.7	2.4	26.9	1.6	115.9	6.8
12:01:59	17.7	2.4	25.7	1.6	110.4	6.9
12:02:59	17.9	2.2	27.5	1.7	126.6	7.8
12:03:59	17.9	2.1	29.6	1.7	139.3	8.0
12:04:59	17.9	2.2	29.7	1.7	137.6	7.8
12:05:59	17.8	2.2	27.0	1.6	122.8	7.3
12:06:59	17.7	2.3	25.0	1.6	110.1	7.0
12:07:59	17.9	2.2	25.1	1.7	116.6	7.9
12:08:59	18.0	2.1	29.2	1.8	140.7	8.5
12:09:59	18.0	2.0	30.5	1.8	146.8	8.5
12:10:59	18.0	2.0	29.7	1.8	143.5	8.6
12:11:59	17.9	2.1	30.5	1.7	143.0	8.0
12:12:59	17.8	2.2	27.0	1.7	122.5	7.2

One Hour Rolling Averages
(ppm @7% O2)

CO	THC
116.04	7.51

12:13:59	17.7	2.3	25.3	1.7	110.1	7.2	117.88	7.50
12:14:59	17.7	2.4	25.0	1.6	107.9	7.1	117.89	7.49
12:15:59	17.6	2.4	23.4	1.6	98.8	6.8	117.64	7.47
12:16:59	17.7	2.4	23.6	2.2	101.2	9.5	117.54	7.51
12:17:59	17.7	2.3	23.6	2.5	101.6	10.9	117.38	7.55
12:18:59	17.8	2.3	27.1	1.6	120.9	7.4	117.18	7.54
12:19:59	17.7	2.4	26.6	1.6	115.4	6.8	116.78	7.51
12:20:59	17.9	2.2	28.5	1.5	130.6	7.0	116.85	7.49
12:21:59	17.8	2.3	28.2	1.5	126.2	6.5	116.86	7.46
12:22:59	17.7	2.3	26.1	1.6	114.3	6.8	116.78	7.45
12:23:59	17.7	2.4	25.9	1.7	111.8	7.3	116.67	7.45
12:24:59	17.8	2.3	26.2	1.7	115.4	7.6	116.48	7.44
12:25:59	17.7	2.3	27.5	1.7	121.1	7.7	116.48	7.44
12:26:59	17.8	2.2	27.2	1.8	123.9	8.1	116.28	7.44
12:27:59	17.9	2.2	29.8	1.8	138.3	8.4	116.62	7.45
12:28:59	17.7	2.4	28.3	1.7	122.5	7.3	116.90	7.46
12:29:59	17.6	2.4	24.6	1.7	104.1	7.2	116.81	7.45
12:30:59	17.6	2.4	24.4	1.7	101.5	7.1	116.74	7.45
12:31:59	17.9	2.2	27.0	1.8	124.2	8.5	116.93	7.48
12:32:59	18.0	2.1	33.5	2.0	160.6	9.6	117.74	7.52
12:33:59	17.9	2.1	31.1	2.1	145.0	9.6	118.41	7.57
12:34:59	17.8	2.3	31.0	1.8	138.2	8.2	118.91	7.59
12:35:59	17.7	2.4	25.5	1.6	109.7	7.0	118.81	7.58
12:36:59	17.6	2.4	18.2	1.5	77.6	6.4	118.21	7.57
12:37:59	17.7	2.4	17.7	1.5	76.2	6.5	117.55	7.55
12:38:59	17.7	2.4	17.3	1.5	74.8	6.5	116.94	7.54
12:39:59	17.5	2.5	16.1	1.5	65.9	6.1	116.18	7.48
12:40:59	17.6	2.4	15.5	1.5	65.8	6.3	115.56	7.47
12:41:59	17.6	2.4	16.3	1.5	69.2	6.4	115.03	7.47
12:42:59	17.6	2.4	15.6	1.5	65.9	6.3	114.31	7.46
Run avgs.	17.7	2.3	25.9	1.7	114.5	7.5	116.98	7.49

CEM DATA - 1 Min. Averages

Time	O2 %	CO2 %	CO ppm	THC ppm	CO @ 7% O2	THC @ 7% O2
12:44:15	17.5	2.6	15.1	1.5	61.2	6.1
12:45:15	17.4	2.6	15.1	1.5	60.2	5.9
12:46:15	17.5	2.5	14.3	1.5	58.4	6.1
12:47:15	17.4	2.6	14.6	1.5	58.5	6.0
12:48:15	17.4	2.6	13.7	1.5	54.1	5.9
12:49:15	17.5	2.5	14.6	1.5	59.7	6.1
12:50:15	17.6	2.4	15.7	1.5	67.3	6.4
12:51:15	17.5	2.5	15.3	1.5	63.0	6.2
12:52:15	17.4	2.6	14.6	1.5	58.7	6.0
12:53:15	17.4	2.6	13.9	1.5	55.1	6.0
12:54:15	17.5	2.5	14.3	1.5	57.9	6.1
12:55:15	17.6	2.5	15.2	1.5	63.3	6.2
12:56:15	17.5	2.5	15.0	1.5	61.2	6.2
12:57:15	17.4	2.6	14.4	1.6	57.2	6.3
12:58:15	17.4	2.7	14.0	1.6	54.9	6.4
12:59:15	17.4	2.6	14.6	1.6	57.5	6.3
13:00:15	17.5	2.5	14.6	1.6	59.5	6.5
13:01:15	17.4	2.6	15.1	1.6	59.9	6.4
13:02:15	17.3	2.7	14.6	1.6	56.6	6.1
13:03:15	17.3	2.7	14.2	1.6	53.9	6.0
13:04:15	17.2	2.8	13.7	1.6	51.8	6.0
13:05:15	17.2	2.8	13.7	1.6	51.6	6.0
13:06:15	17.3	2.7	14.1	1.6	54.6	6.2
13:07:15	17.4	2.6	15.2	1.6	60.8	6.4
13:08:15	17.4	2.6	16.2	1.6	64.1	6.3
13:09:15	17.3	2.7	14.8	1.6	57.8	6.3
13:10:15	17.3	2.6	14.6	1.7	57.1	6.6
13:11:15	17.4	2.6	15.1	1.8	60.0	7.0
13:12:15	17.3	2.6	15.0	1.6	58.5	6.4
13:13:15	17.4	2.6	15.1	1.6	59.9	6.4
13:14:15	17.2	2.8	15.1	2.0	56.9	7.5
13:15:15	17.2	2.7	13.7	1.8	51.8	7.0
13:16:15	17.3	2.7	14.6	1.8	57.0	7.0
13:17:15	17.2	2.8	14.5	1.9	54.7	7.3
13:18:15	17.2	2.8	13.0	1.9	49.1	7.2
13:19:15	17.2	2.8	12.7	1.6	48.2	6.0
13:20:15	17.2	2.8	13.4	1.6	50.8	6.0
13:21:15	17.2	2.7	12.8	1.6	48.8	6.0
13:22:15	17.3	2.7	13.3	1.6	51.7	6.2
13:23:15	17.4	2.6	13.4	1.6	53.1	6.3
13:24:15	17.5	2.5	14.6	1.6	59.0	6.5
13:25:15	17.5	2.5	14.6	1.5	58.9	6.1
13:26:15	17.5	2.5	14.9	1.5	60.7	6.1
13:27:15	17.5	2.5	14.8	1.5	60.0	6.1
13:28:15	17.5	2.5	15.1	1.5	61.3	6.1
13:29:15	17.5	2.5	15.5	1.5	63.6	6.2
13:30:15	17.4	2.6	14.6	1.5	58.6	6.0
13:31:15	17.5	2.5	14.6	1.5	59.0	6.1
13:32:15	17.4	2.6	14.6	1.5	58.8	6.0
13:33:15	17.4	2.6	15.1	1.5	60.8	6.0
13:34:15	17.3	2.7	14.5	1.5	55.7	5.8
13:35:15	17.2	2.8	13.7	1.5	51.2	5.6
13:36:15	17.2	2.8	13.1	1.5	49.5	5.7
13:37:15	17.3	2.7	13.6	1.5	52.1	5.7
13:38:15	17.3	2.8	13.6	1.5	52.0	5.7
13:39:15	17.2	2.8	13.2	1.5	49.5	5.6
13:40:15	17.3	2.7	13.3	1.5	50.9	5.8
13:41:15	17.5	2.6	14.4	1.5	58.0	6.1
13:42:15	17.4	2.6	15.3	1.5	61.4	6.0
13:43:15	17.5	2.5	15.1	1.5	61.1	6.1

One Hour Rolling Averages (ppm @7% O2)

CO	THC
56.98	6.21

13:44:15	17.5	2.5	15.9	1.5	65.6	6.2	57.05	6.21
13:45:15	17.5	2.5	16.0	1.5	65.6	6.2	57.14	6.22
13:46:15	17.5	2.5	15.6	1.5	63.1	6.1	57.22	6.22
13:47:15	17.5	2.5	15.6	1.5	62.9	6.1	57.29	6.22
13:48:15	17.6	2.5	15.6	1.5	65.1	6.3	57.47	6.23
13:49:15	17.5	2.5	15.6	1.5	63.5	6.1	57.54	6.23
13:50:15	17.5	2.5	15.4	1.5	63.3	6.2	57.47	6.22
13:51:15	17.5	2.5	15.6	1.5	64.1	6.2	57.49	6.22
13:52:15	17.6	2.4	15.6	1.5	65.4	6.3	57.60	6.23
13:53:15	17.7	2.3	16.3	1.5	70.6	6.5	57.86	6.24
13:54:15	17.6	2.5	16.5	1.5	68.7	5.2	58.04	6.22
13:55:15	17.6	2.4	16.1	1.5	68.4	6.4	58.12	6.22
13:56:15	17.8	2.3	16.3	1.5	72.0	6.6	58.30	6.23
13:57:15	17.7	2.3	16.2	1.5	69.9	6.5	58.52	6.23
13:58:15	17.7	2.4	16.3	1.5	69.8	6.4	58.76	6.23
13:59:15	17.5	2.5	15.3	3.2	62.3	13.2	58.84	6.35
14:00:15	17.6	2.5	15.1	1.5	62.6	6.2	58.90	6.34
14:01:15	17.5	2.5	14.6	1.5	59.2	6.1	58.88	6.34
14:02:15	17.6	2.5	17.1	1.6	71.0	6.7	59.12	6.35
14:03:15	17.2	2.5	19.6	1.7	76.7	6.5	59.50	6.36
14:04:15	17.4	2.5	24.2	1.7	97.3	6.6	60.26	6.37
14:05:15	17.3	2.7	18.2	1.7	70.6	6.5	60.58	6.38
14:06:15	17.5	2.5	19.3	1.7	78.2	6.7	60.97	6.38
14:07:15	17.4	2.6	19.0	1.6	75.0	6.4	61.21	6.38
14:08:15	17.4	2.7	18.6	1.6	73.1	6.4	61.36	6.39
14:09:15	17.3	2.7	17.9	1.9	69.0	7.3	61.55	6.40
14:10:15	17.4	2.6	19.2	2.1	75.5	8.3	61.85	6.43
14:11:15	17.5	2.5	19.2	1.7	78.0	6.9	62.15	6.43
14:12:15	17.4	2.6	18.8	1.6	74.1	6.4	62.41	6.43
14:13:15	17.5	2.5	19.7	1.7	80.5	6.9	62.76	6.44
Run avgs.	17.4	2.6	15.3	1.6	61.3	6.4	59.13	6.30

CEM DATA - One Minute Averages

Time	O2 %	CO2 %	CO ppm	THC ppm	CO @ 7% O2	THC @ 7% O2
14:52:35	17.6	2.4	21.9	1.4	92.9	5.9
14:53:35	17.6	2.5	20.6	1.4	85.9	5.8
14:54:35	17.8	2.2	22.9	1.4	104.0	6.4
14:55:35	17.7	2.3	24.0	1.4	105.7	6.1
14:56:35	17.6	2.4	20.4	1.4	86.7	5.8
14:57:35	17.6	2.4	21.4	1.3	91.1	5.7
14:58:35	17.7	2.3	20.6	1.4	89.6	5.9
14:59:35	17.7	2.4	21.7	1.4	93.7	5.9
15:00:35	17.6	2.5	19.9	1.3	82.9	5.5
15:01:35	17.6	2.4	19.2	1.3	81.7	5.6
15:02:35	17.7	2.4	20.6	1.3	88.8	5.7
15:03:35	17.7	2.4	20.6	1.3	88.9	5.8
15:04:35	17.8	2.3	21.6	1.4	95.5	6.2
15:05:35	17.6	2.5	20.7	1.4	86.4	5.9
15:06:35	17.6	2.4	19.5	1.4	81.9	5.7
15:07:35	17.6	2.4	20.4	1.4	86.8	6.0
15:08:35	17.6	2.5	20.5	1.3	85.4	5.5
15:09:35	17.5	2.5	19.7	1.3	81.2	5.4
15:10:35	17.5	2.5	20.1	1.5	83.0	6.0
15:11:35	17.6	2.4	20.7	1.5	87.4	6.4
15:12:35	17.6	2.4	21.9	1.4	93.2	5.9
15:13:35	17.7	2.4	22.3	1.5	95.9	6.4
15:14:35	17.8	2.2	23.4	1.5	104.6	6.6
15:15:35	17.7	2.4	24.5	1.4	105.2	6.0
15:16:35	17.7	2.3	23.5	1.4	101.6	6.0
15:17:35	17.7	2.3	24.0	1.4	105.0	6.1
15:18:35	17.5	2.5	22.7	1.3	93.5	5.4
15:19:35	17.7	2.3	22.0	1.4	96.3	6.0
15:20:35	17.5	2.5	23.6	1.3	96.7	5.3
15:21:35	17.5	2.5	20.8	1.3	85.1	5.4
15:22:35	17.6	2.4	21.7	1.4	91.4	5.7
15:23:35	17.6	2.5	22.4	1.3	93.1	5.4
15:24:35	17.5	2.5	21.6	1.3	89.3	5.5
15:25:35	17.6	2.5	22.0	1.4	91.4	5.8
15:26:35	17.6	2.4	22.5	1.4	95.8	6.0
15:27:35	17.6	2.4	23.0	1.4	97.1	5.9
15:28:35	17.6	2.5	21.7	1.3	90.1	5.6
15:29:35	17.6	2.4	22.4	1.4	94.5	5.8
15:30:35	17.6	2.4	22.2	1.4	94.8	5.9
15:31:35	17.5	2.5	24.0	1.3	98.2	5.4
15:32:35	17.6	2.4	22.3	1.3	93.4	5.6
15:33:35	17.7	2.4	23.3	1.4	100.3	6.0
15:34:35	17.7	2.3	25.6	1.4	111.9	6.1
15:35:35	17.7	2.4	25.0	1.4	107.0	6.0
15:36:35	17.9	2.2	24.7	1.5	113.8	6.9
15:37:35	17.9	2.2	27.2	1.5	125.5	7.0
15:38:35	17.9	2.1	25.5	1.5	119.7	7.2
15:39:35	17.8	2.3	24.5	1.5	109.0	6.7
15:40:35	17.8	2.3	23.3	1.5	102.9	6.6
15:41:35	17.7	2.3	21.6	1.5	95.3	6.6
15:42:35	17.8	2.2	23.5	1.5	106.8	6.8
15:43:35	17.8	2.3	23.5	1.5	103.9	6.6
15:44:35	17.7	2.4	22.1	1.5	96.5	6.5
15:45:35	17.8	2.2	23.5	1.5	106.3	6.8
15:46:35	17.8	2.2	24.6	1.5	109.9	6.7
15:47:35	17.9	2.2	24.0	1.5	101.0	6.9
15:48:35	18.0	2.1	25.4	1.5	119.9	7.3
15:49:35	17.8	2.2	26.0	1.5	118.1	6.4
15:50:35	17.8	2.2	21.3	1.5	98.1	6.7
15:51:35	18.0	2.0	24.9	1.5	119.0	7.2

One Hour Rolling Averages (ppm at 7% O2)

CO	THC
97.51	6.10

15:52:35	17.9	2.1	25.5	1.5	117.5	7.0	97.92	6.12
15:53:35	17.8	2.2	24.8	1.5	112.9	6.7	98.37	6.13
15:54:35	17.7	2.3	22.2	1.4	97.5	6.3	98.26	6.13
15:55:35	17.7	2.3	22.3	1.5	98.3	6.5	98.14	6.14
15:56:35	17.8	2.3	22.9	1.4	103.4	6.5	98.42	6.15
15:57:35	17.6	2.4	21.3	1.4	90.2	6.0	98.40	6.15
15:58:35	17.9	2.1	23.2	1.5	107.5	6.9	98.70	6.17
15:59:35	17.6	2.4	23.3	1.4	98.6	5.8	98.78	6.17
16:00:35	17.6	2.4	19.6	1.2	82.4	5.1	98.77	6.16
16:01:35	17.8	2.3	22.0	1.3	98.5	5.8	99.05	6.16
16:02:35	17.8	2.2	24.9	1.3	113.3	5.9	99.46	6.17
16:03:35	17.8	2.2	23.5	1.3	104.3	5.8	99.72	6.17
16:04:35	17.8	2.2	25.2	1.3	114.0	5.9	100.03	6.16
16:05:35	17.8	2.2	23.9	1.3	106.9	5.9	100.37	6.16
16:06:35	17.9	2.2	25.9	1.4	118.0	6.6	100.97	6.18
16:07:35	17.9	2.1	25.5	1.5	118.5	7.0	101.50	6.19
16:08:35	17.9	2.1	28.3	1.5	133.0	7.1	102.29	6.22
16:09:35	17.8	2.3	25.4	1.4	113.1	6.2	102.82	6.23
16:10:35	17.9	2.2	25.4	1.4	116.2	6.4	103.38	6.24
16:11:35	17.8	2.2	26.2	1.4	118.9	6.6	103.90	6.24
16:12:35	17.8	2.3	27.1	1.4	119.8	6.3	104.35	6.25
16:13:35	17.7	2.3	24.1	1.4	104.6	6.1	104.49	6.25
16:14:35	17.8	2.2	26.4	1.5	119.9	6.6	104.75	6.25
16:15:35	17.8	2.3	27.4	1.4	122.2	6.4	105.03	6.25
16:16:35	17.7	2.4	24.2	1.4	103.7	6.1	105.06	6.25
16:17:35	17.8	2.2	25.2	1.5	113.3	6.6	105.20	6.26
16:18:35	17.7	2.3	26.9	1.4	118.3	6.3	105.62	6.28
16:19:35	17.6	2.4	24.3	1.4	103.4	5.9	105.73	6.28
16:20:35	17.7	2.4	24.0	1.4	102.7	6.0	105.83	6.29
16:21:35	17.7	2.3	24.5	1.4	107.8	6.2	106.21	6.30
16:22:35	17.9	2.1	27.6	1.5	129.8	7.0	106.85	6.32
16:23:35	17.9	2.2	28.4	1.5	130.1	6.7	107.47	6.34
16:24:35	17.8	2.2	26.5	1.5	119.6	6.7	107.97	6.36
16:25:35	17.9	2.1	27.5	1.5	127.2	7.0	108.57	6.38
16:26:35	17.9	2.1	27.2	1.5	126.2	6.9	109.08	6.40
16:27:35	17.7	2.3	25.7	1.4	112.6	6.1	109.34	6.40
16:28:35	17.6	2.4	23.3	1.4	98.4	5.8	109.47	6.41
16:29:35	17.7	2.3	22.8	1.4	98.2	6.0	109.54	6.41
16:30:35	17.8	2.2	24.5	1.4	109.8	5.9	109.79	6.41
16:31:35	17.8	2.3	22.0	1.3	97.4	5.3	109.77	6.41
16:32:35	17.8	2.2	20.8	1.2	94.2	5.4	109.79	6.40
16:33:35	17.8	2.2	20.6	1.2	93.1	5.5	109.67	6.40
16:34:35	17.8	2.3	20.3	1.2	90.0	5.8	109.30	6.39
16:35:35	17.8	2.2	18.6	1.3	83.9	4.6	108.92	6.37
16:36:35	18.0	2.0	21.2	1.0	103.3	6.4	108.74	6.36
16:37:35	18.1	2.0	22.5	1.3	111.2	6.4	108.50	6.35
16:38:35	18.0	2.1	21.9	1.3	104.5	6.2	108.25	6.33
16:39:35	17.9	2.1	20.6	1.3	95.7	6.0	108.03	6.32
16:40:35	18.0	2.1	20.6	1.3	97.8	6.2	107.94	6.31
16:41:35	17.8	2.2	20.3	1.3	92.1	5.8	107.89	6.30
16:42:35	17.8	2.2	19.4	1.3	87.4	5.9	107.57	6.29
16:43:35	17.7	2.3	18.0	1.3	77.3	5.6	107.12	6.27
16:44:35	17.8	2.2	17.8	1.3	78.9	5.8	106.83	6.26
16:45:35	17.9	2.1	18.5	1.5	85.0	6.9	106.47	6.26
16:46:35	18.1	2.0	21.1	1.5	103.5	7.5	106.37	6.27
16:47:35	17.9	2.1	20.5	1.6	94.6	7.3	106.26	6.28
16:48:35	17.9	2.1	18.6	1.4	86.2	6.5	105.70	6.27
16:49:35	17.9	2.2	19.5	1.3	89.5	6.0	105.22	6.26
16:50:35	17.8	2.2	17.6	1.3	79.2	5.7	104.91	6.24
16:51:35	17.8	2.2	16.6	1.3	74.4	6.1	104.16	6.23
16:52:35	18.1	2.0	18.0	1.7	88.3	8.1	103.68	6.24
16:53:35	18.0	2.1	19.3	1.3	92.0	6.3	103.33	6.24
16:54:35	17.8	2.3	17.0	1.3	75.5	5.6	102.96	6.23
16:55:35	17.9	2.2	16.7	1.2	76.3	5.7	102.60	6.21

16:56:35	17.8	2.2	17.3	1.2	78.1	5.4	102.17	6.19
16:57:35	17.8	2.2	16.6	1.2	74.4	5.4	101.91	6.18
16:58:35	17.8	2.3	16.6	1.2	74.4	5.4	101.36	6.16
16:59:35	17.9	2.2	16.7	1.2	76.6	5.5	100.99	6.15
17:00:35	18.1	2.0	19.8	1.3	98.3	6.2	101.26	6.17
17:01:35	18.1	2.0	21.3	1.2	106.2	6.2	101.39	6.18
17:02:35	17.9	2.2	19.5	1.2	88.8	5.5	100.98	6.17
17:03:35	17.7	2.3	17.0	1.2	74.5	5.3	100.48	6.16
17:04:35	17.9	2.1	17.9	1.2	84.3	5.6	99.99	6.16
17:05:35	17.9	2.1	19.4	1.2	89.5	5.6	99.70	6.15
17:06:35	17.8	2.2	18.4	1.4	81.8	6.2	99.09	6.15
17:07:35	17.9	2.1	17.5	1.6	82.3	7.6	98.49	6.16
17:08:35	17.9	2.1	19.8	1.4	92.1	6.6	97.81	6.15
17:09:35	17.8	2.2	18.8	1.2	85.9	5.6	97.35	6.14
17:10:35	17.7	2.4	17.4	1.2	74.6	5.2	96.66	6.12
17:11:35	17.8	2.3	16.9	1.2	75.2	5.3	95.93	6.10
17:12:35	17.8	2.2	18.0	1.2	81.6	5.4	95.30	6.08
17:13:35	17.8	2.2	18.0	1.2	80.2	5.4	94.89	6.07
17:14:35	17.9	2.2	18.4	1.2	85.0	5.5	94.31	6.05
17:15:35	17.8	2.3	19.0	1.2	84.2	5.3	93.67	6.03
17:16:35	17.6	2.4	16.7	1.2	70.8	5.1	93.13	6.02
17:17:35	17.5	2.5	16.1	1.2	66.1	4.9	92.34	5.99
17:18:35	17.6	2.4	15.8	1.2	67.1	5.1	91.49	5.97
17:19:35	17.6	2.4	16.6	1.2	70.3	5.1	90.93	5.96
17:20:35	17.8	2.2	17.2	1.2	76.5	5.3	90.50	5.94
17:21:35	17.8	2.3	18.4	1.2	81.8	5.3	90.06	5.93
17:22:35	17.7	2.3	17.0	1.2	74.2	5.1	89.14	5.90
17:23:35	17.7	2.3	17.1	1.1	74.4	4.9	88.21	5.87
17:24:35	17.7	2.3	17.0	1.2	73.9	5.1	87.45	5.84
17:25:35	17.7	2.3	17.2	1.1	74.6	4.9	86.57	5.81
17:26:35	17.7	2.3	16.6	1.1	72.2	5.0	85.67	5.77
17:27:35	17.7	2.4	16.6	1.1	71.3	4.8	84.98	5.75
17:28:35	17.8	2.2	17.6	1.2	78.6	5.2	84.65	5.74
17:29:35	17.7	2.3	17.6	1.2	77.5	5.1	84.31	5.73
17:30:35	17.6	2.4	16.8	1.1	71.8	4.7	83.67	5.71
17:31:35	17.6	2.4	16.5	1.1	69.7	4.7	83.21	5.70
17:32:35	17.7	2.4	16.6	1.1	70.9	4.8	82.82	5.69
17:33:35	17.8	2.2	17.2	1.2	78.0	5.4	82.57	5.69
17:34:35	17.9	2.2	18.5	1.2	85.4	5.5	82.50	5.68
17:35:35	17.9	2.1	18.5	1.1	85.7	5.1	82.53	5.69
17:36:35	18.0	2.0	19.0	1.1	90.6	5.3	82.31	5.67
17:37:35	18.1	2.0	20.8	1.1	102.1	5.6	82.16	5.66
17:38:35	18.0	2.1	21.5	1.1	102.5	5.3	82.13	5.64
Run avgs.	17.8	2.3	21.4	1.3	95.2	6.0	99.57	6.14

CEM Data - 1 Minute Averages

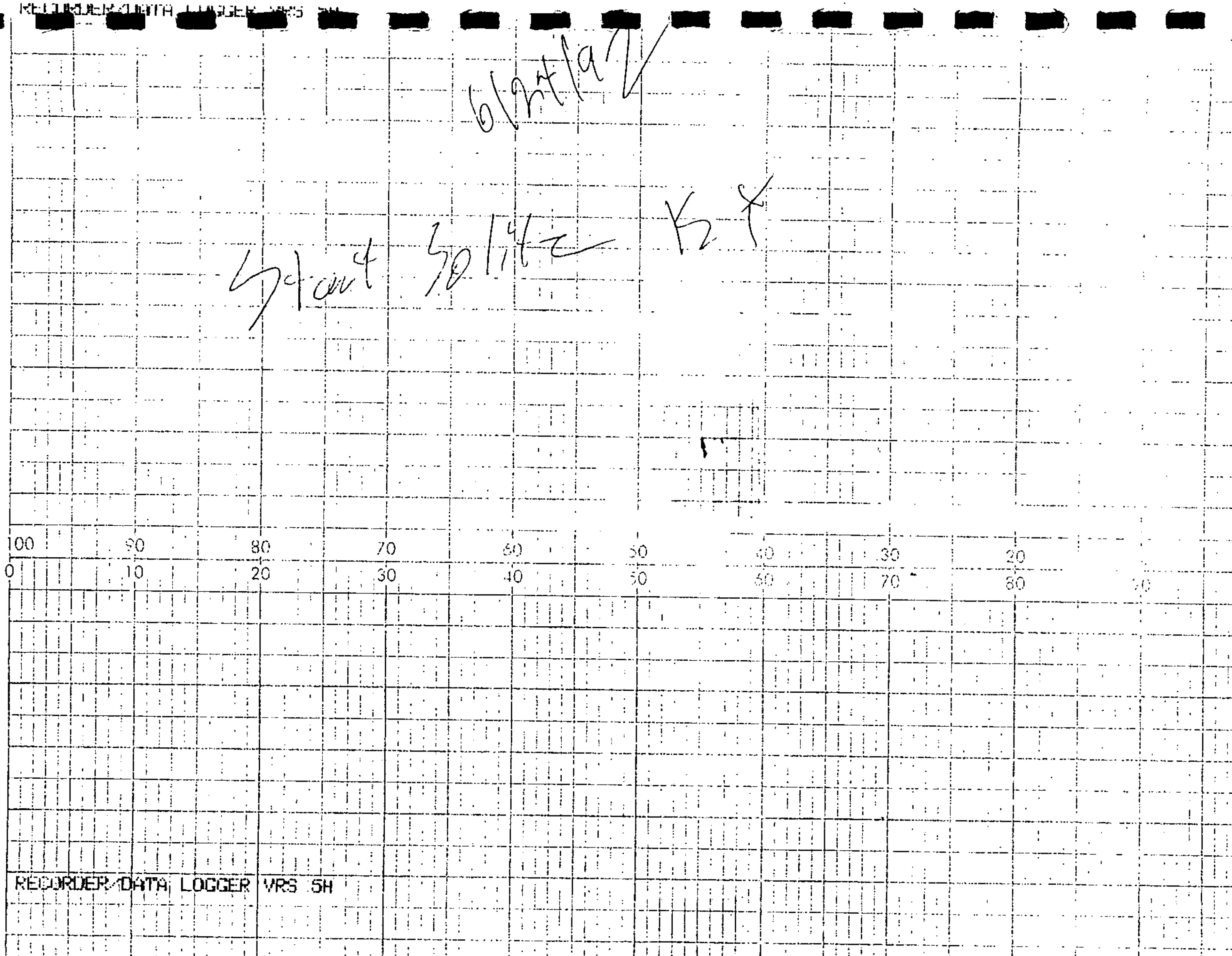
Time	O2 %	CO2 %	CO ppm	THC ppm	CO @ 7% O2	THC @ 7% O2
19:01:10	18.0	2.1	33.5	1.2	160.7	5.6
19:02:10	17.9	2.2	30.9	1.1	143.2	5.1
19:03:10	18.0	2.0	29.1	1.2	141.0	5.8
19:04:10	18.2	1.9	39.3	1.2	201.5	6.2
19:05:10	18.0	2.1	40.2	1.1	192.4	5.5
19:06:10	17.9	2.2	29.9	1.1	138.1	5.1
19:07:10	17.9	2.1	30.4	1.1	141.9	5.1
19:08:10	18.0	2.1	32.7	1.2	154.4	5.5
19:09:10	18.0	2.0	35.9	1.2	173.4	5.8
19:10:10	18.0	2.1	33.6	1.2	159.8	5.5
19:11:10	18.0	2.0	33.3	1.2	161.7	5.8
19:12:10	17.9	2.1	34.5	1.2	160.8	5.6
19:13:10	17.9	2.2	32.5	1.2	149.9	5.5
19:14:10	18.0	2.1	31.3	1.2	148.3	5.7
19:15:10	18.0	2.0	35.9	1.2	174.1	5.9
19:16:10	17.9	2.1	35.4	1.2	164.3	5.6
19:17:10	18.0	2.1	35.9	1.2	173.0	5.9
19:18:10	18.0	2.1	36.2	1.2	170.8	5.7
19:19:10	17.8	2.2	32.9	1.2	149.9	5.5
19:20:10	17.9	2.1	31.7	1.2	148.1	5.6
19:21:10	18.3	1.9	39.0	1.4	208.0	7.3
19:22:10	18.2	1.9	54.3	1.3	280.9	7.0
19:23:10	18.0	2.1	38.0	1.3	183.4	6.3
19:24:10	18.0	2.1	34.9	1.3	165.1	6.2
19:25:10	18.1	2.0	47.4	1.3	230.5	6.6
19:26:10	18.0	2.1	40.4	1.3	192.5	6.2
19:27:10	18.0	2.0	38.5	1.3	186.3	6.3
19:28:10	18.0	2.0	41.2	1.3	200.6	6.3
19:29:10	18.0	2.0	39.7	1.3	191.7	6.3
19:30:10	18.1	2.0	41.4	1.3	205.7	6.5
19:31:10	18.1	2.0	43.5	1.3	213.1	6.3
19:32:10	17.7	2.3	36.3	1.2	159.7	5.0
19:33:10	17.9	2.1	30.5	1.3	144.3	6.1
19:34:10	18.0	2.1	39.5	1.2	187.2	5.9
19:35:10	18.1	2.0	35.2	1.3	172.9	6.4
19:36:10	18.0	2.1	41.6	1.3	199.1	6.2
19:37:10	18.1	2.0	35.8	1.3	175.2	6.4
19:38:10	18.1	2.0	41.4	1.3	204.9	6.4
19:39:10	17.9	2.1	39.8	1.2	186.2	5.6
19:40:10	17.2	2.8	28.5	1.1	105.1	4.0
19:41:10	17.7	2.3	23.1	1.1	99.8	4.7
19:42:10	17.9	2.2	30.7	1.1	141.4	5.0
19:43:10	17.6	2.4	25.9	1.0	109.9	4.3
19:44:10	17.6	2.5	25.6	1.0	107.8	4.3
19:45:10	17.6	2.4	23.3	1.1	98.5	4.5
19:46:10	17.6	2.5	23.3	1.1	97.3	4.5
19:47:10	17.7	2.3	24.2	1.1	105.0	4.8
19:48:10	17.5	2.6	26.6	1.1	108.5	4.3
19:49:10	17.4	2.5	19.4	1.2	80.2	4.9
19:50:10	18.7	1.6	120.8	1.6	741.6	10.2
19:51:10	18.2	1.9	83.2	1.3	427.8	6.6
19:52:10	18.0	2.1	47.8	1.1	234.0	5.6
19:53:10	17.6	2.4	30.4	1.0	127.7	4.3
19:54:10	17.4	2.6	23.8	1.0	95.9	4.0
19:55:10	17.5	2.5	20.0	1.0	80.8	4.1
19:56:10	17.8	2.3	26.6	1.1	118.4	4.8
19:57:10	17.7	2.3	27.5	1.1	121.1	4.6
19:58:10	17.6	2.5	29.2	1.0	122.5	4.1
19:59:10	17.4	2.6	21.9	1.0	86.3	3.9
20:00:10	17.3	2.8	22.3	0.9	85.3	3.5

Rolling One Hour Averages (ppm @ 7% O2)

CO	THC
169.83	5.54

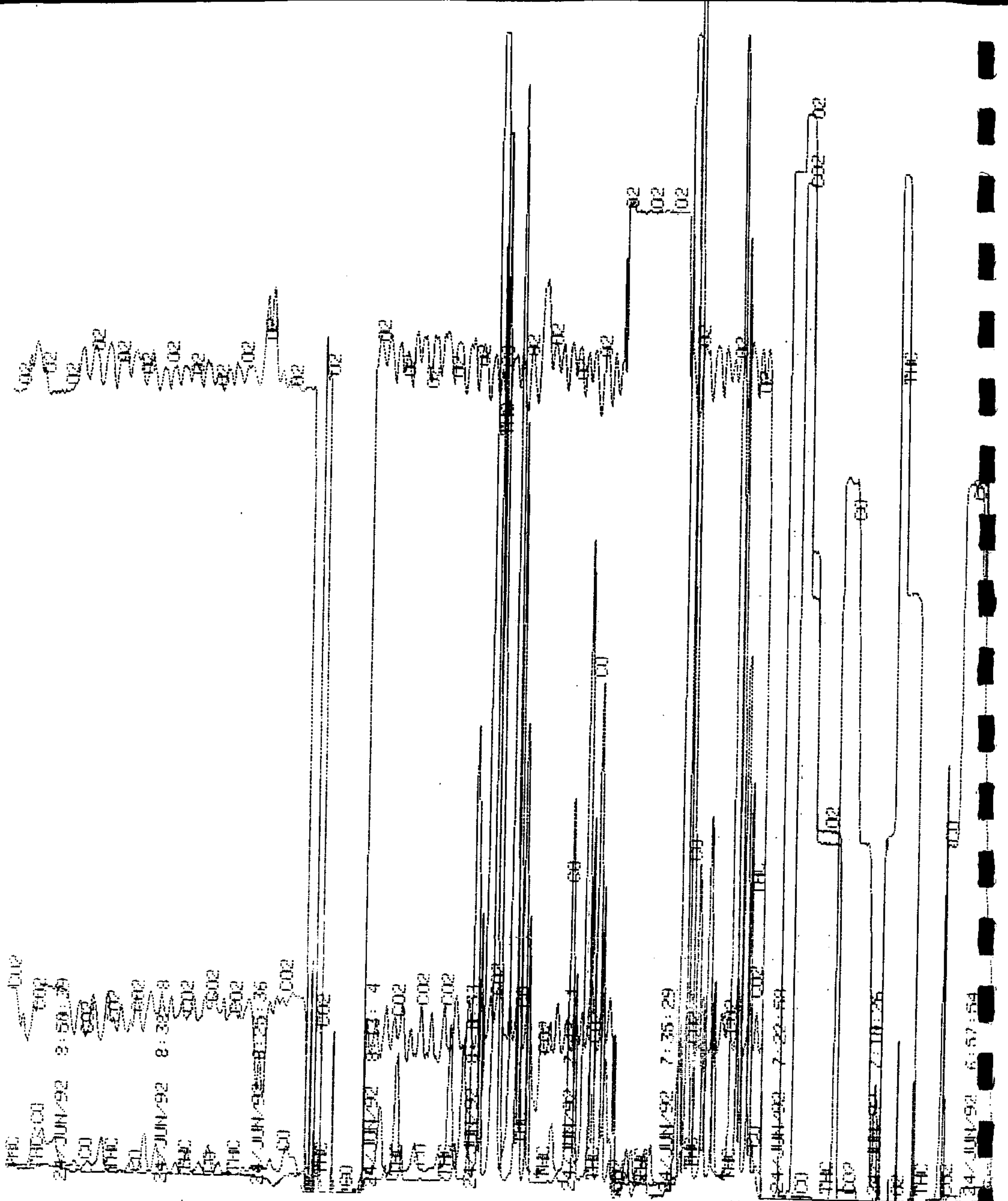
20:01:10	17.3	2.7	20.8	0.9	79.7	3.4	168.48	5.50
20:02:10	17.3	2.7	21.2	1.0	82.1	3.7	167.46	5.48
20:03:10	17.4	2.7	21.7	0.9	85.2	3.7	166.53	5.44
20:04:10	17.3	2.7	23.7	0.9	91.8	3.5	164.70	5.40
20:05:10	17.2	2.8	20.2	0.9	76.1	3.4	162.76	5.36
20:06:10	17.3	2.7	20.6	0.9	80.1	3.5	161.79	5.34
20:07:10	17.3	2.8	21.2	0.9	81.2	3.4	160.78	5.31
20:08:10	17.2	2.8	19.0	0.9	70.8	3.4	159.39	5.27
20:09:10	17.4	2.7	20.1	0.9	78.9	3.5	157.81	5.24
20:10:10	17.5	2.6	22.5	0.9	90.8	3.7	156.66	5.21
20:11:10	17.3	2.7	22.0	0.9	84.3	3.4	155.37	5.17
20:12:10	17.3	2.8	19.8	0.9	75.8	3.4	153.96	5.13
20:13:10	17.2	2.7	18.8	0.9	71.6	3.5	152.65	5.10
20:14:10	17.2	2.8	21.4	1.1	81.4	4.1	151.54	5.07
20:15:10	17.2	2.8	19.9	1.0	75.4	3.7	149.89	5.03
20:16:10	17.2	2.8	20.0	1.0	76.0	3.7	148.42	5.00
20:17:10	17.3	2.8	20.7	0.9	79.0	3.6	146.85	4.96
20:18:10	17.3	2.8	21.3	1.0	81.8	3.7	145.37	4.93
20:19:10	17.1	2.8	21.0	0.9	77.6	3.4	144.17	4.89
20:20:10	17.5	2.5	23.0	1.0	94.7	4.1	143.28	4.87
20:21:10	17.5	2.5	26.7	1.0	110.4	4.1	141.65	4.82
20:22:10	17.6	2.5	26.1	1.0	109.4	4.1	138.79	4.77
20:23:10	17.7	2.4	24.7	1.0	105.7	4.3	137.50	4.73
20:24:10	17.7	2.4	27.1	1.1	117.0	4.6	136.69	4.71
20:25:10	17.6	2.4	26.1	1.7	111.2	7.1	134.71	4.72
20:26:10	17.6	2.5	25.5	1.2	107.5	5.3	133.29	4.70
20:27:10	17.5	2.5	23.7	1.6	97.4	6.6	131.81	4.71
20:28:10	17.5	2.5	23.1	1.2	94.2	5.0	130.03	4.68
20:29:10	17.5	2.5	23.6	1.0	97.1	4.1	128.46	4.65
20:30:10	17.6	2.5	23.6	1.0	97.9	4.0	126.66	4.61
20:31:10	17.6	2.5	24.3	1.0	102.1	4.1	124.81	4.57
20:32:10	17.5	2.5	23.2	1.2	95.7	4.8	123.74	4.57
20:33:10	17.6	2.5	22.6	1.0	94.4	4.1	122.91	4.53
20:34:10	17.3	2.7	22.0	0.9	86.1	3.5	121.23	4.49
20:35:10	17.3	2.7	19.8	0.8	76.3	3.3	119.62	4.44
20:36:10	17.2	2.8	19.9	0.8	74.4	3.0	117.54	4.39
20:37:10	17.4	2.6	20.2	0.8	81.2	3.2	115.97	4.33
20:38:10	17.5	2.5	21.0	0.7	86.7	2.9	114.00	4.28
20:39:10	17.4	2.6	18.6	0.7	74.8	2.8	112.15	4.23
20:40:10	17.4	2.7	17.7	0.8	69.8	3.1	111.56	4.21
20:41:10	17.5	2.5	17.9	1.0	73.6	3.9	111.12	4.20
20:42:10	17.4	2.6	18.7	0.7	75.4	2.8	110.02	4.16
20:43:10	17.5	2.5	18.6	0.7	76.1	2.9	109.46	4.14
20:44:10	17.3	2.7	18.1	0.7	70.3	2.9	108.83	4.12
20:45:10	17.4	2.6	17.6	1.0	70.7	4.0	108.37	4.11
20:46:10	17.4	2.6	17.4	0.8	69.9	3.4	107.91	4.09
20:47:10	17.5	2.5	15.8	0.6	64.7	2.5	107.24	4.05
20:48:10	17.5	2.6	15.6	0.6	63.2	2.4	106.49	4.02
20:49:10	17.6	2.4	16.4	0.6	69.5	2.5	106.31	3.98
20:50:10	17.6	2.4	17.4	0.9	73.1	3.6	95.17	3.87
20:51:10	17.6	2.4	16.7	0.7	71.2	2.8	89.22	3.81
20:52:10	17.6	2.4	17.4	0.6	74.0	2.6	86.56	3.76
20:53:10	17.5	2.5	16.7	0.6	68.1	2.5	85.56	3.73
20:54:10	17.6	2.4	16.7	0.5	70.4	2.3	85.14	3.70
20:55:10	17.6	2.4	16.7	0.5	71.3	2.1	84.98	3.67
20:56:10	17.8	2.3	17.7	0.5	78.6	2.3	84.32	3.62
20:57:10	17.6	2.5	16.2	0.8	67.5	3.3	83.42	3.60
20:58:10	17.5	2.5	15.4	0.5	63.3	2.0	82.44	3.57
20:59:10	17.5	2.5	15.4	0.5	62.8	2.0	82.04	3.54
21:00:10	17.6	2.4	16.4	0.5	69.1	2.1	81.77	3.51
21:01:10	17.7	2.4	17.4	0.5	75.5	2.2	81.70	3.49
21:02:10	17.6	2.4	18.5	0.5	79.1	2.1	81.65	3.47
21:03:10	17.4	2.6	16.2	0.5	65.0	1.8	81.32	3.43
21:04:10	17.5	2.5	16.1	0.4	66.2	1.7	80.89	3.40

21:05:10	17.4	2.6	15.6	0.4	62.3	1.6	80.66	3.37
21:06:10	17.4	2.6	14.9	0.4	59.1	1.6	80.31	3.34
21:07:10	17.7	2.3	16.8	0.5	73.0	2.3	80.17	3.32
21:08:10	17.4	2.6	18.1	0.5	72.2	1.8	80.20	3.30
21:09:10	17.5	2.5	15.5	0.5	63.8	1.9	79.95	3.27
21:10:10	17.5	2.5	15.3	0.5	63.0	1.9	79.48	3.24
21:11:10	17.5	2.6	16.1	0.4	65.6	1.7	79.17	3.21
21:12:10	17.4	2.6	15.0	0.4	59.5	1.6	78.90	3.18
21:13:10	17.5	2.5	15.6	0.4	63.0	1.7	78.76	3.15
21:14:10	17.6	2.4	16.4	0.4	69.3	1.7	78.55	3.11
21:15:10	17.6	2.5	16.5	0.4	68.9	1.7	78.45	3.08
21:16:10	17.5	2.5	16.7	0.4	68.6	1.7	78.32	3.05
21:17:10	17.4	2.7	15.2	0.4	59.9	1.6	78.00	3.01
21:18:10	17.5	2.6	14.6	0.4	59.1	1.6	77.63	2.98
21:19:10	17.5	2.6	15.4	0.4	62.5	1.6	77.37	2.95
21:20:10	17.4	2.6	15.2	0.3	61.4	1.4	76.82	2.90
21:21:10	17.3	2.7	14.6	0.3	56.0	1.2	75.91	2.85
21:22:10	17.3	2.7	14.5	0.3	56.0	1.2	75.02	2.81
21:23:10	17.3	2.7	14.6	0.4	56.0	1.4	74.19	2.76
21:24:10	17.6	2.4	15.5	0.4	65.4	1.7	73.33	2.71
21:25:10	17.5	2.5	16.3	0.3	67.2	1.2	72.60	2.61
21:26:10	17.5	2.6	15.8	0.4	64.0	1.7	71.88	2.55
21:27:10	17.5	2.6	16.0	0.4	64.7	1.6	71.33	2.47
21:28:10	17.3	2.7	15.0	0.4	58.5	1.6	70.74	2.41
21:29:10	17.6	2.5	16.4	0.3	69.2	1.4	70.27	2.37
21:30:10	17.5	2.6	16.1	0.3	65.6	1.3	69.73	2.32
21:31:10	17.5	2.5	16.0	0.3	65.6	1.2	69.12	2.27
21:32:10	17.6	2.5	15.8	0.3	66.4	1.3	68.64	2.21
21:33:10	17.7	2.4	16.7	0.3	71.7	1.3	68.26	2.17
21:34:10	17.3	2.8	16.1	0.3	62.5	1.2	67.86	2.13
21:35:10	16.5	3.4	11.2	0.3	35.7	1.0	67.19	2.09
21:36:10	16.6	3.2	21.1	0.5	70.9	1.6	67.13	2.07
21:37:10	18.3	1.9	31.4	0.3	166.7	1.6	68.55	2.04
21:38:10	18.1	2.0	23.0	0.2	114.4	1.2	69.02	2.01
21:39:10	17.8	2.3	18.6	0.2	82.5	0.9	69.14	1.98
21:40:10	17.7	2.4	16.7	0.2	73.0	0.9	69.20	1.94
21:41:10	17.5	2.6	15.9	0.2	65.4	0.8	69.06	1.89
21:42:10	17.4	2.7	14.3	0.2	56.2	0.8	68.74	1.86
21:43:10	17.3	2.7	13.2	0.2	50.8	0.8	68.32	1.82
21:44:10	17.4	2.6	14.3	0.2	57.3	0.8	68.10	1.79
21:45:10	17.4	2.6	13.0	0.2	51.4	0.8	67.78	1.74
21:46:10	17.4	2.7	12.7	0.2	49.9	0.8	67.45	1.69
21:47:10	17.4	2.6	12.7	0.2	50.0	0.8	67.20	1.66
21:48:10	17.4	2.6	13.3	0.2	53.2	0.8	67.04	1.64
21:49:10	17.4	2.6	12.7	0.2	50.1	0.8	66.71	1.61
21:50:10	17.6	2.5	13.7	0.2	57.5	0.8	66.45	1.56
21:51:10	17.4	2.6	14.1	0.2	56.6	0.8	66.21	1.53
21:52:10	17.4	2.7	12.8	0.2	50.6	0.8	65.82	1.50
21:53:10	17.4	2.6	13.6	0.2	54.0	0.8	65.58	1.47
21:54:10	17.3	2.7	13.5	0.2	52.9	0.8	65.29	1.45
Run avgs.	17.6	2.4	24.2	0.8	106.9	3.5	101.43	3.58

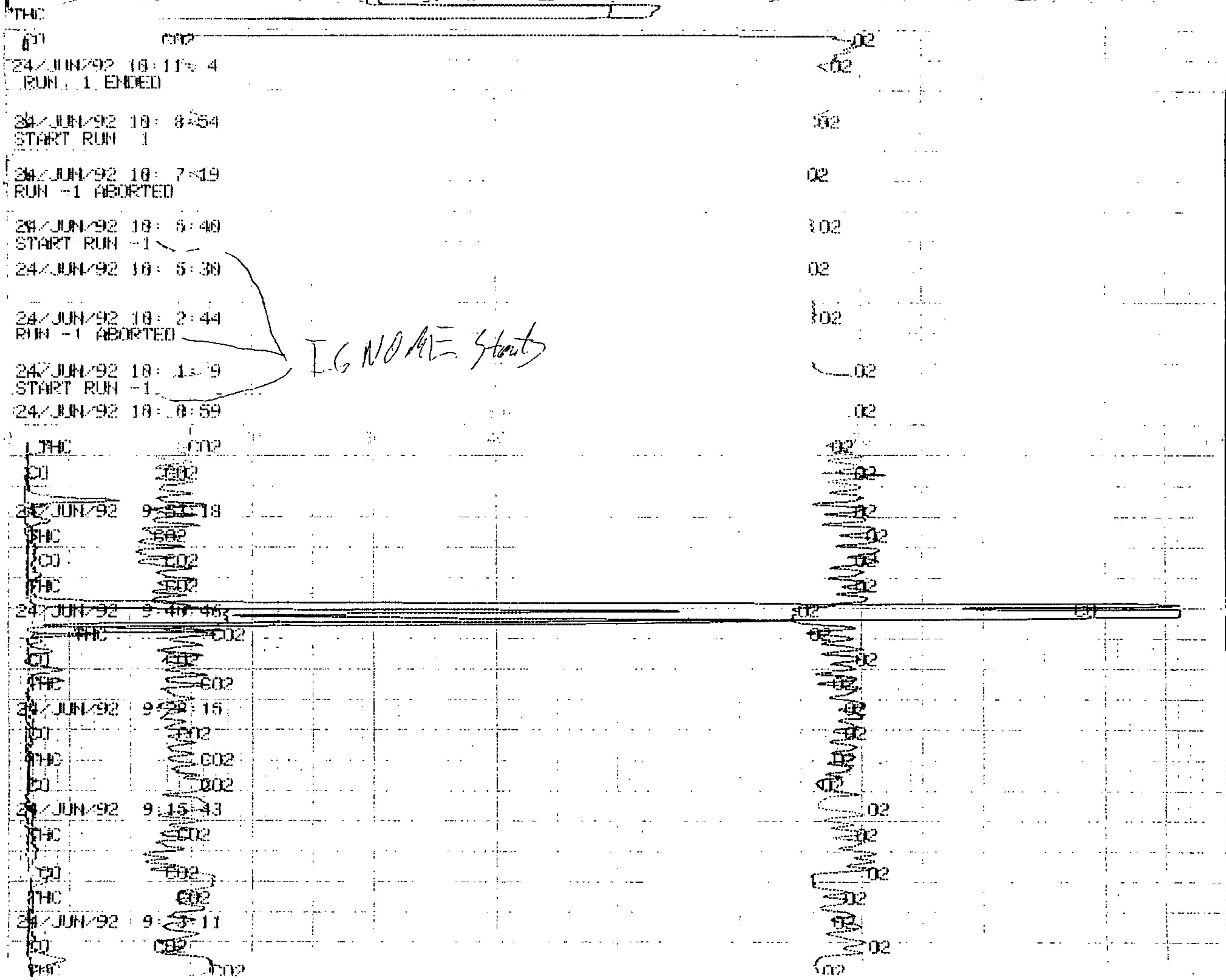


MOLYTEK

C-000011

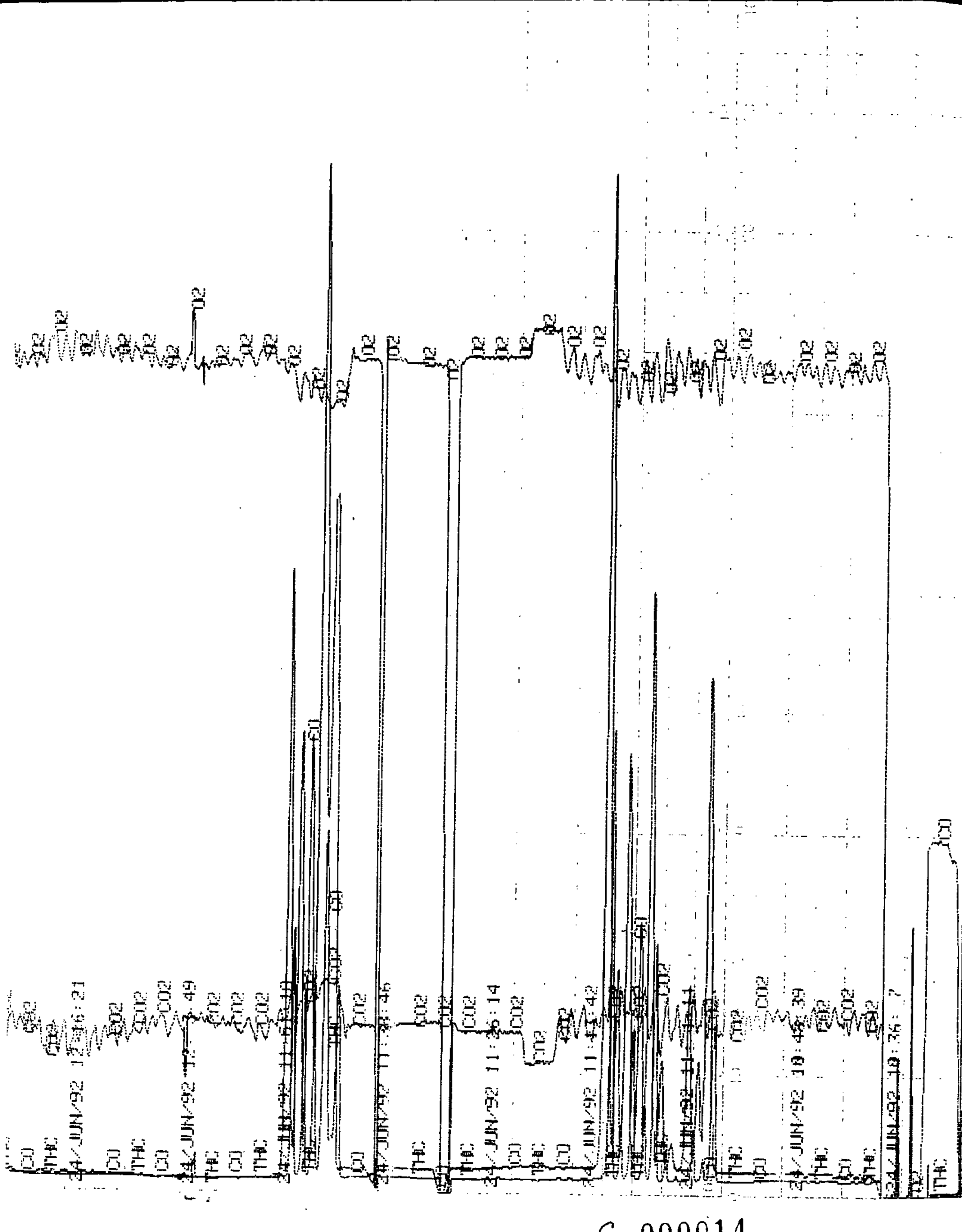


C-000012

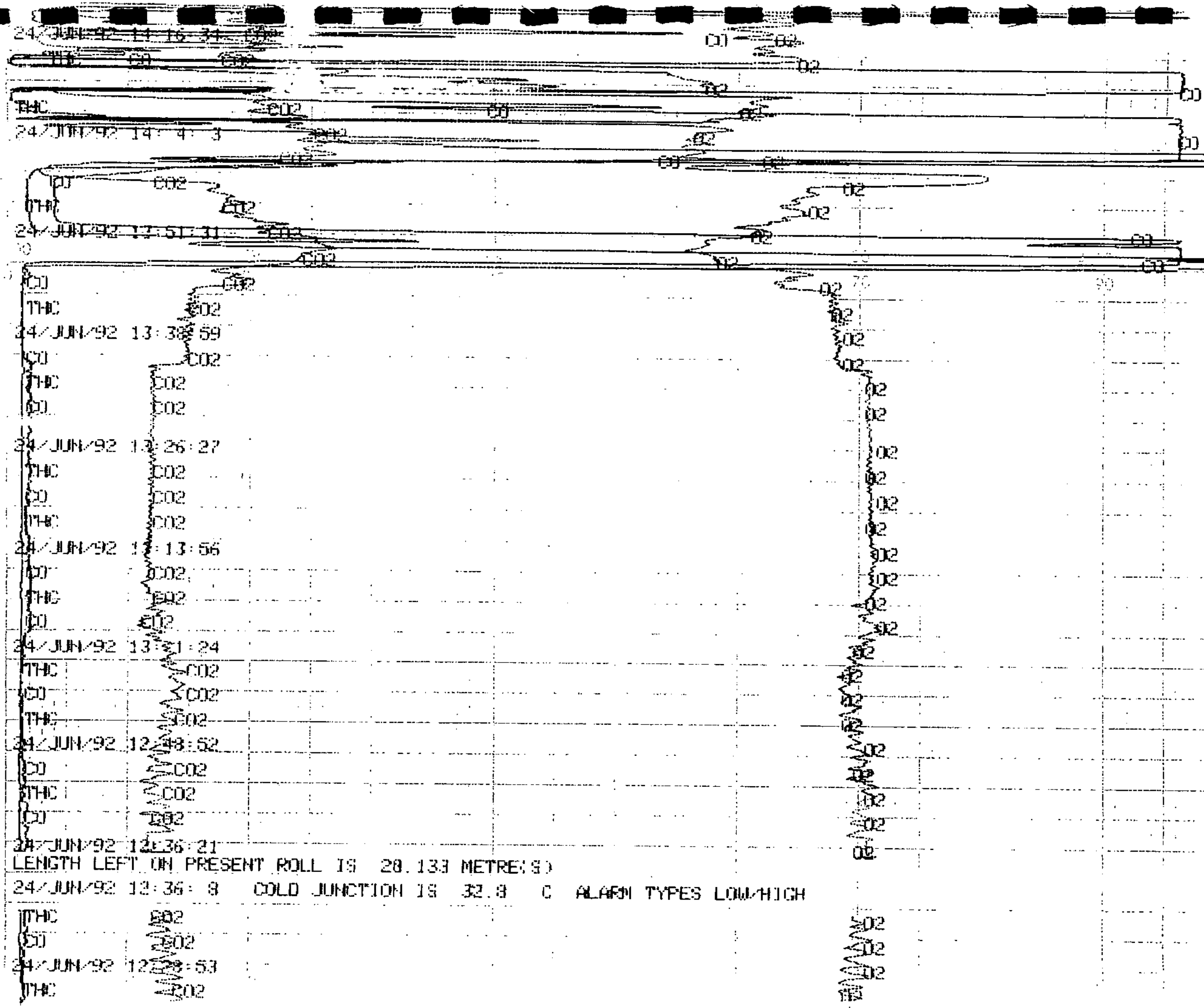


IGNORE Starts

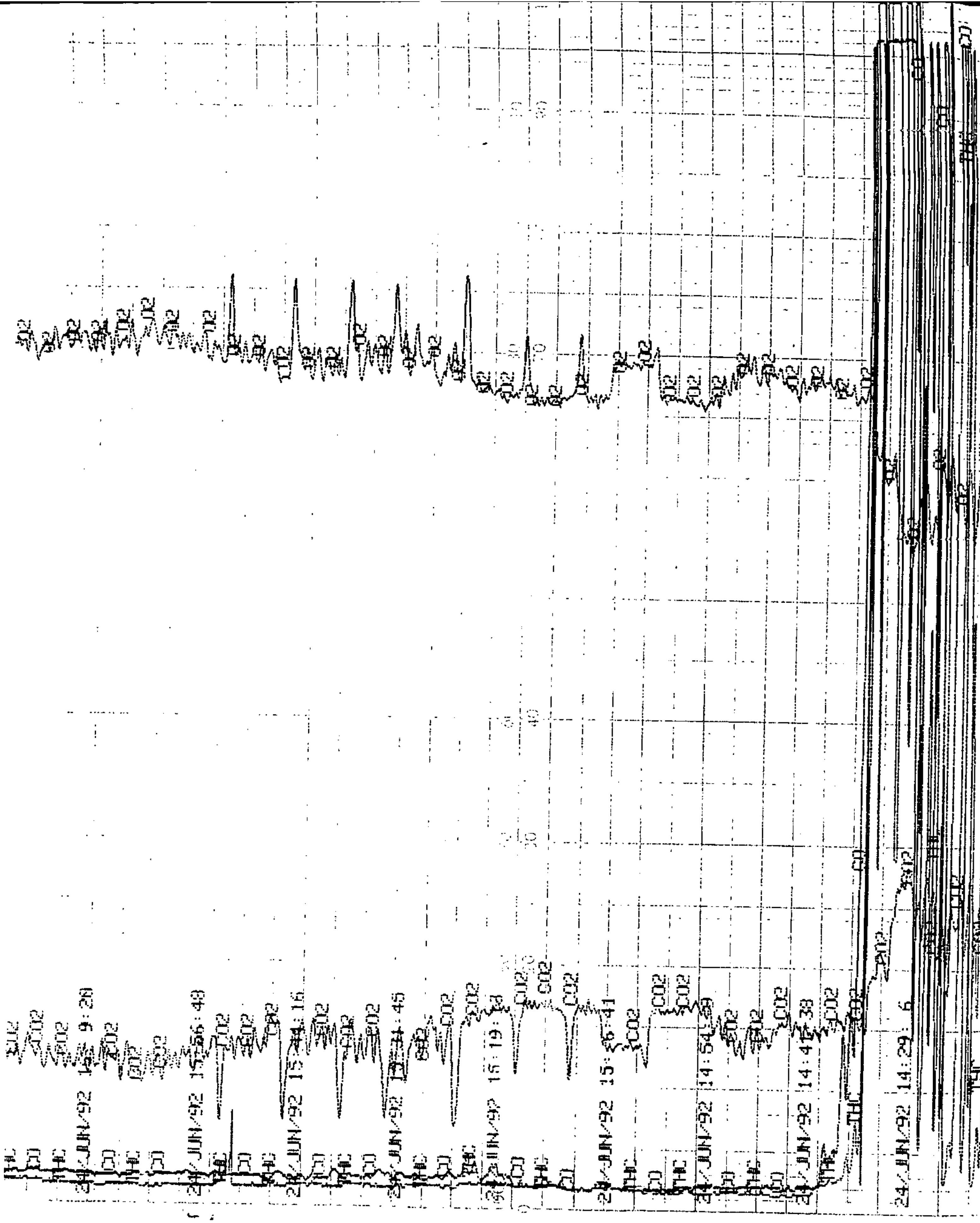
C- 000013



C-000014

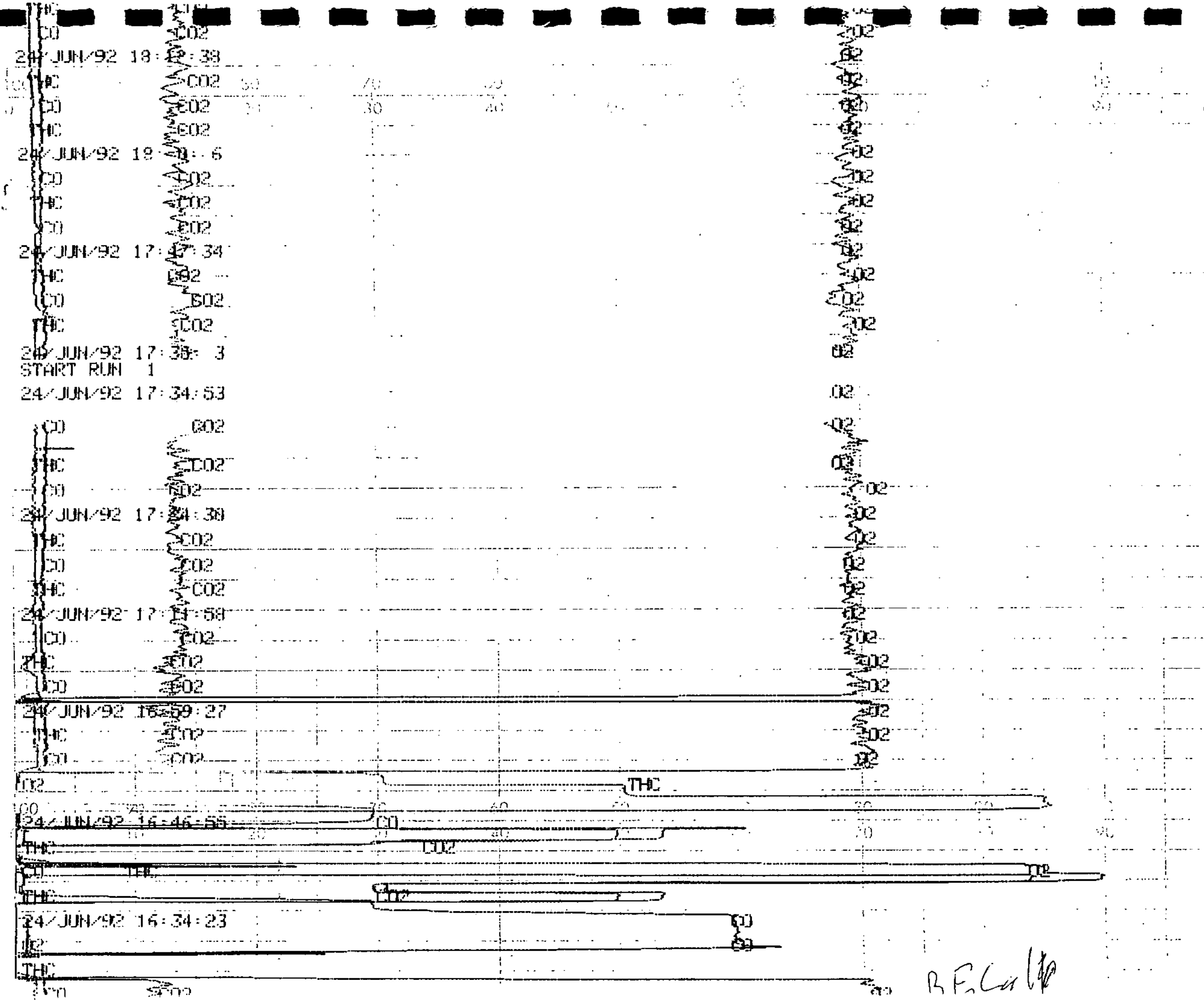

24/JUN/92 14:16:34
24/JUN/92 14: 4: 3
24/JUN/92 13:51:31
24/JUN/92 13:38:59
24/JUN/92 13:26:27
24/JUN/92 13:13:56
24/JUN/92 13: 1:24
24/JUN/92 12:48:52
24/JUN/92 12:36:21
LENGTH LEFT ON PRESENT ROLL IS 28.133 METRE(S)
24/JUN/92 12:36: 8 COLD JUNCTION IS 32.8 C ALARM TYPES LOW/HIGH
24/JUN/92 12:23:53
THC
CO
CO2
O2

C- 000015



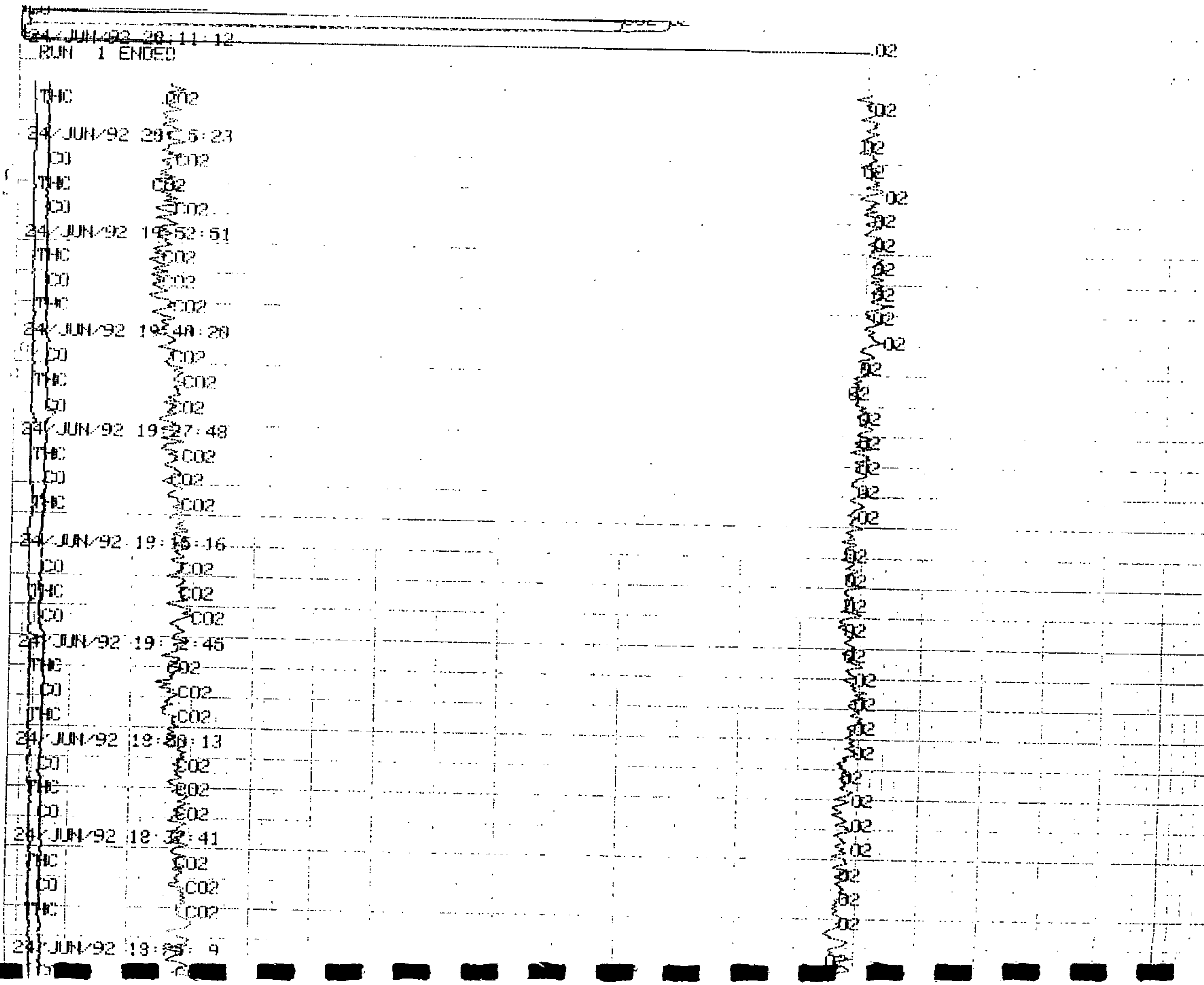
CO2
THC
CO
24/JUN/92 15:56:48
24/JUN/92 15:44:16
24/JUN/92 15:31:45
24/JUN/92 15:6:41
24/JUN/92 14:41:38
24/JUN/92 14:29:6

C-000016

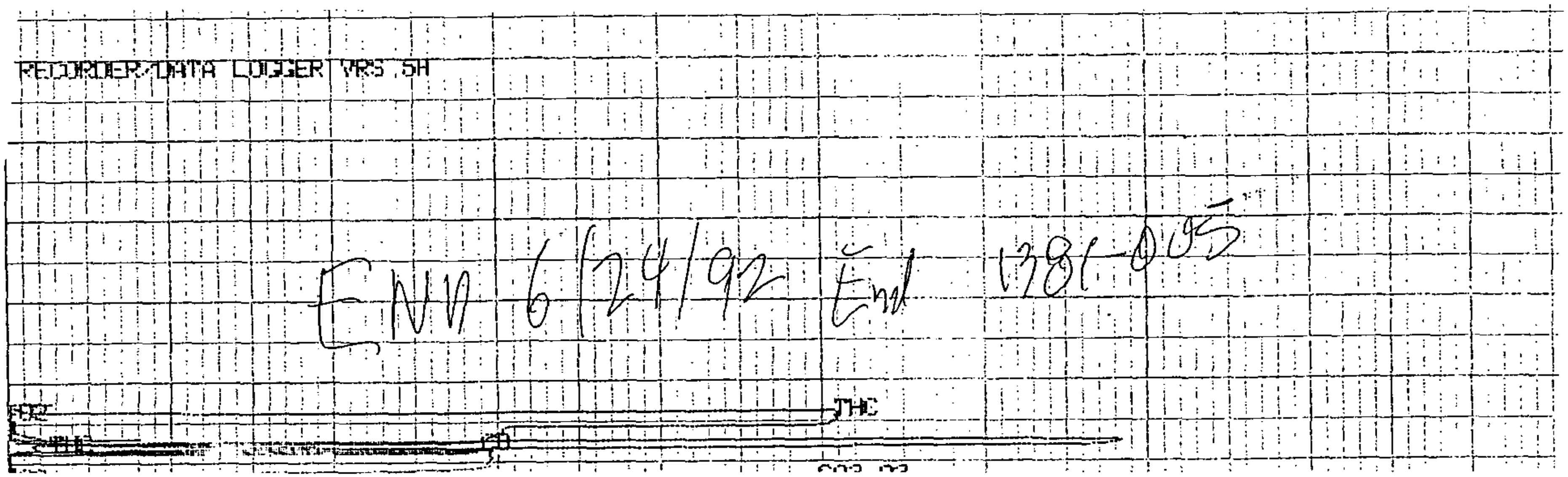


C-000017

CHART NO 41444


24/JUN/92 20:11:12
RUN 1 ENDED
THC
CO
CO2
O2
24/JUN/92 20:5:23
24/JUN/92 19:52:51
24/JUN/92 19:40:20
24/JUN/92 19:27:48
24/JUN/92 19:15:16
24/JUN/92 19:2:45
24/JUN/92 18:50:13
24/JUN/92 18:37:41
24/JUN/92 18:25:9

C-000018


RECORDER/DATA LOGGER VRS .5H
ENV 6/24/92 End 1381-005
THC

CEM CALIBRATION DATA

Plant Name: Tollie Br.

Sampling Location: Stack

Project Number: 1182-225

6/24/92

	CALIBRATION ERROR			RUN 1 SYSTEM BIAS CHECK				RUN 2 SYSTEM BIAS CHECK				RUN 3 SYSTEM BIAS CHECK			
				Time 16:45		Time 20:15		Time		Time		Time		Time	
				PRETEST		POST TEST		PRETEST		POST TEST		PRETEST		POST TEST	
	Cylinder Value	Analyzer Calibration Response	Difference (% of Span)	System Response	System Bias (% of Span)	System Response	Drift (% of Span)	System Response	System Bias (% of Span)	System Response	Drift (% of Span)	System Response	System Bias (% of Span)	System Response	Drift (% of Span)
CO Zero	0	-0.1	0	1.1	0.1	1.0	0								
CO Low	297	298	0.1	297	-0.1	296	-0.1								
CO Mid	598	599	0.1												
CO High															
CO2 Zero	0	0	0	0	0	0	0								
CO2 Low	10.0	10.0	0												
CO2 Mid	10.04	10.0	0	10.0	0	10.0	0								
CO2 High	16.99	16.9	-0.5												
O2 Zero	0	0	0	0	0	0	0								
O2 Low	7.5	7.7	0.9												
O2 Mid	13.0	13.4	1.6	12.9	0.4	13.5	0								
O2 High	21.6	21.4	-0.8												
THC Zero	0			0.1	0.1	0.2	0.1								
THC Low	30.1			30.5	0.4	30.2	-0.3								
THC Mid	50.5			56.7	0.2										
THC High	95.5			95.6	0.1										
NOx Zero															
NOx Low															
NOx Mid															
NOx High															
SO2 Zero															
SO2 Low															
SO2 Mid															
SO2 High															

Span Value	
CO	1000
CO2	20
O2	25
THC	100
NOx	
SO2	

Calibration Correction Factors

	Run 1		Run 2		Run 3	
	Co	Cm	Co	Cm	Co	Cm
CO	1.05	296.5				
CO2	0	10.0				
O2	0	13.5				
THC	0.15	30.25				
NOx						
SO2						

C-000020

Scott Specialty Gases
a division of Scott Environmental Technology, Inc.
PLUMSTEADVILLE, PA. 18949 PHONE: (215) 766-8861 TWX: 510-665-9344

I E A
120 SOUTH CENTER COURT
SUITE 200
MORRISVILLE NC 27560

Date: MARCH 25, 1992
Our Project No.: 1201432
Your P.O. No.: 3476

Gentlemen:

Thank you for choosing Scott for your Specialty Gas needs. The analyses for the gases ordered, as reported by our laboratory, are listed below. Results are in volume percent, unless otherwise indicated.

ANALYTICAL REPORT

Cyl. No. ALM028446 Analytical Accuracy +/-1%

Component	Concentration
PPM (BY VOLUME) IN NITROGEN	
CARBON MONOXIDE	= 297
NIST TRACEABLE TO SRM1681	

Cyl. No. ALM026283 Analytical Accuracy +/-1%

Component	Concentration
PPM (BY VOLUME) IN NITROGEN	
CARBON MONOXIDE	= 598
NIST TRACEABLE TO CRM1680	

Cyl. No. Analytical Accuracy

Component	Concentration

Cyl. No. Analytical Accuracy

Component	Concentration

CERTIFIED

Analyst T. SASSAMAN

Approved By J. ERNST

The only liability of this Company for gas which fails to comply with this analysis shall be replacement thereof by the Company without extra cost.

Scott Specialty Gases, Inc.

E. P. A. PROTOCOL CERTIFICATE OF ANALYSIS

Shipped from:
Scott Specialty Gases
Route 611
Plumsteadville, PA 18949
Purchase order :
0089FS

Shipped to:
IEA, INC.
ATTN; DAVID P.
120 SOUTH CENTER COURT
SUITE 200
MORRISVILLE, NC 27560
Project No 37257

Certified per E.P.A. Protocol # 1 Procedure #G1 Section # 3.0.4
Certified accuracy +/- 1 % NIST Traceable

Cylinder number IL-1420 Cylinder pressure 1900 psig. Date of assay: 4-14-92

Component	Certified concentration	
PROPANE	30.1 PPM	Expiration date: 10-14-93
NITROGEN	Balance	

Standard		Analyzer	
Type	SRM16676	Make	: VARIAN
Concentration	47.3 PPM	Model	: VA3300
Cylinder #	FF27570	Serial number	: 7945
		Analytical principle	: FID
		Date of calibration	: 4-6-92

Raw data units: AREA	Concentration of Customer Cylinder
Analysis 4-14-92	
Z1=0.0000 R1=276504.0 T1=176102.0	30.1 PPM
R2=276218.0 Z2=0.0000 T2=176529.0	30.2 PPM
Z3=0.0000 T3=175806.0 R3=277484.0	30.0 PPM

Analyst *Walter Schlite*

Approved by *Ted*
Mark S. Sirinides/Ted Neeme

PLUMSTEADVILLE, PENNSYLVANIA / TROY, MICHIGAN / HOUSTON, TEXAS / DURHAM, NORTH CAROLINA
SOUTH PLAINFIELD, NEW JERSEY / FREMONT, CALIFORNIA / WAKEFIELD, MASSACHUSETTS / LONGMONT, COLORADO
BATON ROUGE, LOUISIANA

Scott Specialty Gases, Inc.

E. P. A. PROTOCOL CERTIFICATE OF ANALYSIS

Shipped from:
Scott Specialty Gases
Route 611
Plumsteadville, PA 18949
Purchase order :
0089FS

Shipped to:
IEA, INC.
ATTN; DAVID P.
120 SOUTH CENTER COURT
SUITE 200
MORRISVILLE, NC 27560
Project No 37257

Certified per E.P.A. Protocol # 1 Procedure #G1 Section # 3.0.4
Certified accuracy +/- 1 % NIST Traceable

Cylinder number	ALM008152	Cylinder pressure 2000 psig.	Date of assay:	4-13-92
Component		Certified concentration	Expiration date:	10-13-93
PROPANE		50.5 PPM		
NITROGEN		Balance		

Standard		Analyzer	
Type	SRM2651	Make	: VARIAN
Concentration	98.1 PPM	Model	: VA3300
Cylinder #	CAL-4127	Serial number	: 7945
		Analytical principle	: FID
		Date of calibration	: 4-9-92

			Concentration of Customer Cylinder
Raw data units:	AREA		
Analysis	4-13-92		
Z1=0.0000	R1=574086.0	T1=294275.0	50.3 PPM
R2=571200.0	Z2=0.0000	T2=294134.0	50.5 PPM
Z3=0.0000	T3=295045.0	R3=571272.0	50.7 PPM

Analyst Walter Sable

Approved by Ted N
Mark S. Sirinides/Ted Neeme

Scott Specialty Gases, Inc.

E. P. A. PROTOCOL CERTIFICATE OF ANALYSIS

Shipped from:	Shipped to:
Scott Specialty Gases	IEA, INC.
Route 611	ATTN; DAVID P.
Plumsteadville, PA 18949	120 SOUTH CENTER COURT
Purchase order :	SUITE 200
0089FS	MORRISVILLE, NC 27560
	Project No 37257

Certified per E.P.A. Protocol # 1 Procedure #G1 Section # 3.0.4
Certified accuracy +/- 1 % NIST Traceable

Cylinder number	AAL19791	Cylinder pressure 2000 psig.	Date of assay:	4-13-92
Component		Certified concentration	Expiration date:	10-13-93
PROPANE		85.5 PPM		
NITROGEN		Balance		

Standard		Analyzer	
Type	SRM2651	Make	: VARIAN
Concentration	98.1 PPM	Model	: VA3300
Cylinder #	CAL-4127	Serial number	: 7945
		Analytical principle	: FID
		Date of calibration	: 4-9-92

Raw data units: AREA	Concentration of Customer Cylinder
Analysis 4-13-92	
Z1=0.0000 R1=574086.0 T1=498474.0	85.2 PPM
R2=571200.0 Z2=0.0000 T2=498512.0	85.6 PPM
Z3=0.0000 T3=499624.0 R3=571272.0	85.8 PPM

Analyst Walt Salt

Approved by
Mark S. Sirinides/Ted Neeme

C-000024

Scott Specialty Gases, Inc.

E.P.A. PROTOCOL CERTIFICATE OF ANALYSIS

Shipped from:
Scott Specialty Gases
Route 611
Plumsteadville, PA 18949
Purchase order 3476

Shipped to:
IEA
JERRY BOWSER
120 SOUTH CENTER COURT
MORRISVILLE, NC 27560
Project number 35429

Certified per E.P.A. Protocol #1 Procedure #G1 Section number 3.0.4
Certified accuracy +/- 1% NIST traceable

Cylinder number	Cylinder pressure	Date of assay
ALM028490	1950 p.s.i.g.	02-19-1992

Component	Certified concentration	Expiration date
Oxygen	21.6 %	8-19-1993
Nitrogen	Balance gas	

Standard

Type : CRM2659
Concentration : 20.67 %
Cylinder number : AAL18600

Analyzer

Make : BECKMAN O2
Model : 755
Serial number : 2002452
Analytical principle : PARAMAGNETIC
Date of calibration : 02-12-1992

Raw data units VOLT	Drift Compensation	Concentration of customer cylinder	Calibration curve equations
			X = T/10^XFACTOR
			Y = E*X^4+D*X^3+C*X^2+B*X
First analysis 02-19-1992			Conc = (Y*K+A)*10^YFACTOR
Z=0.00207 R=0.76877 T=0.80459	K=100927.797	21.6 %	A= -.0001807306
R=0.77254 Z=0.00323 T=0.80481	K=100434.797	21.5 %	B= 2.664007
Z=0.00311 T=0.80498 R=0.77190	K=100518.102	21.6 %	C= 0
			D= 0
Second Analysis Not Required			*E= 0*
			X FACTOR = 0
Z=0.00000 R=0.00000 T=0.00000	K= 0.000	0.0 %	Y FACTOR = 5
R=0.00000 Z=0.00000 T=0.00000	K= 0.000	0.0 %	
Z=0.00000 T=0.00000 R=0.00000	K= 0.000	0.0 %	

Analyst J Warren
Jay Warren 02-19-1992

Approved by Ted Neeme
Mark S. Sirinides / Ted Neeme

C-000025

Scott Specialty Gases, Inc.

E. P. A. PROTOCOL CERTIFICATE OF ANALYSIS

Shipped from:
Scott Specialty Gases
Route 611
Plumsteadville, PA 18949
Purchase order :
0089FS

Shipped to:
IEA, INC.
ATTN; DAVID P.
120 SOUTH CENTER COURT
SUITE 200
MORRISVILLE, NC 27560
Project No 37257

Certified per E.P.A. Protocol # 1 Procedure #G1 Section # 3.0.4
Certified accuracy +/- 1 % NIST Traceable

Cylinder number	ALM029161	Cylinder pressure 2000 psig.		Date of assay:	4-13-92
Component		Certified concentration		Expiration date:	10-13-93
CARBON DIOXIDE		6.02 %			
NITROGEN		Balance			

Standard		Analyzer	
Type	CRM1675	Make	: PERKIN-ELMER
Concentration	14.02 %	Model	: SIGMA 3B
Cylinder #	ALM001315	Serial number	: 002490700023
		Analytical principle	: TCD
		Date of calibration	: 1-21-92

Raw data units:	AREA		Concentration of Customer Cylinder
Analysis	4-13-92		
Z1=0.0000	R1=29010.0	T1=12449.0	6.02 %
R2=28976.0	Z2=0.0000	T2=12443.0	6.02 %
Z3=0.0000	T3=12422.0	R3=28940.0	6.02 %

Analyst Al Rojas

Approved by Ted N
Mark S. Sirinides/Ted Neeme

C -000026

Scott Specialty Gases, Inc.

E. P. A. PROTOCOL CERTIFICATE OF ANALYSIS

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MORRISVILLE, NC 27560
ATTN: DAVID P.
Project No 37257

Certified per E.P.A. Protocol # 1 Procedure #G1 Section # 3.0.4
Certified accuracy +/- 1 % NIST Traceable

Cylinder number	ALM029161	Cylinder pressure 2000 psig.		Date of assay:	4-15-92
Component		Certified concentration		Expiration date:	10-15-93
OXYGEN		7.49 %			
NITROGEN		Balance			

Standard		Analyzer	
Type	CRM2658	Make	BECKMAN
Concentration	10.08 %	Model	755
Cylinder #	AAL18590	Serial number	2002571
		Analytical principle	Paramagnetic
		Date of calibration	3-9-92

Raw data units:	VOLT		Concentration of Customer Cylinder
Analysis	4-15-92		
Z1=0.0006	R1=0.37969	T1=0.28235	7.50 %
R2=0.37939	Z2=0.0008	T2=0.28196	7.49 %
Z3=0.0004	T3=0.28189	R3=0.37984	7.48 %

Analyst Al Rojas

Approved by
Mark S. Sirinides/Ted Neeme

C—000027

Scott Specialty Gases, Inc.

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SUITE 200
MORRISVILLE, NC 27560
Project No 37257

Certified per E.P.A. Protocol # 1 Procedure #G1 Section # 3.0.4
Certified accuracy +/- 1 % NIST Traceable

Cylinder number	ALM029165	Cylinder pressure 2000 psig.		Date of assay:	4-13-92
Component		Certified concentration		Expiration date:	10-13-93
CARBON DIOXIDE		16.98 %			
NITROGEN		Balance			

Standard		Analyzer	
Type	CRM1675	Make	: PERKIN-ELMER
Concentration	14.02 %	Model	: SIGMA 3B
Cylinder #	ALM001315	Serial number	: 002490700023
		Analytical principle	: TCD
		Date of calibration	: 1-21-92

Raw data units:	AREA		Concentration of Customer Cylinder
Analysis	4-13-92		
Z1=0.0000	R1=29010.0	T1=35140.0	16.90 %
R2=28976.0	Z2=0.0000	T2=35164.0	17.01 %
Z3=0.0000	T3=34986.0	R3=289240.0	16.95 %

Analyst Al Rojas

Approved by [signature]
Mark S. Sirinides/Ted Neeme

C-000028

Scott Specialty Gases, Inc.

E. P. A. PROTOCOL CERTIFICATE OF ANALYSIS

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Plumsteadville, PA 18949
Purchase order :
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Shipped to:
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SUITE 200
120 S. CENTER COURT
MORRISVILLE, NC 27560
ATTN: DAVID P.
Project No 37257

Certified per E.P.A. Protocol # 1 Procedure #G1 Section # 3.0.4
Certified accuracy +/- 1 % NIST Traceable

Cylinder number ALM029165 Cylinder pressure 2000 psig. Date of assay: 4-15-92

Component	Certified concentration
OXYGEN	21.0 %
NITROGEN	Balance

Expiration date: 10-15-93

Standard
Type CRM2659
Concentration 20.67 %
Cylinder # AAL18600

Analyzer
Make : BECKMAN
Model : 755
Serial number : 2002571
Analytical principle : Paramagnetic
Date of calibration : 4-15-92

Raw data units: VOLT

Analysis 4-15-92

			Concentration of Customer Cylinder
Z1=0.0004	R1=0.77744	T1=0.79279	21.1 %
R2=0.77631	Z2=0.0010	T2=0.78802	21.0 %
Z3=0.0008	T3=0.78794	R3=0.77464	21.0 %

Analyst Al Rojas

Approved by
Mark S. Sirinides/Ted Neeme

Scott Specialty Gases, Inc.

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ATTN; DAVID P.
120 SOUTH CENTER COURT
SUITE 200
MORRISVILLE, NC 27560
Project No 37257

Certified per E.P.A. Protocol # 1 Procedure #G1 Section # 3.0.4
Certified accuracy +/- 1 % NIST Traceable

Cylinder number	ALM029168	Cylinder pressure 2000 psig.	Date of assay:	4-15-92
Component		Certified concentration	Expiration date:	10-15-93
OXYGEN		12.95 %		
NITROGEN		Balance		

Standard		Analyzer	
Type	CRM2658	Make	: BECKMAN
Concentration	10.08 %	Model	: 755
Cylinder #	AAL18590	Serial number	: 2002571
		Analytical principle	: Paramagnetic
		Date of calibration	: 4-15-92

			Concentration of Customer Cylinder
Raw data units:		VOLT	
Analysis		4-15-92	
Z1=0.0009	R1=0.37879	T1=0.48797	12.99 %
R2=0.37942	Z2=0.0004	T2=0.48713	12.94 %
Z3=0.0003	T3=0.48695	R3=0.38010	12.91 %

Analyst Al Rojas

Approved by Ted [signature]
Mark S. Sirinides/Ted Neeme

C- 000030

Scott Specialty Gases, Inc.

E. P. A. PROTOCOL CERTIFICATE OF ANALYSIS

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Plumsteadville, PA 18949
Purchase order :
0089FS

Shipped to:
IEA, INC.
ATTN; DAVID P.
120 SOUTH CENTER COURT
SUITE 200
MORRISVILLE, NC 27560
Project No 37257

Certified per E.P.A. Protocol # 1 Procedure #G1 Section # 3.0.4
Certified accuracy +/- 1 % NIST Traceable

Cylinder number ALM029168 Cylinder pressure 2000 psig. Date of assay: 4-13-92

Component	Certified concentration	
CARBON DIOXIDE	10.04 %	Expiration date: 10-13-93
NITROGEN	Balance	

Standard

Type	CRM1675
Concentration	14.02 %
Cylinder #	ALM001315

Analyzer

Make	: PERKIN-ELMER
Model	: SIGMA 3B
Serial number	: 002490700023
Analytical principle	: TCD
Date of calibration	: 1-21-92

Raw data units:		AREA	Concentration of Customer Cylinder
Analysis		4-13-92	
Z1=0.0000	R1=29010.0	T1=20796.0	10.05 %
R2=28976.0	Z2=0.0000	T2=20775.0	10.05 %
Z3=0.0000	T3=20713.0	R3=28940.0	10.03 %

Analyst Al Rogers

Approved by [signature]
Mark S. Sirinides/Ted Neeme

C- 000031

Appendix D

Analytical Reports and Chain-of-Custody Records

Control No. 001440

METHOD 5

SAMPLE ANALYTICAL FORM

Plant Solite, Brooks, KY Run number 1

Sample Location BIF Test

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse filter(s)	K2-MTL-1-PHACE	✓

Acetone rinse beaker 783 rinse volume ($V_a w$) 67 ml

Acetone blank residue concentration (C_a) ________ g/ml

$W_a = C_a V_a w = ($ $)$ $($ $)$ = ________ g

Date/time/RH of wt 8-6-92/15:50/27% Gross wt 111.6310 g

Date/time/RH of wt 8-7-92/8:30/27% Gross wt 111.6310 g

Date/time/RH of wt ________ Gross wt ________ g

Date/time/RH of wt ________ Gross wt ________ g

Average Gross wt 111.6310 g

Tare wt 111.6221 g

Less acetone blank wt (W_a) ________ g

Weight of particulate in acetone rinse (m_a) ________ g

Filter(s) container number ________

Date/time/RH of wt ________ Gross wt ________ g

Date/time/RH of wt ________ Gross wt ________ g

Date/time/RH of wt ________ Gross wt ________ g

Date/time/RH of wt ________ Gross wt ________ g

Average Gross wt ________ g

Tare wt ________ g

Less filter blank wt (F_t) ________ g

Weight of particulate on filter(s) (m_f) ________ g

Weight of particulate in acetone rinse(m_a) ________ g

Total weight of particulate (m_n) ________ g

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

Remarks ________

Signature of analyst: Eric Hudson

Signature of Reviewer:

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iea

Control No. 001441

METHOD 5
SAMPLE ANALYTICAL FORM

Plant Solite, Brooks, KY ________ Run number 2

Sample Location BIF Test

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse filter(s)	K2-MTL-2-PHACE	✓

Acetone rinse beaker 798 rinse volume ($V_a w$) 90 ml

Acetone blank residue concentration (C_a) ________ g/ml

$W_a = C_a V_a w$ = ( ) ( ) = ________ g

Date/time/RH of wt 8-6-92 / 15:50 / 27% Gross wt 107.9753 g

Date/time/RH of wt 8-7-92 / 8:30 / 27% Gross wt 107.9757 g

Date/time/RH of wt ________ Gross wt ________ g

Date/time/RH of wt ________ Gross wt ________ g

Average Gross wt 107.9755 g

Tare wt 107.9711 g

Less acetone blank wt (W_a) ________ g

Weight of particulate in acetone rinse (m_a) ________ g

Filter(s) container number ________

Date/time/RH of wt ________ Gross wt ________ g

Date/time/RH of wt ________ Gross wt ________ g

Date/time/RH of wt ________ Gross wt ________ g

Date/time/RH of wt ________ Gross wt ________ g

Average Gross wt ________ g

Tare wt ________ g

Less filter blank wt (F_a) ________ g

Weight of particulate on filter(s) (m_f) ________ g

Weight of particulate in acetone rinse(m_a) ________ g

Total weight of particulate (m_n) ________ g

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

Remarks ________

Signature of analyst: Eric Hudson

Signature of Reviewer:

C-000012

iea

Control No. 001442

METHOD 5

SAMPLE ANALYTICAL FORM

Plant Solite, Brooks, KY Run number 3

Sample Location BIF TEST

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse filter(s)	K2-MTL-3-FHACE	✓

Acetone rinse beaker 762 rinse volume ($V_a w$) 86 ml

Acetone blank residue concentration (C_a) ____ g/ml

$W_a = C_a V_a w$ = ( ) ( ) = ____ g

Date/time/RH of wt 8-6-92/15:50/27% Gross wt 109.6187 g

Date/time/RH of wt 8-7-92/9:30/27% Gross wt 109.6189 g

Date/time/RH of wt ____ Gross wt ____ g

Date/time/RH of wt ____ Gross wt ____ g

Average Gross wt 109.6188 g

Tare wt 109.5946 g

Less acetone blank wt (W_a) ____ g

Weight of particulate in acetone rinse (m_a) ____ g

Filter(s) container number ____

Date/time/RH of wt ____ Gross wt ____ g

Date/time/RH of wt ____ Gross wt ____ g

Date/time/RH of wt ____ Gross wt ____ g

Date/time/RH of wt ____ Gross wt ____ g

Average Gross wt ____ g

Tare wt ____ g

Less filter blank wt (F_a) ____ g

Weight of particulate on filter(s) (m_f) ____ g

Weight of particulate in acetone rinse(m_a) ____ g

Total weight of particulate (m_n) ____ g

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

Remarks ____

Signature of analyst: Eric Hudson

Signature of Reviewer:

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Control No. 001443

METHOD 5

SAMPLE ANALYTICAL FORM

Plant Solite, Brooks KY Run number 1

Sample Location BTF Test

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse	K2-M5-1-PHACE	✓
filter(s)	K2-M5-1-PF	✓

Acetone rinse beaker 778 rinse volume ($V_a w$) 118 ml

Acetone blank residue concentration (C_a) ________ g/ml

$W_a = C_a V_a w$ = ( ) ( ) = ________ g

Date/time/RH of wt 8-6-92/15:50/27% Gross wt 101.0713 g

Date/time/RH of wt 8-7-92/8:30/27% Gross wt 101.0714 g

Date/time/RH of wt ________ Gross wt ________ g

Date/time/RH of wt ________ Gross wt ________ g

Average Gross wt 101.0714 g

Tare wt 101.0617 g

Less acetone blank wt (W_a) ________ g

Weight of particulate in acetone rinse (m_a) ________ g

Filter(s) container number Q190 K2-M5-1-PF

Date/time/RH of wt 8-6-92/16:10/27% Gross wt ~~.4225~~ 0.3722 g

Date/time/RH of wt 8-7-92/8:10/27% Gross wt 0.3663 g

Date/time/RH of wt 8-7-92/14:30/28% Gross wt 0.3671 g

Date/time/RH of wt 8-10-92/8:30/31% Gross wt 0.3663 g

8-10-92/14:30/31% - 0.3670

Average Gross wt 0.3667 g

Tare wt 0.3650 g

Less filter blank wt (F_a) ________ g

Weight of particulate on filter(s) (m_f) ________ g

Weight of particulate in acetone rinse (m_a) ________ g

Total weight of particulate (m_n) ________ g

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

Remarks Error on first weight, thrown out, Averaged last four

Signature of analyst: Eric Nadson

Signature of Reviewer: B. Rayfield

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Control No. 001444

METHOD 5

SAMPLE ANALYTICAL FORM

Plant Solite, Brooks, KY Run number 2

Sample Location BIF Test

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse filter(s)	K2-M5-2-FHACE K2-M5-2-PF	✓

Acetone rinse beaker 809 rinse volume (V_aw) 92 ml

Acetone blank residue concentration (C_a) ______ g/ml

$W_a = C_aV_aw$ = (   ) (   ) = ______ g

Date/time/RH of wt 4-6-92/15:50/27% Gross wt 104.5945 g

Date/time/RH of wt 4-7-92/8:30/27% Gross wt 104.5946 g

Date/time/RH of wt ______ Gross wt ______ g

Date/time/RH of wt ______ Gross wt ______ g

Average Gross wt 104.5946 g

Tare wt 104.5850 g

Less acetone blank wt (W_a) ______ g

Weight of particulate in acetone rinse (m_a) ______ g

Filter(s) container number Q191

Date/time/RH of wt 4-6-92/16:10/27% Gross wt 0.3860 g

Date/time/RH of wt 4-7-92/8:10/27% Gross wt 0.3802 g

Date/time/RH of wt 4-7-92/14:30/28% Gross wt 0.3808 ✓ g

Date/time/RH of wt 4-10-92/8:30/31% Gross wt 0.3805 ✓ g

4-10-92/14:30/31% 0.3812

Average Gross wt 0.3807 g

Tare wt 0.3706 g

Less filter blank wt (F_a) ______ g

Weight of particulate on filter(s) (m_f) ______ g

Weight of particulate in acetone rinse(m_a) ______ g

Total weight of particulate (m_n) ______ g

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

Remarks Error on first weight of filter, averaged last four weights

Signature of analyst: Eric Hudson

Signature of Reviewer: B. Rayfield

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iea

Control No. 001445

METHOD 5

SAMPLE ANALYTICAL FORM

Plant Solite, Brooks KY Run number 3

Sample Location BIF Test

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse	K2-M5-3-FHACE	✓
filter(s)	K2-M5-3-PF	✓

Acetone rinse beaker 798 rinse volume (V_aw) 101 ml

Acetone blank residue concentration (C_a) ________ g/ml

$W_a = C_aV_aw = (\quad)(\quad) = $ ________ g

Date/time/RH of wt 8-6-92/15:50/27% Gross wt 104.9126 g

Date/time/RH of wt 8-7-92/8:30/27% Gross wt 104.9130 g

Date/time/RH of wt ________ Gross wt ________ g

Date/time/RH of wt ________ Gross wt ________ g

Average Gross wt 104.9128 g

Tare wt 104.9010 g

Less acetone blank wt (W_a) ________ g

Weight of particulate in acetone rinse (m_a) ________ g

Filter(s) container number Q228

Date/time/RH of wt 8-6-92/16:10/27% Gross wt ~~0.3650~~ g

Date/time/RH of wt 8-7-92/8:10/27% Gross wt 0.3638 ✓ g

Date/time/RH of wt 8-7-92/14:30/28% Gross wt 0.3645 ✓ g

Date/time/RH of wt 8-10-92/8:30/31% Gross wt 0.3639 ✓ g

8-10-92/14:30/31% 0.3645 ✓ Average Gross wt 0.3642 g

Tare wt 0.3622 g

Less filter blank wt (F_b) ________ g

Weight of particulate on filter(s) (m_f) ________ g

Weight of particulate in acetone rinse(m_a) ________ g

Total weight of particulate (m_n) ________ g

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

Remarks Error on first weight, throw out, averaged last four weights

Signature of analyst: Eric Watson

Signature of Reviewer: B Rayfield

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Control No. 000152

iea

METHOD 5
BLANK ANALYTICAL FORM

Plant Solite, Brooks, KY Run number

Sample Location BIF Test K2-MTL-BLK-FH ACE

Blank Identification # Acetone Rinse Breaker # 793

Liquid level marked and container sealed ✓

Blank volume (V_a) 104 ml

Date/time/RH of wt 8-6-92/15:50/27% Gross wt 104.7801 g

Date/time/RH of wt 8-7-92/8:30/27% Gross wt 104.7802 g

Date/time/RH of wt ______ Gross wt ______ g

Date/time/RH of wt ______ Gross wt ______ g

Average Gross wt 104.7802 g

Tare wt 104.7782 g

Weight of blank (m_a) 0.0020 g

$C_a = M_a/V_a = ($ 0.0020 $)/($ 104 $) =$ 1.92×10^{-5} g/ml

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

Filter(s) identification ______ Filter number Q193

Date/time/RH of wt 8-6-92/16:50/27% Gross wt 0.3665 g

Date/time/RH of wt 8-7-92/8:10/27% Gross wt 0.3655 g

Date/time/RH of wt 8-7-92/14:30/28% Gross wt 0.3663 g

Date/time/RH of wt 8-10-92/9:30/31% Gross wt 0.3656 g

8-10-92/14:30/31% 0.3660

Average Gross wt 0.3659 g

Tare wt 0.3649 g

Difference 0.0010 g

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

Remarks Error on first weight of filter, thrown out, averaged last four weights. DO NOT BLANK CORRECT ACETONE RINSE.

Signature of analyst: Eric Hudson

Signature of Reviewer: Barry Hayfield

C-000207

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Control No. 00 153

iea

METHOD 5
BLANK ANALYTICAL FORM

Plant Solite, Brooks KY Run number ____

Sample Location BIF TEST KL-M5-BLK-FHACE

Blank Identification # Acetone Rinse Breaker # 763

Liquid level marked and container sealed ✓

Blank volume (V_a) 100 ml

Date/time/RH of wt 8-6-92 / 15:50 / 27% Gross wt 102.6845 g

Date/time/RH of wt 8-7-92 / 8:30 / 27% Gross wt 102.6848 g

Date/time/RH of wt ____ Gross wt ____ g

Date/time/RH of wt ____ Gross wt ____ g

Average Gross wt 102.6847 g

Tare wt 102.6850 g

Weight of blank (m_a) -0.0003 g

$C_a = M_a/V_a = (-0.0003)/(100) = -3 \times 10^{-6}$ g/ml

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

Filter(s) identification ____ Filter number ____

Date/time/RH of wt ____ Gross wt ____ g

Date/time/RH of wt ____ Gross wt ____ g

Date/time/RH of wt ____ Gross wt ____ g

Date/time/RH of wt ____ Gross wt ____ g

Average Gross wt ____ g

Tare wt ____ g

Difference ____ g

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

Remarks ____

Signature of analyst: Eric Hudson

Signature of Reviewer: B. Rayfield

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P-000003

INDUSTRIAL &
ENVIRONMENTAL
ANALYSTS

FIELD DIVISION

Mailing Address:
P.O. Box 12846 ● Research Triangle Park, North Carolina 27709

Shipping Address:
120 Southcenter Ct., Suite 200 ● Morrisville, North Carolina 27560

****

To: Bill Dewees

From: Frank Sturtz

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Facsimile: 919-460-1785

JULY 23, 1992

IEA
3000 Weston Pkwy.
CARY, N.C.27513
ATTN: GERALD BOWSER

Report Date: 7/23/92
Lab/Project#: 25117
P.O. #: 1381-005

Sampling Date: Unknown
Sampler (s): Unknown
Sample Identification: 10 liquid samples identified as:

IEA 1-10

Methodology: Samples were analyzed in accordance with EPA BIF METHOD (Determination of HYDROGEN CHLORIDE /CHLORINE Emissions.....Ion Chromatographic Method.)

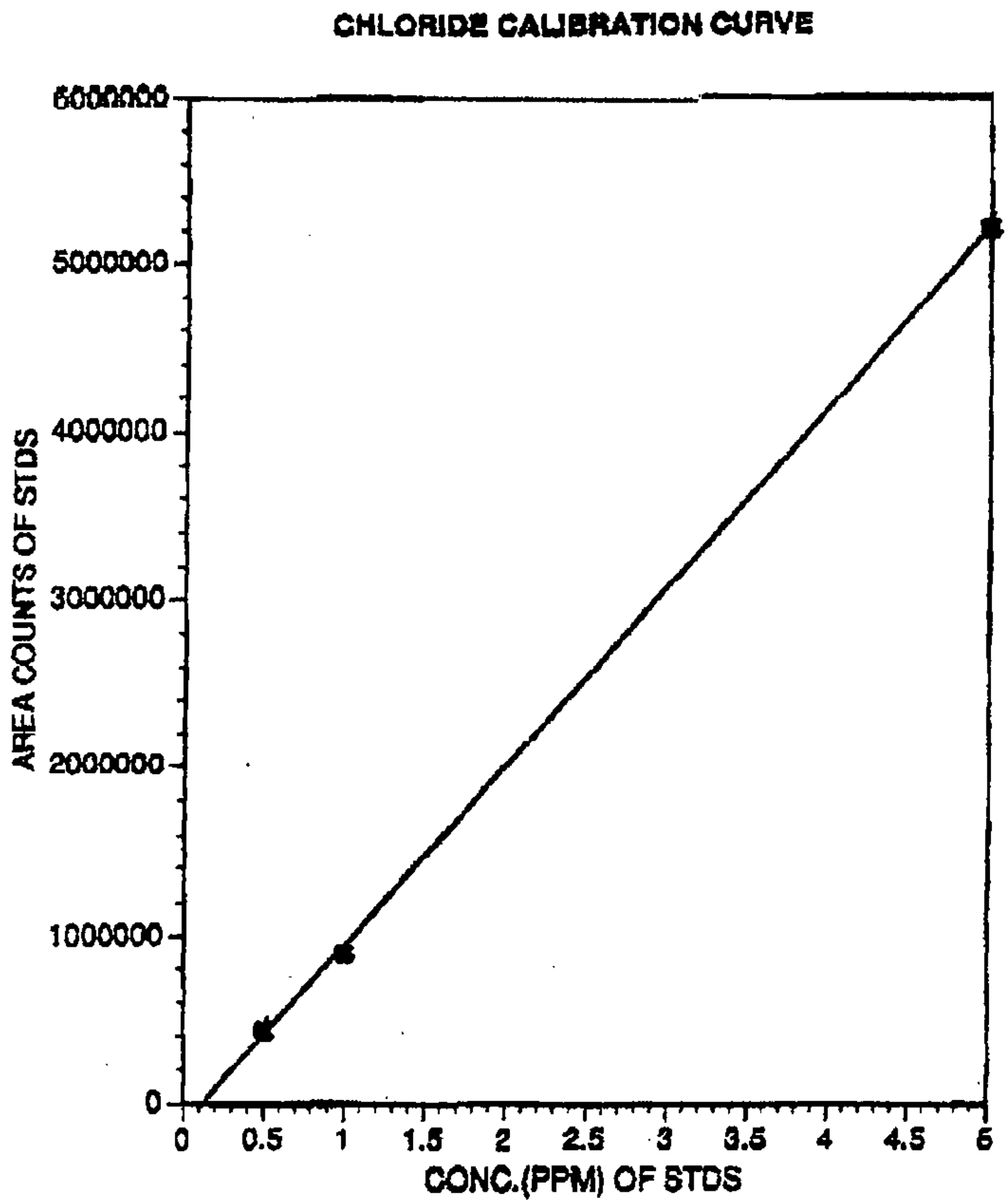
Date (s) of analyses: 7/22/92

RESULTS:

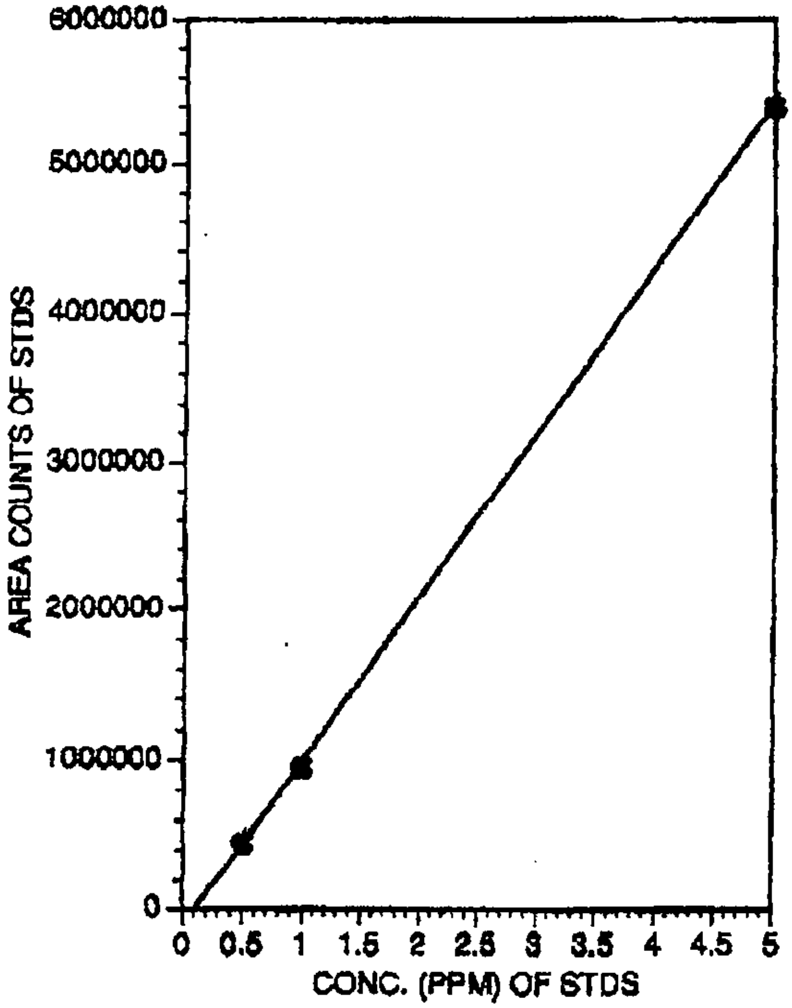
Results are as per attached data sheet.

Respectfully submitted,

TAREK GHARIB
ANALYTICAL CHEMIST


CHLORIDE CALIBRATION CURVE
AREA COUNTS OF STDS
6000000
5000000
4000000
3000000
2000000
1000000
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
CONC.(PPM) OF STDS

CHLORIDE CALIBRATION CURVE



JULY 21, 1992

IEA
3000 Weston Pkwy.
CARY, N.C.27513
ATTN: GERALD BOWSER

Report Date: 7/17/92
Lab/Project#: 26115
P.O. #: 1381-005

Sampling Date: Unknown
Sampler (s): Unknown
Sample Identification: 6 liquid samples identified as:

IEA 1-6

Methodology: Samples were analyzed in accordance with EPA BIF METHOD (Determination of HYDROGEN CHLORIDE /CHLORINE Emissions.....Ion Chromatographic Method.)

Date (s) of analyses: 7/17/92

RESULTS:

Results are as per attached data sheet.

Respectfully submitted,

TAREK GHARIB
ANALYTICAL CHEMIST

CERTIFICATE OF ANALYSIS

CUSTOMER: IEA
DATE RECEIVED: 7/16/92

SAMPLE TYPE: LIQUIDS
JOB/P.O. NUMBER: 1381-005

PARAMETERS: CL-
DATE REPORTED: 7/17/92

MARKS: 26115 01-06
DETECTION LIMIT: 0.05mg/L

LAB ID#	CLIENT SAMPLE ID	SAMPLE VOL.(ml)	CONC. Cl- (mg/L)	TOTAL Cl- (mg)
26115-01	KY 2-1 INLET-CL2	32	1.48	0.05
26115-02	KY 2-2 INLET-CL2	50	0.70	0.04
26115-03	KY 2-3 INLET-CL2	32	13.12	0.42
26115-04	KY 2-1 INLET-HCL	45	69.33	3.1
26115-05	KY 2-2 INLET-HCL	68	101.32	6.9
26115-06	KY 2-3 INLET-HCL	26	426.60	11

SPIKE: 26115-03
%RECOVERY: 101

DUPLICATE: 26115-04 26115-05
%DEVIATION: 1.4 0.1

Analyst: Reviewed By:
Tarek Gharib
Analytical Chemist

JULY 23, 1992

IEA
3000 Weston Pkwy.
CARY, N.C.27513
ATTN: GERALD BOWSER

Report Date: 7/23/92
Lab/Project#: 26117
P.O. #: 1381-005

Sampling Date: Unknown
Sampler (s): Unknown
Sample Identification: 10 liquid samples identified as:

IEA 1-10

Methodology: Samples were analyzed in accordance with EPA BIF METHOD (Determination of HYDROGEN CHLORIDE /CHLORINE Emissions.....Ion Chromatographic Method.)

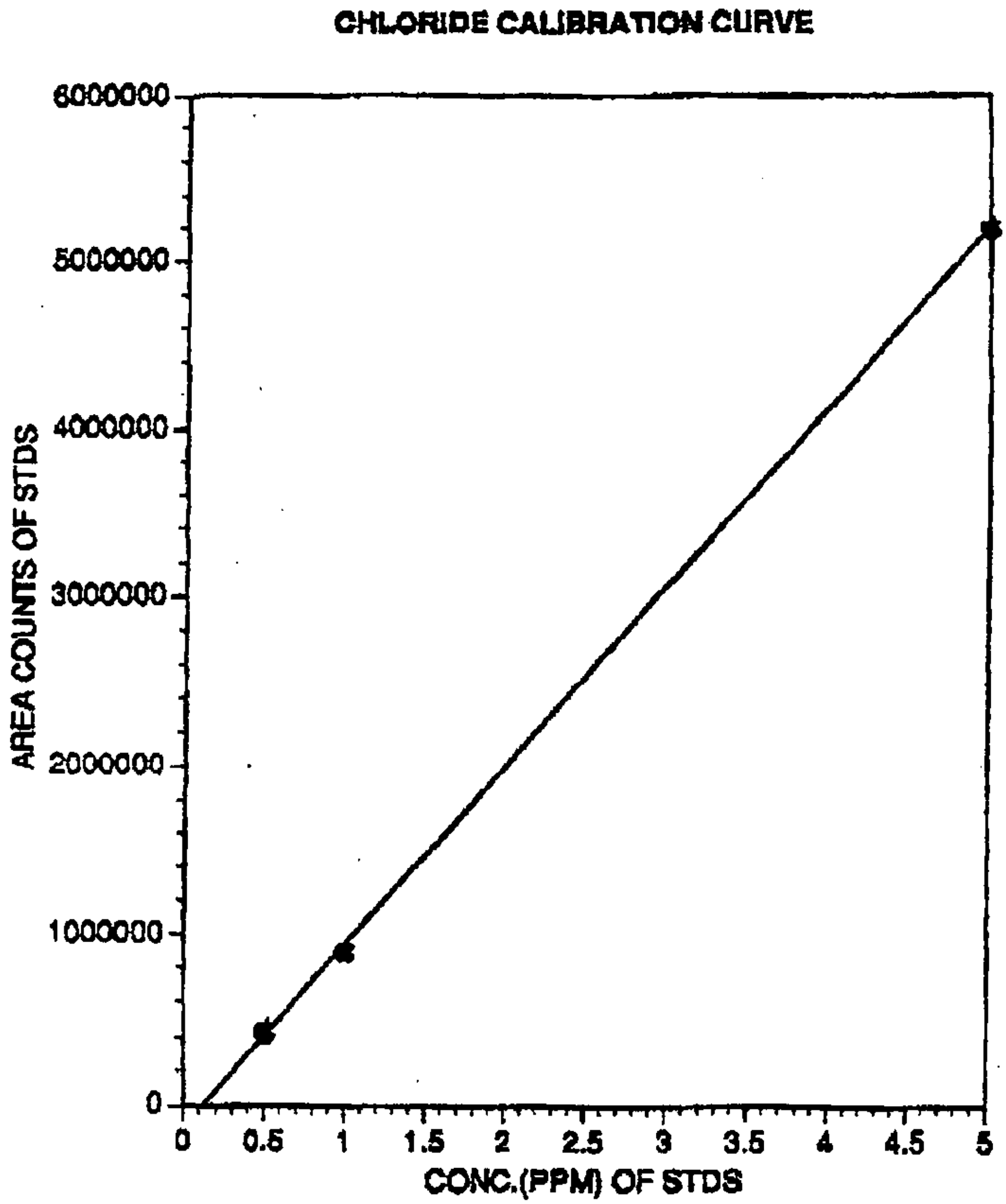
Date (s) of analyses: 7/22/92

RESULTS:

Results are as per attached data sheet.

Respectfully submitted,

TAREK GHARIB
ANALYTICAL CHEMIST


CHLORIDE CALIBRATION CURVE
6000000
5000000
4000000
3000000
2000000
1000000
0
AREA COUNTS OF STDS
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
CONC.(PPM) OF STDS

CERTIFICATE OF ANALYSIS

CUSTOMER: IEA

SAMPLE TYPE: LIQUIDS

PARAMETERS: CL-

MARKS: 26117 01-10

DATE RECEIVED: 7/20/92

JOB/P.O. NUMBER: 1361-005

DATE REPORTED: 7/23/92

DETECTION LIMIT: 0.05mg/L

LAB ID#	CLIENT SAMPLE ID	SAMPLE VOL.(ml)	CONC. Cl- (mg/L)	TOTAL Cl- (mg)
26117-01	K2-M5-BLK-H2SO4	127	<0.05	
26117-02	K2-M5-1-H2SO4 IMP 1 OF 2	498	1815.25	904
26117-03	K2-M5-1-H2SO4 IMP 2 OF 2	166	105.88	17.6
26117-04	K2-M5-2-H2SO4 IMP	620	1240.77	769
26117-05	K2-M5-3-H2SO4 IMP	620	1467.81	910
26117-06	K2-M5-BLK-H2O	150	<0.05	
26117-07	K2-M5-BLK-NaOH	144	<0.05	
26117-08	K2-M5-1-NaOH IMP	400	8.51	3.41
26117-09	K2-M5-2-NaOH IMP	389	18.88	7.34
26117-10	K2-M5-3-NaOH IMP	398	10.88	4.33

SPIKE:	26117-03	26117-09
%RECOVERY:	97	92
DUPLICATE:	26117-02	26117-10
%DEVIATION:	0.7	0.2

Analyst: [signature] Reviewed by: [signature]

Tarek Gharib
Analytical Chemist

CERTIFICATE OF ANALYSIS

CUSTOMER:	IEA	DATE RECEIVED:	7/20/92
SAMPLE TYPE:	LIQUID	JOB/P.O. NUMBER:	1381-005
PARAMETERS:	CL-	DATE REPORTED:	7/23/92
MARKS:	26117-01-10	DETECTION LIMIT:	0.05mg/L

LAB ID#	CLIENT SAMPLE ID	SAMPLE VOL.(ml)	CONC. Cl- (mg/L)	TOTAL Cl- (mg)
26117-01	K2-M5-BLK-H2SO4	127	<0.05	
26117-02	K2-M5-1-H2SO4 IMP 1 OF 2	498	1816.25	904
26117-03	K2-M5-1-H2SO4 IMP 2 OF 2	166	105.88	17.6
26117-04	K2-M5-2-H2SO4 IMP	620	1240.77	769
26117-05	K2-M5-3-H2SO4 IMP	620	1467.81	910
26117-06	K2-M5-BLK-H2O	150	<0.05	
26117-07	K2-M5-BLK-NaOH	144	<0.05	
26117-08	K2-M5-1-NaOH IMP	400	8.51	3.41
26117-09	K2-M5-2-NaOH IMP	389	18.88	7.34
26117-10	K2-M5-3-NaOH IMP	398	10.88	4.33

SPIKE:	26117-03	26117-09
%RECOVERY:	97	92
DUPLICATE:	26117-02	26117-10
%DEVIATION:	0.7	0.2

Analyst: [signature]
Tarek Gharib
Analytical Chemist

Reviewed by: [signature]

D-000318

RESEARCH TRIANGLE INSTITUTE

RTI

Center for Environmental Measurements and Quality Assurance

August 7, 1992

Mr. James A. Peters
IEA, Inc.
P.O. Box 12846
RTP, NC 27709

Dear James,

Enclosed are the Chromium (VI) analysis results as determined by ion chromatography, for the impinger samples received on July 13, 1992 for RTI Project No. 91C-4848-02J, IEA Inc., P.O. No. FS1078.

If you have any questions, please call me at 919-541-6569 or Peter Grohse at 919-541-6897.

Sincerely,

Kate K. Luk, Ph.D.

Ref: 91C-4848-02J
cc: W. Gutknecht
P. Grohse
C. Decker
N. Riggs

Post Office Box 12194 Research Triangle Park, North Carolina 27709-2194
Telephone 919 541-6573 Fax: 919 541-5929

RTI Project No. : 4848-02J

Samples : Impinger Samples
Company : IEA (P.O. # F61078)
Analyte : Cr(VI)
Method of Analysis : Ion Chromatography / Post Column Reaction
Samples Received : 7-13-92
Report Date : 8-7-91

Sample	Total Volume mL	Cr(VI) ug/mL	Total Cr(VI) ug
K2-Cr6-1-KOH	786	0.00226	1.78
K2-Cr6-2-KOH	860	ND	ND
K2-Cr6-3-KOH	585	ND	ND
K2-Cr6-BLK-KOH	396	0.00179	0.709
K2-Cr6-BLK-H2O	205	ND	ND

Detection Limit 0.0015

ND : Non-detectable; less than detection limit

Total Cr(VI), ug = Cr(VI), ug/mL * Total Volume, mL

RTI Project No. : 4848-02J

Samples : QC for Impinger Samples
Company : IEA (P.O. # FS1078)
Analyte : Cr(VI)
Method of Analysis : Ion Chromatography / Post Column Reaction
Samples Received : 7-13-92
Report Date : 8-7-91

Calibration Check Sample, ug/mL

Sample	Cr(VI) ug/mL Measured	Cr(VI) ug/mL Expected
QC	0.00928	0.0100

Results of Blank, Duplicate, and Spike Analysis

Sample	Cr(VI) ug/mL Measured	Spike Cr(VI) ug/mL Measured	Spike Cr(VI) ug/mL Expected	Spike Cr(VI) % Recovery
RTI DIW Blk	ND	--	--	--
K2-Cr6-3 KOH Dup	ND	--	--	--
K2-Cr6-3-KOH Spk	--	0.0113	0.0100	113

Ross Analytical Services, Inc. • 16433 Foltz Pkwy. • Strongsville, OH 44136 • (216) 572-3200 • FAX (216) 572-762

CERTIFICATE OF ANALYSIS

Client:

IEA, Inc.
120 S. Center Ct., Suite 200
Morrisville, NC 27560

Attn: Frank Stevens

Work Order #: 92-07-092
Client Code: IEA
Report Date: 08/10/92
Work ID: BIF Compliance; mets and wets
Date Received: 07/15/92

SAMPLE IDENTIFICATION

Lab Number	Sample Description	Lab Number	Sample Description
01	K2-RFEED-1-MTL	02	K2-RFEED-2-MTL
03	K2-RFEED-2D-MTL	04	K2-RFEED-3-MTL
05	K2-PROD-1-MTL	06	K2-PROD-2-MTL
07	K2-PROD-2D-MTL	08	K2-PROD-3-MTL
09	K2-DUST-1-MTL	10	K2-DUST-2-MTL
11	K2-DUST-2D-MTL	12	K2-DUST-3-MTL
13	K2-LBM-1-MTL	14	K2-LBM-2-MTL
15	K2-LBM-2D-MTL	16	K2-LBM-3-MTL
17	K2-RFEED-1-PHYS	18	K2-RFEED-2-PHYS
19	K2-RFEED-2D-PHYS	20	K2-RFEED-3-PHYS
21	K2-PROD-1-PHYS	22	K2-PROD-2-PHYS
23	K2-PROD-2D-PHYS	24	K2-PROD-3-PHYS
25	K2-LBM-1-PHYS	26	K2-LBM-2-PHYS
27	K2-LBM-2D-PHYS	28	K2-LBM-3-PHYS

Data are reported on an as-received basis unless stated otherwise. Practical Quantitation Limits (PQL's) are listed; they are higher than instrument detection limits and take the sample's matrix into account. Metals and other inorganic data are corrected for laboratory blank values; organic data are not. Unless otherwise noted, organic analysis blanks had no targets found above their PQL's.

Peggy J. Schuler

Certificate approved by
Peggy J. Schuler

TEST METHODOLOGIES

Chloride was determined by combustion in an oxygen bomb followed by electrometry as in ASTM Method D-4208.

Moisture was determined gravimetrically following drying at 105 C as in EPA Method 160.3.

Ash was determined gravimetrically following ignition at 1800 C as in ASTM Method D-482.

Heating value was determined by isothermal calorimetry as in ASTM Method D-240.

Total halides were determined by combustion in an oxygen bomb followed by a Volhard titration as in ASTM Method D-808.

Specific gravity was determined by weighing a measured volume of the sample.

Metals were determined in solid and non-aqueous liquid samples by digestion with nitric acid, hydrogen peroxide, and hydrochloric acid as in EPA Method 3050, followed by Inductively Coupled Plasma Emission Spectroscopy as in EPA Method 6010, unless noted otherwise.

Mercury was determined in solid and non-aqueous liquid samples by cold vapor atomic absorption after acid/permanganate digestion as in EPA Methods 245.5 and 7471.

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 7061A.

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

Thallium was determined by graphite furnace AA as in EPA Methods 279.2 and 7841.

Water was determined by Karl Fischer titration.

QUALITY CONTROL SUMMARY

Five samples were prepared for metals analysis with matrix spike/matrix spike duplicate (MS/MSD) pairs. The results of these analyses are listed below.

Sample K2-RFEED-1-MTL (RASI No. 01)

Metal	Sample Result	Spike	MS % Rec.	MSD % Rec.	RPD
Antimony	0.34	10.0	0	0	(Not calculable)
Arsenic	7.37	10.0	150	88	35
Barium	17.7	200.0	97	94	3
Beryllium	<PQL	200.0	94	92	3
Cadmium	<PQL	200.0	94	91	4
Chromium	<PQL	200.0	99	96	3
Lead	8.10	10.0	134	132	4
Mercury	<PQL	0.8	104	104	9
Silver	<PQL	200.0	102	99	3
Thallium	0.73	10.0	112	112	1

Sample K2-PROD-2-MTL (RASI No. 06)

Metal	Sample Result	Spike	MS % Rec.	MSD % Rec.	RPD
Antimony	<PQL	10.0	2	2	18
Arsenic	5.50	10.0	80	90	9
Barium	145	200.0	94	83	7
Beryllium	0.88	200.0	94	91	3
Cadmium	<PQL	200.0	94	91	4
Chromium	23.8	200.0	96	92	4
Lead	222	400.0	106	104	1
Mercury	<PQL	0.8	102	103	1
Silver	<PQL	200.0	102	97	5
Thallium	1.01	10.0	94	103	9

Sample K2-DUST-2D-MTL (RASI No. 11)

Metal	Sample Result	Spike	MS % Rec.	MSD % Rec.	RPD
Antimony	0.49	10.0	4	2	31
Arsenic	200	400.0	109	114	3
Barium	347	200.0	115	96	7
Beryllium	12.6	200.0	98	100	1
Cadmium	371	200.0	105	106	1
Chromium	73.9	200.0	107	100	5
Lead	18,300	400.0	500	490	3
Mercury	0.07	0.8	99	99	0
Silver	<PQL	200.0	84	104	20
Thallium	1.34	10.0	91	94	3

Sample K2-DUST-31-MTL (RASI No. 12)

Metal	Sample Result	Spike	MS % Rec.	MSD % Rec.	RPD
Antimony	0.45	10.0	3	4	13
Arsenic	303	400.0	103	103	0
Barium	352	200.0	87	86	0
Beryllium	11.2	200.0	98	98	1
Cadmium	410	200.0	99	92	2
Chromium	80.2	200.0	94	94	0
Lead	21,800	400.0	243	192	2
Mercury	0.07	0.8	98	99	1
Silver	<PQL	200.0	102	102	1
Thallium	1.25	10.0	92	90	2

Sample K2-LBM-3-MTL (RASI No. 16)

Metal	Sample Result	Spike	MS % Rec.	MSD % Rec.	RPD
Antimony	<PQL	10.0	108	118	8
Arsenic	<PQL	400.0	104	104	0
Barium	<PQL	200.0	97	97	0
Cadmium	<PQL	200.0	93	93	0
Chromium	1.09	200.0	101	100	0
Lead	4.07	400.0	97	96	1
Mercury	0.07	0.8	94	96	2
Silver	<PQL	200.0	92	91	1
Thallium	<PQL	10.0	96	103	8

Two samples were analyzed for chloride with matrix spike/matrix spike duplicate (MS/MSD) pairs. The results of these analyses are listed below.

Sample	Sample Result	Spike	MS % Rec.	MSD % Rec.	RPD
K2-RFEED-1-PHYS (17)	<PQL	20.7	57	65	17
K2-PROD-2D-PHYS (23)	<PQL	19.4	66	58	17

The same two samples were analyzed for moisture in duplicate. The results of these analyses are listed below.

Sample	Result 1	Result 2	RPD
K2-RFEED-1-PHYS	6.8	7.2	6
K2-PROD-2D-PHYS	<PQL	<PQL	(Not calculable)

Sample K2-LBM-3-PHYS (RASI No. 28) was analyzed in duplicate for ash, heating value, density, and water. The results of these analyses are listed below.

Analyte	Result 1	Result 2	RPD
Ash	0.17	0.14	19
Heating value	7940	8340	5
Density	0.898	0.882	2
Water	30	30	0

The same sample as analyzed for halide with an MS/MSD pair. The results of these analyses are listed below.

Sample	Sample Result	Spike	MS % Rec.	MSD % Rec.	RPD
K2-LBM-3-PHYS	0.8	15.7	87	90	3

REPORT COMMENTS

Due to the high concentrations of arsenic in the DUST and LBM samples (RASI Nos. 09-16), the ICP data are reported rather than the graphite furnace data.

Due to the high concentrations of lead in the PROD, DUST, and LBM samples (RASI Nos. 05-16), the ICP data are reported rather than the graphite furnace data.

The RFEED, PROD, and DUST samples (RASI Nos. 01-12) required dilutions for their ICP analyses to reduce interferences from their high iron and aluminum concentrations. The listed PQL's for the metals determined by ICP do not reflect those dilutions; the actual PQL's for the ICP metals in those samples are 10 times the listed values.

The low spike recoveries for antimony on the RFEED, PROD, and DUST samples (RASI Nos. 01, 06, 11, and 12) indicate matrix interference.

The anomalous spike recoveries for lead on the DUST and LBM samples (RASI Nos. 11, 12, and 16) are due to the very high native concentration of lead compared to the amount spiked.

TEST METHODOLOGIES

Chloride was determined by combustion in an oxygen bomb followed by electrometry as in ASTM Method D-4208.

Moisture was determined gravimetrically following drying at 105 C as in EPA Method 160.3.

Ash was determined gravimetrically following ignition at 1800 C as in ASTM Method D-482.

Heating value was determined by isothermal calorimetry as in ASTM Method D-240.

Total halides were determined by combustion in an oxygen bomb followed by a Volhard titration as in ASTM Method D-808.

Specific gravity was determined by weighing a measured volume of the sample.

Metals were determined in solid and non-aqueous liquid samples by digestion with nitric acid, hydrogen peroxide, and hydrochloric acid as in EPA Method 3050, followed by Inductively Coupled Plasma Emission Spectroscopy as in EPA Method 6010, unless noted otherwise.

Mercury was determined in solid and non-aqueous liquid samples by cold vapor atomic absorption after acid/permanganate digestion as in EPA Methods 245.5 and 7471.

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 7061A.

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

Thallium was determined by graphite furnace AA as in EPA Methods 279.2 and 7841.

Water was determined by Karl Fischer titration.

RESULTS BY SAMPLE

Sample Description: K2-RFEED-1-MTL **Lab No.:** 01

Analyte Description	Result	Units	PQL
Barium by ICP	17.7	mg/Kg	0.07
Beryllium by ICP	<PQL	mg/Kg	0.07
Cadmium by ICP	<PQL	mg/Kg	0.45
Chromium by ICP	<PQL	mg/Kg	0.80
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	0.340	mg/Kg	0.0028
Arsenic by GFAA	7.37	mg/Kg	0.0030
Lead by GFAA	8.10	mg/Kg	0.002
Mercury by CVAA	<PQL	mg/Kg	0.04
Thallium by GFAA	0.728	mg/Kg	0.0030

Sample Description: K2-RFEED-2-MTL **Lab No.:** 02

Analyte Description	Result	Units	PQL
Barium by ICP	18.9	mg/Kg	0.07
Beryllium by ICP	<PQL	mg/Kg	0.07
Cadmium by ICP	<PQL	mg/Kg	0.45
Chromium by ICP	<PQL	mg/Kg	0.80
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	<PQL	mg/Kg	0.0028
Arsenic by GFAA	6.21	mg/Kg	0.0030
Lead by GFAA	7.47	mg/Kg	0.002
Mercury by CVAA	<PQL	mg/Kg	0.04
Thallium by GFAA	0.711	mg/Kg	0.0030

Sample Description: K2-RFEED-2D-MTL **Lab No.:** 03

Analyte Description	Result	Units	PQL
Barium by ICP	20.7	mg/Kg	0.07
Beryllium by ICP	<PQL	mg/Kg	0.07
Cadmium by ICP	<PQL	mg/Kg	0.45
Chromium by ICP	<PQL	mg/Kg	0.80
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	<PQL	mg/Kg	0.0028
Arsenic by GFAA	6.15	mg/Kg	0.0030
Lead by GFAA	7.66	mg/Kg	0.002
Mercury by CVAA	<PQL	mg/Kg	0.04
Thallium by GFAA	0.618	mg/Kg	0.0030

Sample Description: K2-RFEED-3-MTL **Lab No.:** 04

Analyte Description	Result	Units	PQL
Barium by ICP	21.9	mg/Kg	0.07
Beryllium by ICP	<PQL	mg/Kg	0.07
Cadmium by ICP	<PQL	mg/Kg	0.45
Chromium by ICP	<PQL	mg/Kg	0.80
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	<PQL	mg/Kg	0.0028
Arsenic by GFAA	8.24	mg/Kg	0.0030
Lead by GFAA	8.33	mg/Kg	0.002
Mercury by CVAA	<PQL	mg/Kg	0.04
Thallium by GFAA	0.765	mg/Kg	0.0030

Sample Description: K2-PROD-1-MTL **Lab No.:** 05

Analyte Description	Result	Units	PQL
Barium by ICP	240	mg/Kg	0.07
Beryllium by ICP	0.91	mg/Kg	0.07
Cadmium by ICP	<PQL	mg/Kg	0.45
Chromium by ICP	26.2	mg/Kg	0.80
Lead by ICP	185	mg/Kg	2.1
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	<PQL	mg/Kg	0.0028
Arsenic by GFAA	5.04	mg/Kg	0.0030
Mercury by CVAA	<PQL	mg/Kg	0.04
Thallium by GFAA	0.853	mg/Kg	0.0030

Sample Description: K2-PROD-2-MTL **Lab No.:** 06

Analyte Description	Result	Units	PQL
Barium by ICP	145	mg/Kg	0.07
Beryllium by ICP	0.88	mg/Kg	0.07
Cadmium by ICP	<PQL	mg/Kg	0.45
Chromium by ICP	23.8	mg/Kg	0.80
Lead by ICP	222	mg/Kg	2.1
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	<PQL	mg/Kg	0.0028
Arsenic by GFAA	5.50	mg/Kg	0.0030
Mercury by CVAA	<PQL	mg/Kg	0.04
Thallium by GFAA	1.01	mg/Kg	0.0030

Sample Description: K2-PROD-2D-MTL **Lab No.:** 07

Analyte Description	Result	Units	PQL
Barium by ICP	142	mg/Kg	0.07
Beryllium by ICP	1.10	mg/Kg	0.07
Cadmium by ICP	<PQL	mg/Kg	0.45
Chromium by ICP	23.5	mg/Kg	0.80
Lead by ICP	176	mg/Kg	2.1
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	<PQL	mg/Kg	0.0028
Arsenic by GFAA	4.75	mg/Kg	0.0030
Mercury by CVAA	<PQL	mg/Kg	0.04
Thallium by GFAA	1.03	mg/Kg	0.0030

Sample Description: K2-PROD-3-MTL **Lab No.:** 08

Analyte Description	Result	Units	PQL
Barium by ICP	142	mg/Kg	0.07
Beryllium by ICP	0.86	mg/Kg	0.07
Cadmium by ICP	<PQL	mg/Kg	0.45
Chromium by ICP	20.9	mg/Kg	0.80
Lead by ICP	190	mg/Kg	2.1
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	<PQL	mg/Kg	0.0028
Arsenic by GFAA	4.64	mg/Kg	0.0030
Mercury by CVAA	<PQL	mg/Kg	0.04
Thallium by GFAA	0.885	mg/Kg	0.0030

Sample Description: K2-DUST-1-MTL **Lab No.:** 09

Analyte Description	Result	Units	PQL
Arsenic by ICP	299	mg/Kg	2.6
Barium by ICP	286	mg/Kg	0.07
Beryllium by ICP	10.9	mg/Kg	0.07
Cadmium by ICP	356	mg/Kg	0.45
Chromium by ICP	58.3	mg/Kg	0.80
Lead by ICP	22,000	mg/Kg	2.1
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	<PQL	mg/Kg	0.0028
Mercury by CVAA	0.07	mg/Kg	0.04
Thallium by GFAA	1.51	mg/Kg	0.0030

Sample Description: K2-DUST-2-MTL   **Lab No.:** 10

Analyte Description	Result	Units	PQL
Arsenic by ICP	221	mg/Kg	2.6
Barium by ICP	323	mg/Kg	0.07
Beryllium by ICP	8.68	mg/Kg	0.07
Cadmium by ICP	337	mg/Kg	0.45
Chromium by ICP	65.7	mg/Kg	0.80
Lead by ICP	19,500	mg/Kg	2.1
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	0.860	mg/Kg	0.0028
Mercury by CVAA	0.05	mg/Kg	0.04
Thallium by GFAA	1.15	mg/Kg	0.0030

Sample Description: K2-DUST-2D-MTL   **Lab No.:** 11

Analyte Description	Result	Units	PQL
Arsenic by ICP	200	mg/Kg	2.6
Barium by ICP	347	mg/Kg	0.07
Beryllium by ICP	12.6	mg/Kg	0.07
Cadmium by ICP	371	mg/Kg	0.45
Chromium by ICP	73.9	mg/Kg	0.80
Lead by ICP	18,300	mg/Kg	2.1
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	0.490	mg/Kg	0.0028
Mercury by CVAA	0.07	mg/Kg	0.04
Thallium by GFAA	1.34	mg/Kg	0.0030

Sample Description: K2-DUST-3-MTL   **Lab No.:** 12

Analyte Description	Result	Units	PQL
Arsenic by ICP	303	mg/Kg	2.6
Barium by ICP	352	mg/Kg	0.07
Beryllium by ICP	11.2	mg/Kg	0.07
Cadmium by ICP	410	mg/Kg	0.45
Chromium by ICP	80.2	mg/Kg	0.80
Lead by ICP	21,800	mg/Kg	2.1
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	0.454	mg/Kg	0.0028
Mercury by CVAA	0.07	mg/Kg	0.04
Thallium by GFAA	1.25	mg/Kg	0.0030

Sample Description: K2-LBM-1-MTL **Lab No.:** 13

Analyte Description	Result	Units	PQL
Arsenic by ICP	<PQL	mg/Kg	2.6
Barium by ICP	<PQL	mg/Kg	0.07
Beryllium by ICP	<PQL	mg/Kg	0.07
Cadmium by ICP	<PQL	mg/Kg	0.45
Chromium by ICP	1.39	mg/Kg	0.80
Lead by ICP	<PQL	mg/Kg	2.1
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	<PQL	mg/Kg	0.0028
Mercury by CVAA	0.14	mg/Kg	0.04
Thallium by GFAA	<PQL	mg/Kg	0.0030

Sample Description: K2-LBM-2-MTL **Lab No.:** 14

Analyte Description	Result	Units	PQL
Arsenic by ICP	<PQL	mg/Kg	2.6
Barium by ICP	<PQL	mg/Kg	0.07
Beryllium by ICP	<PQL	mg/Kg	0.07
Cadmium by ICP	<PQL	mg/Kg	0.45
Chromium by ICP	1.00	mg/Kg	0.80
Lead by ICP	3.61	mg/Kg	2.1
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	0.379	mg/Kg	0.0028
Mercury by CVAA	0.06	mg/Kg	0.04
Thallium by GFAA	<PQL	mg/Kg	0.0030

Sample Description: K2-LBM-2D-MTL **Lab No.:** 15

Analyte Description	Result	Units	PQL
Arsenic by ICP	<PQL	mg/Kg	2.6
Barium by ICP	255	mg/Kg	0.07
Beryllium by ICP	<PQL	mg/Kg	0.07
Cadmium by ICP	<PQL	mg/Kg	0.45
Chromium by ICP	35.8	mg/Kg	0.80
Lead by ICP	99.6	mg/Kg	2.1
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	<PQL	mg/Kg	0.0028
Mercury by CVAA	0.09	mg/Kg	0.04
Thallium by GFAA	<PQL	mg/Kg	0.0030

Sample Description: K2-LBM-3-MTL **Lab No.:** 16

Analyte Description	Result	Units	PQL
Arsenic by ICP	<PQL	mg/Kg	2.6
Barium by ICP	<PQL	mg/Kg	0.07
Beryllium by ICP	<PQL	mg/Kg	0.07
Cadmium by ICP	<PQL	mg/Kg	0.45
Chromium by ICP	1.09	mg/Kg	0.80
Lead by ICP	4.07	mg/Kg	2.1
Silver by ICP	<PQL	mg/Kg	0.70
Antimony by GFAA	<PQL	mg/Kg	0.0028
Mercury by CVAA	0.07	mg/Kg	0.04
Thallium by GFAA	<PQL	mg/Kg	0.0030

Sample Description: K2-RFEED-1-PHYS **Lab No.:** 17

Analyte Description	Result	Units	PQL
% moisture	6.8	%	0.5
Chloride in organics	<PQL	%	0.04

Sample Description: K2-RFEED-2-PHYS **Lab No.:** 18

Analyte Description	Result	Units	PQL
% moisture	5.8	%	0.5
Chloride in organics	<PQL	%	0.04

Sample Description: K2-RFEED-2D-PHYS **Lab No.:** 19

Analyte Description	Result	Units	PQL
% moisture	7.0	%	0.5
Chloride in organics	<PQL	%	0.04

Sample Description: K2-RFEED-3-PHYS **Lab No.:** 20

Analyte Description	Result	Units	PQL
% moisture	5.6	%	0.5
Chloride in organics	<PQL	%	0.04

Work order # 92-07-092 Ross Analytical Services, Inc Reported: 08/10/92

Sample Description: K2-PROD-1-PHYS **Lab No.:** 21

Analyte Description	**Result**	**Units**	**PQL**
% moisture	<PQL	%	0.5
Chloride in organics	<PQL	%	0.04

Sample Description: K2-PROD-2-PHYS **Lab No.:** 22

Analyte Description	**Result**	**Units**	**PQL**
% moisture	<PQL	%	0.5
Chloride in organics	<PQL	%	0.04

Sample Description: K2-PROD-2D-PHYS **Lab No.:** 23

Analyte Description	**Result**	**Units**	**PQL**
% moisture	<PQL	%	0.5
Chloride in organics	<PQL	%	0.04

Sample Description: K2-PROD-3-PHYS **Lab No.:** 24

Analyte Description	**Result**	**Units**	**PQL**
% moisture	0.8	%	0.5
Chloride in organics	0.06	%	0.04

Sample Description: K2-LBM-1-PHYS **Lab No.:** 25

Analyte Description	**Result**	**Units**	**PQL**
Density	0.906	g/mL	
Heating value	8310	Btu/lb	500
Ash	0.17	Weight %	0.05
Total halides as chloride	0.6	% as Cl	0.20
Water by Karl Fischer	50	%	0.5

Sample Description: K2-LBM-2-PHYS **Lab No.:** 26

Analyte Description	**Result**	**Units**	**PQL**
Density	0.900	g/mL	
Heating value	8010	Btu/lb	500
Ash	0.08	Weight %	0.05
Total halides as chloride	0.6	% as Cl	0.20

Analyte Description	Result	Units	PQL
Water by Karl Fischer	40	%	0.5

Sample Description: K2-LBM-2D-PHYS **Lab No.:** 27

Analyte Description	Result	Units	PQL
Density	0.900	g/mL	
Heating value	7780	Btu/lb	500
Ash	0.03	Weight %	0.05
Total halides as chloride	0.6	% as Cl	0.20
Water by Karl Fischer	25	%	0.5

Sample Description: K2-LBM-3-PHYS **Lab No.:** 28

Analyte Description	Result	Units	PQL
Density	0.898	g/mL	
Heating value	7940	Btu/lb	500
Ash	0.17	Weight %	0.05
Total halides as chloride	0.8	% as Cl	0.20
Water by Karl Fischer	30	%	0.5

TRIANGLE LABORATORIES, INC.
PO BOX 13485
RTP, NC 27709

ANALYSIS REPORT

MULTI METALS TRAINS

PREPARED FOR:

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Inorganic Report Generation

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Dr. William H. Wadlin
Inorganic Laboratory Manager

Quality Assurance

August 10, 1992

TRIANGLE LABORATORIES of RTP, INC.

PO BOX 13485
RTP, NC 27709

Project: 21435 Date in: 07-Aug-92
IEA Date out: 10-Aug-92

CASE NARRATIVE

<u>Overview</u>

This project involves the analysis of 3 Multi-Metals Trains, for As, Ag, Ba, Be, Cd, Cr, Cu, Mn, Ni, Pb, P, Sb, Se, Tl, and Zn. The Multi-Metal analysis was conducted according to the protocol described in sections 5-7 of the EPA Draft Document *"Methodology for the Determination of Metals Emissions in Exhaust Gases from Hazardous Waste Incineration and Similar Combustion Processes."*

<u>Preparation</u>

Since the filter portion of the Trains were very dirty a fraction of the filter was used for the analysis. A preparation sheet for the fractions taken and the particulate weights is included with this report. Samples were prepared by microwave and hotplate digestion, as required by the contract. A detailed flow chart of the procedure is included in the report showing the volumes received and used for all analyses.

<u>Analysis</u>

Ag, As, Ba, Be, Cd, Cr, Cu, Mn, Ni, P, Pb, and Zn concentrations were determined by Inductively Coupled Plasma (ICP) Emission Spectroscopy. Sb, Se, and Tl concentrations were determined by the Method of Standard Additions (MSA).

<u>Results</u>

%RPD:

All of the applicable %RPD were within QC limits of 25% except Ag and Be for sample KY-1-INLET FH. The Be %RPD is only slightly out of limits at 28.4%. In the case of the Ag %RPD, since the sample and the duplicate concentrations are less then four times the detection limit then the %RPD is not considered a valid QC parameter.

Serial Dilutions:

The results of the serial dilutions of the (BH)'s for As, Ba, Be, Cr, Cu, Ni, and the (FH) for Ag do not agree with the undiluted analysis. However, the serial dilutions are not considered valid QC parameters since the concentrations detected in the undiluted analysis are less than fifty times the detection limit and the concentrations detected in the diluted analysis are less than ten times the detection limit. Therefore the data is not compromised.

TRIANGLE LABORATORIES of RTP, INC.
PO BOX 13485
RTP, NC 27709

INORGANICS ANALYSIS REPORT

TLI PROJECT #: 21435
CLIENT: IEA
DATE RECIEVED: 07/15/92
DATE REPORTED: 08/10/92

RESULTS REPORTED IN TOTAL ug

CLIENT SAMPLE ID	Ag	As	Ba	Be	Cd	Cr	Cu	Mn
KY-1-INLET FH	5.99	6,670	13,400	213	7,030	2,960	707	7,700
KY-1-INLET BH	< .875	508	162	12.9	549	167	22.9	125
KY-2-INLET FH	8.52	15,800	15,900	452	15,200	6,490	1,620	11,600
KY-2-INLET BH	15.2	68.4	33.1	1.83	73.6	18.6	12.6	27.4
KY-3-INLET FH	7.60	17,900	16,700	824	15,500	6,560	1,860	10,300
KY-3-INLET BH	3.14	84.3	31.1	3.93	80.1	23.8	5.96	27.64

CLIENT SAMPLE ID	Ni	P	Pb	Sb	Se	Tl	Zn
KY-1-INLET FH	1,520	4,510	581,000	208	20.9	12.8	4,190
KY-1-INLET BH	53.3	4,470	33,600	*	5.50	2.38	137
KY-2-INLET FH	3,160	9,400	1,120,000	930	45.8	9.37	7,390
KY-2-INLET BH	4.92	4,270	4,197	< .639	4.63	.767	33.9
KY-3-INLET FH	3,150	10,100	1,110,000	1,010	23.2	31.1	7,350
KY-3-INLET BH	8.55	4,321	5,390	7.21	1.30	.417	34.3

*IT WAS NOT POSSIBLE TO OBTAIN THE Sb CONCENTRATION FOR THIS SAMPLE:
SEE THE EXPLANATION ON THE ANALYTE SUMMARY REPORT

%RPD QC SUMMARY

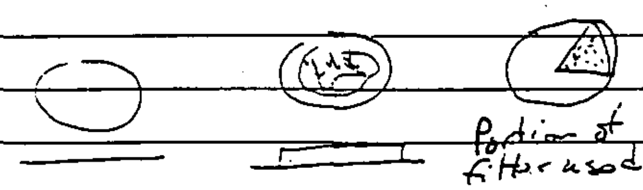
CLIENT SAMPLE ID	Ag	As	Ba	Be	Cd	Cr	Cu	Mn
KY-1-INLET FH(D)	58.6%	7.08%	.10%	28.4%	.84%	.39%	2.34%	1.85%
KY-1-INLET BH(D)	N/A	4.77%	.49%	7.83%	.60%	1.20%	5.07%	1.67%

CLIENT SAMPLE ID	Ni	P	Pb	Sb	Se	Tl	Zn
KY-1-INLET FH(D)	.74%	7.57%	.04%	N/A	N/A	N/A	.61%
KY-1-INLET BH(D)	3.95%	.42%	.58%	N/A	N/A	N/A	.26%
KY-1-INLET FH(S)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
KY-1-INLET BH(S)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

INORGANICS ANALYSIS REPORT

		KY-1-INLET	KY-2-INLET	KY-3-INLET
FILTER	FINAL WT	1.839	2.899	3.283
	TARE WT	.5091	.5069	.5115
		=========	=========	=========
	g PARTICULATE	1.330	2.392	2.772
	g USED	.435	.498	.715
	FRACTION AMT	.2365	.1718	.2178
ACETONE	FINAL WT	9.968	11.327	11.720
	g USED	2.357	1.946	2.553

Date: July 27, 1992
Project # 21435 (DPA)



Portion of filter used

Sample #	Tare wgt.	Final wgt.	~~[illegible]~~ (g)	Total	Sample	Fraction
Filters						
58.056.1	~~1.839~~ 0.509g	1.839g	0.435 g			.2365
58.056.5	0.5068 g	2.899	0.498 g			.1718
58.056.9	0.5115 g	3.283	0.715			.2178
Acetone Rinses						
58.056.3		9.968	2.357			
58.056.7		11.327	1.946			
58.056.11		11.720	2.553			

Project # 21435 Acetone, Filter wgts. I.D. #

Filters

CALCULATIONS

MMTL TRAINS:

ICP & GFAA

$$\text{FH \& BH TOTAL ug} = \frac{[\text{ug/L}] * (\text{mL TV/mL USED}) * (\text{mL FV} * \text{DF})}{1000}$$

FV=FINAL VOLUME DF=DILUTION FACTOR
WT=WEIGHT TV=TOTAL VOLUME
BV=BEGINNING VOLUME

*a 1 is used for the TV and ml USED when the sample is a filter: in the case of the FH samples the Total Volume was not taken, therefore a 1 is also used for the TV and ml USED(all of the FH volume was digested and brought to a final volume of 100ml).

$$\%RPD = \frac{|SR - DR|}{(SR + DR)/2} * 100$$

SR=SAMPLE RESULT DR=DUPLICATE RESULT

DESCRIPTION OF ABBREVIATIONS

ICV=Initial Calibration Verification
ICB=Initial Calibration Blank
CCV=Continuing Calibration Verification
CCB=Continuing Calibration Blank
PBW=Preparation Blank Water
PBS=Preparation Blank Soil
LCS=Laboratory Control Spike
ICSA=Interference Check Sample(Solution A) I=Initial F=Final
ICSAB=Interference Check Sample(Solution AB) I=Initial F=Final
Solution A contains common interferents, while Solution AB contains the interferents plus the analyte in question.
CRDL=Contract Required Detection Limit (for CLP)
IDL=Instrument Detection Limit
CRI=CRDL Standard for ICP I=Initial F=Final
CRA=CRDL Standard for AA I=Initial F=Final
%RPD=Relative Percent Difference
%REC=% Recovery
SPK=Spike
AMT=Amount
BLK=Blank
MSA=Method of Standard Additions

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Ag
ug/L IDL: 7

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Ag	.33020	14.1650	196	196	100	1	1.42		.2365	5.99
KY-1-INLET FH(D)	58.056.1FH D	Ag	.23750	7.7430	196	196	100	1	.774	58.6%	.2365	3.27
KY-1-INLET BH	58.056.4BH	Ag	.20300	5.3560	500	400	100	1	< .875			
KY-1-INLET BH(D)	58.056.4BH D	Ag	.21300	6.0490	500	400	100	1	< .875	N/A		
KY-2-INLET FH	58.056.5FH	Ag	.33720	14.6440	196	196	100	1	1.46		.1718	8.52
KY-2-INLET FH(L)	58.056.5FH L	Ag	.25360	8.8580	196	196	100	5	4.43		.1718	25.8
KY-2-INLET BH	58.056.8BH	Ag	1.84020	118.7250	460	360	100	1	15.2			
KY-2-INLET BH(L)	58.056.8BH L	Ag	.40250	19.1720	460	360	100	5	12.2			
KY-3-INLET FH	58.056.9FH	Ag	.36460	16.5440	193	193	100	1	1.65		.2178	7.60
KY-3-INLET BH	58.056.12BH	Ag	.48520	24.8960	480	380	100	1	3.14			

SAMPID	EL	PEAKINT	ug/L CONCENTRATION
STD BLK	Ag	.15250	0.0000
STD 1=25ug/L	Ag	.49000	25.0000
STD 2=100ug/L	Ag	1.54520	100.0000
STD 3=250ug/L	Ag	3.71550	250.0000
STD 4=500ug/L	Ag	7.36130	500.0000
CHECK HS	Ag	7.41980	505.0930
ICV=250ug/L	Ag	3.79950	254.4010
ICB	Ag	.13540	.6740
ICSAI	Ag	.13720	.7980
ICSABI	Ag	14.17490	972.8560
CCV1	Ag	3.82570	256.2130
CCB1	Ag	.09740	-1.9550
ICSAF	Ag	.14550	1.3710
ICSABF	Ag	14.53730	997.9520

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: As

ug/L IDL: 200

DATE RECEIVED: 07/15/92

DATE REPORTED: 08/10/92

TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	As	4.83860	15766.6130	196	196	100	1	1,577		.2365	6,667
KY-1-INLET FH(D)	58.056.1FH D	As	5.19120	16924.4880	196	196	100	1	1,692	7.08%	.2365	7,156
KY-1-INLET BH	58.056.4BH	As	1.27470	4065.1690	500	400	100	1	508			
KY-1-INLET BH(D)	58.056.4BH D	As	1.21700	3875.8680	500	400	100	1	484	4.77%		
KY-2-INLET FH	58.056.5FH	As	8.32840	27224.8730	196	196	100	1	2,722		.1718	15,847
KY-2-INLET FH(L)	58.056.5FH L	As	1.82620	5875.8390	196	196	100	5	2,938		.1718	17,101
KY-2-INLET BH	58.056.8BH	As	.19950	534.9340	460	360	100	1	68.4			
KY-2-INLET BH(L)	58.056.8BH L	As	.09840	203.1710	460	360	100	5	130			
KY-3-INLET FH	58.056.9FH	As	11.89920	38949.0310	193	193	100	1	3,895		.2178	17,883
KY-3-INLET BH	58.056.12BH	As	.23970	666.9830	480	380	100	1	84.3			

SAMPID	EL	PEAKINT	ug/L CONCENTRATION
STD BLK	As	.06680	0.0000
STD 1=250ug/L	As	.09800	250.0000
STD 2=1000ug/L	As	.32500	1000.0000
STD 3=2500ug/L	As	.79130	2500.0000
STD 4=5000ug/L	As	1.56670	5000.0000
CHECK HS	As	1.44600	4627.5230
ICV=2500ug/L	As	.75840	2370.0390
ICB	As	.08160	147.7580
ICSAI	As	.03450	-6.6420
ICSABI	As	.29860	860.2730
CCV1	As	.78440	2455.4730
CCB1	As	.06890	106.3340
ICSAF	As	.05150	49.0230
ICSABF	As	.32030	931.7130

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Ba
ug/L IDL: 20

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Ba	315.98390	31697.9750	196	196	100	1	3,170		.2365	13,403
KY-1-INLET FH(D)	58.056.1FH D	Ba	316.31520	31731.2210	196	196	100	1	3,173	.10%	.2365	13,417
KY-1-INLET BH	58.056.4BH	Ba	12.93170	1293.1400	500	400	100	1	162			
KY-1-INLET BH(D)	58.056.4BH D	Ba	12.86820	1286.7690	500	400	100	1	161	.49%		
KY-2-INLET FH	58.056.5FH	Ba	272.20710	27305.9080	196	196	100	1	2,731		.1718	15,894
KY-2-INLET FH(L)	58.056.5FH L	Ba	54.42800	5456.4100	196	196	100	5	2,728		.1718	15,880
KY-2-INLET BH	58.056.8BH	Ba	2.62640	259.2150	460	360	100	1	33.1			
KY-2-INLET BH(L)	58.056.8BH L	Ba	.51570	47.4510	460	360	100	5	30.3			
KY-3-INLET FH	58.056.9FH	Ba	362.84180	36399.1720	193	193	100	1	3,640		.2178	16,712
KY-3-INLET BH	58.056.12BH	Ba	2.49820	246.3560	480	380	100	1	31.1			

STD BLK	Ba	.01620	0.0000
STD 1=50ug/L	Ba	.52380	50.0000
STD 2=200ug/L	Ba	2.07640	200.0000
STD 3=500ug/L	Ba	5.04780	500.0000
STD 4=1000ug/L	Ba	9.99200	1000.0000
CHECK HS	Ba	10.00250	999.2500
ICV=500ug/L	Ba	5.05460	502.8350
ICB	Ba	.01920	-2.3600
ICSAI	Ba	.14470	10.2300
ICSABI	Ba	5.76980	574.5950
CCV1	Ba	5.07820	505.2060
CCB1	Ba	.01250	-3.0320
ICSAF	Ba	.14690	10.4570
ICSABF	Ba	5.81690	579.3200

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Be

ug/L IDL: 2

DATE RECEIVED: 07/15/92

DATE REPORTED: 08/10/92

TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Be	22.22220	739.4740	196	196	100	1	73.9		.2365	313
KY-1-INLET FH(D)	58.056.1FH D	Be	16.69700	555.5560	196	196	100	1	55.6	28.4%	.2365	235
KY-1-INLET BH	58.056.4BH	Be	3.10960	103.2680	500	400	100	1	12.9			
KY-1-INLET BH(D)	58.056.4BH D	Be	3.36220	111.6790	500	400	100	1	14.0	7.83%		
KY-2-INLET FH	58.056.5FH	Be	23.35550	777.2000	196	196	100	1	77.7		.1718	452
KY-2-INLET FH(L)	58.056.5FH L	Be	3.74250	124.3360	196	196	100	5	62.2		.1718	362
KY-2-INLET BH	58.056.8BH	Be	.43700	14.3070	460	360	100	1	1.83			
KY-2-INLET BH(L)	58.056.8BH L	Be	.10070	3.1120	460	360	100	5	1.99			
KY-3-INLET FH	58.056.9FH	Be	53.94120	1795.3090	193	193	100	1	180		.2178	824
KY-3-INLET BH	58.056.12BH	Be	.94130	31.0920	480	380	100	1	3.93			

STD BLK	Be	.03280	0.0000
STD 1=25ug/L	Be	.79470	25.0000
STD 2=100ug/L	Be	2.99750	100.0000
STD 3=250ug/L	Be	7.41950	250.0000
STD 500ug/L	Be	15.07800	500.0000
CHECK HS	Be	14.95080	497.4300
ICV=250ug/L	Be	7.37400	245.2190
ICB	Be	.03900	1.0580
ICSAI	Be	-1.02510	-34.3620
ICSABI	Be	12.62720	420.0840
CCV1	Be	7.35530	244.5960
CCB1	Be	.02510	.5960
ICSAF	Be	-1.73460	-57.9810
ICSABF	Be	11.83590	393.7430

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Cd
ug/L IDL: 4

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Cd	123.84870	16620.6310	196	196	100	1	1,662		.2365	7,028
KY-1-INLET FH(D)	58.056.1FH D	Cd	122.81450	16481.7560	196	196	100	1	1,648	.84%	.2365	6,969
KY-1-INLET BH	58.056.4BH	Cd	32.79780	4393.1770	500	400	100	1	549			
KY-1-INLET BH(D)	58.056.4BH D	Cd	32.99380	4419.4960	500	400	100	1	552	.60%		
KY-2-INLET FH	58.056.5FH	Cd	194.87780	26159.3180	196	196	100	1	2,616		.1718	15,227
KY-2-INLET FH(L)	58.056.5FH L	Cd	31.43320	4209.9140	196	196	100	5	2,105		.1718	12,252
KY-2-INLET BH	58.056.8BH	Cd	4.37380	576.0390	460	360	100	1	73.6			
KY-2-INLET BH(L)	58.056.8BH L	Cd	.89470	108.8220	460	360	100	5	69.5			
KY-3-INLET FH	58.056.9FH	Cd	251.95100	33823.8320	193	193	100	1	3,382		.2178	15,530
KY-3-INLET BH	58.056.12BH	Cd	4.80910	634.4940	480	380	100	1	80.1			
	STD BLK	Cd	.17750	0.0000								
	STD 1=75ug/L	Cd	.62590	75.0000								
	STD 2=300ug/L	Cd	2.34190	300.0000								
	STD 3=750ug/L	Cd	5.47750	750.0000								
	STD 4=1500ug/L	Cd	11.34600	1500.0000								
	CHECK HS	Cd	11.28450	1504.0970								
	ICV=750ug/L	Cd	5.51720	729.5840								
	ICB	Cd	.11560	4.1960								
	ICSAI	Cd	.26560	24.3450								
	ICSABI	Cd	6.36890	843.9680								
	CCV1	Cd	5.59980	740.6860								
	CCB1	Cd	.07500	-1.2590								
	ICSAF	Cd	.25980	23.5570								
	ICSABF	Cd	6.28940	833.2930								

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Cr

ug/L IDL: 12

DATE RECEIVED: 07/15/92

DATE REPORTED: 08/10/92

TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Cr	53.15460	7006.2990	196	196	100	1	701		.2365	2,962
KY-1-INLET FH(D)	58.056.1FH D	Cr	52.94850	6979.0570	196	196	100	1	698	.39%	.2365	2,951
KY-1-INLET BH	58.056.4BH	Cr	10.24280	1335.3480	500	400	100	1	167			
KY-1-INLET BH(D)	58.056.4BH D	Cr	10.12210	1319.3940	500	400	100	1	165	1.20%		
KY-2-INLET FH	58.056.5FH	Cr	84.49570	11148.1330	196	196	100	1	1115		.1718	6,489
KY-2-INLET FH(L)	58.056.5FH L	Cr	16.66610	2184.2100	196	196	100	5	1092		.1718	6,357
KY-2-INLET BH	58.056.8BH	Cr	1.24210	145.8770	460	360	100	1	18.6			
KY-2-INLET BH(L)	58.056.8BH L	Cr	.70700	75.1570	460	360	100	5	48.0			
KY-3-INLET FH	58.056.9FH	Cr	108.20410	14281.2820	193	193	100	1	1428		.2178	6,557
KY-3-INLET BH	58.056.12BH	Cr	1.56380	188.3960	480	380	100	1	23.8			

STD BLK	Cr	.11590	0.0000
STD 1=40ug/L	Cr	.36320	40.0000
STD 2=200ug/L	Cr	1.74170	200.0000
STD 3=400ug/L	Cr	3.22240	400.0000
STD 4=800ug/L	Cr	6.14450	800.0000
CHECK HS	Cr	6.21220	802.6890
ICV=400ug/L	Cr	3.27940	415.1140
ICB	Cr	.10040	-5.0080
ICSAI	Cr	.10780	-4.0270
ICSABI	Cr	3.40530	431.7450
CCV1	Cr	3.32850	421.5970
CCB1	Cr	.11350	-3.2670
ICSAF	Cr	.11980	-2.4410
ICSABF	Cr	3.46730	439.9500

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Cu
ug/L IDL: 15

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Cu	37.72940	1671.3240	196	196	100	1	167		.2365	707
KY-1-INLET FH(D)	58.056.1FH D	Cu	36.86800	1632.6800	196	196	100	1	163	2.34%	.2365	690
KY-1-INLET BH	58.056.4BH	Cu	4.56180	183.3870	500	400	100	1	22.9			
KY-1-INLET BH(D)	58.056.4BH D	Cu	4.77460	192.9300	500	400	100	1	24.1	5.07%		
KY-2-INLET FH	58.056.5FH	Cu	62.33550	2775.1830	196	196	100	1	278		.1718	1,615
KY-2-INLET FH(L)	58.056.5FH L	Cu	10.45930	447.9550	196	196	100	5	224		.1718	1,304
KY-2-INLET BH	58.056.8BH	Cu	2.66700	98.3840	460	360	100	1	12.6			
KY-2-INLET BH(L)	58.056.8BH L	Cu	.65790	8.2510	460	360	100	5 <	9.58			
KY-3-INLET FH	58.056.9FH	Cu	90.95020	4058.8690	193	193	100	1	406		.2178	1,864
KY-3-INLET BH	58.056.12BH	Cu	1.52640	47.2160	480	380	100	1	5.96			

STD BLK	Cu	.36290	0.0000
STD 1=50ug/L	Cu	1.60490	50.0000
STD 2=200ug/L	Cu	5.05160	200.0000
STD 3=500ug/L	Cu	11.61920	500.0000
STD 4=1000ug/L	Cu	22.74040	1000.0000
CHECK HS	Cu	22.66300	995.4260
ICV=500ug/L	Cu	11.63040	500.4910
ICB	Cu	.33750	-6.1220
ICSAI	Cu	.49270	.8420
ICSABI	Cu	9.95130	425.1660
CCV1	Cu	11.63430	500.6650
CCB1	Cu	.28270	-8.5820
ICSAF	Cu	.50390	1.3430
ICSABF	Cu	9.73690	415.5480

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Mn

ug/L IDL: 10

DATE RECEIVED: 07/15/92

DATE REPORTED: 08/10/92

TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Mn	278.97730	18255.7850	196	196	100	1	1,826		.2365	7,719
KY-1-INLET FH(D)	58.056.1FH D	Mn	273.86950	17921.4430	196	196	100	1	1,792	1.85%	.2365	7,578
KY-1-INLET BH	58.056.4BH	Mn	15.34730	999.4940	500	400	100	1	125			
KY-1-INLET BH(D)	58.056.4BH D	Mn	15.60450	1016.3290	500	400	100	1	127	1.67%		
KY-2-INLET FH	58.056.5FH	Mn	303.57940	19866.1520	196	196	100	1	1,987		.1718	11,564
KY-2-INLET FH(L)	58.056.5FH L	Mn	47.27510	3089.3740	196	196	100	5	1,545		.1718	8,991
KY-2-INLET BH	58.056.8BH	Mn	3.34790	214.0560	460	360	100	1	27.4			
KY-2-INLET BH(L)	58.056.8BH L	Mn	.74890	43.9340	460	360	100	5	28.1			
KY-3-INLET FH	58.056.9FH	Mn	343.26000	22463.5060	193	193	100	1	2,246		.2178	10,314
KY-3-INLET BH	58.056.12BH	Mn	3.42020	218.7880	480	380	100	1	27.64			

STD BLK	Mn	.03020	0.0000
STD 1=50ug/L	Mn	.89810	50.0000
STD 2=200ug/L	Mn	3.17020	200.0000
STD 3=500ug/L	Mn	7.64480	500.0000
STD 4=1000ug/L	Mn	15.38060	1000.0000
CHECK HS	Mn	15.30980	997.0400
ICV=500ug/L	Mn	7.61650	493.4620
ICB	Mn	.03080	-3.0720
ICSAI	Mn	.11740	2.6000
ICSABI	Mn	6.94020	449.1960
CCV1	Mn	7.55180	489.2280
CCB1	Mn	.02460	-3.4790
ICSAF	Mn	.11870	2.6790
ICSABF	Mn	6.77400	438.3150

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Ni
ug/L IDL: 20

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Ni	5.97500	3595.1630	196	196	100	1	360		.2365	1,520
KY-1-INLET FH(D)	58.056.1FH D	Ni	6.01900	3621.9380	196	196	100	1	362	.74%	.2365	1,531
KY-1-INLET BH	58.056.4BH	Ni	.77460	426.3120	500	400	100	1	53.3			
KY-1-INLET BH(D)	58.056.4BH D	Ni	.80280	443.4790	500	400	100	1	55.4	3.95%		
KY-2-INLET FH	58.056.5FH	Ni	8.99500	5435.3350	196	196	100	1	544		.1718	3,164
KY-2-INLET FH(L)	58.056.5FH L	Ni	1.98030	1161.0120	196	196	100	5	581		.1718	3,379
KY-2-INLET BH	58.056.8BH	Ni	.13820	38.5320	460	360	100	1	4.92			
KY-2-INLET BH(L)	58.056.8BH L	Ni	.11030	21.5650	460	360	100	5	13.8			
KY-3-INLET FH	58.056.9FH	Ni	11.34490	6867.2640	193	193	100	1	687		.2178	3,153
KY-3-INLET BH	58.056.12BH	Ni	.18610	67.6980	480	380	100	1	8.55			

STD BLK	Ni	.10340	0.0000
STD 1=40ug/L	Ni	.13810	40.0000
STD 2=200ug/L	Ni	.38130	200.0000
STD 3=400ug/L	Ni	.71200	400.0000
STD 4=800ug/L	Ni	1.40310	800.0000
CHECK HS	Ni	1.38740	799.7410
ICV=400ug/L	Ni	.78010	429.7000
ICB	Ni	.06080	-8.6290
ICSAI	Ni	.08060	3.4250
ICSABI	Ni	1.50720	872.7360
CCV1	Ni	.73220	400.4680
CCB1	Ni	.05110	-14.5550
ICSAF	Ni	.02050	-33.1670
ICSABF	Ni	1.58280	918.8100

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: P

ug/L IDL: 200

DATE RECEIVED: 07/15/92

DATE REPORTED: 08/10/92

TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	P	24.91620	10669.3960	196	196	100	1	1,067		.2365	4,511
KY-1-INLET FH(D)	58.056.1FH D	P	26.87810	11509.1990	196	196	100	1	1,151	7.57%	.2365	4,866
KY-1-INLET BH	58.056.4BH	P	83.57500	35778.8670	500	400	100	1	4,472			
KY-1-INLET BH(D)	58.056.4BH D	P	83.22070	35627.1990	500	400	100	1	4,453	.42%		
KY-2-INLET FH	58.056.5FH	P	37.71790	16149.2630	196	196	100	1	1,615		.1718	9,400
KY-2-INLET FH(L)	58.056.5FH L	P	7.95010	3406.8640	196	196	100	5	1,703		.1718	9,915
KY-2-INLET BH	58.056.8BH	P	78.02410	33402.7660	460	360	100	1	4,268			
KY-2-INLET BH(L)	58.056.8BH L	P	15.55040	6660.2410	460	360	100	5	4,255			
KY-3-INLET FH	58.056.9FH	P	51.54620	22068.6070	193	193	100	1	2,207		.2178	10,133
KY-3-INLET BH	58.056.12BH	P	79.90970	34209.9140	480	380	100	1	4,321			

STD BLK	P	.30150	0.0000
STD 1=500ug/L	P	.65340	500.0000
STD 2=1000ug/L	P	2.50800	1000.0000
STD 3=5000ug/L	P	11.68750	5000.0000
STD 4=10000ug/L	P	23.35190	10000.0000
CHECK HS	P	23.50290	10064.4000
ICV=5000ug/L	P	11.76810	5041.2160
ICB	P	.49990	217.7260
ICSAI	P	.37020	162.2070
ICSABI	P	2.75400	1182.6200
CCV1	P	11.66320	4996.2880
CCB1	P	.42920	187.4520
ICSAF	P	.03400	18.2840
ICSABF	P	2.78890	1197.5800

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Pb
ug/L IDL: 200

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Pb	607.56240	1373107.8000	196	196	100	1	137,311		.2365	580,595
KY-1-INLET FH(D)	58.056.1FH D	Pb	607.34170	1372609.0000	196	196	100	1	137,261	.04%	.2365	580,384
KY-1-INLET BH	58.056.4BH	Pb	119.06320	268865.2100	500	400	100	1	33,608			
KY-1-INLET BH(D)	58.056.4BH D	Pb	119.75840	270436.5900	500	400	100	1	33,805	.58%		
KY-2-INLET FH	58.056.5FH	Pb	852.61940	1927054.1000	196	196	100	1	192,705		.1718	1,121,685
KY-2-INLET FH(L)	58.056.5FH L	Pb	131.10890	296094.2500	196	196	100	5	148,047		.1718	861,741
KY-2-INLET BH	58.056.8BH	Pb	14.65180	32845.1640	460	360	100	1	4,197			
KY-2-INLET BH(L)	58.056.8BH L	Pb	3.00370	6515.0190	460	360	100	5	4,162			
KY-3-INLET FH	58.056.9FH	Pb	1071.59360	2422041.0000	193	193	100	1	242,204		.2178	1,112,048
KY-3-INLET BH	58.056.12BH	Pb	18.99860	42671.0860	480	380	100	1	5,390			

STD BLK	Pb	.12160	0.0000
STD 1=250ug/L	Pb	.24620	250.0000
STD 2=1000ug/L	Pb	.56330	1000.0000
STD 3=2500ug/L	Pb	1.20200	2500.0000
STD 4=5000ug/L	Pb	2.34570	5000.0000
CHECK HS	Pb	2.33480	5002.8640
ICV=2500ug/L	Pb	1.24190	2532.5000
ICB	Pb	.10840	-29.8140
ICSAI	Pb	.08790	-76.0650
ICSABI	Pb	.53280	929.5100
CCV1	Pb	1.28220	2623.4380
CCB1	Pb	.10740	-32.0120
ICSAF	Pb	.06890	-119.0590
ICSABF	Pb	.50410	864.6720

GFAA MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Sb

ug/L IDL: 5

DATE RECEIVED: 07/15/92

DATE REPORTED: 08/10/92

TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	MEANABS	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	MSA RESULTS TOTAL ug RESULT	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Sb	.02500	49.2000	196	196	100	10	49.2	.2365	208
KY-1-INLET BH	58.056.4BH	Sb	-.00300	*	500	400	100	10	*		
KY-2-INLET FH	58.056.5FH	Sb	.04300	159.8000	196	196	100	10	160	.1718	930
KY-2-INLET BH	58.056.8BH	Sb	**	-5.4000	460	360	100	1	< .639		
KY-3-INLET FH	58.056.9FH	Sb	.07200	220.6000	193	193	100	10	221	.2178	1,013
KY-3-INLET BH	58.056.12BH	Sb	.01500	57.1000	480	380	100	1	7.21		

*MSA (EVEN WITH SAMPLE DILUTION) COULD NOT OVERCOME INTERFERENCES; A <50ug/L IS REPORTED SINCE THE SAMPLE ABSORPTION WAS NEGATIVE.

**DATA WAS UNRETREIVABLE FROM DISKETTE AND THE ABSORPTION DID NOT PRINT OUT ON THE RAW DATA HARD COPY.

GFAA MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Se
ug/L IDL: 4

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	MEANABS	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	MSA RESULTS TOTAL ug RESULT	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Se	.01623611	49.5000	196	196	100	1	4.95	.2365	20.9
KY-1-INLET BH	58.056.4BH	Se	.01426664	44.0000	500	400	100	1	5.50		
KY-2-INLET FH	58.056.5FH	Se	.02086602	78.7000	196	196	100	1	7.87	.1718	45.8
KY-2-INLET BH	58.056.8BH	Se	.01685134	36.2000	460	360	100	1	4.63		
KY-3-INLET FH	58.056.9FH	Se	.01432207	50.6000	193	193	100	1	5.06	.2178	23.2
KY-3-INLET BH	58.056.12BH	Se	.00366550	10.3000	480	380	100	1	1.30		

GFAA MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Tl
ug/L IDL: 2

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	MEANABS	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	MSA RESULTS TOTAL ug RESULT	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Tl	.00523590	30.3000	196	196	100	1	3.03	.2365	12.8
KY-1-INLET BH	58.056.4BH	Tl	.00282487	19.0000	500	400	100	1	2.38		
KY-2-INLET FH	58.056.5FH	Tl	.00389829	16.1000	196	196	100	1	1.61	.1718	9.37
KY-2-INLET BH	58.056.8BH	Tl	-.00015510	6.0000	460	360	100	1	.767		
KY-3-INLET FH	58.056.9FH	Tl	.00806817	67.7000	193	193	100	1	6.77	.2178	31.1
KY-3-INLET BH	58.056.12BH	Tl	.00056903	3.3000	480	380	100	1	.417		

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Zn

ug/L IDL: 10

DATE RECEIVED: 07/15/92

DATE REPORTED: 08/10/92

TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Zn	17.91470	9912.7510	196	196	100	1	991		.2365	4,191
KY-1-INLET FH(D)	58.056.1FH D	Zn	17.80650	9852.7450	196	196	100	1	985	.61%	.2365	4,166
KY-1-INLET BH	58.056.4BH	Zn	2.01900	1097.7130	500	400	100	1	137			
KY-1-INLET BH(D)	58.056.4BH D	Zn	2.02410	1100.5420	500	400	100	1	138	.26%		
KY-2-INLET FH	58.056.5FH	Zn	22.94740	12703.6460	196	196	100	1	1,270		.1718	7,394
KY-2-INLET FH(L)	58.056.5FH L	Zn	3.66770	2011.9990	196	196	100	5	1,006		.1718	5,856
KY-2-INLET BH	58.056.8BH	Zn	.51840	265.5190	460	360	100	1	33.9			
KY-2-INLET BH(L)	58.056.8BH L	Zn	.13850	54.8450	460	360	100	5	35.0			
KY-3-INLET FH	58.056.9FH	Zn	28.89200	16000.2270	193	193	100	1	1,600		.2178	7,346
KY-3-INLET BH	58.056.12BH	Zn	.52970	271.7810	480	380	100	1	34.3			

STD BLK	Zn	.03480	0.0000
STD 1=75ug/L	Zn	.16170	75.0000
STD 2=300ug/L	Zn	.59330	300.0000
STD 3=750ug/L	Zn	1.40630	750.0000
STD 4=1500ug/L	Zn	2.73540	1500.0000
CHECK HS	Zn	2.70190	1476.3680
ICV=750ug/L	Zn	1.39360	750.8690
ICB	Zn	.02660	-7.2090
ICSAI	Zn	.08820	26.9650
ICSABI	Zn	1.62770	880.6660
CCV1	Zn	1.38800	747.7890
CCB1	Zn	.02020	-10.7460
ICSAF	Zn	.10560	36.5780
ICSABF	Zn	1.63840	886.6020

[redacted]: [redacted]
Client : OEA
Date : July 24, 1992

TRIANGLE LABS OF RTP
(919) 544-5729

Run # : KY-2-1 Outlet

Analytes			
ICP	GFAA	FLAA	CVAA
			—

① **Filter**
label 58.056.1
1.939 g
* July 31 (was 420.6 g, see any. used)
Microwave dig. with conc. HF and conc HNO3
* Aug. 3

② **Acetone Rinse**
label 58.056.3
Volume 76 ml
Dessicate to dryness and redissolve in 10ml con HNO3
* July 25

③ **HNO3 Rinse**
label 58.056.2
Volume 120 ml
Reduce volume to 20 ml on hotplate
* July 25

Microwave dig. with conc. HF and conc. HNO3
* July 31
Label : 58.056.3,2

Combine digestates

Front Half Digestate
* Aug. 3
Add 80

Dilute to 100 mls
label 58.056.1FH
Volume 100 ml

For Metals
* Aug. 3
label 58.056.1(FH)
Volume 100 ml
(One post digest spike on FH)

~~For Hg~~
label ______
Volume ______ ml
Aliquot ______ ml
(No spike required)

④ **Back Half Impinger**
label 58.056.4
Volume 500 ml

For Metals
label 58.056.4
Volume 400 ml
* July 25
Reduce volume to 20 ml on hotplate
Hotplate dig with HNO3 and H2O2
* Aug. 3
Dilute to 100 mls
* aug. 4
label 58.056.4
Volume 100 ml

~~For Hg~~
label ______
Volume ______ ml

Sample
label ______
Volume ______ ml
Aliquot ______ ml

Spike
(On BH Hg spike)
label ______
Volume ______ ml
Aliq. ______
Spk. ______ ml of ______
dil. to ______ ml
final spk conc. added ______

Hg Impingers

(crossed out)	(crossed out) KMnO4	(crossed out) HCl
label ______	label ______	label ______
Volume ______ ml	Volume ______ ml	Volume ______ ml
Aliquot A ______	Aliquot A ______	Aliquot A ______
Aliquot B ______	Aliquot B ______	Aliquot B ______

(Duplicate Analysis of Each)

* (all BH) not avail 100ml for Hg

Project # :

CLIENT : IEA

DATE : July 24, 1992

TRIANGLE LABS OF RTP
(919) 544-5729

RUN # : KY-2-2-Inlet

ANALYTES			
ICP	GFAA	FLAA	CVAA
			—

① Filter
label 58.056.5

Microwave dig. with conc. HF and conc HNO3 *Aug. 3

② Acetone Rinse
label 58.056.7
Volume 66 ml

Dessicate to dryness and redissolve in 10ml con HNO3 *July 25

③ HNO3 Rinse
label 58.056.6
Volume 130 ml

Reduce volume to 20 ml on hotplate *July 25

Microwave dig. with conc. HF and conc. HNO3 *July 31

Label : 58.056.6,7

Combine digestates

FRONT HALF DIGESTATE *Aug. 3

- Aug 3

Dilute to 100 mls

label 58.067.~~6,7~~ 5 (FH)
Volume 100 ml

For Metals *Aug. 3
label 58.067.5 (FH)
Volume 100 ml
(One post digest spike on FH)

~~For Hg~~
label ______
Volume ______ ml
Aliquot ______ ml
(No spike required)

④ Back Half Impinger
label 58.056.8
Volume 460 ml

For Metals
label 58.056.8
Volume ~~460~~ ml 360
8/7/92
PLC

Reduce volume to 20 ml on hotplate *July 25

Hotplate dig with HNO3 and H2O2 *Aug. 3

Dilute to 100 mls *Aug. 4

label 58.056.8
Volume 100 ml

~~For Hg~~
label ______
Volume ______ ml

Sample
label ______
Volume ______ ml
Aliquot ______ ml

Spike
(One BH Hg spike)
label ______
Volume ______ ml
Aliq. ______
Spk. ______ ml of ______
dil. to ______ ml
final spk conc. added ______

~~5A~~ ~~5B~~ ~~5C~~

Hg Impingers

	KMnO4	HCl
label ______	label ______	label ______
Volume ______ ml	Volume ______ ml	Volume ______ ml
Aliquot A ______	Aliquot A ______	Aliquot A ______
Aliquot B ______	Aliquot B ______	Aliquot B ______

(Duplicate Analysis of Each)

WHW 5-20-92

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PROJECT # : [redacted]
CLIENT : IEA
DATE : July 24, 1992

TRIANGLE LABS of RTP

(919) 544-5729

RUN # : KY-2-3-Inlet

ANALYTES			
ICP	GFAA	FLAA	CVAA
			—

① Filter

label 58.056.9

*Aug. 3

Microwave dig. with conc. HF and conc HNO3

② Acetone Rinse

label 58.056.11
Volume 48 ml

Dessicate to dryness and redissolve in 10ml con HNO3 *Aug 3

③ HNO3 Rinse

label 58.056.10
Volume 145 ml

*July 25

Reduce volume to 20 ml on hotplate

Microwave dig. with conc. HF and conc. HNO3 *July 31

Label : 58.056.10,11

COMBINE DIGESTATES

FRONT HALF DIGESTATE *Aug. 3

Dilute to 100 mls

label 58.056.9(FH)
Volume 100 ml

For Metals *Aug. 3
label 58.056.9(FH)
Volume 100 ml
(One post digest spike on FH)

~~For Hg~~
label ______
Volume ______ ml
Aliquot ______ ml
(No spike required)

④ Back Half Impinger

label 58.056.12
Volume 480 ml

(Duplicate Analysis of Each)

For Metals
label 58.056.12
Volume 380 ml

*Aug 25

Reduce volume to 20 ml on hotplate

Hotplate dig with HNO3 and H2O2 *Aug. 3

Dilute to 100 mls *Aug. 4

label 58.056.12
Volume 100 ml

~~For Hg~~
label ______
Volume ______ ml

Sample
label ______
Volume ______ ml
Aliquot ______ ml

Spike
(One BH Hg spike)
label ______
Volume ______ ml
Alig. ______
Spk. ______ ml of ______
dil. to ______ ml
final spk conc. Added ______

~~5A~~ ~~5B~~ ~~5C~~ Hg Impingers

	KMnO4	HCl
label ______	label ______	label ______
Volume ______ ml	Volume ______ ml	Volume ______ ml
Aliquot A ______	Aliquot A ______	Aliquot A ______
Aliquot B ______	Aliquot B ______	Aliquot B ______

T00000 - 3

WHW 5-20-92

TRIANGLE LABORATORIES RTP, INC. [PSTMT 2]

PROJECT COMMUNICATION TRACKING SHEET

TLI Project Number: 2,435

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

Date	Name	Comment / Decision / Resolution / Action / Observation
7/27/92	BW	○ Particulate WT is required on
		trains KY-2-1,2,3 Inlet.
		• We took fractions of filters and
		rinses. See data SPD-6 p.27.

Custody Seal: Present / Absent // Intact / Not Intact Chain of Custody: Present / Absent Sample Tags: Present / Absent Sample Tag Numbers: Listed / Not Listed on Chain of Custody SMO Forms: Present / Absent	TLI Project Number: 21435 Client: IEA01 ; IEA, INC. Date Received: 07/15/92 ; By [signature]	Book 58 Page 56
Ice Chest/Styro Cooler / Cardboard Box / Dry Ice / Ice / Ambient	Carrier and Number: HAND CARRIED	

Sample ID TLI	Sample ID Client	Matrix	Storage Location	To Lab Date/Initial	To Storage Date/Initial	To Lab Date/Initial
58-56-1	KY-2-1-INLENT	FILTER	METALS LAB.			
58-56-2		FHAR	METALS LAB.			
58-56-3		FHACE	METALS LAB.			
58-56-4		H2O2	METALS LAB.			
58-56-5	KY-2-2-INLENT	FILTER	METALS LAB.			
58-56-6		FHAR	METALS LAB.			
58-56-7		FHACE	METALS LAB.			
58-56-8		H2O2	METALS LAB.			
58-56-9	KY-2-3-INLENT	FILTER	METALS LAB.			
58-56-10		FHAR	METALS LAB.			
58-56-11		FHACE	METALS LAB.			
58-56-12		H2O2	METALS LAB.			

Receiving Remarks:	Archive Remarks:

21435 Ag

```
08/04/92 14:28
wcal standard   rep   1  Ag_        em        140.7 conc 25.00
                rep   2  Ag_        em        186.7 conc 25.00
                rep   3  Ag_        em        194.4 conc 25.00
wcal standard
08/04/92 14:28
    Ag_         av    173.92            sd     29.030 %cv  16.69 conc    25.00

08/04/92 14:29
sc blank        rep   1  Ag_        em        769.1
08/04/92 14:31
blank           rep   1  Ag_        ratio   0.1113                  window edge
                rep   2  Ag_        ratio   0.1353
                rep   3  Ag_        ratio   0.2111
blank
08/04/92 14:31
    Ag_         av    0.1525            sd    0.05211 %cv  34.16

08/04/92 14:32
#1 standard     rep   1  Ag_        ratio   0.4371 conc 25.00
                rep   2  Ag_        ratio   0.4480 conc 25.00
                rep   3  Ag_        ratio   0.5847 conc 25.00
#1 standard
08/04/92 14:33
    Ag_         av    0.4900            sd    0.08226 %cv  16.79 conc    25.00

08/04/92 14:34
#2 standard     rep   1  Ag_        ratio   1.5514 conc 100.00
                rep   2  Ag_        ratio   1.4807 conc 100.00
                rep   3  Ag_        ratio   1.6034 conc 100.00
#2 standard
08/04/92 14:35
    Ag_         av    1.5452            sd    0.06157 %cv   3.98 conc   100.00

08/04/92 14:36
#3 standard     rep   1  Ag_        ratio   3.5541 conc 250.00
                rep   2  Ag_        ratio   3.7611 conc 250.00
                rep   3  Ag_        ratio   3.8313 conc 250.00
#3 standard
08/04/92 14:37
    Ag_         av    3.7155            sd    0.14413 %cv   3.88 conc   250.00

08/04/92 14:38
#4 standard     rep   1  Ag_        ratio   7.6613 conc 500.00
                rep   2  Ag_        ratio   7.2139 conc 500.00
                rep   3  Ag_        ratio   7.2087 conc 500.00
#4 standard
08/04/92 14:39
    Ag_         av    7.3613            sd    0.25984 %cv   3.53 conc   500.00

08/04/92 14:40
CHECK HS        rep   1  Ag_        conc    500.64 ug/L
                rep   2  Ag_        conc    505.53 ug/L
                rep   3  Ag_        conc    509.10 ug/L
CHECK HS
08/04/92 14:40
    Ag_         av    505.09 ug/L       sd      4.245 %cv   0.84

08/04/92 14:42
ICV             rep   1  Ag_        conc    259.38 ug/L
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                rep   2  Ag_          conc     253.46 ug/L
                rep   3  Ag_          conc     250.37 ug/L
ICV
08/04/92 14:42
    Ag_         av     254.40 ug/L         sd       4.579 %cv   1.80

08/04/92 14:43
ICB             rep   1  Ag_          conc       0.50 ug/L
                rep   2  Ag_          conc      -0.67 ug/L
                rep   3  Ag_          conc       2.19 ug/L
ICB
08/04/92 14:44
    Ag_         av       0.67 ug/L         sd       1.438 %cv  213.2

08/04/92 14:45
ICSAI           rep   1  Ag_          conc       4.97 ug/L
                rep   2  Ag_          conc      -0.44 ug/L
                rep   3  Ag_          conc      -2.14 ug/L
ICSAI
08/04/92 14:46
    Ag_         av       0.80 ug/L         sd       3.713 %cv  465.2

08/04/92 14:47
ICSABI          rep   1  Ag_          conc     123.87 ug/L
                rep   2  Ag_          conc     130.46 ug/L
                rep   3  Ag_          conc     132.50 ug/L
ICSABI
08/04/92 14:48
    Ag_         av     128.95 ug/L         sd       4.511 %cv   3.50

08/04/92 14:51
ICSABI          rep   1  Ag_          conc     965.74 ug/L
                rep   2  Ag_          conc     983.61 ug/L
                rep   3  Ag_          conc     969.22 ug/L
ICSABI
08/04/92 14:52
    Ag_         av     972.86 ug/L         sd       9.472 %cv   0.97

08/04/92 14:53
58.056.1FH      rep   1  Ag_          conc      22.22 ug/L
                rep   2  Ag_          conc       9.16 ug/L
                rep   3  Ag_          conc      11.11 ug/L
58.056.1FH
08/04/92 14:54
    Ag_         av      14.17 ug/L         sd       7.045 %cv  49.73

08/04/92 14:55
58.056.1FH D    rep   1  Ag_          conc       7.66 ug/L
                rep   2  Ag_          conc      11.18 ug/L
                rep   3  Ag_          conc       4.40 ug/L
58.056.1FH D
08/04/92 14:56
    Ag_         av       7.74 ug/L         sd       3.390 %cv  43.78

08/04/92 14:58
58.056.5FH      rep   1  Ag_          conc      12.76 ug/L
                rep   2  Ag_          conc      19.77 ug/L
                rep   3  Ag_          conc      11.40 ug/L
58.056.5FH
08/04/92 14:58
```

wrong table

D- 000065

```
   Ag_          av      14.64 ug/L         sd      4.488 %cv   30.65

08/04/92 15:00
58.056.5FH L    rep    1   Ag_          conc        8.07 ug/L
                rep    2   Ag_          conc        9.65 ug/L
                rep    3   Ag_          conc        8.85 ug/L
58.056.5FH L
08/04/92 15:00
   Ag_          av       8.86 ug/L         sd      0.792 %cv    8.94

08/04/92 15:02
58.056.9FH      rep    1   Ag_          conc        9.59 ug/L
                rep    2   Ag_          conc       12.88 ug/L
                rep    3   Ag_          conc       27.17 ug/L
58.056.9FH
08/04/92 15:02
   Ag_          av      16.54 ug/L         sd      9.346 %cv   56.49

08/04/92 15:04
58.056.4BH      rep    1   Ag_          conc        7.18 ug/L
                rep    2   Ag_          conc       -0.59 ug/L         window edge
                rep    3   Ag_          conc        9.47 ug/L
58.056.4BH
08/04/92 15:05
   Ag_          av       5.36 ug/L         sd      5.271 %cv   98.42

08/04/92 15:06
58.056.4BH D    rep    1   Ag_          conc        8.33 ug/L
                rep    2   Ag_          conc        3.93 ug/L
                rep    3   Ag_          conc        5.88 ug/L
58.056.4BH D
08/04/92 15:07
   Ag_          av       6.05 ug/L         sd      2.207 %cv   36.49

08/04/92 15:08
58.056.8BH      rep    1   Ag_          conc      113.07 ug/L
                rep    2   Ag_          conc      123.49 ug/L
                rep    3   Ag_          conc      119.62 ug/L
58.056.8BH
08/04/92 15:09
   Ag_          av     118.73 ug/L         sd      5.269 %cv    4.44

08/04/92 15:10
58.056.8BH L    rep    1   Ag_          conc       16.77 ug/L
                rep    2   Ag_          conc       17.78 ug/L
                rep    3   Ag_          conc       22.96 ug/L
58.056.8BH L
08/04/92 15:11
   Ag_          av      19.17 ug/L         sd      3.322 %cv   17.33

08/04/92 15:12
58.056.12BH     rep    1   Ag_          conc       22.52 ug/L
                rep    2   Ag_          conc       25.52 ug/L
                rep    3   Ag_          conc       26.65 ug/L
58.056.12BH
08/04/92 15:13
   Ag_          av      24.90 ug/L         sd      2.135 %cv    8.58

08/04/92 15:14
CCV1            rep    1   Ag_          conc      243.39 ug/L
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               rep    2   Ag_          conc     269.34 ug/L
               rep    3   Ag_          conc     255.91 ug/L
CCV1
08/04/92 15:15
   Ag_         av     256.21 ug/L          sd     12.975 %cv    5.06

08/04/92 15:16
CCB1           rep    1   Ag_          conc      -2.34 ug/L           window edge
               rep    2   Ag_          conc      -3.72 ug/L
               rep    3   Ag_          conc       0.19 ug/L
CCB1
08/04/92 15:17
   Ag_         av      -1.96 ug/L          sd      1.984 %cv  101.4

08/04/92 15:18
ICSAF          rep    1   Ag_          conc       4.57 ug/L
               rep    2   Ag_          conc      -1.14 ug/L
               rep    3   Ag_          conc       0.68 ug/L
ICSAF
08/04/92 15:19
   Ag_         av       1.37 ug/L          sd      2.921 %cv  213.0

08/04/92 15:20
ICSABF         rep    1   Ag_          conc     991.47 ug/L
               rep    2   Ag_          conc    1002.07 ug/L
               rep    3   Ag_          conc    1000.32 ug/L
ICSABF
08/04/92 15:21
   Ag_         av     997.95 ug/L          sd      5.682 %cv    0.57
```

21435 As

IDL = 200

```
08/05/92 13:34
wcal standard   rep   1  As_        em        312.1 conc 250.00
                rep   2  As_        em        312.2 conc 250.00
                rep   3  As_        em        350.9 conc 250.00
wcal standard
08/05/92 13:35
    As_         av    325.04             sd     22.353 %cv   6.88 conc  250.00

08/05/92 13:36
sc blank        rep   1  As_        em        503.6
08/05/92 13:38
blank           rep   1  As_        ratio   0.0773
                rep   2  As_        ratio   0.0422
                rep   3  As_        ratio   0.0809
blank
08/05/92 13:38
    As_         av    0.0668             sd   0.02140 %cv  32.04

08/05/92 13:40
#1 standard     rep   1  As_        ratio   0.0969 conc 250.00
                rep   2  As_        ratio   0.0957 conc 250.00
                rep   3  As_        ratio   0.1014 conc 250.00
#1 standard
08/05/92 13:41
    As_         av    0.0980             sd   0.00302 %cv   3.08 conc  250.00

08/05/92 13:43
#2 standard     rep   1  As_        ratio   0.2757 conc 1000.00
                rep   2  As_        ratio   0.3845 conc 1000.00
                rep   3  As_        ratio   0.3146 conc 1000.00
#2 standard
08/05/92 13:43
    As_         av    0.3250             sd   0.05514 %cv  16.97 conc  1000.0

08/05/92 13:45
#3 standard     rep   1  As_        ratio   0.7831 conc 2500.00
                rep   2  As_        ratio   0.8334 conc 2500.00
                rep   3  As_        ratio   0.7573 conc 2500.00
#3 standard
08/05/92 13:46
    As_         av    0.7913             sd   0.03867 %cv   4.89 conc  2500.0

08/05/92 13:47
#4 standard     rep   1  As_        ratio   1.5596 conc 5000.00
                rep   2  As_        ratio   1.5891 conc 5000.00
                rep   3  As_        ratio   1.5514 conc 5000.00
#4 standard
08/05/92 13:48
    As_         av    1.5667             sd   0.01984 %cv   1.27 conc  5000.0

08/05/92 13:50
CHECK HS        rep   1  As_        conc   4657.87 ug/L
                rep   2  As_        conc   4614.64 ug/L
                rep   3  As_        conc   4610.07 ug/L
CHECK HS
08/05/92 13:51
    As_         av  4627.52 ug/L         sd    26.377 %cv   0.57

08/05/92 13:52
ICV             rep   1  As_        conc   2376.11 ug/L
```

rep 2 As_ conc 2231.96 ug/L
rep 3 As_ conc 2502.05 ug/L

ICV
08/05/92 13:53
As_ av 2370.04 ug/L sd 135.149 %cv 5.70

08/05/92 13:55
ICB rep 1 As_ conc 129.33 ug/L
rep 2 As_ conc 211.88 ug/L
rep 3 As_ conc 102.06 ug/L window edge

ICB
08/05/92 13:55
As_ av 147.76 ug/L sd 57.182 %cv 38.70

08/05/92 13:57
ICSAI rep 1 As_ conc -42.18 ug/L
rep 2 As_ conc 32.09 ug/L
rep 3 As_ conc -9.84 ug/L window edge

ICSAI
08/05/92 13:58
As_ av -6.64 ug/L sd 37.239 %cv 560.6

08/05/92 14:00
ICSABI rep 1 As_ conc 793.15 ug/L
rep 2 As_ conc 879.55 ug/L
rep 3 As_ conc 908.12 ug/L

ICSABI
08/05/92 14:00
As_ av 860.27 ug/L sd 59.859 %cv 6.96

08/05/92 14:02
58.056.1FH rep 1 As_ conc 15242.60 ug/L
rep 2 As_ conc 16421.99 ug/L
rep 3 As_ conc 15635.25 ug/L

58.056.1FH
08/05/92 14:03
As_ av 15766.61 ug/L sd 600.567 %cv 3.81

08/05/92 14:04
58.056.1FH D rep 1 As_ conc 17163.71 ug/L
rep 2 As_ conc 16685.82 ug/L
rep 3 As_ conc 16923.94 ug/L

58.056.1FH D
08/05/92 14:05
As_ av 16924.49 ug/L sd 238.945 %cv 1.41

08/05/92 14:07
58.056.5FH rep 1 As_ conc 26790.70 ug/L
rep 2 As_ conc 26618.41 ug/L
rep 3 As_ conc 28265.50 ug/L

58.056.5FH
08/05/92 14:08
As_ av 27224.87 ug/L sd 905.319 %cv 3.33

08/05/92 14:09
58.056.5FH L rep 1 As_ conc 6249.32 ug/L
rep 2 As_ conc 5445.96 ug/L
rep 3 As_ conc 5932.24 ug/L

```
    As_          av    5875.84 ug/L          sd    404.639 %cv    6.89

08/05/92 14:12
58.056.9FH       rep   1  As_          conc   40106.66 ug/L
                 rep   2  As_          conc   38283.60 ug/L
                 rep   3  As_          conc   38456.84 ug/L
58.056.9FH
08/05/92 14:13
    As_          av   38949.03 ug/L          sd   1006.268 %cv    2.58

08/05/92 14:14
58.056.4BH       rep   1  As_          conc    4222.42 ug/L
                 rep   2  As_          conc    3799.62 ug/L
                 rep   3  As_          conc    4173.46 ug/L
58.056.4BH
08/05/92 14:15
    As_          av    4065.17 ug/L          sd    231.268 %cv    5.69

08/05/92 14:17
58.056.4BH D     rep   1  As_          conc    3769.61 ug/L
                 rep   2  As_          conc    3984.90 ug/L
                 rep   3  As_          conc    3873.10 ug/L
58.056.4BH D
08/05/92 14:18
    As_          av    3875.87 ug/L          sd    107.672 %cv    2.78

08/05/92 14:19
58.056.8BH       rep   1  As_          conc     434.66 ug/L
                 rep   2  As_          conc     725.34 ug/L
                 rep   3  As_          conc     444.81 ug/L
58.056.8BH
08/05/92 14:20
    As_          av     534.93 ug/L          sd    164.971 %cv   30.84

08/05/92 14:22
58.056.8BH L     rep   1  As_          conc     187.84 ug/L
                 rep   2  As_          conc     191.01 ug/L
                 rep   3  As_          conc     230.66 ug/L
58.056.8BH L
08/05/92 14:23
    As_          av     203.17 ug/L          sd     23.862 %cv   11.74

08/05/92 14:25
58.056.12BH      rep   1  As_          conc     694.18 ug/L
                 rep   2  As_          conc     444.37 ug/L
                 rep   3  As_          conc     862.40 ug/L
58.056.12BH
08/05/92 14:25
    As_          av     666.98 ug/L          sd    210.338 %cv   31.54

08/05/92 14:27
CCV1             rep   1  As_          conc    2310.36 ug/L
                 rep   2  As_          conc    2404.30 ug/L
                 rep   3  As_          conc    2651.76 ug/L
CCV1
08/05/92 14:28
    As_          av    2455.47 ug/L          sd    176.362 %cv    7.18
```

```
CCB1              rep   1   As_          conc     142.6[illegible] ug/L

                  rep   2   As_          conc     117.99 ug/L
                  rep   3   As_          conc      58.38 ug/L
CCB1
08/05/92 14:30
    As_           av    106.33 ug/L          sd     43.319 %cv   40.74

08/05/92 14:32
ICSAF             rep   1   As_          conc     117.79 ug/L
                  rep   2   As_          conc     -40.33 ug/L
                  rep   3   As_          conc      69.61 ug/L
ICSAF
08/05/92 14:33
    As_           av     49.02 ug/L          sd     81.044 %cv  165.3

08/05/92 14:34
ICSABF            rep   1   As_          conc     936.91 ug/L
                  rep   2   As_          conc    1012.94 ug/L
                  rep   3   As_          conc     845.29 ug/L
ICSABF
08/05/92 14:35
    As_           av    931.71 ug/L          sd     83.942 %cv    9.01
```

2.1435 Ba

```
08/05/92 11:17
wcal standard   rep  1  Ba_      em        518.5 conc 50.00
                rep  2  Ba_      em        518.1 conc 50.00
                rep  3  Ba_      em        532.7 conc 50.00
wcal standard
08/05/92 11:17
    Ba_         av     523.09          sd      8.295 %cv   1.59 conc    50.00

08/05/92 11:18
sc blank        rep  1  Ba_      em         61.0
08/05/92 11:20
blank           rep  1  Ba_      ratio   0.0152
                rep  2  Ba_      ratio   0.0156
                rep  3  Ba_      ratio   0.0178
blank
08/05/92 11:20
    Ba_         av     0.0162          sd   0.00144 %cv   8.89

08/05/92 11:21
#1 standard     rep  1  Ba_      ratio   0.5266 conc 50.00
                rep  2  Ba_      ratio   0.5182 conc 50.00
                rep  3  Ba_      ratio   0.5267 conc 50.00
#1 standard
08/05/92 11:22
    Ba_         av     0.5238          sd   0.00491 %cv   0.94 conc    50.00

08/05/92 11:23
#2 standard     rep  1  Ba_      ratio   2.0841 conc 200.00
                rep  2  Ba_      ratio   2.0753 conc 200.00
                rep  3  Ba_      ratio   2.0698 conc 200.00
#2 standard
08/05/92 11:24
    Ba_         av     2.0764          sd   0.00718 %cv   0.35 conc   200.00

08/05/92 11:25
#3 standard     rep  1  Ba_      ratio   5.0552 conc 500.00
                rep  2  Ba_      ratio   5.0513 conc 500.00
                rep  3  Ba_      ratio   5.0370 conc 500.00
#3 standard
08/05/92 11:25
    Ba_         av     5.0478          sd   0.00957 %cv   0.19 conc   500.00

08/05/92 11:27
#4 standard     rep  1  Ba_      ratio   9.9673 conc 1000.00
                rep  2  Ba_      ratio  10.0410 conc 1000.00
                rep  3  Ba_      ratio   9.9678 conc 1000.00
#4 standard
08/05/92 11:27
    Ba_         av     9.9920          sd   0.04239 %cv   0.42 conc  1000.0

08/05/92 11:28
CHECK HS        rep  1  Ba_      conc   1002.87 ug/L
                rep  2  Ba_      conc    998.09 ug/L
                rep  3  Ba_      conc    996.79 ug/L
CHECK HS
08/05/92 11:29
    Ba_         av     999.25 ug/L     sd      3.201 %cv   0.32

08/05/92 11:30
ICV             rep  1  Ba_      conc    503.26 ug/L
```

0-000072

rep 2 Ba_ conc 501.07 ug/L
rep 3 Ba_ conc 504.18 ug/L

ICV
08/05/92 11:31
Ba_ av 502.84 ug/L sd 1.597 %cv 0.32

08/05/92 11:32
ICB rep 1 Ba_ conc -2.16 ug/L
rep 2 Ba_ conc -2.10 ug/L
rep 3 Ba_ conc -2.82 ug/L

ICB
08/05/92 11:32
Ba_ av -2.36 ug/L sd 0.400 %cv 16.96

08/05/92 11:34
ICSAI rep 1 Ba_ conc 9.87 ug/L
rep 2 Ba_ conc 10.66 ug/L
rep 3 Ba_ conc 10.17 ug/L

ICSAI
08/05/92 11:34
Ba_ av 10.23 ug/L sd 0.396 %cv 3.87

08/05/92 11:36
ICSABI rep 1 Ba_ conc 571.90 ug/L
rep 2 Ba_ conc 576.46 ug/L
rep 3 Ba_ conc 575.42 ug/L

ICSABI
08/05/92 11:36
Ba_ av 574.60 ug/L sd 2.391 %cv 0.42

08/05/92 11:38
58.056.1FH rep 1 Ba_ conc 31751.84 ug/L
rep 2 Ba_ conc 31702.85 ug/L
rep 3 Ba_ conc 31639.23 ug/L

58.056.1FH
08/05/92 11:38
Ba_ av 31697.97 ug/L sd 56.461 %cv 0.18

08/05/92 11:40
58.056.1FH D rep 1 Ba_ conc 31840.23 ug/L
rep 2 Ba_ conc 31586.46 ug/L
rep 3 Ba_ conc 31766.97 ug/L

58.056.1FH D
08/05/92 11:40
Ba_ av 31731.22 ug/L sd 130.608 %cv 0.41

08/05/92 11:42
58.056.5FH rep 1 Ba_ conc 27374.78 ug/L
rep 2 Ba_ conc 27343.20 ug/L
rep 3 Ba_ conc 27199.74 ug/L

58.056.5FH
08/05/92 11:42
Ba_ av 27305.91 ug/L sd 93.287 %cv 0.34

08/05/92 11:44
58.056.5FH L rep 1 Ba_ conc 5445.37 ug/L
rep 2 Ba_ conc 5457.48 ug/L
rep 3 Ba_ conc 5466.37 ug/L

58.056.5FH L
08/05/92 11:44

Ba_ av 5456.41 ug/L sd 10.542 %cv 0.19

08/05/92 11:46
58.056.9FH rep 1 Ba_ conc 36309.49 ug/L
rep 2 Ba_ conc 36637.11 ug/L
rep 3 Ba_ conc 36250.91 ug/L
58.056.9FH
08/05/92 11:46
Ba_ av 36399.17 ug/L sd 208.132 %cv 0.57

08/05/92 11:48
58.056.4BH rep 1 Ba_ conc 1300.19 ug/L
rep 2 Ba_ conc 1289.81 ug/L
rep 3 Ba_ conc 1289.42 ug/L
58.056.4BH
08/05/92 11:48
Ba_ av 1293.14 ug/L sd 6.106 %cv 0.47

08/05/92 11:50
58.056.4BH D rep 1 Ba_ conc 1286.18 ug/L
rep 2 Ba_ conc 1288.45 ug/L
rep 3 Ba_ conc 1285.68 ug/L
58.056.4BH D
08/05/92 11:50
Ba_ av 1286.77 ug/L sd 1.476 %cv 0.11

08/05/92 11:52
58.056.8BH rep 1 Ba_ conc 258.97 ug/L
rep 2 Ba_ conc 261.91 ug/L
rep 3 Ba_ conc 256.76 ug/L
58.056.8BH
08/05/92 11:52
Ba_ av 259.21 ug/L sd 2.583 %cv 1.00

08/05/92 11:54
58.056.8BH L rep 1 Ba_ conc 47.70 ug/L
rep 2 Ba_ conc 47.20 ug/L
rep 3 Ba_ conc 47.46 ug/L
58.056.8BH L
08/05/92 11:54
Ba_ av 47.45 ug/L sd 0.251 %cv 0.53

08/05/92 11:56
58.056.12BH rep 1 Ba_ conc 247.32 ug/L
rep 2 Ba_ conc 244.34 ug/L
rep 3 Ba_ conc 247.41 ug/L
58.056.12BH
08/05/92 11:56
Ba_ av 246.36 ug/L sd 1.750 %cv 0.71

08/05/92 11:58
CCV1 rep 1 Ba_ conc 509.84 ug/L
rep 2 Ba_ conc 504.97 ug/L
rep 3 Ba_ conc 500.81 ug/L
CCV1
08/05/92 11:58
Ba_ av 505.21 ug/L sd 4.519 %cv 0.89

08/05/92 12:00
CCB1 rep 1 Ba_ conc -2.82 ug/L

		rep	2	Ba_	conc	-2.92	ug/L			
		rep	3	Ba_	conc	-3.35	ug/L			
CCB1										
08/05/92 12:00										
	Ba_	av	-3.03 ug/L		sd	0.280	%cv	9.25		
08/05/92 12:01										
ICSAF		rep	1	Ba_	conc	10.92	ug/L			
		rep	2	Ba_	conc	10.41	ug/L			
		rep	3	Ba_	conc	10.04	ug/L			
ICSAF										
08/05/92 12:02										
	Ba_	av	10.46 ug/L		sd	0.446	%cv	4.27		
08/05/92 12:29										
ICSABF		rep	1	Ba_	conc	580.84	ug/L			
		rep	2	Ba_	conc	575.74	ug/L			
		rep	3	Ba_	conc	581.38	ug/L			
ICSABF										
08/05/92 12:29										
	Ba_	av	579.32 ug/L		sd	3.116	%cv	0.54		

21435P

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08/05/92 12:37
wcal standard   rep  1  P_     em       4563.7 conc 500.000
                rep  2  P_     em       4718.8 conc 500.000
                rep  3  P_     em       4634.2 conc 500.000
wcal standard
08/05/92 12:37
   P_           av   4638.89          sd    77.640 %cv   1.67 conc   500.00

08/05/92 12:38
sc blank        rep  1  P_     em       3459.0
08/05/92 12:39
blank           rep  1  P_     ratio    0.2017
                rep  2  P_     ratio    0.3209               window edge
                rep  3  P_     ratio    0.3819
blank
08/05/92 12:40
   P_           av   0.3015           sd   0.09167 %cv  30.40

08/05/92 12:41
#1 standard     rep  1  P_     ratio    0.9817 conc 500.000
                rep  2  P_     ratio    0.3437 conc 500.000
                rep  3  P_     ratio    0.6348 conc 500.000
#1 standard
08/05/92 12:42
   P_           av   0.6534           sd   0.31941 %cv  48.89 conc   500.00

08/05/92 12:43
#2 standard     rep  1  P_     ratio    2.2786 conc 1000.00
                rep  2  P_     ratio    2.3442 conc 1000.00
                rep  3  P_     ratio    2.9011 conc 1000.00
#2 standard
08/05/92 12:44
   P_           av   2.5080           sd   0.34202 %cv  13.64 conc   1000.0

08/05/92 12:45
#3 standard     rep  1  P_     ratio   12.2443 conc 5000.00
                rep  2  P_     ratio   11.3049 conc 5000.00
                rep  3  P_     ratio   11.5132 conc 5000.00
#3 standard
08/05/92 12:45
   P_           av  11.6875           sd   0.49336 %cv   4.22 conc   5000.0

08/05/92 12:47
#4 standard     rep  1  P_     ratio   22.9172 conc 10000.0
                rep  2  P_     ratio   23.8700 conc 10000.0
                rep  3  P_     ratio   23.2684 conc 10000.0
#4 standard
08/05/92 12:47
   P_           av  23.3519           sd   0.48183 %cv   2.06 conc   10000.

08/05/92 12:49
CHECK HS        rep  1  P_     conc    10303.2 ug/L
                rep  2  P_     conc     9613.4 ug/L
                rep  3  P_     conc    10276.6 ug/L
CHECK HS
08/05/92 12:49
   P_           av  10064.4 ug/L      sd    390.81 %cv   3.88

08/05/92 12:51
ICV             rep  1  P_     conc     5039.1 ug/L
```

rep 2 P_ conc 5207.8 ug/L
rep 3 P_ conc 4876.8 ug/L

ICV
08/05/92 12:51
P_ av 5041.2 ug/L sd 165.53 %cv 3.28

08/05/92 12:53
ICB rep 1 P_ conc 107.3 ug/L
rep 2 P_ conc 270.6 ug/L
rep 3 P_ conc 275.3 ug/L

ICB
08/05/92 12:53
P_ av 217.7 ug/L sd 95.64 %cv 43.93

08/05/92 12:54
ICSAI rep 1 P_ conc 264.7 ug/L
rep 2 P_ conc 87.5 ug/L
rep 3 P_ conc 134.4 ug/L

ICSAI
08/05/92 12:55
P_ av 162.2 ug/L sd 91.85 %cv 56.63

08/05/92 12:56
ICSABI rep 1 P_ conc 1079.1 ug/L
rep 2 P_ conc 1412.8 ug/L
rep 3 P_ conc 1055.9 ug/L

ICSABI
08/05/92 12:57
P_ av 1182.6 ug/L sd 199.70 %cv 16.89

08/05/92 12:58
58.056.1FH rep 1 P_ conc 10018.5 ug/L
rep 2 P_ conc 12031.0 ug/L
rep 3 P_ conc 9958.6 ug/L

58.056.1FH
08/05/92 12:59
P_ av 10669.4 ug/L sd 1179.59 %cv 11.06

08/05/92 13:00
58.056.1FH D rep 1 P_ conc 11275.4 ug/L
rep 2 P_ conc 11677.2 ug/L
rep 3 P_ conc 11575.0 ug/L

58.056.1FH D
08/05/92 13:01
P_ av 11509.2 ug/L sd 208.86 %cv 1.81

08/05/92 13:02
58.056.5FH rep 1 P_ conc 16981.8 ug/L
rep 2 P_ conc 14889.7 ug/L
rep 3 P_ conc 16576.2 ug/L

58.056.5FH
08/05/92 13:03
P_ av 16149.3 ug/L sd 1109.49 %cv 6.87

08/05/92 13:05
58.056.5FH L rep 1 P_ conc 3938.4 ug/L
rep 2 P_ conc 3303.2 ug/L
rep 3 P_ conc 2979.0 ug/L

58.056.5FH L
08/05/92 13:05

P_	av	3406.9 ug/L			sd	488.05	%cv	14.33		

```
08/05/92 13:07
58.056.9FH      rep  1  P_        conc   22509.7 ug/L
                rep  2  P_        conc   21500.2 ug/L
                rep  3  P_        conc   22196.0 ug/L
58.056.9FH
08/05/92 13:07
   P_           av    22068.6 ug/L        sd    516.64 %cv   2.34

08/05/92 13:09
58.056.4BH      rep  1  P_        conc   35907.5 ug/L
                rep  2  P_        conc   36049.2 ug/L
                rep  3  P_        conc   35379.9 ug/L
58.056.4BH
08/05/92 13:09
   P_           av    35778.9 ug/L        sd    352.73 %cv   0.99

08/05/92 13:11
58.056.4BH D    rep  1  P_        conc   35553.8 ug/L
                rep  2  P_        conc   35158.1 ug/L
                rep  3  P_        conc   36169.7 ug/L
58.056.4BH D
08/05/92 13:11
   P_           av    35627.2 ug/L        sd    509.79 %cv   1.43

08/05/92 13:13
58.056.8BH      rep  1  P_        conc   33355.4 ug/L
                rep  2  P_        conc   33013.4 ug/L
                rep  3  P_        conc   33839.6 ug/L
58.056.8BH
08/05/92 13:13
   P_           av    33402.8 ug/L        sd    415.14 %cv   1.24

08/05/92 13:15
58.056.8BH L    rep  1  P_        conc    6531.6 ug/L
                rep  2  P_        conc    6643.9 ug/L
                rep  3  P_        conc    6805.2 ug/L
58.056.8BH L
08/05/92 13:15
   P_           av     6660.2 ug/L        sd    137.54 %cv   2.07

08/05/92 13:17
58.056.12BH     rep  1  P_        conc   34449.4 ug/L
                rep  2  P_        conc   34092.9 ug/L
                rep  3  P_        conc   34087.5 ug/L
58.056.12BH
08/05/92 13:17
   P_           av    34209.9 ug/L        sd    207.41 %cv   0.61

08/05/92 13:19
CCV1            rep  1  P_        conc    4999.5 ug/L
                rep  2  P_        conc    4723.9 ug/L
                rep  3  P_        conc    5265.5 ug/L
CCV1
08/05/92 13:19
   P_           av     4996.3 ug/L        sd    270.79 %cv   5.42

08/05/92 13:20
CCB1            rep  1  P_        conc     158.7 ug/L
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                rep   2  P_        conc     161.2 ug/L
                rep   3  P_        conc     242.4 ug/L
CCB1
08/05/92 13:21
    P_          av     187.5 ug/L       sd      47.64 %cv  25.42

08/05/92 13:22
ICSAF           rep   1  P_        conc      93.6 ug/L
                rep   2  P_        conc     217.6 ug/L
                rep   3  P_        conc    -256.3 ug/L          window edge
ICSAF
08/05/92 13:23
    P_          av      18.3 ug/L       sd     245.73 %cv  1343.

08/05/92 13:24
ICSABF          rep   1  P_        conc    1157.8 ug/L
                rep   2  P_        conc    1187.5 ug/L
                rep   3  P_        conc    1247.4 ug/L
ICSABF
08/05/92 13:25
    P_          av    1197.6 ug/L       sd      45.67 %cv   3.81
```

21435 S1

08/04/92 17:32

wcal standard	rep	1	Cd_	em	1801.4	conc	75.00
	rep	1	Mn_	em	2366.0	conc	50.00
	rep	1	Zn_	em	410.3	conc	75.00
	rep	1	Pb_	em	393.2	conc	250.00
	rep	1	Be_	em	1724.4	conc	25.00
	rep	2	Cd_	em	2198.1	conc	75.00
	rep	2	Mn_	em	2731.8	conc	50.00
	rep	2	Zn_	em	453.4	conc	75.00
	rep	2	Pb_	em	370.0	conc	250.00
	rep	2	Be_	em	1823.2	conc	25.00
	rep	3	Cd_	em	2157.7	conc	75.00
	rep	3	Mn_	em	2648.2	conc	50.00
	rep	3	Zn_	em	431.9	conc	75.00
	rep	3	Pb_	em	406.0	conc	250.00
	rep	3	Be_	em	1679.7	conc	25.00

wcal standard
08/04/92 17:34

Cd_	av	2052.44	sd	218.308	%cv	10.64	conc	75.00
Mn_	av	2582.00	sd	191.708	%cv	7.42	conc	50.00
Zn_	av	431.84	sd	21.559	%cv	4.99	conc	75.00
Pb_	av	389.73	sd	18.233	%cv	4.68	conc	250.00
Be_	av	1742.44	sd	73.403	%cv	4.21	conc	25.00

08/04/92 17:37

sc blank	rep	1	Cd_	em	627.5	
	rep	1	Mn_	em	201.6	window edge
	rep	1	Zn_	em	113.9	
	rep	1	Pb_	em	553.1	
	rep	1	Be_	em	218.5	

08/04/92 17:39

blank	rep	1	Cd_	ratio	0.1269	
	rep	1	Mn_	ratio	0.0208	window edge
	rep	1	Zn_	ratio	0.0353	
	rep	1	Pb_	ratio	0.1358	
	rep	1	Be_	ratio	0.0321	
	rep	2	Cd_	ratio	0.2259	
	rep	2	Mn_	ratio	0.0299	window edge
	rep	2	Zn_	ratio	0.0354	
	rep	2	Pb_	ratio	0.1059	
	rep	2	Be_	ratio	0.0371	
	rep	3	Cd_	ratio	0.1795	
	rep	3	Mn_	ratio	0.0400	window edge
	rep	3	Zn_	ratio	0.0337	
	rep	3	Pb_	ratio	0.1231	
	rep	3	Be_	ratio	0.0291	

blank
08/04/92 17:42

Cd_	av	0.1775	sd	0.04953	%cv	27.91
Mn_	av	0.0302	sd	0.00963	%cv	31.86
Zn_	av	0.0348	sd	0.00092	%cv	2.66
Pb_	av	0.1216	sd	0.01499	%cv	12.33
Be_	av	0.0328	sd	0.00405	%cv	12.36

08/04/92 17:44

#1 standard	rep	1	Cd_	ratio	0.6059	conc	75.00
	rep	1	Mn_	ratio	0.9155	conc	50.00
	rep	1	Zn_	ratio	0.1804	conc	75.00
	rep	1	Pb_	ratio	0.2251	conc	250.00
	rep	1	Be_	ratio	0.7691	conc	25.00

```
                rep   2  Cd_        ratio   0.6819 conc 75.00
                rep   2  Mn_        ratio   0.8730 conc 50.00
                rep   2  Zn_        ratio   0.1686 conc 75.00
                rep   2  Pb_        ratio   0.2509 conc 250.00
                rep   2  Be_        ratio   0.8073 conc 25.00
                rep   3  Cd_        ratio   0.5900 conc 75.00
                rep   3  Mn_        ratio   0.9057 conc 50.00
                rep   3  Zn_        ratio   0.1360 conc 75.00
                rep   3  Pb_        ratio   0.2625 conc 250.00
                rep   3  Be_        ratio   0.8077 conc 25.00
#1 standard
08/04/92 17:47
    Cd_         av    0.6259            sd   0.04911 %cv   7.85 conc   75.00
    Mn_         av    0.8981            sd   0.02226 %cv   2.48 conc   50.00
    Zn_         av    0.1617            sd   0.02299 %cv  14.22 conc   75.00
    Pb_         av    0.2462            sd   0.01913 %cv   7.77 conc  250.00
    Be_         av    0.7947            sd   0.02217 %cv   2.79 conc   25.00

08/04/92 17:49
#2 standard     rep   1  Cd_        ratio   2.3965 conc 300.00
                rep   1  Mn_        ratio   3.1478 conc 200.00
                rep   1  Zn_        ratio   0.5867 conc 300.00
                rep   1  Pb_        ratio   0.4903 conc 1000.00
                rep   1  Be_        ratio   2.9318 conc 100.00
                rep   2  Cd_        ratio   2.4315 conc 300.00
                rep   2  Mn_        ratio   3.1901 conc 200.00
                rep   2  Zn_        ratio   0.5938 conc 300.00
                rep   2  Pb_        ratio   0.5701 conc 1000.00
                rep   2  Be_        ratio   3.0880 conc 100.00
                rep   3  Cd_        ratio   2.1975 conc 300.00
                rep   3  Mn_        ratio   3.1726 conc 200.00
                rep   3  Zn_        ratio   0.5993 conc 300.00
                rep   3  Pb_        ratio   0.6296 conc 1000.00
                rep   3  Be_        ratio   2.9727 conc 100.00
#2 standard
08/04/92 17:52
    Cd_         av    2.3419            sd   0.12620 %cv   5.39 conc  300.00
    Mn_         av    3.1702            sd   0.02124 %cv   0.67 conc  200.00
    Zn_         av    0.5933            sd   0.00630 %cv   1.06 conc  300.00
    Pb_         av    0.5633            sd   0.06991 %cv  12.41 conc  1000.0
    Be_         av    2.9975            sd   0.08097 %cv   2.70 conc  100.00

08/04/92 17:54
#3 standard     rep   1  Cd_        ratio   5.6566 conc 750.00
                rep   1  Mn_        ratio   7.7032 conc 500.00
                rep   1  Zn_        ratio   1.3855 conc 750.00
                rep   1  Pb_        ratio   1.2582 conc 2500.00
                rep   1  Be_        ratio   7.3411 conc 250.00
                rep   2  Cd_        ratio   5.4135 conc 750.00
                rep   2  Mn_        ratio   7.6470 conc 500.00
                rep   2  Zn_        ratio   1.3949 conc 750.00
                rep   2  Pb_        ratio   1.1942 conc 2500.00
                rep   2  Be_        ratio   7.4092 conc 250.00
                rep   3  Cd_        ratio   5.3625 conc 750.00
                rep   3  Mn_        ratio   7.5843 conc 500.00
                rep   3  Zn_        ratio   1.4387 conc 750.00
                rep   3  Pb_        ratio   1.1536 conc 2500.00
                rep   3  Be_        ratio   7.5081 conc 250.00
#3 standard
8/04/92 17:57
```

```
    Cd_       av     5.4775                 sd    0.15715 %cv    2.87 conc    750.00
    Mn_       av     7.6448                 sd    0.05951 %cv    0.78 conc    500.00
    Zn_       av     1.4063                 sd    0.02838 %cv    2.02 conc    750.00
    Pb_       av     1.2020                 sd    0.05272 %cv    4.39 conc    2500.0
    Be_       av     7.4195                 sd    0.08394 %cv    1.13 conc    250.00

08/04/92 17:59
#4 standard     rep    1   Cd_        ratio   11.4347  conc 1500.00
                rep    1   Mn_        ratio   15.4359  conc 1000.00
                rep    1   Zn_        ratio    2.7154  conc 1500.00
                rep    1   Pb_        ratio    2.3274  conc 5000.00
                rep    1   Be_        ratio   15.0517  conc 500.00
                rep    2   Cd_        ratio   11.2320  conc 1500.00
                rep    2   Mn_        ratio   15.3411  conc 1000.00
                rep    2   Zn_        ratio    2.7070  conc 1500.00
                rep    2   Pb_        ratio    2.3410  conc 5000.00
                rep    2   Be_        ratio   15.0968  conc 500.00
                rep    3   Cd_        ratio   11.3713  conc 1500.00
                rep    3   Mn_        ratio   15.3648  conc 1000.00
                rep    3   Zn_        ratio    2.7839  conc 1500.00
                rep    3   Pb_        ratio    2.3689  conc 5000.00
                rep    3   Be_        ratio   15.0856  conc 500.00
#4 standard
08/04/92 18:01
    Cd_       av    11.3460                 sd    0.10372 %cv    0.91 conc    1500.0
    Mn_       av    15.3806                 sd    0.04938 %cv    0.32 conc    1000.0
    Zn_       av     2.7354                 sd    0.04219 %cv    1.54 conc    1500.0
    Pb_       av     2.3457                 sd    0.02116 %cv    0.90 conc    5000.0
    Be_       av    15.0780                 sd    0.02352 %cv    0.16 conc    500.00

08/04/92 18:04
CHECK HS        rep    1   Cd_        conc    1480.64 ug/L
                rep    1   Mn_        conc     995.07 ug/L
                rep    1   Zn_        conc    1471.83 ug/L
                rep    1   Pb_        conc    5014.30 ug/L
                rep    1   Be_        conc     498.83 ug/L
                rep    2   Cd_        conc    1513.32 ug/L
                rep    2   Mn_        conc     990.43 ug/L
                rep    2   Zn_        conc    1446.51 ug/L
                rep    2   Pb_        conc    4920.91 ug/L
                rep    2   Be_        conc     493.08 ug/L
                rep    3   Cd_        conc    1518.33 ug/L
                rep    3   Mn_        conc    1005.62 ug/L
                rep    3   Zn_        conc    1510.77 ug/L
                rep    3   Pb_        conc    5073.39 ug/L
                rep    3   Be_        conc     500.38 ug/L
CHECK HS
08/04/92 18:06
    Cd_       av    1504.10 ug/L            sd     20.467 %cv    1.36
    Mn_       av     997.04 ug/L            sd      7.786 %cv    0.78
    Zn_       av    1476.37 ug/L            sd     32.370 %cv    2.19
    Pb_       av    5002.86 ug/L            sd     76.879 %cv    1.54
    Be_       av     497.43 ug/L            sd      3.845 %cv    0.77

08/04/92 18:09
ICV             rep    1   Cd_        conc     750.61 ug/L
                rep    1   Mn_        conc     487.98 ug/L
                rep    1   Zn_        conc     748.21 ug/L
                rep    1   Pb_        conc    2526.45 ug/L
                rep    1   Be_        conc     239.87 ug/L
```

rep	2	Cd_	conc	703.81	ug/L
rep	2	Mn_	conc	499.30	ug/L
rep	2	Zn_	conc	742.42	ug/L
rep	2	Pb_	conc	2447.48	ug/L
rep	2	Be_	conc	247.05	ug/L
rep	3	Cd_	conc	734.33	ug/L
rep	3	Mn_	conc	493.10	ug/L
rep	3	Zn_	conc	761.98	ug/L
rep	3	Pb_	conc	2623.56	ug/L
rep	3	Be_	conc	248.74	ug/L

ICV
08/04/92 18:11

Cd_	av	729.58 ug/L	sd	23.755	%cv	3.26
Mn_	av	493.46 ug/L	sd	5.670	%cv	1.15
Zn_	av	750.87 ug/L	sd	10.052	%cv	1.34
Pb_	av	2532.50 ug/L	sd	88.196	%cv	3.48
Be_	av	245.22 ug/L	sd	4.707	%cv	1.92

08/04/92 18:14
ICB

rep	1	Cd_	conc	1.12	ug/L	
rep	1	Mn_	conc	-3.54	ug/L	window edge
rep	1	Zn_	conc	-6.93	ug/L	
rep	1	Pb_	conc	110.11	ug/L	
rep	1	Be_	conc	1.14	ug/L	
rep	2	Cd_	conc	7.08	ug/L	
rep	2	Mn_	conc	-1.87	ug/L	
rep	2	Zn_	conc	-8.57	ug/L	
rep	2	Pb_	conc	-61.55	ug/L	
rep	2	Be_	conc	0.91	ug/L	
rep	3	Cd_	conc	4.39	ug/L	
rep	3	Mn_	conc	-3.81	ug/L	window edge
rep	3	Zn_	conc	-6.13	ug/L	
rep	3	Pb_	conc	-137.99	ug/L	
rep	3	Be_	conc	1.13	ug/L	

ICB
8/04/92 18:16

Cd_	av	4.20 ug/L	sd	2.987	%cv	71.18
Mn_	av	-3.07 ug/L	sd	1.051	%cv	34.20
Zn_	av	-7.21 ug/L	sd	1.241	%cv	17.22
Pb_	av	-29.81 ug/L	sd	127.060	%cv	426.1
Be_	av	1.06 ug/L	sd	0.129	%cv	12.15

8/04/92 18:19
ICSAI

rep	1	Cd_	conc	20.84	ug/L	
rep	1	Mn_	conc	2.70	ug/L	
rep	1	Zn_	conc	21.29	ug/L	
rep	1	Pb_	conc	-62.42	ug/L	
rep	1	Be_	conc	-34.04	ug/L	window edge
rep	2	Cd_	conc	23.85	ug/L	
rep	2	Mn_	conc	2.31	ug/L	
rep	2	Zn_	conc	33.27	ug/L	
rep	2	Pb_	conc	-106.68	ug/L	
rep	2	Be_	conc	-31.08	ug/L	window edge
rep	3	Cd_	conc	28.34	ug/L	
rep	3	Mn_	conc	2.79	ug/L	
rep	3	Zn_	conc	26.34	ug/L	
rep	3	Pb_	conc	-59.09	ug/L	
rep	3	Be_	conc	-37.97	ug/L	window edge

ICSAI
8/04/92 18:21

Cd_	av	24.34	ug/L	sd	3.776	%cv	15.51
Mn_	av	2.60	ug/L	sd	0.257	%cv	9.89
Zn_	av	26.97	ug/L	sd	6.016	%cv	22.31
Pb_	av	-76.06	ug/L	sd	26.569	%cv	34.93
Be_	av	-34.36	ug/L	sd	3.456	%cv	10.06

08/04/92 18:24

ICSABI	rep	1	Cd_	conc	842.73	ug/L
	rep	1	Mn_	conc	444.98	ug/L
	rep	1	Zn_	conc	888.78	ug/L
	rep	1	Pb_	conc	821.50	ug/L
	rep	1	Be_	conc	413.64	ug/L
	rep	2	Cd_	conc	842.87	ug/L
	rep	2	Mn_	conc	455.98	ug/L
	rep	2	Zn_	conc	868.21	ug/L
	rep	2	Pb_	conc	1033.15	ug/L
	rep	2	Be_	conc	424.17	ug/L
	rep	3	Cd_	conc	846.31	ug/L
	rep	3	Mn_	conc	446.63	ug/L
	rep	3	Zn_	conc	885.01	ug/L
	rep	3	Pb_	conc	933.89	ug/L
	rep	3	Be_	conc	422.45	ug/L

ICSABI
08/04/92 18:26

Cd_	av	843.97	ug/L	sd	2.029	%cv	0.24
Mn_	av	449.20	ug/L	sd	5.934	%cv	1.32
Zn_	av	880.67	ug/L	sd	10.953	%cv	1.24
Pb_	av	929.51	ug/L	sd	105.891	%cv	11.39
Be_	av	420.08	ug/L	sd	5.649	%cv	1.34

08/04/92 18:29

58.056.1FH	rep	1	Cd_	conc	16471.29	ug/L
	rep	1	Mn_	conc	18184.87	ug/L
	rep	1	Zn_	conc	9792.77	ug/L
	rep	1	Pb_	conc	1357921.2	ug/L
	rep	1	Be_	conc	741.49	ug/L
	rep	2	Cd_	conc	16883.13	ug/L
	rep	2	Mn_	conc	18443.42	ug/L
	rep	2	Zn_	conc	9856.49	ug/L
	rep	2	Pb_	conc	1375148.1	ug/L
	rep	2	Be_	conc	724.32	ug/L
	rep	3	Cd_	conc	16507.48	ug/L
	rep	3	Mn_	conc	18139.07	ug/L
	rep	3	Zn_	conc	10088.99	ug/L
	rep	3	Pb_	conc	1386254.3	ug/L
	rep	3	Be_	conc	752.61	ug/L

58.056.1FH
08/04/92 18:31

Cd_	av	16620.63	ug/L	sd	228.050	%cv	1.37
Mn_	av	18255.79	ug/L	sd	164.099	%cv	0.90
Zn_	av	9912.75	ug/L	sd	155.918	%cv	1.57
Pb_	av	1373107.	ug/L	sd	14276.32	%cv	1.04
Be_	av	739.47	ug/L	sd	14.256	%cv	1.93

08/04/92 18:34

58.056.1FH D	rep	1	Cd_	conc	16121.00	ug/L
	rep	1	Mn_	conc	17849.20	ug/L
	rep	1	Zn_	conc	9640.43	ug/L
	rep	1	Pb_	conc	1365263.0	ug/L
	rep	1	Be_	conc	586.04	ug/L

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                    rep   2  Cd_        conc   16628.73 ug/L
                    rep   2  Mn_        conc   17796.67 ug/L
                    rep   2  Zn_        conc    9872.11 ug/L
                    rep   2  Pb_        conc  1363897.8 ug/L
                    rep   2  Be_        conc     550.51 ug/L
                    rep   3  Cd_        conc   16695.53 ug/L
                    rep   3  Mn_        conc   18118.47 ug/L
                    rep   3  Zn_        conc   10045.70 ug/L
                    rep   3  Pb_        conc  1388665.8 ug/L
                    rep   3  Be_        conc     530.11 ug/L
58.056.1FH D
08/04/92 18:37
    Cd_             av  16481.76 ug/L       sd    314.201 %cv   1.91
    Mn_             av  17921.44 ug/L       sd    172.638 %cv   0.96
    Zn_             av   9852.75 ug/L       sd    203.330 %cv   2.06
    Pb_             av  1372609. ug/L       sd   13922.49 %cv   1.01
    Be_             av    555.56 ug/L       sd     28.305 %cv   5.09

08/04/92 18:40
58.056.5FH          rep   1  Cd_        conc   25513.76 ug/L
                    rep   1  Mn_        conc   19557.09 ug/L
                    rep   1  Zn_        conc   12917.89 ug/L
                    rep   1  Pb_        conc  1935164.6 ug/L
                    rep   1  Be_        conc     789.35 ug/L
                    rep   2  Cd_        conc   26901.95 ug/L
                    rep   2  Mn_        conc   19920.57 ug/L
                    rep   2  Zn_        conc   12685.43 ug/L
                    rep   2  Pb_        conc  1926680.5 ug/L
                    rep   2  Be_        conc     795.01 ug/L
                    rep   3  Cd_        conc   26062.25 ug/L
                    rep   3  Mn_        conc   20120.80 ug/L
                    rep   3  Zn_        conc   12507.62 ug/L
                    rep   3  Pb_        conc  1919317.1 ug/L
                    rep   3  Be_        conc     747.24 ug/L
58.056.5FH
08/04/92 18:42
    Cd_             av  26159.32 ug/L       sd    699.170 %cv   2.67
    Mn_             av  19866.15 ug/L       sd    285.770 %cv   1.44
    Zn_             av  12703.65 ug/L       sd    205.742 %cv   1.62
    Pb_             av  1927054. ug/L       sd   7930.354 %cv   0.41
    Be_             av    777.20 ug/L       sd     26.099 %cv   3.36

08/04/92 18:45
58.056.5FH L        rep   1  Cd_        conc    4257.21 ug/L
                    rep   1  Mn_        conc    3052.55 ug/L
                    rep   1  Zn_        conc    2050.86 ug/L
                    rep   1  Pb_        conc  297221.63 ug/L
                    rep   1  Be_        conc     113.83 ug/L
                    rep   2  Cd_        conc    4129.73 ug/L
                    rep   2  Mn_        conc    3070.59 ug/L
                    rep   2  Zn_        conc    1996.11 ug/L
                    rep   2  Pb_        conc  299239.38 ug/L
                    rep   2  Be_        conc     130.41 ug/L
                    rep   3  Cd_        conc    4242.80 ug/L
                    rep   3  Mn_        conc    3144.98 ug/L
                    rep   3  Zn_        conc    1989.03 ug/L
                    rep   3  Pb_        conc  291821.78 ug/L
                    rep   3  Be_        conc     128.77 ug/L
58.056.5FH L
8/04/92 18:47
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Cd_	av	4209.91	ug/L	sd	69.815	%cv	1.66
Mn_	av	3089.37	ug/L	sd	48.993	%cv	1.59
Zn_	av	2012.00	ug/L	sd	33.841	%cv	1.68
Pb_	av	296094.2	ug/L	sd	3835.161	%cv	1.30
Be_	av	124.34	ug/L	sd	9.137	%cv	7.35

08/04/92 18:50

58.056.9FH	rep	1	Cd_	conc	33818.90	ug/L
	rep	1	Mn_	conc	22353.23	ug/L
	rep	1	Zn_	conc	15700.44	ug/L
	rep	1	Pb_	conc	2446560.2	ug/L
	rep	1	Be_	conc	1857.92	ug/L
	rep	2	Cd_	conc	34775.05	ug/L
	rep	2	Mn_	conc	22353.61	ug/L
	rep	2	Zn_	conc	16097.60	ug/L
	rep	2	Pb_	conc	2375009.0	ug/L
	rep	2	Be_	conc	1796.15	ug/L
	rep	3	Cd_	conc	32877.55	ug/L
	rep	3	Mn_	conc	22683.68	ug/L
	rep	3	Zn_	conc	16202.64	ug/L
	rep	3	Pb_	conc	2444554.0	ug/L
	rep	3	Be_	conc	1731.85	ug/L

58.056.9FH
08/04/92 18:52

Cd_	av	33823.83	ug/L	sd	948.760	%cv	2.81
Mn_	av	22463.51	ug/L	sd	190.677	%cv	0.85
Zn_	av	16000.23	ug/L	sd	264.883	%cv	1.66
Pb_	av	2422041.	ug/L	sd	40743.40	%cv	1.68
Be_	av	1795.31	ug/L	sd	63.042	%cv	3.51

08/04/92 18:55

58.056.4BH	rep	1	Cd_	conc	4355.10	ug/L
	rep	1	Mn_	conc	991.71	ug/L
	rep	1	Zn_	conc	1082.48	ug/L
	rep	1	Pb_	conc	266717.81	ug/L
	rep	1	Be_	conc	99.23	ug/L
	rep	2	Cd_	conc	4382.85	ug/L
	rep	2	Mn_	conc	995.97	ug/L
	rep	2	Zn_	conc	1113.33	ug/L
	rep	2	Pb_	conc	267699.00	ug/L
	rep	2	Be_	conc	103.10	ug/L
	rep	3	Cd_	conc	4441.57	ug/L
	rep	3	Mn_	conc	1010.80	ug/L
	rep	3	Zn_	conc	1097.33	ug/L
	rep	3	Pb_	conc	272178.84	ug/L
	rep	3	Be_	conc	107.48	ug/L

58.056.4BH
08/04/92 18:57

Cd_	av	4393.18	ug/L	sd	44.149	%cv	1.00
Mn_	av	999.49	ug/L	sd	10.025	%cv	1.00
Zn_	av	1097.71	ug/L	sd	15.430	%cv	1.41
Pb_	av	268865.2	ug/L	sd	2911.309	%cv	1.08
Be_	av	103.27	ug/L	sd	4.126	%cv	4.00

08/04/92 19:00

58.056.4BH D	rep	1	Cd_	conc	4401.52	ug/L
	rep	1	Mn_	conc	1005.22	ug/L
	rep	1	Zn_	conc	1109.45	ug/L
	rep	1	Pb_	conc	267985.56	ug/L
	rep	1	Be_	conc	109.72	ug/L

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                    rep    2   Cd_          conc     4434.28 ug/L
                    rep    2   Mn_          conc     1009.98 ug/L
                    rep    2   Zn_          conc     1092.75 ug/L
                    rep    2   Pb_          conc   272258.19 ug/L
                    rep    2   Be_          conc      106.27 ug/L
                    rep    3   Cd_          conc     4422.68 ug/L
                    rep    3   Mn_          conc     1033.79 ug/L
                    rep    3   Zn_          conc     1099.43 ug/L
                    rep    3   Pb_          conc   271065.97 ug/L
                    rep    3   Be_          conc      119.05 ug/L
58.056.4BH D
08/04/92 19:02
    Cd_             av     4419.50 ug/L         sd      16.613 %cv     0.38
    Mn_             av     1016.33 ug/L         sd      15.312 %cv     1.51
    Zn_             av     1100.54 ug/L         sd       8.408 %cv     0.76
    Pb_             av    270436.5 ug/L         sd    2204.750 %cv     0.82
    Be_             av      111.68 ug/L         sd       6.610 %cv     5.92

08/04/92 19:05
58.056.8BH          rep    1   Cd_          conc      576.77 ug/L
                    rep    1   Mn_          conc      213.58 ug/L
                    rep    1   Zn_          conc      260.79 ug/L
                    rep    1   Pb_          conc    32629.77 ug/L
                    rep    1   Be_          conc       14.46 ug/L
                    rep    2   Cd_          conc      580.15 ug/L
                    rep    2   Mn_          conc      216.47 ug/L
                    rep    2   Zn_          conc      262.41 ug/L
                    rep    2   Pb_          conc    32815.79 ug/L
                    rep    2   Be_          conc       14.41 ug/L
                    rep    3   Cd_          conc      571.20 ug/L
                    rep    3   Mn_          conc      212.12 ug/L
                    rep    3   Zn_          conc      273.36 ug/L
                    rep    3   Pb_          conc    33089.92 ug/L
                    rep    3   Be_          conc       14.04 ug/L
58.056.8BH
08/04/92 19:07
    Cd_             av      576.04 ug/L         sd       4.516 %cv     0.78
    Mn_             av      214.06 ug/L         sd       2.216 %cv     1.04
    Zn_             av      265.52 ug/L         sd       6.835 %cv     2.57
    Pb_             av    32845.16 ug/L         sd     231.473 %cv     0.70
    Be_             av       14.31 ug/L         sd       0.229 %cv     1.60

08/04/92 19:11
58.056.8BH L        rep    1   Cd_          conc      114.59 ug/L
                    rep    1   Mn_          conc       42.52 ug/L
                    rep    1   Zn_          conc       58.57 ug/L
                    rep    1   Pb_          conc     6342.42 ug/L
                    rep    1   Be_          conc        2.83 ug/L
                    rep    2   Cd_          conc      100.41 ug/L
                    rep    2   Mn_          conc       43.75 ug/L
                    rep    2   Zn_          conc       48.71 ug/L
                    rep    2   Pb_          conc     6622.36 ug/L
                    rep    2   Be_          conc        3.67 ug/L
                    rep    3   Cd_          conc      111.46 ug/L
                    rep    3   Mn_          conc       45.53 ug/L
                    rep    3   Zn_          conc       57.26 ug/L
                    rep    3   Pb_          conc     6580.27 ug/L
                    rep    3   Be_          conc        2.84 ug/L
58.056.8BH L
08/04/92 19:13
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Cd_	av	108.82	ug/L	sd	7.448	%cv	6.84
Mn_	av	43.93	ug/L	sd	1.512	%cv	3.44
Zn_	av	54.84	ug/L	sd	5.356	%cv	9.77
Pb_	av	6515.02	ug/L	sd	150.950	%cv	2.32
Be_	av	3.11	ug/L	sd	0.481	%cv	15.45

08/04/92 19:16

58.056.12BH	rep	1	Cd_	conc	650.27	ug/L
	rep	1	Mn_	conc	219.10	ug/L
	rep	1	Zn_	conc	273.22	ug/L
	rep	1	Pb_	conc	42272.73	ug/L
	rep	1	Be_	conc	32.57	ug/L
	rep	2	Cd_	conc	606.76	ug/L
	rep	2	Mn_	conc	216.15	ug/L
	rep	2	Zn_	conc	270.76	ug/L
	rep	2	Pb_	conc	42925.47	ug/L
	rep	2	Be_	conc	30.28	ug/L
	rep	3	Cd_	conc	646.45	ug/L
	rep	3	Mn_	conc	221.12	ug/L
	rep	3	Zn_	conc	271.36	ug/L
	rep	3	Pb_	conc	42815.06	ug/L
	rep	3	Be_	conc	30.43	ug/L

58.056.12BH
08/04/92 19:18

Cd_	av	634.49	ug/L	sd	24.091	%cv	3.80
Mn_	av	218.79	ug/L	sd	2.501	%cv	1.14
Zn_	av	271.78	ug/L	sd	1.283	%cv	0.47
Pb_	av	42671.09	ug/L	sd	349.379	%cv	0.82
Be_	av	31.09	ug/L	sd	1.285	%cv	4.13

08/04/92 19:21

CCV1	rep	1	Cd_	conc	729.03	ug/L
	rep	1	Mn_	conc	490.36	ug/L
	rep	1	Zn_	conc	741.78	ug/L
	rep	1	Pb_	conc	2518.72	ug/L
	rep	1	Be_	conc	245.87	ug/L
	rep	2	Cd_	conc	746.06	ug/L
	rep	2	Mn_	conc	489.86	ug/L
	rep	2	Zn_	conc	758.49	ug/L
	rep	2	Pb_	conc	2566.26	ug/L
	rep	2	Be_	conc	241.56	ug/L
	rep	3	Cd_	conc	746.97	ug/L
	rep	3	Mn_	conc	487.46	ug/L
	rep	3	Zn_	conc	743.10	ug/L
	rep	3	Pb_	conc	2785.33	ug/L
	rep	3	Be_	conc	246.36	ug/L

CCV1
08/04/92 19:23

Cd_	av	740.69	ug/L	sd	10.105	%cv	1.36
Mn_	av	489.23	ug/L	sd	1.547	%cv	0.32
Zn_	av	747.79	ug/L	sd	9.289	%cv	1.24
Pb_	av	2623.44	ug/L	sd	142.207	%cv	5.42
Be_	av	244.60	ug/L	sd	2.643	%cv	1.08

08/04/92 19:26

CCB1	rep	1	Cd_	conc	-12.19	ug/L	window edge
	rep	1	Mn_	conc	-2.70	ug/L	
	rep	1	Zn_	conc	-6.95	ug/L	
	rep	1	Pb_	conc	27.07	ug/L	
	rep	1	Be_	conc	0.49	ug/L	

	rep	2	Cd_	conc	5.28	ug/L	
	rep	2	Mn_	conc	-2.65	ug/L	
	rep	2	Zn_	conc	-8.31	ug/L	
	rep	2	Pb_	conc	-69.42	ug/L	
	rep	2	Be_	conc	0.66	ug/L	
	rep	3	Cd_	conc	3.13	ug/L	
	rep	3	Mn_	conc	-5.09	ug/L	window edge
	rep	3	Zn_	conc	-16.98	ug/L	window edge
	rep	3	Pb_	conc	-53.68	ug/L	
	rep	3	Be_	conc	0.63	ug/L	window edge

CCB1
08/04/92 19:28

Cd_	av	-1.26	ug/L	sd	9.527	%cv	756.5
Mn_	av	-3.48	ug/L	sd	1.393	%cv	40.03
Zn_	av	-10.75	ug/L	sd	5.440	%cv	50.63
Pb_	av	-32.01	ug/L	sd	51.766	%cv	161.7
Be_	av	0.60	ug/L	sd	0.091	%cv	15.30

08/04/92 19:31

ICSAF	rep	1	Cd_	conc	26.71	ug/L	
	rep	1	Mn_	conc	2.04	ug/L	
	rep	1	Zn_	conc	34.90	ug/L	
	rep	1	Pb_	conc	-175.86	ug/L	
	rep	1	Be_	conc	-60.08	ug/L	window edge
	rep	2	Cd_	conc	18.59	ug/L	
	rep	2	Mn_	conc	2.97	ug/L	
	rep	2	Zn_	conc	41.52	ug/L	
	rep	2	Pb_	conc	10.48	ug/L	
	rep	2	Be_	conc	-61.94	ug/L	window edge
	rep	3	Cd_	conc	25.37	ug/L	
	rep	3	Mn_	conc	3.03	ug/L	
	rep	3	Zn_	conc	33.32	ug/L	
	rep	3	Pb_	conc	-191.79	ug/L	
	rep	3	Be_	conc	-51.92	ug/L	window edge

ICSAF
08/04/92 19:33

Cd_	av	23.56	ug/L	sd	4.351	%cv	18.47
Mn_	av	2.68	ug/L	sd	0.554	%cv	20.66
Zn_	av	36.58	ug/L	sd	4.350	%cv	11.89
Pb_	av	-119.06	ug/L	sd	112.462	%cv	94.46
Be_	av	-57.98	ug/L	sd	5.335	%cv	9.20

08/04/92 19:36

ICSABF	rep	1	Cd_	conc	871.55	ug/L
	rep	1	Mn_	conc	437.18	ug/L
	rep	1	Zn_	conc	892.29	ug/L
	rep	1	Pb_	conc	957.97	ug/L
	rep	1	Be_	conc	396.80	ug/L
	rep	2	Cd_	conc	822.75	ug/L
	rep	2	Mn_	conc	437.35	ug/L
	rep	2	Zn_	conc	889.85	ug/L
	rep	2	Pb_	conc	647.34	ug/L
	rep	2	Be_	conc	397.08	ug/L
	rep	3	Cd_	conc	805.58	ug/L
	rep	3	Mn_	conc	440.41	ug/L
	rep	3	Zn_	conc	877.67	ug/L
	rep	3	Pb_	conc	988.71	ug/L
	rep	3	Be_	conc	387.35	ug/L

ICSABF
08/04/92 19:38

Cd_	av	833.29	ug/L		sd	34.224	%cv	4.11
Mn_	av	438.32	ug/L		sd	1.817	%cv	0.41
Zn_	av	886.60	ug/L		sd	7.827	%cv	0.88
Pb_	av	864.67	ug/L		sd	188.844	%cv	21.84
Be_	av	393.74	ug/L	78.8%	sd	5.536	%cv	1.41

2143554

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08/04/92 21:13
wcal standard   rep   1  Ni_        em        59.6 conc 40.00
                rep   1  Cr_        em       252.5 conc 40.00
                rep   2  Ni_        em        55.7 conc 40.00
                rep   2  Cr_        em       241.6 conc 40.00
                rep   3  Ni_        em        51.3 conc 40.00
                rep   3  Cr_        em       263.0 conc 40.00
wcal standard
08/04/92 21:14
    Ni_         av     55.53            sd      4.129 %cv   7.44 conc   40.00
    Cr_         av    252.39            sd     10.695 %cv   4.24 conc   40.00

08/04/92 21:16
sc blank        rep   1  Ni_        em       540.1
                rep   1  Cr_        em       716.0
08/04/92 21:19
blank           rep   1  Ni_        ratio  0.1049
                rep   1  Cr_        ratio  0.0859                window edge
                rep   2  Ni_        ratio  0.1276
                rep   2  Cr_        ratio  0.1071
                rep   3  Ni_        ratio  0.0778
                rep   3  Cr_        ratio  0.1548
blank
08/04/92 21:20
    Ni_         av    0.1034            sd   0.02495 %cv  24.11
    Cr_         av    0.1159            sd   0.03531 %cv  30.46

08/04/92 21:22
#1 standard     rep   1  Ni_        ratio  0.1218 conc 40.00
                rep   1  Cr_        ratio  0.3396 conc 40.00
                rep   2  Ni_        ratio  0.1529 conc 40.00
                rep   2  Cr_        ratio  0.4067 conc 40.00
                rep   3  Ni_        ratio  0.1395 conc 40.00
                rep   3  Cr_        ratio  0.3433 conc 40.00
#1 standard
08/04/92 21:23
    Ni_         av    0.1381            sd   0.01558 %cv  11.29 conc   40.00
    Cr_         av    0.3632            sd   0.03773 %cv  10.39 conc   40.00

08/04/92 21:26
#2 standard     rep   1  Ni_        ratio  0.4338 conc 200.00
                rep   1  Cr_        ratio  1.7821 conc 200.00
                rep   2  Ni_        ratio  0.3018 conc 200.00
                rep   2  Cr_        ratio  1.6595 conc 200.00
                rep   3  Ni_        ratio  0.4083 conc 200.00
                rep   3  Cr_        ratio  1.7833 conc 200.00
#2 standard
08/04/92 21:27
    Ni_         av    0.3813            sd   0.07005 %cv  18.37 conc  200.00
    Cr_         av    1.7417            sd   0.07114 %cv   4.08 conc  200.00

08/04/92 21:29
#3 standard     rep   1  Ni_        ratio  0.7296 conc 400.00
                rep   1  Cr_        ratio  3.2191 conc 400.00
                rep   2  Ni_        ratio  0.6552 conc 400.00
                rep   2  Cr_        ratio  3.2495 conc 400.00
                rep   3  Ni_        ratio  0.7514 conc 400.00
                rep   3  Cr_        ratio  3.1986 conc 400.00
#3 standard
08/04/92 21:30
```

0-006[illegible]

Ni_	av	.0.7120	sd	0.05044	%cv	7.08	conc	400.00
Cr_	av	3.2224	sd	0.02556	%cv	0.79	conc	400.00

08/04/92 21:33

#4 standard	rep	1	Ni_	ratio	1.3578	conc	800.00
	rep	1	Cr_	ratio	6.1497	conc	800.00
	rep	2	Ni_	ratio	1.4048	conc	800.00
	rep	2	Cr_	ratio	6.1608	conc	800.00
	rep	3	Ni_	ratio	1.4467	conc	800.00
	rep	3	Cr_	ratio	6.1231	conc	800.00

#4 standard
08/04/92 21:34

Ni_	av	1.4031	sd	0.04449	%cv	3.17	conc	800.00
Cr_	av	6.1445	sd	0.01939	%cv	0.32	conc	800.00

08/04/92 21:36

CHECK HS	rep	1	Ni_	conc	802.06	ug/L
	rep	1	Cr_	conc	810.39	ug/L
	rep	2	Ni_	conc	802.12	ug/L
	rep	2	Cr_	conc	797.14	ug/L
	rep	3	Ni_	conc	795.04	ug/L
	rep	3	Cr_	conc	800.55	ug/L

CHECK HS
08/04/92 21:37

Ni_	av	799.74	ug/L	sd	4.067	%cv	0.51
Cr_	av	802.69	ug/L	sd	6.881	%cv	0.86

08/04/92 21:39

ICV	rep	1	Ni_	conc	421.62	ug/L
	rep	1	Cr_	conc	408.26	ug/L
	rep	2	Ni_	conc	463.45	ug/L
	rep	2	Cr_	conc	418.17	ug/L
	rep	3	Ni_	conc	404.03	ug/L
	rep	3	Cr_	conc	418.91	ug/L

ICV
08/04/92 21:41

Ni_	av	429.70	ug/L	sd	30.523	%cv	7.10
Cr_	av	415.11	ug/L	sd	5.947	%cv	1.43

08/04/92 21:43

ICB	rep	1	Ni_	conc	-5.48	ug/L
	rep	1	Cr_	conc	-2.49	ug/L
	rep	2	Ni_	conc	-3.65	ug/L
	rep	2	Cr_	conc	-4.37	ug/L
	rep	3	Ni_	conc	-16.76	ug/L
	rep	3	Cr_	conc	-8.16	ug/L

ICB
08/04/92 21:44

Ni_	av	-8.63	ug/L	sd	7.101	%cv	82.30
Cr_	av	-5.01	ug/L	sd	2.888	%cv	57.68

08/04/92 21:47

ICSAI	rep	1	Ni_	conc	-0.42	ug/L
	rep	1	Cr_	conc	0.79	ug/L
	rep	2	Ni_	conc	16.87	ug/L
	rep	2	Cr_	conc	-4.88	ug/L
	rep	3	Ni_	conc	-6.18	ug/L
	rep	3	Cr_	conc	-7.99	ug/L

ICSAI
08/04/92 21:48

```
   Ni_         av       3.43 ug/L          sd     11.998 %cv   350.3
   Cr_         av      -4.03 ug/L          sd      4.452 %cv   110.5

08/04/92 21:50
ICSABI         rep   1  Ni_           conc    842.05 ug/L
               rep   1  Cr_           conc    435.75 ug/L
               rep   2  Ni_           conc    888.85 ug/L
               rep   2  Cr_           conc    438.68 ug/L
               rep   3  Ni_           conc    887.31 ug/L
               rep   3  Cr_           conc    420.80 ug/L
ICSABI
08/04/92 21:51
   Ni_         av     872.74 ug/L          sd     26.588 %cv    3.05
   Cr_         av     431.74 ug/L          sd      9.590 %cv    2.22

08/04/92 21:54
58.056.1FH     rep   1  Ni_           conc   3706.60 ug/L
               rep   1  Cr_           conc   6827.80 ug/L
               rep   2  Ni_           conc   3506.99 ug/L
               rep   2  Cr_           conc   7078.62 ug/L
               rep   3  Ni_           conc   3571.90 ug/L
               rep   3  Cr_           conc   7112.48 ug/L
58.056.1FH
08/04/92 21:55
   Ni_         av    3595.16 ug/L          sd    101.817 %cv    2.83
   Cr_         av    7006.30 ug/L          sd    155.513 %cv    2.22

08/04/92 21:58
58.056.1FH D   rep   1  Ni_           conc   3452.68 ug/L
               rep   1  Cr_           conc   6827.38 ug/L
               rep   2  Ni_           conc   3714.01 ug/L
               rep   2  Cr_           conc   7055.94 ug/L
               rep   3  Ni_           conc   3699.13 ug/L
               rep   3  Cr_           conc   7053.85 ug/L
58.056.1FH D
08/04/92 21:59
   Ni_         av    3621.94 ug/L          sd    146.774 %cv    4.05
   Cr_         av    6979.06 ug/L          sd    131.356 %cv    1.88

08/04/92 22:02
58.056.5FH     rep   1  Ni_           conc   5406.67 ug/L
               rep   1  Cr_           conc  10948.28 ug/L
               rep   2  Ni_           conc   5408.27 ug/L
               rep   2  Cr_           conc  11246.07 ug/L
               rep   3  Ni_           conc   5491.06 ug/L
               rep   3  Cr_           conc  11250.06 ug/L
58.056.5FH
08/04/92 22:03
   Ni_         av    5435.33 ug/L          sd     48.270 %cv    0.89
   Cr_         av   11148.13 ug/L          sd    173.092 %cv    1.55

08/04/92 22:05
58.056.5FH L   rep   1  Ni_           conc   1157.49 ug/L
               rep   1  Cr_           conc   2193.43 ug/L
               rep   2  Ni_           conc   1077.87 ug/L
               rep   2  Cr_           conc   2188.75 ug/L
               rep   3  Ni_           conc   1247.68 ug/L
               rep   3  Cr_           conc   2170.45 ug/L
58.056.5FH L
08/04/92 22:07
```

D-000[illegible]

Ni_ av 1161.01 ug/L sd 84.958 %cv 7.32
Cr_ av 2184.21 ug/L sd 12.144 %cv 0.56

08/04/92 22:09
58.056.9FH rep 1 Ni_ conc 6771.26 ug/L
rep 1 Cr_ conc 14252.35 ug/L
rep 2 Ni_ conc 7007.31 ug/L
rep 2 Cr_ conc 14362.89 ug/L
rep 3 Ni_ conc 6823.22 ug/L
rep 3 Cr_ conc 14228.61 ug/L
58.056.9FH
08/04/92 22:10
Ni_ av 6867.26 ug/L sd 124.036 %cv 1.81
Cr_ av 14281.28 ug/L sd 71.667 %cv 0.50

08/04/92 22:13
58.056.4BH rep 1 Ni_ conc 367.32 ug/L
rep 1 Cr_ conc 1348.38 ug/L
rep 2 Ni_ conc 459.38 ug/L
rep 2 Cr_ conc 1340.28 ug/L
rep 3 Ni_ conc 452.24 ug/L
rep 3 Cr_ conc 1317.39 ug/L
58.056.4BH
08/04/92 22:14
Ni_ av 426.31 ug/L sd 51.216 %cv 12.01
Cr_ av 1335.35 ug/L sd 16.073 %cv 1.20

08/04/92 22:17
58.056.4BH D rep 1 Ni_ conc 456.38 ug/L
rep 1 Cr_ conc 1312.98 ug/L
rep 2 Ni_ conc 455.70 ug/L
rep 2 Cr_ conc 1310.17 ug/L
rep 3 Ni_ conc 418.36 ug/L
rep 3 Cr_ conc 1335.03 ug/L
58.056.4BH D
08/04/92 22:18
Ni_ av 443.48 ug/L sd 21.757 %cv 4.91
Cr_ av 1319.39 ug/L sd 13.615 %cv 1.03

08/04/92 22:21
58.056.8BH rep 1 Ni_ conc 19.64 ug/L
rep 1 Cr_ conc 136.29 ug/L
rep 2 Ni_ conc 56.68 ug/L
rep 2 Cr_ conc 143.51 ug/L
rep 3 Ni_ conc 39.28 ug/L
rep 3 Cr_ conc 157.83 ug/L
58.056.8BH
08/04/92 22:22
Ni_ av 38.53 ug/L <50x IDL sd 18.531 %cv 48.09
Cr_ av 145.88 ug/L <50x IDL sd 10.960 %cv 7.51

PA

08/04/92 22:24
58.056.8BH L rep 1 Ni_ conc 42.73 ug/L
rep 1 Cr_ conc 83.63 ug/L
rep 2 Ni_ conc 11.57 ug/L
rep 2 Cr_ conc 76.95 ug/L
rep 3 Ni_ conc 10.39 ug/L
rep 3 Cr_ conc 64.89 ug/L
58.056.8BH L
08/04/92 22:25

0- 000034

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     Ni_        av      21.57 ug/L <10x IDL  sd     18.338 %cv   85.03
     Cr_        av      75.16 ug/L <10x IDL  sd      9.498 %cv   12.64
                                 Pb
08/04/92 22:28
58.056.12BH     rep   1  Ni_          conc       46.66 ug/L
                rep   1  Cr_          conc      191.71 ug/L
                rep   2  Ni_          conc       73.14 ug/L
                rep   2  Cr_          conc      187.90 ug/L
                rep   3  Ni_          conc       83.29 ug/L
                rep   3  Cr_          conc      185.57 ug/L
58.056.12BH
08/04/92 22:29
     Ni_        av      67.70 ug/L           sd     18.910 %cv   27.93
     Cr_        av     188.40 ug/L           sd      3.102 %cv    1.65

08/04/92 22:32
CCV1            rep   1  Ni_          conc      361.51 ug/L
                rep   1  Cr_          conc      423.61 ug/L
                rep   2  Ni_          conc      424.44 ug/L
                rep   2  Cr_          conc      425.74 ug/L
                rep   3  Ni_          conc      415.45 ug/L
                rep   3  Cr_          conc      415.44 ug/L
CCV1
08/04/92 22:33
     Ni_        av     400.47 ug/L           sd     34.033 %cv    8.50
     Cr_        av     421.60 ug/L           sd      5.438 %cv    1.29

08/04/92 22:35
CCB1            rep   1  Ni_          conc      -39.29 ug/L          window edge
                rep   1  Cr_          conc       -1.23 ug/L
                rep   2  Ni_          conc      -26.35 ug/L
                rep   2  Cr_          conc       -6.90 ug/L
                rep   3  Ni_          conc       21.97 ug/L
                rep   3  Cr_          conc       -1.67 ug/L
CCB1
08/04/92 22:36
     Ni_        av     -14.56 ug/L           sd     32.290 %cv  221.8
     Cr_        av      -3.27 ug/L           sd      3.155 %cv   96.58

08/04/92 22:39
ICSAF           rep   1  Ni_          conc      -11.44 ug/L
                rep   1  Cr_          conc       -1.67 ug/L
                rep   2  Ni_          conc      -16.45 ug/L
                rep   2  Cr_          conc       -8.87 ug/L
                rep   3  Ni_          conc      -71.60 ug/L          window edge
                rep   3  Cr_          conc        3.22 ug/L
ICSAF
08/04/92 22:40
     Ni_        av     -33.17 ug/L           sd     33.382 %cv  100.6
     Cr_        av      -2.44 ug/L           sd      6.080 %cv  249.1

08/04/92 22:42
ICSABF          rep   1  Ni_          conc      863.09 ug/L
                rep   1  Cr_          conc      442.00 ug/L
                rep   2  Ni_          conc      896.94 ug/L
                rep   2  Cr_          conc      432.91 ug/L
                rep   3  Ni_          conc      996.40 ug/L
                rep   3  Cr_          conc      444.95 ug/L
ICSABF
08/04/92 22:44
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Ni_	av	918.81	ug/L	sd	69.296	%cv	7.54
Cr_	av	439.95	ug/L	sd	6.275	%cv	1.43

2143552

Cu Only

```
08/04/92 19:43
wcal standard   rep  1  Ba_    em        275.4  conc  50.00
                rep  1  Cu_    em        508.8  conc  50.00
                rep  2  Ba_    em        250.3  conc  50.00
                rep  2  Cu_    em        483.9  conc  50.00
                rep  3  Ba_    em        231.2  conc  50.00
                rep  3  Cu_    em        464.9  conc  50.00
wcal standard
08/04/92 19:44
    Ba_         av   252.27         sd   22.161  %cv   8.78  conc   50.00
    Cu_         av   485.87         sd   22.004  %cv   4.53  conc   50.00

08/04/92 19:46
sc blank        rep  1  Ba_    em         65.8
                rep  1  Cu_    em        829.2
08/04/92 19:48
blank           rep  1  Ba_    ratio   0.0139
                rep  1  Cu_    ratio   0.4405
                rep  2  Ba_    ratio   0.0177
                rep  2  Cu_    ratio   0.2825
                rep  3  Ba_    ratio   0.0194
                rep  3  Cu_    ratio   0.3656
blank
08/04/92 19:49
    Ba_         av   0.0170         sd   0.00282  %cv  16.62
    Cu_         av   0.3629         sd   0.07907  %cv  21.79

08/04/92 19:52
#1 standard     rep  1  Ba_    ratio   0.5163  conc  50.00
                rep  1  Cu_    ratio   1.5151  conc  50.00
                rep  2  Ba_    ratio   0.4970  conc  50.00
                rep  2  Cu_    ratio   1.5461  conc  50.00
                rep  3  Ba_    ratio   0.5110  conc  50.00
                rep  3  Cu_    ratio   1.7536  conc  50.00
#1 standard
08/04/92 19:53
    Ba_         av   0.5081         sd   0.00997  %cv   1.96  conc   50.00
    Cu_         av   1.6049         sd   0.12968  %cv   8.08  conc   50.00

08/04/92 19:55
#2 standard     rep  1  Ba_    ratio   2.0395  conc 200.00
                rep  1  Cu_    ratio   5.2148  conc 200.00
                rep  2  Ba_    ratio   2.0071  conc 200.00
                rep  2  Cu_    ratio   4.9627  conc 200.00
                rep  3  Ba_    ratio   2.0434  conc 200.00
                rep  3  Cu_    ratio   4.9774  conc 200.00
#2 standard
08/04/92 19:56
    Ba_         av   2.0300         sd   0.01992  %cv   0.98  conc  200.00
    Cu_         av   5.0516         sd   0.14150  %cv   2.80  conc  200.00

08/04/92 19:58
#3 standard     rep  1  Ba_    ratio   5.0217  conc 500.00
                rep  1  Cu_    ratio  11.6138  conc 500.00
                rep  2  Ba_    ratio   4.9448  conc 500.00
                rep  2  Cu_    ratio  11.5771  conc 500.00
                rep  3  Ba_    ratio   4.9680  conc 500.00
                rep  3  Cu_    ratio  11.6665  conc 500.00
#3 standard
08/04/92 19:59
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    Ba_        av     4.9782              sd   0.03946 %cv    0.79 conc   500.00
    Cu_        av    11.6192              sd   0.04496 %cv    0.39 conc   500.00

08/04/92 20:02
#4 standard    rep   1  Ba_         ratio   9.8436 conc 1000.00
               rep   1  Cu_         ratio  22.9574 conc 1000.00
               rep   2  Ba_         ratio   9.8311 conc 1000.00
               rep   2  Cu_         ratio  22.6678 conc 1000.00
               rep   3  Ba_         ratio   9.8864 conc 1000.00
               rep   3  Cu_         ratio  22.5959 conc 1000.00
#4 standard
08/04/92 20:03
    Ba_        av     9.8537              sd   0.02898 %cv    0.29 conc   1000.0
    Cu_        av    22.7404              sd   0.19136 %cv    0.84 conc   1000.0

08/04/92 20:05
CHECK HS       rep   1  Ba_         conc      998.73 ug/L
               rep   1  Cu_         conc      993.64 ug/L
               rep   2  Ba_         conc      998.47 ug/L
               rep   2  Cu_         conc      995.25 ug/L
               rep   3  Ba_         conc      991.24 ug/L
               rep   3  Cu_         conc      997.38 ug/L
CHECK HS
08/04/92 20:06
    Ba_        av     996.14 ug/L         sd     4.251 %cv    0.43
    Cu_        av     995.43 ug/L         sd     1.875 %cv    0.19

08/04/92 20:08
ICV            rep   1  Ba_         conc      497.52 ug/L
               rep   1  Cu_         conc      501.06 ug/L
               rep   2  Ba_         conc      498.35 ug/L
               rep   2  Cu_         conc      503.42 ug/L
               rep   3  Ba_         conc      499.67 ug/L
               rep   3  Cu_         conc      497.00 ug/L
ICV
08/04/92 20:09
    Ba_        av     498.51 ug/L         sd     1.081 %cv    0.22
    Cu_        av     500.49 ug/L         sd     3.248 %cv    0.65

08/04/92 20:11
ICB            rep   1  Ba_         conc       -2.99 ug/L             window edge
               rep   1  Cu_         conc       -6.97 ug/L
               rep   2  Ba_         conc       -2.69 ug/L
               rep   2  Cu_         conc       -8.61 ug/L
               rep   3  Ba_         conc       -2.57 ug/L
               rep   3  Cu_         conc       -2.78 ug/L
ICB
08/04/92 20:13
    Ba_        av      -2.75 ug/L         sd     0.215 %cv    7.83
    Cu_        av      -6.12 ug/L         sd     3.012 %cv   49.20

08/04/92 20:15
ICSAI          rep   1  Ba_         conc       10.71 ug/L
               rep   1  Cu_         conc        0.01 ug/L
               rep   2  Ba_         conc       10.62 ug/L
               rep   2  Cu_         conc       -3.32 ug/L
               rep   3  Ba_         conc       11.50 ug/L
               rep   3  Cu_         conc        5.83 ug/L
ICSAI
08/04/92 20:16
```

```
    Ba_          av      10.94 ug/L        sd       0.480 %cv    4.39
    Cu_          av       0.84 ug/L        sd       4.628 %cv   549.7

08/04/92 20:18
ICSABI          rep   1   Ba_         conc     678.36 ug/L
                rep   1   Cu_         conc     432.92 ug/L
                rep   2   Ba_         conc     679.30 ug/L
                rep   2   Cu_         conc     425.26 ug/L
                rep   3   Ba_         conc     681.56 ug/L
                rep   3   Cu_         conc     417.32 ug/L
ICSABI
08/04/92 20:19
    Ba_          av     679.74 ug/L        sd       1.643 %cv    0.24
    Cu_          av     425.17 ug/L        sd       7.802 %cv    1.84

08/04/92 20:22
58.056.1FH      rep   1   Ba_         conc   26437.08 ug/L
                rep   1   Cu_         conc    1667.51 ug/L
                rep   2   Ba_         conc   26445.51 ug/L
                rep   2   Cu_         conc    1666.61 ug/L
                rep   3   Ba_         conc   26684.41 ug/L
                rep   3   Cu_         conc    1679.84 ug/L
58.056.1FH
08/04/92 20:23
    Ba_          av   26522.33 ug/L        sd     140.424 %cv    0.53
    Cu_          av    1671.32 ug/L        sd       7.392 %cv    0.44

08/04/92 20:25
58.056.1FH D    rep   1   Ba_         conc   26187.08 ug/L
                rep   1   Cu_         conc    1650.00 ug/L
                rep   2   Ba_         conc   26190.29 ug/L
                rep   2   Cu_         conc    1633.84 ug/L
                rep   3   Ba_         conc   25869.39 ug/L
                rep   3   Cu_         conc    1614.20 ug/L
58.056.1FH D
08/04/92 20:26
    Ba_          av   26082.25 ug/L        sd     184.354 %cv    0.71
    Cu_          av    1632.68 ug/L        sd      17.927 %cv    1.10

08/04/92 20:29
58.056.5FH      rep   1   Ba_         conc   23452.89 ug/L
                rep   1   Cu_         conc    2770.58 ug/L
                rep   2   Ba_         conc   22966.85 ug/L
                rep   2   Cu_         conc    2833.88 ug/L
                rep   3   Ba_         conc   22927.71 ug/L
                rep   3   Cu_         conc    2721.09 ug/L
58.056.5FH
08/04/92 20:30
    Ba_          av   23115.81 ug/L        sd     292.572 %cv    1.27
    Cu_          av    2775.18 ug/L        sd      56.540 %cv    2.04

08/04/92 20:32
58.056.5FH L    rep   1   Ba_         conc    3875.67 ug/L
                rep   1   Cu_         conc     446.72 ug/L
                rep   2   Ba_         conc    3817.94 ug/L
                rep   2   Cu_         conc     460.00 ug/L
                rep   3   Ba_         conc    3856.87 ug/L
                rep   3   Cu_         conc     437.15 ug/L
58.056.5FH L
08/04/92 20:33
```

```
    Ba_         av    3850.16 ug/L         sd     29.442 %cv    0.76
    Cu_         av     447.96 ug/L         sd     11.475 %cv    2.56

08/04/92 20:36
58.056.9FH      rep   1  Ba_         conc   29660.00 ug/L
                rep   1  Cu_         conc    4024.11 ug/L
                rep   2  Ba_         conc   29095.90 ug/L
                rep   2  Cu_         conc    4075.66 ug/L
                rep   3  Ba_         conc   29389.03 ug/L
                rep   3  Cu_         conc    4076.83 ug/L
58.056.9FH
08/04/92 20:37
    Ba_         av   29381.64 ug/L         sd    282.120 %cv    0.96
    Cu_         av    4058.87 ug/L         sd     30.106 %cv    0.74

08/04/92 20:39
58.056.4BH      rep   1  Ba_         conc    1275.98 ug/L
                rep   1  Cu_         conc     180.52 ug/L
                rep   2  Ba_         conc    1277.50 ug/L
                rep   2  Cu_         conc     183.90 ug/L
                rep   3  Ba_         conc    1273.37 ug/L
                rep   3  Cu_         conc     185.74 ug/L
58.056.4BH
08/04/92 20:41
    Ba_         av    1275.62 ug/L         sd      2.088 %cv    0.16
    Cu_         av     183.39 ug/L         sd      2.649 %cv    1.44

08/04/92 20:43
58.056.4BH D    rep   1  Ba_         conc    1282.35 ug/L
                rep   1  Cu_         conc     190.61 ug/L
                rep   2  Ba_         conc    1287.95 ug/L
                rep   2  Cu_         conc     198.03 ug/L
                rep   3  Ba_         conc    1278.37 ug/L
                rep   3  Cu_         conc     190.15 ug/L
58.056.4BH D
08/04/92 20:44
    Ba_         av    1282.89 ug/L         sd      4.812 %cv    0.38
    Cu_         av     192.93 ug/L         sd      4.423 %cv    2.29

08/04/92 20:47
58.056.8BH      rep   1  Ba_         conc     258.70 ug/L
                rep   1  Cu_         conc     107.37 ug/L
                rep   2  Ba_         conc     257.23 ug/L
                rep   2  Cu_         conc      91.12 ug/L
                rep   3  Ba_         conc     256.04 ug/L
                rep   3  Cu_         conc      96.67 ug/L
58.056.8BH
08/04/92 20:48
    Ba_         av     257.32 ug/L         sd      1.336 %cv    0.52
    Cu_         av      98.38 ug/L < 50x IDL   sd      8.263 %cv    8.40
                                  PB

08/04/92 20:50
58.056.8BH L    rep   1  Ba_         conc      46.35 ug/L
                rep   1  Cu_         conc       7.72 ug/L
                rep   2  Ba_         conc      48.10 ug/L
                rep   2  Cu_         conc       9.58 ug/L
                rep   3  Ba_         conc      47.12 ug/L
                rep   3  Cu_         conc       7.45 ug/L
58.056.8BH L
08/04/92 20:51
                                              D- 000200
```

```
   Ba_          av      47.19 ug/L          sd       0.877 %cv    1.86
   Cu_          av       8.25 ug/L          sd       1.157 %cv   14.02

08/04/92 20:54
58.056.12BH     rep    1  Ba_         conc     246.37 ug/L
                rep    1  Cu_         conc      40.76 ug/L
                rep    2  Ba_         conc     244.84 ug/L
                rep    2  Cu_         conc      57.77 ug/L
                rep    3  Ba_         conc     247.02 ug/L
                rep    3  Cu_         conc      43.11 ug/L
58.056.12BH
08/04/92 20:55
   Ba_          av     246.07 ug/L          sd       1.117 %cv    0.45
   Cu_          av      47.22 ug/L 42%      sd       9.217 %cv   19.52

08/04/92 20:57
CCV1            rep    1  Ba_         conc     500.71 ug/L
                rep    1  Cu_         conc     491.76 ug/L
                rep    2  Ba_         conc     496.65 ug/L
                rep    2  Cu_         conc     507.82 ug/L
                rep    3  Ba_         conc     495.59 ug/L
                rep    3  Cu_         conc     502.42 ug/L
CCV1
08/04/92 20:58
   Ba_          av     497.65 ug/L          sd       2.703 %cv    0.54
   Cu_          av     500.66 ug/L          sd       8.175 %cv    1.63

08/04/92 21:01
CCB1            rep    1  Ba_         conc      -2.36 ug/L
                rep    1  Cu_         conc     -10.26 ug/L
                rep    2  Ba_         conc      -2.91 ug/L
                rep    2  Cu_         conc      -7.80 ug/L
                rep    3  Ba_         conc      -2.07 ug/L
                rep    3  Cu_         conc      -7.68 ug/L
CCB1
08/04/92 21:02
   Ba_          av      -2.45 ug/L          sd       0.429 %cv   17.55
   Cu_          av      -8.58 ug/L          sd       1.455 %cv   16.95

08/04/92 21:04
ICSAF           rep    1  Ba_         conc      10.41 ug/L
                rep    1  Cu_         conc       2.33 ug/L
                rep    2  Ba_         conc      10.31 ug/L
                rep    2  Cu_         conc       2.08 ug/L
                rep    3  Ba_         conc      10.46 ug/L
                rep    3  Cu_         conc      -0.38 ug/L
ICSAF
08/04/92 21:05
   Ba_          av      10.39 ug/L          sd       0.077 %cv    0.74
   Cu_          av       1.34 ug/L          sd       1.494 %cv   111.2

08/04/92 21:08
ICSABF          rep    1  Ba_         conc     670.70 ug/L
                rep    1  Cu_         conc     417.63 ug/L
                rep    2  Ba_         conc     678.17 ug/L
                rep    2  Cu_         conc     413.14 ug/L
                rep    3  Ba_         conc     678.90 ug/L
                rep    3  Cu_         conc     415.88 ug/L
ICSABF
08/04/92 21:09
```

Ba_	av	675.92	ug/L	sd	4.534	%cv	0.67
Cu_	av	415.55	ug/L	sd	2.263	%cv	0.54

Element File: SE_MSA.GEL   Element: Se   Wavelength: 196.0
ate: 08/05/92   Time: 07:36   Slit: 2.0 L
ata File: E080592A.DAT   ID/Wt File: 21435.IDW   Lamp Current: 0
Technique: HGA   Calib. Type: Method of Add.   Energy: 62

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Se   ID: Blank   Seq. No.: 00001   A/S Pos.: 0   Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 0
eplicate 1   Time: 07:38
eak Area (A-s): 0.005   Peak Height (A): 0.005
ackground Pk Area (A-s): 0.166   Background Pk Height (A): 0.056
lank Corrected Pk Area (A-s): 0.005

uto-zero performed.

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Se   ID: 58.056.1FH   Seq. No.: 00002   A/S Pos.: 6   Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 10 from 6
Replicate 1   Time: 07:41
eak Area (A-s): 0.010   Peak Height (A): 0.006
ackground Pk Area (A-s): 0.133   Background Pk Height (A): 0.063
lank Corrected Pk Area (A-s): 0.005

e   ID: Addition 1   Seq. No.: 00003   A/S Pos.: 6   Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 6
eplicate 1   Time: 07:44
eak Area (A-s): 0.011   Peak Height (A): 0.007
ackground Pk Area (A-s): 0.088   Background Pk Height (A): 0.046
lank Corrected Pk Area (A-s): 0.006

e   ID: Addition 2   Seq. No.: 00004   A/S Pos.: 6   Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 6
eplicate 1   Time: 07:47
eak Area (A-s): 0.016   Peak Height (A): 0.008
ackground Pk Area (A-s): 0.091   Background Pk Height (A): 0.043
ank Corrected Pk Area (A-s): 0.011

Se   ID: Addition 3   Seq. No.: 00005   A/S Pos.: 6   Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 6
eplicate 1   Time: 07:50
eak Area (A-s): 0.022   Peak Height (A): 0.010
ckground Pk Area (A-s): 0.090   Background Pk Height (A): 0.035
ank Corrected Pk Area (A-s): 0.017

pansion >100 is not allowed. No calibration has occurred.
ID: 58.056.1FH   Seq. No.: 00002   A/S Pos.: 6   Date: 08/05/92

ncentration (ug/L): --------

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Se   ID: 58.056.5FH   Seq. No.: 00006   A/S Pos.: 7   Date: 08/05/92

dispensed: 20 from 0, 5 from 39, 10 from 7
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?eplicate 1 Time: 07:53
?eak Area (A-s): 0.021 Peak Height (A): 0.010
?ackground Pk Area (A-s): 0.078 Background Pk Height (A): 0.037
?lank Corrected Pk Area (A-s): 0.016

?e ID: Addition 1 Seq. No.: 00007 A/S Pos.: 7 Date: 08/05/92

?L dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 7
?eplicate 1 Time: 07:55
?eak Area (A-s): 0.024 Peak Height (A): 0.011
?ackground Pk Area (A-s): 0.077 Background Pk Height (A): 0.035
?lank Corrected Pk Area (A-s): 0.019

?e ID: Addition 2 Seq. No.: 00008 A/S Pos.: 7 Date: 08/05/92

?L dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 7
?eplicate 1 Time: 07:58
?eak Area (A-s): 0.031 Peak Height (A): 0.013
?ackground Pk Area (A-s): 0.075 Background Pk Height (A): 0.032
?lank Corrected Pk Area (A-s): 0.025

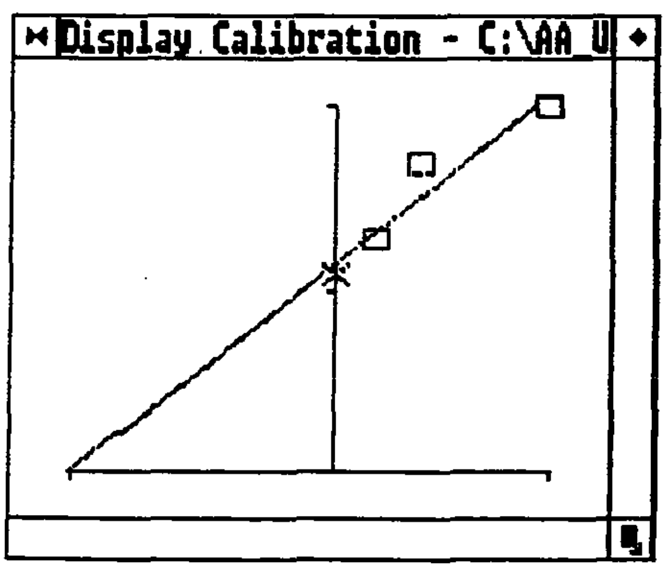
?e ID: Addition 3 Seq. No.: 00009 A/S Pos.: 7 Date: 08/05/92

?L dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 7
?eplicate 1 Time: 08:01
?eak Area (A-s): 0.035 Peak Height (A): 0.013
?ackground Pk Area (A-s): 0.085 Background Pk Height (A): 0.041
?lank Corrected Pk Area (A-s): 0.030

?e ID: 58.056.5FH Seq. No.: 00006 A/S Pos.: 7 Date: 08/05/92

?oncentration (ug/L): 62.0

?orrelation coefficient: 0.95779 Slope: 0.0003 Int: 0.017



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?e ID: 58.056.9FH Seq. No.: 00010 A/S Pos.: 8 Date: 08/05/92

0-000104
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µL dispensed: 20 from 0, 5 from 39, 10 from 8
Replicate 1 Time: 08:04
Peak Area (A-s): 0.019 Peak Height (A): 0.009
Background Pk Area (A-s): 0.069 Background Pk Height (A): 0.029
Blank Corrected Pk Area (A-s): 0.014

Se ID: Addition 1 Seq. No.: 00011 A/S Pos.: 8 Date: 08/05/92

µL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 8
Replicate 1 Time: 08:07
Peak Area (A-s): 0.021 Peak Height (A): 0.009
Background Pk Area (A-s): 0.096 Background Pk Height (A): 0.046
Blank Corrected Pk Area (A-s): 0.016

Se ID: Addition 2 Seq. No.: 00012 A/S Pos.: 8 Date: 08/05/92

µL dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 8
Replicate 1 Time: 08:10
Peak Area (A-s): 0.023 Peak Height (A): 0.011
Background Pk Area (A-s): 0.108 Background Pk Height (A): 0.053
Blank Corrected Pk Area (A-s): 0.018

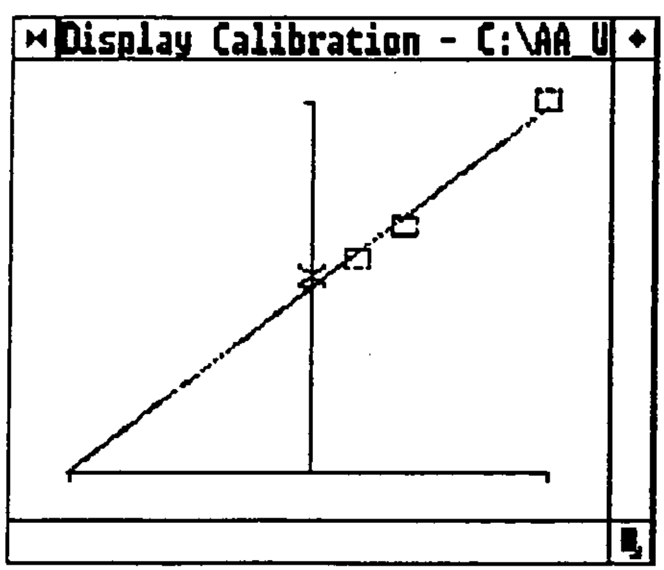
Se ID: Addition 3 Seq. No.: 00013 A/S Pos.: 8 Date: 08/05/92

µL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 8
Replicate 1 Time: 08:13
Peak Area (A-s): 0.032 Peak Height (A): 0.014
Background Pk Area (A-s): 0.107 Background Pk Height (A): 0.048
Blank Corrected Pk Area (A-s): 0.027

The standard additions calibration curve may not be linear.
Se ID: 58.056.9FH Seq. No.: 00010 A/S Pos.: 8 Date: 08/05/92

Concentration (ug/L): 50.6

Correlation coefficient: 0.99034 Slope: 0.0003 Int: 0.013



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3e ID: 58.056.4BH Seq. No.: 00014 A/S Pos.: 9 Date: 08/05/92

ıL dispensed: 20 from 0, 5 from 39, 10 from 9
Replicate 1 Time: 08:16
Peak Area (A-s): 0.019 Peak Height (A): 0.010
Background Pk Area (A-s): 0.267 Background Pk Height (A): 0.133
Blank Corrected Pk Area (A-s): 0.014

3e ID: Addition 1 Seq. No.: 00015 A/S Pos.: 9 Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 9
Replicate 1 Time: 08:19
Peak Area (A-s): 0.022 Peak Height (A): 0.011
Background Pk Area (A-s): 0.305 Background Pk Height (A): 0.166
Blank Corrected Pk Area (A-s): 0.017

3e ID: Addition 2 Seq. No.: 00016 A/S Pos.: 9 Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 9
Replicate 1 Time: 08:22
Peak Area (A-s): 0.026 Peak Height (A): 0.017
Background Pk Area (A-s): 0.306 Background Pk Height (A): 0.173
Blank Corrected Pk Area (A-s): 0.021

3e ID: Addition 3 Seq. No.: 00017 A/S Pos.: 9 Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 9
Replicate 1 Time: 08:24
Peak Area (A-s): 0.035 Peak Height (A): 0.023
Background Pk Area (A-s): 0.193 Background Pk Height (A): 0.102
Blank Corrected Pk Area (A-s): 0.030

3e ID: 58.056.4BH Seq. No.: 00014 A/S Pos.: 9 Date: 08/05/92

Concentration (ug/L): 44.0

Correlation coefficient: 0.99857 Slope: 0.0003 Int: 0.014
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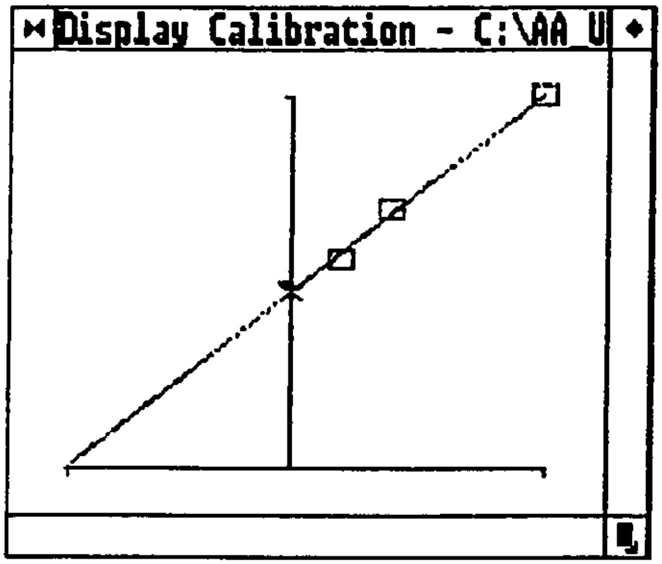

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e ID: 58.056.8BH Seq. No.: 00018 A/S Pos.: 10 Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 10 from 10
eplicate 1 Time: 08:27
eak Area (A-s): 0.022 Peak Height (A): 0.011
ackground Pk Area (A-s): 0.177 Background Pk Height (A): 0.071
lank Corrected Pk Area (A-s): 0.017

e ID: Addition 1 Seq. No.: 00019 A/S Pos.: 10 Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 10
plicate 1 Time: 08:30
eak Area (A-s): 0.027 Peak Height (A): 0.014
ckground Pk Area (A-s): 0.207 Background Pk Height (A): 0.085
ank Corrected Pk Area (A-s): 0.022

e ID: Addition 2 Seq. No.: 00020 A/S Pos.: 10 Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 10
eplicate 1 Time: 08:33
ak Area (A-s): 0.031 Peak Height (A): 0.021
ckground Pk Area (A-s): 0.237 Background Pk Height (A): 0.109
lank Corrected Pk Area (A-s): 0.026

ID: Addition 3 Seq. No.: 00021 A/S Pos.: 10 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 10
plicate 1 Time: 08:36
ak Area (A-s): 0.045 Peak Height (A): 0.024
ackground Pk Area (A-s): 0.223 Background Pk Height (A): 0.101
ank Corrected Pk Area (A-s): 0.040

e ID: 58.056.8BH Seq. No.: 00018 A/S Pos.: 10 Date: 08/05/92

ncentration (ug/L): 36.2

orrelation coefficient: 0.99984 Slope: 0.0005 Int: 0.017

D 000327
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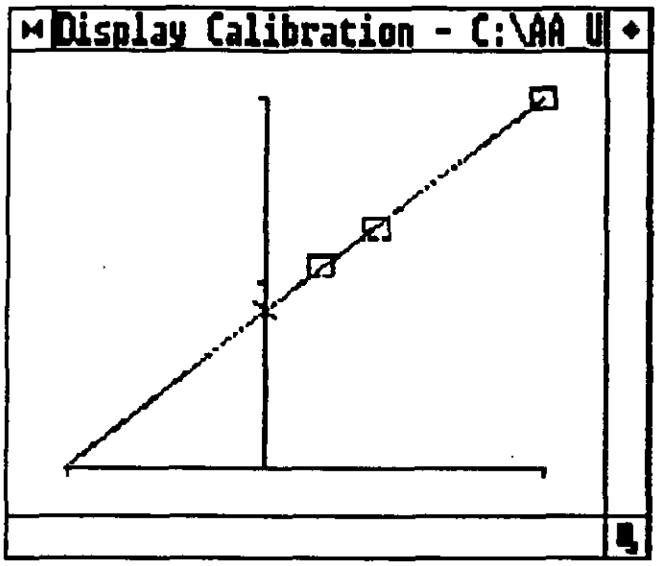


e ID: 58.056.12BH Seq. No.: 00022 A/S Pos.: 11 Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 10 from 11
eplicate 1 Time: 08:39
eak Area (A-s): 0.009 Peak Height (A): 0.007
ackground Pk Area (A-s): 0.244 Background Pk Height (A): 0.119
lank Corrected Pk Area (A-s): 0.004

e ID: Addition 1 Seq. No.: 00023 A/S Pos.: 11 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 11
eplicate 1 Time: 08:42
eak Area (A-s): 0.016 Peak Height (A): 0.009
ackground Pk Area (A-s): 0.300 Background Pk Height (A): 0.178
lank Corrected Pk Area (A-s): 0.011

e ID: Addition 2 Seq. No.: 00024 A/S Pos.: 11 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 11
eplicate 1 Time: 08:45
eak Area (A-s): 0.020 Peak Height (A): 0.010
ackground Pk Area (A-s): 0.301 Background Pk Height (A): 0.181
lank Corrected Pk Area (A-s): 0.015

e ID: Addition 3 Seq. No.: 00025 A/S Pos.: 11 Date: 08/05/92

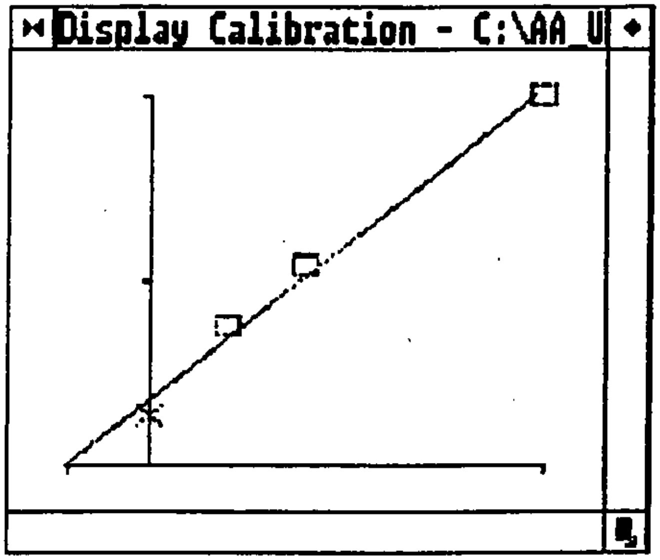
L dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 11
eplicate 1 Time: 08:48
eak Area (A-s): 0.033 Peak Height (A): 0.015
ackground Pk Area (A-s): 0.311 Background Pk Height (A): 0.196
lank Corrected Pk Area (A-s): 0.028

he standard additions calibration curve may not be linear.
e ID: 58.056.12BH Seq. No.: 00022 A/S Pos.: 11 Date: 08/05/92

oncentration (ug/L): 10.3

C- 000179

‐orrelation coefficient: 0.99481 Slope: 0.0005 Int: 0.005



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Se ID: Blank Seq. No.: 00026 A/S Pos.: 0 Date: 08/05/92

. dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate 1 Time: 09:20
Peak Area (A-s): 0.002 Peak Height (A): 0.004
ackground Pk Area (A-s): 0.037 Background Pk Height (A): 0.015
lank Corrected Pk Area (A-s): -0.003

uto-zero performed.

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ID: 58.056.1FH Seq. No.: 00027 A/S Pos.: 6 Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 10 from 6
Replicate 1 Time: 09:22
ak Area (A-s): 0.018 Peak Height (A): 0.010
ackground Pk Area (A-s): 0.131 Background Pk Height (A): 0.070
lank Corrected Pk Area (A-s): 0.016

ID: Addition 1 Seq. No.: 00028 A/S Pos.: 6 Date: 08/05/92

. dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 6
plicate 1 Time: 09:25
eak Area (A-s): 0.025 Peak Height (A): 0.012
ackground Pk Area (A-s): 0.232 Background Pk Height (A): 0.162
ank Corrected Pk Area (A-s): 0.023

Se ID: Addition 2 Seq. No.: 00029 A/S Pos.: 6 Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 6
eplicate 1 Time: 09:28
eak Area (A-s): 0.028 Peak Height (A): 0.014
ckground Pk Area (A-s): 0.295 Background Pk Height (A): 0.207
ank Corrected Pk Area (A-s): 0.026

C- 006100

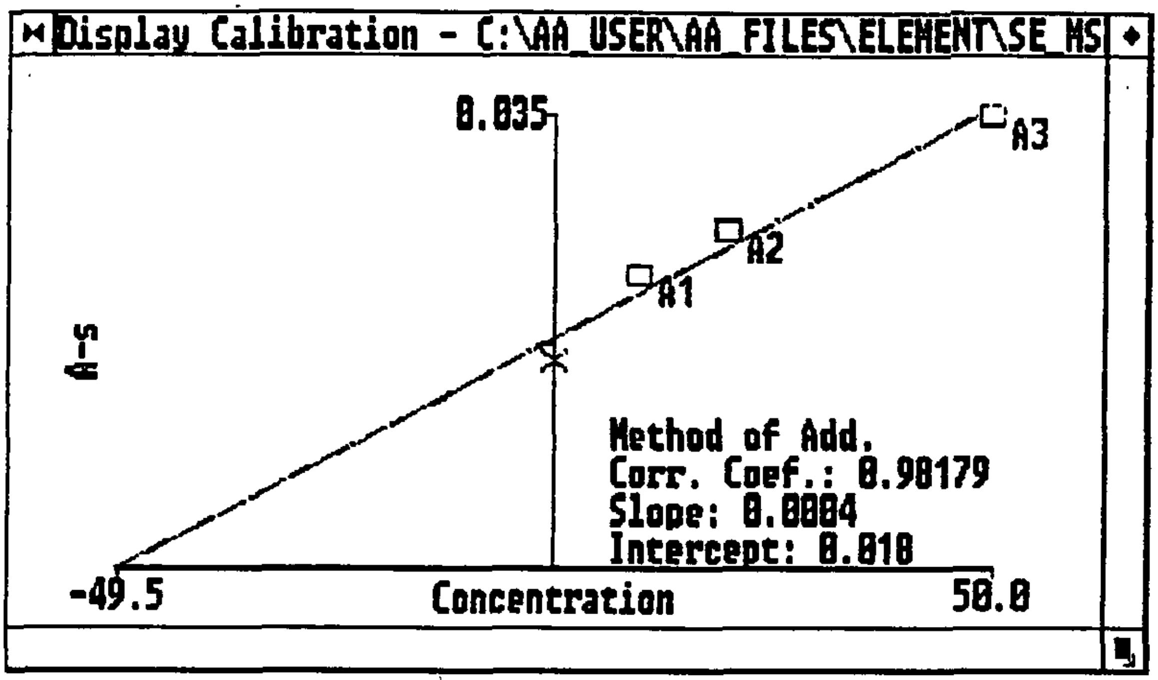
3e   ID: Addition 3   Seq. No.: 00030   A/S Pos.: 6   Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 6
eplicate 1   Time: 09:31
'eak Area (A-s): 0.037   Peak Height (A): 0.016
ackground Pk Area (A-s): 0.306   Background Pk Height (A): 0.222
lank Corrected Pk Area (A-s): 0.035

'he standard additions calibration curve may not be linear.
ɜe   ID: 58.056.1FH   Seq. No.: 00027   A/S Pos.: 6   Date: 08/05/92

oncentration (ug/L): 49.5 ✓ This is the better of 2 attempts.

orrelation coefficient: 0.98179   Slope: 0.0004   Int: 0.018



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e   ID: 58.056.5FH   Seq. No.: 00031   A/S Pos.: 7   Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 10 from 7
eplicate 1   Time: 09:34
'eak Area (A-s): 0.023   Peak Height (A): 0.010
ackground Pk Area (A-s): 0.170   Background Pk Height (A): 0.094
lank Corrected Pk Area (A-s): 0.021

e   ID: Addition 1   Seq. No.: 00032   A/S Pos.: 7   Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 7
eplicate 1   Time: 09:37
'eak Area (A-s): 0.026   Peak Height (A): 0.012
ackground Pk Area (A-s): 0.215   Background Pk Height (A): 0.110
lank Corrected Pk Area (A-s): 0.024

e   ID: Addition 2   Seq. No.: 00033   A/S Pos.: 7   Date: 08/05/92
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L dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 7
eplicate 1 Time: 09:40
eak Area (A-s): 0.028 Peak Height (A): 0.013
ackground Pk Area (A-s): 0.256 Background Pk Height (A): 0.151
lank Corrected Pk Area (A-s): 0.026

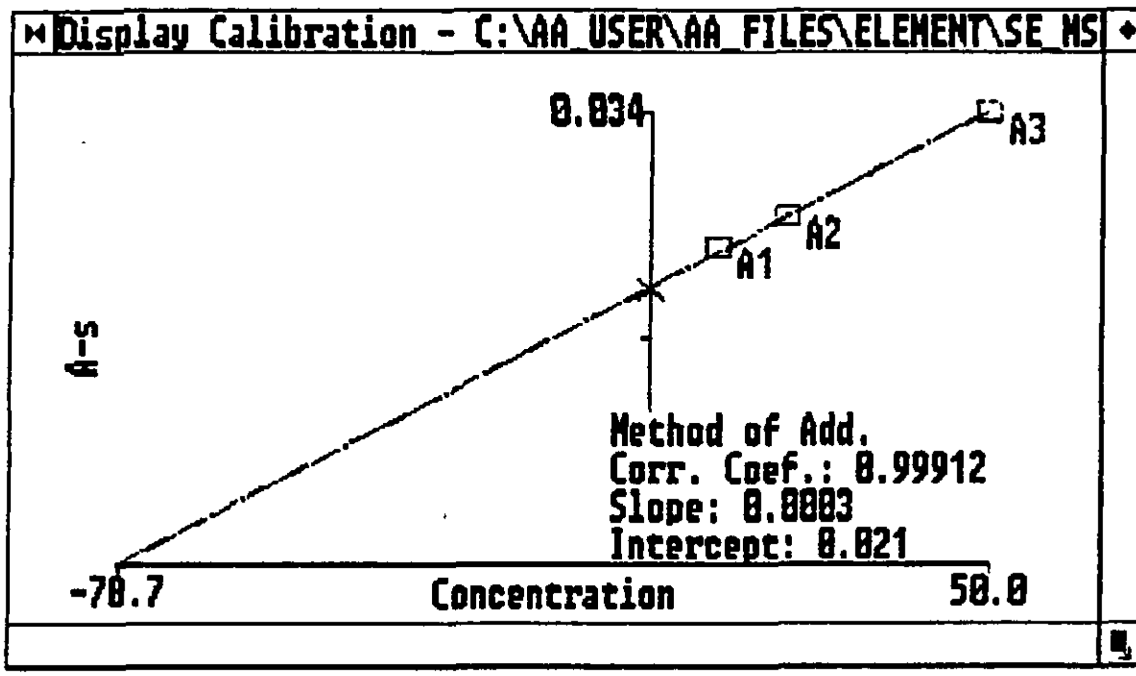
e ID: Addition 3 Seq. No.: 00034 A/S Pos.: 7 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 7
eplicate 1 Time: 09:43
eak Area (A-s): 0.036 Peak Height (A): 0.016
ackground Pk Area (A-s): 0.219 Background Pk Height (A): 0.116
lank Corrected Pk Area (A-s): 0.034

e ID: 58.056.5FH Seq. No.: 00031 A/S Pos.: 7 Date: 08/05/92

oncentration (ug/L): 78.7

orrelation coefficient: 0.99912 Slope: 0.0003 Int: 0.021



TL 58.056.

Element File: UNTITLED
Date: 08/05/92
Data File: E080592A.DAT
Technique: HGA

Element: Tl
Time: 10:03
ID/Wt File: 21435.IDW
Calib. Type: Method of Add.

Wavelength: 276.8
Slit: 0.7 L
Lamp Current: 20
Energy: 31

Tl ID: BLANK Seq. No.: 00035 A/S Pos.: 0 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate 1 Time: 10:05
Peak Area (A-s): -0.001 Peak Height (A): 0.018
Background Pk Area (A-s): 0.004 Background Pk Height (A): 0.022
Blank Corrected Pk Area (A-s): -0.001

Auto-zero performed.

Tl ID: 58.056.1FH Seq. No.: 00036 A/S Pos.: 6 Date: 08/05/92

uL dispensed: 20 from 0, 5 from 39, 10 from 6
Replicate 1 Time: 10:08
Peak Area (A-s): 0.011 Peak Height (A): 0.022
Background Pk Area (A-s): 0.013 Background Pk Height (A): 0.034
Blank Corrected Pk Area (A-s): 0.012

use Stagen addn

Tl ID: ADDITION 1 Seq. No.: 00037 A/S Pos.: 6 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 6
Replicate 1 Time: 10:11
Peak Area (A-s): 0.005 Peak Height (A): 0.019
Background Pk Area (A-s): 0.027 Background Pk Height (A): 0.030
Blank Corrected Pk Area (A-s): 0.006

Tl ID: ADDITION 2 Seq. No.: 00038 A/S Pos.: 6 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 6
Replicate 1 Time: 10:14
Peak Area (A-s): 0.001 Peak Height (A): 0.025
Background Pk Area (A-s): 0.039 Background Pk Height (A): 0.043
Blank Corrected Pk Area (A-s): 0.002

Tl ID: ADDITION 3 Seq. No.: 00039 A/S Pos.: 6 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 6
Replicate 1 Time: 10:17
Peak Area (A-s): 0.015 Peak Height (A): 0.028
Background Pk Area (A-s): 0.038 Background Pk Height (A): 0.041
Blank Corrected Pk Area (A-s): 0.016

Standard abs. & conc. values are not in the same order.
Tl ID: 58.056.1FH Seq. No.: 00036 A/S Pos.: 6 Date: 08/05/92

Concentration (ug/L): --------

Tl ID: 58.056.5FH Seq. No.: 00040 A/S Pos.: 7 Date: 08/05/92

uL dispensed: 20 from 0, 5 from 39, 10 from 7

Replicate 1 Time: 10:19
Peak Area (A-s): 0.003 Peak Height (A): 0.024
Background Pk Area (A-s): 0.050 Background Pk Height (A): 0.046
Blank Corrected Pk Area (A-s): 0.004

1 ID: ADDITION 1 Seq. No.: 00041 A/S Pos.: 7 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 7
Replicate 1 Time: 10:22
eak Area (A-s): 0.006 Peak Height (A): 0.023
Background Pk Area (A-s): 0.052 Background Pk Height (A): 0.068
Blank Corrected Pk Area (A-s): 0.007

1 ID: ADDITION 2 Seq. No.: 00042 A/S Pos.: 7 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 7
eplicate 1 Time: 10:25
Peak Area (A-s): 0.011 Peak Height (A): 0.035
Background Pk Area (A-s): 0.051 Background Pk Height (A): 0.056
lank Corrected Pk Area (A-s): 0.012

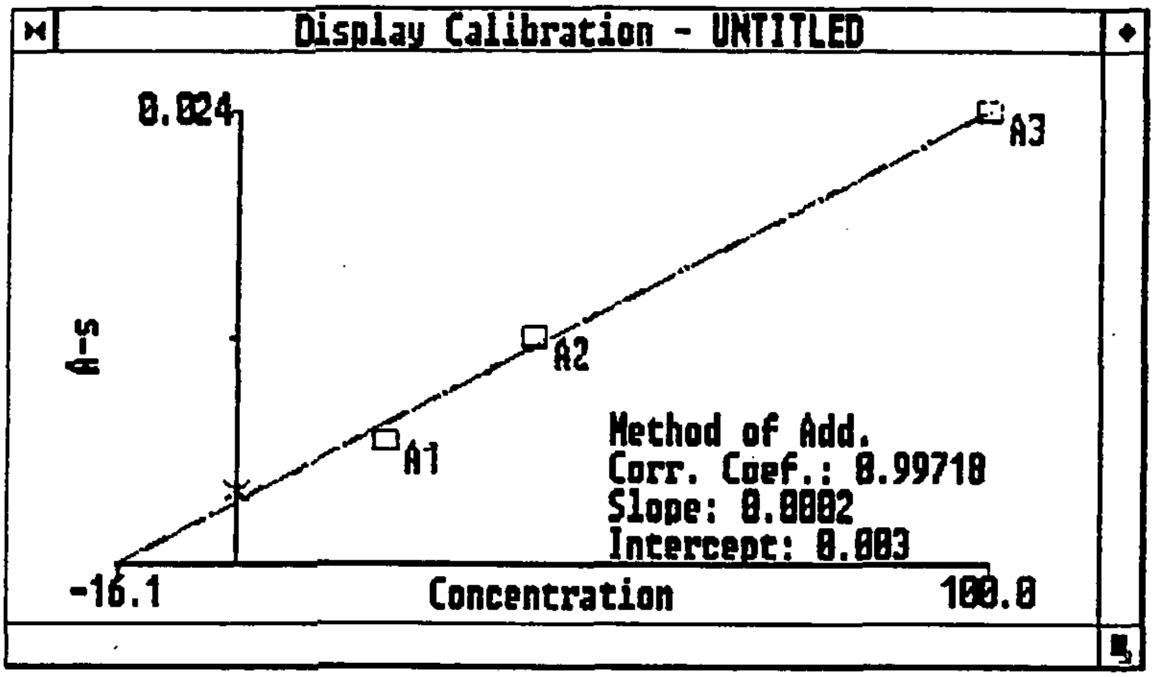
T1 ID: ADDITION 3 Seq. No.: 00043 A/S Pos.: 7 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 7
Replicate 1 Time: 10:28
Peak Area (A-s): 0.023 Peak Height (A): 0.037
ackground Pk Area (A-s): 0.066 Background Pk Height (A): 0.084
lank Corrected Pk Area (A-s): 0.024

he standard additions calibration curve may not be linear.
ID: 58.056.5FH Seq. No.: 00040 A/S Pos.: 7 Date: 08/05/92

Concentration (ug/L): 16.1

orrelation coefficient: 0.99718 ✓ Slope: 0.0002 Int: 0.003



T1 ID: 58.056.9FH Seq. No.: 00044 A/S Pos.: 8 Date: 08/05/92

µL dispensed: 20 from 0, 5 from 39, 10 from 8
Replicate 1 Time: 10:31
Peak Area (A-s): 0.006 Peak Height (A): 0.026
Background Pk Area (A-s): 0.068 Background Pk Height (A): 0.070
Blank Corrected Pk Area (A-s): 0.007

T1 ID: ADDITION 1 Seq. No.: 00045 A/S Pos.: 8 Date: 08/05/92

µL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 8
Replicate 1 Time: 10:34
Peak Area (A-s): 0.014 Peak Height (A): 0.034
Background Pk Area (A-s): 0.062 Background Pk Height (A): 0.073
Blank Corrected Pk Area (A-s): 0.015

T1 ID: ADDITION 2 Seq. No.: 00046 A/S Pos.: 8 Date: 08/05/92

µL dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 8
Replicate 1 Time: 10:37
Peak Area (A-s): 0.009 Peak Height (A): 0.029
Background Pk Area (A-s): 0.080 Background Pk Height (A): 0.086
Blank Corrected Pk Area (A-s): 0.010

T1 ID: ADDITION 3 Seq. No.: 00047 A/S Pos.: 8 Date: 08/05/92

µL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 8
Replicate 1 Time: 10:40
Peak Area (A-s): 0.026 Peak Height (A): 0.050
Background Pk Area (A-s): 0.091 Background Pk Height (A): 0.141
Blank Corrected Pk Area (A-s): 0.027

Standard abs. & conc. values are not in the same order.

C- 000114

Tl ID: 58.056.9FH Seq. No.: 00044 A/S Pos.: 8 Date: 08/05/92

Concentration (ug/L): --------

:lement File: TL_MSA.GEL   Element: Tl   Wavelength: 276.8
)ate: 08/05/92   Time: 10:45   Slit: 0.7 L
)ata File: E080592A.DAT   ID/Wt File: 21435.IDW   Lamp Current: 40
'echnique: HGA   Calib. Type: Method of Add.   Energy: 49

'1   ID: BLANK   Seq. No.: 00048   A/S Pos.: 0   Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 0
?eplicate 1   Time: 10:47
'eak Area (A-s): -0.000   Peak Height (A): 0.002
ıackground Pk Area (A-s): 0.004   Background Pk Height (A): 0.007
ılank Corrected Pk Area (A-s): 0.001

ıuto-zero performed.

'1   ID: 58.056.1FH   Seq. No.: 00049   A/S Pos.: 6   Date: 08/05/92

.L dispensed: 20 from 0, 5 from 39, 5 from 6
?eplicate 1   Time: 10:50
'eak Area (A-s): 0.005   Peak Height (A): 0.005
ıackground Pk Area (A-s): 0.036   Background Pk Height (A): 0.053
.lank Corrected Pk Area (A-s): 0.005

'1   ID: ADDITION 1   Seq. No.: 00050   A/S Pos.: 6   Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 6
?eplicate 1   Time: 10:53
'eak Area (A-s): 0.010   Peak Height (A): 0.011
ıackground Pk Area (A-s): 0.038   Background Pk Height (A): 0.079
ılank Corrected Pk Area (A-s): 0.010

'1   ID: ADDITION 2   Seq. No.: 00051   A/S Pos.: 6   Date: 08/05/92

.L dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 6
:eplicate 1   Time: 10:56
'eak Area (A-s): 0.017   Peak Height (A): 0.028
ıackground Pk Area (A-s): 0.123   Background Pk Height (A): 0.149
ılank Corrected Pk Area (A-s): 0.017

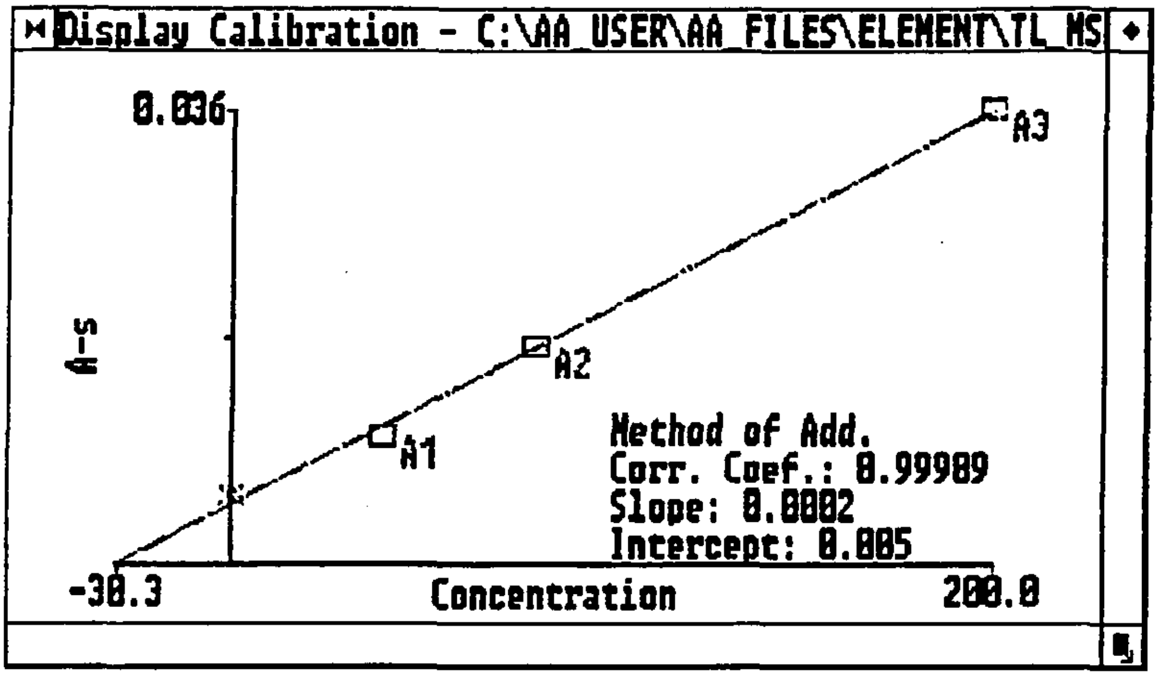
'1   ID: ADDITION 3   Seq. No.: 00052   A/S Pos.: 6   Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 4, 5 from 6
eplicate 1   Time: 10:59
eak Area (A-s): 0.035   Peak Height (A): 0.039
ackground Pk Area (A-s): 0.140   Background Pk Height (A): 0.182
lank Corrected Pk Area (A-s): 0.036

he standard additions calibration curve may not be linear.
1   ID: 58.056.1FH   Seq. No.: 00049   A/S Pos.: 6   Date: 08/05/92

'oncentration (ug/L): 30.3

orrelation coefficient: 0.99909   Slope: 0.0002   Int: 0.005



USE 1st ANALYSIS 8/10/92 RLC

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1 ID: 58.056.5FH USE Seq. No.: 00053 A/S Pos.: 7 Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 5 from 7
he background signal is changing during BOC measurement.
Replicate 1 Time: 11:02
eak Area (A-s): 0.000 Peak Height (A): 0.225
ackground Pk Area (A-s): -1.606 Background Pk Height (A): 0.216
lank Corrected Pk Area (A-s): 0.001

1 ID: ADDITION 1 Seq. No.: 00054 A/S Pos.: 7 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 7
Replicate 1 Time: 11:05
eak Area (A-s): 0.013 Peak Height (A): 0.013
Background Pk Area (A-s): 0.099 Background Pk Height (A): 0.143
Blank Corrected Pk Area (A-s): 0.014

1 ID: ADDITION 2 Seq. No.: 00055 A/S Pos.: 7 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 7
eplicate 1 Time: 11:08
eak Area (A-s): 0.020 Peak Height (A): 0.022
Background Pk Area (A-s): 0.103 Background Pk Height (A): 0.140
lank Corrected Pk Area (A-s): 0.020

T1 ID: ADDITION 3 Seq. No.: 00056 A/S Pos.: 7 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 4, 5 from 7
The background signal is changing during BOC measurement.
Replicate 1 Time: 11:11
eak Area (A-s): 0.086 Peak Height (A): 0.102
Background Pk Area (A-s): 0.447 Background Pk Height (A): 0.249
Blank Corrected Pk Area (A-s): 0.086
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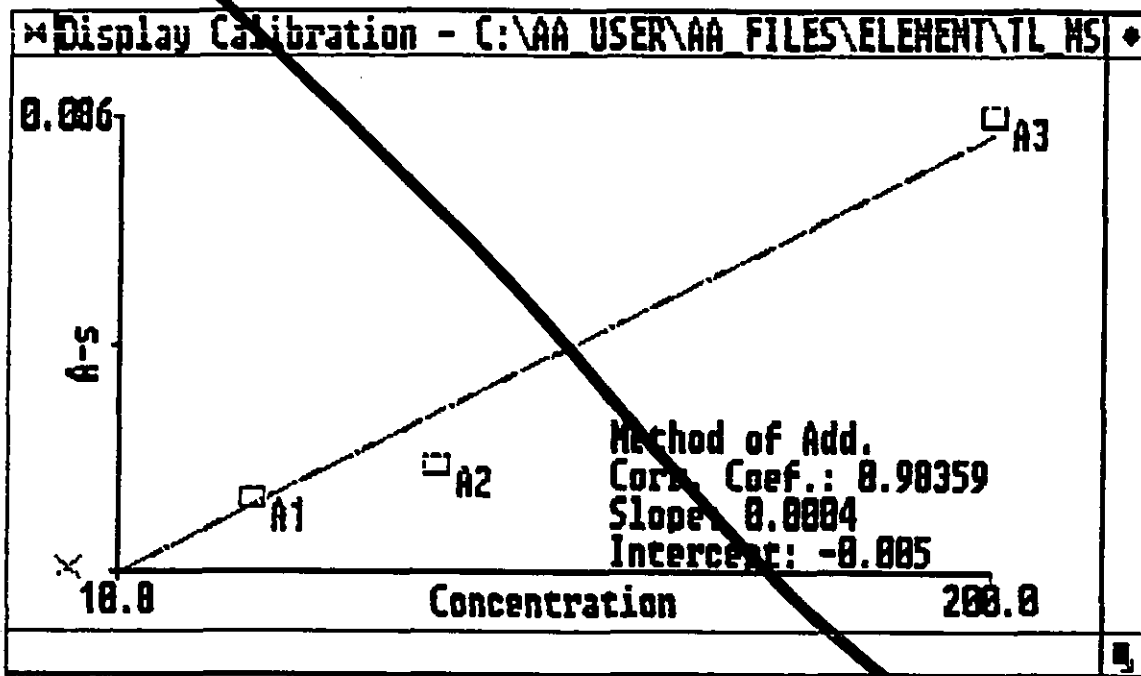
he standard additions calibration curve may not be linear.
1   ID: 58.056.5FH   Seq. No.: 00053   A/S Pos.: 7   Date: 08/05/92

oncentration (ug/L): -10.8
orrelation coefficient: 0.98359   Slope: 0.0004   Int: -0.005



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1   ID: 58.056.4BH   Seq. No.: 00057   A/S Pos.: 9   Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 5 from 9
eplicate 1   Time: 11:14
eak Area (A-s): 0.048   Peak Height (A): 0.125
ackground Pk Area (A-s): 0.027   Background Pk Height (A): 0.182
lank Corrected Pk Area (A-s): 0.048

1   ID: ADDITION 1   Seq. No.: 00058   A/S Pos.: 9   Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 9
he background signal is changing during BOC measurement.
eplicate 1   Time: 11:17
eak Area (A-s): 0.025   Peak Height (A): 0.127
ackground Pk Area (A-s): 0.030   Background Pk Height (A): 0.193
lank Corrected Pk Area (A-s): 0.026

1   ID: ADDITION 2   Seq. No.: 00059   A/S Pos.: 9   Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 9
eplicate 1   Time: 11:20
eak Area (A-s): 0.024   Peak Height (A): 0.027
ackground Pk Area (A-s): 0.049   Background Pk Height (A): 0.098
lank Corrected Pk Area (A-s): 0.024
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1   ID: BLANK   Seq. No.: 00060   A/S Pos.: 0   Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 0
eplicate 1   Time: 11:24
eak Area (A-s): 0.001   Peak Height (A): 0.002
ackground Pk Area (A-s): 0.005   Background Pk Height (A): 0.020
lank Corrected Pk Area (A-s): 0.001

uto-zero performed.

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1   ID: 58.056.9FH   Seq. No.: 00061   A/S Pos.: 8   Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 5 from 8
eplicate 1   Time: 11:27
eak Area (A-s): 0.009   Peak Height (A): 0.011
ackground Pk Area (A-s): 0.166   Background Pk Height (A): 0.204
lank Corrected Pk Area (A-s): 0.008

1   ID: ADDITION 1   Seq. No.: 00062   A/S Pos.: 8   Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 8
eplicate 1   Time: 11:30
eak Area (A-s): 0.015   Peak Height (A): 0.016
ackground Pk Area (A-s): 0.091   Background Pk Height (A): 0.172
ank Corrected Pk Area (A-s): 0.014

1   ID: ADDITION 2   Seq. No.: 00063   A/S Pos.: 8   Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 8
eplicate 1   Time: 11:33
eak Area (A-s): 0.020   Peak Height (A): 0.019
ckground Pk Area (A-s): 0.101   Background Pk Height (A): 0.107
ank Corrected Pk Area (A-s): 0.020

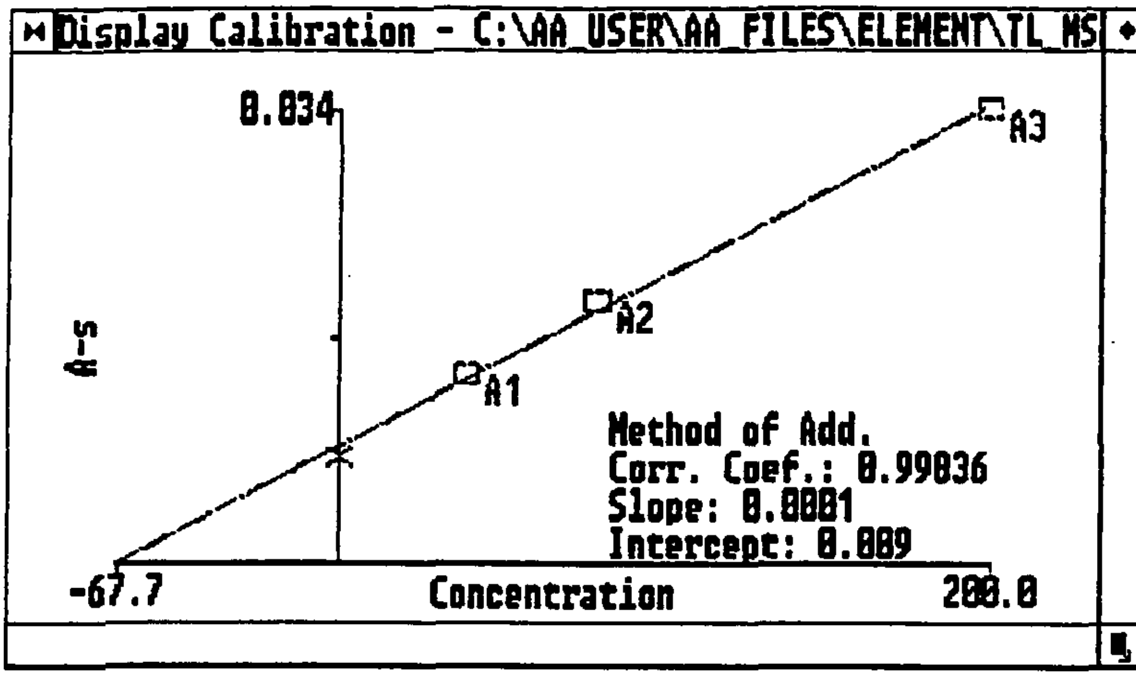
ID: ADDITION 3   Seq. No.: 00064   A/S Pos.: 8   Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 4, 5 from 8
eplicate 1   Time: 11:36
ak Area (A-s): 0.035   Peak Height (A): 0.035
ckground Pk Area (A-s): 0.131   Background Pk Height (A): 0.189
lank Corrected Pk Area (A-s): 0.034

e standard additions calibration curve may not be linear.
1   ID: 58.056.9FH   Seq. No.: 00061   A/S Pos.: 8   Date: 08/05/92

ncentration (ug/L): 67.7

orrelation coefficient: 0.99836   Slope: 0.0001   Int: 0.009



1 ID: 58.056.4BH Seq. No.: 00065 A/S Pos.: 9 Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 5 from 9
eplicate 1 Time: 11:39
eak Area (A-s): 0.003 Peak Height (A): 0.004
ackground Pk Area (A-s): 0.046 Background Pk Height (A): 0.131
lank Corrected Pk Area (A-s): 0.003

1 ID: ADDITION 1 Seq. No.: 00066 A/S Pos.: 9 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 9
eplicate 1 Time: 11:42
eak Area (A-s): 0.011 Peak Height (A): 0.012
ackground Pk Area (A-s): 0.048 Background Pk Height (A): 0.084
lank Corrected Pk Area (A-s): 0.010

1 ID: ADDITION 2 Seq. No.: 00067 A/S Pos.: 9 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 9
eplicate 1 Time: 11:45
eak Area (A-s): 0.019 Peak Height (A): 0.022
ackground Pk Area (A-s): 0.055 Background Pk Height (A): 0.117
lank Corrected Pk Area (A-s): 0.018

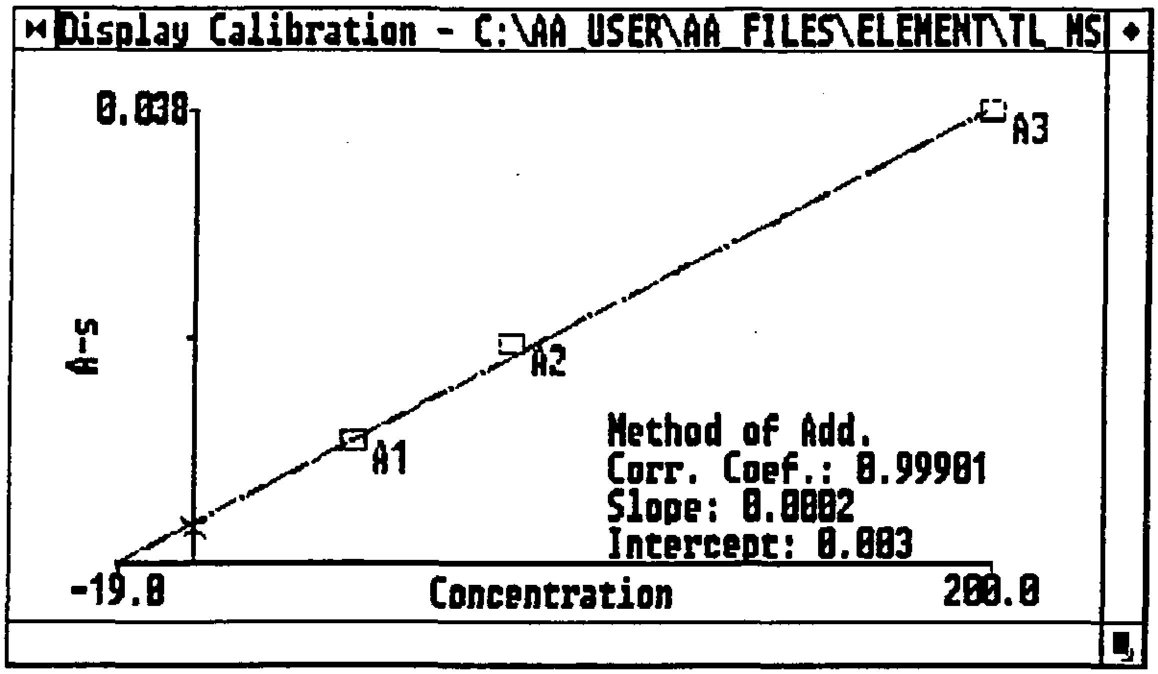
1 ID: ADDITION 3 Seq. No.: 00068 A/S Pos.: 9 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 4, 5 from 9
eplicate 1 Time: 11:47
eak Area (A-s): 0.038 Peak Height (A): 0.044
ackground Pk Area (A-s): 0.076 Background Pk Height (A): 0.129
lank Corrected Pk Area (A-s): 0.038

1 ID: 58.056.4BH Seq. No.: 00065 A/S Pos.: 9 Date: 08/05/92

Concentration (ug/L): 19.0

Correlation coefficient: 0.99901 Slope: 0.0002 Int: 0.003



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1 ID: 58.056.8BH Seq. No.: 00069 A/S Pos.: 10 Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 5 from 10
Replicate 1 Time: 11:51
Peak Area (A-s): 0.000 Peak Height (A): 0.002
Background Pk Area (A-s): 0.049 Background Pk Height (A): 0.105
Blank Corrected Pk Area (A-s): -0.000

1 ID: ADDITION 1 Seq. No.: 00070 A/S Pos.: 10 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 10
Replicate 1 Time: 11:53
Peak Area (A-s): 0.009 Peak Height (A): 0.010
Background Pk Area (A-s): 0.038 Background Pk Height (A): 0.082
Blank Corrected Pk Area (A-s): 0.009

1 ID: ADDITION 2 Seq. No.: 00071 A/S Pos.: 10 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 10
Replicate 1 Time: 11:56
Peak Area (A-s): 0.018 Peak Height (A): 0.021
Background Pk Area (A-s): 0.047 Background Pk Height (A): 0.071
Blank Corrected Pk Area (A-s): 0.018

1 ID: ADDITION 3 Seq. No.: 00072 A/S Pos.: 10 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 4, 5 from 10
Replicate 1 Time: 11:59
Peak Area (A-s): 0.038 Peak Height (A): 0.040

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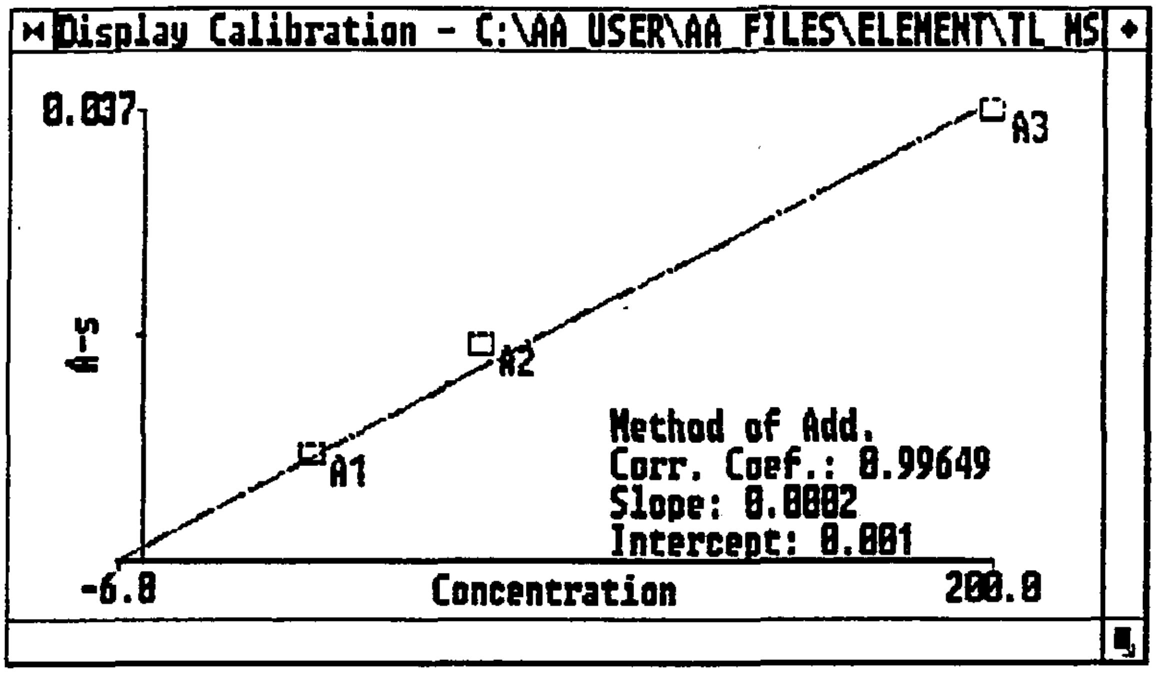
3ackground Pk Area (A-s): 0.064　　Background Pk Height (A): 0.103
3lank Corrected Pk Area (A-s): 0.037

The standard additions calibration curve may not be linear.
-1　ID: 58.056.8BH　Seq. No.: 00069　A/S Pos.: 10　Date: 08/05/92

oncentration (ug/L): 6.0

orrelation coefficient: 0.99649　Slope: 0.0002　Int: 0.001



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-1　ID: 58.056.12BH　Seq. No.: 00073　A/S Pos.: 11　Date: 08/05/92

uL dispensed: 20 from 0, 5 from 39, 5 from 11
Replicate 1　Time: 12:02
Peak Area (A-s): 0.001　Peak Height (A): 0.003
3ackground Pk Area (A-s): 0.037　Background Pk Height (A): 0.094
3lank Corrected Pk Area (A-s): 0.001

-1　ID: ADDITION 1　Seq. No.: 00074　A/S Pos.: 11　Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 11
The background signal is changing during BOC measurement.
Replicate 1　Time: 12:05
Peak Area (A-s): 0.010　Peak Height (A): 0.010
3ackground Pk Area (A-s): 0.053　Background Pk Height (A): 0.085
3lank Corrected Pk Area (A-s): 0.009

F1　ID: ADDITION 2　Seq. No.: 00075　A/S Pos.: 11　Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 11
Replicate 1　Time: 12:08
Peak Area (A-s): 0.017　Peak Height (A): 0.016
3ackground Pk Area (A-s): 0.036　Background Pk Height (A): 0.074

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Blank Corrected Pk Area (A-s): 0.016

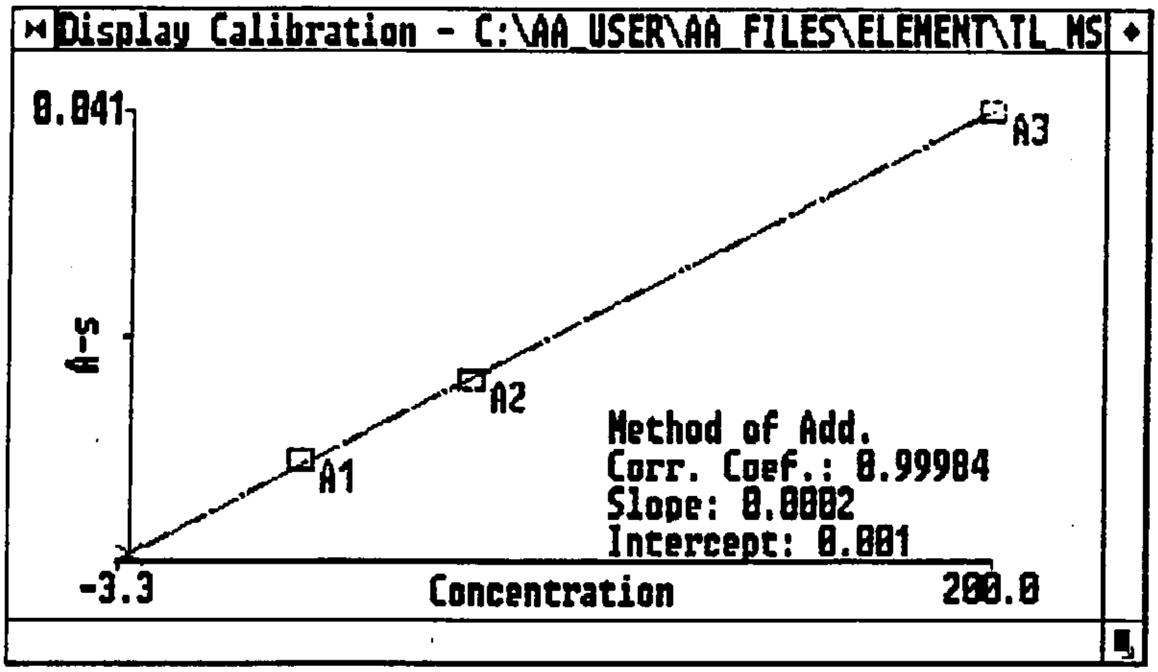
Tl ID: ADDITION 3 Seq. No.: 00076 A/S Pos.: 11 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 4, 5 from 11
Replicate 1 Time: 12:11
Peak Area (A-s): 0.042 Peak Height (A): 0.040
Background Pk Area (A-s): 0.059 Background Pk Height (A): 0.075
Blank Corrected Pk Area (A-s): 0.041

Tl ID: 58.056.12BH Seq. No.: 00073 A/S Pos.: 11 Date: 08/05/92

Concentration (ug/L): 3.3

Correlation coefficient: 0.99984 Slope: 0.0002 Int: 0.001



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Sb [redacted] Seq. No.: 00213 A/S Pos.: 38 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 38
Replicate 1 Time: 12:00
Peak Area (A-s): 0.017 Peak Height (A): 0.016
Background Pk Area (A-s): 0.156 Background Pk Height (A): 0.121
Blank Corrected Pk Area (A-s): -0.001

Sb ID: Standard 1 Seq. No.: 00214 A/S Pos.: 38 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 38
Replicate 1 Time: 12:04
Peak Area (A-s): 0.019 Peak Height (A): 0.019
Background Pk Area (A-s): 0.363 Background Pk Height (A): 0.186
Blank Corrected Pk Area (A-s): 0.002

Sb ID: Standard 2 Seq. No.: 00215 A/S Pos.: 38 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 38
Replicate 1 Time: 12:08
Peak Area (A-s): 0.021 Peak Height (A): 0.016
Background Pk Area (A-s): 0.180 Background Pk Height (A): 0.132
Blank Corrected Pk Area (A-s): 0.004

Sb ID: Standard 3 Seq. No.: 00216 A/S Pos.: 38 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 38
Replicate 1 Time: 12:12
Peak Area (A-s): 0.041 Peak Height (A): 0.021
Background Pk Area (A-s): 0.170 Background Pk Height (A): 0.127
Blank Corrected Pk Area (A-s): 0.024

Expansion >100 is not allowed. No calibration has occurred.
Sb ID: 58.139.7C Seq. No.: 00213 A/S Pos.: 38 Date: 08/07/92

Concentration (ug/L): --------

~~~~~~

Sb ID: Blank Seq. No.: 00217 A/S Pos.: 0 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 0
Replicate 1 Time: 12:17
Peak Area (A-s): 0.015 Peak Height (A): 0.016
Background Pk Area (A-s): 0.058 Background Pk Height (A): 0.112
Blank Corrected Pk Area (A-s): -0.003

Auto-zero performed.

8/10/92
FLC

~~~~~~

Sb ID: 58.056.1 FH X10 Seq. No.: 00218 A/S Pos.: 18 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 18
Replicate 1 Time: 12:21
Peak Area (A-s): 0.040 Peak Height (A): 0.027
Background Pk Area (A-s): 0.882 Background Pk Height (A): 0.433
Blank Corrected Pk Area (A-s): 0.025

Sb ID: Standard 1 Seq. No.: 00219 A/S Pos.: 18 Date: 08/07/92
~~~~~~

uL dispensed: 5 from 39, 20 from 2, 20 from 18
Replicate 1 Time: 12:24
Peak Area (A-s): 0.058 Peak Height (A): 0.042
Background Pk Area (A-s): 0.953 Background Pk Height (A): 0.421
Blank Corrected Pk Area (A-s): 0.043

Sb ID: Standard 2 Seq. No.: 00220 A/S Pos.: 18 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 18
Replicate 1 Time: 12:28
Peak Area (A-s): 0.083 Peak Height (A): 0.056
Background Pk Area (A-s): 0.981 Background Pk Height (A): 0.425
Blank Corrected Pk Area (A-s): 0.068

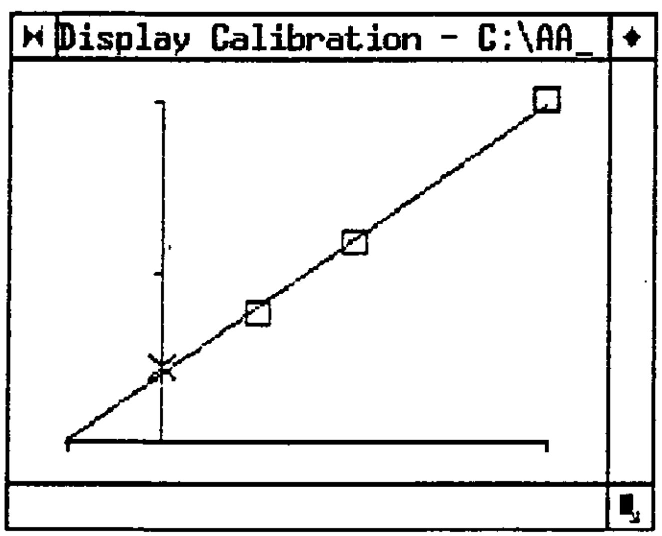
Sb ID: Standard 3 Seq. No.: 00221 A/S Pos.: 18 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 18
Replicate 1 Time: 12:32
Peak Area (A-s): 0.131 Peak Height (A): 0.076
Background Pk Area (A-s): 0.990 Background Pk Height (A): 0.440
Blank Corrected Pk Area (A-s): 0.116

The standard additions calibration curve may not be linear.
Sb ID: 58.056.1 FH X10 Seq. No.: 00218 A/S Pos.: 18 Date: 08/07/92

Concentration (ug/L): 49.2

Correlation coefficient: 0.99831 Slope: 0.0005 Int: 0.023



~~~~~~
Sb ID: 58.056.5 FH X10 Seq. No.: 00222 A/S Pos.: 19 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 19
Replicate 1 Time: 12:37
Peak Area (A-s): 0.058 Peak Height (A): 0.066
Background Pk Area (A-s): 1.042 Background Pk Height (A): 0.442
Blank Corrected Pk Area (A-s): 0.043

Sb ID: Standard 1 Seq. No.: 00223 A/S Pos.: 19 Date: 08/07/92
~~~~~~

uL dispensed: 5 from 39, 20 from 2, 20 from 19
Replicate 1 Time: 12:41
Peak Area (A-s): 0.067 Peak Height (A): 0.059
Background Pk Area (A-s): 1.044 Background Pk Height (A): 0.442
Blank Corrected Pk Area (A-s): 0.053

Sb ID: Standard 2 Seq. No.: 00224 A/S Pos.: 19 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 19
Replicate 1 Time: 12:45
Peak Area (A-s): 0.075 Peak Height (A): 0.061
Background Pk Area (A-s): 1.026 Background Pk Height (A): 0.430
Blank Corrected Pk Area (A-s): 0.060

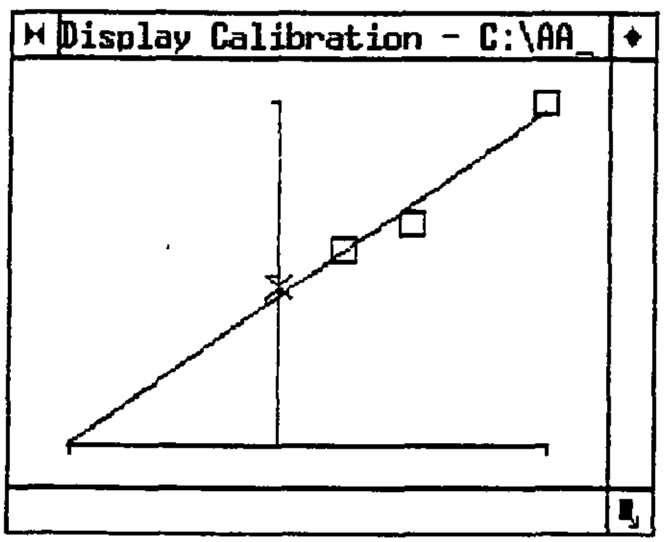
Sb ID: Standard 3 Seq. No.: 00225 A/S Pos.: 19 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 19
Replicate 1 Time: 12:49
Peak Area (A-s): 0.108 Peak Height (A): 0.078
Background Pk Area (A-s): 1.044 Background Pk Height (A): 0.452
Blank Corrected Pk Area (A-s): 0.093

The standard additions calibration curve may not be linear.
Sb ID: 58.056.5 FH X10 Seq. No.: 00222 A/S Pos.: 19 Date: 08/07/92

Concentration (ug/L): 159.8

Correlation coefficient: 0.98539 Slope: 0.0003 Int: 0.040



~~~~~~
Sb ID: 58.056.9 FH X10 Seq. No.: 00226 A/S Pos.: 20 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 20
Replicate 1 Time: 12:53
Peak Area (A-s): 0.087 Peak Height (A): 0.066
Background Pk Area (A-s): 1.126 Background Pk Height (A): 0.457
Blank Corrected Pk Area (A-s): 0.072

Sb ID: Standard 1 Seq. No.: 00227 A/S Pos.: 20 Date: 08/07/92
~~~~~~

uL dispensed: 5 from 39, 20 from 2, 20 from 20
Replicate 1 Time: 12:57
Peak Area (A-s): 0.094 Peak Height (A): 0.078
Background Pk Area (A-s): 1.116 Background Pk Height (A): 0.481
Blank Corrected Pk Area (A-s): 0.080

Sb ID: Standard 2 Seq. No.: 00228 A/S Pos.: 20 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 20
Replicate 1 Time: 13:01
Peak Area (A-s): 0.121 Peak Height (A): 0.155
Background Pk Area (A-s): 1.157 Background Pk Height (A): 0.626
Blank Corrected Pk Area (A-s): 0.106

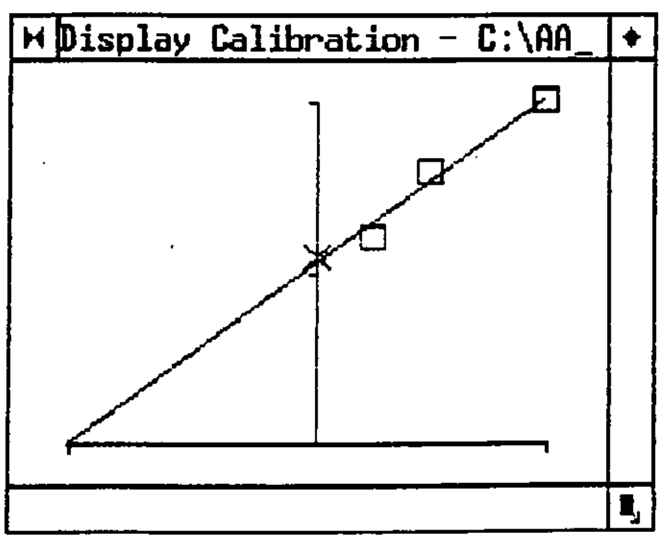
Sb ID: Standard 3 Seq. No.: 00229 A/S Pos.: 20 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 20
Replicate 1 Time: 13:05
Peak Area (A-s): 0.147 Peak Height (A): 0.105
Background Pk Area (A-s): 1.133 Background Pk Height (A): 0.504
Blank Corrected Pk Area (A-s): 0.133

The standard additions calibration curve may not be linear.
Sb ID: 58.056.9 FH X10 Seq. No.: 00226 A/S Pos.: 20 Date: 08/07/92

Concentration (ug/L): 220.6

Correlation coefficient: 0.98655 Slope: 0.0003 Int: 0.070



~~~~~~
Sb ID: 58.056.4 BH X10 Seq. No.: 00230 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 21
Replicate 1 Time: 13:10
Peak Area (A-s): 0.055 Peak Height (A): 0.065
Background Pk Area (A-s): 0.666 Background Pk Height (A): 0.470
Blank Corrected Pk Area (A-s): 0.040

Sb ID: Standard 1 Seq. No.: 00231 A/S Pos.: 21 Date: 08/07/92
~~~~~~

uL dispensed: 5 from 39, 20 from 2, 20 from 21
Replicate 1 Time: 13:14
Peak Area (A-s): 0.041 Peak Height (A): 0.065
Background Pk Area (A-s): 0.636 Background Pk Height (A): 0.434
Blank Corrected Pk Area (A-s): 0.026

Sb ID: Standard 2 Seq. No.: 00232 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 21
Replicate 1 Time: 13:18
Peak Area (A-s): 0.046 Peak Height (A): 0.054
Background Pk Area (A-s): 0.631 Background Pk Height (A): 0.419
Blank Corrected Pk Area (A-s): 0.032

Sb ID: Standard 3 Seq. No.: 00233 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 21
~~~~~~
Sb ID: Blank Seq. No.: 00234 A/S Pos.: 0 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 0
Replicate 1 Time: 13:24
Peak Area (A-s): 0.019 Peak Height (A): 0.037
Background Pk Area (A-s): 0.343 Background Pk Height (A): 0.397
Blank Corrected Pk Area (A-s): 0.005

Auto-zero performed.

~~~~~~
Sb ID: 58.056.4 BH X10 Seq. No.: 00235 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 21
Replicate 1 Time: 13:28
Peak Area (A-s): 0.016 Peak Height (A): 0.028
Background Pk Area (A-s): 0.580 Background Pk Height (A): 0.380
Blank Corrected Pk Area (A-s): -0.003

Sb ID: Standard 1 Seq. No.: 00236 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 21
Replicate 1 Time: 13:32
Peak Area (A-s): 0.021 Peak Height (A): 0.031
Background Pk Area (A-s): 0.593 Background Pk Height (A): 0.379
Blank Corrected Pk Area (A-s): 0.001

Sb ID: Standard 2 Seq. No.: 00237 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 21
Replicate 1 Time: 13:36
Peak Area (A-s): 0.026 Peak Height (A): 0.032
Background Pk Area (A-s): 0.595 Background Pk Height (A): 0.374
Blank Corrected Pk Area (A-s): 0.007

Sb ID: Standard 3 Seq. No.: 00238 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 21
Replicate 1 Time: 13:40
Peak Area (A-s): 0.040 Peak Height (A): 0.037
Background Pk Area (A-s): 0.596 Background Pk Height (A): 0.377

Blank Corrected Pk Area (A-s): 0.021 Done! very low slope

Expansion >100 is not allowed. No calibration has occurred.
Sb ID: 58.056.4 BH X10 Seq. No.: 00235 A/S Pos.: 21 Date: 08/07/92

Concentration (ug/L): ----- report < 50 µg/L further dilution won't help.

~~~~~~

Sb ID: [redacted] Seq. No.: 00239 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 24
Replicate 1 Time: 13:44
Peak Area (A-s): 0.027 Peak Height (A): 0.033
Background Pk Area (A-s): 0.783 Background Pk Height (A): 0.412
Blank Corrected Pk Area (A-s): 0.008

Sb ID: Standard 1 Seq. No.: 00240 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 24
Replicate 1 Time: 13:48
Peak Area (A-s): 0.033 Peak Height (A): 0.030
Background Pk Area (A-s): 0.663 Background Pk Height (A): 0.397
Blank Corrected Pk Area (A-s): 0.004

Sb ID: Standard 2 Seq. No.: 00241 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 24
~~~~~~
Sb ID: [redacted] Seq. No.: 00242 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 24
Replicate 1 Time: 13:56
Peak Area (A-s): 0.013 Peak Height (A): 0.017
Background Pk Area (A-s): 0.616 Background Pk Height (A): 0.366
Blank Corrected Pk Area (A-s): -0.006

Sb ID: Standard 1 Seq. No.: 00243 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 24
Replicate 1 Time: 14:00
Peak Area (A-s): 0.018 Peak Height (A): 0.025
Background Pk Area (A-s): 0.587 Background Pk Height (A): 0.361
Blank Corrected Pk Area (A-s): -0.001

Sb ID: Standard 2 Seq. No.: 00244 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 24
Replicate 1 Time: 14:04
Peak Area (A-s): 0.026 Peak Height (A): 0.028
Background Pk Area (A-s): 0.559 Background Pk Height (A): 0.347
Blank Corrected Pk Area (A-s): 0.007

Sb ID: Standard 3 Seq. No.: 00245 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 24
Replicate 1 Time: 14:08
Peak Area (A-s): 0.042 Peak Height (A): 0.027
Background Pk Area (A-s): 0.531 Background Pk Height (A): 0.328
Blank Corrected Pk Area (A-s): 0.023

Report < 50 µg/L 8/10/92

Low slope PLC

of Abs at No addn:

0.000[illegible]

Sb ID: Standard 2 Seq. No.: 00162 A/S Pos.: 22 Date: 08/07/92

Replicate 1 Time: 08:34
Peak Area (A-s): 0.054 Peak Height (A): 0.027
Background Pk Area (A-s): 0.586 Background Pk Height (A): 0.293
Blank Corrected Pk Area (A-s): 0.037

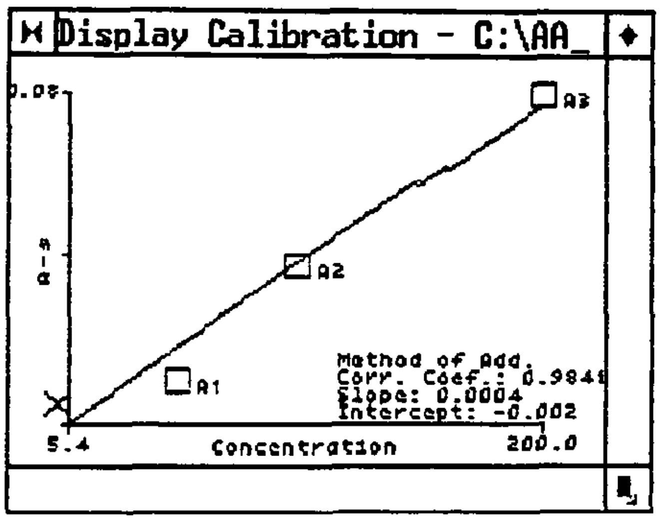
Sb ID: Standard 3 Seq. No.: 00163 A/S Pos.: 22 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 22
Replicate 1 Time: 08:38
Peak Area (A-s): 0.097 Peak Height (A): 0.041
Background Pk Area (A-s): 0.595 Background Pk Height (A): 0.300
Blank Corrected Pk Area (A-s): 0.079

The standard additions calibration curve may not be linear.
Sb ID: 58.056.8 BH Seq. No.: 00160 A/S Pos.: 22 Date: 08/07/92

Concentration (ug/L): -5.4 OK <IDL

Correlation coefficient: 0.98416 Slope: 0.0004 Int: -0.002



~~~~~~
Sb ID: 58.056.12 BH Seq. No.: 00164 A/S Pos.: 23 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 23
Replicate 1 Time: 08:42
Peak Area (A-s): 0.032 Peak Height (A): 0.029
Background Pk Area (A-s): 0.670 Background Pk Height (A): 0.338
Blank Corrected Pk Area (A-s): 0.015

Sb ID: Standard 1 Seq. No.: 00165 A/S Pos.: 23 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 23
Replicate 1 Time: 08:46
~~~~~~

Peak Area (A-s): 0.045 Peak Height (A): 0.029
Background Pk Area (A-s): 0.669 Background Pk Height (A): 0.348
Blank Corrected Pk Area (A-s): 0.028

Sb ID: Standard 2 Seq. No.: 00166 A/S Pos.: 23 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 23
Replicate 1 Time: 08:50
Peak Area (A-s): 0.070 Peak Height (A): 0.037
Background Pk Area (A-s): 0.669 Background Pk Height (A): 0.349
Blank Corrected Pk Area (A-s): 0.052

Sb ID: Standard 3 Seq. No.: 00167 A/S Pos.: 23 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 23
Replicate 1 Time: 08:54
Peak Area (A-s): 0.088 Peak Height (A): 0.050
Background Pk Area (A-s): 0.670 Background Pk Height (A): 0.354
Blank Corrected Pk Area (A-s): 0.070

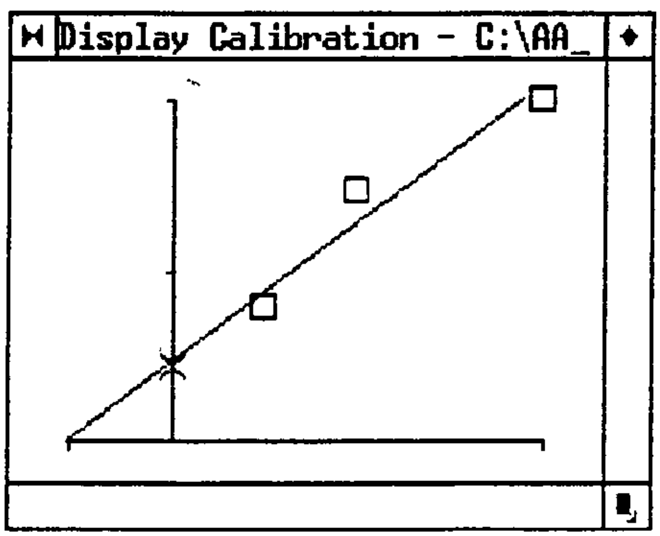
Sb ID: 58.056.12 BH Seq. No.: 00164 A/S Pos.: 23 Date: 08/07/92

Concentration (ug/L): 57.1 OK ✓

Correlation coefficient: 0.98063 Slope: 0.0003 Int: 0.016

This is the better of 2 trials

other was 41 µg/L @ 0.97



~~~~~~
Sb ID: 58.139.1AB Seq. No.: 00169 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 24
Replicate 1 Time: 09:03
Peak Area (A-s): 0.033 Peak Height (A): 0.028
Background Pk Area (A-s): 0.724 Background Pk Height (A): 0.391
Blank Corrected Pk Area (A-s): 0.016

Sb ID: Standard 1 Seq. No.: 00170 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 24
Replicate 1 Time: 09:07
~~~~~~

SB 58.056

Element File: SB_.GEL
Date: 08/06/92
Data File: 080692A.DAT
Technique: HGA

Element: Sb
Time: 13:56
ID/Wt File: 21422.IDW
Calib. Type: Nonlinear

Wavelength: 217.6
Slit: 0.70 L
Lamp Current: 20
Energy: 59

Sb ID: Blank Seq. No.: 00067 A/S Pos.: 0 Date: 08/06/92

No good conc too high Reanalyzing by MSA MB 8-7-92

uL dispensed: 5 from 39, 20 from 0
Replicate 1 Time: 13:59
Peak Area (A-s): -0.000 Peak Height (A): 0.008
Background Pk Area (A-s): 0.054 Background Pk Height (A): 0.084
Blank Corrected Pk Area (A-s): -0.000

uL dispensed: 5 from 39, 20 from 0
Replicate 2 Time: 14:01
Peak Area (A-s): 0.000 Peak Height (A): 0.008
Background Pk Area (A-s): 0.033 Background Pk Height (A): 0.060
Blank Corrected Pk Area (A-s): 0.000

Mean Pk Area (A-s): 0.000 SD: 0.0005 RSD(%): 762.30

Auto-zero performed.

Sb ID: Standard 1 Seq. No.: 00068 A/S Pos.: 1 Date: 08/06/92

uL dispensed: 5 from 39, 20 from 1
Replicate 1 Time: 14:04
Peak Area (A-s): 0.009 Peak Height (A): 0.008
Background Pk Area (A-s): 0.028 Background Pk Height (A): 0.054
Blank Corrected Pk Area (A-s): 0.009

uL dispensed: 5 from 39, 20 from 1
Replicate 2 Time: 14:07
Peak Area (A-s): 0.008 Peak Height (A): 0.009
Background Pk Area (A-s): 0.027 Background Pk Height (A): 0.055
Blank Corrected Pk Area (A-s): 0.008

Mean Pk Area (A-s): 0.008 SD: 0.0010 RSD(%): 12.14

Standard number 1 applied. [20.0]
Correlation coefficient: 1.00000 Slope: 0.0004

Sb ID: Standard 2 Seq. No.: 00069 A/S Pos.: 2 Date: 08/06/92

uL dispensed: 5 from 39, 20 from 2
Replicate 1 Time: 14:10
Peak Area (A-s): 0.020 Peak Height (A): 0.019
Background Pk Area (A-s): 0.025 Background Pk Height (A): 0.054
Blank Corrected Pk Area (A-s): 0.020
Concentration (ug/L): 47.6

uL dispensed: 5 from 39, 20 from 2
Replicate 2 Time: 14:13
Peak Area (A-s): 0.017 Peak Height (A): 0.014
Background Pk Area (A-s): 0.028 Background Pk Height (A): 0.050

Blank Corrected Pk Area (A-s): 0.017
Concentration (ug/L): 40.1

Mean Conc (ug/L): 43.9 SD: 5.29 RSD(%): 12.05

Standard number 2 applied. [50.0]
Correlation coefficient: 1.00000 Slope: 0.0005

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Sb ID: Standard 3 Seq. No.: 00070 A/S Pos.: 3 Date: 08/06/92

uL dispensed: 5 from 39, 20 from 3
Replicate 1 Time: 14:16
Peak Area (A-s): 0.035 Peak Height (A): 0.025
Background Pk Area (A-s): 0.035 Background Pk Height (A): 0.083
Blank Corrected Pk Area (A-s): 0.035
Concentration (ug/L): 123.3

uL dispensed: 5 from 39, 20 from 3
Replicate 2 Time: 14:19
Peak Area (A-s): 0.039 Peak Height (A): 0.028
Background Pk Area (A-s): 0.032 Background Pk Height (A): 0.069
Blank Corrected Pk Area (A-s): 0.039
Concentration (ug/L): 147.3

Mean Conc (ug/L): 134.9 SD: 16.98 RSD(%): 12.55

S-shaped calibration curve detected. 2-coef. equation used.
Standard number 3 applied. [100.0]
Correlation coefficient: 0.99783 Slope: 0.0004

~~~~~~

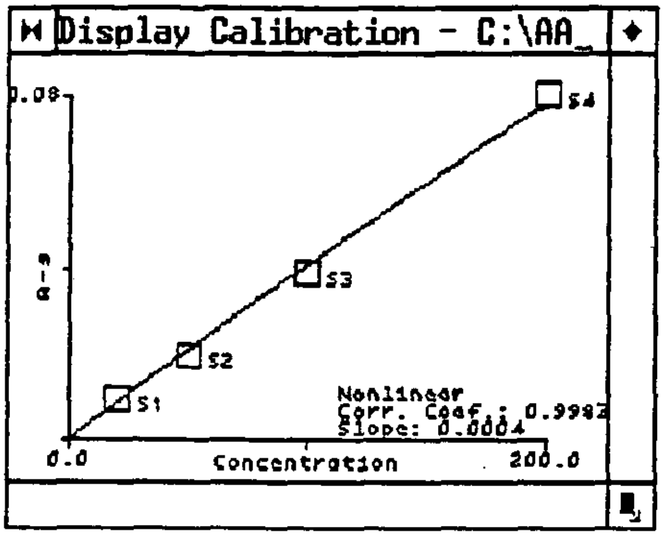
Sb ID: Standard 4 Seq. No.: 00071 A/S Pos.: 4 Date: 08/06/92

uL dispensed: 5 from 39, 20 from 4
Replicate 1 Time: 14:22
Peak Area (A-s): 0.075 Peak Height (A): 0.043
Background Pk Area (A-s): 0.038 Background Pk Height (A): 0.067
Blank Corrected Pk Area (A-s): 0.075
Concentration (ug/L): 248.7

uL dispensed: 5 from 39, 20 from 4
Replicate 2 Time: 14:25
Peak Area (A-s): 0.079 Peak Height (A): 0.046
Background Pk Area (A-s): 0.038 Background Pk Height (A): 0.073
Blank Corrected Pk Area (A-s): 0.079
Concentration (ug/L): 268.1

Mean Conc (ug/L): 258.3 SD: 13.69 RSD(%): 5.30

S-shaped calibration curve detected. 2-coef. equation used.
Standard number 4 applied. [200.0]
Correlation coefficient: 0.99838 Slope: 0.0004



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Sb   ID: ICV   Seq. No.: 00072   A/S Pos.: 3   Date: 08/06/92

uL dispensed: 10 from 0, 5 from 39, 20 from 3
Replicate 1   Time: 14:29
Peak Area (A-s): 0.042   Peak Height (A): 0.027
Background Pk Area (A-s): 0.065   Background Pk Height (A): 0.206
Blank Corrected Pk Area (A-s): 0.041
Concentration (ug/L): 107.8

QC sample is within range 80 - 120

~~~~~~

Sb   ID: ICB   Seq. No.: 00073   A/S Pos.: 0   Date: 08/06/92

uL dispensed: 10 from 0, 5 from 39, 20 from 0
Replicate 1   Time: 14:32
Peak Area (A-s): 0.001   Peak Height (A): 0.009
Background Pk Area (A-s): 0.064   Background Pk Height (A): 0.192
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L): 2.0

QC sample is within range -20 - 20

~~~~~~

Sb   ID: 58.056.1 FH   Seq. No.: 00074   A/S Pos.: 18   Date: 08/06/92

uL dispensed: 10 from 0, 5 from 39, 20 from 18
Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 14:35
Peak Area (A-s): 0.504   Peak Height (A): 0.402
Background Pk Area (A-s): 2.232   Background Pk Height (A): 0.739
Blank Corrected Pk Area (A-s): 0.504
Concentration (ug/L): 2346.5

~~~~~~

Sb   ID: 58.056.1 FH   Seq. No.: 00075   A/S Pos.: 18   Date: 08/06/92

uL dispensed: 25 from 0, 5 from 39, 5 from 18

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:38
Peak Area (A-s): 0.155 Peak Height (A): 0.156
Background Pk Area (A-s): 0.973 Background Pk Height (A): 0.550
Blank Corrected Pk Area (A-s): 0.155
Concentration (ug/L): 450.8 Corrected Conc (ug/L): 1803.2

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Sb ID: 58.056.1 FH Seq. No.: 00076 A/S Pos.: 18 Date: 08/06/92

uL dispensed: 15 from 0, 5 from 39, 10 from 3, 5 from 18
Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:41
Peak Area (A-s): 0.197 Peak Height (A): 0.198
Background Pk Area (A-s): 0.938 Background Pk Height (A): 0.531
Blank Corrected Pk Area (A-s): 0.197
Concentration (ug/L): 601.3 Corrected Conc (ug/L): 2405.1

Recovery is 300.9% (outside of specified limits)

~~~~~~

Sb ID: 58.056.4 BH Seq. No.: 00077 A/S Pos.: 21 Date: 08/06/92

uL dispensed: 10 from 0, 5 from 39, 20 from 21
Replicate 1 Time: 14:45
Peak Area (A-s): 0.030 Peak Height (A): 0.042
Background Pk Area (A-s): 0.942 Background Pk Height (A): 0.467
Blank Corrected Pk Area (A-s): 0.030
Concentration (ug/L): 78.2

~~~~~~

Sb ID: 58.056.4 BH Seq. No.: 00078 A/S Pos.: 21 Date: 08/06/92

uL dispensed: 5 from 39, 10 from 3, 20 from 21
Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:48
Peak Area (A-s): 0.091 Peak Height (A): 0.121
Background Pk Area (A-s): 0.964 Background Pk Height (A): 0.454
Blank Corrected Pk Area (A-s): 0.091
Concentration (ug/L): 247.2

Recovery is 337.9% (outside of specified limits)

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Sb ID: CCV Seq. No.: 00079 A/S Pos.: 3 Date: 08/06/92

uL dispensed: 10 from 0, 5 from 39, 20 from 3

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Sb ID: CCV Seq. No.: 00080 A/S Pos.: 3 Date: 08/06/92

uL dispensed: 10 from 0, 5 from 39, 20 from 3
Replicate 1 Time: 14:54
Peak Area (A-s): 0.021 Peak Height (A): 0.018
Background Pk Area (A-s): 0.103 Background Pk Height (A): 0.170
Blank Corrected Pk Area (A-s): 0.021
Concentration (ug/L): 53.1

QC sample is out of range 80 - 120
~~~~~~

Appendix E

Equipment Calibration Data Sheets

DEECO

Date 5/21/92 Calibrated by MBH

Nozzle ID No.	Nozzle Diameter[a] D_1 [redacted] (in)	D_2 [redacted] (in)	D_3 [redacted] (in)	ΔD_b [redacted] (in)	D_{avg} [redacted] (in)
1-G	.261	.262	.262	.001	.262
2-G	.262	.263	.263	.001	.263
3-G	.313	.313	.312	.001	.313
4-G	.310	.308	.310	.002	.309
5-G	.194	.195	.194	.001	.194
6-G	.197	.197	.197	.000	.197

where:

[a] $D_{1,2,3.}$ = three different nozzle diameters, mm (in); each diameter must be measured within (0.025 mm) 0.001 in.

[b] ΔD = maximum difference between any two diameters, mm (in), $\Delta D \leq$(0.10 mm) 0.004 in.

[c] D_{avg} = average of D_1, D_2, and D_3.

DEECO

Date 5-27-92 Calibrated by W.D. Baynitzky

Nozzle ID No.	Nozzle Diameter[a]				
	D_1 ~~mm~~ (in)	D_2 ~~mm~~ (in)	D_3 ~~mm~~ (in)	ΔD_b ~~mm~~ (in)	D_{avg} ~~mm~~ (in)
7-g	0.252	0.251	0.254	0.002	0.252
8-g	0.302	0.301	0.301	0.001	0.301

where:

[a] $D_{1,2,3.}$ = three different nozzle diameters, mm (in); each diameter must be measured within (0.025 mm) 0.001 in.

[b] ΔD = maximum difference between any two diameters, mm (in), $\Delta D \leq$(0.10 mm) 0.004 in.

[c] D_{avg} = average of D_1, D_2, and D_3.

DEECO

Date 6-9-92 Calibrated by W. D. Buynitzky

Nozzle ID No.	Nozzle Diameter[a]				
	D_1 ~~mm~~ (in)	D_2 ~~mm~~ (in)	D_3 ~~mm~~ (in)	ΔD_b ~~mm~~ (in)	D_{avg} ~~mm~~ (in)
2-g	0.258	0.259	0.258	0.001	0.258
1-g	0.263	0.263	0.262	0.001	0.263
5-g	0.259	0.258	0.260	0.002	0.259
6-g	0.196	0.195	0.194	0.002	0.195
7-g	0.310	0.310	0.311	0.001	0.310
9-g	0.195	0.194	0.195	0.001	0.195

where:

[a] $D_{1,2,3.}$ = three different nozzle diameters, mm (in); each diameter must be measured within (0.025 mm) 0.001 in.

[b] ΔD = maximum difference between any two diameters, mm (in), $\Delta D \leq$(0.10 mm) 0.004 in.

[c] D_{avg} = average of D_1, D_2, and D_3.

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? ✓ yes ______ no

Pitot tube openings damaged? ______ yes (explain below) X no

α_1 = 4 ° (<10°), α_2 = 1 ° (<10°), β_1 = 1 ° (<5°),
β_2 = 1 ° (<5°)

γ = 1 °, θ = 0 °, A = 1.052 ~~cm~~ (in.)

z = A sin γ = .0184 ~~cm~~ (in.); <0.32 cm (<1/8 in.),
w = A sin θ = 0 cm (in.); <.08 cm (<1/32 in.)

P_A .530 cm (in.) P_b .522 cm (in.)

D_t = .374 ~~cm~~ (in.)

Comments: P_A P_B [illegible]

Calibration required? ✓ yes ______ no

Note: Edges of opening did not appear dented, scratched etc

E-000004

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? ✓ yes ______ no

Pitot tube openings damaged? ______ yes (explain below) ✓ no

α_1 = 2 ° (<10°), α_2 = 1 ° (<10°), β_1 = 1 ° (<5°),
β_2 = 1 ° (<5°)

γ = 0 °, θ = 1 °, A = .689 cm (in.)

z = A sin γ = .012 cm (in.); <0.32 cm (<1/8 in.),
w = A sin θ = .012 cm (in.); <.08 cm (<1/32 in.)

P_A .344 cm (in.) P_b .345 cm (in.)

D_t = .25 cm (in.)

Comments: ______

PROBE # CR 5-5

Calibration required? ______ yes ✓ no

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? ✓ yes ______ no

Pitot tube openings damaged? ______ yes (explain below) ✓ no

α_1 = 0 ° (<10°), α_2 = 1 ° (<10°), β_1 = 2 ° (<5°),
β_2 = 1 ° (<5°)

γ = 1 °, θ = 0 °, A = .940 cm (in.)

$z = A \sin \gamma$ = .016 cm (in.); <0.32 cm (<1/8 in.),
$w = A \sin \theta$ = 0 cm (in.); <.08 cm (<1/32 in.)

P_A .46 cm (in.) P_b .48 cm (in.)

D_t = .375 cm (in.)

Comments:

PROBE # 6-C

6-14-92 JAB

Calibration required? ______ yes ✓ no

E-000006

7-13-92

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? ✓ yes ____ no

Pitot tube openings damaged? ____ yes (explain below) ✓ no

α_1 = 1 ° (<10°), α_2 = 1 ° (<10°), β_1 = 1 ° (<5°),
β_2 = 1 ° (<5°)

γ = 0 °, θ = 1 °, A = .936 cm (in.)

z = A sin γ = .00 cm (in.); <0.32 cm (<1/8 in.),
w = A sin θ = .014 cm (in.); <.08 cm (<1/32 in.)

P_A .467 cm (in.) P_b .467 cm (in.)

D_t = .375 cm (in.)

Comments:

PROBE #-6B 7-13-92

Calibration required? ____ yes ✓ no

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? ___✓___ yes _______ no

Pitot tube openings damaged? _____ yes (explain below) ___X___ no

α_1 = _______° (<10°), α_2 = _______° (<10°), β_1 = _______° (<5°),

β_2 = _______° (<5°)

γ = __0__°, θ = __1__°, A = __.717__ cm (in.)

z = A sin γ = __0°__ cm (in.); <0.32 cm (<1/8 in.),

w = A sin θ = __.012__ cm (in.); <.08 cm (<1/32 in.)

P_A __.358__ cm (in.) P_b __.359__ cm (in.)

D_t = __.25__ cm (in.)

Comments: __insp. by JAB 6-8-92__

__PROBE # CR4 Hex 2__

Calibration required? _____ yes ___✓___ no

DEECO

Date 7 Thermocouple No. Probe Thermocouple on Probe

Ambient temperature 91.4 °F Barometric pressure ______ in Hg ?

Calibration person ______ Reference: mercury-in-glass 91.4 °F

other ______ °F 7

Reference point number	Source[a] (specify)	Reference thermometer temperature, °F	Thermocouple potentiometer temperature, °F	Temperature[b] difference, %
1	Ice Bath	38.3/38.3/38.3 38.3°F	37/38/36 37°	.26%
2	Hot Bath	200/199.4/200 ~200	199/209/200 ~199.[illegible]	.05%

[a]Type of calibration system used.

[b]
$$\frac{ref\ temp,\ °F + 460) - (test\ thermom\ temp,\ °F + 460)}{ref\ temp,\ °F + 460} \times 100 = \qquad (<1.5\%)$$

E-000009

TEMPERATURE CALIBRATION DATA FORM

Date 6-8-92 Calibrator Name Clark Malone

Ambient Temperature 75.6 Barometric Pressure 29.81 in. Hg

Reference: Hg-in-glass

Other Fluke 52

Thermocouple No.	Source (specify)	Reference thermometer temperature °F	Thermocouple indicator temperature °F	Percent error %
Hex-1 CR-5	Ambient	75.6	75.4	.037
	Boil H_2O	211	210.8	.029
	Ice Bath	38.0	39.6	.321
Hex-2 CR-4	Ambient	77.0	78.4	.260
	Boiling H_2O	211.4	210.8	.029
	ICE Bath	37.0	37.0	0.0

Source: ice bath, ambient air, boiling H2O, hot oil

1.2

$$\% \text{ error} = \frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 1.5\%$$

iea

tempcal.wk1 E - 000010

TEMPERATURE CALIBRATION DATA FORM

Date 6-8-92 Calibrator Name James Clark Malone

Ambient Temperature 72.9 Barometric Pressure 29.81 in. Hg

Reference: Hg-in-glass

Other Fluke 52

Thermocouple No.	Source (specify)	Reference thermometer temperature °F	Thermocouple indicator temperature °F	Percent error %
5-C	ambient	79.4	79.2	.037
	Boiling H_2O	211.0	207.8	.476
	Ice Bath	37.8	37.4	.080
5-13	Ambient	71.8	71.4	.075
	Boiling H_2O	212.0	211.8	.029
	ICE Bath	36.8	36.4	.040

Source: ice bath, ambient air, boiling H2O, hot oil

$$\% \text{ error} = \frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 1.5\%$$

DRY GAS METER POST–TEST CALIBRATION
USING REFERENCE METER

DATE: 7-13-92 METER BOX NO. M-4
CALIBRATOR: JAB BAROMETRIC PRESSURE (Pb) 29.79 in. Hg
INITIAL CALIBRATION Y: .998 ΔH@: 1.992
PLANT: Solite PROJECT NO.: 1381-006
AVERAGE ΔH DURING TESTING: 1.5 MAXIMUM VACUUM 5 in. Hg

Orifice manometer setting* ΔH in. H2O	Volume reference meter Vw ft3	Volume dry gas meter Vd ft3	Temperatures Ref Meter Tw °F	Ref Meter Avg Tw °F	Dry gas meter Td °F	Dry gas meter Avg Td °F	Test duration θ min	Vacuum setting ** in. Hg	Calibr Factor Y	ΔH@ in. H2O
1.5	start 981.532 stop 988.092 diff 6.56	256.765 263.157 6.392	start 80 stop 78	539 79	start 83 stop 83	83 543	10	5	1.0376	2.029
1.5	start 988.092 stop 994.642 diff 6.55	263.157 269.561 6.404	start 78 stop 78	538 78	start 83 stop 84	83.5 543.5	10	5	1.0369	2.026
1.5	start 994.642 stop 1001.439 diff 6.797	269.561 276.202 6.641	start 78 stop 79	538.5 78.5	start 84 stop 85	84.5 544.5	10	5	1.0386	1.881
								Post–test Average***	1.038	1.979

* To be the average ΔH used during test series.
** To be the highest vacuum used during test series.
*** Post–test Y must be within the range, pre–test Y +/– 5% OK? ☐
Post–test ΔH@ should be within the range of the initial or pre–test ΔH@ +/– 0.20 in. H2O. OK? ☐

$$Y = \frac{(1.0073)(Vw)(Pbar)(Td + 460)}{(Vd)(Pbar + \Delta H / 13.6)(Tw + 460)}$$

$$\Delta H@ = \frac{(0.0317)(\Delta H)}{(Pbar)(Td + 460)} \left[\frac{(Tw + 460)(\theta)}{(Vw)}\right]^2$$

$$\text{Percent difference} = \frac{(\text{Avg inital Y}) - (\text{Post–test Y})}{(\text{Avg initial Y})}$$

dgmptcal.wk1

E-000012

THERMOCOUPLE DIGITAL INDICATOR
CALIBRATION DATA FORM

Date 7-13-92 Calibrator Name JAB
Indicator No. M-4 Probe Serial No. 007
Calibration Device No. CL 300 Manufacturer Omega

Test Point No.	Millivolt Signal	Equivalent Temperature deg. F	Digital Indicator Temperature deg. F	Percent difference %
		100	102	
		200	200	
		300	301	
		400	406	
		500	502	
		600	601	
		700	700	
		800	799	
		900	899	
		1100	1099	

Percent difference must be less than or equal to 0.5%

Percent Difference:

$$\frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 0.5\%$$

THERMOCOUPLE DIGITAL INDICATOR CALIBRATION DATA FORM

Date 7-13-92 Calibrator Name JAB

Indicator No. M-4 oven Serial No. OOM

Calibration Device No. CL 300 Manufacturer Omega

Test Point No.	Millivolt Signal	Equivalent Temperature deg. F	Digital Indicator Temperature deg. F	Percent difference %
	100		101	
	300		300	
	500		502	
	700		701	
	900		899	
	1100		1098	
	200		199	
	400		400	
	600		601	
	800		801	

Percent difference must be less than or equal to 0.5%

Percent Difference:

$$\frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 0.5\%$$

E-000014

THERMOCOUPLE DIGITAL INDICATOR
CALIBRATION DATA FORM

Date 7-17-92 Calibrator Name JAB

Indicator No. M-4 Readout Serial No. 007

Calibration Device No. CL 300 Manufacturer Omega

Test Point No.	Millivolt Signal	Equivalent Temperature deg. F	Digital Indicator Temperature deg. F	Percent difference %
		100	99	
		300	299	
		500	500	
		700	701	
		900	901	
		1100	1098	
		200	201	
		400	402	
		600	601	
		800	800	

Percent difference must be less than or equal to 0.5%

Percent Difference:

$$\frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 0.5\%$$

THERMOCOUPLE DIGITAL INDICATOR
CALIBRATION DATA FORM

Date 6-26-92 Calibrator Name JAB

Indicator No. M-11 Readout Serial No. 007

Calibration Device No. CL 300 Manufacturer Omega

Test Point No.	Millivolt Signal	Equivalent Temperature deg. F	Digital Indicator Temperature deg. F	Percent difference %
		100	99	
		200	199	
		300	300	
		400	398	
		500	502	
		600	599	
		700	701	
		800	801	
		900	900	
		1100	1101	

Percent difference must be less than or equal to 0.5%

Percent Difference:

$$\frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 0.5\%$$

THERMOCOUPLE DIGITAL INDICATOR
CALIBRATION DATA FORM

Date 6-26-92 Calibrator Name JAB

Indicator No. M-11 oven Serial No. 007

Calibration Device No. CI 300 Manufacturer Omega

Test Point No.	Millivolt Signal	Equivalent Temperature deg. F	Digital Indicator Temperature deg. F	Percent difference %
		100	99	
		200	198	
		300	300	
		400	401	
		500	499	
		600	598	
		700	700	
		800	802	
		900	901	
		1100	1099	

Percent difference must be less than or equal to 0.5%

Percent Difference:

$$\frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 0.5\%$$

THERMOCOUPLE DIGITAL INDICATOR
CALIBRATION DATA FORM

Date 6-26-92 Calibrator Name JAB

Indicator No. M-11 Probe Serial No. 007

Calibration Device No. CL 300 Manufacturer Omega

Test Point No.	Millivolt Signal	Equivalent Temperature. deg. F	Digital Indicator Temperature deg. F	Percent difference %
		100	102	
		200	199	
		300	299	
		400	403	
		500	502	
		600	602	
		700	700	
		800	801	
		900	899	
		1100	1098	

Percent difference must be less than or equal to 0.5%

Percent Difference:

$$\frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 0.5\%$$

DRY GAS METER POST-TEST CALIBRATION USING REFERENCE METER

DATE: 6/26/92 METER BOX NO. M11

CALIBRATOR: PS BAROMETRIC PRESSURE (Pb) 29.58 in. Hg

INITIAL CALIBRATION Y: 0.998 ΔH@: 2.08

PLANT: Solite PROJECT NO.: 1381-004-5

AVERAGE ΔH DURING TESTING: 2.5 MAXIMUM VACUUM 12.0 in. Hg

Orifice manometer setting* ΔH in. H2O	Volume reference meter Vw ft3	Volume dry gas meter Vd ft3	Temperatures: Ref Meter Tw °F	Ref Meter Avg Tw °F	Dry gas meter Td °F	Dry gas meter Avg Td °F	Test duration θ min	Vacuum setting ** in. Hg	Calibr Factor Y	ΔH@ in. H2O
2.5	start 869.628 stop 878.501 diff 8.873	920.414 929.320 8.906	start 80 stop 80	80	start 80 stop 82	81	10	12	0.999	1.81
2.5	start 878.501 stop 887.380 diff 8.879	929.320 938.245 8.925	start 80 stop 80	80	start 81 stop 83	82	10	12	0.999	1.80
2.5	start 887.380 stop 896.100 diff 8.720	938.245 947.015 8.770	start 80 stop 80	80	start 81 stop 84	82	10	12	0.999	1.87
								Post-test Average***	0.999	1.83
									1.000	1.879

* To be the average ΔH used during test series.

** To be the highest vacuum used during test series.

*** Post-test Y must be within the range, pre-test Y +/- 5% OK? ☐

Post-test ΔH@ should be within the range of the initial or pre-test ΔH@ +/- 0.20 in. H2O. OK? ☐

$$Y = \frac{\overset{1.0073}{\cancel{(1.006)}}\,(Vw)(Pbar)(Td + 460)}{(Vd)(Pbar + \Delta H / 13.6)(Tw + 460)}$$

$$\Delta H@ = \frac{(0.0317)(\Delta H)}{(Pbar)(Td + 460)}\left[\frac{(Tw + 460)(\theta)}{(Vw)\underset{1.0073}{\cancel{(1.006)}}}\right]^2$$

$$\text{Percent difference} = \frac{(\text{Avg inital } Y) - (\text{Post-test } Y)}{(\text{Avg initial } Y)}$$

gmptcal.wk1

E-000019

DRY GAS METER POST-TEST CALIBRATION
USING REFERENCE METER

DATE: 7-13-92 METER BOX NO. M-3

CALIBRATOR: JAB BAROMETRIC PRESSURE (Pb) 29.79 in. Hg

INITIAL CALIBRATION Y: 1.0 ΔH@: 1.935

PLANT: Solite PROJECT NO.: 1381-004

AVERAGE ΔH DURING TESTING: 1.5 MAXIMUM VACUUM 4" in. Hg

Orifice manometer setting* ΔH in. H2O	Volume reference meter Vw ft3	Volume dry gas meter Vd ft3	Temperatures: Ref Meter Tw °F	Ref Meter Avg Tw °F	Dry gas meter Td °F	Dry gas meter Avg Td °F	Test duration θ min	Vacuum setting ** in. Hg	Calibr Factor Y	ΔH@ in. H2O
1.5	start 958.904 stop 965.077 diff 6.173	135.786 142.061 6.275	start 77 stop 77	77	start 82 stop 83	82.5	10	5	.9924	2.277
1.5	start 965.077 stop 971.242 diff 6.165	142.061 148.342 6.281	start 77 stop 77	77	start 83 stop 84	83.5	10	5	.9969	2.278
1.5	start 971.242 stop 977.394 diff 6.152	148.342 154.612 6.270	start 77 stop 77	77	start 84 stop 84	84	10	5	.9975	2.286
							Post-test Average***		.997	2.280

used 1.935

* To be the average ΔH used during test series.

** To be the highest vacuum used during test series.

*** Post-test Y must be within the range, pre-test Y +/- 5% OK? ☐

Post-test ΔH@ should be within the range of the initial or pre-test ΔH@ +/- 0.20 in. H2O. OK? ☐

$$Y = \frac{(1.0073)(Vw)(Pbar)(Td + 460)}{(Vd)(Pbar + \Delta H / 13.6)(Tw + 460)}$$

$$\Delta H@ = \frac{(0.0317)(\Delta H)}{(Pbar)(Td + 460)} \left[\frac{(Tw + 460)(\theta)}{(Vw)}\right]^2$$

$$\text{Percent difference} = \frac{(\text{Avg inital Y}) - (\text{Post-test Y})}{(\text{Avg initial Y})}$$

gmptcal.wk1

E- 000020

Appendix F

Test Participants

Test Participants

Industrial & Environmental Analysts

J. Bacik - Environmental Technician
G. Bowser - Environmental Technician
G. Bright - CEM
C. Outlaw - Sample Recovery
C. Malone - Environmental Technician

DEECO, Inc.

W. DeWees - Project Leader/Process Sampler
W. Buynitzky - Sample Recovery

Solite Corporation

D. Burns - Solite Coordinator

DESCRIPTION OF ABBREVIATIONS

ICV=Initial Calibration Verification
ICB=Initial Calibration Blank
CCV=Continuing Calibration Verification
CCB=Continuing Calibration Blank
PBW=Preparation Blank Water
PBS=Preparation Blank Soil
LCS=Laboratory Control Spike
ICSA=Interference Check Sample(Solution A) I=Initial F=Final
ICSAB=Interference Check Sample(Solution AB) I=Initial F=Final
Solution A contains common interferents, while Solution AB contains the interferents plus the analyte in question.
CRDL=Contract Required Detection Limit (for CLP)
IDL=Instrument Detection Limit
CRI=CRDL Standard for ICP I=Initial F=Final
CRA=CRDL Standard for AA I=Initial F=Final
%RPD=Relative Percent Difference
%REC=% Recovery
SPK=Spike
AMT=Amount
BLK=Blank
MSA=Method of Standard Additions

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Ag
ug/L IDL: 7

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Ag	.33020	14.1650	196	196	100	1	1.42		.2365	5.99
KY-1-INLET FH(D)	58.056.1FH D	Ag	.23750	7.7430	196	196	100	1	.774	58.6%	.2365	3.27
KY-1-INLET BH	58.056.4BH	Ag	.20300	5.3560	500	400	100	1	< .875			
KY-1-INLET BH(D)	58.056.4BH D	Ag	.21300	6.0490	500	400	100	1	< .875	N/A		
KY-2-INLET FH	58.056.5FH	Ag	.33720	14.6440	196	196	100	1	1.46		.1718	8.52
KY-2-INLET FH(L)	58.056.5FH L	Ag	.25360	8.8580	196	196	100	5	4.43		.1718	25.8
KY-2-INLET BH	58.056.8BH	Ag	1.84020	118.7250	460	360	100	1	15.2			
KY-2-INLET BH(L)	58.056.8BH L	Ag	.40250	19.1720	460	360	100	5	12.2			
KY-3-INLET FH	58.056.9FH	Ag	.36460	16.5440	193	193	100	1	1.65		.2178	7.60
KY-3-INLET BH	58.056.12BH	Ag	.48520	24.8960	480	380	100	1	3.14			

STD BLK	Ag	.15250	0.0000
STD 1=25ug/L	Ag	.49000	25.0000
STD 2=100ug/L	Ag	1.54520	100.0000
STD 3=250ug/L	Ag	3.71550	250.0000
STD 4=500ug/L	Ag	7.36130	500.0000
CHECK HS	Ag	7.41980	505.0930
ICV=250ug/L	Ag	3.79950	254.4010
ICB	Ag	.13540	.6740
ICSAI	Ag	.13720	.7980
ICSABI	Ag	14.17490	972.8560
CCV1	Ag	3.82570	256.2130
CCB1	Ag	.09740	-1.9550
ICSAF	Ag	.14550	1.3710
ICSABF	Ag	14.53730	997.9520

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: As
ug/L IDL: 200

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	As	4.83860	15766.6130	196	196	100	1	1,577		.2365	6,667
KY-1-INLET FH(D)	58.056.1FH D	As	5.19120	16924.4880	196	196	100	1	1,692	7.08%	.2365	7,156
KY-1-INLET BH	58.056.4BH	As	1.27470	4065.1690	500	400	100	1	508			
KY-1-INLET BH(D)	58.056.4BH D	As	1.21700	3875.8680	500	400	100	1	484	4.77%		
KY-2-INLET FH	58.056.5FH	As	8.32840	27224.8730	196	196	100	1	2,722		.1718	15,847
KY-2-INLET FH(L)	58.056.5FH L	As	1.82620	5875.8390	196	196	100	5	2,938		.1718	17,101
KY-2-INLET BH	58.056.8BH	As	.19950	534.9340	460	360	100	1	68.4			
KY-2-INLET BH(L)	58.056.8BH L	As	.09840	203.1710	460	360	100	5	130			
KY-3-INLET FH	58.056.9FH	As	11.89920	38949.0310	193	193	100	1	3,895		.2178	17,883
KY-3-INLET BH	58.056.12BH	As	.23970	666.9830	480	380	100	1	84.3			

STD BLK	As	.06680	0.0000
STD 1=250ug/L	As	.09800	250.0000
STD 2=1000ug/L	As	.32500	1000.0000
STD 3=2500ug/L	As	.79130	2500.0000
STD 4=5000ug/L	As	1.56670	5000.0000
CHECK HS	As	1.44600	4627.5230
ICV=2500ug/L	As	.75840	2370.0390
ICB	As	.08160	147.7580
ICSAI	As	.03450	-6.6420
ICSABI	As	.29860	860.2730
CCV1	As	.78440	2455.4730
CCB1	As	.06890	106.3340
ICSAF	As	.05150	49.0230
ICSABF	As	.32030	931.7130

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Ba
ug/L IDL: 20

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Ba	315.98390	31697.9750	196	196	100	1	3,170		.2365	13,403
KY-1-INLET FH(D)	58.056.1FH D	Ba	316.31520	31731.2210	196	196	100	1	3,173	.10%	.2365	13,417
KY-1-INLET BH	58.056.4BH	Ba	12.93170	1293.1400	500	400	100	1	162			
KY-1-INLET BH(D)	58.056.4BH D	Ba	12.86820	1286.7690	500	400	100	1	161	.49%		
KY-2-INLET FH	58.056.5FH	Ba	272.20710	27305.9080	196	196	100	1	2,731		.1718	15,894
KY-2-INLET FH(L)	58.056.5FH L	Ba	54.42800	5456.4100	196	196	100	5	2,728		.1718	15,880
KY-2-INLET BH	58.056.8BH	Ba	2.62640	259.2150	460	360	100	1	33.1			
KY-2-INLET BH(L)	58.056.8BH L	Ba	.51570	47.4510	460	360	100	5	30.3			
KY-3-INLET FH	58.056.9FH	Ba	362.84180	36399.1720	193	193	100	1	3,640		.2178	16,712
KY-3-INLET BH	58.056.12BH	Ba	2.49820	246.3560	480	380	100	1	31.1			

SAMPID	EL	PEAKINT	ug/L CONCENTRATION
STD BLK	Ba	.01620	0.0000
STD 1=50ug/L	Ba	.52380	50.0000
STD 2=200ug/L	Ba	2.07640	200.0000
STD 3=500ug/L	Ba	5.04780	500.0000
STD 4=1000ug/L	Ba	9.99200	1000.0000
CHECK HS	Ba	10.00250	999.2500
ICV=500ug/L	Ba	5.05460	502.8350
ICB	Ba	.01920	-2.3600
ICSAI	Ba	.14470	10.2300
ICSABI	Ba	5.76980	574.5950
CCV1	Ba	5.07820	505.2060
CCB1	Ba	.01250	-3.0320
ICSAF	Ba	.14690	10.4570
ICSABF	Ba	5.81690	579.3200

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Be

ug/L IDL: 2

DATE RECEIVED: 07/15/92

DATE REPORTED: 08/10/92

TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Be	22.22220	739.4740	196	196	100	1	73.9		.2365	313
KY-1-INLET FH(D)	58.056.1FH D	Be	16.69700	555.5560	196	196	100	1	55.6	28.4%	.2365	235
KY-1-INLET BH	58.056.4BH	Be	3.10960	103.2680	500	400	100	1	12.9			
KY-1-INLET BH(D)	58.056.4BH D	Be	3.36220	111.6790	500	400	100	1	14.0	7.83%		
KY-2-INLET FH	58.056.5FH	Be	23.35550	777.2000	196	196	100	1	77.7		.1718	452
KY-2-INLET FH(L)	58.056.5FH L	Be	3.74250	124.3360	196	196	100	5	62.2		.1718	362
KY-2-INLET BH	58.056.8BH	Be	.43700	14.3070	460	360	100	1	1.83			
KY-2-INLET BH(L)	58.056.8BH L	Be	.10070	3.1120	460	360	100	5	1.99			
KY-3-INLET FH	58.056.9FH	Be	53.94120	1795.3090	193	193	100	1	180		.2178	824
KY-3-INLET BH	58.056.12BH	Be	.94130	31.0920	480	380	100	1	3.93			

STD BLK	Be	.03280	0.0000
STD 1=25ug/L	Be	.79470	25.0000
STD 2=100ug/L	Be	2.99750	100.0000
STD 3=250ug/L	Be	7.41950	250.0000
STD 500ug/L	Be	15.07800	500.0000
CHECK HS	Be	14.95080	497.4300
ICV=250ug/L	Be	7.37400	245.2190
ICB	Be	.03900	1.0580
ICSAI	Be	-1.02510	-34.3620
ICSABI	Be	12.62720	420.0840
CCV1	Be	7.35530	244.5960
CCB1	Be	.02510	.5960
ICSAF	Be	-1.73460	-57.9810
ICSABF	Be	11.83590	393.7430

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Cd
ug/L IDL: 4

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Cd	123.84870	16620.6310	196	196	100	1	1,662		.2365	7,028
KY-1-INLET FH(D)	58.056.1FH D	Cd	122.81450	16481.7560	196	196	100	1	1,648	.84%	.2365	6,969
KY-1-INLET BH	58.056.4BH	Cd	32.79780	4393.1770	500	400	100	1	549			
KY-1-INLET BH(D)	58.056.4BH D	Cd	32.99380	4419.4960	500	400	100	1	552	.60%		
KY-2-INLET FH	58.056.5FH	Cd	194.87780	26159.3180	196	196	100	1	2,616		.1718	15,227
KY-2-INLET FH(L)	58.056.5FH L	Cd	31.43320	4209.9140	196	196	100	5	2,105		.1718	12,252
KY-2-INLET BH	58.056.8BH	Cd	4.37380	576.0390	460	360	100	1	73.6			
KY-2-INLET BH(L)	58.056.8BH L	Cd	.89470	108.8220	460	360	100	5	69.5			
KY-3-INLET FH	58.056.9FH	Cd	251.95100	33823.8320	193	193	100	1	3,382		.2178	15,530
KY-3-INLET BH	58.056.12BH	Cd	4.80910	634.4940	480	380	100	1	80.1			

SAMPID	EL	PEAKINT	ug/L CONCENTRATION
STD BLK	Cd	.17750	0.0000
STD 1=75ug/L	Cd	.62590	75.0000
STD 2=300ug/L	Cd	2.34190	300.0000
STD 3=750ug/L	Cd	5.47750	750.0000
STD 4=1500ug/L	Cd	11.34600	1500.0000
CHECK HS	Cd	11.28450	1504.0970
ICV=750ug/L	Cd	5.51720	729.5840
ICB	Cd	.11560	4.1960
ICSAI	Cd	.26560	24.3450
ICSABI	Cd	6.36890	843.9680
CCV1	Cd	5.59980	740.6860
CCB1	Cd	.07500	-1.2590
ICSAF	Cd	.25980	23.5570
ICSABF	Cd	6.28940	833.2930

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Cr
ug/L IDL: 12

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Cr	53.15460	7006.2990	196	196	100	1	701		.2365	2,962
KY-1-INLET FH(D)	58.056.1FH D	Cr	52.94850	6979.0570	196	196	100	1	698	.39%	.2365	2,951
KY-1-INLET BH	58.056.4BH	Cr	10.24280	1335.3480	500	400	100	1	167			
KY-1-INLET BH(D)	58.056.4BH D	Cr	10.12210	1319.3940	500	400	100	1	165	1.20%		
KY-2-INLET FH	58.056.5FH	Cr	84.49570	11148.1330	196	196	100	1	1115		.1718	6,489
KY-2-INLET FH(L)	58.056.5FH L	Cr	16.66610	2184.2100	196	196	100	5	1092		.1718	6,357
KY-2-INLET BH	58.056.8BH	Cr	1.24210	145.8770	460	360	100	1	18.6			
KY-2-INLET BH(L)	58.056.8BH L	Cr	.70700	75.1570	460	360	100	5	48.0			
KY-3-INLET FH	58.056.9FH	Cr	108.20410	14281.2820	193	193	100	1	1428		.2178	6,557
KY-3-INLET BH	58.056.12BH	Cr	1.56380	188.3960	480	380	100	1	23.8			

STD BLK	Cr	.11590	0.0000
STD 1=40ug/L	Cr	.36320	40.0000
STD 2=200ug/L	Cr	1.74170	200.0000
STD 3=400ug/L	Cr	3.22240	400.0000
STD 4=800ug/L	Cr	6.14450	800.0000
CHECK HS	Cr	6.21220	802.6890
ICV=400ug/L	Cr	3.27940	415.1140
ICB	Cr	.10040	-5.0080
ICSAI	Cr	.10780	-4.0270
ICSABI	Cr	3.40530	431.7450
CCV1	Cr	3.32850	421.5970
CCB1	Cr	.11350	-3.2670
ICSAF	Cr	.11980	-2.4410
ICSABF	Cr	3.46730	439.9500

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Cu
ug/L IDL: 15

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Cu	37.72940	1671.3240	196	196	100	1	167		.2365	707
KY-1-INLET FH(D)	58.056.1FH D	Cu	36.86800	1632.6800	196	196	100	1	163	2.34%	.2365	690
KY-1-INLET BH	58.056.4BH	Cu	4.56180	183.3870	500	400	100	1	22.9			
KY-1-INLET BH(D)	58.056.4BH D	Cu	4.77460	192.9300	500	400	100	1	24.1	5.07%		
KY-2-INLET FH	58.056.5FH	Cu	62.33550	2775.1830	196	196	100	1	278		.1718	1,615
KY-2-INLET FH(L)	58.056.5FH L	Cu	10.45930	447.9550	196	196	100	5	224		.1718	1,304
KY-2-INLET BH	58.056.8BH	Cu	2.66700	98.3840	460	360	100	1	12.6			
KY-2-INLET BH(L)	58.056.8BH L	Cu	.65790	8.2510	460	360	100	5	< 9.58			
KY-3-INLET FH	58.056.9FH	Cu	90.95020	4058.8690	193	193	100	1	406		.2178	1,864
KY-3-INLET BH	58.056.12BH	Cu	1.52640	47.2160	480	380	100	1	5.96			

STD BLK	Cu	.36290	0.0000
STD 1=50ug/L	Cu	1.60490	50.0000
STD 2=200ug/L	Cu	5.05160	200.0000
STD 3=500ug/L	Cu	11.61920	500.0000
STD 4=1000ug/L	Cu	22.74040	1000.0000
CHECK HS	Cu	22.66300	995.4260
ICV=500ug/L	Cu	11.63040	500.4910
ICB	Cu	.33750	-6.1220
ICSAI	Cu	.49270	.8420
ICSABI	Cu	9.95130	425.1660
CCV1	Cu	11.63430	500.6650
CCB1	Cu	.28270	-8.5820
ICSAF	Cu	.50390	1.3430
ICSABF	Cu	9.73690	415.5480

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Mn
ug/L IDL: 10

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Mn	278.97730	18255.7850	196	196	100	1	1,826		.2365	7,719
KY-1-INLET FH(D)	58.056.1FH D	Mn	273.86950	17921.4430	196	196	100	1	1,792	1.85%	.2365	7,578
KY-1-INLET BH	58.056.4BH	Mn	15.34730	999.4940	500	400	100	1	125			
KY-1-INLET BH(D)	58.056.4BH D	Mn	15.60450	1016.3290	500	400	100	1	127	1.67%		
KY-2-INLET FH	58.056.5FH	Mn	303.57940	19866.1520	196	196	100	1	1,987		.1718	11,564
KY-2-INLET FH(L)	58.056.5FH L	Mn	47.27510	3089.3740	196	196	100	5	1,545		.1718	8,991
KY-2-INLET BH	58.056.8BH	Mn	3.34790	214.0560	460	360	100	1	27.4			
KY-2-INLET BH(L)	58.056.8BH L	Mn	.74890	43.9340	460	360	100	5	28.1			
KY-3-INLET FH	58.056.9FH	Mn	343.26000	22463.5060	193	193	100	1	2,246		.2178	10,314
KY-3-INLET BH	58.056.12BH	Mn	3.42020	218.7880	480	380	100	1	27.64			

STD BLK	Mn	.03020	0.0000
STD 1=50ug/L	Mn	.89810	50.0000
STD 2=200ug/L	Mn	3.17020	200.0000
STD 3=500ug/L	Mn	7.64480	500.0000
STD 4=1000ug/L	Mn	15.38060	1000.0000
CHECK HS	Mn	15.30980	997.0400
ICV=500ug/L	Mn	7.61650	493.4620
ICB	Mn	.03080	-3.0720
ICSAI	Mn	.11740	2.6000
ICSABI	Mn	6.94020	449.1960
CCV1	Mn	7.55180	489.2280
CCB1	Mn	.02460	-3.4790
ICSAF	Mn	.11870	2.6790
ICSABF	Mn	6.77400	438.3150

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Ni
ug/L IDL: 20

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Ni	5.97500	3595.1630	196	196	100	1	360		.2365	1,520
KY-1-INLET FH(D)	58.056.1FH D	Ni	6.01900	3621.9380	196	196	100	1	362	.74%	.2365	1,531
KY-1-INLET BH	58.056.4BH	Ni	.77460	426.3120	500	400	100	1	53.3			
KY-1-INLET BH(D)	58.056.4BH D	Ni	.80280	443.4790	500	400	100	1	55.4	3.95%		
KY-2-INLET FH	58.056.5FH	Ni	8.99500	5435.3350	196	196	100	1	544		.1718	3,164
KY-2-INLET FH(L)	58.056.5FH L	Ni	1.98030	1161.0120	196	196	100	5	581		.1718	3,379
KY-2-INLET BH	58.056.8BH	Ni	.13820	38.5320	460	360	100	1	4.92			
KY-2-INLET BH(L)	58.056.8BH L	Ni	.11030	21.5650	460	360	100	5	13.8			
KY-3-INLET FH	58.056.9FH	Ni	11.34490	6867.2640	193	193	100	1	687		.2178	3,153
KY-3-INLET BH	58.056.12BH	Ni	.18610	67.6980	480	380	100	1	8.55			

STD BLK	Ni	.10340	0.0000
STD 1=40ug/L	Ni	.13810	40.0000
STD 2=200ug/L	Ni	.38130	200.0000
STD 3=400ug/L	Ni	.71200	400.0000
STD 4=800ug/L	Ni	1.40310	800.0000
CHECK HS	Ni	1.38740	799.7410
ICV=400ug/L	Ni	.78010	429.7000
ICB	Ni	.06080	-8.6290
ICSAI	Ni	.08060	3.4250
ICSABI	Ni	1.50720	872.7360
CCV1	Ni	.73220	400.4680
CCB1	Ni	.05110	-14.5550
ICSAF	Ni	.02050	-33.1670
ICSABF	Ni	1.58280	918.8100

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: P
ug/L IDL: 200

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	P	24.91620	10669.3960	196	196	100	1	1,067		.2365	4,511
KY-1-INLET FH(D)	58.056.1FH D	P	26.87810	11509.1990	196	196	100	1	1,151	7.57%	.2365	4,866
KY-1-INLET BH	58.056.4BH	P	83.57500	35778.8670	500	400	100	1	4,472			
KY-1-INLET BH(D)	58.056.4BH D	P	83.22070	35627.1990	500	400	100	1	4,453	.42%		
KY-2-INLET FH	58.056.5FH	P	37.71790	16149.2630	196	196	100	1	1,615		.1718	9,400
KY-2-INLET FH(L)	58.056.5FH L	P	7.95010	3406.8640	196	196	100	5	1,703		.1718	9,915
KY-2-INLET BH	58.056.8BH	P	78.02410	33402.7660	460	360	100	1	4,268			
KY-2-INLET BH(L)	58.056.8BH L	P	15.55040	6660.2410	460	360	100	5	4,255			
KY-3-INLET FH	58.056.9FH	P	51.54620	22068.6070	193	193	100	1	2,207		.2178	10,133
KY-3-INLET BH	58.056.12BH	P	79.90970	34209.9140	480	380	100	1	4,321			

SAMPID	EL	PEAKINT	ug/L CONCENTRATION
STD BLK	P	.30150	0.0000
STD 1=500ug/L	P	.65340	500.0000
STD 2=1000ug/L	P	2.50800	1000.0000
STD 3=5000ug/L	P	11.68750	5000.0000
STD 4=10000ug/L	P	23.35190	10000.0000
CHECK HS	P	23.50290	10064.4000
ICV=5000ug/L	P	11.76810	5041.2160
ICB	P	.49990	217.7260
ICSAI	P	.37020	162.2070
ICSABI	P	2.75400	1182.6200
CCV1	P	11.66320	4996.2880
CCB1	P	.42920	187.4520
ICSAF	P	.03400	18.2840
ICSABF	P	2.78890	1197.5800

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Pb
ug/L IDL: 200

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Pb	607.56240	1373107.8000	196	196	100	1	137,311		.2365	580,595
KY-1-INLET FH(D)	58.056.1FH D	Pb	607.34170	1372609.0000	196	196	100	1	137,261	.04%	.2365	580,384
KY-1-INLET BH	58.056.4BH	Pb	119.06320	268865.2100	500	400	100	1	33,608			
KY-1-INLET BH(D)	58.056.4BH D	Pb	119.75840	270436.5900	500	400	100	1	33,805	.58%		
KY-2-INLET FH	58.056.5FH	Pb	852.61940	1927054.1000	196	196	100	1	192,705		.1718	1,121,685
KY-2-INLET FH(L)	58.056.5FH L	Pb	131.10890	296094.2500	196	196	100	5	148,047		.1718	861,741
KY-2-INLET BH	58.056.8BH	Pb	14.65180	32845.1640	460	360	100	1	4,197			
KY-2-INLET BH(L)	58.056.8BH L	Pb	3.00370	6515.0190	460	360	100	5	4,162			
KY-3-INLET FH	58.056.9FH	Pb	1071.59360	2422041.0000	193	193	100	1	242,204		.2178	1,112,048
KY-3-INLET BH	58.056.12BH	Pb	18.99860	42671.0860	480	380	100	1	5,390			

STD BLK	Pb	.12160	0.0000
STD 1=250ug/L	Pb	.24620	250.0000
STD 2=1000ug/L	Pb	.56330	1000.0000
STD 3=2500ug/L	Pb	1.20200	2500.0000
STD 4=5000ug/L	Pb	2.34570	5000.0000
CHECK HS	Pb	2.33480	5002.8640
ICV=2500ug/L	Pb	1.24190	2532.5000
ICB	Pb	.10840	-29.8140
ICSAI	Pb	.08790	-76.0650
ICSABI	Pb	.53280	929.5100
CCV1	Pb	1.28220	2623.4380
CCB1	Pb	.10740	-32.0120
ICSAF	Pb	.06890	-119.0590
ICSABF	Pb	.50410	864.6720

GFAA MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Sb

ug/L IDL: 5

DATE RECEIVED: 07/15/92

DATE REPORTED: 08/10/92

TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	MEANABS	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	MSA RESULTS TOTAL ug RESULT	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Sb	.02500	49.2000	196	196	100	10	49.2	.2365	208
KY-1-INLET BH	58.056.4BH	Sb	-.00300	*	500	400	100	10	*		
KY-2-INLET FH	58.056.5FH	Sb	.04300	159.8000	196	196	100	10	160	.1718	930
KY-2-INLET BH	58.056.8BH	Sb	**	-5.4000	460	360	100	1	< .639		
KY-3-INLET FH	58.056.9FH	Sb	.07200	220.6000	193	193	100	10	221	.2178	1,013
KY-3-INLET BH	58.056.12BH	Sb	.01500	57.1000	480	380	100	1	7.21		

*MSA (EVEN WITH SAMPLE DILUTION) COULD NOT OVERCOME INTERFERENCES; A <50ug/L IS REPORTED SINCE THE SAMPLE ABSORPTION WAS NEGATIVE.

**DATA WAS UNRETREIVABLE FROM DISKETTE AND THE ABSORPTION DID NOT PRINT OUT ON THE RAW DATA HARD COPY.

GFAA MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Se

ug/L IDL: 4

DATE RECEIVED: 07/15/92

DATE REPORTED: 08/10/92

TLI PROJECT #: 21435

MSA RESULTS

CLIENT #	SAMPID	EL	MEANABS	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Se	.01623611	49.5000	196	196	100	1	4.95	.2365	20.9
KY-1-INLET BH	58.056.4BH	Se	.01426664	44.0000	500	400	100	1	5.50		
KY-2-INLET FH	58.056.5FH	Se	.02086602	78.7000	196	196	100	1	7.87	.1718	45.8
KY-2-INLET BH	58.056.8BH	Se	.01685134	36.2000	460	360	100	1	4.63		
KY-3-INLET FH	58.056.9FH	Se	.01432207	50.6000	193	193	100	1	5.06	.2178	23.2
KY-3-INLET BH	58.056.12BH	Se	.00366550	10.3000	480	380	100	1	1.30		

0- 000050

GFAA MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Tl
ug/L IDL: 2

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

MSA RESULTS

CLIENT #	SAMPID	EL	MEANABS	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Tl	.00523590	30.3000	196	196	100	1	3.03	.2365	12.8
KY-1-INLET BH	58.056.4BH	Tl	.00282487	19.0000	500	400	100	1	2.38		
KY-2-INLET FH	58.056.5FH	Tl	.00389829	16.1000	196	196	100	1	1.61	.1718	9.37
KY-2-INLET BH	58.056.8BH	Tl	-.00015510	6.0000	460	360	100	1	.767		
KY-3-INLET FH	58.056.9FH	Tl	.00806817	67.7000	193	193	100	1	6.77	.2178	31.1
KY-3-INLET BH	58.056.12BH	Tl	.00056903	3.3000	480	380	100	1	.417		

ICP MMTL ANALYTE SUMMARY REPORT

CLIENT: IEA

ANALYTE: Zn
ug/L IDL: 10

DATE RECEIVED: 07/15/92
DATE REPORTED: 08/10/92
TLI PROJECT #: 21435

CLIENT #	SAMPID	EL	PEAKINT	ug/L CONCENTRATION	ml TV	ml USED	ml FV	DIL FACTOR	TOTAL ug RESULT	%RPD	FH FRACTION APPLIED	FH CORRECTED RESULTS
KY-1-INLET FH	58.056.1FH	Zn	17.91470	9912.7510	196	196	100	1	991		.2365	4,191
KY-1-INLET FH(D)	58.056.1FH D	Zn	17.80650	9852.7450	196	196	100	1	985	.61%	.2365	4,166
KY-1-INLET BH	58.056.4BH	Zn	2.01900	1097.7130	500	400	100	1	137			
KY-1-INLET BH(D)	58.056.4BH D	Zn	2.02410	1100.5420	500	400	100	1	138	.26%		
KY-2-INLET FH	58.056.5FH	Zn	22.94740	12703.6460	196	196	100	1	1,270		.1718	7,394
KY-2-INLET FH(L)	58.056.5FH L	Zn	3.66770	2011.9990	196	196	100	5	1,006		.1718	5,856
KY-2-INLET BH	58.056.8BH	Zn	.51840	265.5190	460	360	100	1	33.9			
KY-2-INLET BH(L)	58.056.8BH L	Zn	.13850	54.8450	460	360	100	5	35.0			
KY-3-INLET FH	58.056.9FH	Zn	28.89200	16000.2270	193	193	100	1	1,600		.2178	7,346
KY-3-INLET BH	58.056.12BH	Zn	.52970	271.7810	480	380	100	1	34.3			

STD BLK	Zn	.03480	0.0000
STD 1=75ug/L	Zn	.16170	75.0000
STD 2=300ug/L	Zn	.59330	300.0000
STD 3=750ug/L	Zn	1.40630	750.0000
STD 4=1500ug/L	Zn	2.73540	1500.0000
CHECK HS	Zn	2.70190	1476.3680
ICV=750ug/L	Zn	1.39360	750.8690
ICB	Zn	.02660	-7.2090
ICSAI	Zn	.08820	26.9650
ICSABI	Zn	1.62770	880.6660
CCV1	Zn	1.38800	747.7890
CCB1	Zn	.02020	-10.7460
ICSAF	Zn	.10560	36.5780
ICSABF	Zn	1.63840	886.6020

[redacted]JEC[redacted]: [redacted]

CLIENT : EPA

DATE : July 24, 1992

TRIANGLE LABS of RTP

(919) 544-5729

RUN # : KK-2-1 Inlet

ANALYTES			
ICP	GFAA	FLAA	CVAA
			—

① **Filter**
label 58.056.1
1.939g

*July 31 (see p.6, for any errors)

Microwave dig. with conc. HF and conc HNO3 *Aug. 3

② **Acetone Rinse**
label 58.056.3
Volume 76 ml

Dessicate to dryness and redissolve in 10ml con HNO3 *July 25

③ **HNO3 Rinse**
label 58.056.2
Volume 120 ml

Reduce volume to 20 ml on hotplate *July 25

Microwave dig. with conc. HF and conc. HNO3 *July 31

Label : 58.056.3,2

Combine digestates

Front Half Digestate *Aug. 3

Dilute to 100 mls

label 58.056.1FH

Volume 100 ml

For Metals *Aug. 3
label 58.056.1(FH)
Volume 100 ml
(One post digest spike on FH)

~~For Hg~~
label ______
Volume ______ ml
Aliquot ______ ml
(No spike required)

④ **Back Half Impinger**
label 58.056.4
Volume 500 ml

For Metals
label 58.056.4
Volume 400 ml

Reduce volume to 20 ml on hotplate *July 25

Hotplate dig with HNO3 and H2O2 *Aug. 3

Dilute to 100 mls *Aug. 4

label 58.056.4
Volume 100 ml

~~For Hg~~
label ______
Volume ______ ml

Sample
label ______
Volume ______ ml
Aliquot ______ ml

Spike
(One BH Hg spike)
label ______
Volume ______ ml
Alig. ______
Spk. ______ ml of ______
dil. to ______ ml
final spk conc. added ______

Hg Impingers

5 (KMnO4)	5B	HCl
label ______	label ______	label ______
Volume ______ ml	Volume ______ ml	Volume ______ ml
Aliquot A ______	Aliquot A ______	Aliquot A ______
Aliquot B ______	Aliquot B ______	Aliquot B ______

(Duplicate Analysis of Each)

*(all BH) not avail 100ml for Hg

WHW 5-20-92

000??3

Client : IEA

Date : July 24, 1992

Triangle Labs of RTP
(919) 544-5729

Run # : KY-2-2-Inlet

ANALYTES			
ICP	GFAA	FLAA	CVAA
			—

1 Filter
label 58.056.5

Microwave dig. with conc. HF and conc HNO3 *Aug. 3

2 Acetone Rinse
label 58.056.7
Volume 66 ml

Dessicate to dryness and redissolve in 10ml con HNO3 *July 28

3 HNO3 Rinse
label 58.056.6
Volume 130 ml

Reduce volume to 20 ml on hotplate *July 25

Microwave dig. with conc. HF and conc. HNO3 *July 31

Label : 58.056.6,7

Combine digestates

Front Half Digestate *Aug. 3

Dilute to 100 mls

label ~~58.067.6,7~~ 5(FH)
Volume 100 ml

For Metals *Aug. 3
label 58.067.5(FH)
Volume 100 ml
(One post digest spike on FH)

~~For Hg~~
label ______
Volume ______ ml
Aliquot ______ ml
(No spike required)

4 Back Half Impinger
label 58.056.8
Volume 460 ml

For Metals
label 58.056.8
Volume ~~460~~ ml 360
8/7/92
RLC

Reduce volume to 20 ml on hotplate *July 25

Hotplate dig with HNO3 and H2O2 *Aug. 3

Dilute to 100 mls *Aug. 4

label 58.056.8
Volume 100 ml

~~For Hg~~
label ______
Volume ______ ml

Sample
label ______
Volume ______ ml
Aliquot ______ ml

Spike
(One BH Hg spike)
label ______
Volume ______ ml
Aliq. ______
Spk. ____ ml of ______
dil. to ______ ml
final spk conc. added ____

Hg Impingers

~~5A~~	~~5B~~ KMnO4	~~5C~~ HCl
label ______	label ______	label ______
Volume ______ ml	Volume ______ ml	Volume ______ ml
Aliquot A ______	Aliquot A ______	Aliquot A ______
Aliquot B ______	Aliquot B ______	Aliquot B ______

(Duplicate Analysis of Each)

WHW 5-20-92

[redacted]: [redacted]
Client: IEA
Date: July 24, 1992

TRIANGLE LABS of RTP
(919) 544-5729

Run #: KY-2-3-Inlet

ANALYTES			
ICP	GFAA	FLAA	CVAA
			—

① Filter
label 58.056.9
*Aug. 3
Microwave dig. with conc. HF and conc HNO3

② Acetone Rinse
label 58.056.11
Volume 48 ml
Dessicate to dryness and redissolve in 10ml con HNO3
*Aug 3

③ HNO3 Rinse
label 58.056.10
Volume 145 ml
Reduce volume to 20 ml on hotplate
*July 25

Microwave dig. with conc. HF and conc. HNO3 *Aug 31
Label: 58.056.10,11

Combine digestates

FRONT HALF DIGESTATE *Aug. 3
Dilute to 100 mls
label 58.056.9(FH)
Volume 100 ml

For Metals *Aug. 3
label 58.056.9(FH)
Volume 100 ml
(One post digest spike on FH)

~~For Hg~~
label ______
Volume ______ ml
Aliquot ______ ml
(No spike required)

④ Back Half Impinger
label 58.056.12
Volume 480 ml

For Metals
label 58.056.12
Volume 380 ml
*July 25
Reduce volume to 20 ml on hotplate
Hotplate dig with HNO3 and H2O2
*Aug. 3
Dilute to 100 mls
*Aug. 4
label 58.056.12
Volume 100 ml

~~For Hg~~
label ______
Volume ______ ml

Sample
label ______
Volume ______ ml
Aliquot ______ ml

Spike
(One BH Hg spike)
label ______
Volume ______ ml
Aliq. ______
Spk. ____ ml of ______
dil. to ______ ml
final spk conc. added ______

(Duplicate Analysis of Each)

~~5A~~
label ______
Volume ______ ml
Aliquot A ______
Aliquot B ______

~~5B~~ Hg Impingers
KMnO4
label ______
Volume ______ ml
Aliquot A ______
Aliquot B ______

~~5C~~
HCl
label ______
Volume ______ ml
Aliquot A ______
Aliquot B ______

T3-000061

WHW 5-20-92

TRIANGLE LABORATORIES RTP, INC. [PCTMF 2]

PROJECT COMMUNICATION TRACKING SHEET

TLI Project Number: 2,435

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

Date	Name	Comment / Decision / Resolution / Action / Observation
7/27/92	BW	◦ Particulate WT is required on trains KY-2-1,2,3 Inlet.
		◦ We took fractions of filters and rinses. See data SPD-6 p.27.

Rev 105 1/21/91

D-000382

Custody Seal	Present / Absent // Intact / Not Intact	TLI Project Number	21435
Chain of Custody	Present / Absent		
Sample Tags	Present / Absent	Client: IEA01	IEA, INC.
Sample Tag Numbers	Listed / Not Listed on Chain of Custody		
SMO Forms	Present / Absent	Date Received	07/15/92 ; By
Ice Chest/Styro Cooler	Cardboard Box Dry Ice Ice Ambient	Carrier and Number	HAND CARRIED

Book 58

Page 56

Sample ID TLI	Client	Matrix	Storage Location	To Lab Date/Initial		To Storage Date/Initial		To Lab Date/Initial	
58-56-1	KY-2-1-INLENT	FILTER	METALS LAB.						
58-56-2		FHAR	METALS LAB.						
58-56-3		FHACE	METALS LAB.						
58-56-4		H202	METALS LAB.						
58-56-5	KY-2-2-INLENT	FILTER	METALS LAB.						
58-56-6		FHAR	METALS LAB.						
58-56-7		FHACE	METALS LAB.						
58-56-8		H202	METALS LAB.						
58-56-9	KY-2-3-INLENT	FILTER	METALS LAB.						
58-56-10		FHAR	METALS LAB.						
58-56-11		FHACE	METALS LAB.						
58-56-12		H202	METALS LAB.						

Receiving Remarks:

Archive Remarks:

21435 Ag

```
08/04/92 14:28
wcal standard   rep   1  Ag_        em         140.7 conc 25.00
                rep   2  Ag_        em         186.7 conc 25.00
                rep   3  Ag_        em         194.4 conc 25.00
wcal standard
08/04/92 14:28
    Ag_         av    173.92              sd    29.030 %cv  16.69 conc   25.00

08/04/92 14:29
sc blank        rep   1  Ag_        em         769.1
08/04/92 14:31
blank           rep   1  Ag_        ratio    0.1113              window edge
                rep   2  Ag_        ratio    0.1353
                rep   3  Ag_        ratio    0.2111
blank
08/04/92 14:31
    Ag_         av    0.1525              sd   0.05211 %cv  34.16

08/04/92 14:32
#1 standard     rep   1  Ag_        ratio    0.4371 conc 25.00
                rep   2  Ag_        ratio    0.4480 conc 25.00
                rep   3  Ag_        ratio    0.5847 conc 25.00
#1 standard
08/04/92 14:33
    Ag_         av    0.4900              sd   0.08226 %cv  16.79 conc   25.00

08/04/92 14:34
#2 standard     rep   1  Ag_        ratio    1.5514 conc 100.00
                rep   2  Ag_        ratio    1.4807 conc 100.00
                rep   3  Ag_        ratio    1.6034 conc 100.00
#2 standard
08/04/92 14:35
    Ag_         av    1.5452              sd   0.06157 %cv   3.98 conc  100.00

08/04/92 14:36
#3 standard     rep   1  Ag_        ratio    3.5541 conc 250.00
                rep   2  Ag_        ratio    3.7611 conc 250.00
                rep   3  Ag_        ratio    3.8313 conc 250.00
#3 standard
08/04/92 14:37
    Ag_         av    3.7155              sd   0.14413 %cv   3.88 conc  250.00

08/04/92 14:38
#4 standard     rep   1  Ag_        ratio    7.6613 conc 500.00
                rep   2  Ag_        ratio    7.2139 conc 500.00
                rep   3  Ag_        ratio    7.2087 conc 500.00
#4 standard
08/04/92 14:39
    Ag_         av    7.3613              sd   0.25984 %cv   3.53 conc  500.00

08/04/92 14:40
CHECK HS        rep   1  Ag_        conc     500.64 ug/L
                rep   2  Ag_        conc     505.53 ug/L
                rep   3  Ag_        conc     509.10 ug/L
CHECK HS
08/04/92 14:40
    Ag_         av    505.09 ug/L         sd     4.245 %cv   0.84

08/04/92 14:42
ICV             rep   1  Ag_        conc     259.38 ug/L
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                  rep   2  Ag_        conc     253.46 ug/L
                  rep   3  Ag_        conc     250.37 ug/L
ICV
08/04/92 14:42
    Ag_           av     254.40 ug/L        sd      4.579 %cv    1.80

08/04/92 14:43
ICB               rep   1  Ag_        conc       0.50 ug/L
                  rep   2  Ag_        conc      -0.67 ug/L
                  rep   3  Ag_        conc       2.19 ug/L
ICB
08/04/92 14:44
    Ag_           av       0.67 ug/L        sd      1.438 %cv  213.2

08/04/92 14:45
ICSAI             rep   1  Ag_        conc       4.97 ug/L
                  rep   2  Ag_        conc      -0.44 ug/L
                  rep   3  Ag_        conc      -2.14 ug/L
ICSAI
08/04/92 14:46
    Ag_           av       0.80 ug/L        sd      3.713 %cv  465.2

08/04/92 14:47
ICSABI            rep   1  Ag_        conc     123.87 ug/L
                  rep   2  Ag_        conc     130.46 ug/L
                  rep   3  Ag_        conc     132.50 ug/L
ICSABI
08/04/92 14:48
    Ag_           av     128.95 ug/L        sd      4.511 %cv    3.50
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wrong Tank CB

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08/04/92 14:51
ICSABI            rep   1  Ag_        conc     965.74 ug/L
                  rep   2  Ag_        conc     983.61 ug/L
                  rep   3  Ag_        conc     969.22 ug/L
ICSABI
08/04/92 14:52
    Ag_           av     972.86 ug/L        sd      9.472 %cv    0.97

08/04/92 14:53
58.056.1FH        rep   1  Ag_        conc      22.22 ug/L
                  rep   2  Ag_        conc       9.16 ug/L
                  rep   3  Ag_        conc      11.11 ug/L
58.056.1FH
08/04/92 14:54
    Ag_           av      14.17 ug/L        sd      7.045 %cv   49.73

08/04/92 14:55
58.056.1FH D      rep   1  Ag_        conc       7.66 ug/L
                  rep   2  Ag_        conc      11.18 ug/L
                  rep   3  Ag_        conc       4.40 ug/L
58.056.1FH D
08/04/92 14:56
    Ag_           av       7.74 ug/L        sd      3.390 %cv   43.78

08/04/92 14:58
58.056.5FH        rep   1  Ag_        conc      12.76 ug/L
                  rep   2  Ag_        conc      19.77 ug/L
                  rep   3  Ag_        conc      11.40 ug/L
58.056.5FH
08/04/92 14:58
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    Ag_          av      14.64 ug/L         sd       4.488 %cv   30.65

08/04/92 15:00
58.056.5FH L    rep    1   Ag_         conc        8.07 ug/L
                rep    2   Ag_         conc        9.65 ug/L
                rep    3   Ag_         conc        8.85 ug/L
58.056.5FH L
08/04/92 15:00
    Ag_          av       8.86 ug/L         sd       0.792 %cv    8.94

08/04/92 15:02
58.056.9FH      rep    1   Ag_         conc        9.59 ug/L
                rep    2   Ag_         conc       12.88 ug/L
                rep    3   Ag_         conc       27.17 ug/L
58.056.9FH
08/04/92 15:02
    Ag_          av      16.54 ug/L         sd       9.346 %cv   56.49

08/04/92 15:04
58.056.4BH      rep    1   Ag_         conc        7.18 ug/L
                rep    2   Ag_         conc       -0.59 ug/L           window edge
                rep    3   Ag_         conc        9.47 ug/L
58.056.4BH
08/04/92 15:05
    Ag_          av       5.36 ug/L         sd       5.271 %cv   98.42

08/04/92 15:06
58.056.4BH D    rep    1   Ag_         conc        8.33 ug/L
                rep    2   Ag_         conc        3.93 ug/L
                rep    3   Ag_         conc        5.88 ug/L
58.056.4BH D
08/04/92 15:07
    Ag_          av       6.05 ug/L         sd       2.207 %cv   36.49

08/04/92 15:08
58.056.8BH      rep    1   Ag_         conc      113.07 ug/L
                rep    2   Ag_         conc      123.49 ug/L
                rep    3   Ag_         conc      119.62 ug/L
58.056.8BH
08/04/92 15:09
    Ag_          av     118.73 ug/L         sd       5.269 %cv    4.44

08/04/92 15:10
58.056.8BH L    rep    1   Ag_         conc       16.77 ug/L
                rep    2   Ag_         conc       17.78 ug/L
                rep    3   Ag_         conc       22.96 ug/L
58.056.8BH L
08/04/92 15:11
    Ag_          av      19.17 ug/L         sd       3.322 %cv   17.33

08/04/92 15:12
58.056.12BH     rep    1   Ag_         conc       22.52 ug/L
                rep    2   Ag_         conc       25.52 ug/L
                rep    3   Ag_         conc       26.65 ug/L
58.056.12BH
08/04/92 15:13
    Ag_          av      24.90 ug/L         sd       2.135 %cv    8.58

08/04/92 15:14
CCV1            rep    1   Ag_         conc      243.39 ug/L
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                rep    2   Ag_         conc     269.34 ug/L
                rep    3   Ag_         conc     255.91 ug/L
CCV1
08/04/92 15:15
    Ag_         av     256.21 ug/L          sd     12.975 %cv    5.06

08/04/92 15:16
CCB1            rep    1   Ag_         conc      -2.34 ug/L           window edge
                rep    2   Ag_         conc      -3.72 ug/L
                rep    3   Ag_         conc       0.19 ug/L
CCB1
08/04/92 15:17
    Ag_         av      -1.96 ug/L          sd      1.984 %cv  101.4

08/04/92 15:18
ICSAF           rep    1   Ag_         conc       4.57 ug/L
                rep    2   Ag_         conc      -1.14 ug/L
                rep    3   Ag_         conc       0.68 ug/L
ICSAF
08/04/92 15:19
    Ag_         av       1.37 ug/L          sd      2.921 %cv  213.0

08/04/92 15:20
ICSABF          rep    1   Ag_         conc     991.47 ug/L
                rep    2   Ag_         conc    1002.07 ug/L
                rep    3   Ag_         conc    1000.32 ug/L
ICSABF
08/04/92 15:21
    Ag_         av     997.95 ug/L          sd      5.682 %cv    0.57
```

21435 As

IDL = 200

```
08/05/92 13:34
wcal standard    rep   1  As_        em         312.1 conc 250.00
                 rep   2  As_        em         312.2 conc 250.00
                 rep   3  As_        em         350.9 conc 250.00
wcal standard
08/05/92 13:35
   As_           av    325.04              sd     22.353 %cv    6.88 conc   250.00

08/05/92 13:36
sc blank         rep   1  As_        em         503.6
08/05/92 13:38
blank            rep   1  As_        ratio    0.0773
                 rep   2  As_        ratio    0.0422
                 rep   3  As_        ratio    0.0809
blank
08/05/92 13:38
   As_           av    0.0668              sd   0.02140 %cv   32.04

08/05/92 13:40
#1 standard      rep   1  As_        ratio    0.0969 conc 250.00
                 rep   2  As_        ratio    0.0957 conc 250.00
                 rep   3  As_        ratio    0.1014 conc 250.00
#1 standard
08/05/92 13:41
   As_           av    0.0980              sd   0.00302 %cv    3.08 conc   250.00

08/05/92 13:43
#2 standard      rep   1  As_        ratio    0.2757 conc 1000.00
                 rep   2  As_        ratio    0.3845 conc 1000.00
                 rep   3  As_        ratio    0.3146 conc 1000.00
#2 standard
08/05/92 13:43
   As_           av    0.3250              sd   0.05514 %cv   16.97 conc   1000.0

08/05/92 13:45
#3 standard      rep   1  As_        ratio    0.7831 conc 2500.00
                 rep   2  As_        ratio    0.8334 conc 2500.00
                 rep   3  As_        ratio    0.7573 conc 2500.00
#3 standard
08/05/92 13:46
   As_           av    0.7913              sd   0.03867 %cv    4.89 conc   2500.0

08/05/92 13:47
#4 standard      rep   1  As_        ratio    1.5596 conc 5000.00
                 rep   2  As_        ratio    1.5891 conc 5000.00
                 rep   3  As_        ratio    1.5514 conc 5000.00
#4 standard
08/05/92 13:48
   As_           av    1.5667              sd   0.01984 %cv    1.27 conc   5000.0

08/05/92 13:50
CHECK HS         rep   1  As_        conc   4657.87 ug/L
                 rep   2  As_        conc   4614.64 ug/L
                 rep   3  As_        conc   4610.07 ug/L
CHECK HS
08/05/92 13:51
   As_           av   4627.52 ug/L         sd     26.377 %cv    0.57

08/05/92 13:52
ICV              rep   1  As_        conc   2376.11 ug/L
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                  rep   2  As_          conc   2231.96 ug/L
                  rep   3  As_          conc   2502.05 ug/L
ICV
08/05/92 13:53
    As_           av   2370.04 ug/L          sd    135.149 %cv    5.70


08/05/92 13:55
ICB               rep   1  As_          conc    129.33 ug/L
                  rep   2  As_          conc    211.88 ug/L
                  rep   3  As_          conc    102.06 ug/L          window edge
ICB
08/05/92 13:55
    As_           av    147.76 ug/L          sd     57.182 %cv   38.70

08/05/92 13:57
ICSAI             rep   1  As_          conc    -42.18 ug/L
                  rep   2  As_          conc     32.09 ug/L
                  rep   3  As_          conc     -9.84 ug/L          window edge
ICSAI
08/05/92 13:58
    As_           av     -6.64 ug/L          sd     37.239 %cv  560.6

08/05/92 14:00
ICSABI            rep   1  As_          conc    793.15 ug/L
                  rep   2  As_          conc    879.55 ug/L
                  rep   3  As_          conc    908.12 ug/L
ICSABI
08/05/92 14:00
    As_           av    860.27 ug/L          sd     59.859 %cv    6.96


08/05/92 14:02
58.056.1FH        rep   1  As_          conc  15242.60 ug/L
                  rep   2  As_          conc  16421.99 ug/L
                  rep   3  As_          conc  15635.25 ug/L
58.056.1FH
08/05/92 14:03
    As_           av  15766.61 ug/L          sd    600.567 %cv    3.81

08/05/92 14:04
58.056.1FH D      rep   1  As_          conc  17163.71 ug/L
                  rep   2  As_          conc  16685.82 ug/L
                  rep   3  As_          conc  16923.94 ug/L
58.056.1FH D
08/05/92 14:05
    As_           av  16924.49 ug/L          sd    238.945 %cv    1.41

08/05/92 14:07
58.056.5FH        rep   1  As_          conc  26790.70 ug/L
                  rep   2  As_          conc  26618.41 ug/L
                  rep   3  As_          conc  28265.50 ug/L
58.056.5FH
08/05/92 14:08
    As_           av  27224.87 ug/L          sd    905.319 %cv    3.33

08/05/92 14:09
58.056.5FH L      rep   1  As_          conc   6249.32 ug/L
                  rep   2  As_          conc   5445.96 ug/L
                  rep   3  As_          conc   5932.24 ug/L
```

```
     As_          av    5875.84 ug/L         sd    404.639 %cv    6.89

08/05/92 14:12
58.056.9FH        rep    1   As_         conc   40106.66 ug/L
                  rep    2   As_         conc   38283.60 ug/L
                  rep    3   As_         conc   38456.84 ug/L
58.056.9FH
08/05/92 14:13
     As_          av   38949.03 ug/L         sd   1006.268 %cv    2.58

08/05/92 14:14
58.056.4BH        rep    1   As_         conc    4222.42 ug/L
                  rep    2   As_         conc    3799.62 ug/L
                  rep    3   As_         conc    4173.46 ug/L
58.056.4BH
08/05/92 14:15
     As_          av    4065.17 ug/L         sd    231.268 %cv    5.69

08/05/92 14:17
58.056.4BH D      rep    1   As_         conc    3769.61 ug/L
                  rep    2   As_         conc    3984.90 ug/L
                  rep    3   As_         conc    3873.10 ug/L
58.056.4BH D
08/05/92 14:18
     As_          av    3875.87 ug/L         sd    107.672 %cv    2.78

08/05/92 14:19
58.056.8BH        rep    1   As_         conc     434.66 ug/L
                  rep    2   As_         conc     725.34 ug/L
                  rep    3   As_         conc     444.81 ug/L
58.056.8BH
08/05/92 14:20
     As_          av     534.93 ug/L         sd    164.971 %cv   30.84

08/05/92 14:22
58.056.8BH L      rep    1   As_         conc     187.84 ug/L
                  rep    2   As_         conc     191.01 ug/L
                  rep    3   As_         conc     230.66 ug/L
58.056.8BH L
08/05/92 14:23
     As_          av     203.17 ug/L         sd     23.862 %cv   11.74

08/05/92 14:25
58.056.12BH       rep    1   As_         conc     694.18 ug/L
                  rep    2   As_         conc     444.37 ug/L
                  rep    3   As_         conc     862.40 ug/L
58.056.12BH
08/05/92 14:25
     As_          av     666.98 ug/L         sd    210.338 %cv   31.54

08/05/92 14:27
CCV1              rep    1   As_         conc    2310.36 ug/L
                  rep    2   As_         conc    2404.30 ug/L
                  rep    3   As_         conc    2651.76 ug/L
CCV1
08/05/92 14:28
     As_          av    2455.47 ug/L         sd    176.362 %cv    7.18
```

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CCB1            rep   1  As_        conc    142.63 ug/L

                rep   2  As_        conc    117.99 ug/L
                rep   3  As_        conc     58.38 ug/L
CCB1
08/05/92 14:30
    As_         av    106.33 ug/L        sd    43.319 %cv  40.74

08/05/92 14:32
ICSAF           rep   1  As_        conc    117.79 ug/L
                rep   2  As_        conc    -40.33 ug/L
                rep   3  As_        conc     69.61 ug/L
ICSAF
08/05/92 14:33
    As_         av     49.02 ug/L        sd    81.044 %cv  165.3

08/05/92 14:34
ICSABF          rep   1  As_        conc    936.91 ug/L
                rep   2  As_        conc   1012.94 ug/L
                rep   3  As_        conc    845.29 ug/L
ICSABF
08/05/92 14:35
    As_         av    931.71 ug/L        sd    83.942 %cv   9.01
```

21435 Ba.

08/05/92 11:17
wcal standard rep 1 Ba_ em 518.5 conc 50.00
rep 2 Ba_ em 518.1 conc 50.00
rep 3 Ba_ em 532.7 conc 50.00
wcal standard
08/05/92 11:17
Ba_ av 523.09 sd 8.295 %cv 1.59 conc 50.00

08/05/92 11:18
sc blank rep 1 Ba_ em 61.0
08/05/92 11:20
blank rep 1 Ba_ ratio 0.0152
rep 2 Ba_ ratio 0.0156
rep 3 Ba_ ratio 0.0178
blank
08/05/92 11:20
Ba_ av 0.0162 sd 0.00144 %cv 8.89

08/05/92 11:21
#1 standard rep 1 Ba_ ratio 0.5266 conc 50.00
rep 2 Ba_ ratio 0.5182 conc 50.00
rep 3 Ba_ ratio 0.5267 conc 50.00
#1 standard
08/05/92 11:22
Ba_ av 0.5238 sd 0.00491 %cv 0.94 conc 50.00

08/05/92 11:23
#2 standard rep 1 Ba_ ratio 2.0841 conc 200.00
rep 2 Ba_ ratio 2.0753 conc 200.00
rep 3 Ba_ ratio 2.0698 conc 200.00
#2 standard
08/05/92 11:24
Ba_ av 2.0764 sd 0.00718 %cv 0.35 conc 200.00

08/05/92 11:25
#3 standard rep 1 Ba_ ratio 5.0552 conc 500.00
rep 2 Ba_ ratio 5.0513 conc 500.00
rep 3 Ba_ ratio 5.0370 conc 500.00
#3 standard
08/05/92 11:25
Ba_ av 5.0478 sd 0.00957 %cv 0.19 conc 500.00

08/05/92 11:27
#4 standard rep 1 Ba_ ratio 9.9673 conc 1000.00
rep 2 Ba_ ratio 10.0410 conc 1000.00
rep 3 Ba_ ratio 9.9678 conc 1000.00
#4 standard
08/05/92 11:27
Ba_ av 9.9920 sd 0.04239 %cv 0.42 conc 1000.0

08/05/92 11:28
CHECK HS rep 1 Ba_ conc 1002.87 ug/L
rep 2 Ba_ conc 998.09 ug/L
rep 3 Ba_ conc 996.79 ug/L
CHECK HS
08/05/92 11:29
Ba_ av 999.25 ug/L sd 3.201 %cv 0.32

08/05/92 11:30
ICV rep 1 Ba_ conc 503.26 ug/L

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               rep   2  Ba_          conc     501.07 ug/L
               rep   3  Ba_          conc     504.18 ug/L
ICV
08/05/92 11:31
   Ba_         av    502.84 ug/L         sd      1.597 %cv   0.32

08/05/92 11:32
ICB            rep   1  Ba_          conc      -2.16 ug/L
               rep   2  Ba_          conc      -2.10 ug/L
               rep   3  Ba_          conc      -2.82 ug/L
ICB
08/05/92 11:32
   Ba_         av     -2.36 ug/L         sd      0.400 %cv  16.96

08/05/92 11:34
ICSAI          rep   1  Ba_          conc       9.87 ug/L
               rep   2  Ba_          conc      10.66 ug/L
               rep   3  Ba_          conc      10.17 ug/L
ICSAI
08/05/92 11:34
   Ba_         av     10.23 ug/L         sd      0.396 %cv   3.87

08/05/92 11:36
ICSABI         rep   1  Ba_          conc     571.90 ug/L
               rep   2  Ba_          conc     576.46 ug/L
               rep   3  Ba_          conc     575.42 ug/L
ICSABI
08/05/92 11:36
   Ba_         av    574.60 ug/L         sd      2.391 %cv   0.42

08/05/92 11:38
58.056.1FH     rep   1  Ba_          conc   31751.84 ug/L
               rep   2  Ba_          conc   31702.85 ug/L
               rep   3  Ba_          conc   31639.23 ug/L
58.056.1FH
08/05/92 11:38
   Ba_         av  31697.97 ug/L         sd     56.461 %cv   0.18

08/05/92 11:40
58.056.1FH D   rep   1  Ba_          conc   31840.23 ug/L
               rep   2  Ba_          conc   31586.46 ug/L
               rep   3  Ba_          conc   31766.97 ug/L
58.056.1FH D
08/05/92 11:40
   Ba_         av  31731.22 ug/L         sd    130.608 %cv   0.41

08/05/92 11:42
58.056.5FH     rep   1  Ba_          conc   27374.78 ug/L
               rep   2  Ba_          conc   27343.20 ug/L
               rep   3  Ba_          conc   27199.74 ug/L
58.056.5FH
08/05/92 11:42
   Ba_         av  27305.91 ug/L         sd     93.287 %cv   0.34

08/05/92 11:44
58.056.5FH L   rep   1  Ba_          conc    5445.37 ug/L
               rep   2  Ba_          conc    5457.48 ug/L
               rep   3  Ba_          conc    5466.37 ug/L
58.056.5FH L
08/05/92 11:44
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    Ba_          av    5456.41 ug/L        sd     10.542 %cv    0.19

08/05/92 11:46
58.056.9FH      rep    1   Ba_         conc   36309.49 ug/L
                rep    2   Ba_         conc   36637.11 ug/L
                rep    3   Ba_         conc   36250.91 ug/L
58.056.9FH
08/05/92 11:46
    Ba_          av   36399.17 ug/L        sd    208.132 %cv    0.57

08/05/92 11:48
58.056.4BH      rep    1   Ba_         conc    1300.19 ug/L
                rep    2   Ba_         conc    1289.81 ug/L
                rep    3   Ba_         conc    1289.42 ug/L
58.056.4BH
08/05/92 11:48
    Ba_          av    1293.14 ug/L        sd      6.106 %cv    0.47

08/05/92 11:50
58.056.4BH D    rep    1   Ba_         conc    1286.18 ug/L
                rep    2   Ba_         conc    1288.45 ug/L
                rep    3   Ba_         conc    1285.68 ug/L
58.056.4BH D
08/05/92 11:50
    Ba_          av    1286.77 ug/L        sd      1.476 %cv    0.11

08/05/92 11:52
58.056.8BH      rep    1   Ba_         conc     258.97 ug/L
                rep    2   Ba_         conc     261.91 ug/L
                rep    3   Ba_         conc     256.76 ug/L
58.056.8BH
08/05/92 11:52
    Ba_          av     259.21 ug/L        sd      2.583 %cv    1.00

08/05/92 11:54
58.056.8BH L    rep    1   Ba_         conc      47.70 ug/L
                rep    2   Ba_         conc      47.20 ug/L
                rep    3   Ba_         conc      47.46 ug/L
58.056.8BH L
08/05/92 11:54
    Ba_          av      47.45 ug/L        sd      0.251 %cv    0.53

08/05/92 11:56
58.056.12BH     rep    1   Ba_         conc     247.32 ug/L
                rep    2   Ba_         conc     244.34 ug/L
                rep    3   Ba_         conc     247.41 ug/L
58.056.12BH
08/05/92 11:56
    Ba_          av     246.36 ug/L        sd      1.750 %cv    0.71

08/05/92 11:58
CCV1            rep    1   Ba_         conc     509.84 ug/L
                rep    2   Ba_         conc     504.97 ug/L
                rep    3   Ba_         conc     500.81 ug/L
CCV1
08/05/92 11:58
    Ba_          av     505.21 ug/L        sd      4.519 %cv    0.89

08/05/92 12:00
CCB1            rep    1   Ba_         conc      -2.82 ug/L
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                    rep   2  Ba_         conc       -2.92 ug/L
                    rep   3  Ba_         conc       -3.35 ug/L
CCB1
08/05/92 12:00
    Ba_             av      -3.03 ug/L        sd       0.280 %cv    9.25

08/05/92 12:01
ICSAF               rep   1  Ba_         conc       10.92 ug/L
                    rep   2  Ba_         conc       10.41 ug/L
                    rep   3  Ba_         conc       10.04 ug/L
ICSAF
08/05/92 12:02
    Ba_             av      10.46 ug/L        sd       0.446 %cv    4.27

08/05/92 12:29
ICSABF              rep   1  Ba_         conc      580.84 ug/L
                    rep   2  Ba_         conc      575.74 ug/L
                    rep   3  Ba_         conc      581.38 ug/L
ICSABF
08/05/92 12:29
    Ba_             av     579.32 ug/L        sd       3.116 %cv    0.54
```

21435P

```
08/05/92 12:37
wcal standard   rep  1  P_          em       4563.7 conc 500.000
                rep  2  P_          em       4718.8 conc 500.000
                rep  3  P_          em       4634.2 conc 500.000
wcal standard
08/05/92 12:37
    P_          av    4638.89              sd     77.640 %cv   1.67 conc   500.00

08/05/92 12:38
sc blank        rep  1  P_          em       3459.0
08/05/92 12:39
blank           rep  1  P_          ratio    0.2017
                rep  2  P_          ratio    0.3209                   window edge
                rep  3  P_          ratio    0.3819
blank
08/05/92 12:40
    P_          av     0.3015              sd   0.09167 %cv  30.40

08/05/92 12:41
#1 standard     rep  1  P_          ratio    0.9817 conc 500.000
                rep  2  P_          ratio    0.3437 conc 500.000
                rep  3  P_          ratio    0.6348 conc 500.000
#1 standard
08/05/92 12:42
    P_          av     0.6534              sd   0.31941 %cv  48.89 conc   500.00

08/05/92 12:43
#2 standard     rep  1  P_          ratio    2.2786 conc 1000.00
                rep  2  P_          ratio    2.3442 conc 1000.00
                rep  3  P_          ratio    2.9011 conc 1000.00
#2 standard
08/05/92 12:44
    P_          av     2.5080              sd   0.34202 %cv  13.64 conc   1000.0

08/05/92 12:45
#3 standard     rep  1  P_          ratio   12.2443 conc 5000.00
                rep  2  P_          ratio   11.3049 conc 5000.00
                rep  3  P_          ratio   11.5132 conc 5000.00
#3 standard
08/05/92 12:45
    P_          av    11.6875              sd   0.49336 %cv   4.22 conc   5000.0

08/05/92 12:47
#4 standard     rep  1  P_          ratio   22.9172 conc 10000.0
                rep  2  P_          ratio   23.8700 conc 10000.0
                rep  3  P_          ratio   23.2684 conc 10000.0
#4 standard
08/05/92 12:47
    P_          av    23.3519              sd   0.48183 %cv   2.06 conc   10000.

08/05/92 12:49
CHECK HS        rep  1  P_          conc    10303.2 ug/L
                rep  2  P_          conc     9613.4 ug/L
                rep  3  P_          conc    10276.6 ug/L
CHECK HS
08/05/92 12:49
    P_          av   10064.4 ug/L          sd    390.81 %cv   3.88

08/05/92 12:51
ICV             rep  1  P_          conc     5039.1 ug/L
```

rep 2 P_ conc 5207.8 ug/L
rep 3 P_ conc 4876.8 ug/L

ICV
08/05/92 12:51
P_ av 5041.2 ug/L sd 165.53 %cv 3.28

08/05/92 12:53
ICB rep 1 P_ conc 107.3 ug/L
rep 2 P_ conc 270.6 ug/L
rep 3 P_ conc 275.3 ug/L

ICB
08/05/92 12:53
P_ av 217.7 ug/L sd 95.64 %cv 43.93

08/05/92 12:54
ICSAI rep 1 P_ conc 264.7 ug/L
rep 2 P_ conc 87.5 ug/L
rep 3 P_ conc 134.4 ug/L

ICSAI
08/05/92 12:55
P_ av 162.2 ug/L sd 91.85 %cv 56.63

08/05/92 12:56
ICSABI rep 1 P_ conc 1079.1 ug/L
rep 2 P_ conc 1412.8 ug/L
rep 3 P_ conc 1055.9 ug/L

ICSABI
08/05/92 12:57
P_ av 1182.6 ug/L sd 199.70 %cv 16.89

08/05/92 12:58
58.056.1FH rep 1 P_ conc 10018.5 ug/L
rep 2 P_ conc 12031.0 ug/L
rep 3 P_ conc 9958.6 ug/L

58.056.1FH
08/05/92 12:59
P_ av 10669.4 ug/L sd 1179.59 %cv 11.06

08/05/92 13:00
58.056.1FH D rep 1 P_ conc 11275.4 ug/L
rep 2 P_ conc 11677.2 ug/L
rep 3 P_ conc 11575.0 ug/L

58.056.1FH D
08/05/92 13:01
P_ av 11509.2 ug/L sd 208.86 %cv 1.81

08/05/92 13:02
58.056.5FH rep 1 P_ conc 16981.8 ug/L
rep 2 P_ conc 14889.7 ug/L
rep 3 P_ conc 16576.2 ug/L

58.056.5FH
08/05/92 13:03
P_ av 16149.3 ug/L sd 1109.49 %cv 6.87

08/05/92 13:05
58.056.5FH L rep 1 P_ conc 3938.4 ug/L
rep 2 P_ conc 3303.2 ug/L
rep 3 P_ conc 2979.0 ug/L

58.056.5FH L
08/05/92 13:05

P_	av	3406.9 ug/L		sd	488.05	%cv 14.33
08/05/92 13:07						
58.056.9FH	rep	1	P_	conc	22509.7 ug/L	
	rep	2	P_	conc	21500.2 ug/L	
	rep	3	P_	conc	22196.0 ug/L	
58.056.9FH						
08/05/92 13:07						
P_	av	22068.6 ug/L		sd	516.64	%cv 2.34
08/05/92 13:09						
58.056.4BH	rep	1	P_	conc	35907.5 ug/L	
	rep	2	P_	conc	36049.2 ug/L	
	rep	3	P_	conc	35379.9 ug/L	
58.056.4BH						
08/05/92 13:09						
P_	av	35778.9 ug/L		sd	352.73	%cv 0.99
08/05/92 13:11						
58.056.4BH D	rep	1	P_	conc	35553.8 ug/L	
	rep	2	P_	conc	35158.1 ug/L	
	rep	3	P_	conc	36169.7 ug/L	
58.056.4BH D						
08/05/92 13:11						
P_	av	35627.2 ug/L		sd	509.79	%cv 1.43
08/05/92 13:13						
58.056.8BH	rep	1	P_	conc	33355.4 ug/L	
	rep	2	P_	conc	33013.4 ug/L	
	rep	3	P_	conc	33839.6 ug/L	
58.056.8BH						
08/05/92 13:13						
P_	av	33402.8 ug/L		sd	415.14	%cv 1.24
08/05/92 13:15						
58.056.8BH L	rep	1	P_	conc	6531.6 ug/L	
	rep	2	P_	conc	6643.9 ug/L	
	rep	3	P_	conc	6805.2 ug/L	
58.056.8BH L						
08/05/92 13:15						
P_	av	6660.2 ug/L		sd	137.54	%cv 2.07
08/05/92 13:17						
58.056.12BH	rep	1	P_	conc	34449.4 ug/L	
	rep	2	P_	conc	34092.9 ug/L	
	rep	3	P_	conc	34087.5 ug/L	
58.056.12BH						
08/05/92 13:17						
P_	av	34209.9 ug/L		sd	207.41	%cv 0.61
08/05/92 13:19						
CCV1	rep	1	P_	conc	4999.5 ug/L	
	rep	2	P_	conc	4723.9 ug/L	
	rep	3	P_	conc	5265.5 ug/L	
CCV1						
08/05/92 13:19						
P_	av	4996.3 ug/L		sd	270.79	%cv 5.42
08/05/92 13:20						
CCB1	rep	1	P_	conc	158.7 ug/L	

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                  rep   2  P_          conc       161.2 ug/L
                  rep   3  P_          conc       242.4 ug/L
CCB1
08/05/92 13:21
    P_            av      187.5 ug/L        sd      47.64 %cv  25.42

08/05/92 13:22
ICSAF             rep   1  P_          conc        93.6 ug/L
                  rep   2  P_          conc       217.6 ug/L
                  rep   3  P_          conc      -256.3 ug/L          window edge
ICSAF
08/05/92 13:23
    P_            av       18.3 ug/L        sd     245.73 %cv  1343.

08/05/92 13:24
ICSABF            rep   1  P_          conc      1157.8 ug/L
                  rep   2  P_          conc      1187.5 ug/L
                  rep   3  P_          conc      1247.4 ug/L
ICSABF
08/05/92 13:25
    P_            av     1197.6 ug/L        sd      45.67 %cv   3.81
```

21435 S1

```
08/04/92 17:32
wcal standard  rep  1  Cd_   em   1801.4 conc 75.00
               rep  1  Mn_   em   2366.0 conc 50.00
               rep  1  Zn_   em    410.3 conc 75.00
               rep  1  Pb_   em    393.2 conc 250.00
               rep  1  Be_   em   1724.4 conc 25.00
               rep  2  Cd_   em   2198.1 conc 75.00
               rep  2  Mn_   em   2731.8 conc 50.00
               rep  2  Zn_   em    453.4 conc 75.00
               rep  2  Pb_   em    370.0 conc 250.00
               rep  2  Be_   em   1823.2 conc 25.00
               rep  3  Cd_   em   2157.7 conc 75.00
               rep  3  Mn_   em   2648.2 conc 50.00
               rep  3  Zn_   em    431.9 conc 75.00
               rep  3  Pb_   em    406.0 conc 250.00
               rep  3  Be_   em   1679.7 conc 25.00
wcal standard
08/04/92 17:34
   Cd_         av   2052.44        sd  218.308 %cv  10.64 conc   75.00
   Mn_         av   2582.00        sd  191.708 %cv   7.42 conc   50.00
   Zn_         av    431.84        sd   21.559 %cv   4.99 conc   75.00
   Pb_         av    389.73        sd   18.233 %cv   4.68 conc  250.00
   Be_         av   1742.44        sd   73.403 %cv   4.21 conc   25.00

08/04/92 17:37
sc blank       rep  1  Cd_   em    627.5
               rep  1  Mn_   em    201.6                window edge
               rep  1  Zn_   em    113.9
               rep  1  Pb_   em    553.1
               rep  1  Be_   em    218.5
08/04/92 17:39
blank          rep  1  Cd_   ratio  0.1269
               rep  1  Mn_   ratio  0.0208              window edge
               rep  1  Zn_   ratio  0.0353
               rep  1  Pb_   ratio  0.1358
               rep  1  Be_   ratio  0.0321
               rep  2  Cd_   ratio  0.2259
               rep  2  Mn_   ratio  0.0299              window edge
               rep  2  Zn_   ratio  0.0354
               rep  2  Pb_   ratio  0.1059
               rep  2  Be_   ratio  0.0371
               rep  3  Cd_   ratio  0.1795
               rep  3  Mn_   ratio  0.0400              window edge
               rep  3  Zn_   ratio  0.0337
               rep  3  Pb_   ratio  0.1231
               rep  3  Be_   ratio  0.0291
blank
08/04/92 17:42
   Cd_         av   0.1775         sd  0.04953 %cv  27.91
   Mn_         av   0.0302         sd  0.00963 %cv  31.86
   Zn_         av   0.0348         sd  0.00092 %cv   2.66
   Pb_         av   0.1216         sd  0.01499 %cv  12.33
   Be_         av   0.0328         sd  0.00405 %cv  12.36

08/04/92 17:44
#1 standard    rep  1  Cd_   ratio  0.6059 conc 75.00
               rep  1  Mn_   ratio  0.9155 conc 50.00
               rep  1  Zn_   ratio  0.1804 conc 75.00
               rep  1  Pb_   ratio  0.2251 conc 250.00
               rep  1  Be_   ratio  0.7691 conc 25.00
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          rep   2  Cd_        ratio   0.6819 conc 75.00
          rep   2  Mn_        ratio   0.8730 conc 50.00
          rep   2  Zn_        ratio   0.1686 conc 75.00
          rep   2  Pb_        ratio   0.2509 conc 250.00
          rep   2  Be_        ratio   0.8073 conc 25.00
          rep   3  Cd_        ratio   0.5900 conc 75.00
          rep   3  Mn_        ratio   0.9057 conc 50.00
          rep   3  Zn_        ratio   0.1360 conc 75.00
          rep   3  Pb_        ratio   0.2625 conc 250.00
          rep   3  Be_        ratio   0.8077 conc 25.00
#1 standard
08/04/92 17:47
   Cd_    av    0.6259         sd   0.04911 %cv   7.85 conc   75.00
   Mn_    av    0.8981         sd   0.02226 %cv   2.48 conc   50.00
   Zn_    av    0.1617         sd   0.02299 %cv  14.22 conc   75.00
   Pb_    av    0.2462         sd   0.01913 %cv   7.77 conc  250.00
   Be_    av    0.7947         sd   0.02217 %cv   2.79 conc   25.00

08/04/92 17:49
#2 standard rep   1  Cd_      ratio   2.3965 conc 300.00
          rep   1  Mn_        ratio   3.1478 conc 200.00
          rep   1  Zn_        ratio   0.5867 conc 300.00
          rep   1  Pb_        ratio   0.4903 conc 1000.00
          rep   1  Be_        ratio   2.9318 conc 100.00
          rep   2  Cd_        ratio   2.4315 conc 300.00
          rep   2  Mn_        ratio   3.1901 conc 200.00
          rep   2  Zn_        ratio   0.5938 conc 300.00
          rep   2  Pb_        ratio   0.5701 conc 1000.00
          rep   2  Be_        ratio   3.0880 conc 100.00
          rep   3  Cd_        ratio   2.1975 conc 300.00
          rep   3  Mn_        ratio   3.1726 conc 200.00
          rep   3  Zn_        ratio   0.5993 conc 300.00
          rep   3  Pb_        ratio   0.6296 conc 1000.00
          rep   3  Be_        ratio   2.9727 conc 100.00
#2 standard
08/04/92 17:52
   Cd_    av    2.3419         sd   0.12620 %cv   5.39 conc  300.00
   Mn_    av    3.1702         sd   0.02124 %cv   0.67 conc  200.00
   Zn_    av    0.5933         sd   0.00630 %cv   1.06 conc  300.00
   Pb_    av    0.5633         sd   0.06991 %cv  12.41 conc  1000.0
   Be_    av    2.9975         sd   0.08097 %cv   2.70 conc  100.00

08/04/92 17:54
#3 standard rep   1  Cd_      ratio   5.6566 conc 750.00
          rep   1  Mn_        ratio   7.7032 conc 500.00
          rep   1  Zn_        ratio   1.3855 conc 750.00
          rep   1  Pb_        ratio   1.2582 conc 2500.00
          rep   1  Be_        ratio   7.3411 conc 250.00
          rep   2  Cd_        ratio   5.4135 conc 750.00
          rep   2  Mn_        ratio   7.6470 conc 500.00
          rep   2  Zn_        ratio   1.3949 conc 750.00
          rep   2  Pb_        ratio   1.1942 conc 2500.00
          rep   2  Be_        ratio   7.4092 conc 250.00
          rep   3  Cd_        ratio   5.3625 conc 750.00
          rep   3  Mn_        ratio   7.5843 conc 500.00
          rep   3  Zn_        ratio   1.4387 conc 750.00
          rep   3  Pb_        ratio   1.1536 conc 2500.00
          rep   3  Be_        ratio   7.5081 conc 250.00
#3 standard
08/04/92 17:57
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    Cd_         av     5.4775                 sd    0.15715 %cv    2.87 conc   750.00
    Mn_         av     7.6448                 sd    0.05951 %cv    0.78 conc   500.00
    Zn_         av     1.4063                 sd    0.02838 %cv    2.02 conc   750.00
    Pb_         av     1.2020                 sd    0.05272 %cv    4.39 conc   2500.0
    Be_         av     7.4195                 sd    0.08394 %cv    1.13 conc   250.00

08/04/92 17:59
#4 standard     rep    1   Cd_         ratio  11.4347 conc 1500.00
                rep    1   Mn_         ratio  15.4359 conc 1000.00
                rep    1   Zn_         ratio   2.7154 conc 1500.00
                rep    1   Pb_         ratio   2.3274 conc 5000.00
                rep    1   Be_         ratio  15.0517 conc 500.00
                rep    2   Cd_         ratio  11.2320 conc 1500.00
                rep    2   Mn_         ratio  15.3411 conc 1000.00
                rep    2   Zn_         ratio   2.7070 conc 1500.00
                rep    2   Pb_         ratio   2.3410 conc 5000.00
                rep    2   Be_         ratio  15.0968 conc 500.00
                rep    3   Cd_         ratio  11.3713 conc 1500.00
                rep    3   Mn_         ratio  15.3648 conc 1000.00
                rep    3   Zn_         ratio   2.7839 conc 1500.00
                rep    3   Pb_         ratio   2.3689 conc 5000.00
                rep    3   Be_         ratio  15.0856 conc 500.00
#4 standard
08/04/92 18:01
    Cd_         av    11.3460                 sd    0.10372 %cv    0.91 conc   1500.0
    Mn_         av    15.3806                 sd    0.04938 %cv    0.32 conc   1000.0
    Zn_         av     2.7354                 sd    0.04219 %cv    1.54 conc   1500.0
    Pb_         av     2.3457                 sd    0.02116 %cv    0.90 conc   5000.0
    Be_         av    15.0780                 sd    0.02352 %cv    0.16 conc   500.00

08/04/92 18:04
CHECK HS        rep    1   Cd_         conc    1480.64 ug/L
                rep    1   Mn_         conc     995.07 ug/L
                rep    1   Zn_         conc    1471.83 ug/L
                rep    1   Pb_         conc    5014.30 ug/L
                rep    1   Be_         conc     498.83 ug/L
                rep    2   Cd_         conc    1513.32 ug/L
                rep    2   Mn_         conc     990.43 ug/L
                rep    2   Zn_         conc    1446.51 ug/L
                rep    2   Pb_         conc    4920.91 ug/L
                rep    2   Be_         conc     493.08 ug/L
                rep    3   Cd_         conc    1518.33 ug/L
                rep    3   Mn_         conc    1005.62 ug/L
                rep    3   Zn_         conc    1510.77 ug/L
                rep    3   Pb_         conc    5073.39 ug/L
                rep    3   Be_         conc     500.38 ug/L
CHECK HS
08/04/92 18:06
    Cd_         av    1504.10 ug/L          sd     20.467 %cv    1.36
    Mn_         av     997.04 ug/L          sd      7.786 %cv    0.78
    Zn_         av    1476.37 ug/L          sd     32.370 %cv    2.19
    Pb_         av    5002.86 ug/L          sd     76.879 %cv    1.54
    Be_         av     497.43 ug/L          sd      3.845 %cv    0.77

08/04/92 18:09
ICV             rep    1   Cd_         conc     750.61 ug/L
                rep    1   Mn_         conc     487.98 ug/L
                rep    1   Zn_         conc     748.21 ug/L
                rep    1   Pb_         conc    2526.45 ug/L
                rep    1   Be_         conc     239.87 ug/L
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rep	2	Cd_	conc	703.81	ug/L
rep	2	Mn_	conc	499.30	ug/L
rep	2	Zn_	conc	742.42	ug/L
rep	2	Pb_	conc	2447.48	ug/L
rep	2	Be_	conc	247.05	ug/L
rep	3	Cd_	conc	734.33	ug/L
rep	3	Mn_	conc	493.10	ug/L
rep	3	Zn_	conc	761.98	ug/L
rep	3	Pb_	conc	2623.56	ug/L
rep	3	Be_	conc	248.74	ug/L

ICV
08/04/92 18:11

Cd_	av	729.58	ug/L	sd	23.755	%cv	3.26
Mn_	av	493.46	ug/L	sd	5.670	%cv	1.15
Zn_	av	750.87	ug/L	sd	10.052	%cv	1.34
Pb_	av	2532.50	ug/L	sd	88.196	%cv	3.48
Be_	av	245.22	ug/L	sd	4.707	%cv	1.92

08/04/92 18:14

ICB	rep	1	Cd_	conc	1.12	ug/L	
	rep	1	Mn_	conc	-3.54	ug/L	window edge
	rep	1	Zn_	conc	-6.93	ug/L	
	rep	1	Pb_	conc	110.11	ug/L	
	rep	1	Be_	conc	1.14	ug/L	
	rep	2	Cd_	conc	7.08	ug/L	
	rep	2	Mn_	conc	-1.87	ug/L	
	rep	2	Zn_	conc	-8.57	ug/L	
	rep	2	Pb_	conc	-61.55	ug/L	
	rep	2	Be_	conc	0.91	ug/L	
	rep	3	Cd_	conc	4.39	ug/L	
	rep	3	Mn_	conc	-3.81	ug/L	window edge
	rep	3	Zn_	conc	-6.13	ug/L	
	rep	3	Pb_	conc	-137.99	ug/L	
	rep	3	Be_	conc	1.13	ug/L	

ICB
08/04/92 18:16

Cd_	av	4.20	ug/L	sd	2.987	%cv	71.18
Mn_	av	-3.07	ug/L	sd	1.051	%cv	34.20
Zn_	av	-7.21	ug/L	sd	1.241	%cv	17.22
Pb_	av	-29.81	ug/L	sd	127.060	%cv	426.1
Be_	av	1.06	ug/L	sd	0.129	%cv	12.15

08/04/92 18:19

ICSAI	rep	1	Cd_	conc	20.84	ug/L	
	rep	1	Mn_	conc	2.70	ug/L	
	rep	1	Zn_	conc	21.29	ug/L	
	rep	1	Pb_	conc	-62.42	ug/L	
	rep	1	Be_	conc	-34.04	ug/L	window edge
	rep	2	Cd_	conc	23.85	ug/L	
	rep	2	Mn_	conc	2.31	ug/L	
	rep	2	Zn_	conc	33.27	ug/L	
	rep	2	Pb_	conc	-106.68	ug/L	
	rep	2	Be_	conc	-31.08	ug/L	window edge
	rep	3	Cd_	conc	28.34	ug/L	
	rep	3	Mn_	conc	2.79	ug/L	
	rep	3	Zn_	conc	26.34	ug/L	
	rep	3	Pb_	conc	-59.09	ug/L	
	rep	3	Be_	conc	-37.97	ug/L	window edge

ICSAI
08/04/92 18:21

Cd_	av	24.34	ug/L	sd	3.776	%cv	15.51
Mn_	av	2.60	ug/L	sd	0.257	%cv	9.89
Zn_	av	26.97	ug/L	sd	6.016	%cv	22.31
Pb_	av	-76.06	ug/L	sd	26.569	%cv	34.93
Be_	av	-34.36	ug/L	sd	3.456	%cv	10.06

08/04/92 18:24

ICSABI	rep	1	Cd_	conc	842.73	ug/L
	rep	1	Mn_	conc	444.98	ug/L
	rep	1	Zn_	conc	888.78	ug/L
	rep	1	Pb_	conc	821.50	ug/L
	rep	1	Be_	conc	413.64	ug/L
	rep	2	Cd_	conc	842.87	ug/L
	rep	2	Mn_	conc	455.98	ug/L
	rep	2	Zn_	conc	868.21	ug/L
	rep	2	Pb_	conc	1033.15	ug/L
	rep	2	Be_	conc	424.17	ug/L
	rep	3	Cd_	conc	846.31	ug/L
	rep	3	Mn_	conc	446.63	ug/L
	rep	3	Zn_	conc	885.01	ug/L
	rep	3	Pb_	conc	933.89	ug/L
	rep	3	Be_	conc	422.45	ug/L

ICSABI
08/04/92 18:26

Cd_	av	843.97	ug/L	sd	2.029	%cv	0.24
Mn_	av	449.20	ug/L	sd	5.934	%cv	1.32
Zn_	av	880.67	ug/L	sd	10.953	%cv	1.24
Pb_	av	929.51	ug/L	sd	105.891	%cv	11.39
Be_	av	420.08	ug/L	sd	5.649	%cv	1.34

08/04/92 18:29

58.056.1FH	rep	1	Cd_	conc	16471.29	ug/L
	rep	1	Mn_	conc	18184.87	ug/L
	rep	1	Zn_	conc	9792.77	ug/L
	rep	1	Pb_	conc	1357921.2	ug/L
	rep	1	Be_	conc	741.49	ug/L
	rep	2	Cd_	conc	16883.13	ug/L
	rep	2	Mn_	conc	18443.42	ug/L
	rep	2	Zn_	conc	9856.49	ug/L
	rep	2	Pb_	conc	1375148.1	ug/L
	rep	2	Be_	conc	724.32	ug/L
	rep	3	Cd_	conc	16507.48	ug/L
	rep	3	Mn_	conc	18139.07	ug/L
	rep	3	Zn_	conc	10088.99	ug/L
	rep	3	Pb_	conc	1386254.3	ug/L
	rep	3	Be_	conc	752.61	ug/L

58.056.1FH
08/04/92 18:31

Cd_	av	16620.63	ug/L	sd	228.050	%cv	1.37
Mn_	av	18255.79	ug/L	sd	164.099	%cv	0.90
Zn_	av	9912.75	ug/L	sd	155.918	%cv	1.57
Pb_	av	1373107.	ug/L	sd	14276.32	%cv	1.04
Be_	av	739.47	ug/L	sd	14.256	%cv	1.93

08/04/92 18:34

58.056.1FH D	rep	1	Cd_	conc	16121.00	ug/L
	rep	1	Mn_	conc	17849.20	ug/L
	rep	1	Zn_	conc	9640.43	ug/L
	rep	1	Pb_	conc	1365263.0	ug/L
	rep	1	Be_	conc	586.04	ug/L

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               rep   2  Cd_          conc   16628.73 ug/L
               rep   2  Mn_          conc   17796.67 ug/L
               rep   2  Zn_          conc    9872.11 ug/L
               rep   2  Pb_          conc  1363897.8 ug/L
               rep   2  Be_          conc     550.51 ug/L
               rep   3  Cd_          conc   16695.53 ug/L
               rep   3  Mn_          conc   18118.47 ug/L
               rep   3  Zn_          conc   10045.70 ug/L
               rep   3  Pb_          conc  1388665.8 ug/L
               rep   3  Be_          conc     530.11 ug/L
.056.1FH D
/04/92 18:37
  Cd_          av  16481.76 ug/L        sd     314.201 %cv    1.91
  Mn_          av  17921.44 ug/L        sd     172.638 %cv    0.96
  Zn_          av   9852.75 ug/L        sd     203.330 %cv    2.06
  Pb_          av  1372609. ug/L        sd    13922.49 %cv    1.01
  Be_          av    555.56 ug/L        sd      28.305 %cv    5.09

/04/92 18:40
.056.5FH       rep   1  Cd_          conc   25513.76 ug/L
               rep   1  Mn_          conc   19557.09 ug/L
               rep   1  Zn_          conc   12917.89 ug/L
               rep   1  Pb_          conc  1935164.6 ug/L
               rep   1  Be_          conc     789.35 ug/L
               rep   2  Cd_          conc   26901.95 ug/L
               rep   2  Mn_          conc   19920.57 ug/L
               rep   2  Zn_          conc   12685.43 ug/L
               rep   2  Pb_          conc  1926680.5 ug/L
               rep   2  Be_          conc     795.01 ug/L
               rep   3  Cd_          conc   26062.25 ug/L
               rep   3  Mn_          conc   20120.80 ug/L
               rep   3  Zn_          conc   12507.62 ug/L
               rep   3  Pb_          conc  1919317.1 ug/L
               rep   3  Be_          conc     747.24 ug/L
056.5FH
'04/92 18:42
 Cd_           av  26159.32 ug/L        sd     699.170 %cv    2.67
 Mn_           av  19866.15 ug/L        sd     285.770 %cv    1.44
 Zn_           av  12703.65 ug/L        sd     205.742 %cv    1.62
 Pb_           av  1927054. ug/L        sd    7930.354 %cv    0.41
 Be_           av    777.20 ug/L        sd      26.099 %cv    3.36

04/92 18:45
056.5FH L      rep   1  Cd_          conc    4257.21 ug/L
               rep   1  Mn_          conc    3052.55 ug/L
               rep   1  Zn_          conc    2050.86 ug/L
               rep   1  Pb_          conc  297221.63 ug/L
               rep   1  Be_          conc     113.83 ug/L
               rep   2  Cd_          conc    4129.73 ug/L
               rep   2  Mn_          conc    3070.59 ug/L
               rep   2  Zn_          conc    1996.11 ug/L
               rep   2  Pb_          conc  299239.38 ug/L
               rep   2  Be_          conc     130.41 ug/L
               rep   3  Cd_          conc    4242.80 ug/L
               rep   3  Mn_          conc    3144.98 ug/L
               rep   3  Zn_          conc    1989.03 ug/L
               rep   3  Pb_          conc  291821.78 ug/L
               rep   3  Be_          conc     128.77 ug/L
056.5FH L
04/92 18:47
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Cd_	av	4209.91	ug/L	sd	69.815	%cv	1.66
Mn_	av	3089.37	ug/L	sd	48.993	%cv	1.59
Zn_	av	2012.00	ug/L	sd	33.841	%cv	1.68
Pb_	av	296094.2	ug/L	sd	3835.161	%cv	1.30
Be_	av	124.34	ug/L	sd	9.137	%cv	7.35

08/04/92 18:50

58.056.9FH	rep	1	Cd_	conc	33818.90	ug/L
	rep	1	Mn_	conc	22353.23	ug/L
	rep	1	Zn_	conc	15700.44	ug/L
	rep	1	Pb_	conc	2446560.2	ug/L
	rep	1	Be_	conc	1857.92	ug/L
	rep	2	Cd_	conc	34775.05	ug/L
	rep	2	Mn_	conc	22353.61	ug/L
	rep	2	Zn_	conc	16097.60	ug/L
	rep	2	Pb_	conc	2375009.0	ug/L
	rep	2	Be_	conc	1796.15	ug/L
	rep	3	Cd_	conc	32877.55	ug/L
	rep	3	Mn_	conc	22683.68	ug/L
	rep	3	Zn_	conc	16202.64	ug/L
	rep	3	Pb_	conc	2444554.0	ug/L
	rep	3	Be_	conc	1731.85	ug/L

58.056.9FH
08/04/92 18:52

Cd_	av	33823.83	ug/L	sd	948.760	%cv	2.81
Mn_	av	22463.51	ug/L	sd	190.677	%cv	0.85
Zn_	av	16000.23	ug/L	sd	264.883	%cv	1.66
Pb_	av	2422041.	ug/L	sd	40743.40	%cv	1.68
Be_	av	1795.31	ug/L	sd	63.042	%cv	3.51

08/04/92 18:55

58.056.4BH	rep	1	Cd_	conc	4355.10	ug/L
	rep	1	Mn_	conc	991.71	ug/L
	rep	1	Zn_	conc	1082.48	ug/L
	rep	1	Pb_	conc	266717.81	ug/L
	rep	1	Be_	conc	99.23	ug/L
	rep	2	Cd_	conc	4382.85	ug/L
	rep	2	Mn_	conc	995.97	ug/L
	rep	2	Zn_	conc	1113.33	ug/L
	rep	2	Pb_	conc	267699.00	ug/L
	rep	2	Be_	conc	103.10	ug/L
	rep	3	Cd_	conc	4441.57	ug/L
	rep	3	Mn_	conc	1010.80	ug/L
	rep	3	Zn_	conc	1097.33	ug/L
	rep	3	Pb_	conc	272178.84	ug/L
	rep	3	Be_	conc	107.48	ug/L

58.056.4BH
08/04/92 18:57

Cd_	av	4393.18	ug/L	sd	44.149	%cv	1.00
Mn_	av	999.49	ug/L	sd	10.025	%cv	1.00
Zn_	av	1097.71	ug/L	sd	15.430	%cv	1.41
Pb_	av	268865.2	ug/L	sd	2911.309	%cv	1.08
Be_	av	103.27	ug/L	sd	4.126	%cv	4.00

08/04/92 19:00

58.056.4BH D	rep	1	Cd_	conc	4401.52	ug/L
	rep	1	Mn_	conc	1005.22	ug/L
	rep	1	Zn_	conc	1109.45	ug/L
	rep	1	Pb_	conc	267985.56	ug/L
	rep	1	Be_	conc	109.72	ug/L

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                rep   2  Cd_        conc    4434.28 ug/L
                rep   2  Mn_        conc    1009.98 ug/L
                rep   2  Zn_        conc    1092.75 ug/L
                rep   2  Pb_        conc  272258.19 ug/L
                rep   2  Be_        conc     106.27 ug/L
                rep   3  Cd_        conc    4422.68 ug/L
                rep   3  Mn_        conc    1033.79 ug/L
                rep   3  Zn_        conc    1099.43 ug/L
                rep   3  Pb_        conc  271065.97 ug/L
                rep   3  Be_        conc     119.05 ug/L
58.056.4BH D
08/04/92 19:02
   Cd_          av    4419.50 ug/L        sd     16.613 %cv    0.38
   Mn_          av    1016.33 ug/L        sd     15.312 %cv    1.51
   Zn_          av    1100.54 ug/L        sd      8.408 %cv    0.76
   Pb_          av   270436.5 ug/L        sd   2204.750 %cv    0.82
   Be_          av     111.68 ug/L        sd      6.610 %cv    5.92

08/04/92 19:05
58.056.8BH      rep   1  Cd_        conc     576.77 ug/L
                rep   1  Mn_        conc     213.58 ug/L
                rep   1  Zn_        conc     260.79 ug/L
                rep   1  Pb_        conc   32629.77 ug/L
                rep   1  Be_        conc      14.46 ug/L
                rep   2  Cd_        conc     580.15 ug/L
                rep   2  Mn_        conc     216.47 ug/L
                rep   2  Zn_        conc     262.41 ug/L
                rep   2  Pb_        conc   32815.79 ug/L
                rep   2  Be_        conc      14.41 ug/L
                rep   3  Cd_        conc     571.20 ug/L
                rep   3  Mn_        conc     212.12 ug/L
                rep   3  Zn_        conc     273.36 ug/L
                rep   3  Pb_        conc   33089.92 ug/L
                rep   3  Be_        conc      14.04 ug/L
58.056.8BH
8/04/92 19:07
   Cd_          av     576.04 ug/L        sd      4.516 %cv    0.78
   Mn_          av     214.06 ug/L        sd      2.216 %cv    1.04
   Zn_          av     265.52 ug/L        sd      6.835 %cv    2.57
   Pb_          av   32845.16 ug/L        sd    231.473 %cv    0.70
   Be_          av      14.31 ug/L        sd      0.229 %cv    1.60

8/04/92 19:11
58.056.8BH L    rep   1  Cd_        conc     114.59 ug/L
                rep   1  Mn_        conc      42.52 ug/L
                rep   1  Zn_        conc      58.57 ug/L
                rep   1  Pb_        conc    6342.42 ug/L
                rep   1  Be_        conc       2.83 ug/L
                rep   2  Cd_        conc     100.41 ug/L
                rep   2  Mn_        conc      43.75 ug/L
                rep   2  Zn_        conc      48.71 ug/L
                rep   2  Pb_        conc    6622.36 ug/L
                rep   2  Be_        conc       3.67 ug/L
                rep   3  Cd_        conc     111.46 ug/L
                rep   3  Mn_        conc      45.53 ug/L
                rep   3  Zn_        conc      57.26 ug/L
                rep   3  Pb_        conc    6580.27 ug/L
                rep   3  Be_        conc       2.84 ug/L
58.056.8BH L
8/04/92 19:13
```

Cd_	av	108.82	ug/L	sd	7.448	%cv	6.84
Mn_	av	43.93	ug/L	sd	1.512	%cv	3.44
Zn_	av	54.84	ug/L	sd	5.356	%cv	9.77
Pb_	av	6515.02	ug/L	sd	150.950	%cv	2.32
Be_	av	3.11	ug/L	sd	0.481	%cv	15.45

08/04/92 19:16
58.056.12BH

rep	1	Cd_	conc	650.27	ug/L
rep	1	Mn_	conc	219.10	ug/L
rep	1	Zn_	conc	273.22	ug/L
rep	1	Pb_	conc	42272.73	ug/L
rep	1	Be_	conc	32.57	ug/L
rep	2	Cd_	conc	606.76	ug/L
rep	2	Mn_	conc	216.15	ug/L
rep	2	Zn_	conc	270.76	ug/L
rep	2	Pb_	conc	42925.47	ug/L
rep	2	Be_	conc	30.28	ug/L
rep	3	Cd_	conc	646.45	ug/L
rep	3	Mn_	conc	221.12	ug/L
rep	3	Zn_	conc	271.36	ug/L
rep	3	Pb_	conc	42815.06	ug/L
rep	3	Be_	conc	30.43	ug/L

58.056.12BH
08/04/92 19:18

Cd_	av	634.49	ug/L	sd	24.091	%cv	3.80
Mn_	av	218.79	ug/L	sd	2.501	%cv	1.14
Zn_	av	271.78	ug/L	sd	1.283	%cv	0.47
Pb_	av	42671.09	ug/L	sd	349.379	%cv	0.82
Be_	av	31.09	ug/L	sd	1.285	%cv	4.13

08/04/92 19:21
CCV1

rep	1	Cd_	conc	729.03	ug/L
rep	1	Mn_	conc	490.36	ug/L
rep	1	Zn_	conc	741.78	ug/L
rep	1	Pb_	conc	2518.72	ug/L
rep	1	Be_	conc	245.87	ug/L
rep	2	Cd_	conc	746.06	ug/L
rep	2	Mn_	conc	489.86	ug/L
rep	2	Zn_	conc	758.49	ug/L
rep	2	Pb_	conc	2566.26	ug/L
rep	2	Be_	conc	241.56	ug/L
rep	3	Cd_	conc	746.97	ug/L
rep	3	Mn_	conc	487.46	ug/L
rep	3	Zn_	conc	743.10	ug/L
rep	3	Pb_	conc	2785.33	ug/L
rep	3	Be_	conc	246.36	ug/L

CCV1
08/04/92 19:23

Cd_	av	740.69	ug/L	sd	10.105	%cv	1.36
Mn_	av	489.23	ug/L	sd	1.547	%cv	0.32
Zn_	av	747.79	ug/L	sd	9.289	%cv	1.24
Pb_	av	2623.44	ug/L	sd	142.207	%cv	5.42
Be_	av	244.60	ug/L	sd	2.643	%cv	1.08

08/04/92 19:26
CCB1

rep	1	Cd_	conc	-12.19	ug/L	window edge
rep	1	Mn_	conc	-2.70	ug/L	
rep	1	Zn_	conc	-6.95	ug/L	
rep	1	Pb_	conc	27.07	ug/L	
rep	1	Be_	conc	0.49	ug/L	

C- 0190

	rep	2	Cd_	conc	5.28	ug/L	
	rep	2	Mn_	conc	-2.65	ug/L	
	rep	2	Zn_	conc	-8.31	ug/L	
	rep	2	Pb_	conc	-69.42	ug/L	
	rep	2	Be_	conc	0.66	ug/L	
	rep	3	Cd_	conc	3.13	ug/L	
	rep	3	Mn_	conc	-5.09	ug/L	window edge
	rep	3	Zn_	conc	-16.98	ug/L	window edge
	rep	3	Pb_	conc	-53.68	ug/L	
	rep	3	Be_	conc	0.63	ug/L	window edge

CCB1
08/04/92 19:28

Cd_	av	-1.26	ug/L	sd	9.527	%cv	756.5
Mn_	av	-3.48	ug/L	sd	1.393	%cv	40.03
Zn_	av	-10.75	ug/L	sd	5.440	%cv	50.63
Pb_	av	-32.01	ug/L	sd	51.766	%cv	161.7
Be_	av	0.60	ug/L	sd	0.091	%cv	15.30

08/04/92 19:31

ICSAF	rep	1	Cd_	conc	26.71	ug/L	
	rep	1	Mn_	conc	2.04	ug/L	
	rep	1	Zn_	conc	34.90	ug/L	
	rep	1	Pb_	conc	-175.86	ug/L	
	rep	1	Be_	conc	-60.08	ug/L	window edge
	rep	2	Cd_	conc	18.59	ug/L	
	rep	2	Mn_	conc	2.97	ug/L	
	rep	2	Zn_	conc	41.52	ug/L	
	rep	2	Pb_	conc	10.48	ug/L	
	rep	2	Be_	conc	-61.94	ug/L	window edge
	rep	3	Cd_	conc	25.37	ug/L	
	rep	3	Mn_	conc	3.03	ug/L	
	rep	3	Zn_	conc	33.32	ug/L	
	rep	3	Pb_	conc	-191.79	ug/L	
	rep	3	Be_	conc	-51.92	ug/L	window edge

ICSAF
08/04/92 19:33

Cd_	av	23.56	ug/L	sd	4.351	%cv	18.47
Mn_	av	2.68	ug/L	sd	0.554	%cv	20.66
Zn_	av	36.58	ug/L	sd	4.350	%cv	11.89
Pb_	av	-119.06	ug/L	sd	112.462	%cv	94.46
Be_	av	-57.98	ug/L	sd	5.335	%cv	9.20

08/04/92 19:36

ICSABF	rep	1	Cd_	conc	871.55	ug/L
	rep	1	Mn_	conc	437.18	ug/L
	rep	1	Zn_	conc	892.29	ug/L
	rep	1	Pb_	conc	957.97	ug/L
	rep	1	Be_	conc	396.80	ug/L
	rep	2	Cd_	conc	822.75	ug/L
	rep	2	Mn_	conc	437.35	ug/L
	rep	2	Zn_	conc	889.85	ug/L
	rep	2	Pb_	conc	647.34	ug/L
	rep	2	Be_	conc	397.08	ug/L
	rep	3	Cd_	conc	805.58	ug/L
	rep	3	Mn_	conc	440.41	ug/L
	rep	3	Zn_	conc	877.67	ug/L
	rep	3	Pb_	conc	988.71	ug/L
	rep	3	Be_	conc	387.35	ug/L

ICSABF
08/04/92 19:38

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Cd_	av	833.29	ug/L		sd	34.224	%cv	4.11
Mn_	av	438.32	ug/L		sd	1.817	%cv	0.41
Zn_	av	886.60	ug/L		sd	7.827	%cv	0.88
Pb_	av	864.67	ug/L		sd	188.844	%cv	21.84
Be_	av	393.74	ug/L	78.8%	sd	5.536	%cv	1.41

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08/04/92 21:13									
wcal standard	rep	1	Ni_	em	59.6	conc	40.00		
	rep	1	Cr_	em	252.5	conc	40.00		
	rep	2	Ni_	em	55.7	conc	40.00		
	rep	2	Cr_	em	241.6	conc	40.00		
	rep	3	Ni_	em	51.3	conc	40.00		
	rep	3	Cr_	em	263.0	conc	40.00		
wcal standard									
08/04/92 21:14									
Ni_	av	55.53		sd	4.129	%cv	7.44	conc	40.00
Cr_	av	252.39		sd	10.695	%cv	4.24	conc	40.00
08/04/92 21:16									
sc blank	rep	1	Ni_	em	540.1				
	rep	1	Cr_	em	716.0				
08/04/92 21:19									
blank	rep	1	Ni_	ratio	0.1049				
	rep	1	Cr_	ratio	0.0859			window edge	
	rep	2	Ni_	ratio	0.1276				
	rep	2	Cr_	ratio	0.1071				
	rep	3	Ni_	ratio	0.0778				
	rep	3	Cr_	ratio	0.1548				
blank									
08/04/92 21:20									
Ni_	av	0.1034		sd	0.02495	%cv	24.11		
Cr_	av	0.1159		sd	0.03531	%cv	30.46		
08/04/92 21:22									
#1 standard	rep	1	Ni_	ratio	0.1218	conc	40.00		
	rep	1	Cr_	ratio	0.3396	conc	40.00		
	rep	2	Ni_	ratio	0.1529	conc	40.00		
	rep	2	Cr_	ratio	0.4067	conc	40.00		
	rep	3	Ni_	ratio	0.1395	conc	40.00		
	rep	3	Cr_	ratio	0.3433	conc	40.00		
#1 standard									
08/04/92 21:23									
Ni_	av	0.1381		sd	0.01558	%cv	11.29	conc	40.00
Cr_	av	0.3632		sd	0.03773	%cv	10.39	conc	40.00
08/04/92 21:26									
#2 standard	rep	1	Ni_	ratio	0.4338	conc	200.00		
	rep	1	Cr_	ratio	1.7821	conc	200.00		
	rep	2	Ni_	ratio	0.3018	conc	200.00		
	rep	2	Cr_	ratio	1.6595	conc	200.00		
	rep	3	Ni_	ratio	0.4083	conc	200.00		
	rep	3	Cr_	ratio	1.7833	conc	200.00		
#2 standard									
08/04/92 21:27									
Ni_	av	0.3813		sd	0.07005	%cv	18.37	conc	200.00
Cr_	av	1.7417		sd	0.07114	%cv	4.08	conc	200.00
08/04/92 21:29									
#3 standard	rep	1	Ni_	ratio	0.7296	conc	400.00		
	rep	1	Cr_	ratio	3.2191	conc	400.00		
	rep	2	Ni_	ratio	0.6552	conc	400.00		
	rep	2	Cr_	ratio	3.2495	conc	400.00		
	rep	3	Ni_	ratio	0.7514	conc	400.00		
	rep	3	Cr_	ratio	3.1986	conc	400.00		
#3 standard									
08/04/92 21:30									

0-006[illegible]

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   Ni_          av     .0.7120                sd    0.05044 %cv    7.08 conc   400.00
   Cr_          av      3.2224                sd    0.02556 %cv    0.79 conc   400.00

08/04/92 21:33
#4 standard     rep    1   Ni_          ratio    1.3578 conc 800.00
                rep    1   Cr_          ratio    6.1497 conc 800.00
                rep    2   Ni_          ratio    1.4048 conc 800.00
                rep    2   Cr_          ratio    6.1608 conc 800.00
                rep    3   Ni_          ratio    1.4467 conc 800.00
                rep    3   Cr_          ratio    6.1231 conc 800.00
#4 standard
08/04/92 21:34
   Ni_          av     1.4031                 sd    0.04449 %cv    3.17 conc   800.00
   Cr_          av     6.1445                 sd    0.01939 %cv    0.32 conc   800.00

08/04/92 21:36
CHECK HS        rep    1   Ni_          conc     802.06 ug/L
                rep    1   Cr_          conc     810.39 ug/L
                rep    2   Ni_          conc     802.12 ug/L
                rep    2   Cr_          conc     797.14 ug/L
                rep    3   Ni_          conc     795.04 ug/L
                rep    3   Cr_          conc     800.55 ug/L
CHECK HS
08/04/92 21:37
   Ni_          av     799.74 ug/L            sd       4.067 %cv    0.51
   Cr_          av     802.69 ug/L            sd       6.881 %cv    0.86

08/04/92 21:39
ICV             rep    1   Ni_          conc     421.62 ug/L
                rep    1   Cr_          conc     408.26 ug/L
                rep    2   Ni_          conc     463.45 ug/L
                rep    2   Cr_          conc     418.17 ug/L
                rep    3   Ni_          conc     404.03 ug/L
                rep    3   Cr_          conc     418.91 ug/L
ICV
08/04/92 21:41
   Ni_          av     429.70 ug/L            sd      30.523 %cv    7.10
   Cr_          av     415.11 ug/L            sd       5.947 %cv    1.43

08/04/92 21:43
ICB             rep    1   Ni_          conc      -5.48 ug/L
                rep    1   Cr_          conc      -2.49 ug/L
                rep    2   Ni_          conc      -3.65 ug/L
                rep    2   Cr_          conc      -4.37 ug/L
                rep    3   Ni_          conc     -16.76 ug/L
                rep    3   Cr_          conc      -8.16 ug/L
ICB
08/04/92 21:44
   Ni_          av      -8.63 ug/L            sd       7.101 %cv   82.30
   Cr_          av      -5.01 ug/L            sd       2.888 %cv   57.68

08/04/92 21:47
ICSAI           rep    1   Ni_          conc      -0.42 ug/L
                rep    1   Cr_          conc       0.79 ug/L
                rep    2   Ni_          conc      16.87 ug/L
                rep    2   Cr_          conc      -4.88 ug/L
                rep    3   Ni_          conc      -6.18 ug/L
                rep    3   Cr_          conc      -7.99 ug/L
ICSAI
08/04/92 21:48
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    Ni_         av       3.43 ug/L         sd     11.998 %cv   350.3
    Cr_         av      -4.03 ug/L         sd      4.452 %cv   110.5

08/04/92 21:50
ICSABI          rep    1  Ni_        conc      842.05 ug/L
                rep    1  Cr_        conc      435.75 ug/L
                rep    2  Ni_        conc      888.85 ug/L
                rep    2  Cr_        conc      438.68 ug/L
                rep    3  Ni_        conc      887.31 ug/L
                rep    3  Cr_        conc      420.80 ug/L
ICSABI
08/04/92 21:51
    Ni_         av     872.74 ug/L         sd     26.588 %cv    3.05
    Cr_         av     431.74 ug/L         sd      9.590 %cv    2.22

08/04/92 21:54
58.056.1FH      rep    1  Ni_        conc     3706.60 ug/L
                rep    1  Cr_        conc     6827.80 ug/L
                rep    2  Ni_        conc     3506.99 ug/L
                rep    2  Cr_        conc     7078.62 ug/L
                rep    3  Ni_        conc     3571.90 ug/L
                rep    3  Cr_        conc     7112.48 ug/L
58.056.1FH
08/04/92 21:55
    Ni_         av    3595.16 ug/L         sd    101.817 %cv    2.83
    Cr_         av    7006.30 ug/L         sd    155.513 %cv    2.22

08/04/92 21:58
58.056.1FH D    rep    1  Ni_        conc     3452.68 ug/L
                rep    1  Cr_        conc     6827.38 ug/L
                rep    2  Ni_        conc     3714.01 ug/L
                rep    2  Cr_        conc     7055.94 ug/L
                rep    3  Ni_        conc     3699.13 ug/L
                rep    3  Cr_        conc     7053.85 ug/L
58.056.1FH D
08/04/92 21:59
    Ni_         av    3621.94 ug/L         sd    146.774 %cv    4.05
    Cr_         av    6979.06 ug/L         sd    131.356 %cv    1.88

08/04/92 22:02
58.056.5FH      rep    1  Ni_        conc     5406.67 ug/L
                rep    1  Cr_        conc    10948.28 ug/L
                rep    2  Ni_        conc     5408.27 ug/L
                rep    2  Cr_        conc    11246.07 ug/L
                rep    3  Ni_        conc     5491.06 ug/L
                rep    3  Cr_        conc    11250.06 ug/L
58.056.5FH
08/04/92 22:03
    Ni_         av    5435.33 ug/L         sd     48.270 %cv    0.89
    Cr_         av   11148.13 ug/L         sd    173.092 %cv    1.55

08/04/92 22:05
58.056.5FH L    rep    1  Ni_        conc     1157.49 ug/L
                rep    1  Cr_        conc     2193.43 ug/L
                rep    2  Ni_        conc     1077.87 ug/L
                rep    2  Cr_        conc     2188.75 ug/L
                rep    3  Ni_        conc     1247.68 ug/L
                rep    3  Cr_        conc     2170.45 ug/L
58.056.5FH L
08/04/92 22:07
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Ni_	av	1161.01	ug/L	sd	84.958	%cv	7.32
Cr_	av	2184.21	ug/L	sd	12.144	%cv	0.56

08/04/92 22:09

58.056.9FH	rep	1	Ni_	conc	6771.26	ug/L
	rep	1	Cr_	conc	14252.35	ug/L
	rep	2	Ni_	conc	7007.31	ug/L
	rep	2	Cr_	conc	14362.89	ug/L
	rep	3	Ni_	conc	6823.22	ug/L
	rep	3	Cr_	conc	14228.61	ug/L

58.056.9FH
08/04/92 22:10

Ni_	av	6867.26	ug/L	sd	124.036	%cv	1.81
Cr_	av	14281.28	ug/L	sd	71.667	%cv	0.50

08/04/92 22:13

58.056.4BH	rep	1	Ni_	conc	367.32	ug/L
	rep	1	Cr_	conc	1348.38	ug/L
	rep	2	Ni_	conc	459.38	ug/L
	rep	2	Cr_	conc	1340.28	ug/L
	rep	3	Ni_	conc	452.24	ug/L
	rep	3	Cr_	conc	1317.39	ug/L

58.056.4BH
08/04/92 22:14

Ni_	av	426.31	ug/L	sd	51.216	%cv	12.01
Cr_	av	1335.35	ug/L	sd	16.073	%cv	1.20

08/04/92 22:17

58.056.4BH D	rep	1	Ni_	conc	456.38	ug/L
	rep	1	Cr_	conc	1312.98	ug/L
	rep	2	Ni_	conc	455.70	ug/L
	rep	2	Cr_	conc	1310.17	ug/L
	rep	3	Ni_	conc	418.36	ug/L
	rep	3	Cr_	conc	1335.03	ug/L

58.056.4BH D
08/04/92 22:18

Ni_	av	443.48	ug/L	sd	21.757	%cv	4.91
Cr_	av	1319.39	ug/L	sd	13.615	%cv	1.03

08/04/92 22:21

58.056.8BH	rep	1	Ni_	conc	19.64	ug/L
	rep	1	Cr_	conc	136.29	ug/L
	rep	2	Ni_	conc	56.68	ug/L
	rep	2	Cr_	conc	143.51	ug/L
	rep	3	Ni_	conc	39.28	ug/L
	rep	3	Cr_	conc	157.83	ug/L

58.056.8BH
08/04/92 22:22

Ni_	av	38.53	ug/L <50x IDL	sd	18.531	%cv	48.09
Cr_	av	145.88	ug/L <50x IDL	sd	10.960	%cv	7.51

PK

08/04/92 22:24

58.056.8BH L	rep	1	Ni_	conc	42.73	ug/L
	rep	1	Cr_	conc	83.63	ug/L
	rep	2	Ni_	conc	11.57	ug/L
	rep	2	Cr_	conc	76.95	ug/L
	rep	3	Ni_	conc	10.39	ug/L
	rep	3	Cr_	conc	64.89	ug/L

58.056.8BH L
08/04/92 22:25

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    Ni_         av      21.57 ug/L <10x IDL  sd     18.338 %cv   85.03
    Cr_         av      75.16 ug/L <10x IDL  sd      9.498 %cv   12.64
                                   PB
08/04/92 22:28
58.056.12BH     rep   1  Ni_          conc     46.66 ug/L
                rep   1  Cr_          conc    191.71 ug/L
                rep   2  Ni_          conc     73.14 ug/L
                rep   2  Cr_          conc    187.90 ug/L
                rep   3  Ni_          conc     83.29 ug/L
                rep   3  Cr_          conc    185.57 ug/L
58.056.12BH
08/04/92 22:29
    Ni_         av      67.70 ug/L           sd     18.910 %cv   27.93
    Cr_         av     188.40 ug/L           sd      3.102 %cv    1.65

08/04/92 22:32
CCV1            rep   1  Ni_          conc    361.51 ug/L
                rep   1  Cr_          conc    423.61 ug/L
                rep   2  Ni_          conc    424.44 ug/L
                rep   2  Cr_          conc    425.74 ug/L
                rep   3  Ni_          conc    415.45 ug/L
                rep   3  Cr_          conc    415.44 ug/L
CCV1
08/04/92 22:33
    Ni_         av     400.47 ug/L           sd     34.033 %cv    8.50
    Cr_         av     421.60 ug/L           sd      5.438 %cv    1.29

08/04/92 22:35
CCB1            rep   1  Ni_          conc    -39.29 ug/L           window edge
                rep   1  Cr_          conc     -1.23 ug/L
                rep   2  Ni_          conc    -26.35 ug/L
                rep   2  Cr_          conc     -6.90 ug/L
                rep   3  Ni_          conc     21.97 ug/L
                rep   3  Cr_          conc     -1.67 ug/L
CCB1
08/04/92 22:36
    Ni_         av     -14.56 ug/L           sd     32.290 %cv   221.8
    Cr_         av      -3.27 ug/L           sd      3.155 %cv   96.58

08/04/92 22:39
ICSAF           rep   1  Ni_          conc    -11.44 ug/L
                rep   1  Cr_          conc     -1.67 ug/L
                rep   2  Ni_          conc    -16.45 ug/L
                rep   2  Cr_          conc     -8.87 ug/L
                rep   3  Ni_          conc    -71.60 ug/L           window edge
                rep   3  Cr_          conc      3.22 ug/L
ICSAF
08/04/92 22:40
    Ni_         av     -33.17 ug/L           sd     33.382 %cv   100.6
    Cr_         av      -2.44 ug/L           sd      6.080 %cv   249.1

08/04/92 22:42
ICSABF          rep   1  Ni_          conc    863.09 ug/L
                rep   1  Cr_          conc    442.00 ug/L
                rep   2  Ni_          conc    896.94 ug/L
                rep   2  Cr_          conc    432.91 ug/L
                rep   3  Ni_          conc    996.40 ug/L
                rep   3  Cr_          conc    444.95 ug/L
ICSABF
08/04/92 22:44                        0-000[illegible]
```

Ni_	av	918.81	ug/L	sd	69.296	%cv	7.54
Cr_	av	439.95	ug/L	sd	6.275	%cv	1.43

2143552

Cu Only

```
08/04/92 19:43
wcal standard   rep   1  Ba_        em        275.4 conc 50.00
                rep   1  Cu_        em        508.8 conc 50.00
                rep   2  Ba_        em        250.3 conc 50.00
                rep   2  Cu_        em        483.9 conc 50.00
                rep   3  Ba_        em        231.2 conc 50.00
                rep   3  Cu_        em        464.9 conc 50.00
wcal standard
08/04/92 19:44
    Ba_         av    252.27             sd    22.161 %cv   8.78 conc   50.00
    Cu_         av    485.87             sd    22.004 %cv   4.53 conc   50.00

08/04/92 19:46
sc blank        rep   1  Ba_        em         65.8
                rep   1  Cu_        em        829.2
08/04/92 19:48
blank           rep   1  Ba_        ratio   0.0139
                rep   1  Cu_        ratio   0.4405
                rep   2  Ba_        ratio   0.0177
                rep   2  Cu_        ratio   0.2825
                rep   3  Ba_        ratio   0.0194
                rep   3  Cu_        ratio   0.3656
blank
08/04/92 19:49
    Ba_         av    0.0170             sd   0.00282 %cv  16.62
    Cu_         av    0.3629             sd   0.07907 %cv  21.79

08/04/92 19:52
#1 standard     rep   1  Ba_        ratio   0.5163 conc 50.00
                rep   1  Cu_        ratio   1.5151 conc 50.00
                rep   2  Ba_        ratio   0.4970 conc 50.00
                rep   2  Cu_        ratio   1.5461 conc 50.00
                rep   3  Ba_        ratio   0.5110 conc 50.00
                rep   3  Cu_        ratio   1.7536 conc 50.00
#1 standard
08/04/92 19:53
    Ba_         av    0.5081             sd   0.00997 %cv   1.96 conc   50.00
    Cu_         av    1.6049             sd   0.12968 %cv   8.08 conc   50.00

08/04/92 19:55
#2 standard     rep   1  Ba_        ratio   2.0395 conc 200.00
                rep   1  Cu_        ratio   5.2148 conc 200.00
                rep   2  Ba_        ratio   2.0071 conc 200.00
                rep   2  Cu_        ratio   4.9627 conc 200.00
                rep   3  Ba_        ratio   2.0434 conc 200.00
                rep   3  Cu_        ratio   4.9774 conc 200.00
#2 standard
08/04/92 19:56
    Ba_         av    2.0300             sd   0.01992 %cv   0.98 conc  200.00
    Cu_         av    5.0516             sd   0.14150 %cv   2.80 conc  200.00

08/04/92 19:58
#3 standard     rep   1  Ba_        ratio   5.0217 conc 500.00
                rep   1  Cu_        ratio  11.6138 conc 500.00
                rep   2  Ba_        ratio   4.9448 conc 500.00
                rep   2  Cu_        ratio  11.5771 conc 500.00
                rep   3  Ba_        ratio   4.9680 conc 500.00
                rep   3  Cu_        ratio  11.6665 conc 500.00
#3 standard
08/04/92 19:59
```

Ba_	av	4.9782	sd	0.03946	%cv	0.79	conc	500.00
Cu_	av	11.6192	sd	0.04496	%cv	0.39	conc	500.00

08/04/92 20:02

#4 standard	rep	1	Ba_	ratio	9.8436	conc	1000.00
	rep	1	Cu_	ratio	22.9574	conc	1000.00
	rep	2	Ba_	ratio	9.8311	conc	1000.00
	rep	2	Cu_	ratio	22.6678	conc	1000.00
	rep	3	Ba_	ratio	9.8864	conc	1000.00
	rep	3	Cu_	ratio	22.5959	conc	1000.00

#4 standard
08/04/92 20:03

Ba_	av	9.8537	sd	0.02898	%cv	0.29	conc	1000.0
Cu_	av	22.7404	sd	0.19136	%cv	0.84	conc	1000.0

08/04/92 20:05

CHECK HS	rep	1	Ba_	conc	998.73	ug/L
	rep	1	Cu_	conc	993.64	ug/L
	rep	2	Ba_	conc	998.47	ug/L
	rep	2	Cu_	conc	995.25	ug/L
	rep	3	Ba_	conc	991.24	ug/L
	rep	3	Cu_	conc	997.38	ug/L

CHECK HS
08/04/92 20:06

Ba_	av	996.14	ug/L	sd	4.251	%cv	0.43
Cu_	av	995.43	ug/L	sd	1.875	%cv	0.19

08/04/92 20:08

ICV	rep	1	Ba_	conc	497.52	ug/L
	rep	1	Cu_	conc	501.06	ug/L
	rep	2	Ba_	conc	498.35	ug/L
	rep	2	Cu_	conc	503.42	ug/L
	rep	3	Ba_	conc	499.67	ug/L
	rep	3	Cu_	conc	497.00	ug/L

ICV
08/04/92 20:09

Ba_	av	498.51	ug/L	sd	1.081	%cv	0.22
Cu_	av	500.49	ug/L	sd	3.248	%cv	0.65

08/04/92 20:11

ICB	rep	1	Ba_	conc	-2.99	ug/L	window edge
	rep	1	Cu_	conc	-6.97	ug/L	
	rep	2	Ba_	conc	-2.69	ug/L	
	rep	2	Cu_	conc	-8.61	ug/L	
	rep	3	Ba_	conc	-2.57	ug/L	
	rep	3	Cu_	conc	-2.78	ug/L	

ICB
08/04/92 20:13

Ba_	av	-2.75	ug/L	sd	0.215	%cv	7.83
Cu_	av	-6.12	ug/L	sd	3.012	%cv	49.20

08/04/92 20:15

ICSAI	rep	1	Ba_	conc	10.71	ug/L
	rep	1	Cu_	conc	0.01	ug/L
	rep	2	Ba_	conc	10.62	ug/L
	rep	2	Cu_	conc	-3.32	ug/L
	rep	3	Ba_	conc	11.50	ug/L
	rep	3	Cu_	conc	5.83	ug/L

ICSAI
08/04/92 20:16

```
    Ba_        av      10.94 ug/L        sd     0.480 %cv   4.39
    Cu_        av       0.84 ug/L        sd     4.628 %cv  549.7

08/04/92 20:18
ICSABI         rep   1  Ba_        conc    678.36 ug/L
               rep   1  Cu_        conc    432.92 ug/L
               rep   2  Ba_        conc    679.30 ug/L
               rep   2  Cu_        conc    425.26 ug/L
               rep   3  Ba_        conc    681.56 ug/L
               rep   3  Cu_        conc    417.32 ug/L
ICSABI
08/04/92 20:19
    Ba_        av     679.74 ug/L        sd     1.643 %cv   0.24
    Cu_        av     425.17 ug/L        sd     7.802 %cv   1.84

08/04/92 20:22
58.056.1FH     rep   1  Ba_        conc  26437.08 ug/L
               rep   1  Cu_        conc   1667.51 ug/L
               rep   2  Ba_        conc  26445.51 ug/L
               rep   2  Cu_        conc   1666.61 ug/L
               rep   3  Ba_        conc  26684.41 ug/L
               rep   3  Cu_        conc   1679.84 ug/L
58.056.1FH
08/04/92 20:23
    Ba_        av  26522.33 ug/L         sd   140.424 %cv   0.53
    Cu_        av   1671.32 ug/L         sd     7.392 %cv   0.44

08/04/92 20:25
58.056.1FH D   rep   1  Ba_        conc  26187.08 ug/L
               rep   1  Cu_        conc   1650.00 ug/L
               rep   2  Ba_        conc  26190.29 ug/L
               rep   2  Cu_        conc   1633.84 ug/L
               rep   3  Ba_        conc  25869.39 ug/L
               rep   3  Cu_        conc   1614.20 ug/L
58.056.1FH D
08/04/92 20:26
    Ba_        av  26082.25 ug/L         sd   184.354 %cv   0.71
    Cu_        av   1632.68 ug/L         sd    17.927 %cv   1.10

08/04/92 20:29
58.056.5FH     rep   1  Ba_        conc  23452.89 ug/L
               rep   1  Cu_        conc   2770.58 ug/L
               rep   2  Ba_        conc  22966.85 ug/L
               rep   2  Cu_        conc   2833.88 ug/L
               rep   3  Ba_        conc  22927.71 ug/L
               rep   3  Cu_        conc   2721.09 ug/L
58.056.5FH
08/04/92 20:30
    Ba_        av  23115.81 ug/L         sd   292.572 %cv   1.27
    Cu_        av   2775.18 ug/L         sd    56.540 %cv   2.04

08/04/92 20:32
58.056.5FH L   rep   1  Ba_        conc   3875.67 ug/L
               rep   1  Cu_        conc    446.72 ug/L
               rep   2  Ba_        conc   3817.94 ug/L
               rep   2  Cu_        conc    460.00 ug/L
               rep   3  Ba_        conc   3856.87 ug/L
               rep   3  Cu_        conc    437.15 ug/L
58.056.5FH L
8/04/92 20:33
```

```
    Ba_           av    3850.16 ug/L          sd     29.442 %cv    0.76
    Cu_           av     447.96 ug/L          sd     11.475 %cv    2.56

08/04/92 20:36
58.056.9FH       rep   1   Ba_        conc   29660.00 ug/L
                 rep   1   Cu_        conc    4024.11 ug/L
                 rep   2   Ba_        conc   29095.90 ug/L
                 rep   2   Cu_        conc    4075.66 ug/L
                 rep   3   Ba_        conc   29389.03 ug/L
                 rep   3   Cu_        conc    4076.83 ug/L
58.056.9FH
08/04/92 20:37
    Ba_           av   29381.64 ug/L          sd    282.120 %cv    0.96
    Cu_           av    4058.87 ug/L          sd     30.106 %cv    0.74

08/04/92 20:39
58.056.4BH       rep   1   Ba_        conc    1275.98 ug/L
                 rep   1   Cu_        conc     180.52 ug/L
                 rep   2   Ba_        conc    1277.50 ug/L
                 rep   2   Cu_        conc     183.90 ug/L
                 rep   3   Ba_        conc    1273.37 ug/L
                 rep   3   Cu_        conc     185.74 ug/L
58.056.4BH
08/04/92 20:41
    Ba_           av    1275.62 ug/L          sd      2.088 %cv    0.16
    Cu_           av     183.39 ug/L          sd      2.649 %cv    1.44

08/04/92 20:43
58.056.4BH D     rep   1   Ba_        conc    1282.35 ug/L
                 rep   1   Cu_        conc     190.61 ug/L
                 rep   2   Ba_        conc    1287.95 ug/L
                 rep   2   Cu_        conc     198.03 ug/L
                 rep   3   Ba_        conc    1278.37 ug/L
                 rep   3   Cu_        conc     190.15 ug/L
58.056.4BH D
08/04/92 20:44
    Ba_           av    1282.89 ug/L          sd      4.812 %cv    0.38
    Cu_           av     192.93 ug/L          sd      4.423 %cv    2.29

08/04/92 20:47
58.056.8BH       rep   1   Ba_        conc     258.70 ug/L
                 rep   1   Cu_        conc     107.37 ug/L
                 rep   2   Ba_        conc     257.23 ug/L
                 rep   2   Cu_        conc      91.12 ug/L
                 rep   3   Ba_        conc     256.04 ug/L
                 rep   3   Cu_        conc      96.67 ug/L
58.056.8BH
08/04/92 20:48
    Ba_           av     257.32 ug/L          sd      1.336 %cv    0.52
    Cu_           av      98.38 ug/L ✓ < 50x IDL  sd      8.263 %cv    8.40
                                      AB

08/04/92 20:50
58.056.8BH L     rep   1   Ba_        conc      46.35 ug/L
                 rep   1   Cu_        conc       7.72 ug/L
                 rep   2   Ba_        conc      48.10 ug/L
                 rep   2   Cu_        conc       9.58 ug/L
                 rep   3   Ba_        conc      47.12 ug/L
                 rep   3   Cu_        conc       7.45 ug/L
58.056.8BH L
08/04/92 20:51
```

```
   Ba_          av      47.19 ug/L          sd       0.877 %cv    1.86
   Cu_          av       8.25 ug/L          sd       1.157 %cv   14.02

08/04/92 20:54
58.056.12BH     rep    1   Ba_         conc     246.37 ug/L
                rep    1   Cu_         conc      40.76 ug/L
                rep    2   Ba_         conc     244.84 ug/L
                rep    2   Cu_         conc      57.77 ug/L
                rep    3   Ba_         conc     247.02 ug/L
                rep    3   Cu_         conc      43.11 ug/L
58.056.12BH
08/04/92 20:55
   Ba_          av     246.07 ug/L          sd       1.117 %cv    0.45
   Cu_          av      47.22 ug/L 42%      sd       9.217 %cv   19.52

08/04/92 20:57
CCV1            rep    1   Ba_         conc     500.71 ug/L
                rep    1   Cu_         conc     491.76 ug/L
                rep    2   Ba_         conc     496.65 ug/L
                rep    2   Cu_         conc     507.82 ug/L
                rep    3   Ba_         conc     495.59 ug/L
                rep    3   Cu_         conc     502.42 ug/L
CCV1
08/04/92 20:58
   Ba_          av     497.65 ug/L          sd       2.703 %cv    0.54
   Cu_          av     500.66 ug/L          sd       8.175 %cv    1.63

08/04/92 21:01
CCB1            rep    1   Ba_         conc      -2.36 ug/L
                rep    1   Cu_         conc     -10.26 ug/L
                rep    2   Ba_         conc      -2.91 ug/L
                rep    2   Cu_         conc      -7.80 ug/L
                rep    3   Ba_         conc      -2.07 ug/L
                rep    3   Cu_         conc      -7.68 ug/L
CCB1
08/04/92 21:02
   Ba_          av      -2.45 ug/L          sd       0.429 %cv   17.55
   Cu_          av      -8.58 ug/L          sd       1.455 %cv   16.95

08/04/92 21:04
ICSAF           rep    1   Ba_         conc      10.41 ug/L
                rep    1   Cu_         conc       2.33 ug/L
                rep    2   Ba_         conc      10.31 ug/L
                rep    2   Cu_         conc       2.08 ug/L
                rep    3   Ba_         conc      10.46 ug/L
                rep    3   Cu_         conc      -0.38 ug/L
ICSAF
08/04/92 21:05
   Ba_          av      10.39 ug/L          sd       0.077 %cv    0.74
   Cu_          av       1.34 ug/L          sd       1.494 %cv   111.2

08/04/92 21:08
ICSABF          rep    1   Ba_         conc     670.70 ug/L
                rep    1   Cu_         conc     417.63 ug/L
                rep    2   Ba_         conc     678.17 ug/L
                rep    2   Cu_         conc     413.14 ug/L
                rep    3   Ba_         conc     678.90 ug/L
                rep    3   Cu_         conc     415.88 ug/L
ICSABF
08/04/92 21:09
```

Ba_	av	675.92 ug/L	sd	4.534	%cv	0.67
Cu_	av	415.55 ug/L	sd	2.263	%cv	0.54

Element File: SE_MSA.GEL Element: Se Wavelength: 196.0
ate: 08/05/92 Time: 07:36 Slit: 2.0 L
ata File: E080592A.DAT ID/Wt File: 21435.IDW Lamp Current: 0
Technique: HGA Calib. Type: Method of Add. Energy: 62

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Se ID: Blank Seq. No.: 00001 A/S Pos.: 0 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 0
eplicate 1 Time: 07:38
Peak Area (A-s): 0.005 Peak Height (A): 0.005
ackground Pk Area (A-s): 0.166 Background Pk Height (A): 0.056
lank Corrected Pk Area (A-s): 0.005

Auto-zero performed.

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Se ID: 58.056.1FH Seq. No.: 00002 A/S Pos.: 6 Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 10 from 6
Replicate 1 Time: 07:41
Peak Area (A-s): 0.010 Peak Height (A): 0.006
ackground Pk Area (A-s): 0.133 Background Pk Height (A): 0.063
lank Corrected Pk Area (A-s): 0.005

ID: Addition 1 Seq. No.: 00003 A/S Pos.: 6 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 6
eplicate 1 Time: 07:44
ak Area (A-s): 0.011 Peak Height (A): 0.007
Background Pk Area (A-s): 0.088 Background Pk Height (A): 0.046
Blank Corrected Pk Area (A-s): 0.006

ID: Addition 2 Seq. No.: 00004 A/S Pos.: 6 Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 6
plicate 1 Time: 07:47
Peak Area (A-s): 0.016 Peak Height (A): 0.008
Background Pk Area (A-s): 0.091 Background Pk Height (A): 0.043
ank Corrected Pk Area (A-s): 0.011

Se ID: Addition 3 Seq. No.: 00005 A/S Pos.: 6 Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 6
Replicate 1 Time: 07:50
eak Area (A-s): 0.022 Peak Height (A): 0.010
ckground Pk Area (A-s): 0.090 Background Pk Height (A): 0.035
lank Corrected Pk Area (A-s): 0.017

pansion >100 is not allowed. No calibration has occurred.
ID: 58.056.1FH Seq. No.: 00002 A/S Pos.: 6 Date: 08/05/92

ncentration (ug/L): --------

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Se ID: 58.056.5FH Seq. No.: 00006 A/S Pos.: 7 Date: 08/05/92

dispensed: 20 from 0, 5 from 39, 10 from 7
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Replicate 1 Time: 07:53
Peak Area (A-s): 0.021 Peak Height (A): 0.010
Background Pk Area (A-s): 0.078 Background Pk Height (A): 0.037
Blank Corrected Pk Area (A-s): 0.016

Se ID: Addition 1 Seq. No.: 00007 A/S Pos.: 7 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 7
Replicate 1 Time: 07:55
Peak Area (A-s): 0.024 Peak Height (A): 0.011
Background Pk Area (A-s): 0.077 Background Pk Height (A): 0.035
Blank Corrected Pk Area (A-s): 0.019

Se ID: Addition 2 Seq. No.: 00008 A/S Pos.: 7 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 7
Replicate 1 Time: 07:58
Peak Area (A-s): 0.031 Peak Height (A): 0.013
Background Pk Area (A-s): 0.075 Background Pk Height (A): 0.032
Blank Corrected Pk Area (A-s): 0.025

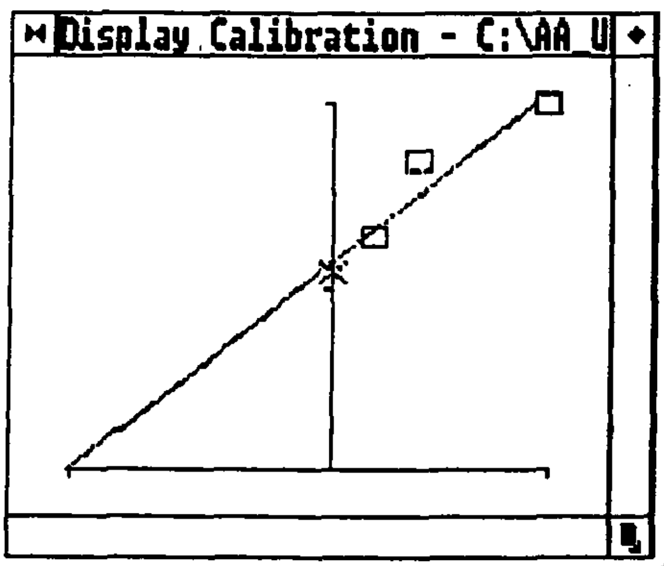
Se ID: Addition 3 Seq. No.: 00009 A/S Pos.: 7 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 7
Replicate 1 Time: 08:01
Peak Area (A-s): 0.035 Peak Height (A): 0.013
Background Pk Area (A-s): 0.085 Background Pk Height (A): 0.041
Blank Corrected Pk Area (A-s): 0.030

Se ID: 58.056.5FH Seq. No.: 00006 A/S Pos.: 7 Date: 08/05/92

Concentration (ug/L): 62.0

Correlation coefficient: 0.95779 Slope: 0.0003 Int: 0.017



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Se ID: 58.056.9FH Seq. No.: 00010 A/S Pos.: 8 Date: 08/05/92

0-000104
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uL dispensed: 20 from 0, 5 from 39, 10 from 8
Replicate 1 Time: 08:04
eak Area (A-s): 0.019 Peak Height (A): 0.009
ackground Pk Area (A-s): 0.069 Background Pk Height (A): 0.029
Blank Corrected Pk Area (A-s): 0.014

e ID: Addition 1 Seq. No.: 00011 A/S Pos.: 8 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 8
eplicate 1 Time: 08:07
eak Area (A-s): 0.021 Peak Height (A): 0.009
Background Pk Area (A-s): 0.096 Background Pk Height (A): 0.046
lank Corrected Pk Area (A-s): 0.016

Se ID: Addition 2 Seq. No.: 00012 A/S Pos.: 8 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 8
eplicate 1 Time: 08:10
Peak Area (A-s): 0.023 Peak Height (A): 0.011
ackground Pk Area (A-s): 0.108 Background Pk Height (A): 0.053
lank Corrected Pk Area (A-s): 0.018

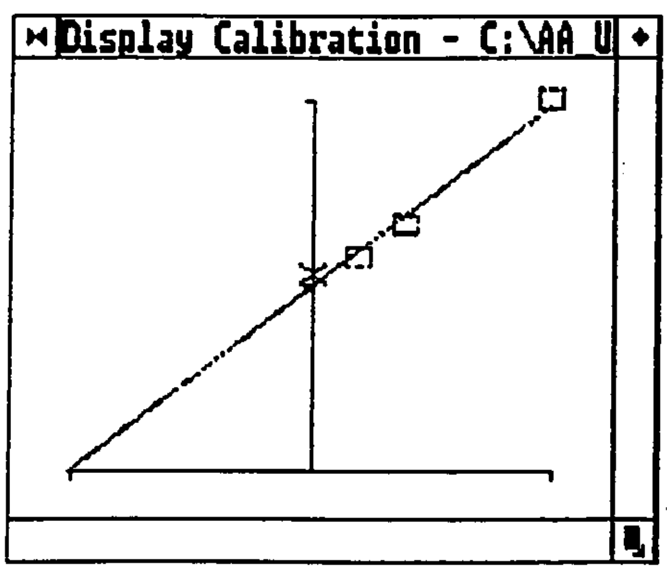
e ID: Addition 3 Seq. No.: 00013 A/S Pos.: 8 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 8
Replicate 1 Time: 08:13
eak Area (A-s): 0.032 Peak Height (A): 0.014
ackground Pk Area (A-s): 0.107 Background Pk Height (A): 0.048
Blank Corrected Pk Area (A-s): 0.027

e standard additions calibration curve may not be linear.
Se ID: 58.056.9FH Seq. No.: 00010 A/S Pos.: 8 Date: 08/05/92

ncentration (ug/L): 50.6

Correlation coefficient: 0.99034 Slope: 0.0003 Int: 0.013



0- 006135

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3e ID: 58.056.4BH Seq. No.: 00014 A/S Pos.: 9 Date: 08/05/92

iL dispensed: 20 from 0, 5 from 39, 10 from 9
Replicate 1 Time: 08:16
Peak Area (A-s): 0.019 Peak Height (A): 0.010
Background Pk Area (A-s): 0.267 Background Pk Height (A): 0.133
Blank Corrected Pk Area (A-s): 0.014

3e ID: Addition 1 Seq. No.: 00015 A/S Pos.: 9 Date: 08/05/92

iL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 9
Replicate 1 Time: 08:19
Peak Area (A-s): 0.022 Peak Height (A): 0.011
Background Pk Area (A-s): 0.305 Background Pk Height (A): 0.166
Blank Corrected Pk Area (A-s): 0.017

3e ID: Addition 2 Seq. No.: 00016 A/S Pos.: 9 Date: 08/05/92

iL dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 9
Replicate 1 Time: 08:22
Peak Area (A-s): 0.026 Peak Height (A): 0.017
Background Pk Area (A-s): 0.306 Background Pk Height (A): 0.173
Blank Corrected Pk Area (A-s): 0.021

3e ID: Addition 3 Seq. No.: 00017 A/S Pos.: 9 Date: 08/05/92

iL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 9
Replicate 1 Time: 08:24
Peak Area (A-s): 0.035 Peak Height (A): 0.023
Background Pk Area (A-s): 0.193 Background Pk Height (A): 0.102
Blank Corrected Pk Area (A-s): 0.030

3e ID: 58.056.4BH Seq. No.: 00014 A/S Pos.: 9 Date: 08/05/92

Concentration (ug/L): 44.0

Correlation coefficient: 0.99857 Slope: 0.0003 Int: 0.014
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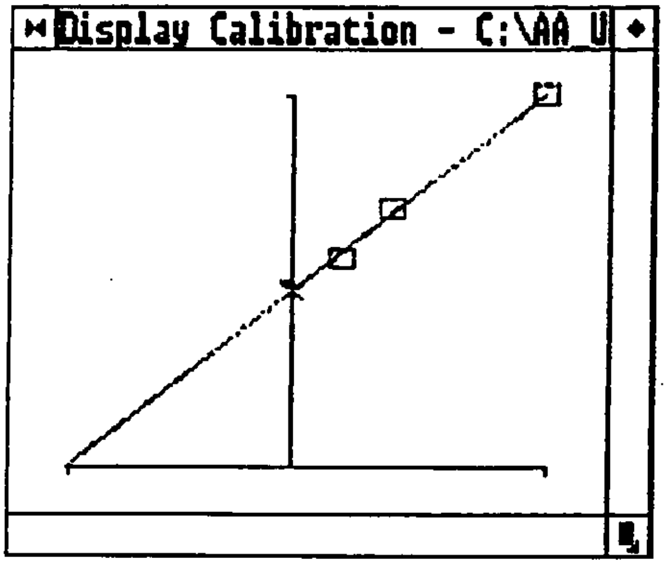

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e ID: 58.056.8BH Seq. No.: 00018 A/S Pos.: 10 Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 10 from 10
eplicate 1 Time: 08:27
eak Area (A-s): 0.022 Peak Height (A): 0.011
ackground Pk Area (A-s): 0.177 Background Pk Height (A): 0.071
lank Corrected Pk Area (A-s): 0.017

e ID: Addition 1 Seq. No.: 00019 A/S Pos.: 10 Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 10
plicate 1 Time: 08:30
eak Area (A-s): 0.027 Peak Height (A): 0.014
ckground Pk Area (A-s): 0.207 Background Pk Height (A): 0.085
ank Corrected Pk Area (A-s): 0.022

e ID: Addition 2 Seq. No.: 00020 A/S Pos.: 10 Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 10
eplicate 1 Time: 08:33
ak Area (A-s): 0.031 Peak Height (A): 0.021
ckground Pk Area (A-s): 0.237 Background Pk Height (A): 0.109
lank Corrected Pk Area (A-s): 0.026

ID: Addition 3 Seq. No.: 00021 A/S Pos.: 10 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 10
plicate 1 Time: 08:36
ak Area (A-s): 0.045 Peak Height (A): 0.024
ackground Pk Area (A-s): 0.223 Background Pk Height (A): 0.101
ank Corrected Pk Area (A-s): 0.040

e ID: 58.056.8BH Seq. No.: 00018 A/S Pos.: 10 Date: 08/05/92

ncentration (ug/L): 36.2

orrelation coefficient: 0.99984 Slope: 0.0005 Int: 0.017

P· 006[illegible]
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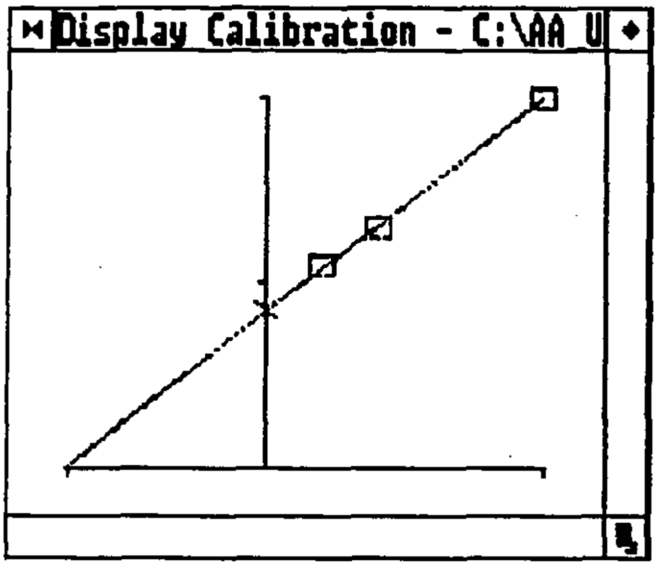

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3e ID: 58.056.12BH Seq. No.: 00022 A/S Pos.: 11 Date: 08/05/92

ıL dispensed: 20 from 0, 5 from 39, 10 from 11
Replicate 1 Time: 08:39
Peak Area (A-s): 0.009 Peak Height (A): 0.007
Background Pk Area (A-s): 0.244 Background Pk Height (A): 0.119
Blank Corrected Pk Area (A-s): 0.004

3e ID: Addition 1 Seq. No.: 00023 A/S Pos.: 11 Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 11
Replicate 1 Time: 08:42
Peak Area (A-s): 0.016 Peak Height (A): 0.009
Background Pk Area (A-s): 0.300 Background Pk Height (A): 0.178
Blank Corrected Pk Area (A-s): 0.011

3e ID: Addition 2 Seq. No.: 00024 A/S Pos.: 11 Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 11
Replicate 1 Time: 08:45
Peak Area (A-s): 0.020 Peak Height (A): 0.010
Background Pk Area (A-s): 0.301 Background Pk Height (A): 0.181
Blank Corrected Pk Area (A-s): 0.015

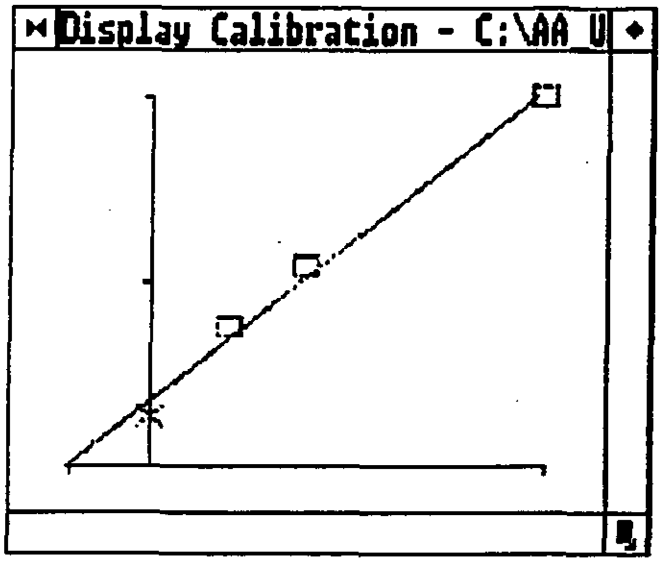
3e ID: Addition 3 Seq. No.: 00025 A/S Pos.: 11 Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 11
Replicate 1 Time: 08:48
Peak Area (A-s): 0.033 Peak Height (A): 0.015
Background Pk Area (A-s): 0.311 Background Pk Height (A): 0.196
Blank Corrected Pk Area (A-s): 0.028

The standard additions calibration curve may not be linear.
3e ID: 58.056.12BH Seq. No.: 00022 A/S Pos.: 11 Date: 08/05/92

Concentration (ug/L): 10.3
~~~~~~

orrelation coefficient: 0.99481 Slope: 0.0005 Int: 0.005



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ie ID: Blank Seq. No.: 00026 A/S Pos.: 0 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 0
eplicate 1 Time: 09:20
eak Area (A-s): 0.002 Peak Height (A): 0.004
ackground Pk Area (A-s): 0.037 Background Pk Height (A): 0.015
lank Corrected Pk Area (A-s): -0.003

ito-zero performed.

~~~~~~

ID: 58.056.1FH Seq. No.: 00027 A/S Pos.: 6 Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 10 from 6
eplicate 1 Time: 09:22
ak Area (A-s): 0.018 Peak Height (A): 0.010
ckground Pk Area (A-s): 0.131 Background Pk Height (A): 0.070
lank Corrected Pk Area (A-s): 0.016

ID: Addition 1 Seq. No.: 00028 A/S Pos.: 6 Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 6
plicate 1 Time: 09:25
ak Area (A-s): 0.025 Peak Height (A): 0.012
ackground Pk Area (A-s): 0.232 Background Pk Height (A): 0.162
ank Corrected Pk Area (A-s): 0.023

ie ID: Addition 2 Seq. No.: 00029 A/S Pos.: 6 Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 6
eplicate 1 Time: 09:28
eak Area (A-s): 0.028 Peak Height (A): 0.014
ckground Pk Area (A-s): 0.295 Background Pk Height (A): 0.207
ank Corrected Pk Area (A-s): 0.026

C- 000193

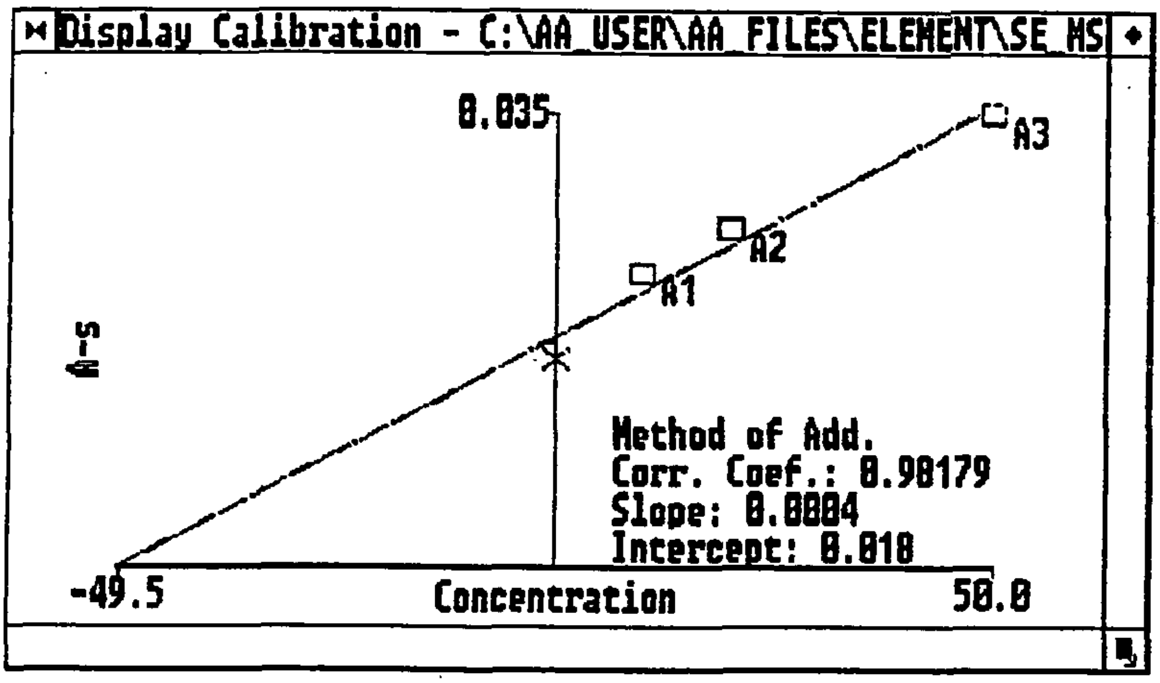
3e ID: Addition 3 Seq. No.: 00030 A/S Pos.: 6 Date: 08/05/92

iL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 6
Replicate 1 Time: 09:31
Peak Area (A-s): 0.037 Peak Height (A): 0.016
Background Pk Area (A-s): 0.306 Background Pk Height (A): 0.222
Blank Corrected Pk Area (A-s): 0.035

The standard additions calibration curve may not be linear.
3e ID: 58.056.1FH Seq. No.: 00027 A/S Pos.: 6 Date: 08/05/92

Concentration (ug/L): 49.5 ✓ This is the better of 2 attempts.

Correlation coefficient: 0.98179 Slope: 0.0004 Int: 0.018



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3e ID: 58.056.5FH Seq. No.: 00031 A/S Pos.: 7 Date: 08/05/92

iL dispensed: 20 from 0, 5 from 39, 10 from 7
Replicate 1 Time: 09:34
Peak Area (A-s): 0.023 Peak Height (A): 0.010
Background Pk Area (A-s): 0.170 Background Pk Height (A): 0.094
Blank Corrected Pk Area (A-s): 0.021

3e ID: Addition 1 Seq. No.: 00032 A/S Pos.: 7 Date: 08/05/92

iL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 7
Replicate 1 Time: 09:37
Peak Area (A-s): 0.026 Peak Height (A): 0.012
Background Pk Area (A-s): 0.215 Background Pk Height (A): 0.110
Blank Corrected Pk Area (A-s): 0.024

3e ID: Addition 2 Seq. No.: 00033 A/S Pos.: 7 Date: 08/05/92
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L dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 7
eplicate 1 Time: 09:40
eak Area (A-s): 0.028 Peak Height (A): 0.013
ackground Pk Area (A-s): 0.256 Background Pk Height (A): 0.151
lank Corrected Pk Area (A-s): 0.026

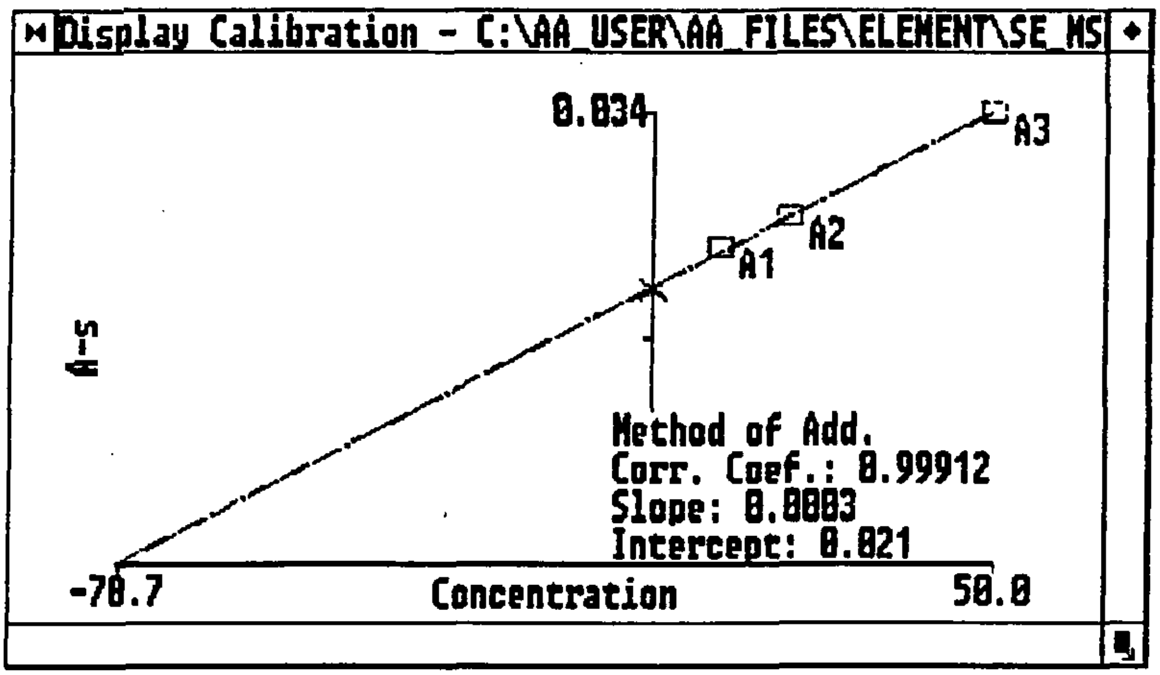
e ID: Addition 3 Seq. No.: 00034 A/S Pos.: 7 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 7
eplicate 1 Time: 09:43
eak Area (A-s): 0.036 Peak Height (A): 0.016
ackground Pk Area (A-s): 0.219 Background Pk Height (A): 0.116
lank Corrected Pk Area (A-s): 0.034

e ID: 58.056.5FH Seq. No.: 00031 A/S Pos.: 7 Date: 08/05/92

oncentration (ug/L): 78.7

orrelation coefficient: 0.99912 Slope: 0.0003 Int: 0.021



D- 000111

Tl 58.056.

Element File: UNTITLED
Date: 08/05/92
Data File: E080592A.DAT
Technique: HGA

Element: Tl
Time: 10:03
ID/Wt File: 21435.IDW
Calib. Type: Method of Add.

Wavelength: 276.8
Slit: 0.7 L
Lamp Current: 20
Energy: 31

Tl ID: BLANK Seq. No.: 00035 A/S Pos.: 0 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate 1 Time: 10:05
Peak Area (A-s): -0.001 Peak Height (A): 0.018
Background Pk Area (A-s): 0.004 Background Pk Height (A): 0.022
Blank Corrected Pk Area (A-s): -0.001

Auto-zero performed.

Tl ID: 58.056.1FH Seq. No.: 00036 A/S Pos.: 6 Date: 08/05/92

uL dispensed: 20 from 0, 5 from 39, 10 from 6
Replicate 1 Time: 10:08
Peak Area (A-s): 0.011 Peak Height (A): 0.022
Background Pk Area (A-s): 0.013 Background Pk Height (A): 0.034
Blank Corrected Pk Area (A-s): 0.012

use Std addn

Tl ID: ADDITION 1 Seq. No.: 00037 A/S Pos.: 6 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 6
Replicate 1 Time: 10:11
Peak Area (A-s): 0.005 Peak Height (A): 0.019
Background Pk Area (A-s): 0.027 Background Pk Height (A): 0.030
Blank Corrected Pk Area (A-s): 0.006

Tl ID: ADDITION 2 Seq. No.: 00038 A/S Pos.: 6 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 6
Replicate 1 Time: 10:14
Peak Area (A-s): 0.001 Peak Height (A): 0.025
Background Pk Area (A-s): 0.039 Background Pk Height (A): 0.043
Blank Corrected Pk Area (A-s): 0.002

Tl ID: ADDITION 3 Seq. No.: 00039 A/S Pos.: 6 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 6
Replicate 1 Time: 10:17
Peak Area (A-s): 0.015 Peak Height (A): 0.028
Background Pk Area (A-s): 0.038 Background Pk Height (A): 0.041
Blank Corrected Pk Area (A-s): 0.016

Standard abs. & conc. values are not in the same order.
Tl ID: 58.056.1FH Seq. No.: 00036 A/S Pos.: 6 Date: 08/05/92

Concentration (ug/L): --------

Tl ID: 58.056.5FH Seq. No.: 00040 A/S Pos.: 7 Date: 08/05/92

uL dispensed: 20 from 0, 5 from 39, 10 from 7

Replicate 1 Time: 10:19
Peak Area (A-s): 0.003 Peak Height (A): 0.024
Background Pk Area (A-s): 0.050 Background Pk Height (A): 0.046
Blank Corrected Pk Area (A-s): 0.004

Tl ID: ADDITION 1 Seq. No.: 00041 A/S Pos.: 7 Date: 08/05/92

µL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 7
Replicate 1 Time: 10:22
Peak Area (A-s): 0.006 Peak Height (A): 0.023
Background Pk Area (A-s): 0.052 Background Pk Height (A): 0.068
Blank Corrected Pk Area (A-s): 0.007

Tl ID: ADDITION 2 Seq. No.: 00042 A/S Pos.: 7 Date: 08/05/92

µL dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 7
Replicate 1 Time: 10:25
Peak Area (A-s): 0.011 Peak Height (A): 0.035
Background Pk Area (A-s): 0.051 Background Pk Height (A): 0.056
Blank Corrected Pk Area (A-s): 0.012

Tl ID: ADDITION 3 Seq. No.: 00043 A/S Pos.: 7 Date: 08/05/92

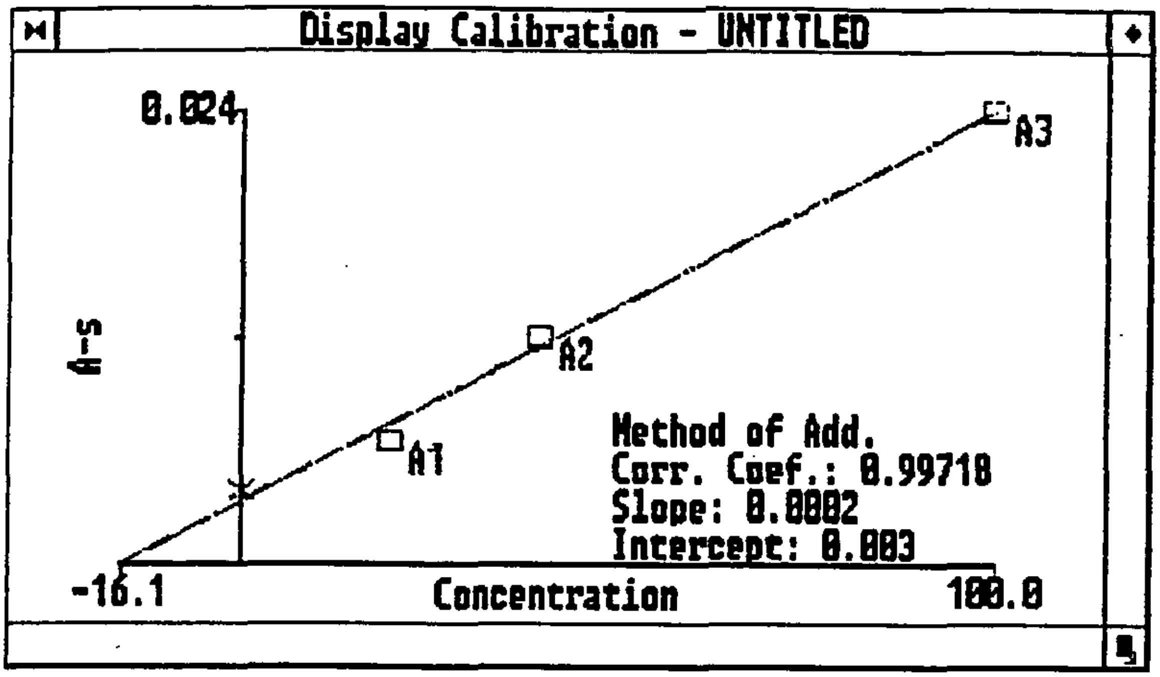
µL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 7
Replicate 1 Time: 10:28
Peak Area (A-s): 0.023 Peak Height (A): 0.037
Background Pk Area (A-s): 0.066 Background Pk Height (A): 0.084
Blank Corrected Pk Area (A-s): 0.024

The standard additions calibration curve may not be linear.
Tl ID: 58.056.5FH Seq. No.: 00040 A/S Pos.: 7 Date: 08/05/92

Concentration (ug/L): 16.1

Correlation coefficient: 0.99718 ✓ Slope: 0.0002 Int: 0.003

0-000110



Γ1 ID: 58.056.9FH Seq. No.: 00044 A/S Pos.: 8 Date: 08/05/92

µL dispensed: 20 from 0, 5 from 39, 10 from 8
Replicate 1 Time: 10:31
Peak Area (A-s): 0.006 Peak Height (A): 0.026
Background Pk Area (A-s): 0.068 Background Pk Height (A): 0.070
Blank Corrected Pk Area (A-s): 0.007

Γ1 ID: ADDITION 1 Seq. No.: 00045 A/S Pos.: 8 Date: 08/05/92

µL dispensed: 10 from 0, 5 from 39, 10 from 2, 10 from 8
Replicate 1 Time: 10:34
Peak Area (A-s): 0.014 Peak Height (A): 0.034
Background Pk Area (A-s): 0.062 Background Pk Height (A): 0.073
Blank Corrected Pk Area (A-s): 0.015

Γ1 ID: ADDITION 2 Seq. No.: 00046 A/S Pos.: 8 Date: 08/05/92

µL dispensed: 10 from 0, 5 from 39, 10 from 3, 10 from 8
Replicate 1 Time: 10:37
Peak Area (A-s): 0.009 Peak Height (A): 0.029
Background Pk Area (A-s): 0.080 Background Pk Height (A): 0.086
Blank Corrected Pk Area (A-s): 0.010

Γ1 ID: ADDITION 3 Seq. No.: 00047 A/S Pos.: 8 Date: 08/05/92

µL dispensed: 10 from 0, 5 from 39, 10 from 4, 10 from 8
Replicate 1 Time: 10:40
Peak Area (A-s): 0.026 Peak Height (A): 0.050
Background Pk Area (A-s): 0.091 Background Pk Height (A): 0.141
Blank Corrected Pk Area (A-s): 0.027

Standard abs. & conc. values are not in the same order.

A- 000114

Tl ID: 58.056.9FH Seq. No.: 00044 A/S Pos.: 8 Date: 08/05/92

Concentration (ug/L): --------

:lement File: TL_MSA.GEL Element: Tl Wavelength: 276.8
)ate: 08/05/92 Time: 10:45 Slit: 0.7 L
)ata File: E080592A.DAT ID/Wt File: 21435.IDW Lamp Current: 40
'echnique: HGA Calib. Type: Method of Add. Energy: 49

'1 ID: BLANK Seq. No.: 00048 A/S Pos.: 0 Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate 1 Time: 10:47
'eak Area (A-s): -0.000 Peak Height (A): 0.002
ackground Pk Area (A-s): 0.004 Background Pk Height (A): 0.007
lank Corrected Pk Area (A-s): 0.001

uto-zero performed.

'1 ID: 58.056.1FH Seq. No.: 00049 A/S Pos.: 6 Date: 08/05/92

ıL dispensed: 20 from 0, 5 from 39, 5 from 6
Replicate 1 Time: 10:50
'eak Area (A-s): 0.005 Peak Height (A): 0.005
ackground Pk Area (A-s): 0.036 Background Pk Height (A): 0.053
lank Corrected Pk Area (A-s): 0.005

'1 ID: ADDITION 1 Seq. No.: 00050 A/S Pos.: 6 Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 6
Replicate 1 Time: 10:53
'eak Area (A-s): 0.010 Peak Height (A): 0.011
ackground Pk Area (A-s): 0.038 Background Pk Height (A): 0.079
lank Corrected Pk Area (A-s): 0.010

'1 ID: ADDITION 2 Seq. No.: 00051 A/S Pos.: 6 Date: 08/05/92

.L dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 6
Replicate 1 Time: 10:56
'eak Area (A-s): 0.017 Peak Height (A): 0.028
ackground Pk Area (A-s): 0.123 Background Pk Height (A): 0.149
lank Corrected Pk Area (A-s): 0.017

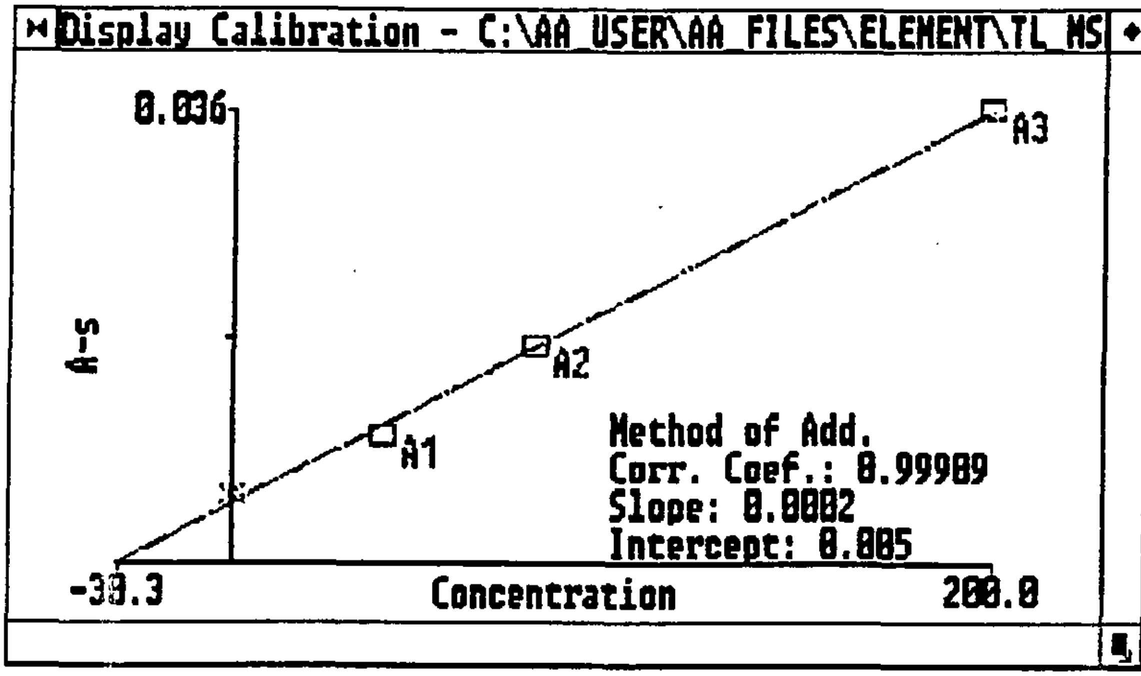
'1 ID: ADDITION 3 Seq. No.: 00052 A/S Pos.: 6 Date: 08/05/92

.L dispensed: 10 from 0, 5 from 39, 10 from 4, 5 from 6
Replicate 1 Time: 10:59
'eak Area (A-s): 0.035 Peak Height (A): 0.039
ackground Pk Area (A-s): 0.140 Background Pk Height (A): 0.182
lank Corrected Pk Area (A-s): 0.036

'he standard additions calibration curve may not be linear.
'1 ID: 58.056.1FH Seq. No.: 00049 A/S Pos.: 6 Date: 08/05/92

:oncentration (ug/L): 30.3

:orrelation coefficient: 0.99909 Slope: 0.0002 Int: 0.005



USE 1st ANALYSIS 8/10/92 RLC

Tl ID: 58.056.5FH Seq. No.: 00053 A/S Pos.: 7 Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 5 from 7
he background signal is changing during BOC measurement.
Replicate 1 Time: 11:02
eak Area (A-s): 0.000 Peak Height (A): 0.225
ackground Pk Area (A-s): -1.606 Background Pk Height (A): 0.216
lank Corrected Pk Area (A-s): 0.001

ID: ADDITION 1 Seq. No.: 00054 A/S Pos.: 7 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 7
eplicate 1 Time: 11:05
eak Area (A-s): 0.013 Peak Height (A): 0.013
ackground Pk Area (A-s): 0.099 Background Pk Height (A): 0.143
lank Corrected Pk Area (A-s): 0.014

ID: ADDITION 2 Seq. No.: 00055 A/S Pos.: 7 Date: 08/05/92

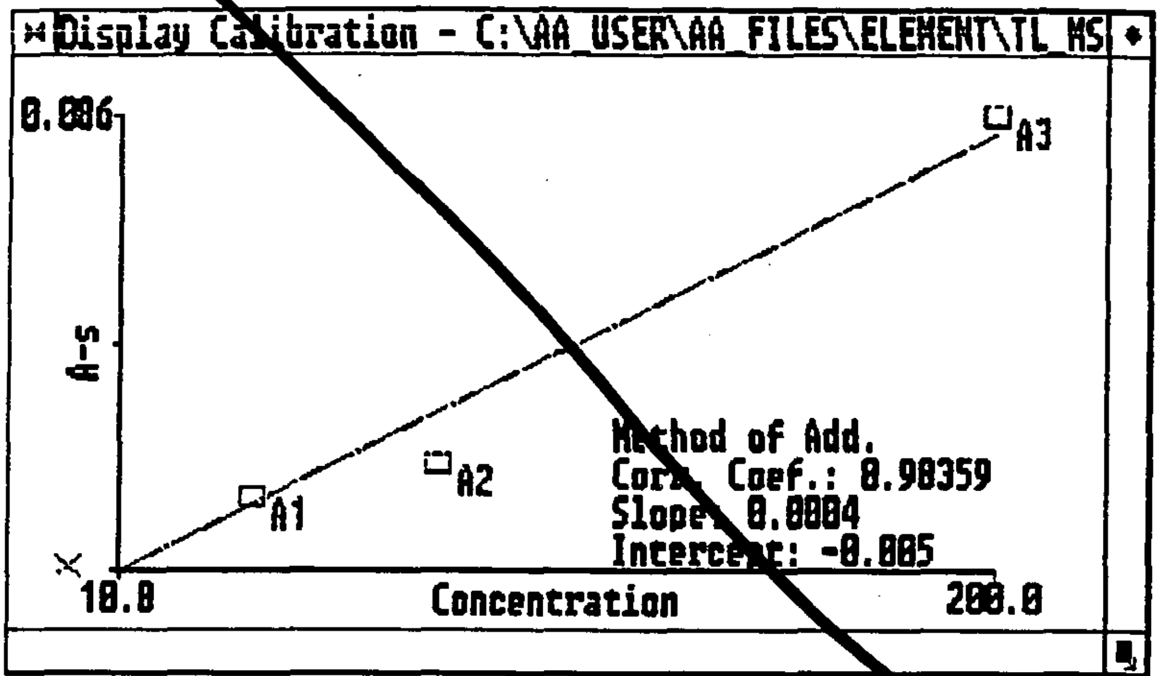
dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 7
plicate 1 Time: 11:08
eak Area (A-s): 0.020 Peak Height (A): 0.022
ackground Pk Area (A-s): 0.103 Background Pk Height (A): 0.140
ank Corrected Pk Area (A-s): 0.020

Tl ID: ADDITION 3 Seq. No.: 00056 A/S Pos.: 7 Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 4, 5 from 7
The background signal is changing during BOC measurement.
plicate 1 Time: 11:11
ak Area (A-s): 0.086 Peak Height (A): 0.102
ackground Pk Area (A-s): 0.447 Background Pk Height (A): 0.249
lank Corrected Pk Area (A-s): 0.086

'he standard additions calibration curve may not be linear.
'1   ID: 58.056.5FH   Seq. No.: 00053   A/S Pos.: 7   Date: 08/05/92

:oncentration (ug/L): -10.8
:orrelation coefficient: 0.98359   Slope: 0.0004   Int: -0.005



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1   ID: 58.056.4BH   Seq. No.: 00057   A/S Pos.: 9   Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 5 from 9
eplicate 1   Time: 11:14
eak Area (A-s): 0.048   Peak Height (A): 0.125
ackground Pk Area (A-s): 0.027   Background Pk Height (A): 0.182
lank Corrected Pk Area (A-s): 0.048

1   ID: ADDITION 1   Seq. No.: 00058   A/S Pos.: 9   Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 9
he background signal is changing during BOC measurement.
eplicate 1   Time: 11:17
eak Area (A-s): 0.025   Peak Height (A): 0.127
ackground Pk Area (A-s): 0.030   Background Pk Height (A): 0.193
lank Corrected Pk Area (A-s): 0.026

1   ID: ADDITION 2   Seq. No.: 00059   A/S Pos.: 9   Date: 08/05/92

:L dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 9
.eplicate 1   Time: 11:20
eak Area (A-s): 0.024   Peak Height (A): 0.027
ackground Pk Area (A-s): 0.049   Background Pk Height (A): 0.098
lank Corrected Pk Area (A-s): 0.024
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1 ID: BLANK Seq. No.: 00060 A/S Pos.: 0 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 0
eplicate 1 Time: 11:24
eak Area (A-s): 0.001 Peak Height (A): 0.002
ackground Pk Area (A-s): 0.005 Background Pk Height (A): 0.020
lank Corrected Pk Area (A-s): 0.001

uto-zero performed.

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ID: 58.056.9FH Seq. No.: 00061 A/S Pos.: 8 Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 5 from 8
eplicate 1 Time: 11:27
eak Area (A-s): 0.009 Peak Height (A): 0.011
ackground Pk Area (A-s): 0.166 Background Pk Height (A): 0.204
lank Corrected Pk Area (A-s): 0.008

ID: ADDITION 1 Seq. No.: 00062 A/S Pos.: 8 Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 8
eplicate 1 Time: 11:30
eak Area (A-s): 0.015 Peak Height (A): 0.016
ackground Pk Area (A-s): 0.091 Background Pk Height (A): 0.172
ank Corrected Pk Area (A-s): 0.014

1 ID: ADDITION 2 Seq. No.: 00063 A/S Pos.: 8 Date: 08/05/92

dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 8
eplicate 1 Time: 11:33
eak Area (A-s): 0.020 Peak Height (A): 0.019
ckground Pk Area (A-s): 0.101 Background Pk Height (A): 0.107
ank Corrected Pk Area (A-s): 0.020

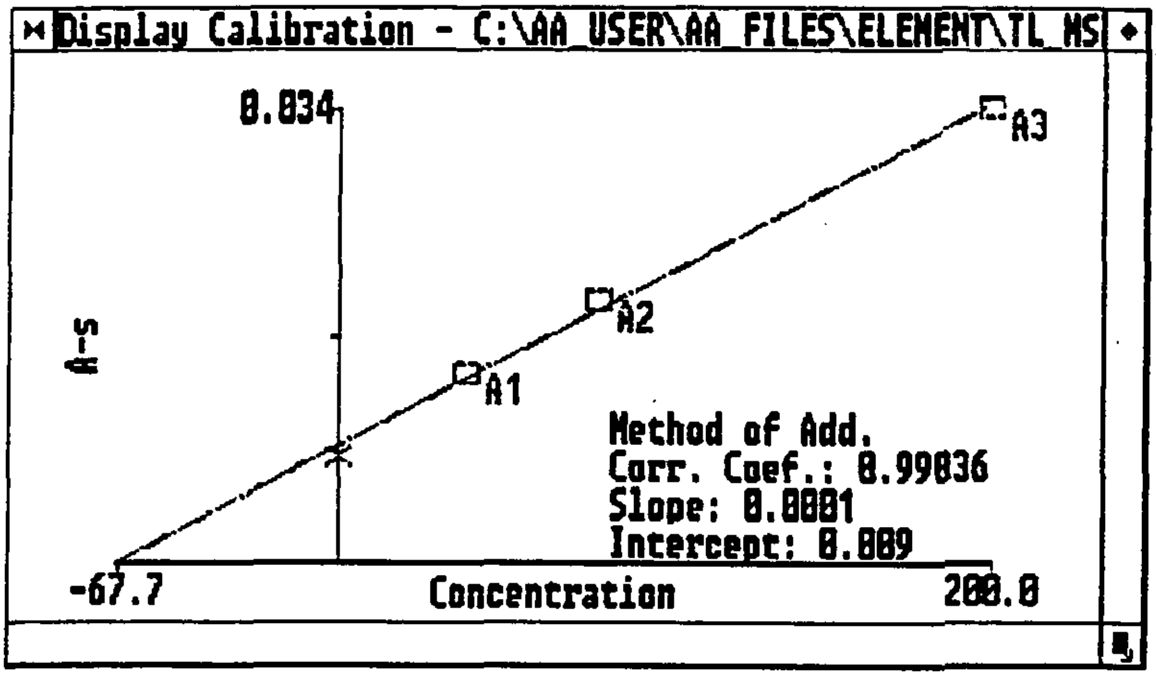
ID: ADDITION 3 Seq. No.: 00064 A/S Pos.: 8 Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 4, 5 from 8
plicate 1 Time: 11:36
ak Area (A-s): 0.035 Peak Height (A): 0.035
ackground Pk Area (A-s): 0.131 Background Pk Height (A): 0.189
lank Corrected Pk Area (A-s): 0.034

e standard additions calibration curve may not be linear.
1 ID: 58.056.9FH Seq. No.: 00061 A/S Pos.: 8 Date: 08/05/92

ncentration (ug/L): 67.7

orrelation coefficient: 0.99836 Slope: 0.0001 Int: 0.009



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:1 ID: 58.056.4BH Seq. No.: 00065 A/S Pos.: 9 Date: 08/05/92

ıL dispensed: 20 from 0, 5 from 39, 5 from 9
Replicate 1 Time: 11:39
Peak Area (A-s): 0.003 Peak Height (A): 0.004
Background Pk Area (A-s): 0.046 Background Pk Height (A): 0.131
Blank Corrected Pk Area (A-s): 0.003

1 ID: ADDITION 1 Seq. No.: 00066 A/S Pos.: 9 Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 9
Replicate 1 Time: 11:42
Peak Area (A-s): 0.011 Peak Height (A): 0.012
Background Pk Area (A-s): 0.048 Background Pk Height (A): 0.084
Blank Corrected Pk Area (A-s): 0.010

1 ID: ADDITION 2 Seq. No.: 00067 A/S Pos.: 9 Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 9
Replicate 1 Time: 11:45
Peak Area (A-s): 0.019 Peak Height (A): 0.022
Background Pk Area (A-s): 0.055 Background Pk Height (A): 0.117
Blank Corrected Pk Area (A-s): 0.018

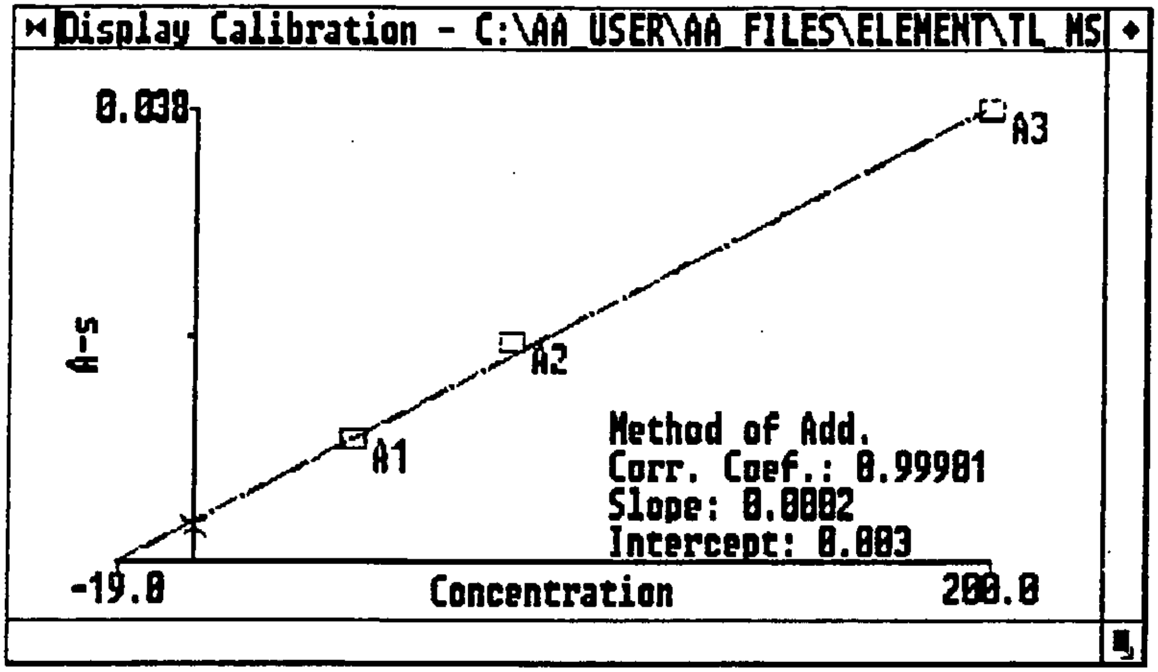
1 ID: ADDITION 3 Seq. No.: 00068 A/S Pos.: 9 Date: 08/05/92

ıL dispensed: 10 from 0, 5 from 39, 10 from 4, 5 from 9
Replicate 1 Time: 11:47
Peak Area (A-s): 0.038 Peak Height (A): 0.044
Background Pk Area (A-s): 0.076 Background Pk Height (A): 0.129
Blank Corrected Pk Area (A-s): 0.038

1 ID: 58.056.4BH Seq. No.: 00065 A/S Pos.: 9 Date: 08/05/92
~~~~~~

Concentration (ug/L): 19.0

Correlation coefficient: 0.99901   Slope: 0.0002   Int: 0.003



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1   ID: 58.056.8BH   Seq. No.: 00069   A/S Pos.: 10   Date: 08/05/92

L dispensed: 20 from 0, 5 from 39, 5 from 10
Replicate 1   Time: 11:51
Peak Area (A-s): 0.000   Peak Height (A): 0.002
Background Pk Area (A-s): 0.049   Background Pk Height (A): 0.105
Blank Corrected Pk Area (A-s): -0.000

ID: ADDITION 1   Seq. No.: 00070   A/S Pos.: 10   Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 10
Replicate 1   Time: 11:53
Peak Area (A-s): 0.009   Peak Height (A): 0.010
Background Pk Area (A-s): 0.038   Background Pk Height (A): 0.082
Blank Corrected Pk Area (A-s): 0.009

ID: ADDITION 2   Seq. No.: 00071   A/S Pos.: 10   Date: 08/05/92

L dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 10
Replicate 1   Time: 11:56
Peak Area (A-s): 0.018   Peak Height (A): 0.021
Background Pk Area (A-s): 0.047   Background Pk Height (A): 0.071
Blank Corrected Pk Area (A-s): 0.018

1   ID: ADDITION 3   Seq. No.: 00072   A/S Pos.: 10   Date: 08/05/92

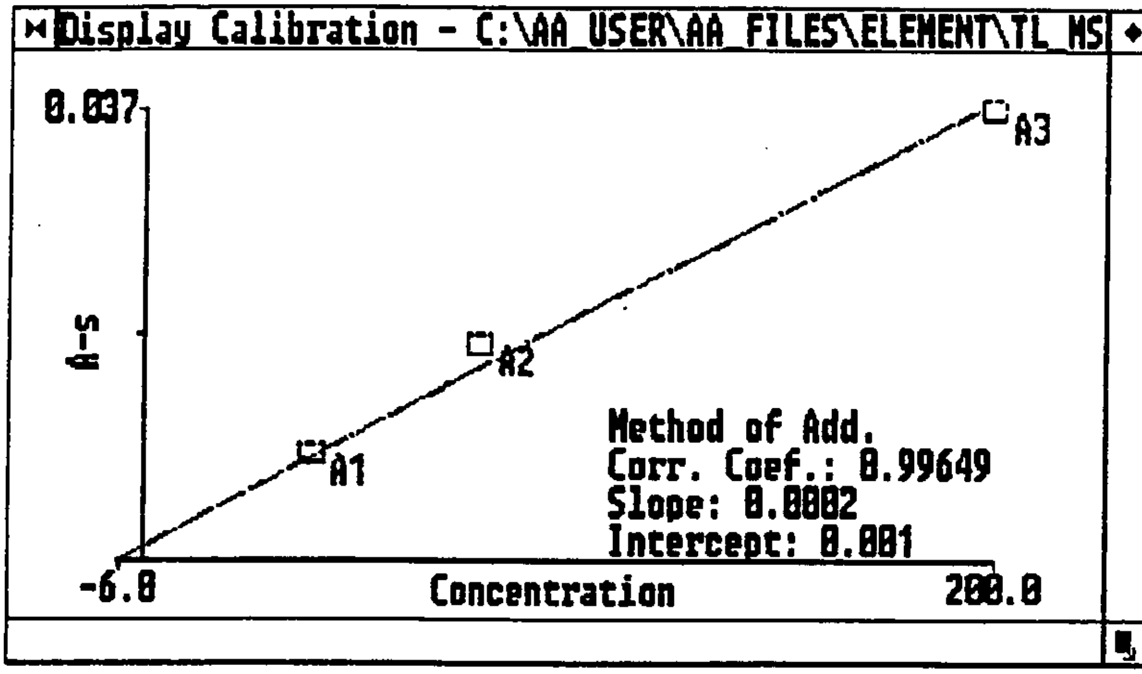
dispensed: 10 from 0, 5 from 39, 10 from 4, 5 from 10
Replicate 1   Time: 11:59
Peak Area (A-s): 0.038   Peak Height (A): 0.040
~~~~~~

Background Pk Area (A-s): 0.064 Background Pk Height (A): 0.103
Blank Corrected Pk Area (A-s): 0.037

The standard additions calibration curve may not be linear.
1 ID: 58.056.8BH Seq. No.: 00069 A/S Pos.: 10 Date: 08/05/92

Concentration (ug/L): 6.0

Correlation coefficient: 0.99649 Slope: 0.0002 Int: 0.001



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1 ID: 58.056.12BH Seq. No.: 00073 A/S Pos.: 11 Date: 08/05/92

uL dispensed: 20 from 0, 5 from 39, 5 from 11
Replicate 1 Time: 12:02
Peak Area (A-s): 0.001 Peak Height (A): 0.003
Background Pk Area (A-s): 0.037 Background Pk Height (A): 0.094
Blank Corrected Pk Area (A-s): 0.001

1 ID: ADDITION 1 Seq. No.: 00074 A/S Pos.: 11 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 2, 5 from 11
The background signal is changing during BOC measurement.
Replicate 1 Time: 12:05
Peak Area (A-s): 0.010 Peak Height (A): 0.010
Background Pk Area (A-s): 0.053 Background Pk Height (A): 0.085
Blank Corrected Pk Area (A-s): 0.009

1 ID: ADDITION 2 Seq. No.: 00075 A/S Pos.: 11 Date: 08/05/92

uL dispensed: 10 from 0, 5 from 39, 10 from 3, 5 from 11
Replicate 1 Time: 12:08
Peak Area (A-s): 0.017 Peak Height (A): 0.016
Background Pk Area (A-s): 0.036 Background Pk Height (A): 0.074

D-000292
~~~~~~

Blank Corrected Pk Area (A-s): 0.016

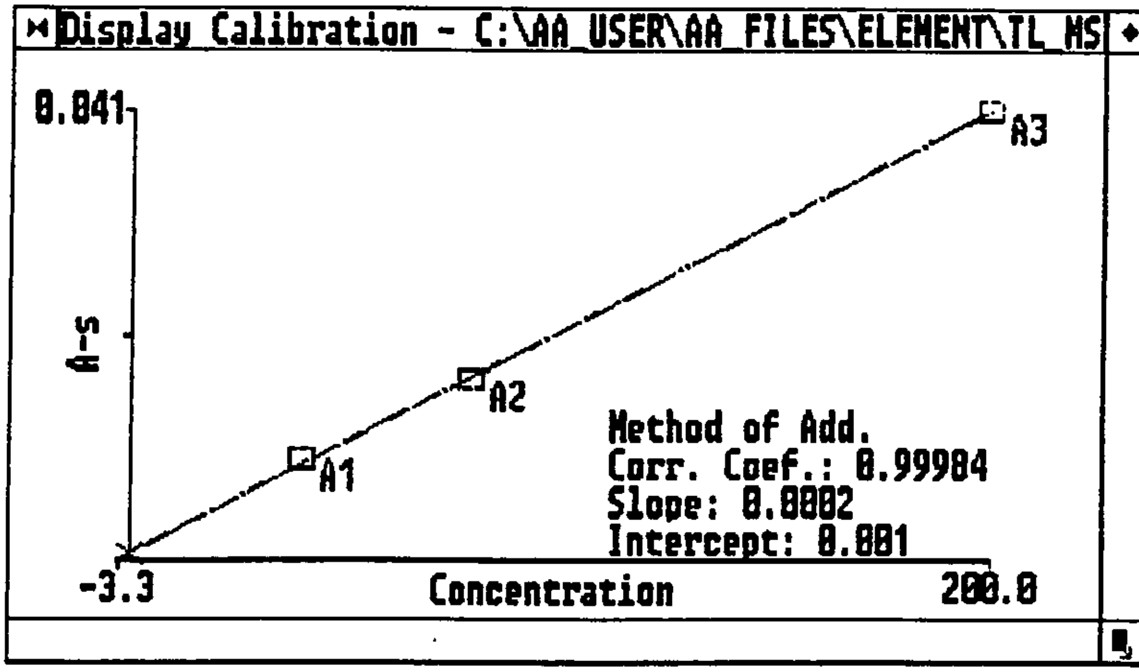
1 ID: ADDITION 3 Seq. No.: 00076 A/S Pos.: 11 Date: 08/05/92

µL dispensed: 10 from 0, 5 from 39, 10 from 4, 5 from 11
Replicate 1 Time: 12:11
Peak Area (A-s): 0.042 Peak Height (A): 0.040
Background Pk Area (A-s): 0.059 Background Pk Height (A): 0.075
Blank Corrected Pk Area (A-s): 0.041

1 ID: 58.056.12BH Seq. No.: 00073 A/S Pos.: 11 Date: 08/05/92

Concentration (ug/L): 3.3

Correlation coefficient: 0.99984 Slope: 0.0002 Int: 0.001



Sb [redacted] Seq. No.: 00213 A/S Pos.: 38 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 38
Replicate 1 Time: 12:00
Peak Area (A-s): 0.017 Peak Height (A): 0.016
Background Pk Area (A-s): 0.156 Background Pk Height (A): 0.121
Blank Corrected Pk Area (A-s): -0.001

Sb ID: Standard 1 Seq. No.: 00214 A/S Pos.: 38 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 38
Replicate 1 Time: 12:04
Peak Area (A-s): 0.019 Peak Height (A): 0.019
Background Pk Area (A-s): 0.363 Background Pk Height (A): 0.186
Blank Corrected Pk Area (A-s): 0.002

Sb ID: Standard 2 Seq. No.: 00215 A/S Pos.: 38 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 38
Replicate 1 Time: 12:08
Peak Area (A-s): 0.021 Peak Height (A): 0.016
Background Pk Area (A-s): 0.180 Background Pk Height (A): 0.132
Blank Corrected Pk Area (A-s): 0.004

Sb ID: Standard 3 Seq. No.: 00216 A/S Pos.: 38 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 38
Replicate 1 Time: 12:12
Peak Area (A-s): 0.041 Peak Height (A): 0.021
Background Pk Area (A-s): 0.170 Background Pk Height (A): 0.127
Blank Corrected Pk Area (A-s): 0.024

Expansion >100 is not allowed. No calibration has occurred.
Sb ID: 58.139.7C Seq. No.: 00213 A/S Pos.: 38 Date: 08/07/92

Concentration (ug/L): --------

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Sb ID: Blank Seq. No.: 00217 A/S Pos.: 0 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 0
Replicate 1 Time: 12:17
Peak Area (A-s): 0.015 Peak Height (A): 0.016
Background Pk Area (A-s): 0.058 Background Pk Height (A): 0.112
Blank Corrected Pk Area (A-s): -0.003

Auto-zero performed.

8/10/92
FLC

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Sb ID: 58.056.1 FH X10 Seq. No.: 00218 A/S Pos.: 18 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 18
Replicate 1 Time: 12:21
Peak Area (A-s): 0.040 Peak Height (A): 0.027
Background Pk Area (A-s): 0.882 Background Pk Height (A): 0.433
Blank Corrected Pk Area (A-s): 0.025

Sb ID: Standard 1 Seq. No.: 00219 A/S Pos.: 18 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 18
Replicate 1 Time: 12:24
Peak Area (A-s): 0.058 Peak Height (A): 0.042
Background Pk Area (A-s): 0.953 Background Pk Height (A): 0.421
Blank Corrected Pk Area (A-s): 0.043

Sb ID: Standard 2 Seq. No.: 00220 A/S Pos.: 18 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 18
Replicate 1 Time: 12:28
Peak Area (A-s): 0.083 Peak Height (A): 0.056
Background Pk Area (A-s): 0.981 Background Pk Height (A): 0.425
Blank Corrected Pk Area (A-s): 0.068

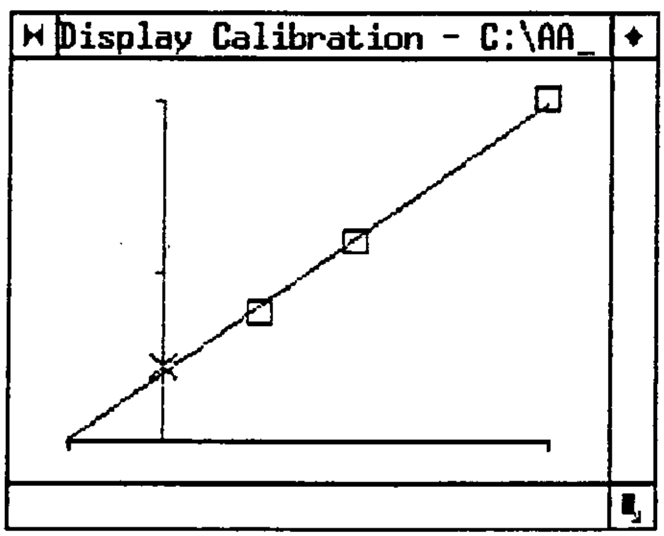
Sb ID: Standard 3 Seq. No.: 00221 A/S Pos.: 18 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 18
Replicate 1 Time: 12:32
Peak Area (A-s): 0.131 Peak Height (A): 0.076
Background Pk Area (A-s): 0.990 Background Pk Height (A): 0.440
Blank Corrected Pk Area (A-s): 0.116

The standard additions calibration curve may not be linear.
Sb ID: 58.056.1 FH X10 Seq. No.: 00218 A/S Pos.: 18 Date: 08/07/92

Concentration (ug/L): 49.2

Correlation coefficient: 0.99831 Slope: 0.0005 Int: 0.023



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Sb ID: 58.056.5 FH X10 Seq. No.: 00222 A/S Pos.: 19 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 19
Replicate 1 Time: 12:37
Peak Area (A-s): 0.058 Peak Height (A): 0.066
Background Pk Area (A-s): 1.042 Background Pk Height (A): 0.442
Blank Corrected Pk Area (A-s): 0.043

Sb ID: Standard 1 Seq. No.: 00223 A/S Pos.: 19 Date: 08/07/92

0-000125
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uL dispensed: 5 from 39, 20 from 2, 20 from 19
Replicate 1 Time: 12:41
Peak Area (A-s): 0.067 Peak Height (A): 0.059
Background Pk Area (A-s): 1.044 Background Pk Height (A): 0.442
Blank Corrected Pk Area (A-s): 0.053

Sb ID: Standard 2 Seq. No.: 00224 A/S Pos.: 19 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 19
Replicate 1 Time: 12:45
Peak Area (A-s): 0.075 Peak Height (A): 0.061
Background Pk Area (A-s): 1.026 Background Pk Height (A): 0.430
Blank Corrected Pk Area (A-s): 0.060

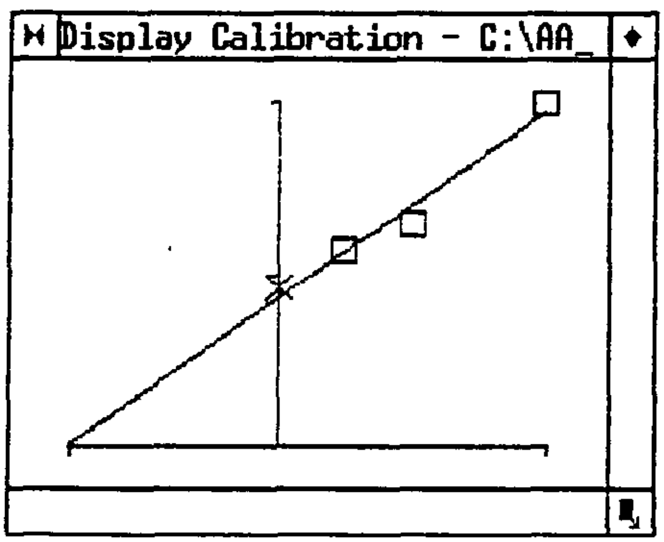
Sb ID: Standard 3 Seq. No.: 00225 A/S Pos.: 19 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 19
Replicate 1 Time: 12:49
Peak Area (A-s): 0.108 Peak Height (A): 0.078
Background Pk Area (A-s): 1.044 Background Pk Height (A): 0.452
Blank Corrected Pk Area (A-s).: 0.093

The standard additions calibration curve may not be linear.
Sb ID: 58.056.5 FH X10 Seq. No.: 00222 A/S Pos.: 19 Date: 08/07/92

Concentration (ug/L): 159.8

Correlation coefficient: 0.98539 Slope: 0.0003 Int: 0.040



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Sb ID: 58.056.9 FH X10 Seq. No.: 00226 A/S Pos.: 20 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 20
Replicate 1 Time: 12:53
Peak Area (A-s): 0.087 Peak Height (A): 0.066
Background Pk Area (A-s): 1.126 Background Pk Height (A): 0.457
Blank Corrected Pk Area (A-s): 0.072

Sb ID: Standard 1 Seq. No.: 00227 A/S Pos.: 20 Date: 08/07/92

C-000135
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uL dispensed: 5 from 39, 20 from 2, 20 from 20
Replicate 1 Time: 12:57
Peak Area (A-s): 0.094 Peak Height (A): 0.078
Background Pk Area (A-s): 1.116 Background Pk Height (A): 0.481
Blank Corrected Pk Area (A-s): 0.080

Sb ID: Standard 2 Seq. No.: 00228 A/S Pos.: 20 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 20
Replicate 1 Time: 13:01
Peak Area (A-s): 0.121 Peak Height (A): 0.155
Background Pk Area (A-s): 1.157 Background Pk Height (A): 0.626
Blank Corrected Pk Area (A-s): 0.106

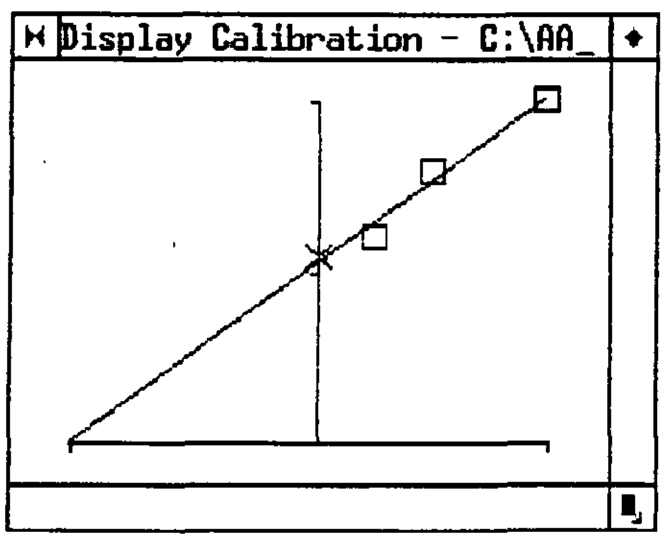
Sb ID: Standard 3 Seq. No.: 00229 A/S Pos.: 20 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 20
Replicate 1 Time: 13:05
Peak Area (A-s): 0.147 Peak Height (A): 0.105
Background Pk Area (A-s): 1.133 Background Pk Height (A): 0.504
Blank Corrected Pk Area (A-s): 0.133

The standard additions calibration curve may not be linear.
Sb ID: 58.056.9 FH X10 Seq. No.: 00226 A/S Pos.: 20 Date: 08/07/92

Concentration (ug/L): 220.6 ✓

Correlation coefficient: 0.98655 ✓ Slope: 0.0003 Int: 0.070



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Sb ID: 58.056.4 BH X10 Seq. No.: 00230 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 21
Replicate 1 Time: 13:10
Peak Area (A-s): 0.055 Peak Height (A): 0.065
Background Pk Area (A-s): 0.666 Background Pk Height (A): 0.470
Blank Corrected Pk Area (A-s): 0.040

Sb ID: Standard 1 Seq. No.: 00231 A/S Pos.: 21 Date: 08/07/92

C-000[illegible]
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uL dispensed: 5 from 39, 20 from 2, 20 from 21
Replicate 1 Time: 13:14
Peak Area (A-s): 0.041 Peak Height (A): 0.065
Background Pk Area (A-s): 0.636 Background Pk Height (A): 0.434
Blank Corrected Pk Area (A-s): 0.026

Sb ID: Standard 2 Seq. No.: 00232 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 21
Replicate 1 Time: 13:18
Peak Area (A-s): 0.046 Peak Height (A): 0.054
Background Pk Area (A-s): 0.631 Background Pk Height (A): 0.419
Blank Corrected Pk Area (A-s): 0.032

Sb ID: Standard 3 Seq. No.: 00233 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 21
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Sb ID: Blank Seq. No.: 00234 A/S Pos.: 0 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 0
Replicate 1 Time: 13:24
Peak Area (A-s): 0.019 Peak Height (A): 0.037
Background Pk Area (A-s): 0.343 Background Pk Height (A): 0.397
Blank Corrected Pk Area (A-s): 0.005

Auto-zero performed.

~~~~~~
Sb ID: 58.056.4 BH X10 Seq. No.: 00235 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 21
Replicate 1 Time: 13:28
Peak Area (A-s): 0.016 Peak Height (A): 0.028
Background Pk Area (A-s): 0.580 Background Pk Height (A): 0.380
Blank Corrected Pk Area (A-s): -0.003 ≈ Ø

Sb ID: Standard 1 Seq. No.: 00236 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 21
Replicate 1 Time: 13:32
Peak Area (A-s): 0.021 Peak Height (A): 0.031
Background Pk Area (A-s): 0.593 Background Pk Height (A): 0.379
Blank Corrected Pk Area (A-s): 0.001

Sb ID: Standard 2 Seq. No.: 00237 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 21
Replicate 1 Time: 13:36
Peak Area (A-s): 0.026 Peak Height (A): 0.032
Background Pk Area (A-s): 0.595 Background Pk Height (A): 0.374
Blank Corrected Pk Area (A-s): 0.007

Sb ID: Standard 3 Seq. No.: 00238 A/S Pos.: 21 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 21
Replicate 1 Time: 13:40
Peak Area (A-s): 0.040 Peak Height (A): 0.037
Background Pk Area (A-s): 0.596 Background Pk Height (A): 0.377

Blank Corrected Pk Area (A-s): 0.021 Done! very low slope

Expansion >100 is not allowed. No calibration has occurred.
Sb ID: 58.056.4 BH X10 Seq. No.: 00235 A/S Pos.: 21 Date: 08/07/92

Concentration (ug/L): ----- report < 50 µg/L further dilution won't help.

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Sb ID: [redacted] Seq. No.: 00239 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 24
Replicate 1 Time: 13:44
Peak Area (A-s): 0.027 Peak Height (A): 0.033
Background Pk Area (A-s): 0.783 Background Pk Height (A): 0.412
Blank Corrected Pk Area (A-s): 0.008

Sb ID: Standard 1 Seq. No.: 00240 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 24
Replicate 1 Time: 13:48
Peak Area (A-s): 0.023 Peak Height (A): 0.030
Background Pk Area (A-s): 0.663 Background Pk Height (A): 0.397
Blank Corrected Pk Area (A-s): 0.004

Sb ID: Standard 2 Seq. No.: 00241 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 24

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Sb ID: [redacted] Seq. No.: 00242 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 24
Replicate 1 Time: 13:56
Peak Area (A-s): 0.013 Peak Height (A): 0.017
Background Pk Area (A-s): 0.616 Background Pk Height (A): 0.366
Blank Corrected Pk Area (A-s): -0.006

Sb ID: Standard 1 Seq. No.: 00243 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 24
Replicate 1 Time: 14:00
Peak Area (A-s): 0.018 Peak Height (A): 0.025
Background Pk Area (A-s): 0.587 Background Pk Height (A): 0.361
Blank Corrected Pk Area (A-s): -0.001

Sb ID: Standard 2 Seq. No.: 00244 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 24
Replicate 1 Time: 14:04
Peak Area (A-s): 0.026 Peak Height (A): 0.028
Background Pk Area (A-s): 0.559 Background Pk Height (A): 0.347
Blank Corrected Pk Area (A-s): 0.007

Sb ID: Standard 3 Seq. No.: 00245 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 24
Replicate 1 Time: 14:08
Peak Area (A-s): 0.042 Peak Height (A): 0.027
Background Pk Area (A-s): 0.531 Background Pk Height (A): 0.328
Blank Corrected Pk Area (A-s): 0.023

report < 50 µg/L 8/10/92 PLC

Low slope

∅ Abs at No addn

0.000190

Sb ID: Standard 2 Seq. No.: 00162 A/S Pos.: 22 Date: 08/07/92

Replicate 1 Time: 08:34
Peak Area (A-s): 0.054 Peak Height (A): 0.027
Background Pk Area (A-s): 0.586 Background Pk Height (A): 0.293
Blank Corrected Pk Area (A-s): 0.037

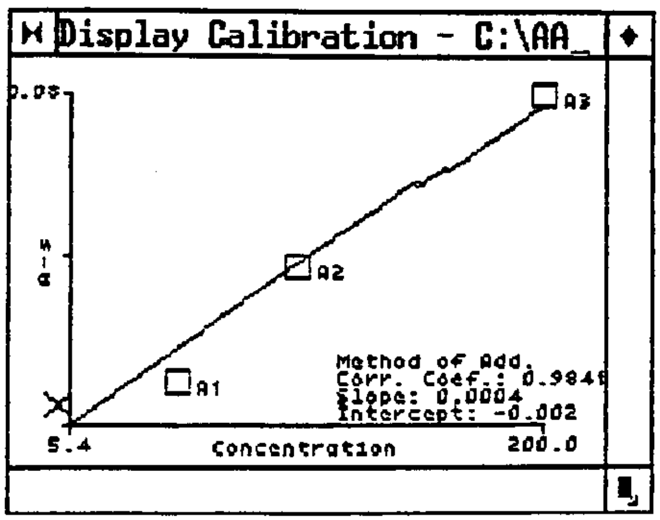
Sb ID: Standard 3 Seq. No.: 00163 A/S Pos.: 22 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 22
Replicate 1 Time: 08:38
Peak Area (A-s): 0.097 Peak Height (A): 0.041
Background Pk Area (A-s): 0.595 Background Pk Height (A): 0.300
Blank Corrected Pk Area (A-s): 0.079

The standard additions calibration curve may not be linear.
Sb ID: 58.056.8 BH Seq. No.: 00160 A/S Pos.: 22 Date: 08/07/92

Concentration (ug/L): -5.4 6K <IDL

Correlation coefficient: 0.98416 Slope: 0.0004 Int: -0.002



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Sb ID: 58.056.12 BH Seq. No.: 00164 A/S Pos.: 23 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 23
Replicate 1 Time: 08:42
Peak Area (A-s): 0.032 Peak Height (A): 0.029
Background Pk Area (A-s): 0.670 Background Pk Height (A): 0.338
Blank Corrected Pk Area (A-s): 0.015

Sb ID: Standard 1 Seq. No.: 00165 A/S Pos.: 23 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 23
Replicate 1 Time: 08:46
~~~~~~

Peak Area (A-s): 0.045 Peak Height (A): 0.029
Background Pk Area (A-s): 0.669 Background Pk Height (A): 0.348
Blank Corrected Pk Area (A-s): 0.028

Sb ID: Standard 2 Seq. No.: 00166 A/S Pos.: 23 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 3, 20 from 23
Replicate 1 Time: 08:50
Peak Area (A-s): 0.070 Peak Height (A): 0.037
Background Pk Area (A-s): 0.669 Background Pk Height (A): 0.349
Blank Corrected Pk Area (A-s): 0.052

Sb ID: Standard 3 Seq. No.: 00167 A/S Pos.: 23 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 4, 20 from 23
Replicate 1 Time: 08:54
Peak Area (A-s): 0.088 Peak Height (A): 0.050
Background Pk Area (A-s): 0.670 Background Pk Height (A): 0.354
Blank Corrected Pk Area (A-s): 0.070

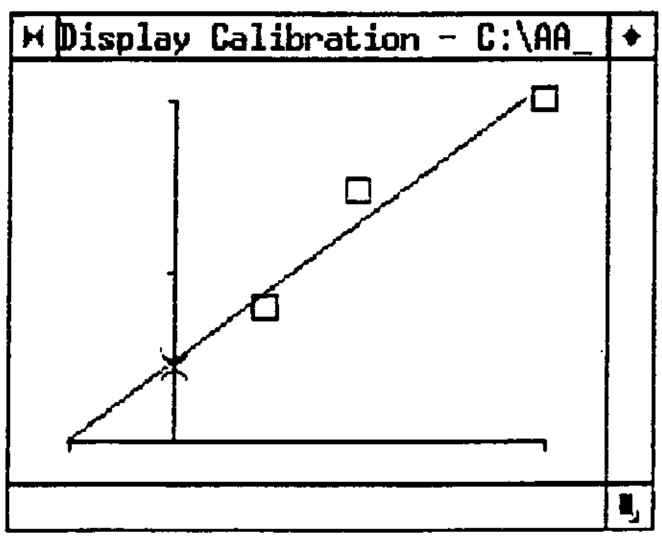
Sb ID: 58.056.12 BH Seq. No.: 00164 A/S Pos.: 23 Date: 08/07/92

Concentration (ug/L): 57.1 OK ✓

Correlation coefficient: 0.98063 Slope: 0.0003 Int: 0.016

This is the better of 2 trials

other was 41 µg/L @ 0.97



Sb ID: 58.139.1AB Seq. No.: 00169 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 20 from 0, 5 from 39, 20 from 24
Replicate 1 Time: 09:03
Peak Area (A-s): 0.033 Peak Height (A): 0.028
Background Pk Area (A-s): 0.724 Background Pk Height (A): 0.391
Blank Corrected Pk Area (A-s): 0.016

Sb ID: Standard 1 Seq. No.: 00170 A/S Pos.: 24 Date: 08/07/92

uL dispensed: 5 from 39, 20 from 2, 20 from 24
Replicate 1 Time: 09:07

SB 58056

Element File: SB_.GEL	Element: Sb	Wavelength: 217.6
Date: 08/06/92	Time: 13:56	Slit: 0.70 L
Data File: 080692A.DAT	ID/Wt File: 21422.IDW	Lamp Current: 20
Technique: HGA	Calib. Type: Nonlinear	Energy: 59

Sb ID: Blank Seq. No.: 00067 A/S Pos.: 0 Date: 08/06/92

uL dispensed: 5 from 39, 20 from 0
Replicate 1 Time: 13:59
Peak Area (A-s): -0.000 Peak Height (A): 0.008
Background Pk Area (A-s): 0.054 Background Pk Height (A): 0.084
Blank Corrected Pk Area (A-s): -0.000

No good conc too high Reanalyzing by MSA VM 8-7-92

uL dispensed: 5 from 39, 20 from 0
Replicate 2 Time: 14:01
Peak Area (A-s): 0.000 Peak Height (A): 0.008
Background Pk Area (A-s): 0.033 Background Pk Height (A): 0.060
Blank Corrected Pk Area (A-s): 0.000

Mean Pk Area (A-s): 0.000 SD: 0.0005 RSD(%): 762.30

Auto-zero performed.

Sb ID: Standard 1 Seq. No.: 00068 A/S Pos.: 1 Date: 08/06/92

uL dispensed: 5 from 39, 20 from 1
Replicate 1 Time: 14:04
Peak Area (A-s): 0.009 Peak Height (A): 0.008
Background Pk Area (A-s): 0.028 Background Pk Height (A): 0.054
Blank Corrected Pk Area (A-s): 0.009

uL dispensed: 5 from 39, 20 from 1
Replicate 2 Time: 14:07
Peak Area (A-s): 0.008 Peak Height (A): 0.009
Background Pk Area (A-s): 0.027 Background Pk Height (A): 0.055
Blank Corrected Pk Area (A-s): 0.008

Mean Pk Area (A-s): 0.008 SD: 0.0010 RSD(%): 12.14

Standard number 1 applied. [20.0]
Correlation coefficient: 1.00000 Slope: 0.0004

Sb ID: Standard 2 Seq. No.: 00069 A/S Pos.: 2 Date: 08/06/92

uL dispensed: 5 from 39, 20 from 2
Replicate 1 Time: 14:10
Peak Area (A-s): 0.020 Peak Height (A): 0.019
Background Pk Area (A-s): 0.025 Background Pk Height (A): 0.054
Blank Corrected Pk Area (A-s): 0.020
Concentration (ug/L): 47.6

uL dispensed: 5 from 39, 20 from 2
Replicate 2 Time: 14:13
Peak Area (A-s): 0.017 Peak Height (A): 0.014
Background Pk Area (A-s): 0.028 Background Pk Height (A): 0.050

Blank Corrected Pk Area (A-s): 0.017
Concentration (ug/L): 40.1

Mean Conc (ug/L): 43.9 SD: 5.29 RSD(%): 12.05

Standard number 2 applied. [50.0]
Correlation coefficient: 1.00000 Slope: 0.0005

~~~~~~

Sb ID: Standard 3 Seq. No.: 00070 A/S Pos.: 3 Date: 08/06/92

uL dispensed: 5 from 39, 20 from 3
Replicate 1 Time: 14:16
Peak Area (A-s): 0.035 Peak Height (A): 0.025
Background Pk Area (A-s): 0.035 Background Pk Height (A): 0.083
Blank Corrected Pk Area (A-s): 0.035
Concentration (ug/L): 123.3

uL dispensed: 5 from 39, 20 from 3
Replicate 2 Time: 14:19
Peak Area (A-s): 0.039 Peak Height (A): 0.028
Background Pk Area (A-s): 0.032 Background Pk Height (A): 0.069
Blank Corrected Pk Area (A-s): 0.039
Concentration (ug/L): 147.3

Mean Conc (ug/L): 134.9 SD: 16.98 RSD(%): 12.55

S-shaped calibration curve detected. 2-coef. equation used.
Standard number 3 applied. [100.0]
Correlation coefficient: 0.99783 Slope: 0.0004

~~~~~~

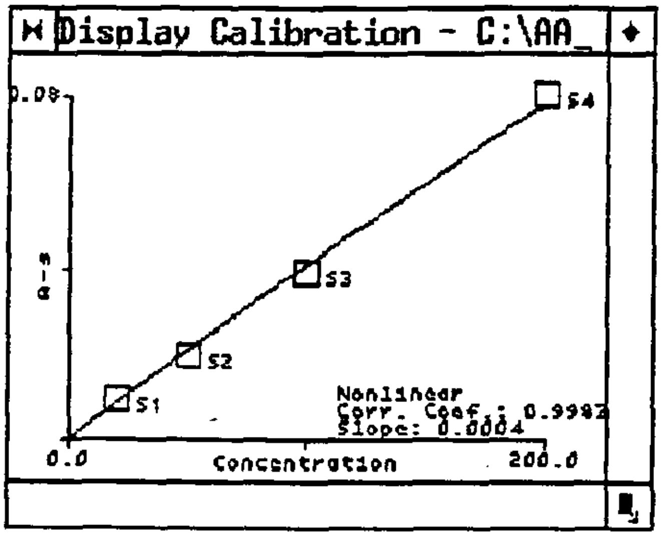
Sb ID: Standard 4 Seq. No.: 00071 A/S Pos.: 4 Date: 08/06/92

uL dispensed: 5 from 39, 20 from 4
Replicate 1 Time: 14:22
Peak Area (A-s): 0.075 Peak Height (A): 0.043
Background Pk Area (A-s): 0.038 Background Pk Height (A): 0.067
Blank Corrected Pk Area (A-s): 0.075
Concentration (ug/L): 248.7

uL dispensed: 5 from 39, 20 from 4
Replicate 2 Time: 14:25
Peak Area (A-s): 0.079 Peak Height (A): 0.046
Background Pk Area (A-s): 0.038 Background Pk Height (A): 0.073
Blank Corrected Pk Area (A-s): 0.079
Concentration (ug/L): 268.1

Mean Conc (ug/L): 258.3 SD: 13.69 RSD(%): 5.30

S-shaped calibration curve detected. 2-coef. equation used.
Standard number 4 applied. [200.0]
Correlation coefficient: 0.99838 Slope: 0.0004



~~~~~~

Sb ID: ICV Seq. No.: 00072 A/S Pos.: 3 Date: 08/06/92

uL dispensed: 10 from 0, 5 from 39, 20 from 3
Replicate 1 Time: 14:29
Peak Area (A-s): 0.042 Peak Height (A): 0.027
Background Pk Area (A-s): 0.065 Background Pk Height (A): 0.206
Blank Corrected Pk Area (A-s): 0.041
Concentration (ug/L): 107.8

QC sample is within range 80 - 120

~~~~~~

Sb ID: ICB Seq. No.: 00073 A/S Pos.: 0 Date: 08/06/92

uL dispensed: 10 from 0, 5 from 39, 20 from 0
Replicate 1 Time: 14:32
Peak Area (A-s): 0.001 Peak Height (A): 0.009
Background Pk Area (A-s): 0.064 Background Pk Height (A): 0.192
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L): 2.0

QC sample is within range -20 - 20

~~~~~~

Sb ID: 58.056.1 FH Seq. No.: 00074 A/S Pos.: 18 Date: 08/06/92

uL dispensed: 10 from 0, 5 from 39, 20 from 18
Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:35
Peak Area (A-s): 0.504 Peak Height (A): 0.402
Background Pk Area (A-s): 2.232 Background Pk Height (A): 0.739
Blank Corrected Pk Area (A-s): 0.504
Concentration (ug/L): 2346.5

~~~~~~

Sb ID: 58.056.1 FH Seq. No.: 00075 A/S Pos.: 18 Date: 08/06/92

uL dispensed: 25 from 0, 5 from 39, 5 from 18

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:38
Peak Area (A-s): 0.155 Peak Height (A): 0.156
Background Pk Area (A-s): 0.973 Background Pk Height (A): 0.550
Blank Corrected Pk Area (A-s): 0.155
Concentration (ug/L): 450.8 Corrected Conc (ug/L): 1803.2

~~~~~~

Sb ID: 58.056.1 FH Seq. No.: 00076 A/S Pos.: 18 Date: 08/06/92

uL dispensed: 15 from 0, 5 from 39, 10 from 3, 5 from 18
Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:41
Peak Area (A-s): 0.197 Peak Height (A): 0.198
Background Pk Area (A-s): 0.938 Background Pk Height (A): 0.531
Blank Corrected Pk Area (A-s): 0.197
Concentration (ug/L): 601.3 Corrected Conc (ug/L): 2405.1

Recovery is 300.9% (outside of specified limits)

~~~~~~

Sb ID: 58.056.4 BH Seq. No.: 00077 A/S Pos.: 21 Date: 08/06/92

uL dispensed: 10 from 0, 5 from 39, 20 from 21
Replicate 1 Time: 14:45
Peak Area (A-s): 0.030 Peak Height (A): 0.042
Background Pk Area (A-s): 0.942 Background Pk Height (A): 0.467
Blank Corrected Pk Area (A-s): 0.030
Concentration (ug/L): 78.2

~~~~~~

Sb ID: 58.056.4 BH Seq. No.: 00078 A/S Pos.: 21 Date: 08/06/92

uL dispensed: 5 from 39, 10 from 3, 20 from 21
Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:48
Peak Area (A-s): 0.091 Peak Height (A): 0.121
Background Pk Area (A-s): 0.964 Background Pk Height (A): 0.454
Blank Corrected Pk Area (A-s): 0.091
Concentration (ug/L): 247.2

Recovery is 337.9% (outside of specified limits)

~~~~~~

Sb ID: CCV Seq. No.: 00079 A/S Pos.: 3 Date: 08/06/92

uL dispensed: 10 from 0, 5 from 39, 20 from 3

~~~~~~

Sb ID: CCV Seq. No.: 00080 A/S Pos.: 3 Date: 08/06/92

uL dispensed: 10 from 0, 5 from 39, 20 from 3
Replicate 1 Time: 14:54
Peak Area (A-s): 0.021 Peak Height (A): 0.018
Background Pk Area (A-s): 0.103 Background Pk Height (A): 0.170
Blank Corrected Pk Area (A-s): 0.021
Concentration (ug/L): 53.1

QC sample is out of range 80 - 120
~~~~~~

Appendix E

Equipment Calibration Data Sheets

Date 5/21/92 Calibrated by MDK

Nozzle ID No.	Nozzle Diameter[a]				
	D_1 [redacted] (in)	D_2 [redacted] (in)	D_3 [redacted] (in)	ΔD_b [redacted] (in)	D_{avg} [redacted] (in)
1-G	.261	.262	.262	.001	.262
2-G	.262	.263	.263	.001	.263
3-G	.313	.313	.312	.001	.313
4-G	.310	.308	.310	.002	.309
5-G	.194	.195	.194	.001	.194
6-G	.197	.197	.197	.000	.197

where:

[a] $D_{1,2,3.}$ = three different nozzle diameters, mm (in); each diameter must be measured within (0.025 mm) 0.001 in.

[b] ΔD = maximum difference between any two diameters, mm (in), $\Delta D \leq$(0.10 mm) 0.004 in.

[c] D_{avg} = average of D_1, D_2, and D_3.

DEECO

Date 5-27-92 Calibrated by W.D. Baynitzky

Nozzle ID No.	Nozzle Diameter[a]				
	D_1 ~~mm~~ (in)	D_2 ~~mm~~ (in)	D_3 ~~mm~~ (in)	ΔD_b ~~mm~~ (in)	D_{avg} ~~mm~~ (in)
7-g	0.252	0.251	0.254	0.002	0.252
8-g	0.302	0.301	0.301	0.001	0.301

where:

[a] $D_{1,2,3,}$ = three different nozzle diameters, mm (in); each diameter must be measured within (0.025 mm) 0.001 in.

[b] ΔD = maximum difference between any two diameters, mm (in), $\Delta D \leq$(0.10 mm) 0.004 in.

[c] D_{avg} = average of D_1, D_2, and D_3.

DEECO

Date 6-9-92 Calibrated by W. D. Buynitzky

Nozzle ID No.	Nozzle Diameter[a] D_1 ~~mm~~ (in)	D_2 ~~mm~~ (in)	D_3 ~~mm~~ (in)	ΔD_b ~~mm~~ (in)	D_{avg} ~~mm~~ (in)
2-g	0.258	0.259	0.258	0.001	0.258
1-g	0.263	0.263	0.262	0.001	0.263
5-g	0.259	0.258	0.260	0.002	0.259
6-g	0.196	0.195	0.194	0.002	0.195
7-g	0.310	0.310	0.311	0.001	0.310
9-g	0.195	0.194	0.195	0.001	0.195

where:

[a] $D_{1,2,3,}$ = three different nozzle diameters, mm (in); each diameter must be measured within (0.025 mm) 0.001 in.

[b] ΔD = maximum difference between any two diameters, mm (in), $\Delta D \leq$(0.10 mm) 0.004 in.

[c] D_{avg} = average of D_1, D_2, and D_3.

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? ___✓___ yes ________ no

Pitot tube openings damaged? ______ yes (explain below) ___X___ no

α_1 = ___4___° (<10°), α_2 = ___1___° (<10°), β_1 = ___1___° (<5°),
β_2 = ___1___° (<5°)

γ = ___1___°, θ = ___0___°, A = ___1.052___ ~~cm~~ (in.)

z = A sin γ = ___.0184___ ~~cm~~ (in.); <0.32 cm (<1/8 in.),
w = A sin θ = ___0___ cm (in.); <.08 cm (<1/32 in.)

P_A ___.530___ cm (in.) P_b ___.522___ cm (in.)

D_t = ___.374___ ~~cm~~ (in.)

Comments: P_A P_B [illegible] measure

Calibration required? ___✓___ yes ______ no

Note: Edges of opening did not appear dented, scratched etc

G-000004

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? ✓ yes ____ no

Pitot tube openings damaged? ____ yes (explain below) ✓ no

α_1 = 2 ° (<10°), α_2 = 1 ° (<10°), β_1 = 1 ° (<5°),
β_2 = 1 ° (<5°)

γ = 0 °, θ = 1 °, A = .689 cm (in.)

z = A sin γ = .012 cm (in.); <0.32 cm (<1/8 in.),
w = A sin θ = .012 cm (in.); <.08 cm (<1/32 in.)

P_A .344 cm (in.) P_B .345 cm (in.)

D_t = .25 cm (in.)

Comments:

PROBE # CR 5-5

Calibration required? ____ yes ✓ no

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? ✓ yes ______ no

Pitot tube openings damaged? _____ yes (explain below) ✓ no

α_1 = 0 ° (<10°), α_2 = 1 ° (<10°), β_1 = 2 ° (<5°),
β_2 = 1 ° (<5°)

γ = 1 °, θ = 0 °, A = .940 cm (in.)

z = A sin γ = .016 cm (in.); <0.32 cm (<1/8 in.),
w = A sin θ = 0 cm (in.); <.08 cm (<1/32 in.)

P_A .46 cm (in.) P_b .48 cm (in.)

D_t = .375 cm (in.)

Comments: ______

PROBE #6-C

6-14-92 JAB

Calibration required? _____ yes ✓ no

7-13-92

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? ✓ yes ______ no

Pitot tube openings damaged? ______ yes (explain below) ✓ no

α_1 = 1 ° (<10°), α_2 = 1 ° (<10°), β_1 = 1 ° (<5°),
β_2 = 1 ° (<5°)

γ = 0 °, θ = 1 °, A = .936 cm (in.)

z = A sin γ = .00 cm (in.); <0.32 cm (<1/8 in.),
w = A sin θ = .014 cm (in.); <.08 cm (<1/32 in.)

P_A .469 cm (in.) P_b .467 cm (in.)

D_t = .375 cm (in.)

Comments:

PROBE #-6B 7-13-92

Calibration required? ______ yes ✓ no

E-000007

TYPE S PITOT TUBE INSPECTION DATA FORM

Pitot tube assembly level? ✓ yes ______ no

Pitot tube openings damaged? ______ yes (explain below) X no

α_1 = ______° (<10°), α_2 = ______° (<10°), β_1 = ______° (<5°),

β_2 = ______° (<5°)

γ = 0 °, θ = 1 °, A = .717 cm (in.)

z = A sin γ = 0.° cm (in.); <0.32 cm (<1/8 in.),

w = A sin θ = .012 cm (in.); <.08 cm (<1/32 in.)

P_A .358 cm (in.) P_b .359 cm (in.)

D_t = .25 cm (in.)

Comments: insp. by JAB 6-8-92

PROBE # CR4 Hex 2

Calibration required? ______ yes ✓ no

E - 000008

DEECO

Date 7 Thermocouple No. Probe Thermocouple on Probe

Ambient temperature 91.4 °F Barometric pressure ______ in Hg

Calibration person ______ Reference: mercury-in-glass 91.4 °F

other ______ °F

Reference point number	Source[a] (specify)	Reference thermometer temperature, °F	Thermocouple potentiometer temperature, °F	Temperature[b] difference, %
1	Ice Bath	38.3/38.3/38.3 38.3°F	37/38/36 37°	.26%
2	Hot Bath	200?/199.4/200? ~202	199/209/200 ~199.[illegible]	.05%

[a]Type of calibration system used.

[b]

$$\frac{\text{ref temp, }^\circ F + 460) - (\text{test thermom temp, }^\circ F + 460)}{\text{ref temp, }^\circ F + 460} \times 100 = \qquad (<1.5\%)$$

TEMPERATURE CALIBRATION DATA FORM

Date 6-8-92 Calibrator Name Clark Malone

Ambient Temperature 75.6 Barometric Pressure 29.81 in. Hg

Reference: Hg-in-glass

Other Fluke 52

Thermocouple No.	Source (specify)	Reference thermometer temperature °F	Thermocouple indicator temperature °F	Percent error %
Hex-1 CR-5	Ambient	75.6	75.4	.037
	Boil H_2O	211	210.8	.029
	Ice Bath	38.0	39.6	.321
Hex-2 CR-4	Ambient	77.0	78.4	.260
	Boiling H_2O	211.4	210.8	.029
	ICE Bath	37.0	37.0	0.0

Source: ice bath, ambient air, boiling H2O, hot oil

iea

1.2

$$\% \text{ error} = \frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 1.5\%$$

tempcal.wk1

E- 000010

TEMPERATURE CALIBRATION DATA FORM

Date 6-8-92 Calibrator Name James Clark Malone

Ambient Temperature 72.9 Barometric Pressure 29.81 in. Hg

Reference: Hg-in-glass

Other Fluke 52

Thermocouple No.	Source (specify)	Reference thermometer temperature °F	Thermocouple indicator temperature °F	Percent error %
5-C	ambient	79.4	79.2	.037
	Boiling H_2O	211.0	207.8	.476
	Ice Bath	37.8	37.4	.080
5-B	Ambient	71.8	71.4	.075
	Boiling H_2O	212.0	211.8	.029
	ICE Bath	36.8	36.4	.040

Source: ice bath, ambient air, boiling H2O, hot oil

iea

$$\% \text{ error} = \frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 1.5\%$$

tempcal.wk1 E-000011

DRY GAS METER POST-TEST CALIBRATION
USING REFERENCE METER

DATE: 7-13-92 METER BOX NO. M-4

CALIBRATOR: JAB BAROMETRIC PRESSURE (Pb) 29.79 in. Hg

INITIAL CALIBRATION Y: .998 ΔH@: 1.992

PLANT: Solite PROJECT NO.: 1381-006

AVERAGE ΔH DURING TESTING: 1.5 MAXIMUM VACUUM 5 in. Hg

Orifice manometer setting* ΔH in. H2O	Volume reference meter Vw ft3	Volume dry gas meter Vd ft3	Temperatures: Ref Meter Tw °F	Ref Meter Avg Tw °F	Dry gas meter Td °F	Dry gas meter Avg Td °F	Test duration θ min	Vacuum setting ** in. Hg	Calibr Factor Y	ΔH@ in. H2O
1.5	start 981.532 stop 988.092 diff 6.56	256.765 263.157 6.392	start 80 stop 78	539 79	start 83 stop 83	83 543	10	5	1.0376	2.029
1.5	start 988.092 stop 994.642 diff 6.55	263.157 269.561 6.404	start 78 stop 78	538 78	start 83 stop 84	83.5 543.5	10	5	1.0369	2.026
1.5	start 994.642 stop 1001.439 diff 6.797	269.561 276.202 6.641	start 78 stop 79	538.5 78.5	start 84 stop 85	84.5 544.5	10	5	1.0386	1.881
								Post-test Average***	1.038	1.979

* To be the average ΔH used during test series.

** To be the highest vacuum used during test series.

*** Post-test Y must be within the range, pre-test Y +/- 5% OK? ☐

Post-test ΔH@ should be within the range of the initial or pre-test ΔH@ +/- 0.20 in. H2O. OK? ☐

$$Y = \frac{(1.0073)(Vw)(Pbar)(Td + 460)}{(Vd)(Pbar + \Delta H / 13.6)(Tw + 460)}$$

$$\Delta H@ = \frac{(0.0317)(\Delta H)}{(Pbar)(Td + 460)} \left[\frac{(Tw + 460)(\theta)}{(Vw)} \right]^2$$

$$\text{Percent difference} = \frac{(\text{Avg inital Y}) - (\text{Post-test Y})}{(\text{Avg initial Y})}$$

dgmptcal.wk1

E-000012

THERMOCOUPLE DIGITAL INDICATOR
CALIBRATION DATA FORM

Date 7-13-92 Calibrator Name JAB

Indicator No. M-4 Probe Serial No. 007

Calibration Device No. CL 300 Manufacturer Omega

Test Point No.	Millivolt Signal	Equivalent Temperature deg. F	Digital Indicator Temperature deg. F	Percent difference %
		100	102	
		200	200	
		300	301	
		400	406	
		500	502	
		600	601	
		700	700	
		800	799	
		900	899	
		1100	1099	

Percent difference must be less than or equal to 0.5%

Percent Difference:

$$\frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 0.5\%$$

THERMOCOUPLE DIGITAL INDICATOR
CALIBRATION DATA FORM

Date 7-13-92 Calibrator Name JAB

Indicator No. M-4 oven Serial No. 007

Calibration Device No. CL 300 Manufacturer Omega

Test Point No.	Millivolt Signal	Equivalent Temperature deg. F	Digital Indicator Temperature deg. F	Percent difference %
	100		101	
	300		300	
	500		502	
	700		701	
	900		899	
	1100		1098	
	200		199	
	400		400	
	600		601	
	800		801	

Percent difference must be less than or equal to 0.5%

Percent Difference:

$$\frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 0.5\%$$

THERMOCOUPLE DIGITAL INDICATOR
CALIBRATION DATA FORM

Date 7-13-92 Calibrator Name JAB

Indicator No. M-4 Readout Serial No. 007

Calibration Device No. CL 300 Manufacturer Omega

Test Point No.	Millivolt Signal	Equivalent Temperature deg. F	Digital Indicator Temperature deg. F	Percent difference %
		100	99	
		300	299	
		500	500	
		700	701	
		900	901	
		1100	1098	
		200	201	
		400	402	
		600	601	
		800	800	

Percent difference must be less than or equal to 0.5%

Percent Difference:

$$\frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 0.5\%$$

THERMOCOUPLE DIGITAL INDICATOR
CALIBRATION DATA FORM

Date 6-26-92 Calibrator Name JAB

Indicator No. M-11 Readout Serial No. 007

Calibration Device No. CL 300 Manufacturer Omega

Test Point No.	Millivolt Signal	Equivalent Temperature deg. F	Digital Indicator Temperature deg. F	Percent difference %
		100	99	
		200	199	
		300	300	
		400	398	
		500	502	
		600	599	
		700	701	
		800	801	
		900	900	
		1100	1101	

Percent difference must be less than or equal to 0.5%

Percent Difference:

$$\frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 0.5\%$$

G- 000016

THERMOCOUPLE DIGITAL INDICATOR
CALIBRATION DATA FORM

Date 6-26-92 Calibrator Name JAB

Indicator No. M-11 oven Serial No. 007

Calibration Device No. Cl 300 Manufacturer Omega

Test Point No.	Millivolt Signal	Equivalent Temperature deg. F	Digital Indicator Temperature deg. F	Percent difference %
		100	99	
		200	198	
		300	300	
		400	401	
		500	499	
		600	598	
		700	700	
		800	802	
		900	901	
		1100	1099	

Percent difference must be less than or equal to 0.5%

Percent Difference:

$$\frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 0.5\%$$

E-000017

THERMOCOUPLE DIGITAL INDICATOR CALIBRATION DATA FORM

Date 6-26-92 Calibrator Name JAB

Indicator No. M-11 Probe Serial No. 007

Calibration Device No. CL 300 Manufacturer Omega

Test Point No.	Millivolt Signal	Equivalent Temperature deg. F	Digital Indicator Temperature deg. F	Percent difference %
		100	102	
		200	199	
		300	299	
		400	403	
		500	502	
		600	602	
		700	700	
		800	801	
		900	899	
		1100	1098	

Percent difference must be less than or equal to 0.5%

Percent Difference:

$$\frac{(\text{Ref temp} + 460) - (\text{Test temp} + 460)}{(\text{Ref temp} + 460)} \times 100\% \text{ should be} < 0.5\%$$

DRY GAS METER POST-TEST CALIBRATION USING REFERENCE METER

DATE: 6/26/92 METER BOX NO. M11

CALIBRATOR: PS BAROMETRIC PRESSURE (Pb) 29.58 in. Hg

INITIAL CALIBRATION Y: 0.998 ΔH@: 2.08

PLANT: Solite PROJECT NO.: 1381-004-5

AVERAGE ΔH DURING TESTING: 2.5 MAXIMUM VACUUM 12.0 in. Hg

Orifice manometer setting* ΔH in. H2O	Volume reference meter Vw ft3	Volume dry gas meter Vd ft3	Temperatures: Ref Meter Tw °F	Ref Meter Avg Tw °F	Dry gas meter Td °F	Dry gas meter Avg Td °F	Test duration θ min	Vacuum setting ** in. Hg	Calibr Factor Y	ΔH@ in. H2O
2.5	start 869.628 stop 878.501 diff 8.873	920.414 929.320 8.906	start 80 stop 80	80	start 80 stop 82	81	10	12	0.999	1.81
2.5	start 878.501 stop 887.380 diff 8.879	929.320 938.245 8.925	start 80 stop 80	80	start 81 stop 83	82	10	12	0.999	1.80
2.5	start 887.380 stop 896.100 diff 8.720	938.245 947.015 8.770	start 80 stop 80	80	start 81 stop 84	82	10	12	0.999	1.87
								Post-test Average***	0.999	1.83
									1.000	1.879

* To be the average ΔH used during test series.

** To be the highest vacuum used during test series.

*** Post-test Y must be within the range, pre-test Y +/- 5% OK? ☐

Post-test ΔH@ should be within the range of the initial or pre-test ΔH@ +/- 0.20 in. H2O. OK? ☐

$$Y = \frac{\overset{1.0073}{\cancel{(1.006)}}\,(Vw)\,(Pbar)\,(Td + 460)}{(Vd)\,(Pbar + \Delta H / 13.6)\,(Tw + 460)}$$

$$\Delta H@ = \frac{(0.0317)\,(\Delta H)}{(Pbar)\,(Td + 460)} \left[\frac{(Tw + 460)\,(\theta)}{(Vw)\,\underset{1.0073}{\cancel{(1.006)}}} \right]^2$$

$$\text{Percent difference} = \frac{(\text{Avg inital Y}) - (\text{Post-test Y})}{(\text{Avg initial Y})}$$

gmptcal.wk1

E-000012

iea

DRY GAS METER POST–TEST CALIBRATION
USING REFERENCE METER

DATE: 7-13-92 METER BOX NO. M-3

CALIBRATOR: JAB BAROMETRIC PRESSURE (Pb) 29.79 in. Hg

INITIAL CALIBRATION Y: 1.0 ΔH@: 1.935

PLANT: Solite PROJECT NO.: 1381-004

AVERAGE ΔH DURING TESTING: 1.5 MAXIMUM VACUUM 4" in. Hg

Orifice manometer setting* ΔH in. H2O	Volume reference meter Vw ft3	Volume dry gas meter Vd ft3	Temperatures: Ref Meter Tw °F	Temperatures: Ref Meter Avg Tw °F	Temperatures: Dry gas meter Td °F	Temperatures: Dry gas meter Avg Td °F	Test duration θ min	Vacuum setting ** in. Hg	Calibr Factor Y	ΔH@ in. H2O
1.5	start 958.904	135.786	start 77	77	start 82	82.5	10	5	.9924	2.277
	stop 965.077	142.061	stop 77		stop 83					
	diff 6.173	6.275								
1.5	start 965.077	142.061	start 77	77	start 83	83.5	10	5	.9969	2.278
	stop 971.242	148.342	stop 77		stop 84					
	diff 6.165	6.281								
1.5	start 971.242	148.342	start 77	77	start 84	84	10	5	.9975	2.286
	stop 977.394	154.612	stop 77		stop 84					
	diff 6.152	6.270								
							Post–test Average***		.997	2.280

* To be the average ΔH used during test series.

** To be the highest vacuum used during test series.

*** Post–test Y must be within the range, pre–test Y +/– 5% OK? ☐

Post–test ΔH@ should be within the range of the initial or pre–test ΔH@ +/– 0.20 in. H2O. OK? ☐

used 1.935

$$Y = \frac{(1.0073)(Vw)(Pbar)(Td + 460)}{(Vd)(Pbar + \Delta H / 13.6)(Tw + 460)}$$

$$\Delta H@ = \frac{(0.0317)(\Delta H)}{(Pbar)(Td + 460)} \left[\frac{(Tw + 460)(\theta)}{(Vw)} \right]^2$$

$$\text{Percent difference} = \frac{(\text{Avg inital Y}) - (\text{Post-test Y})}{(\text{Avg initial Y})}$$

gmptcal.wk1

E- 000020

Appendix F

Test Participants

Test Participants

Industrial & Environmental Analysts

J. Bacik - Environmental Technician
G. Bowser - Environmental Technician
G. Bright - CEM
C. Outlaw - Sample Recovery
C. Malone - Environmental Technician

DEECO, Inc.

W. DeWees - Project Leader/Process Sampler
W. Buynitzky - Sample Recovery

Solite Corporation

D. Burns - Solite Coordinator

TRIANGLE LABORATORIES, INC.

PO BOX 13485
RTP, NC 27709

ANALYSIS REPORT

MULTI METALS TRAINS

PREPARED FOR:

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Morrisville, NC 27560

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Patricia Chagaris
Inorganic Report Generation

Dr. William H. Wadlin
Inorganic Laboratory Manager

Quality Assurance

August 10, 1992

INORGANICS ANALYSIS REPORT

	KY-1-INLET			KY-2-INLET			KY-3-INLET	
FILTER	FINAL WT	1.839	FILTER	FINAL WT	2.899	FILTER	FINAL WT	3.283
	TARE WT	.5091		TARE WT	.5069		TARE WT	.5115
		=========			=========			=========
	g PARTICULATE	1.330		g PARTICULATE	2.392		g PARTICULATE	2.772
	g USED	.435		g USED	.498		g USED	.715
	FRACTION AMT	.2365		FRACTION AMT	.1718		FRACTION AMT	.2178
ACETONE	FINAL WT	9.968	ACETONE	FINAL WT	11.327	ACETONE	FINAL WT	11.720
	g USED	2.357		g USED	1.946		g USED	2.553

CALCULATIONS

MMTL TRAINS:

ICP & GFAA

FH & BH TOTAL ug = $\frac{[ug/L] * (mL\ TV/mL\ USED) * (mL\ FV * DF)}{1000}$

FV=FINAL VOLUME   DF=DILUTION FACTOR
WT=WEIGHT   TV=TOTAL VOLUME
BV=BEGINNING VOLUME

*a 1 is used for the TV and ml USED when the sample is a filter: in the case of the FH samples the Total Volume was not taken, therefore a 1 is also used for the TV and ml USED(all of the FH volume was digested and brought to a final volume of 100ml).

$$\%RPD = \frac{|SR - DR|}{(SR + DR)/2} * 100$$

SR=SAMPLE RESULT   DR=DUPLICATE RESULT

Date: July 27, 1998
Project # 21435 (IPA)

Portion of filter used

Sample #	Tare wgt.	Final wgt.	~~[illegible]~~	Total	Sample	Fraction
Filters						
58.056.1	~~1.[illegible]~~ 0.5091 g	1.839 g	0.435 g			.2365
58.056.5	0.5068 g	2.899	0.498 g			.1718
58.056.9	0.5115 g	3.283	0.715			.2178
Acetone Rinses						
58.056.3		9.968	2.357			
58.056.7		11.327	1.946			
58.056.11		11.720	2.553			

Project 21435
Acetone, Filter weights pg. 2 #
Dioxins

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