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Mercury and Other Metals Testing at the GSF Energy Inc. Landfill Gas Recovery Plant at the Fresh Kills Landfill

Project Report

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Mercury screening measurements made in July 1995 had indicated that the landfill-gas entering the GSF Gas Recovery plant at the Fresh Kills Landfill in Staten Island, NY may have elevated levels of mercury (See EPA902-R-95-001a&b). The July 1995 measurement indicated a need for further evaluation of the mercury levels in the landfill gas. Follow-up measurements of mercury (and other metals) were made in July 1996. The results of the July 1996 measurements indicate that much lower mercury levels are measured when a more refined and accurate test method is used. This report contains the results of the July 1996 tests and is a supplement ot EPA902-R-95-001a&b.

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Mercury And Other Metals Testing at the GSF Energy Inc. Landfill Gas Recovery Plant at the Fresh Kills Landfill

Final Report

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Section 1.0
Introduction

The Fresh Kills Landfill, which receives municipal waste from the city of New York, covers approximately 3,000 acres and is the largest landfill in the United states. The methane gas generated within the landfill is captured from one of the active sections, purified and sold to a local utility. In 1995, the U.S. Environmental Protection Agency (U.S. EPA) conducted an extensive study of the emissions from the landfill. One aspect of this study involved the measurement of mercury entering the recovery facility. These screening measurements were performed with a Jerome Mercury Vapor analyzer, the results of which indicated the presence of mercury in the two "header" lines entering the facility. Subsequent testing by GSF Energy and Brooklyn Union Gas using other test methodology showed significantly lower levels of mercury when testing was performed on the raw landfill gas after one of the compression stages and on the "sales gas" at the point where the purified gas enters the utility system. The U.S. EPA then decided to perform additional testing using a more rigorous test methodology as well as the Jerome analyzer to determine what, if any, mercury is present in the gas streams both entering and leaving the plant. Samples of the aqueous/organic condensate associated with the raw gas, the Thermal Oxidizer residue and the "iron sponge" scrubber could not be collected at the time of this test. Since the "iron sponge" stays in the GSF process for periods of three to six months, the mercury present in the sponge would be the total mercury that is accumulated over the lifetime of this sponge. Therefore, a mass balance calculation could not be performed.

Testing was performed on the two landfill gas collection Headers, the purified landfill gas (Sales Gas) and the Thermal Oxidizer for mercury (Hg) and other selected metals: arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), lead (Pb), and antimony (Sb) following the sampling and analysis protocols given in EPA Method 29 with modifications to adapt to site conditions. Testing was performed during the week of July 15, 1996.

This report provides the results of the testing performed by Eastern Research Group, Inc.(ERG) for the U.S. EPA under Contract No. 68-D3-0033, Work Assignment II-50. This report also provides an estimate of the metals emission rates from the area of the landfill that is affected by the GSF gas recovery plant. No attempts were made to estimate the total emission rate from the entire landfill.

Section 2.0
Results And Discussion

This section of the report provides the results of the on-site Jerome mercury testing as well as the results of the Method 29 samples which were transported to the laboratory for analysis. The data contained the in tables is presented beginning with the laboratory results of each sample by fraction, followed by the calculation of the concentration of each metal in the gas stream and finally the emission rate of each metal. The discussion of the results is presented by analyte. The impact on the sample results of any analytes found in the blanks is discussed. The laboratory data package is presented as Appendix A.

Method 29

Discussion of the Analytical Results

The following discussion applies to Tables 2-1 through 2-5. The "total" amount, in μg, is the sum of the values for each appropriate fraction which includes the values that were above and below the method detection limit (MDL). Values that were below the MDL are reported as "less than" values and values that are less than 5 times the MDL should be considered as insignificant. The use of the "less than" values in the "total" amount does not make any significant difference in the "total" amount. These values have not been blank corrected and were extracted directly as reported by the laboratory.

Table 2-1. **Amount of Metal Collected in Train, μg**
Thermal Oxidizer[a, b]

Metal	Fraction # 1	2	3	4	5	Total: Equal To	Total: But Less Than
Run 1							
Hg	<0.08	<0.496	<0.051	0.254[c]	1.87	2.12	2.75
As	161	23.7				185	
Be	<0.1	<0.119					0.22
Cd	<0.1	0.364				0.36	0.46
Cr[d]	20.1	3.33				23.4	
Pb	<0.2	1.77				1.77	1.97
Sb	125	15.6				141	
Run 2							
Hg	<0.08	<0.448	<0.044	1.71	1.07	2.77	3.35
As	142	31.5				174	
Be	<0.1	<0.122					0.22
Cd	<0.1	0.43[c]				0.43	0.53
Cr[d]	18.8	2.53				21.3	
Pb	<0.2	1.82				1.82	2.02
Sb	109	20.8				130	
Run 3							
Hg	<0.08	<0.48	<0.044	3.96	0.261	4.22	4.83
As	142	33.6				176	
Be	<0.1	<0.12					0.22
Cd	<0.1	3.21				3.21	3.31
Cr[d]	18.4	2.97				21.4	
Pb	<0.2	2.88				2.88	3.08
Sb	111	24.7				136	
Field Blank							
Hg	<0.08	<0.06	<0.043	<0.16	<0.04		0.38
As	3.34	<0.5				3.4	3.84
Be	<0.1	<0.1					0.20
Cd	<0.1	<0.1					0.20
Cr[d]	14.0	1.94				15.9	
Pb	<0.2	0.358[c]				0.36	0.56
Sb	8.74	0.73				9.47	

[a]Values preceded with "<" are based on the analytical component being not detected at the MDL.
[b]Results have not been blank corrected
[c]Less than 5 times the MDL
[d]Reagent contamination likely

Table 2-2. **Amount of Metal Collected in Train, µg Sales Gas[a,b]**

Metal	Fraction # 1	2	3	4	5	Total Equal To	Total But Less Than
Run 1							
Hg	<0.08	<0.212	<0.046	<0.16	0.05[c]	0.05	0.55
As	<0.5	<0.803					1.30
Be	<0.1	<0.161					0.26
Cd	<0.1	0.19[c]				0.19	0.29
Cr[d]	2.1	3.12				5.22	
Pb	1.4	3.6				5.00	
Sb	0.904[d]	1.59[d]				2.49	
Run 2							
Hg	<0.08	<0.275	<0.041	<0.16	<0.04		0.60
As	<0.5	<0.786					1.29
Be	<0.1	<0.157					0.26
Cd	<0.1	<0.157					0.26
Cr[d]	2.48	3.31				5.79	
Pb	<0.2	1.1[c]				1.1	1.30
Sb	1.03[d]	1.86[d]				2.89	
Run 3							
Hg	<0.08	<0.244	<0.042	<0.16	<0.04		0.57
As	0.737[c]	<0.744				0.74	1.48
Be	<0.1	<0.149					0.25
Cd	<0.1	<0.149					0.25
Cr[d]	4.41	2.6				7.01	
Pb	<0.2	1.09[c]				1.09	1.29
Sb	1.95[d]	1.2[d]				3.15	
Field Blank							
Hg	<0.08	<0.06	<0.044	<0.16	<0.04		0.38
As	<0.5	<0.5					1.00
Be	<0.1	<0.1					0.20
Cd	<0.1	<0.1					0.20
Cr[d]	2.43	1.34				3.77	
Pb	<0.2	<0.2					0.40
Sb	0.757[d]	0.639[d]				1.40	

[a]Values preceded with "<" are based on the analytical component being not detected at the MDL.
[b]Results have not been blank corrected
[c]Less than 5 times the MDL
[d]Reagent contamination likely

Table 2-3. Amount of Metal Collected in Train, µg North Header[a,b]

Metal	Fraction # 1	2	3	4	5	Total Equal to	Total But Less Than
Run 1							
Hg	<0.08	<0.174	<0.049	6.5	4.94	11.4	11.7
As	2.01	130				132	
Be	<0.1	<0.13					0.23
Cd	<0.1	<0.13					0.23
Cr[d]	2.35	3.3				5.65	
Pb	<0.2	0.562[c]				0.56	0.76
Sb	2.49	242				244	
Run 2							
Hg	<0.08	<0.352	<0.047	13.6	0.453	14.1	14.5
As	1.64	121				123	
Be	<0.1	<0.129					0.23
Cd	<0.1	<0.129					0.23
Cr[d]	2.13	3.41				5.54	
Pb	<0.2	0.373[c]				0.37	0.57
Sb	2.53	213				216	
Run 3							
Hg	<0.08	<0.41	<0.044	14.0	0.421	14.4	15.0
As	1.1	123				124	
Be	<0.1	<0.132					0.23
Cd	<0.1	<0.132					0.23
Cr[d]	2.22	3.8				6.02	
Pb	0.994[c]	0.601[c]				1.60	
Sb	3.5	211				215	

[a]Values preceded with "<" are based on the analytical component being not detected at the MDL.
[b]Results have not been blank corrected
[c]Less than 5 times the MDL
[d]Reagent contamination likely

Table 2-4. **Amount of Metal Collected in Train, μg South Header[a,b]**

Metal	Fraction # 1	2	3	4	5	Total Equal to	But Less Than
Run 1							
Hg	<0.08	<0.335	<0.047	26.4	1.26	28.0	28.1
As	<0.5	270				270	271
Be	<0.1	<0.143					0.24
Cd	0.139[c]	0.488[c]				0.63	
Cr[d]	3.75	2.73				6.48	
Pb	<0.2	1.2				1.20	1.40
Sb	1.63	490				492	
Run 2							
Hg	<0.08	<0.37	<0.046	29.1	0.953	30.0	30.6
As	<0.5	241				241	242
Be	<0.1	<0.137					0.24
Cd	<0.1	<0.137					0.24
Cr[d]	2.44	3.75				6.19	
Pb	<0.2	0.315[c]				0.32	0.52
Sb	2.46	432				434	
Run 3							
Hg	<0.08	<0.288	<0.041	34.1	1.39	35.5	35.9
As	<0.5	212				212	213
Be	<0.1	<0.138[c]					0.24
Cd	<0.1	0.138					0.24
Cr[d]	3.67	3.64				7.31	
Pb	<0.2	0.9[c]				0.90	1.10
Sb	1.63	398				400	
Field Blank (North/South Header)							
Hg	<0.08	<0.06	<0.076	<0.16	<0.04		0.42
As	<0.5	5.1				5.1	5.6
Be	<0.1	<0.1					0.20
Cd	<0.1	<0.1					0.20
Cr[d]	2.28	1.5				3.78	
Pb	1.56	1.55				3.11	
Sb	1.07	9.83				10.9	

[a]Values preceded with "<" are based on the analytical component being not detected at the MDL.
[b]Results have not been blank corrected
[c]Less than 5 times the MDL
[d]Reagent contamination likely

Table 2-5. **Amount of Metal Collected in Train, μg Background[a,b]**

Metal	Fraction # 1	2	3	4	5	Equal To	But Less Than
Hg	<0.08	<0.116	<0.05	<0.16	<0.08		0.49
As	<0.5	<0.763					1.26
Be	<0.1	<0.153					0.25
Cd	<0.1	1.31				1.31	1.41
Cr[d]	2.41	1.85				4.26	
Pb	<0.2	0.738[c]				0.74	0.94
Sb	1.25	<0.611				1.25	1.86

[a]Values preceded with "<" are based on the analytical component being not detected at the MDL.
[b]Results have not been blank corrected
[c]Less than 5 times the MDL
[d]Reagent contamination likely

Mercury

Mercury is typically detected in the permanganate impingers and in the hydrochloric acid rinse of these impingers of a Method 29 train, and not in any of the train components forward of the these impingers. This was the case for all positive hits in all of the samples collected for this project. Also, mercury was not detected in any of the field blanks nor in the reagent blanks.

Mercury was detected in fraction 5 of the Sales Gas, run #1, at 0.05 μg which is just slightly above the method detection limit of 0.04 μg. Since Hg was not detected in any of the other Sales Gas samples and the fact that it is less than 5 times the MDL, this value should be considered a positive hit, but insignificant.

Mercury was detected in fractions 4 and 5 of all three runs at the Thermal Oxidizer at levels above the MDL. Since no merpury was detected in the associated field blank or reagent blanks, these values should be considered as real.

Mercury was detected in fractions 4 and 5 of all runs of the North and South Headers at levels significantly above the MDL. The levels found in the South Header were approximately two times that found in the North Header. No mercury was detected in the associated field blank. The detected amount in the three runs showed good reproducibility.

No mercury was detected in the background ambient air sample that was collected during the sampling at the Thermal Oxidizer.

Arsenic

Arsenic was detected in the Sales Gas of run 3 in fraction 1 at levels slightly above, but less than five times the MDL. Since arsenic was detected in the laboratory method blank (LMB) at a level slightly above the MDL and the laboratory control spike (LCS) showed a recovery of 108%, this value should be considered an artifact of sample preparation and not considered as a positive hit in the sample.

Arsenic was detected in all three runs at the Thermal Oxidizer in fraction 1 at a level over 100 times the MDL and over 40 times the MDL in fraction 2. Over 80% of the total collected was found in fraction 1 (front half) indicating that it was most likely associated with particulate matter. Arsenic was detected in fraction 1 of the associated field blank at 3.34 μg which is the same amount detected in the reagent blank. Since arsenic was not detected in any of the other field blanks, this should be considered an artifact of the laboratory preparation and contributing insignificantly to any positive results. The total amount detected in each of the three runs is very consistent showing excellent reproducibility between runs.

Arsenic was also detected in significant quantities in both the North and South Header samples. In all cases, over 98% of the arsenic detected was found in fraction 2 (nitric acid/ peroxide impingers). Arsenic in the South Header samples were approximately two times that found in the North Header samples. Relative to the amount of arsenic detected, the three runs at each location were very consistent among themselves. Arsenic was detected at the 5 μg

level in fraction 2 of the Header field blank and should be considered an artifact of the laboratory preparation or carry over from one of the samples. In either case it represents less than 3% of the total found in any of the South Header samples and less than 5% of that found in any of the North Header samples.

Arsenic was not detected in the background ambient air sample.

Beryllium

Beryllium was not detected in any of the samples or field blanks at levels above the MDL.

Cadmium

Cadmium was detected in fraction 2 of all three runs at the Thermal Oxidizer. However, it was present at levels less than 5 times the MDL in two of the runs while in run 3 a total of 3.21 μg was found. Based upon the fact that cadmium was not detected in any of the field blanks nor in the reagent blank it can be concluded that cadmium is present but at very low levels.

Cadmium was detected in run 1 of the Sales Gas, but at a level less than two times the MDL and should be considered insignificant.

Cadmium was not detected in any of the North Header samples but was found in two of the South Header samples, but again at insignificant levels.

The background ambient air sample analysis showed the presence of 1.31 μg of cadmium in fraction 2 which is 10 times the MDL and should be considered a real value, but only semi-quantitative as Method 29 is not an EPA approved method for ambient air. This background sample was used as a cross check to determine if any metals found in the intake air would contribute to those levels found in the Thermal Oxidizer emissions. Since this air sample was collected at the air intake of the Thermal Oxidizer, some portion of the cadmium present in the Thermal Oxidizer samples may be the result of this background.

Chromium

Chromium was detected in fraction 1 of every sample including the field blanks and reagent blanks. Considering all #1 sample fractions, except for the Thermal Oxidizer and the reagent blank, the amount of chromium detected was in the 2 to 4 μg range. This would be consistent with the presence of a low level of chromium in the reagents used either during sampling or analysis or both. This argument also applies to all fraction 2 samples including the reagent blank. Now, considering only fraction 1 of the Thermal oxidizer and the associated field blank, chromium is consistently present in the 14-20 μg range. The level of chromium in the reagent blank was found to be high at 32.5 μg. In addition, the LMB for chromium failed the quality control limit at a level about 14 times the MDL. Therefore, the presence of chromium in all samples is probably due to its presence in the reagents used during sampling or analysis or both, and not actually present at detectable levels in the gas streams sampled.

Lead

Lead was not detected in any of the fraction 1 samples collected at the Thermal Oxidizer including the associated field blank. It was detected in the 1.8 to 2.8 μg range in all fraction 2 samples, showing that the lead present was not particulate bound. Lead was detected in the Thermal Oxidizer field blank but at a level less than two times the MDL.

Lead was detected in all three of the Sales Gas runs at levels below 5 times the MDL except for run 1 which had a total of 5 μg. Since the field blank lead levels in both fractions 1 and 2 were less than the MDL these values should be considered real but low in significance.

Lead was detected in all of the North and South Header samples and in the background ambient air, but at levels less than 5 times the MDL. The header field blank showed lead levels slightly greater than any of the header samples, most likely due to a small amount of laboratory contamination.

Antimony

Antimony was detected in all of the Thermal Oxidizer runs with 80 to 90% in fraction 1, and therefore most likely associated with particulate matter. All results are well above the MDL. The antimony found in the Thermal Oxidizer field blank is most likely due to residual amounts from the high levels found in the sample runs.

Antimony was detected at low levels (1-2 μg) in all Sales Gas samples, but at the levels found in the reagent blank and the LMB. Therefore, any antimony detected was most likely not present in the this gas stream.

Antimony was detected at significantly high levels in both the North and South Header runs. The levels in the South Header were approximately two times that found in the North Header. Over 99% of the total collected was in fraction 2. The levels found in the Header field blank are probably due to residual amounts left from the high level samples; along with the low levels found in the reagent blanks, these should be considered insignificant.

Discussion of Emission Rates

The values for each metal reported in Tables 2-1 through 2-5 were blank corrected following the guidelines given in Method 29 and are summarized in Tables 2-6 through 2-10. The total amount of each metal collected is presented as a range if one or more fractions showed a positive hit and had values that were less than the MDL. "The Equal to" value is the sum of all positive hits and the "But less than" value is the sum of all fractions, including those values which were found to be less than the MDL.

The concentration of each metal in a particular gas stream, by run number, was then calculated by dividing the total amount in the "Equal to" column found in Tables 2-6 through 2-10 by the volume of sample collected for each run. (If a metal was not detected in any fraction above the MDL, then the "But less than" value was used). The volume of sample collected for each run (as dry standard cubic meters [dscm]), corrected to standard conditions of temperature and pressure, is given in Table 2-11. The concentration values are presented in Tables 2-12 through 2-16 as $\mu g/m^3$.

Table 2-6. Amount of Metal Collected in Train, µg, Blank Corrected Thermal Oxidizer[a]

Metal	Fraction # 1	2	3	4	5	Total Equal To	Total But Less Than
Run 1							
Hg	<0.08	<0.496	<0.051	0.254[c]	1.87	2.12	2.75
As	158	23.7				182	
Be	<0.1	<0.119					0.22
Cd	<0.1	0.364				0.364	0.46
Cr[b]	6.1	1.39				7.49	
Pb	<0.2	1.41				1.41	1.61
Sb	116	14.9				131	
Run 2							
Hg	<0.08	<0.448	<0.044	1.71	1.07	2.78	3.35
As	139	31.5				171.0	
Be	<0.1	<0.122					0.22
Cd	<0.1	0.43				0.43	0.53
Cr[b]	4.8	0.64				5.44	
Pb	<0.2	1.46				1.46	1.66
Sb	100	20.0				120	
Run 3							
Hg	<0.08	<0.48	<0.044	3.96	0.261	4.22	4.83
As	139	33.6				173.0	
Be	<0.1	<0.12					0.22
Cd	<0.1	3.21				3.21	3.31
Cr[b]	4.4	1.03				5.43	
Pb	<0.2	2.52				2.52	2.72
Sb	102	24.0				126	

[a] Values preceded with "<" are based on the analytical component being not detected at the MDL.
[b] Reagent contamination likely.
[c] Less than 5 times the MDL.

Table 2-7. **Amount of Metal Collected in Train, µg, Blank Corrected Sales Gas[a]**

Metal	Fraction # 1	2	3	4	5	Total Equal To	Total But Less Than
Run 1							
Hg	<0.08	<0.212	<0.046	<0.16	0.05	0.05	0.55
As	<0.5	<0.803					1.30
Be	<0.1	<0.161					0.26
Cd	<0.1	0.19				0.19	0.29
Cr[b]	<0.1	1.78				1.78	1.88
Pb	1.4	3.6				5.0	
Sb	0.147	0.95				1.09	
Run 2							
Hg	<0.08	<0.275	<0.041	<0.16	<0.04		0.60
As	<0.5	<0.786					1.29
Be	<0.1	<0.157					0.26
Cd[b]	<0.1	<0.157					0.26
Cr	<0.1	2.0				2.0	2.1
Pb	<0.2	1.1				1.1	1.30
Sb	0.273	1.22				1.49	
Run 3							
Hg	<0.08	<0.244	<0.042	<0.16	<0.04		0.57
As	0.737	<0.744				0.737	1.48
Be	<0.1	<0.149					0.25
Cd	<0.1	<0.149					0.25
Cr[b]	2.0	1.3				3.30	
Pb	<0.2	1.09				1.09	1.29
Sb	1.19	0.56				1.75	

[a] Values preceded with "<" are based on the analytical component being not detected at the MDL.
[b] Reagent contamination likely

Table 2-8. **Amount of Metal Collected in Train, μg, Blank Corrected North Header[a]**

Metal	Fraction # 1	2	3	4	5	Total Equal to	But Less Than
Run 1							
Hg	<0.08	<0.174	<0.049	6.5	4.94	11.4	11.7
As	2.01	125				127	
Be	<0.1	<0.13					0.23
Cd	<0.1	<0.13					0.23
Cr[b]	<0.1	1.8				1.80	1.90
Pb	<0.2	<0.2					0.4
Sb	1.42	232				233	
Run 2							
Hg	<0.08	<0.352	<0.047	13.6	0.453	14.1	14.5
As	1.64	116				118	
Be	<0.1	<0.129					0.23
Cd	<0.1	<0.129					0.23
Cr[b]	<0.1	1.91				1.91	2.0
Pb	<0.2	<0.2					0.4
Sb	1.06	203				204	
Run 3							
Hg	<0.08	<0.41	<0.044	14	0.421	14.4	15.0
As	1.1	118				119	
Be	<0.1	<0.132					0.23
Cd	<0.1	<0.132					0.23
Cr[b]	<0.1	2.3				2.3	2.4
Pb	<0.2	<0.2					0.4
Sb	2.43	201				203	

[a] Values preceded with "<" are based on the analytical component being not detected at the MDL.
[b] Reagent contamination likely

Table 2-9. **Amount of Metal Collected in Train, µg, Blank Corrected South Header**[a]

Metal	Fraction # 1	2	3	4	5	Total Equal to	But Less Than
Run 1							
Hg	<0.08	<0.335	<0.047	26.4	1.26	27.7	28.1
As	<0.5	265				265	266
Be	<0.1	<0.143					0.24
Cd	0.139	0.488				0.63	
Cr[b]	1.47	1.23				2.70	
Pb	<0.2	<0.20					0.40
Sb	0.56	480				481	
Run 2							
Hg	<0.08	<0.37	<0.046	29.1	0.953	30.1	30.6
As	<0.5	236				236	237
Be	<0.1	<0.137					0.24
Cd	<0.1	<0.137					0.24
Cr[b]	0.16	2.20				2.36	
Pb	<0.2	<0.20					0.40
Sb	1.39	422				423	
Run 3							
Hg	<0.08	<0.288	<0.041	34.1	1.39	35.5	35.9
As	<0.5	207				207	208
Be	<0.1	<0.138					0.24
Cd	<0.1	0.138				0.138	0.24
Cr[b]	1.39	2.13				3.52	
Pb	<0.2	<0.20					0.40
Sb	0.56	388				389	

[a] Values preceded with "<" are based on the analytical component being not detected at the MDL.
[b] Reagent contamination likely

Table 2-10. **Amount of Metal Collected in Train, μg, Blank Corrected Background[a]**

Metal	Fraction # 1	2	3	4	5	Equal To	But Less Than
Hg	<0.08	<0.116	<0.05	<0.16	<0.08		0.49
As	<0.5	<0.763					1.26
Be	<0.1	<0.153					0.25
Cd	<0.1	1.31				1.31	1.41
Cr[b]	<0.2	0.45				0.45	0.65
Pb	<0.2	<0.2					0.40
Sb	0.85	<0.611				0.85	1.46

[a] Values preceded with "<" are based on the analytical component being not detected at the MDL.
[b] Reagent contamination likely

Table 2-11. **Volume of Sample Collected**

Run #	N. Header	S. Header	Sales Gas	Thermal Oxidizer	Background
dscm[a]					
1	1.92	1.97	5.02	2.87	5.42
2	1.81	1.72	4.99	3.037	--
3	1.74	1.69	5.09	2.99	--

[a] dscm, dry standard cubic meters

Table 2-12. Metals Concentration, $\mu g/m^3$, Blank Corrected
Thermal Oxidizer

Metal	Run #						Average		% RSD
	1		2		3				
	Equal to	But Less Than	Equal to	But Less Than	Equal to	But Less Than	Equal to	But Less Than	
Hg	0.74	0.96	0.92	0.99	1.41	1.62	1.02	1.19	34.1
As	63.4		56.3		57.9		59.2		6.31
Be		0.08		0.07		0.07		0.07	2.94
Cd	0.13	0.16	0.14	0.17	1.07	1.11	0.45	0.48	121
Cr[a]	2.61		1.79		1.82		2.07		22.5
Pb	0.49	0.56	0.48	0.55	0.84	0.91	0.60	0.67	34.1
Sb	45.6		39.5		42.1		42.4		7.25

[a] Reagent contamination likely

Table 2-13. Metals Concentration, $\mu g/m^3$, Blank Corrected
Sales Gas

Metal	Run #						Average		% RSD
	1		2		3				
	Equal to	But Less Than	Equal to	But Less Than	Equal to	But Less Than	Equal to	But Less Than	
Hg	0.01	0.11		0.12		0.11	0.003	0.11	4.91
As		0.26		0.24	0.14	0.29	0.05	0.26	6.86
Be		0.05		0.05		0.05		0.05	3.22
Cd	0.04	0.06		0.05		0.05	0.01	0.05	8.29
Cr[a]	0.35	0.37	0.40	0.42	0.65		0.47	0.48	33.8
Pb	1.00		0.22	0.26	0.21	0.25	0.48	0.5	94.3
Sb	0.22		0.30		0.34		0.29		22.4

[a] Reagent contamination likely

Table 2-14. Metals Concentration, $\mu g/m^3$, Blank Corrected
North Header

	Run #						Average		
	1		2		3				
Metal	Equal to	But Less Than	Equal to	But Less Than	Equal to	But Less Than	Equal to	But Less Than	% RSD
Hg	5.93	6.09	7.79	8.01	8.28	8.62	7.32	7.57	16.8
As	66.1		65.2		68.4		66.6		2.47
Be		0.12		0.13		0.13		0.13	4.93
Cd		0.12		0.13		0.13		0.13	4.93
Cr[a]	0.94	0.99	1.06	1.10	1.32	1.38	1.11	1.16	17.8
Pb		0.21		0.22		0.22		0.22	4.93
Sb	121		113		117		117		3.70

[a] Reagent contamination likely

Table 2-15. Metals Concentration, $\mu g/m^3$, Blank Corrected
South Header

	Run #						Average		
	1		2		3				
Metal	Equal to	But Less Than	Equal to	But Less Than	Equal to	But Less Than	Equal to	But Less Than	% RSD
Hg	14.1	14.3	17.5	17.8	21.0	21.2	17.5	17.8	19.8
As	134	135	137	138	122	123	131	132	5.97
Be		0.12		0.14		0.14		0.13	8.19
Cd	0.32			0.14	0.08	0.14	0.13	0.23	51.6
Cr[a]	1.37		1.37		2.08		1.61		42.6
Pb		0.20		0.23		0.24		0.22	8.19
Sb	244		246		230		240		3.59

[a] Reagent contamination likely

Table 2-16. Metals Concentration, $\mu g/m^3$, Blank Corrected Background

Metal	Run #1	
	Equal to	But Less Than
Hg		0.09
As		0.23
Be		0.05
Cd	0.24	0.26
Cr[a]	0.08	0.11
Pb		0.07
Sb	0.16	0.26

[a] Reagent contamination likely

The flow rates of the various process streams are presented in Table 2-17 in units of dry standard cubic feet per minute (dscfm) and dry standard cubic meters per minute (dscmm). The velocity and volumetric flow rate of the Thermal Oxidizer stack were calculated following the procedures of EPA Method 2. The flow rate of the Sales Gas stream and the total combined header flow rate was provided by plant personnel. The Thermal Oxidizer flow rates were determined from data collected during each of the three tests, while the flow rates of the sales gas and headers were an average for the day of each test at that location. A flow rate for each of the two headers on a given day was calculated by assuming a 60:40 flow distribution between the North and South headers. This flow distribution is based on the GSF plant personnel's knowledge of the number of collection wells connected to the North and South Headers.

As required for any velocity determination using Method 2, the Thermal Oxidizer flow was examined prior to testing to determine if the flow was laminar or cyclonic in nature. At each traverse point the flow was found to be less than the maximum allowable 20 degrees from laminar. Therefore, the velocity measurements were acceptable using a "S" type pitot tube. At several points along the traverse negative, flow was indicated. The magnitude of this flow was determined by reversing the pitot lines. Using these negative values in the calculation of stack flow is a more accurate presentation of the actual flow. All flowrates are adjusted to a standard condition of 68°F and 29.92"Hg.

Table 2-17. Process Flow Rates

Run #	N. Header	S. Header	Sales Gas	Thermal Oxidizer
dscfm[a]				
1	3513	2342	3046	17213
2	3513	2342	3046	19431
3	3564	2376	2978	18228
Average	3530	2354	3023	18291
dscmm[b]				
1	99.4	66.3	86.3	487
2	99.4	66.3	86.3	550
3	100.9	67.3	84.3	516
Average	99.9	66.6	85.6	518

[a]dscfm, dry standard cubic feet per minute (68°F, 29.92" Hg)
[b]dscmm, dry standard cubic meters per minute

The average mass flow rate of each metal through each of the two headers was calculated by multiplying the appropriate average concentration value from Tables 2-14 or 2-15 by the corresponding average header flow rate, in dscmm, from Table 2-17. Then using standard conversion factors these values are presented in Table 2-18 as milligrams per hour (mg/hr) and pounds per year (lbs/yr). The same approach is used to calculate the average mass emission rates of the metals for the Sales Gas and the Thermal Oxidizer. These values are presented in Table 2-19. The emission rate of arsenic (and other metals) from the Thermal Oxidizer is greater than the sum of that entering through the two headers. This is most likely due to the fact that arsenic (and other metals) was not in the gas stream being sampled at the headers, but was associated with the condensate which is collected separately and fed to the Thermal Oxidizer. Table 2-20 summarizes the average of the metals concentrations at each of the four locations that were tested with Method 29. Table 2-21 presents the overall method detection limit for each metal by run number.

Table 2-18. Average Mass Flow Rate into Plant Through Headers, Blank Corrected

Metal	North Header				South Header			
	mg/hr		lbs/year		mg/hr		lbs/year	
	Greater than or Equal to	But Less Than	Greater than or Equal to	But Less Than	Greater than or Equal to	But Less Than	Greater than or Equal to	But Less Than
Hg	44	45	0.9	0.9	70	71	1.4	1.4
As	399[d]		7.7[d]		525	527	10	10
Be		0.8		0.02		0.5		0.01
Cd		0.8		0.02	0.5[b]	0.9	0.01[b]	0.02
Cr[a]	6.6[a]	7.0[a]	0.1[a]	0.1[a]	6.4[ad]		0.1[ad]	
Pb		1.3		0.03		0.9		0.02
Pb[c]		3.3		0.06		2.2		0.04
Sb	701[d]		14[d]		959[d]		18.5[d]	

[a] Reagent contamination likely
[b] Less than 5 times the MDL in one or two runs, the other values were non-detect
[c] Because of high levels of Pb in the Header Blank, data are also reported as less than without blank correction. However, most of the header sample Pb concentrations were less than 5 times the MDL.
[d] These values are "equal to" not "greater than"

Table 2-19. Average Mass Emission Rate, Blank Corrected

Metal	Sales Gas				Thermal Oxidizer			
	mg/hr		lbs/year		mg/hr		lbs/year	
	Greater than or Equal to	But Less Than	Greater than or Equal to	But Less Than	Greater than or Equal to	But Less Than	Greater than or Equal to	But Less Than
Hg	0.02[b]	0.6[b]	0.0003[b]	0.01[b]	32	37	0.6	0.7
As	0.26[b]	1.3[b]	0.005[b]	0.03[b]	1840[c]		36[c]	
Be		0.3		0.005		2.2		0.04
Cd	0.07[b]	0.3[b]	0.001[b]	0.005[b]	14[b]	15[b]	0.3[b]	0.3[b]
Cr[a]	2.4[a,c]	2.5[a]	0.05[a,c]	0.05[a]	64[a,c]		1.2[a,c]	
Pb	2.5[c]	2.6	0.05[c]	0.05	17	19	0.3	0.4
Sb	1.5[a,c]		0.03[a,c]		1318[c]		25[c]	

[a] Reagent contamination likely
[b] Less than 5 times the MDL in one or two runs, the other values were non-detect
[c] These values are "equal to" not "greater than"

Table 2-20. Average Metals Concentration (μg/dscm) in the North and South Headers, Sales Gas, and Thermal Oxidizer Stack, Blank Corrected

Metal	micrograms/dry standard cubic meter (μg/dscm)							
	North Header		South Header		Sales Gas		Thermal Oxidizer	
	Greater than or Equal to	But Less Than	Greater than or Equal to	But Less Than	Greater than or Equal to	But Less Than	Greater than or Equal to	But Less Than
Hg	7.32	7.57	17.5	17.8	0.003[b]	0.11	1.02	1.16
As	66.6[d]		131	132	0.048[b]	0.26	59.2[d]	
Be		0.13		0.13		0.05		0.07
Cd		0.13	0.13[b]	0.20	0.013[b]	0.05	0.45[b]	0.48
Cr[a]	1.11	1.16	1.62		0.47	0.48	2.07	
Pb		0.22		0.22	0.48[b]	0.50	0.60	0.67
Pb[c]		0.55		0.55				
Sb	117[d]		240[d]		0.29[a,d]		42.4[d]	

[a] Reagent contamination likely
[b] Less than 5 times the MDL in one or two runs, the other values were non-detect
[c] Because of high levels of Pb in the Header Blank, data are also reported as less than without blank correction. However, most of the header sample Pb concentrations were less than 5 times the MDL.
[d] These values are "equal to" not "greater than"

Table 2-21. Method Detection Limits, µg/m³ [a]

Metal	North Header			South Header			Sales Gas			Thermal Oxidizer		
	Run 1	Run 2	Run 3	Run 1	Run 2	Run 3	Run 1	Run 2	Run 3	Run 1	Run 2	Run 3
Hg	0.31	0.33	0.34	0.30	0.34	0.36	0.12	0.12	0.12	0.21	0.20	0.20
As	1.25	1.33	1.38	1.22	1.40	1.42	0.48	0.48	0.47	0.84	0.79	0.80
Be	0.30	0.33	0.34	0.30	0.35	0.36	0.12	0.12	0.12	0.21	0.20	0.20
Cd	0.30	0.33	0.34	0.30	0.35	0.36	0.12	0.12	0.12	0.21	0.20	0.20
Cr	0.94	0.99	1.03	0.91	1.05	1.07	0.36	0.36	0.36	0.63	0.59	0.60
Pb	0.63	0.66	0.69	0.61	0.70	0.71	0.23	0.23	0.23	0.42	0.40	0.40
Sb	1.25	1.33	1.38	1.22	1.40	1.42	0.48	0.48	0.47	0.84	0.79	0.80

[a] Values calculated by dividing total detectable amount by the volume of air sampled.

Jerome Analyzer Results

The Jerome analyzer was used to evaluate mercury levels in each of the three sample runs at the two headers and the sales gas. The sampling and analysis procedures used at these locations were the same as used in a previous test at this plant sponsored by the EPA in 1995. The actual operation and instrument setup is described in Section 3 under "Jerome Mercury Vapor Analyzer" of this report. The analyzer was received from the vendor pre-calibrated and containing new internal acid gas scrubbers and filters.

North and South Headers

The North and South Header Run 1 samples were collected and analyzed on 7/16/96. A chronological listing of the analytical results are presented in Table 2-22. After a satisfactory calibration and instrument zero check, six (6) 1 mL samples of the North Header were injected into the analyzer. The first reading showed a concentration of 0.283 mg/m^3 with the five subsequent readings slowly decreasing to 0.139 mg/m^3 over approximately a 15 minute period. At this point the detector gold foil was saturated and required a 15 minute regeneration. A second calibration and zero check was performed followed by another 1 mL sample analysis which resulted in a reading of 0.475 mg/m^3. This sequence of regeneration followed by calibration and zero checks and sample analysis was continued for the South Header Run 1 sample. South Header Run 1 readings were 0.258, 0.204, 0.295 and 0.225 mg/m^3. The Run 2 samples were analyzed off-site in the evening hours of 7/16/96 with the results being very erratic, ranging from 0.338 to 0.898 mg/m^3 and with the instrument often indicating an over range condition. These erratic instrument readings were thought to be the result of a depleted acid gas scrubber. After consulting with the EPA Project Officer, a new internal acid gas scrubber was ordered for the instrument and installed on 7/17/96. Also, it was agreed that Run 3 of the Headers would be analyzed after the analysis of the "clean" Sales Gas was completed where any possible interferants would be at a minimum. Run 3 samples of the Headers were collected in the morning of 7/17/96 and analyzed in the afternoon of 7/18/96. After a successful instrument regeneration, calibration and zero check, a 1 mL

Table 2-22. Summary of Jerome Analyzer Results

Date	Sample Identification	Reading, mg/m³	Comments
7/16/96	Calibration check	0.170	Within specification
	Calibration check	0.184	Within specs.
	North Header run 1	0.283	
	North Header run 1	0.214	
	North Header run 1	0.168	
	North Header run 1	0.158	
	North Header run 1	0.144	
	North Header run 1	0.139	Detector Regeneration
	Regen.		
	Instru. Zero	0.000	
	Room air	0.000	
	Cal. check	0.181	in spec.
	System blank	0.000	
	N.H. run 1	0.475	
	System Blank	0.00	25-50% saturated
	South Header Run 1	0.258	
	system blank	0.000	50-75% saturated
	S.H. run 1	0.204	
	Regen.		
	Cal. Check	0.180	in spec.
	System blank	0.000	
	N.H. run 1	0.854	
	S.H. run 1	0.295	50-75% saturated
	S.H. run 1	0.225	
	Regen.		
	System blank	0.000	
	Cal. Check	0.187	in spec.
	System blank	0.000	
	N.H. Run2	0.898	50-75% sat.
	System Blank	0.000	
	S.H. Run 2	0.338	75-100% sat.
	Regen.		
	System Blank	0.000	

Table 2-22. Continued

Date	Sample Identification	Reading, mg/m³	Comments
	S.H. Run 2	0.859	50-75% sat.
	Regen.		
	System blank	0.000	
	S.H. Run2	——	over range
	Regen.		
	System Blank	0.000	
	N.H. run 2	——	over range
	regen.		
7/17/96	Regen.		
	regen.		
	Cal. Check	0.118	in spec.
	System Blank	0.000	
	S. H. Run 1	——	over range
	Regen.		Replaced internal scrubber
	regen.		
	System Blank	0.000	
	Cal. Check	0.167	in spec.
	System Blank	0.000	
	Sales Gas Run 1	0.000	
	Sales Gas Run 1	0.000	
	Sales Gas Run 1	0.000	
	Sales Gas Run 2	0.000	
	Sales Gas Run 2	0.000	
	Sales Gas Run 2	0.000	
	Cal. Check	0.186	in spec.
7/18/96AM	Regen.		
	System Blank	0.000	
	Cal. Check	0.140	in spec.
	Sales Gas Run 3	0.000	
	Sales Gas Run 3	0.000	
	Sales Gas Run 3	0.000	
	Cal. Check	0.214	in spec.
	N.H. run 3	0.000	Collected in AM of 7/17/96

Table 2-22. Continued

Date	Sample Identification	Reading, mg/m^3	Comments
	N.H. run 3	0.000	
	Cal. Check	0.170	in spec.
	System Blank	0.003	
	S.H. run 3	0.000	Collected in AM of 7/17/96
	S.H. run 2	0.012	Collected in PM of 7/16/96
	System Blank	0.000	
	N.H. run 1	0.011	Collected in AM of 7/16/96
	System Cal.	0.177	in spec.

sample of the Run 3 North Header was analyzed two times with readings of 0.000 mg/m^3 each time. The instrument calibration was rechecked and found to be acceptable. The South Header Run 3 sample was then analyzed twice with readings of 0.000 and 0.012 mg/m^3. The North Header sample Run 1 (originally analyzed on 7/16/96) was re-analyzed with a reading of 0.011 mg/m^3. These results indicate that what ever component(s) contained in the Tedlar® bags that produced the high instrument responses on 7/16/96 had degraded over time. Based upon the Method 29 results, the mercury concentrations present would have certainly been in the lower range of the instrument (see Section 3 "Jerome Mercury Vapor Analyzer, Analysis") but not responsible for the high and over range numbers observed for Runs 1 and 2 which were analyzed on the day of collection. In addition, the hydrogen sulfide (H_2S) laboratory interferant studies (discussed in Section 5.0) show that H_2S up to 100 parts per million (ppm) does not produce a positive bias in the instrument response. A small percentage of the initial high instrument response was probably due to mercury and the remainder due to some other unidentified component(s). Over time the elemental mercury may have condensed on the inside walls of the bag and formed an oxide coating. This would have reduced its vapor pressure and thus the ability to be detected by the Jerome. The unidentified component(s) may have followed the path of the mercury or have been photochemically oxidized to some inert material that did not present itself as a positive interferant. However, it can be concluded that without further investigation, the Jerome analyzer would not be suitable for this particular application. The field data sheets for the Jerome analyses are found in Appendix B-1. To convert the Jerome Analyzer readings in mg/m^3 to total nanograms (ng) per mL of sample gas analyzed, multiply the analyzer reading by 87.5. This 87.5 factor is based on the 87.5 mL of "sweep" air that the Jerome analyzer draws to carry the 1 mL sample injection to the analyzer. Thus, the concentration readings produced by the analyzer is diluted 87.5 times.

Sales Gas

The Sales Gas Run 1 and 2 samples were collected and analyzed on 7/17/96. Prior to the analysis of these samples, a new internal acid gas scrubber was installed in the instrument. After following the same calibration and zero checks discussed above, the results showed 0.000 mg/m^3 for both samples. Run 3 was collected and analyzed on 7/18/96 also showing a reading of 0.000 mg/m^3.

Section 3.0
On-Site Testing

Testing was performed during the week of 7/15/96.

Description of Facility

Multiple wells within the landfill are connected to two main header pipes that direct the land fill gas (LFG) to the process plant. The two headers are each 18 inches in diameter and are designated as the North and South Headers. The North Header carries about 60% of the total product entering the plant and the South Header carries the remainder. These two headers are below grade, but are accessible at a location just outside of the plant fence line. The two headers converge into a single pipe which is followed by a liquid knockout system. Any condensed liquid is pumped to a liquid mixing (or holding) tank. The single pipe then splits into two sections with each section leading to a bank of three compressors each: Compressor Bank A and Bank B. Prior to the first compressors the headers are under a vacuum of approximately 9 to 10 inches of mercury ("Hg). Following each compressor is a liquid knockout system which collects any condensed liquid and pumps it to the mixing tank. The two lines exiting the compressor banks reconverge into a single line which directs the LFG sequentially to a heat exchanger, a pretreatment stripper tower where sulfur compounds and light hydrocarbons are removed, to a carbon dioxide removal tower, a coalescing filter, and a final heat exchanger. At this point the LFG is added to the pipeline of a local utility for distribution as a final product. The off gas from the pretreatment stripper columns, which contains light hydrocarbons and sulfur, is directed to the Thermal Oxidizer (as is the off gas from the carbon dioxide removal towers) which contains approximately 1% methane and 99% carbon dioxide. The flow rate of the LFG through the process is measured at a point between the pretreatment section and the carbon dioxide removal section. Flow is determined by measuring the line pressure on two sides of an orifice plate. The final product flow rate is measured by the utility using a dry gas meter at the point where the gas enters their system.

All effluent streams from the process are directed to a thermal oxidizer. This includes the aqueous/organic contents of the mixing tank, off gases from the pretreatment strippers and the off gas from the carbon dioxide removal system. The LFG parameters are given below in Table 3-1.

Table 3-1. Landfill Gas Parameters

	Flow Rate, cfd*	Pressure	H_2S Content, ppm	Temperature
Inlet (Headers)	10 MM	10 "Hg, vacuum	80-100	Ambient
Outlet (Sales Gas)	200 K	385-500 psig	< 1	Ambient

*cfd = cubic feet per day

Inlet Gas Headers

Description of Test Location

Each of the two inlet headers (North and South) were fitted with three sampling ports using 1/4" stainless steel compression fittings. These fittings were installed approximately 6" apart on the circumference of each header. Prior to installation by plant personnel, each fitting was bored out to allow a 1/4" outside diameter (OD) tube to slide through the fitting and extend into the header approximately 6". A section of Teflon® tubing (1/4" OD, 8' in length) was inserted through two of the fittings in each header and sealed with the compression fitting. The other end of each tube was secured at a point approximately 1' above grade using 1/4" Teflon® bulk head compression fittings. The two Teflon® lines in each header were used for the Method 29 sampling, one by ERG, Inc. and one by TRC, Inc. The third sampling port in each header was fitted with a 1/4" OD stainless steel tube and was used to collect bag samples for the Jerome mercury analyzer. The purpose of using stainless steel instead of Teflon® for the Jerome analyzer sampling was to duplicate the testing parameters that were used in the 1995 test. A three-way isolation valve was attached to each of the bulk head fittings and was used to leak check the train before and after sampling.

Method 29 Procedures

The methodology used to sample metals at this location followed the procedures given in EPA Method 29 "Determination of Metals Emissions from Stationary Sources" (see Appendix C) with the exceptions that are noted in the following sections.

Pre-Test Preparation

<u>Glassware</u>—All glassware used either in the sampling train, for sample recovery or for reagent preparation were cleaned as follows:

- Wash in hot soapy water;
- Rinse with hot tap water three times;
- Rinse with deionized distilled water three times;
- Soak in 10% nitric acid solution for a minimum of 4 hours;
- Rinse with deionized distilled water three times; and
- Rinse with acetone and allow to air dry.

<u>Dry Gas Meters</u>—Each dry gas meter used in the collection of sample was calibrated according the procedures outlined in EPA Method 5. The meter boxes were calibration by the manufacturer and the procedure is provided as Appendix B-4.

Description of Sampling Train

The basic Method 29 sampling train is shown in Figure 3-1. However, due the hazards associated with sampling an explosive gas (i.e., methane) the train used at this location was modified by removing all heated portions which included the heated glass lined probe and the heated glass filter holder and filter. The components of the train used were as follows:

- A 1/4" OD Teflon® tube, 4' in length used as the probe;
- Impinger #1- Empty, used to remove moisture from the sampled gas;
- Impinger #2- Greenburg-Smith design containing 100 mL of a 5% nitric acid/10%hydrogen peroxide solution;
- Impinger #3- Straight stem design containing 100 mL of a 5% nitric acid/10% hydrogen peroxide solution;
- Impinger #4- Straight stem design, empty;
- Impingers #5 and #6- Straight stem design containing 100 mL of a 4% potassium permanganate/10% sulfuric acid solution;
- Impinger #7- Straight stem design containing approximately 300 grams of indicating silica gel;
- A vacuum pump; and
- A calibrated dry gas meter.

The impingers are connected with glass U-tube connectors and assembled in an impinger bucket. All components of the sampling system to which sample gas would be exposed are constructed of either glass or Teflon®.

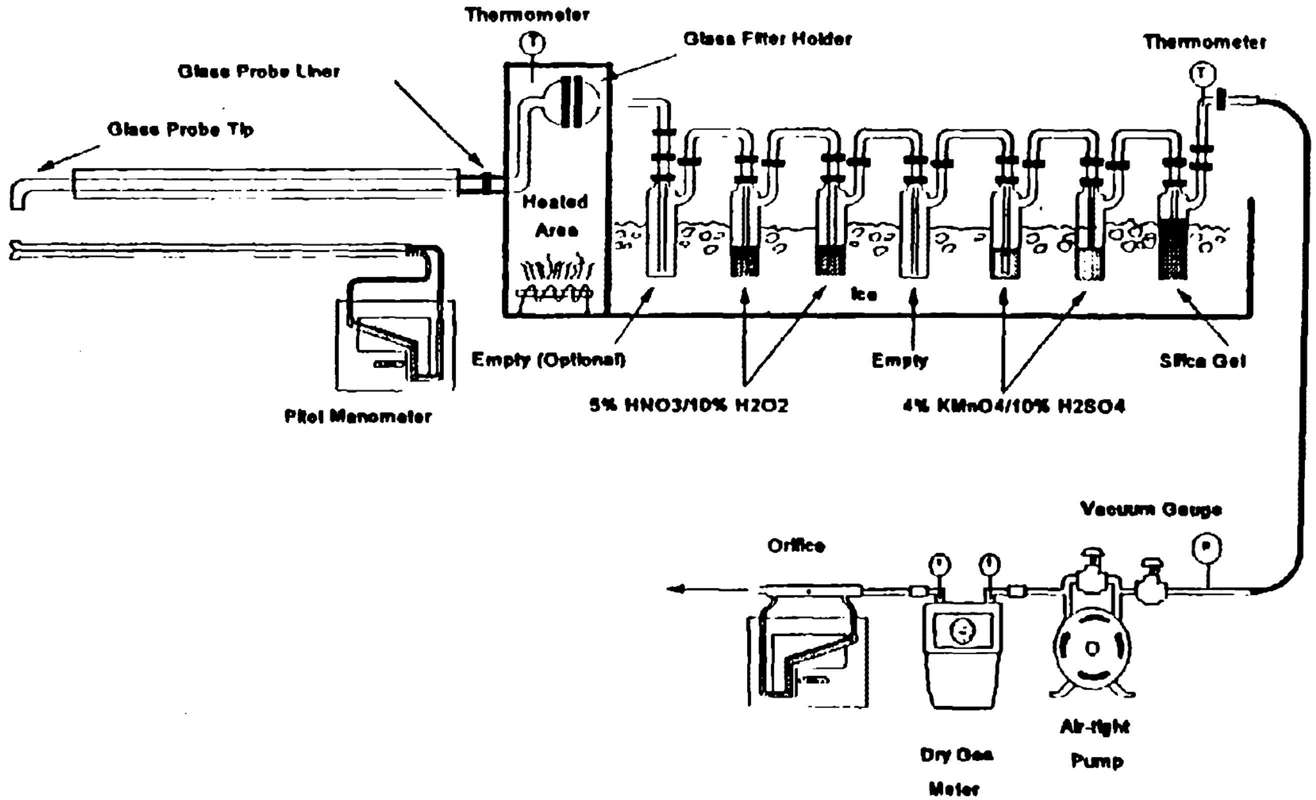


Figure 3-1. Sampling Train

Reagents

The nitric, sulfuric and hydrochloric acids, and distilled deionized water were purchased as high purity grade specifically for low-metals testing. The hydrogen peroxide and potassium permanganate were purchased as reagent grade materials. The peroxide was kept cold to prevent any degradation before use.

The nitric/peroxide and permanganate/sulfuric solutions were prepared daily according to Sections 4.3.1 and 4.3.2 of the reference method (see Appendix C). All glassware used for the preparation of these reagents were marked and segregated.

Sampling

Three sampling runs at the headers were scheduled for Tuesday, 7/16/96. However, after performing some preliminary tests, it was determined that sampling at a planned flow rate of 0.75 cfm would not be possible due to the vacuum in the headers. After consulting with the EPA Work Assignment Manager, it was decided to sample at the maximum possible flow rate, nominally 0.35 cfm, for up to 4 hours (instead of the scheduled 2 hours). This extended sampling time allowed the completion of only two runs on 7/16/96, with the third run on 7/17/96. The details of the sampling operations used for metals testing are discussed in Section 5 of the reference method (see Appendix C) and are summarized in the following paragraphs.

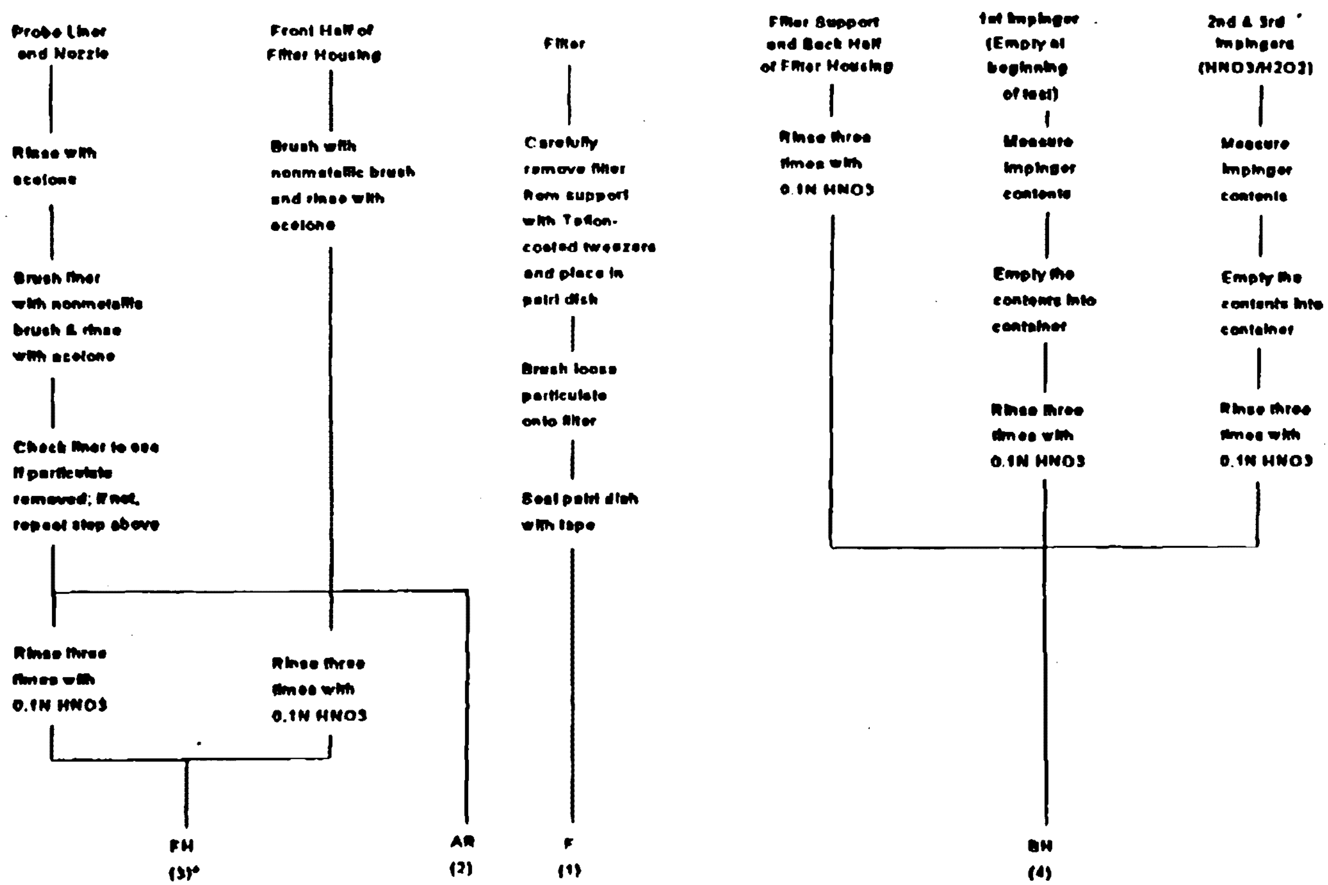
Two complete sets of train glassware were dedicated to the header sampling and were used for the three sampling runs at each header. Prior to each run, the trains were prepared in a mobile laboratory on site (see Section 3 Inlet Gas Headers, Description of Sampling Train). After charging with the appropriate amount of reagent, each impinger was weighed on a calibrated balance, the trains were assembled and transported to the sampling location. One end of the 4' Teflon® probe was attached to the first impinger and the other end to a three-way isolation valve (see Section 3 Inlet Gas Headers, Description of Test Location).

Each train was checked for leaks by turning the three-way valve to isolate the train, turning the sampling pump on until a vacuum of 23-25 inches of mercury ("Hg) was achieved in the train and then monitoring the dry gas meter for any detectable flow. A leak check was acceptable when a flow of less than 0.02 cubic feet per minute (cfm) was observed at the desired vacuum. A vacuum of 23-25 "Hg was used as this range as this was above the highest vacuum achieved during any sampling run. After a successful leak check, the three-way valve was turned to release the vacuum. Next, the initial dry gas meter reading was recorded, the valve turned to isolate the train, and the sampling pump turned on. After a vacuum of 23-25 "Hg was reached the valve was turned to allow header gas sample to enter the train. This procedure was necessary to prevent the vacuum in the header lines from pulling the impinger solutions into the headers.

Dry gas meter and train vacuum readings were recorded every 5 minutes during the sampling period (see train data sheets in Appendix B-2). At the end of the sampling period the valve was again turned (with pump still running) to isolate the train. A vacuum greater than that achieved during the test was applied to the train. A post test leak check was successful if the dry gas meter indicated a flow rate of less than 0.02 cfm. (During each run the impingers were continuously covered in ice and the color of the purple permanganate was monitored to ensure that the oxidizing capacity of the solution was not exceeded). After completion of the leak check, the entire train and probe assembly were transported to the sample recovery area. The 8' Teflon® lines leading from the bulk head fittings down to the headers were removed after completion of all three tests and transported to the mobile laboratory for recovery with nitric acid.

Sample Recovery

Each sampling train was recovered in the clean environment of the mobile laboratory. A diagram illustrating the sample recovery procedures for Method 29 is shown in Figure 3-2. The exceptions to this procedure for the header train configuration is that the Teflon® probe was rinsed with 0.1 N nitric acid and there was no filter or filter holder to recover. The impingers were systematically disconnected, wiped dry and weighed for moisture gain (see Appendix B-3). The moisture gain was determined from the difference between the pre-test and post-test weight of the individual impingers. The contents of the first three impingers were transferred to a clean preweighed and prelabeled sample bottle. These impingers and connecting U-tubes were rinsed three times with 0.1 N nitric acid and the rinses added to the same bottle. The contents of the "empty impinger" (impinger #4) and its nitric acid rinse were transferred to a separate bottle. The contents of the two permanganate impingers along with the three water rinses of the impingers were transferred to a separate bottle. The permanganate impingers were rinsed again with 25 mL of 8N hydrochloric acid which was recovered into a separate bottle. Each of the sample bottles and contents were weighed and the lids sealed with Teflon® tape for transport to the laboratory. The sample bottle weighings were recorded on the bottles and in a sample log book. The sample chain-of-custody record, which accompanied the samples to the laboratory was also completed at this time



* Number in parentheses indicates container number

Figure 3-2. Sample Recovery Scheme

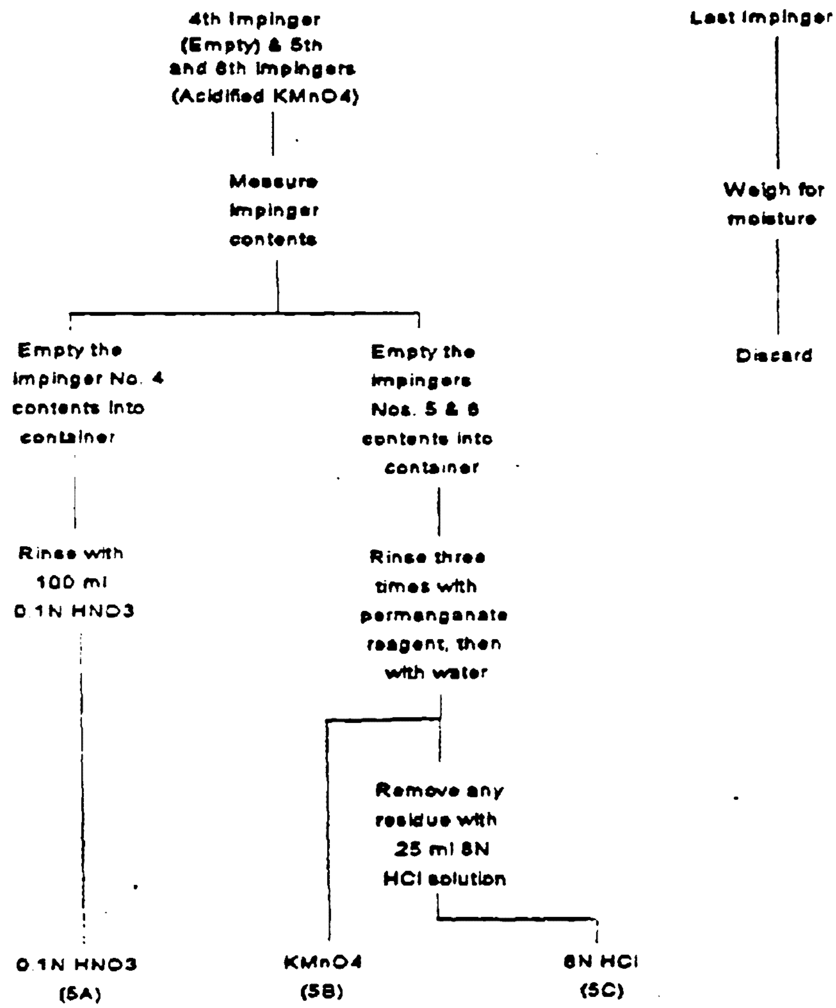


Figure 3-2. Continued

.Jerome Mercury Vapor Analyzer

A Jerome 431-X mercury vapor analyzer was used to analyze gaseous samples collected from the two headers for the presence of mercury. Sample gas was collected and analyzed in the same manner as reported in a previous report entitled "Determination of Landfill Gas Composition and Pollutant Emission Rates at Fresh Kills Landfill" prepared for the U.S. EPA in November, 1995.

Sampling

Sample gas was withdrawn separately from the two headers using vacuum pumps fitted with Teflon® diaphragms. The inlet side of each pump was connected to a three-way isolation valve (same as for the Method 29 trains) and the outlet side connected to a new evacuated 30-liter capacity Tedlar® bag. At the start of each Method 29 run, the isolation valves were opened to the header gas streams and the pumps were turned on. At the end of each run the reverse of this process occurred. An integrated bag sample of approximately 20 liters was collected with the start and end times coincident with Method 29 runs. Three bag samples were collected at each header, for a total of six (6) using a new bag for each test. After sampling was complete the bags were transported to the mobile laboratory for analysis.

Analysis

The Jerome analyzer was operated according to the manufacturer's instructions that were supplied with the analyzer. The analyzer specifications are as follows:

Range	0.001 to 0.999 mg/m^3 Hg
Resolution	0.001 mg/m^3 Hg
Precision	5% RSD at 0.100 mg/m^3 Hg
Accuracy	±5% at 0.100 mg/m^3 Hg

The analyzer is equipped with an internal acid gas scrubber that is designed to remove hydrogen sulfide (H_2S) gas which is a positive interferant. This scrubber was new and installed by the supplier before the test. The instrument was also calibrated by the supplier against a NIST traceable standard immediately prior to use for this test. A "Functional Test Kit" was also received with the instrument, which served a dual purpose: to check calibration in the field and to introduce sample to the system. The hardware consisted of a "tee" shaped glass tube approximately 1/4" OD. The short leg of the "tee" was fitted with a septum for syringe injections of either mercury standards or sample gas. A "zero" air mercury scrubber was attached to the inlet side of the "tee" while the remaining end was inserted into the analyzer. In the sample mode, the analyzer draws in a fixed volume of air through the "zero" air scrubber into the glass "tee" sweeping any injected sample into the analyzer.

Calibration

Along with the Functional Test Kit was supplied approximately 5 mL of elemental mercury, a Thermos® bottle fitted with a two hole rubber stopper and a gas tight syringe. One hole of the stopper contained a thermometer and the other a septum port for withdrawing a sample of mercury vapor. Following the instructions for instrument calibration checks, a 1 mL sample of mercury vapor was collected in the syringe for injection into the glass "tee". To check the instrument calibration, the sample mode was activated and at the appropriate time as indicated by a flash of the digital readout, the 1 mL sample was injected. The instrument response was then compared to a chart in the operating manual for a given temperature of the mercury contained in the Thermos®. Calibration was checked several times each day of testing and all checks were within the acceptable range as specified by the manufacturer.

Sample Analysis

Prior to analysis on any given day, the instrument was placed in the "regenerate" mode to replenish the detector's gold foil. A "zero" check was performed by activating the "zero" mode followed by a calibration check as described above. Using the same syringe, a 1 mL sample of ambient air was injected and analyzed as a sample. This procedure was performed to ensure that the system was blank before injecting any sample. A 1 mL sample was then removed from a Tedlar® bag and injected into the glass "tee" as described above. The results of the analysis are presented in Section 2, Jerome Analyzer Results of this report.

Sales Gas

Description of Test Location

The Sales Gas is the final product that is sold to a local utility. This line is operated under pressure in the range of 385-500 pounds per square inch (psig) depending on the product demand of the buyer. ERG provided and the plant personnel installed a two stage pressure reducing regulator on an existing on-off ball valve equipped with a 1/2" male NPT fitting. Attached to the outlet of the regulator was a 3/8" Teflon® tube approximately 5' long. This tube was then connected to a 3/8" Teflon® manifold with three outlets. Two of the outlets were connected to two 0 to 5 cfm ranged rotometers while the third was connected to a 0 to 1 liter per minute (lpm) ranged rotameter. The outlets of the two high flow rotometers were for use with the two Method 29 trains (one for ERG and one for TRC) and the third lower flow rotometer for collection of sample in a Tedlar® bag. Each rotometer was equipped with a needle valve to allow the sample flow rate to be regulated. The pressure reducing regulator had a Teflon® coated stainless steel diaphram.

Method 29 Procedures

Three sampling runs at the Sales Gas location were originally scheduled for Wednesday, 7/17/96. However, because run 3 at the headers was performed on this day, only two runs were completed. The third run was completed on 7/18/96. The Method 29 procedures used at this location are the same as discussed in Section 3, Inlet Gas Headers, Method 29 Procedures of this report except for the following:

Leak Checks

Since the sample line was under positive pressure, sampling train leak checks had to be performed by pressurizing the system and then monitoring for any pressure drop. This was accomplished by installing a 0 to 10 psig pressure gauge between the rotometer outlet and the first impinger and a toggle valve at the exit of the dry gas meter. Through preliminary tests indicated that a nominal sample flow rate of 1 cfm through the train could be achieved with a pressure of approximately 3 psig in the train. A leak check was then performed by closing the toggle valve, pressurizing the train to approximately 5 psig, stopping the sample flow with the rotometer needle valve and monitoring the pressure gauge. A successful leak check was when no pressure drop was observed. This procedure served as pre-test and post-test leak checks.

Sampling

Sampling was accomplished by allowing the pressure in the sales gas line to force sample gas through the sampling train (i.e., no sampling pump was required). The train impinger configuration was identical to that described in Section 3, Inlet Gas Headers, Description of Sampling Train. To begin a test, the dry gas meter initial reading was recorded and the flow rate set to a nominal 1 cfm. Readings were recorded every 5 minutes for each of three tests. Each test was three hours long. The field data sheets are found in Appendix B-2.

Jerome Mercury Vapor Analyzer

The sampling and analysis procedures at the sales gas location are the same as described in Section 3, Inlet Gas Headers, Jerome Mercury Vapor Analyzer in this report above.

Thermal Oxidzer

Description of Test Location

The thermal oxidzer combusts the effluent streams from various sections of the process. The stack gas which is typically at 1000°F was sampled isokinetically from two sampling ports that are 90°apart and approximately 15' above grade. Scaffolding was necessary in order to gain access to the sampling location and was installed by the plant personnel. The stack diameter at the sampling location was 49".

Method 29 Procedures

The sampling procedures used at the Thermal Oxidizer location follow those as outlined in the Method 29 procedures and presented as Appendix C of this report. The pre-test preparation was the same as discussed in Section 3, Inlet Gas Headers, Pre-Test Preparation of this report. Sampling runs 1 and 2 were performed on Thursday, 7/18/96, as scheduled with the third being performed on 7/19/96.

Description of the Sampling Train

The basic Method 29 sampling train is shown in Figure 3-1. The components of the train used are as follows:

- Quartz-lined heated probe, 5' in length, 3/8" OD with 0.265 inch ID quartz nozzle;
- Heated glass filter holder with Teflon® filter support;
- Impinger #1- Empty, used to remove moisture from the sampled gas;
- Impinger #2- Greenburg-Smith design containing 100 mL of a 5% nitric acid/10%hydrogen peroxide solution;
- Impinger #3- Straight stem design containing 100 mL of a 5% nitric acid/10% hydrogen peroxide solution;
- Impinger #4- Straight stem design, empty;
- Impingers #5 and #6- Straight stem design containing 100 mL of a 4% potassium permanganate/10% sulfuric acid solution;

- Impinger #7- Straight stem design containing approximately 300 grams of indicating silica gel;
- A vacuum pump; and
- A calibrated dry gas meter

The impingers were connected with glass U-tube connectors and assembled in an impinger bucket. All components of the sampling system to which sample gas would be exposed were constructed of either glass, quartz or Teflon®.

Reagents

In addition to the reagents discussed in Section 3, Inlet Gas Headers, Reagents, the sampling train used at the Thermal Oxidizer included a particulate filter. The filters were Pallflex Tissuequatz 2500 QAT-UP and were purchased specifically for this work due to their low metals content.

Sampling

Due to the possibility of the presence of particulate matter in the stack gas, the sampling at this location was done isokinetically, traversing the stack through each of the two ports. The sampling points within the stack were determined following the procedures outlined in EPA Reference Method 1. Twelve traverse points in each direction were established which are shown below.

Traverse Point #	Percent of Stack Diameter	Distance from Inside Wall, inches
1	2.1	1.0
2	6.7	3.25
3	11.8	5.75
4	17.7	8.67
5	25.0	12.25
6	35.6	17.44
7	64.4	31.56
8	75.0	36.75
9	82.3	40.33
10	88.2	43.25
11	93.3	45.75
12	97.9	48.00

The sampling time at each point was 7.5 minutes for a total of 90 minutes in each port location. The total sampling time was then 3 hours for each of three runs. The sampling rate was required to be within 10% of the stack flow rate. All three sampling runs met this criteria.

After the train components were assembled in the mobile laboratory for each run the train was transported to the sampling location and the probe assembly was connected. All heated areas of the train were brought to the proper minimum temperature of 250°F. The train was then leaked checked by plugging the probe nozzle and pulling a vacuum on the train. When a vacuum of 12" Hg was achieved the train was isolated from the pump and the dry gas meter reading was monitored. A leak check was successful when a flow rate of less than 0.02 cfm was observed. The train vacuum during leak checks was always above that observed during any test. Pre- (optional) and post- (required) leaks checks were performed. After the leak check was completed, the probe was positioned in the stack at the first traverse point, the initial dry gas meter reading was recorded and sampling began. In addition, all temperature readings, pitot tube stack gas velocity readings and train vacuum were recorded every

7.5 minutes. After the 12 traverse points in one port were completed, the probe/train was removed, leak checked and then inserted into the second port. Sampling at 7.5 minutes intervals at each point was then repeated. The field data sheets for the three runs are included in Appendix B-2. To determine "Dry Molecular Weight" of the gas stream, a Fyrite was used to analyze the gas for carbon dioxide and oxygen following the EPA Reference Method 3.

Sample Recovery

At the end of each run, the train was transported to the mobile laboratory for recovery following the procedures shown in Figure 3-2. The quartz nozzle and quartz probe liner assembly was recovered by rinsing with acetone and brushing with a non-metallic brush. The acetone rinse was collected in a separate pre-weighed pre-labeled bottle. The acetone rinse was followed with a rinse of 0.1N nitric acid, which was also collected in a separate bottle. The filter holder was then disassembled, the filter removed and placed in a glass petri dish. The front half of the filter holder was rinsed with acetone and the rinses added to the acetone probe rinse bottle. The front half of the filter was then rinsed with 0.1N nitric acid and the rinses added to the acid probe rinse bottle. The back half of the filter holder and filter support were rinsed with nitric acid and the rinses added to the bottle which contained the contents of the first three impingers. The remaining sample recovery of the impinger components is identical to that described in Section 3, Inlet Gas Headers, Sample Recovery.

Background (Ambient Air)

A sampling train configured the same as that discussed in Section 3, Sales Gas, Method 29 Procedures. The Sales Gas location was placed within approximately five feet of the air intake ducts of the Thermal Oxidizer. This train collected background air for five hours and fifteen minutes coincident with the sampling of the Thermal Oxidizer. The train components were recovered and analyzed in the same manner as discussed in Section 3, Sales Gas, Method 29 Procedures.

Section 4.0
Analysis

All samples were transported with the chain-of-custody to Triangle Laboratories, Inc. for analysis.

Mercury by Cold Vapor Atomic Absorption (CVAA)

EPA Method 7470 (as recommended in the EPA Method 29) and EPA Method 7470A (an updated version of 7470) were used for the analysis of mercury in each sample. Method 7470 requires "a new calibration" (interpreted to mean a new multi-point calibration) every 10 samples where Method 7470A requires "a calibration check standard" to be run after every 10 samples. This check standard is used to verify the continuing validity of the original multi-point calibration curve. Method 7470A was used for the analysis of approximately two thirds of the samples. After discussions with an on-site EPA auditor, Method 7470 was used for the remaining analyses. A comparison was made of the results of the remaining one third of the samples using the results from a Method 7470 approach. There was a difference of less than 1%.

The sample preparation and analysis scheme is presented as Figure 4-1 and discussed in detail in Section 5.3 of the EPA Method 29. For each of the trains, after sample preparation, five samples were presented for analysis:

1) Front half- Consisted of the acetone and nitric acid rinses of the probe, acid rinse of front half of the filter holder and the digested filter (acid probe rinse only for Sales Gas, Headers and Background);

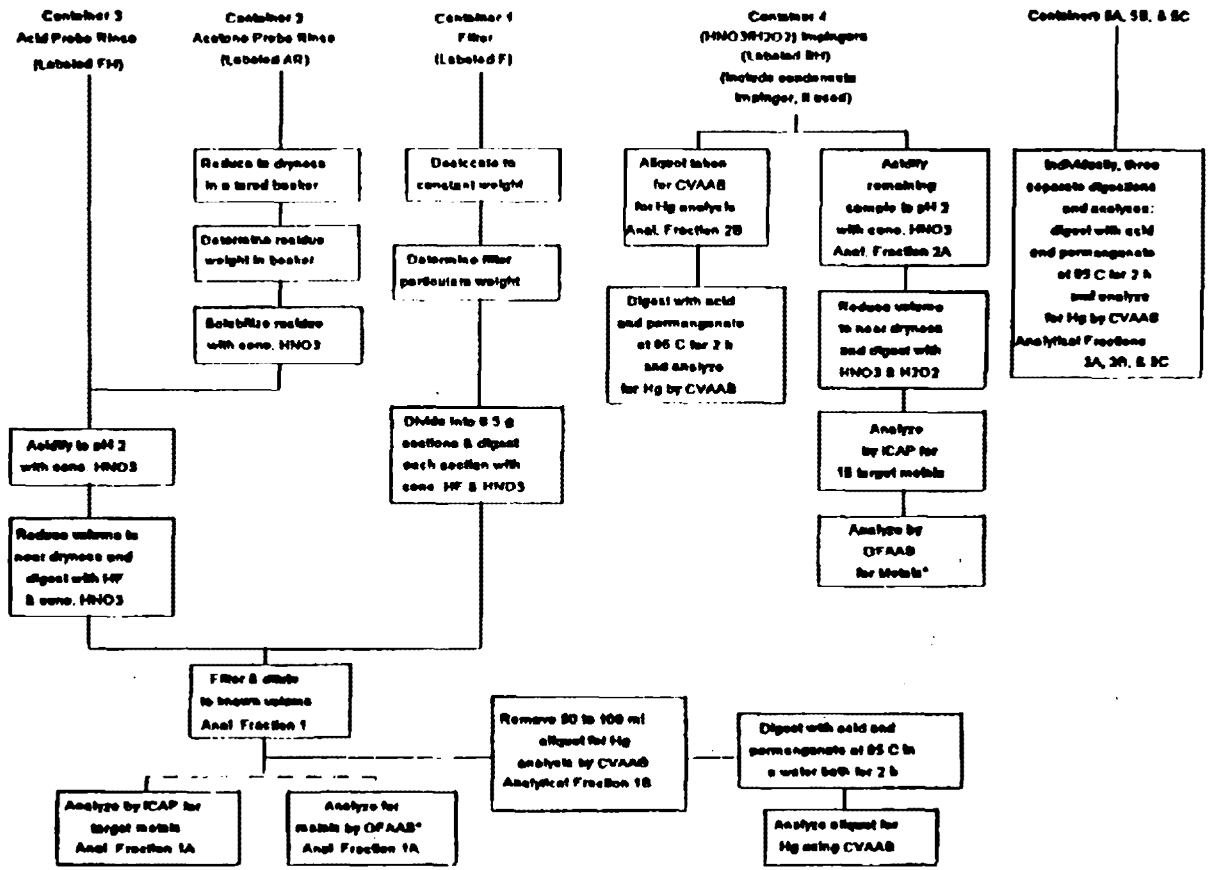
2) Back half- Consisted of the acid rinse of filter support and filter back half and the contents and acid rinses of the first three impingers (first three impinger contents and acid rinse only for Sales Gas, Headers, and Background);

3) Impinger #4- Contents and acid rinse (for all trains);

4) Impingers #5 and #6- Contents and water rinse (all trains); and

5) HCl Rinse- 8N hydrochloric acid rinse of Impingers #5 and #6 plus digested filtrate of the permanganate from Impingers #5 and #6 (all trains).

The preparation of sample #1 resulted in a sample volume of 100 mL, 50 mL of which was for CVAA analysis and the remaining for Method 6010 (Inductively Coupled Argon Plasma Spectroscopy, ICAPS) analysis. The volume of sample #2 was used as received with 100 mL being removed for CVAA. The volume of sample #3 was used as received being split into two equal volumes for analysis. Sample #4 was diluted to 400 mL with water (very little dilution required) and then two 50 mL aliquots taken for analysis. Sample #5 was diluted to a convenient volume (usually 100 mL) and then split into two equal volumes for analysis. The actual volumes received and used for analysis are included with the laboratory data package presented as Appendix A.



*Analyze by AAS for metals found at less than 2 ug/ml in digestate solution, if desired. Or analyze for each metal by AAS, if desired.

Figure 4-1. Sample Preparation and Analysis Scheme

Other Metals (ICAPS)

The sample preparation and analysis procedures outlined in Method 29 for ICAPS were followed for the analysis of the train samples. Two samples from each train were presented for analysis, samples 1 and 2 as discussed above in Section 4. The volume of sample #1 was one-half of the total sample prepared, or 50 mL. For sample #2, after 100 mL was removed for CVAA the remaining volume was concentrated to 100 mL for analysis. The actual volumes received and used for analysis are included with the laboratory data package and presented as Appendix A.

Section 5.0
Laboratory Interferent Studies

The laboratory H_2S interferant study that was performed after the completion of the 1995 sampling effort was repeated again as part of this study. These studies were performed to determine if H_2S was a positive interferant with the analysis of mercury when using a Jerome Mercury Vapor Analyzer. For this current study, a 100 ppm compressed gas standard of H_2S, certified to ±2%, was used to prepare working standards of nominally 6, 25, 50 and 100 ppm. Using the analysis procedures described in Section 3, Inlet Gas Headers, Jerome Mercury Vapor Analyzer, Analysis of this report, 1 mL of each standard was analyzed starting at the lowest concentration. The instrument's internal acid gas scrubber was the replacement that was used for the analysis of the Sales Gas samples during the field test. In every case, the instrument gave no response to the presence of H_2S. These results differ from the 1995 study where a positive interference was first noticed at a nominal H_2S concentration of 25 ppm.

Section 6.0
Example Calculations

The following are example calculations of the "total" amounts of metal that are presented in Tables 2-1 through 2-5. The data used in these calculations is extracted from the laboratory analysis report presented as Appendix A. Where results are reported as "less than" values, the instrument detection limit (IDL) is used as the starting point. The IDL for each analyte, μg/L as determined by the laboratory is as follows:

•	Hg	0.2
•	As	5.0
•	Be	1.0
•	Cd	1.0
•	Cr	2.0
•	Pb	2.0
•	Sb	4.0

Mercury (CVAA)

Referring to page 89 of the laboratory data found in Appendix A for the Thermal Oxidizer Run 1 results, the observed concentration for the front half analysis was 0.031 μg/L which is less than the IDL. Therefore, a value of 0.2 μg/L was used. Since each sample aliquot is diluted to 100 mL as part of the actual analysis scheme (in this case two separate 25 mL aliquots diluted to 100 mL each), to determine the concentration of mercury in the 25 mL aliquot (as μg/mL) multiply 0.2 μg/L by 0.1 L and divide by 25 mL. Then remembering that the two 25 mL aliquots originated from a total of 100 mL (50 mL for CVAA and 50 mL for ICAPS) multiply this result by 100 mL to get a total "less than" value of 0.08 μg of mercury for Fraction 1. Repeat this process for each of the fractions associated with a sampling run.

Other Metals (ICAP)

Again using the data for the Thermal Oxidizer Run 1 found on page 13 of Appendix A, the total amount of As is calculated as follows. Using the observed concentration of 1607.215 $\mu g/L$, multiply this value by 0.1L (remembering that the total original volume was 100 mL) and after rounding the result is 161 μg.

Section 7.0
Quality Control

Specific Quality Control/Quality Assurance (QC/QA) procedures were followed during this test program to ensure the production of useful and valid data. The QC/QA checks and procedures described in this section represent an integral part of the overall sampling and analytical scheme.

Field Test

Field Blanks

Field blanks are sampling trains that are assembled and prepared for sampling, taken to the test location, leak checked and then recovered as if used for sampling. The same glassware used for the collection of actual samples was used for the field blanks. The field blanks were allowed to remain at the appropriate sampling location for the same period of time as for the collection of the sample at that location. A field blank for each of the sampling locations was collected. The glassware used at each location for sampling was retired after sampling that location and not used for any other purpose.

Leak Checks

Pre-test (optional) and post-test (required) were performed on every sampling train. The procedures for these leak checks is discussed in Section 3.0 of this report. In all cases the trains passed the leak check requirements.

Summary of Quality Assurance Objectives

Completeness

Completeness is a measure of the amount of valid data obtained compared with the amount that was expected to be obtained. For this program the completeness objective was to obtain 100% of the data set forth in the test plan. This objective was met. All mercury analysis were completed within the 28-day hold time from sampling to analysis, and within a six-month hold time for all other analytes.

Precision

Precision is a measure of mutual agreement among individual measurements of the same property usually under similar conditions. The precision of field measurements are difficult to measure due to the potential for changing test conditions such as temperature, analyte concentrations and flow rates. However, in those cases where analytes were detected well above the MDL (see Tables 2-11 through 2-14), the precision between the three sampling runs were less than the 15% RSD set as a test objective. The mercury measurements for the North and South Headers showed a precision of less than 20% RSD, but with a trend showing increasing concentrations from Run 1 to Run 3. As expected, the precision of measurements at or near the MDL generally show poorer precision.

All samples for mercury analysis were analyzed in duplicate. Of these, six were outside of the 5% relative percent difference (RPD) criteria. Five of the six had a RPD of 10 or less and one was less than 15. A total of seven samples for ICAPS analysis were analyzed in duplicate. Three samples had RPDs greater than 5 for chromium, all less than 20%. The results for duplicate analyses for all other metals were within the 5% criteria.

Accuracy

Accuracy is the degree of agreement of a measured value with an accepted reference or true value. Performance audit material can be used to provide some measure of analytical accuracy, but audit material was not available for this project. Matrix spikes can also be used as a measure of accuracy and to assess any effects of a sample matrix on the ability to determine the level of an analyte in the sample. Matrix spike and matrix spike duplicates for mercury analysis were performed on ten samples. The recoveries were all within the acceptable criteria of 75 to 125% except for those samples where sample losses occurred during laboratory preparation. Matrix spikes were performed on eight samples for ICAPS analysis. All percent recoveries were within the acceptable range except for lead (65%) in the front half sample for the Thermal Oxidizer Run 1.

Quality Assurance Audits

The EPA Work Assignment Manager as well a Quality Assurance Officer from the EPA were present on site during the field test. Both individuals observed all tests and were available to provided technical input and make decisions regarding the continued validity of the sample collection process. In addition, an EPA Quality Assurance Officer was present at the laboratory during the majority of the sample preparation and analysis phase.

Performance Audits

The EPA had originally planned to provide performance samples to the laboratory for analysis concurrent with the samples. However, no performance samples were available from the EPA during this program.

Addendum

October 28, 1996

ERG Mercury Concentration Data Versus the Existing Landfill Gas Mercury Concentration Data from an Argonne National Lab/Gas Research Institute (GRI) Report [1]

Location	At the Fresh Kills GSF Gas Plant ERG (July 96) Lowest to Highest Concentration reported [2]	At nine unspecified landfills nation-wide [3] Argonne/GRI (1981 to 1982) Lowest to Highest concentration reported [2]
Inlet (Raw Landfill Gas)	0.00071 – 0.0025 ppmV or 5.93 – 21.2 ug/m3	0.0000007 – 0.0008 ppmV or 0.0058 – 7.3 ug/m3
Outlet (Sales Gas)	0.0000012 – 0.000014 ppmV or 0.01 – 0 12 ug/m3	0.0000007 – 0.0005 ppmV or 0.0058 – 4.2 ug/m3

[1] In making unit conversions. EPA assumed that all gases are ideal and are at 68 °F and 1 atm. Differences in gas moisture, temperature, pressure, flowrate were not factored into the unit conversions because the Argonne/GRI report does not contain that information. Also, plant operating conditions were not factored into the comparison because we could not find that information in the Argonne/GRI report.

[2] The concentrations presented are from analyses of samples taken from gas streams. They are not ambient concentration measurements.

[3] From "Landfill Methane Recovery Part II: Gas Characterization" by ESCOR, Inc. for the Argonne National Lab and the Gas Research Institute (December, 1982). The data have been converted for the purpose of the above comparison.

Appendix A

Laboratory Data Package

CASE NARRATIVE

Analysis of Samples for the Presence of Trace Metals

Method 29 April 1994 Rev.

Client:	Eastern Research Group
TLI Project Number:	38139
Date:	August 22, 1996

Rev. 10/10/95

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

Overview

Sixteen train samples, two reagent blank train samples and two nitric rinse probes were analyzed for arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), lead (Pb), antimony (Sb), and mercury (Hg). For all analyses, the samples and associated QC samples were prepared and analyzed following the guidelines of Method 29 April 1994 Rev. Results reported relate only to the items tested.

QC Remarks

The release of this set of data by Triangle Laboratories, Inc. was authorized by the Quality Control Chemist who has reviewed each sample data package individually following a series of inspections/reviews. When applicable, general deviations from acceptable QC requirements are identified below and comments are made on the effects of these deviations upon the validity and reliability of the results. Specific QC issues associated with this particular project are:

Sample Receipt:

Nineteen train samples and two final probe rinses were received at ambient temperature on July 22, 1996 in good condition. Sample FKL-45, 47, 48, 49 (HEADER RB1) was archived at client request.

Sample Preparation:

Laboratory documentation of the sample preparation is included in the data package. The samples were prepared according to the guidelines of Method 29. The KMnO4 and HCl impingers were brought up to a final volume of 400 mL and 100 mL respectively for all samples except samples FKL-29,30 HCl, FKL-05,06 HCl, FKL-129,130 HCl, and FKL-83,117 HCl. These samples were brought up to final volumes of 200 mL, 200 mL, 200 mL and 250 mL respectively. The volumes noted on the preparation flow chart pages reflect the volume received and the volume on the final analyte summary reports reflect the final volume.

For impingers 1-3 and the back half samples the pH was checked and the samples were slowly acidified to less than a pH of 2.

The KMnO4 impingers were filtered and the filter was digested and added to the corresponding HCl impinger. The client and TLI IDs reflect the addition of the digested filter to the HCl impinger.

The reagent blanks FKL-79,112,113,114 FH, FKL-79,81,113,115 BH, FKL-79,113 HNO_3, FKL-82,116 $KMnO_4$, FKL-83,117 HCl were combined due to limited sample volume. The blanks were prepared according to the guidelines of Method 29.

Instrumentation:

Arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), lead (Pb), and antimony (Sb) concentrations were determined by Inductively Coupled Plasma Emission Spectroscopy (ICP).

Mercury (Hg) concentrations were determined by Cold Vapor Atomic Absorption (CVAA).

The linear range for the instrument TJA 61E Trace Analyzer was based on four standards and a blank, which established a correlation coefficient value greater than or equal to 0.995. A calibration curve, based on a blank and one standard, is established for each analytical run, followed by a check high standard and an initial calibration verification (ICV). The check high standard does not deviate from the calibration curve by more than 5%. In addition, continuing calibration verifications (CCVs) are performed throughout the analytical run.

A Reporting Detection Limit (RDL) is used instead of an Instrument Detection Limit (IDL). The spectrometer and atomic absorption instruments can achieve low detection limits between 0.2-8 ppb levels for many analytes. Triangle Labs is using RDL values of 1-10 times the IDL as detection limits for reporting purposes.

Data Review:

All analytes found in the method blank (MB) are detected at a level equal to or less than the respective Reporting Detection Limits (RDLs), except for As, Cr, and Sb. The following guidelines may be used to assess analyte concentrations relative to the method blank: 1. Analyte quantitations should be considered valid if the level of blank contamination is less than five percent of the level detected in the field sample, 2. Analyte quantitations should be considered estimated if the analyte level in the sample is five to twenty times the level of the analyte in the blank, or 3. Analytes whose level in a sample is the same as or less than five times the level detected in the associated blank should be considered present likely due to laboratory contamination and not native to the sample.

and sample loss occurred. The native sample did not foam and it is not clear whether or not the native INCINERATOR results were effected by matrix interferences.

The pre-digestion spike (MS) and the pre-digestion spike duplicate (MSD) for Hg for the samples FKL-21 BH, FKL-03 BH, and FKL-09 BH and the MS for sample FKL-33 BH demonstrated percent recoveries outside the QC criteria. These samples are representative of the HEADER runs and the low percent recoveries may indicate significant interferences specific to Hg in the native sample matrix. The QC samples foamed during preparation and sample loss occurred. The native sample did not foam and it is not clear whether or not the native HEADER results were effected by matrix interferences.

A seven point curve was established for the CVAA analyses for the samples marked with a " * " on the analyte summary report. The concentrations for these samples were based on the single curve. A CCV standard was run every ten samples and was within the internal QC criteria of 20 % of the true value. The client has requested the CCV to be within 10 % of the true value, all CCVs met this criteria except standard runs 08/06/96 08:38, 08/06/96 08:57, 08/06/96 09:14, 08/06/96 09:48, and 08/07/96 12:12. The samples cannot be reanalyzed since all the volumes were consumed during the preparation and analysis.

For all other CVAA analyses two seven point curves were performed and up to eleven samples were analyzed. A CCV standard was run at the end of the sample and was within the internal QC criteria of 20 % of the true value. The client has requested the CCV to be within 10 % of the true value, all CCVs met this criteria except standard runs 08/08/96 15:24 and 08/13/96 10:55. The samples cannot be reanalyzed since all the volumes were consumed during the preparation and analysis. Please note the raw data in the data package represents concentrations based on one calibration curve. Triangle Laboratories instrument software does not allow for concentrations based on two calibration curves. The curves were recalculated averaging the two curves and sample concentrations were calculated based on the two curves for all samples which are not marked on the analyte summary report. Triangle Laboratories did not note a significant difference between the concentrations based on a single curve and the two curves.

All analyte results were within the requested detection limits.

QC requirements:

For the ICP analysis a high check standard, initial calibration verification (ICV), initial calibration blank (ICB), and interference check solution (ICSAB) were performed after the curve was established and continuing calibration verification standards (CCV) and continuing calibration blanks (CCB) were analyzed every ten samples. The ICV, CCV and ICSAB analyses were within 10% of the true values.

Please note As, Cr, and Sb were found in several samples at high levels and this may have contributed to the contamination in the MB and LCS. The laboratory control spike for Cr and Sb demonstrated percent recoveries above the QC criteria. The levels of Cr and Sb in the MB may have contributed to an increase in the percent recoveries.

The negative concentration for Cd was slightly greater than the absolute value of the RDL, which may indicate a negative bias in the samples analyzed for Cd.

The reported final results for Cd and Pb for the front half INCINERATOR samples are based on the RDLs. The instrument recovered amounts for Cd and Pb demonstrated negative values as a result of significant matrix interferences specific to these analytes. The PDS percent recoveries for Cd and Pb for sample FKL-86,84,85 FH were below QC criteria, however the spike concentration added of 50 ppb was fully recovered with respect to the instrument measured value of the original sample and the post-digestion sample. All instrument QC was within criteria.

All samples were analyzed within the 28 day sampling to analysis holding time for Hg and within the six month sampling to analysis holding time for all other requested analytes.

The serial dilution result for Cr for the sample FKL-86,84,85 FH demonstrated a RPD outside the QC control criteria of 10.0 percent. The poor RPD indicates the presence of a significant amount of interferents specific to Cr in the native sample matrix. The sample results may be biased low for non-diluted samples for the front half INCINERATOR samples.

The duplicate analyses for Cr for the samples FKL-58 and FKL-27 demonstrated RPDs outside the client requested QC criteria of 5 percent of the average. The RPD for sample FKL-58 was 5.70% and for sample FKL-27 the RPD is 8.69%. This does not represent significant interferents specific to Cr in the native sample matrix. The RPDs calculated on the analyte summary reports are not based on the average amounts of the samples.

The recoveries for the post-digestion spike (PDS) are not reported for As and Sb for samples FKL-86,84,85 and FKL-21. The spike concentrations added were insignificant in comparison to the levels of these analytes present in the native sample.

The recoveries for the post-digestion spike (PDS) for Cd and Pb for sample FKL-86,84,85 were outside QC criteria. This represents matrix interferences specific to these analytes in the native sample matrix. The samples results should be considered underestimated.

The pre-digestion spike (MS) and the pre-digestion spike duplicate (MSD) for Hg for the samples FKL-87 BH and the MSD for sample FKL-94 BH demonstrated percent recoveries outside the QC criteria. These samples are representative of the INCINERATOR runs and the low percent recoveries which may indicate interferences specific to Hg in the native sample matrix. The QC samples foamed during preparation

The duplicate analyses for analytes analyzed by ICP cannot be considered valid qualifiers if the concentrations of the analytes in the original and/or duplicate sample are not at least ten times the respective RDLs. The RPDs for these analyses are indicated by or "<RDL" in the Analyte Summary Reports.

For duplicate analyses which are valid qualifiers, the quality control RPD is ± 5.0 percent of the average. The internal QC RPD for duplicate samples is ± 20 percent. If RPDs are outside the internal QC range, interferences are suspected.

The serial dilution analyses for analytes analyzed by ICP cannot be considered valid qualifiers if the concentrations of the analytes in the serial dilution sample are less than ten times the respective RDLs. The serial dilution RPDs for these analyses are indicated by "<RDL" in the Analyte Summary Reports.

For serial dilution analyses which are valid qualifiers, the quality control RPD is ten percent. If RPDs are outside this range, interferences are suspected.

The quality control range for percent recoveries of laboratory control spiked samples is 80-120 percent.

The quality control range for percent recoveries of spiked samples is 75-125 percent. If recoveries are outside this range, a matrix effect is suspected.

By our interpretation, the analytical data in this project are valid based on the guidelines of Method 29 April 1994 Rev. Any specific QC concerns or problems have been discussed in the QC REMARKS section with emphasis on their effect on the data. Should Eastern Research Group have any questions or comments regarding this data package, please feel free to contact Project Scientist, Walter Murray, at (919) 544-5729 ext. 266.

For Triangle Laboratories, Inc.,

Report Preparation	Quality Control
Nina Woodgate	8/22/96
Nina Woodgate	for Jerry P. Roach
Report Preparation Chemist	Report Preparation Chemist

The total number of pages in this data package is: 350.

TRIANGLE LABS

TRIANGLE LABORATORIES, INC.

LIST OF CERTIFICATIONS AND ACCREDITATIONS

American Association for Laboratory Accreditation. Valid until July 31, 1997. Certificate Number 0226-01. Accreditation for technical competence in Environmental Testing.(Including Waste Water, Sol/Haz Waste, Pulp/Paper, and Air Matrices) Parameters are AOX/TOX, Volatiles, Pesticides, PCB's, BNA's, and Dioxin/Furan. Method 1613 for Drinking Water.

State of Alabama, Department of Environmental Management. Laboratory I.D. # 40950. Drinking Water for Dioxin. Expires December 31, 1997.

State of Alaska, Department of Environmental Conservation. Drinking Water for Dioxin. Expires December 31, 1996.

State of Arizona, Department of Health Services. Certificate # AZ0423. Drinking Water for Dioxin. Dioxin in WW and S/H Waste. Effective May 26, 1996. Expires May 26, 1997.

State of Arkansas, Department of Pollution Control and Ecology. Pulp/paper, soil, water, and Hazardous Waste for Dioxin/Furan: AOX/TOX. Expires February 14, 1997. Primary No. 94-06497.

State of California, Department of Health Services. Certificate # 1922. Selected Metals in Waste Water; Volatiles, Semi-volatiles, and Dioxin/furan in WW and Sol/Haz Waste. Dioxin in Drinking Water. Expires August 31, 1997.

CLIA Registration. ID # 34D0705123. Expires May 30, 1997.

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

Delaware Health and Social Services. Dioxin in drinking Water. Effective December 13, 1993. Expires December 31, 1996.

FDA Registration. ID #'s 059244 1053481. Expires July 1996.

Florida Department of Health and Rehabilitative Services. Dioxin in DW. Drinking Water ID HRS# 87424. Metals, Extractable Organics (GC/MS), Pesticides/PCB's (GC) and Volatiles (GC/MS) in Environmental Samples. Environmental water ID HRS# E87411. Expires May 27, 1997.

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Hawaii Department of Health. Dioxin in drinking water. "Accepted" status for regulatory purposes until March 1, 1997.

Idaho Department of Health and Welfare. Effective August 18, 1993. Dioxin in Drinking Water. Expires November 30, 1996.

State of Kansas, Department of Health and Environment. Valid until January 31, 1997. Environmental Analyses/Non potable Water and Solid and Hazardous Waste. Method 1613 for driOnking water. ID #'s - Drinking water and/or pollution control - E-215. Solid or Hazardous Waste - E-1209.

Commonwealth of Kentucky, Department for Environmental Protection. Drinking Water for Dioxin. ID# 9C060. Valid until December 31, 1996.

Maryland Department of Health and Mental Hygiene. Drinking water by Method 1613A. Expires September 30, 1996.

State of Michigan, Department of Public Health. Drinking water by Method 1613. Expires October 1, 1996.

Montana Department of Health and Environmental Services. Effective October 1, 1993. Dioxin in Drinking Water. Expires December 31, 1996.

State of New Jersey, Department of Environmental Protection and Energy. BNAs and Volatiles. Drinking water for Dioxin. Expires October 30, 1996. ID # 67851.

State of New Mexico, Environment Department. Drinking water for Dioxin. Expires July 31, 1997.

New York State Department of Health. Valid until June 30, 1996. ID #11026. Environmental Analyses of non potable Water, Solid and Hazardous Waste. Method 1613 in DW.

State of North Carolina, Department of Environment Health and Natural Resources Certificate # 37751. Expiration date is December 31, 1996. Drinking Water for Dioxin.

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

State of North Carolina, Department of Environment, Health, and Natural Resources - Division of Radiation Protection. General License No. 32-0875-0G; Specific License No. 0954-1. Expires April 30, 1998.

North Dakota State Department of Health and Consolidated Laboratories. Certificate # R-076. Effective October 4, 1993. Dioxin in Drinking Water. Expires December 31, 1996.

State of South Carolina, Department of Health and Environmental Control. Dioxin/Furans, BNA, Volatiles, and PCBs/pesticides under Clean Water Act, 2,3,7,8-TCDD for Drinking Water, and Organic extractables for Solid and Hazardous Waste. Expire June 30, 1996 and August 31, 1997. ID# 99040

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

U.S. Army Corps of Engineers. Renewed until Nov. 30, 1997. Validated to perform methods 8280, 8290.

U.S. EPA Region V. Dioxin in Drinking Water. Expires December 29, 1996.

U.S. EPA Region VIII, for the State of Wyoming. Dioxin in Drinking Water. Expires December 31, 1996.

U.S. EPA Region X. Certification for 2,3,7,8-TCDD in Drinking Water.

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

Commonwealth of Virginia, Department of General Services, Division of Consolidated Laboratory Services. ID # 00341. Dioxin in Drinking Water. Expires June, 1996.

State of Washington, Department of Ecology. Valid through September 11, 1996 . Lab Accreditation Number C067. Scope of Accreditation applies to water analyses for Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans, volatiles, Base/Neutral and Acid Organics.

State of Washington, Department of Health. Drinking water for Dioxin. Expires April 30, 1997.

State of West Virginia, Department of Health. Drinking water for Dioxin. Expires December 31, 1996.

State of Wisconsin, Department of Natural Resources. Valid until June 30, 1996. Laboratory ID Number 999869530. Certification for the following categories of Organics: Purgeable, Base/Neutral, Acid, PCBs, and Dioxin.

ABBREVIATIONS

BH = Back Half
CCB = Continuing Calibration Blank
CCV = Continuing Calibration Verification
CHECK HS = Check High Standard
D = DUP = Analytical Duplicate (Prepared Duplicate)
DA = Duplicate Analysis
FH = Front Half
FV = Final Digestate Volume
ICB = Initial Calibration Blank
ICV = Initial Calibration Verification
ICSAB = Interference Check Solution (Solution AB)
    I = Initial
    F = Final
    Solution AB contains common interferents in addition to the analyte of interest.
IDL = Instrument Detection Limit
L = Serial Dilution
LCS = Laboratory Control Spike Sample
MB = Method Blank
MPV = Mercury Preparation Volume
MS = Pre-digestion Spike
MSD = Pre-digestion Spike Duplicate
N/A = Not Applicable
N/Av = Not Available
N/V = Not Valid
PDS = Post-digestion Spike
%REC = Percent Recovery
RDL = Reporting Detection Limit
RPD = Relative Percent Difference
T = Analytical Triplicate (Prepared Triplicate; for Hg analysis by Method 7471 only)
TV = Total Sample Volume
< = Analyte concentration in the sample is less than the respective RDL

CALCULATIONS FOR MULTI-METALS TRAIN SAMPLES

RESULTS FOR TRACE METALS (except mercury):

$$\text{RESULT in } \mu g \text{ (Front Half)} = \frac{\mu g/L * ml\ FV * DF}{1000}$$

$$\text{RESULT in } \mu g \text{ (Back Half \& Impingers)} = \frac{\mu g/L * (ml\ TV/ml\ used) * ml\ FV * DF}{1000}$$

ml FV = final volume in ml
ml TV = total volume in ml
DF = Dilution Factor

RESULT in µg for the combined Front Half & Back Half samples have the same calculation as the Back Half & Impinger samples.

RESULTS FOR MERCURY (Hg):

$$\text{RESULT in } \mu g \text{ (Front Half)} = \mu g/L * (ml\ FV/ml\ aliquot) * MPV * DF$$

$$\text{RESULT in } \mu g \text{ (Back Half \& Impingers)} = \mu g/L * (ml\ TV/ml\ aliquot) * MPV * DF$$

MPV (mercury preparation volume) = 0.1 L or 0.008 L
ml TV = total volume in ml
DF = Dilution Factor

%REC (Percent Recovery) for MS/MSD and Hg spikes:

$$\%REC = \frac{\text{Spike sample results - original sample results}}{\text{true spike sample results}} * 100$$

%REC (Percent Recovery) for PDS:

$$\%REC = \frac{\text{Spike sample } \mu g/L \text{ conc. - original sample } \mu g/L \text{ conc.}}{\text{spike conc. } (\mu g/L)} * 100$$

%REC (Percent Recovery) for LCS/LCSD:

$$\%REC = \frac{\text{Spike sample } \mu g/L \text{ conc.}}{\text{spike conc. } (\mu g/L)} * 100$$

RPDs:

$$RPD = \frac{|\text{Result 2 - Result 1}|}{(\text{Result 2 + Result 1})/2} * 100$$

STANDARD CONCENTRATIONS
for the TJA 61E TRACE ANALYZER

Analyte	Units	High Std	ICV/CCV	ICSAB	RDL	Wavelength
Ag	ppb	1000	500	500	1	3280
As	ppb	1000	500	500	5	1890
Al	ppb	1000	500	500000	50	3082
B	ppb	1000	500	500	7	2496
Ba	ppb	1000	500	500	2	4934
Be	ppb	1000	500	500	1	3130
Ca	ppb	1000	500	500000	60	3179
Cd	ppb	1000	500	500	1	2265
Ce	ppb	1000	500	500	3	4186
Co	ppb	1000	500	500	1	2286
Cr	ppb	1000	500	500	2	2677
Cu	ppb	1000	500	500	2	3247
Fe	ppb	1000	500	200000	40	2714
K	ppb	10000	5000	19000	220	7664
Li	ppb	1000	500	500	1	6706
Mg	ppb	1000	500	500000	30	2790
Mn	ppb	1000	500	500	2	2576
Mo	ppb	1000	500	500	2	2020
Na	ppb	10000	5000	5000	300	3302
Ni	ppb	1000	500	500	3	2316
P	ppb	1000	500	500	30	2149
Pb	ppb	1000	500	500	2	2203
Sb	ppb	1000	500	500	4	2068
Se	ppb	1000	500	500	3	1960
Sn	ppb	1000	500	500	13	1899
Sr	ppb	1000	500	650	1	4215
Ti	ppb	1000	500	500	8	3349
Tl	ppb	1000	500	500	5	1908
V	ppb	1000	500	500	2	2924
Zn	ppb	1000	500	500	12	2062

Note: Use this reference page to review the raw data from the TJA 61E Trace Analyzer.

This page includes the standard concentrations for the check high standard, initial calibration verification (ICV), continuing calibration verification (CCV), and the interference check solution (ICSAB). In addition the reporting detection limit (RDL) and wavelength are reported for each analyte.

Revision Date: 15-Jul-96

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-86,84,85
TLI Sample ID:	131-59-1ABC
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	1607.215	N/A	N/A	100	1	161
Be	0.009	N/A	N/A	100	1	< 0.100
Cd	-10.829	N/A	N/A	100	1	< 0.100
Cr	201.460	N/A	N/A	100	1	20.1
Pb	-15.311	N/A	N/A	100	1	< 0.200
Sb	1249.580	N/A	N/A	100	1	125

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID:	FKL-87
TLI Sample ID:	131-59-1D
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol	mL Used	mL Final Vol	Dilution Factor	Total ug Result
As	198.723	620	520	100	1	23.7
Be	0.080	620	520	100	1	< 0.119
Cd	3.052	620	520	100	1	0.364
Cr	27.895	620	520	100	1	3.33
Pb	14.864	620	520	100	1	1.77
Sb	130.478	620	520	100	1	15.6

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-87 L
TLI Sample ID:	131-59-1D L
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	44.414	620	520	100	5	26.5
Be	0.039	620	520	100	5	< 0.596
Cd	0.067	620	520	100	5	< 0.596
Cr	15.236	620	520	100	5	9.08
Pb	2.034	620	520	100	5	1.21
Sb	32.281	620	520	100	5	19.2

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Printed: 19-Aug-96 at 10:47 AM

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID:	FKL-93,91,92
TLI Sample ID:	131-59-2ABC
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	1423.090	N/A	N/A	100	1	142
Be	0.634	N/A	N/A	100	1	< 0.100
Cd	-10.157	N/A	N/A	100	1	< 0.100
Cr	189.293	N/A	N/A	100	1	18.9
Pb	-13.634	N/A	N/A	100	1	< 0.200
Sb	1090.173	N/A	N/A	100	1	109

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID:	FKL-94
TLI Sample ID:	131-59-2D
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	259.074	560	460	100	1	31.5
Be	0.040	560	460	100	1	< 0.122
Cd	3.529	560	460	100	1	0.430
Cr	20.799	560	460	100	1	2.53
Pb	14.984	560	460	100	1	1.82
Sb	171.075	560	460	100	1	20.8

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-94 DA
TLI Sample ID:	131-59-2D DA
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	261.062	560	460	100	1	31.8
Be	0.021	560	460	100	1	< 0.122
Cd	3.838	560	460	100	1	0.467
Cr	20.753	560	460	100	1	2.53
Pb	15.660	560	460	100	1	1.91
Sb	175.716	560	460	100	1	21.4

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Project Number: **38139**

Sample Report

Client Sample ID:	FKL-100,98,99
TLI Sample ID:	131-59-3ABC
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor		Total ug Result
As	1416.104	N/A	N/A	100	1		142
Be	0.039	N/A	N/A	100	1	<	0.100
Cd	-4.513	N/A	N/A	100	1	<	0.100
Cr	184.026	N/A	N/A	100	1		18.4
Pb	-23.861	N/A	N/A	100	1	<	0.200
Sb	1110.612	N/A	N/A	100	1		111

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Project Number: **38139**

Sample Report

Client Sample ID:	FKL-101
TLI Sample ID:	131-59-3D
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	280.270	600	500	100	1	33.6
Be	0.049	600	500	100	1	< 0.120
Cd	26.791	600	500	100	1	3.21
Cr	24.718	600	500	100	1	2.97
Pb	23.987	600	500	100	1	2.88
Sb	205.876	600	500	100	1	24.7

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Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-109,108
TLI Sample ID:	131-59-5BC
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	0.259	75	75	100	1	< 0.500
Be	0.058	75	75	100	1	< 0.100
Cd	0.210	75	75	100	1	< 0.100
Cr	19.395	75	75	100	1	1.94
Pb	3.579	75	75	100	1	0.358
Sb	7.296	75	75	100	1	0.730

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Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID	FKL-51
TLI Sample ID:	131-59-6A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	4.238	N/A	N/A	100	1	< 0.500
Be	-0.004	N/A	N/A	100	1	< 0.100
Cd	0.449	N/A	N/A	100	1	< 0.100
Cr	21.002	N/A	N/A	100	1	2.10
Pb	13.983	N/A	N/A	100	1	1.40
Sb	9.039	N/A	N/A	100	1	0.904

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Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-53
TLI Sample ID:	131-59-6C
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	-4.489	265	165	100	1	< 0.803
Be	-0.068	265	165	100	1	< 0.161
Cd	1.180	265	165	100	1	0.190
Cr	19.414	265	165	100	1	3.12
Pb	22.428	265	165	100	1	3.60
Sb	9.898	265	165	100	1	1.59

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Client: Eastern Research Group
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Sample Report

Client Sample ID	FKL-51 L
TLI Sample ID	131-59-6A L
Date Received	July 22, 1996
Date Prepared	July 24-31, 1996
Date Analyzed	August 14-16, 1996
Matrix	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	1.622	N/A	N/A	100	5	< 2.50
Be	0.045	N/A	N/A	100	5	< 0.500
Cd	-0.245	N/A	N/A	100	5	< 0.500
Cr	11.289	N/A	N/A	100	5	5.64
Pb	1.565	N/A	N/A	100	5	< 1.00
Sb	6.911	N/A	N/A	100	5	3.46

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Client: **Eastern Research Group**
Project Number: 38139

Sample Report

Client Sample ID:	FKL-53 L
TLI Sample ID:	131-59-6C L
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor		Total ug Result
As	-2.853	265	165	100	5	<	4.02
Be	0.029	265	165	100	5	<	0.803
Cd	0.310	265	165	100	5	<	0.803
Cr	4.411	265	165	100	5		3.54
Pb	5.617	265	165	100	5		4.51
Sb	5.610	265	165	100	5		4.50

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-58
TLI Sample ID:	131-59-7A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor		Total ug Result
As	2.334	N/A	N/A	100	1	<	0.500
Be	-0.051	N/A	N/A	100	1	<	0.100
Cd	-0.666	N/A	N/A	100	1	<	0.100
Cr	24.815	N/A	N/A	100	1		2.48
Pb	-2.322	N/A	N/A	100	1	<	0.200
Sb	10.295	N/A	N/A	100	1		1.03

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Client: **Eastern Research Group**
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Sample Report

Client Sample ID:	FKL-60
TLI Sample ID:	131-59-7C
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	-2.472	275	175	100	1	< 0.786
Be	-0.056	275	175	100	1	< 0.157
Cd	-0.167	275	175	100	1	< 0.157
Cr	21.044	275	175	100	1	3.31
Pb	6.982	275	175	100	1	1.10
Sb	11.821	275	175	100	1	1.86

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Sample Report

Client Sample ID:	FKL-58 DA
TLI Sample ID:	131-59-7A DA
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor		Total ug Result
As	2.800	N/A	N/A	100	1	<	0.500
Be	-0.051	N/A	N/A	100	1	<	0.100
Cd	-0.674	N/A	N/A	100	1	<	0.100
Cr	27.729	N/A	N/A	100	1		2.77
Pb	-1.623	N/A	N/A	100	1	<	0.200
Sb	10.644	N/A	N/A	100	1		1.06

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Sample Report

Client Sample ID:	FKL-60 DA
TLI Sample ID:	131-59-7C DA
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	-1.397	275	175	100	1	< 0.786
Be	-0.034	275	175	100	1	< 0.157
Cd	0.340	275	175	100	1	< 0.157
Cr	16.179	275	175	100	1	2.54
Pb	9.324	275	175	100	1	1.47
Sb	9.170	275	175	100	1	1.44

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-65
TLI Sample ID:	131-59-8A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	7.368	N/A	N/A	100	1	0.737
Be	-0.348	N/A	N/A	100	1	< 0.100
Cd	-2.464	N/A	N/A	100	1	< 0.100
Cr	44.118	N/A	N/A	100	1	4.41
Pb	-4.064	N/A	N/A	100	1	< 0.200
Sb	19.542	N/A	N/A	100	1	1.95

Client: **Eastern Research Group**
Project Number: 38139

Sample Report

Client Sample ID:	FKL-67
TLI Sample ID:	131-59-8C
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	-2.712	305	205	100	1	< 0.744
Be	-0.012	305	205	100	1	< 0.149
Cd	0.016	305	205	100	1	< 0.149
Cr	17.490	305	205	100	1	2.60
Pb	7.328	305	205	100	1	1.09
Sb	8.087	305	205	100	1	1.20

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID:	FKL-75,74
TLI Sample ID:	131-59-9BC
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor		Total ug Result
As	-4.839	75	75	100	1	<	0.500
Be	0.004	75	75	100	1	<	0.100
Cd	-0.822	75	75	100	1	<	0.100
Cr	13.383	75	75	100	1		1.34
Pb	0.213	75	75	100	1	<	0.200
Sb	6.394	75	75	100	1		0.639

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID:	FKL-38
TLI Sample ID:	131-59-11A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor		Total ug Result
As	3.467	N/A	N/A	100	1	<	0.500
Be	-0.016	N/A	N/A	100	1	<	0.100
Cd	0.262	N/A	N/A	100	1	<	0.100
Cr	22.829	N/A	N/A	100	1		2.28
Pb	15.624	N/A	N/A	100	1		1.56
Sb	10.672	N/A	N/A	100	1		1.07

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Sample Report

Client Sample ID:	FKL-41,40
TLI Sample ID:	131-59-11BC
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	51.019	75	75	100	1	5.10
Be	0.064	75	75	100	1	< 0.100
Cd	0.437	75	75	100	1	< 0.100
Cr	15.032	75	75	100	1	1.50
Pb	15.539	75	75	100	1	1.55
Sb	98.285	75	75	100	1	9.83

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-20
TLI Sample ID:	131-59-12A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor		Total ug Result
As	3.958	N/A	N/A	100	1	<	0.500
Be	-0.139	N/A	N/A	100	1	<	0.100
Cd	1.391	N/A	N/A	100	1		0.139
Cr	37.511	N/A	N/A	100	1		3.75
Pb	-3.136	N/A	N/A	100	1	<	0.200
Sb	16.296	N/A	N/A	100	1		1.63

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-21
TLI Sample ID:	131-59-12C
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	1894.157	335	235	100	1	270
Be	-0.087	335	235	100	1	< 0.143
Cd	3.422	335	235	100	1	0.488
Cr	19.119	335	235	100	1	2.73
Pb	8.445	335	235	100	1	1.20
Sb	3435.771	335	235	100	1	490

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-20 L
TLI Sample ID:	131-59-12A L
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor		Total ug Result
As	-0.290	N/A	N/A	100	5	<	2.50
Be	0.051	N/A	N/A	100	5	<	0.500
Cd	0.191	N/A	N/A	100	5	<	0.500
Cr	13.435	N/A	N/A	100	5		6.72
Pb	-0.402	N/A	N/A	100	5	<	1.00
Sb	6.933	N/A	N/A	100	5		3.47

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-21 L
TLI Sample ID:	131-59-12C L
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	401.753	335	235	100	5	286
Be	-0.019	335	235	100	5	< 0.713
Cd	1.035	335	235	100	5	0.738
Cr	3.183	335	235	100	5	2.27
Pb	2.126	335	235	100	5	1.52
Sb	743.292	335	235	100	5	530

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID:	FKL-26
TLI Sample ID:	131-59-13A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor		Total ug Result
As	1.785	N/A	N/A	100	1	<	0.500
Be	-0.015	N/A	N/A	100	1	<	0.100
Cd	-1.167	N/A	N/A	100	1	<	0.100
Cr	24.416	N/A	N/A	100	1		2.44
Pb	0.679	N/A	N/A	100	1	<	0.200
Sb	24.554	N/A	N/A	100	1		2.46

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID:	FKL-27
TLI Sample ID:	131-59-13C
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	1761.878	370	270	100	1	241
Be	-0.231	370	270	100	1	< 0.137
Cd	-0.394	370	270	100	1	< 0.137
Cr	27.330	370	270	100	1	3.75
Pb	2.299	370	270	100	1	0.315
Sb	3150.432	370	270	100	1	432

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-27 DA
TLI Sample ID:	131-59-13C DA
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	1760.417	370	270	100	1	24*
Be	-0.259	370	270	100	1	< 0.137
Cd	0.209	370	270	100	1	< 0.137
Cr	23.011	370	270	100	1	3.15
Pb	3.971	370	270	100	1	0.544
Sb	3156.865	370	270	100	1	433

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID	FKL-32
TLI Sample ID	131-59-14A
Date Received	July 22, 1996
Date Prepared	July 24-31, 1996
Date Analyzed	August 14-16, 1996
Matrix	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	3.143	N/A	N/A	100	1	< 0.500
Be	-0.013	N/A	N/A	100	1	< 0.100
Cd	-2.424	N/A	N/A	100	1	< 0.100
Cr	36.741	N/A	N/A	100	1	3.67
Pb	-3.920	N/A	N/A	100	1	< 0.200
Sb	16.272	N/A	N/A	100	1	1.63

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID:	FKL-33
TLI Sample ID:	131-59-14C
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	1532.855	360	260	100	1	212
Be	-0.021	360	260	100	1	< 0.138
Cd	1.000	360	260	100	1	0.138
Cr	26.304	360	260	100	1	3.64
Pb	6.497	360	260	100	1	0.900
Sb	2874.087	360	260	100	1	398

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Sample Report

Client Sample ID:	FKL-02
TLI Sample ID:	131-59-15A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	11.033	N/A	N/A	100	1	1.10
Be	0.046	N/A	N/A	100	1	< 0.100
Cd	0.075	N/A	N/A	100	1	< 0.100
Cr	22.155	N/A	N/A	100	1	2.22
Pb	9.939	N/A	N/A	100	1	0.994
Sb	34.979	N/A	N/A	100	1	3.50

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Sample Report

Client Sample ID:	FKL-03
TLI Sample ID:	131-59-15C
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	929.483	410	310	100	1	123
Be	-0.030	410	310	100	1	< 0.132
Cd	0.193	410	310	100	1	< 0.132
Cr	28.736	410	310	100	1	3.80
Pb	4.545	410	310	100	1	0.601
Sb	1593.824	410	310	100	1	211

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Sample Report

Client Sample ID	FKL-08
TLI Sample ID:	131-59-16A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor		Total ug Result
As	16.425	N/A	N/A	100	1		1.64
Be	0.061	N/A	N/A	100	1	<	0.100
Cd	-1.040	N/A	N/A	100	1	<	0.100
Cr	21.275	N/A	N/A	100	1		2.13
Pb	-2.263	N/A	N/A	100	1	<	0.200
Sb	25.332	N/A	N/A	100	1		2.53

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-09
TLI Sample ID:	131-59-16B
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	935.692	440	340	100	1	121
Be	-0.016	440	340	100	1	< 0.129
Cd	-0.880	440	340	100	1	< 0.129
Cr	26.335	440	340	100	1	3.41
Pb	2.886	440	340	100	1	0.373
Sb	1647.914	440	340	100	1	213

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID:	FKL-14
TLI Sample ID:	131-59-17A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	20.070	N/A	N/A	100	1	2.01
Be	0.018	N/A	N/A	100	1	< 0.100
Cd	-0.447	N/A	N/A	100	1	< 0.100
Cr	23.476	N/A	N/A	100	1	2.35
Pb	0.087	N/A	N/A	100	1	< 0.200
Sb	24.939	N/A	N/A	100	1	2.49

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-15
TLI Sample ID:	131-59-17C
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	1004.995	435	335	100	1	130
Be	-0.130	436	335	100	1	< 0.130
Cd	-0.595	435	335	100	1	< 0.130
Cr	25.451	435	336	100	1	3.30
Pb	4.327	435	335	100	1	0.562
Sb	1867.377	436	335	100	1	242

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Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-125
TLI Sample ID:	131-59-19A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	1.671	N/A	N/A	100	1	< 0.500
Be	-0.006	N/A	N/A	100	1	< 0.100
Cd	-1.270	N/A	N/A	100	1	< 0.100
Cr	24.061	N/A	N/A	100	1	2.41
Pb	-0.436	N/A	N/A	100	1	< 0.200
Sb	12.522	N/A	N/A	100	1	1.25

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Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-127
TLI Sample ID:	131-59-19C
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	-11.004	290	190	100	1	< 0.763
Be	0.054	290	190	100	1	< 0.153
Cd	8.609	290	190	100	1	1.31
Cr	12.093	290	190	100	1	1.85
Pb	4.834	290	190	100	1	0.738
Sb	1.187	290	190	100	1	< 0.611

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID:	FKL-127 L
TLI Sample ID	131-59-19C L
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor		Total ug Result
As	-2.680	290	190	100	5	<	3.82
Be	0.079	290	190	100	5	<	0.763
Cd	2.074	290	190	100	5		1.58
Cr	3.062	290	190	100	5		2.34
Pb	0.638	290	190	100	5	<	1.53
Sb	2.177	290	190	100	5	<	3.05

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID:	FKL-132 SOUTH
TLI Sample ID:	131-59-20A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	1.490	N/A	N/A	100	1	< 0.500
Be	0.035	N/A	N/A	100	1	< 0.100
Cd	-1.420	N/A	N/A	100	1	< 0.100
Cr	24.242	N/A	N/A	100	1	2.42
Pb	1.642	N/A	N/A	100	1	< 0.200
Sb	15.927	N/A	N/A	100	1	1.59

Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-131 NORTH
TLI Sample ID:	131-59-20B
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	0.553	N/A	N/A	100	1	< 0.500
Be	0.069	N/A	N/A	100	1	< 0.100
Cd	-1.450	N/A	N/A	100	1	< 0.100
Cr	21.829	N/A	N/A	100	1	2.18
Pb	0.584	N/A	N/A	100	1	< 0.200
Sb	11.454	N/A	N/A	100	1	1.15

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Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-131 NORTH DA
TLI Sample ID:	131-59-20B DA
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor		Total ug Result
As	-0.253	N/A	N/A	100	1	<	0.500
Be	0.065	N/A	N/A	100	1	<	0.100
Cd	-1.250	N/A	N/A	100	1	<	0.100
Cr	23.443	N/A	N/A	100	1		2.34
Pb	1.415	N/A	N/A	100	1	<	0.200
Sb	14.192	N/A	N/A	100	1		1.42

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Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-114,112,113,79
TLI Sample ID:	131-59-4A4C4E10A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	32.416	N/A	N/A	100	1	3.24
Be	-45.990	N/A	N/A	100	1	< 0.100
Cd	-6.643	N/A	N/A	100	1	< 0.100
Cr	325.273	N/A	N/A	100	1	32.5
Pb	19.844	N/A	N/A	100	1	1.98
Sb	45.971	N/A	N/A	100	1	4.60

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Client: **Eastern Research Group**
Project Number: **38139**

Sample Report

Client Sample ID:	FKL-79,81,115,113
TLI Sample ID:	131-59-10A10B4D4E
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
As	-5.548	150	150	100	1	< 0.500
Be	0.041	150	150	100	1	< 0.100
Cd	-1.575	150	150	100	1	< 0.100
Cr	19.587	150	150	100	1	1.96
Pb	-0.485	150	150	100	1	< 0.200
Sb	6.825	150	150	100	1	0.683

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Client: Eastern Research Group
Project Number: 38139

QA: Duplicate

Client Sample ID:	FKL-93,91,92	FKL-93,91,92 DA
TLI Sample ID:	131-59-2ABC	131-59-2ABC DA
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Sample		Duplicate		
Analyte	Total ug Result	ug/L Conc.	Total ug Result	ug/L Conc.	RPD
As	142	1423.090	143	1431.725	0.70%
Be	< 0.100	0.634	< 0.100	0.177	<RDL
Cd	< 0.100	-10.157	< 0.100	-11.224	<RDL
Cr	18.9	189.293	19.2	191.755	1.57%
Pb	< 0.200	-13.634	< 0.200	-14.260	<RDL
Sb	109	1090.173	111	1112.020	1.82%
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Client: **Eastern Research Group**

Project Number: **38139**

QA: Duplicate

Client Sample ID:	FKL-94	FKL-94 DA
TLI Sample ID:	131-59-2D	131-59-2D DA
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Sample		Duplicate		
Analyte	Total ug Result	ug/L Conc.	Total ug Result	ug/L Conc.	RPD
As	31.5	259.074	31.8	261.062	0.95%
Be	< 0.122	0.040	< 0.122	0.021	<RDL
Cd	0.43	3.529	0.467	3.838	<RDL
Cr	2.53	20.799	2.53	20.753	0.00%
Pb	1.82	14.984	1.91	15.660	<RDL
Sb	20.8	171.075	21.4	175.716	2.84%
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Client: **Eastern Research Group**
Project Number: **38139**

QA: Duplicate

Client Sample ID:	FKL-58	FKL-58 DA
TLI Sample ID:	131-59-7A	131-59-7A DA
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Sample			Duplicate			
Analyte		Total ug Result	ug/L Conc.		Total ug Result	ug/L Conc.	RPD
As	<	0.500	2.334	<	0.500	2.800	<RDL
Be	<	0.100	-0.051	<	0.100	-0.051	<RDL
Cd	<	0.100	-0.666	<	0.100	-0.674	<RDL
Cr		2.48	24.815		2.77	27.729	11.0%
Pb	<	0.200	-2.322	<	0.200	-1.623	<RDL
Sb		1.03	10.295		1.06	10.644	2.87%
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Client: Eastern Research Group

Project Number: 38139

QA: Duplicate

Client Sample ID:	FKL-60	FKL-60 DA
TLI Sample ID:	131-59-7C	131-59-7C DA
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Sample		Duplicate		
Analyte	Total ug Result	ug/L Conc	Total ug Result	ug/L Conc	RPD
As	< 0.786	-2.472	< 0.786	-1.397	<RDL
Be	< 0.157	-0.056	< 0.157	-0.034	<RDL
Cd	< 0.157	-0.167	< 0.157	0.340	<RDL
Cr	3.31	21.044	2.54	16.179	<RDL
Pb	1.10	6.982	1.47	9.324	<RDL
Sb	1.86	11.821	1.44	9.170	<RDL
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Client: Eastern Research Group
Project Number: 38139

QA: Duplicate

Client Sample ID:	FKL-26	FKL-26 DA
TLI Sample ID:	131-59-13A	131-59-13A DA
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Sample			Duplicate			
Analyte		Total ug Result	ug/L Conc.		Total ug Result	ug/L Conc.	RPD
As	<	0.500	1.785	<	0.500	2.263	<RDL
Be	<	0.100	-0.015	<	0.100	0.005	<RDL
Cd	<	0.100	-1.167	<	0.100	-1.217	<RDL
Cr		2.44	24.416		2.55	25.550	4.41%
Pb	<	0.200	0.679	<	0.200	0.527	<RDL
Sb		2.46	24.554		1.96	19.643	<RDL
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Client: Eastern Research Group

Project Number: 38139

QA: Duplicate

Client Sample ID:	FKL-27	FKL-27 DA
TLI Sample ID:	131-59-13C	131-59-13C DA
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Sample			Duplicate			
Analyte		Total ug Result	ug/L Conc.		Total ug Result	ug/L Conc.	RPD
As		241	1761.878		241	1760.417	0.00%
Be	<	0.137	-0.231	<	0.137	-0.259	<RDL
Cd	<	0.137	-0.394	<	0.137	0.209	<RDL
Cr		3.75	27.330		3.15	23.011	17.4%
Pb		0.315	2.299		0.544	3.971	<RDL
Sb		432.00	3150.432		433	3156.865	0.23%
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Client: Eastern Research Group
Project Number: 38139

QA: Duplicate

Client Sample ID:	FKL-131 NORTH	FKL-131 NORTH DA
TLI Sample ID:	131-59-20B	131-59-20B DA
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Sample			Duplicate			
Analyte		Total ug Result	ug/L Conc.		Total ug Result	ug/L Conc.	RPD
As	<	0.500	0.553	<	0.500	-0.253	<RDL
Be	<	0.100	0.069	<	0.100	0.065	<RDL
Cd	<	0.100	-1.450	<	0.100	-1.250	<RDL
Cr		2.18	21.829		2.34	23.443	7.08%
Pb	<	0.200	0.584	<	0.200	1.415	<RDL
Sb		1.15	11.454		1.42	14.192	<RDL
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Client: Eastern Research Group
Project Number: 38139

QA: Serial Dilution

Client Sample ID:	FKL-86,84,85	FKL-86,84,85 L
TLI Sample ID:	131-59-1ABC	131-59-1ABC L
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Native Sample		Serial Dilution		
Analyte	Total ug Result	ug/L Conc.	Total ug Result	ug/L Conc.	RPD
As	161	1607.215	171	341.421	6.02%
Be	< 0.100	0.009	< 0.500	0.122	<RDL
Cd	< 0.100	-10.829	< 0.500	-2.422	<RDL
Cr	20.1	201.460	26.6	53.287	27.8%
Pb	< 0.200	-15.311	< 1.00	1.049	<RDL
Sb	125	1249.580	137	273.565	9.16%
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Client: **Eastern Research Group**
Project Number: 38139

QA: Serial Dilution

Client Sample ID:	FKL-87	FKL-87 L
TLI Sample ID:	131-59-1D	131-59-1D L
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Native Sample			Serial Dilution			
Analyte		Total ug Result	ug/L Conc.		Total ug Result	ug/L Conc.	RPD
As		23.7	198.723		26.5	44.414	<RDL
Be	<	0.119	0.080	<	0.596	0.039	<RDL
Cd		0.364	3.052	<	0.596	0.067	<RDL
Cr		3.33	27.895		9.08	15.236	<RDL
Pb		1.77	14.864		1.21	2.034	<RDL
Sb		15.6	130.478		19.2	32.281	<RDL
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Client: **Eastern Research Group**
Project Number: 38139

QA: Serial Dilution

Client Sample ID:	FKL-51	FKL-51 L
TLI Sample ID:	131-59-6A	131-59-6A L
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Native Sample			Serial Dilution			
Analyte		Total ug Result	ug/L Conc.		Total ug Result	ug/L Conc.	RPD
As	<	0.500	4.238	<	2.50	1.622	<RDL
Be	<	0.100	-0.004	<	0.500	0.045	<RDL
Cd	<	0.100	0.449	<	0.500	-0.245	<RDL
Cr		2.10	21.002		5.64	11.289	<RDL
Pb		1.40	13.983	<	1.00	1.565	<RDL
Sb		0.904	9.039		3.46	6.911	<RDL
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Client: Eastern Research Group
Project Number: 38139

QA: Serial Dilution

Client Sample ID:	FKL-53	FKL-53 L
TLI Sample ID:	131-59-6C	131-59-6C L
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Native Sample		Serial Dilution		
Analyte	Total ug Result	ug/L Conc.	Total ug Result	ug/L Conc.	RPD
As	< 0.803	-4.489	< 4.02	-2.853	<RDL
Be	< 0.161	-0.068	< 0.803	0.029	<RDL
Cd	0.190	1.180	< 0.803	0.310	<RDL
Cr	3.12	19.414	3.54	4.411	<RDL
Pb	3.60	22.428	4.51	5.617	<RDL
Sb	1.59	9.898	4.50	5.610	<RDL
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Client: **Eastern Research Group**
Project Number: 38139

QA: Serial Dilution

Client Sample ID:	FKL-20	FKL-20 L
TLI Sample ID:	131-59-12A	131-59-12A L
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Native Sample		Serial Dilution		
Analyte	Total ug Result	ug/L Conc.	Total ug Result	ug/L Conc.	RPD
As	< 0.500	3.958	< 2.50	-0.290	<RDL
Be	< 0.100	-0.139	< 0.500	0.051	<RDL
Cd	0.139	1.391	< 0.500	0.191	<RDL
Cr	3.75	37.511	6.72	13.435	<RDL
Pb	< 0.200	-3.136	< 1.00	-0.402	<RDL
Sb	1.63	16.296	3.47	6.933	<RDL
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Client: **Eastern Research Group**
Project Number: 38139

QA: Serial Dilution

Client Sample ID:	FKL-21	FKL-21 L
TLI Sample ID:	131-59-12C	131-59-12C L
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Native Sample		Serial Dilution		
Analyte	Total ug Result	ug/L Conc.	Total ug Result	ug/L Conc.	RPD
As	270	1894.157	286	401.753	5.76%
Be	< 0.143	-0.087	< 0.713	-0.019	<RDL
Cd	0.488	3.422	0.738	1.035	<RDL
Cr	2.73	19.119	2.27	3.183	<RDL
Pb	1.20	8.445	1.52	2.126	<RDL
Sb	490	3435.771	530	743.292	7.84%

Client: Eastern Research Group
Project Number: 38139

QA: Serial Dilution

Client Sample ID:	FKL-125	FKL-125 L
TLI Sample ID:	131-59-19A	131-59-19A L
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Native Sample			Serial Dilution			
Analyte		Total ug Result	ug/L Conc.		Total ug Result	ug/L Conc.	RPD
As	<	0.500	1.671	<	2.50	-2.006	<RDL
Be	<	0.100	-0.006	<	0.500	0.095	<RDL
Cd	<	0.100	-1.270	<	0.500	-0.416	<RDL
Cr		2.41	24.061		3.23	6.463	<RDL
Pb	<	0.200	-0.436	<	1.00	-0.557	<RDL
Sb		1.25	12.522	<	2.00	1.929	<RDL
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Client: Eastern Research Group
Project Number: 38139

QA: Serial Dilution

Client Sample ID:	FKL-127	FKL-127 L
TLI Sample ID:	131-59-19C	131-59-19C L
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

	Native Sample			Serial Dilution			
Analyte		Total ug Result	ug/L Conc.		Total ug Result	ug/L Conc.	RPD
As	<	0.763	-11.004	<	3.82	-2.680	<RDL
Be	<	0.153	0.054	<	0.763	0.079	<RDL
Cd		1.31	8.609		1.58	2.074	<RDL
Cr		1.85	12.093		2.34	3.062	<RDL
Pb		0.738	4.834	<	1.53	0.638	<RDL
Sb	<	0.611	1.187	<	3.05	2.177	<RDL

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Client: **Eastern Research Group**
Project Number: **38139**

QA: Matrix Spikes (Post-Digestion)

Client Sample ID:	FKL-86,84,85 PDS	
TLI Sample ID:	131-59-1ABC PDS	
Date Prepared:	July 24-31, 1996	
Date Analyzed:	August 14-16, 1996	
Matrix:	Air	

	Post-Digestion Spike			Post-Digestion Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
As	1637.58	50	LOW SPIKE				—
Be	47.62	50	95%				—
Cd	35.46	50	71%				—
Cr	252.30	50	102%				—
Pb	32.40	50	65%				—
Sb	1295.29	50	LOW SPIKE				—
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Client: **Eastern Research Group**
Project Number: **38139**

QA: Matrix Spikes (Post-Digestion)

Client Sample ID:	FKL-87 PDS	
TLI Sample ID:	131-59-1D PDS	
Date Prepared:	July 24-31, 1996	
Date Analyzed:	August 14-16, 1996	
Matrix:	Air	

	Post-Digestion Spike			Post-Digestion Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
As	236.22	50	75%				—
Be	48.31	50	97%				—
Cd	52.71	50	99%				—
Cr	75.18	50	95%				—
Pb	64.32	50	99%				—
Sb	174.80	50	89%				—
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Client: Eastern Research Group
Project Number: 38139

QA: Matrix Spikes (Post-Digestion)

Client Sample ID:	FKL-51 PDS	
TLI Sample ID:	131-59-6A PDS	
Date Prepared:	July 24-31, 1996	
Date Analyzed:	August 14-16, 1996	
Matrix:	Air	

	Post-Digestion Spike			Post-Digestion Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
As	52.25	50	104%				—
Be	48.32	50	97%				—
Cd	49.49	50	99%				—
Cr	74.33	50	107%				—
Pb	62.50	50	97%				—
Sb	59.61	50	101%				—
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Client: Eastern Research Group
Project Number: 38139

QA: Matrix Spikes (Post-Digestion)

Client Sample ID:	FKL-53 PDS	
TLI Sample ID:	131-59-6C PDS	
Date Prepared:	July 24-31, 1996	
Date Analyzed:	August 14-16, 1996	
Matrix:	Air	

	Post-Digestion Spike			Post-Digestion Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
As	42.36	50	85%				—
Be	47.28	50	95%				—
Cd	49.82	50	97%				—
Cr	65.80	50	93%				—
Pb	71.66	50	98%				—
Sb	55.98	50	92%				—
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Client: Eastern Research Group
Project Number: 38139

QA: Matrix Spikes (Post-Digestion)

Client Sample ID:	FKL-20 PDS	
TLI Sample ID:	131-59-12A PDS	
Date Prepared:	July 24-31, 1996	
Date Analyzed:	August 14-16, 1996	
Matrix:	Air	

	Post-Digestion Spike			Post-Digestion Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
As	53.73	50	107%				—
Be	46.95	50	94%				—
Cd	50.19	50	98%				—
Cr	88.56	50	102%				—
Pb	44.07	50	88%				—
Sb	68.79	50	105%				—
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Client: Eastern Research Group
Project Number: 38139

QA: Matrix Spikes (Post-Digestion)

Client Sample ID:	FKL-21 PDS	
TLI Sample ID:	131-59-12C PDS	
Date Prepared:	July 24-31, 1996	
Date Analyzed:	August 14-16, 1996	
Matrix:	Air	

	Post-Digestion Spike			Post-Digestion Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
As	1921.66	50	LOW SPIKE				—
Be	46.29	50	93%				—
Cd	52.14	50	97%				—
Cr	63.62	50	89%				—
Pb	55.77	50	95%				—
Sb	3440.97	50	LOW SPIKE				—
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Project Number: 38139

QA: Matrix Spikes (Post-Digestion)

Client Sample ID:	FKL-125 PDS	
TLI Sample ID:	131-59-19A PDS	
Date Prepared:	July 24-31, 1996	
Date Analyzed:	August 14-16, 1996	
Matrix:	Air	

	Post-Digestion Spike			Post-Digestion Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
As	49.10	50	98%				—
Be	46.93	50	94%				—
Cd	46.95	50	94%				—
Cr	75.06	50	102%				—
Pb	47.43	50	95%				—
Sb	62.36	50	100%				—
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Client: Eastern Research Group
Project Number: 38139

QA: Matrix Spikes (Post-Digestion)

Client Sample ID:	FKL-127 PDS	
TLI Sample ID:	131-59-19C PDS	
Date Prepared:	July 24-31, 1996	
Date Analyzed:	August 14-16, 1996	
Matrix:	Air	

	Post-Digestion Spike			Post-Digestion Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
As	43.38	50	87%				—
Be	45.81	50	92%				—
Cd	56.51	50	96%				—
Cr	59.48	50	95%				—
Pb	53.55	50	97%				—
Sb	50.08	50	100%				—
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Client: Eastern Research Group
Project Number: 38139

QA: Method Blank

TLI Sample ID:	38139 MB
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	N/A

	Method Blank		
Analyte	Recovered Amount (ug/L)	Detection Limit (ug/L)	Pass or Fail
As	7.14	5	Fail
Be	0.03	1	Pass
Cd	-1.89	1	Fail
Cr	27.16	2	Fail
Pb	-0.54	2	Pass
Sb	13.03	4	Fail
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Client: Eastern Research Group
Project Number: 38139

QA: Lab Control Spikes

TLI Sample ID:	38139 LCS	
Date Prepared:	July 24-31, 1996	
Date Analyzed:	August 14-16, 1996	
Matrix:	N/A	

	Lab Control Spike			Lab Control Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
As	54.21	50	108%				—
Be	46.10	50	92%				—
Cd	45.46	50	91%				—
Cr	78.01	50	156%				—
Pb	43.40	50	87%				—
Sb	64.45	50	129%				—
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Client: Eastern Research Group
Project Number: 38139

Sample Report

Date Received:	July 22, 1996
Date Prepared:	July 24 - August 12, 1996
Date Analyzed:	August 6-13, 1996
DATA FILE:	AB575,576,579-82,587-592
Matrix:	Air

ANALYTE: Hg	
ug/L RDL: 0.2	
Analysis Method:	29
Instrument: P.E Zeeman 5100	
Spike Conc. (ug/L)	5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPID	ug/L CONC	ml TV	ml FV	ml Aliquot	DIL FACTOR	Total ug RESULT	Avg. RESULT	RPD	%REC
INCINERATOR										
FKL-84,85,86 FH	* 131-59-1ABC	0.031	N/A	100	25	1	< 0.080	–	–	–
FKL-84,85,86 FH D	* 131-59-1ABC D	0.031	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-87 BH	* 131-59-1D	0.019	620	N/A	25	1	< 0.496	–	–	–
FKL-87 BH D	* 131-59-1D D	0.015	620	N/A	25	1	< 0.496	< 0.496	–	–
FKL-88 HNO3	* 131-59-1E	0.000	64	N/A	25	1	< 0.051	–	–	–
FKL-88 HNO3 D	* 131-59-1E D	-0.019	64	N/A	25	1	< 0.051	< 0.051	–	–
FKL-89 KMnO4	* 131-59-1F	0.309	400	N/A	50	1	0.247	–	–	–
FKL-89 KMnO4 D	* 131-59-1F D	0.326	400	N/A	50	1	0.261	0.254	–	–
FKL-89,90 HCl	* 131-59-1FG	9.182	100	N/A	50	1	1.84	–	–	–
FKL-89,90 HCl D	* 131-59-1FG D	9.533	100	N/A	50	1	1.91	1.87	–	–
FKL-91,92,93 FH	* 131-59-2ABC	0.072	N/A	100	25	1	< 0.080	–	–	–
FKL-91,92,93 FH D	* 131-59-2ABC D	0.072	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-94 BH	* 131-59-2D	0.035	560	N/A	25	1	< 0.448	–	–	–
FKL-94 BH D	* 131-59-2D D	0.065	560	N/A	25	1	< 0.448	< 0.448	–	–
FKL-95 HNO3	* 131-59-2E	0.000	55	N/A	25	1	< 0.044	–	–	–
FKL-95 HNO3 D	* 131-59-2E D	-0.008	55	N/A	25	1	< 0.044	< 0.044	–	–
FKL-96 KMnO4	* 131-59-2F	2.086	400	N/A	50	1	1.67	–	–	–
FKL-96 KMnO4 D	* 131-59-2F D	2.194	400	N/A	50	1	1.76	1.71	–	–
FKL-96,97 HCl	* 131-59-2FG	5.256	100	N/A	50	1	1.05	–	–	–
FKL-96,97 HCl D	* 131-59-2FG D	5.402	100	N/A	50	1	1.08	1.07	–	–
FKL-98,99,100 FH	* 131-59-3ABC	0.069	N/A	100	25	1	< 0.080	–	–	–
FKL-98,99,100 FH D	* 131-59-3ABC D	0.069	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-101 BH	* 131-59-3D	0.061	600	N/A	25	1	< 0.480	–	–	–
FKL-101 BH D	* 131-59-3D D	0.027	600	N/A	25	1	< 0.480	< 0.480	–	–
FKL-102 HNO3	* 131-59-3E	0.023	55	N/A	25	1	< 0.044	–	–	–
FKL-102 HNO3 D	* 131-59-3E D	0.038	55	N/A	25	1	< 0.044	< 0.044	–	–
FKL-103 KMnO4	* 131-59-3F	4.866	400	N/A	50	1	3.89	–	–	–
FKL-103 KMnO4 D	* 131-59-3F D	5.009	400	N/A	50	1	4.01	3.95	–	–
FKL-103,104 HCl	* 131-59-3FG	1.371	100	N/A	50	1	0.274	–	–	–
FKL-103,104 HCl D	* 131-59-3FG D	1.242	100	N/A	50	1	0.248	0.261	–	–

Client: Eastern Research Group
Project Number: 38139

Sample Report

Date Received:	July 22, 1996
Date Prepared:	July 24 - August 12, 1996
Date Analyzed:	August 6-13, 1996
DATA FILE:	AB575,576,579-82,587-592
Matrix:	Air

ANALYTE: Hg
ug/L BDL: 0.2
Analysis Method: 29
Instrument: P.E. Zeeman 5100
Spike Conc. (ug/L) 5

CVAA ANALYTE SUMMARY REPORT

FKL-105,106,107 FH	* 131-59-5AD4B	0.004	N/A	100	25	1	< 0.080	–	–	–
FKL-105,106,107 FH D	* 131-59-5AD4B D	0.004	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-108,109 BH	* 131-59-5BC	-0.016	75	N/A	25	1	< 0.080	–	–	–
FKL-108,109 BH D	* 131-59-5BC D	-0.027	75	N/A	25	1	< 0.080	< 0.080	–	–
FKL-109 HNO3	* 131-59-5B	-0.023	43	N/A	20	1	< 0.043	–	–	–
FKL-109 HNO3 D	* 131-59-5B D	-0.023	43	N/A	20	1	< 0.043	< 0.043	–	–
FKL-110 KMnO4	* 131-59-5E	0.035	400	N/A	50	1	< 0.160	–	–	–
FKL-110 KMnO4 D	* 131-59-5E D	0.035	400	N/A	50	1	< 0.160	< 0.160	–	–
FKL-110,111 HCl	* 131-59-5EF	0.079	100	N/A	50	1	< 0.040	–	–	–
FKL-110,111 HCl D	* 131-59-5EF D	0.085	100	N/A	50	1	< 0.040	< 0.040	–	–
SALES GAS										
FKL-51 FH	* 131-59-6A	-0.016	N/A	100	25	1	< 0.080	–	–	–
FKL-51 FH D	* 131-59-6A D	-0.019	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-53 BH	* 131-59-6C	0.038	265	N/A	25	1	< 0.212	–	–	–
FKL-53 BH D	* 131-59-6C D	0.124	265	N/A	25	1	< 0.212	< 0.212	–	–
FKL-54 HNO3	* 131-59-6B	-0.019	46	N/A	20	1	< 0.046	–	–	–
FKL-54 HNO3 D	* 131-59-6B D	-0.035	46	N/A	20	1	< 0.046	< 0.046	–	–
FKL-55 KMnO4	* 131-59-6D	-0.016	400	N/A	50	1	< 0.160	–	–	–
FKL-55 KMnO4 D	* 131-59-6D D	-0.008	400	N/A	50	1	< 0.160	< 0.160	–	–
FKL-55,56 HCl	* 131-59-6DE	0.252	100	N/A	50	1	0.050	–	–	–
FKL-55,56 HCl D	* 131-59-6DE D	0.243	100	N/A	50	1	0.049	0.050	–	–
FKL-58 FH	* 131-59-7A	-0.023	N/A	100	25	1	< 0.080	–	–	–
FKL-58 FH D	* 131-59-7A D	-0.023	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-60 BH	* 131-59-7C	0.041	275	N/A	20	1	< 0.275	–	–	–
FKL-60 BH D	* 131-59-7C D	0.073	275	N/A	20	1	< 0.275	< 0.275	–	–
FKL-61 HNO3	* 131-59-7B	-0.035	41	N/A	20	1	< 0.041	–	–	–
FKL-61 HNO3 D	* 131-59-7B D	-0.039	41	N/A	20	1	< 0.041	< 0.041	–	–
FKL-62 KMnO4	* 131-59-7D	0.124	400	N/A	50	1	< 0.160	–	–	–
FKL-62 KMnO4 D	* 131-59-7D D	0.124	400	N/A	50	1	< 0.160	< 0.160	–	–
FKL-62,63 HCl	* 131-59-7DE	0.088	100	N/A	50	1	< 0.040	–	–	–
FKL-62,63 HCl D	* 131-59-7DE D	0.079	100	N/A	50	1	< 0.040	< 0.040	–	–

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wm 9/5/96

Client: Eastern Research Group
Project Number: 38139

Sample Report

Date Received:	July 22, 1996
Date Prepared:	July 24 - August 12, 1996
Date Analyzed:	August 6-13, 1996
DATA FILE:	AB575,576,579-87,587-592
Matrix:	Air

ANALYTE: Hg
ug/L RDL: 0.2
Analysis Method: 29
Instrument: P.E Zeeman 5100
Spike Conc. (ug/L) 5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPID	ug/L CONC	ml TV	ml FV	ml Aliquot	Dil. FACTOR	Total ug RESULT	Avg RESULT	RPD	%REC
FKL-65 FH	• 131-59-8A	-0.019	N/A	100	25	1	< 0.080	-	-	-
FKL-65 FH D	• 131-59-8A D	-0.023	N/A	100	25	1	< 0.080	< 0.080	-	-
FKL-67 BH	• 131-59-8C	0.064	305	N/A	25	1	< 0.244	-	-	-
FKL-67 BH D	• 131-59-8C D	0.047	305	N/A	25	1	< 0.244	< 0.244	-	-
FKL-68 HNO3	• 131-59-8B	-0.027	42	N/A	20	1	< 0.042	-	-	-
FKL-68 HNO3 D	• 131-59-8B D	-0.027	42	N/A	20	1	< 0.042	< 0.042	-	-
FKL-69 KMnO4	• 131-59-8D	0.069	400	N/A	50	1	< 0.160	-	-	-
FKL-69 KMnO4 D	• 131-59-8D D	0.064	400	N/A	50	1	< 0.160	< 0.160	-	-
FKL-69,70 HCl	• 131-59-8DE	0.053	100	N/A	50	1	< 0.040	-	-	-
FKL-69,70 HCl D	• 131-59-8DE D	0.050	100	N/A	50	1	< 0.040	< 0.040	-	-
FKL-72 FH	• 131-59-9A	0.000	N/A	100	25	1	< 0.080	-	-	-
FKL-72 FH D	• 131-59-9A D	-0.008	N/A	100	25	1	< 0.080	< 0.080	-	-
FKL-74,75 BH	• 131-59-9BC	-0.003	75	N/A	25	1	< 0.060	-	-	-
FKL-74,75 BH D	• 131-59-9BC D	-0.009	75	N/A	25	1	< 0.060	< 0.060	-	-
FKL-75 HNO3	• 131-59-9B	-0.009	44	N/A	20	1	< 0.044	-	-	-
FKL-75 HNO3 D	• 131-59-9B D	-0.006	44	N/A	20	1	< 0.044	< 0.044	-	-
FKL-76 KMnO4	• 131-59-9D	0.035	400	N/A	50	1	< 0.160	-	-	-
FKL-76 KMnO4 D	• 131-59-9D D	0.032	400	N/A	50	1	< 0.160	< 0.160	-	-
FKL-76,77 HCl	• 131-59-9DE	0.053	100	N/A	50	1	< 0.040	-	-	-
FKL-76,77 HCl D	• 131-59-9DE D	0.041	100	N/A	50	1	< 0.040	< 0.040	-	-
HEADER										
FKL-38 FH	• 131-59-11A	0.012	N/A	100	25	1	< 0.080	-	-	-
FKL-38 FH D	• 131-59-11A D	0.003	N/A	100	25	1	< 0.080	< 0.080	-	-
FKL-40,41 BH	• 131-59-11BC	0.012	75	N/A	25	1	< 0.080	-	-	-
FKL-40,41 BH D	• 131-59-11BC D	-0.006	75	N/A	25	1	< 0.060	< 0.060	-	-
FKL-41 HNO3	• 131-59-11B	0.006	19	N/A	5	1	< 0.076	-	-	-
FKL-41 HNO3 D	• 131-59-11B D	-0.003	19	N/A	5	1	< 0.076	< 0.076	-	-
FKL-42 KMnO4	• 131-59-11D	0.182	400	N/A	50	1	< 0.160	-	-	-
FKL-42 KMnO4 D	• 131-59-11D D	0.188	400	N/A	50	1	< 0.160	< 0.160	-	-
FKL-42,43 HCl	• 131-59-11DE	0.073	100	N/A	50	1	< 0.040	-	-	-
FKL-42,43 HCl D	• 131-59-11DE D	0.079	100	N/A	50	1	< 0.040	< 0.040	-	-

Client: Eastern Research Group
Project Number: 38139

Sample Report

Date Received:	July 22, 1996
Date Prepared:	July 24 - August 12, 1996
Date Analyzed:	August 6-13, 1996
DATA FILE:	AB575,576,579-82,587-592
Matrix:	Air

ANALYTE: Hg
ug/L RDL: 0.2
Analysis Method: 29
Instrument: P E Zeeman 5100
Spike Conc. (ug/L) 5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPID	ug/L CONC	ml TV	ml FV	ml Aliquot	Dil. FACTOR	Total ug RESULT	Avg. RESULT	RPD	%REC
FKL-20 FH	* 131-59-12A	-0.009	N/A	100	25	1	< 0.080	-	-	-
FKL-20 FH D	* 131-59-12A D	-0.009	N/A	100	25	1	< 0.080	< 0.080	-	-
FKL-21 BH	131-59-12C	0.046	335	N/A	20	1	< 0.335	-	-	-
FKL-21 BH D	131-59-12C D	0.037	335	N/A	20	1	< 0.335	< 0.335	-	-
FKL-22 HNO3	* 131-59-12B	-0.012	47	N/A	20	1	< 0.047	-	-	-
FKL-22 HNO3 D	* 131-59-12B D	-0.003	47	N/A	20	1	< 0.047	< 0.047	-	-
FKL-23 KMnO4	131-59-12D DX10	3.185	400	N/A	50	10	25.5	-	-	-
FKL-23 KMnO4 D	131-59-12DDX10D	3.423	400	N/A	50	10	27.4	26.4	-	-
FKL-23,24 HCl	131-59-12DE	5.820	100	N/A	50	1	1.16	-	-	-
FKL-23,24 HCl D	131-59-12DE D	6.648	100	N/A	50	1	1.33	1.25	-	-
FKL-26 FH	131-59-13A	0.063	N/A	100	25	1	< 0.080	-	-	-
FKL-26 FH D	131-59-13A D	0.026	N/A	100	25	1	< 0.080	< 0.080	-	-
FKL-27 BH	* 131-59-13C	0.097	370	N/A	20	1	< 0.370	-	-	-
FKL-27 BH D	* 131-59-13C D	0.044	370	N/A	20	1	< 0.370	< 0.370	-	-
FKL-28 HNO3	131-59-13B	0.040	46	N/A	20	1	< 0.046	-	-	-
FKL-28 HNO3 D	131-59-13B D	0.040	46	N/A	20	1	< 0.046	< 0.046	-	-
FKL-29 KMnO4	131-59-13D DX10	3.635	400	N/A	50	10	29.1	-	-	-
FKL-29 KMnO4 D	131-59-13DDX10D	3.649	400	N/A	50	10	29.2	29.1	-	-
FKL-29,30 HCl	131-59-13DE	2.282	200	N/A	50	1	0.913	-	-	-
FKL-29,30 HCl D	131-59-13DE D	2.485	200	N/A	50	1	0.994	0.953	-	-
FKL-32 FH	131-59-14A	0.020	N/A	100	25	1	< 0.080	-	-	-
FKL-32 FH D	131-59-14A D	0.020	N/A	100	25	1	< 0.080	< 0.080	-	-
FKL-33 BH	131-59-14C	0.079	360	N/A	25	1	< 0.288	-	-	-
FKL-33 BH D	131-59-14C D	0.104	360	N/A	25	1	< 0.288	< 0.288	-	-
FKL-34 HNO3	* 131-59-14B	0.035	51	N/A	25	1	< 0.041	-	-	-
FKL-34 HNO3 D	* 131-59-14B D	0.023	51	N/A	25	1	< 0.041	< 0.041	-	-
FKL-35 KMnO4	* 131-59-14D DX10	4.342	400	N/A	50	10	34.7	-	-	-
FKL-35 KMnO4 D	* 131-59-14DDX10D	4.190	400	N/A	50	10	33.5	34.1	-	-
FKL-35,36 HCl	* 131-59-14DE	6.648	100	N/A	50	1	1.33	-	-	-
FKL-35,36 HCl D	* 131-59-14DE D	7.225	100	N/A	50	1	1.45	1.39	-	-

Client: Eastern Research Group
Project Number: 38139

Sample Report

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Date Analyzed:	August 6-13, 1996
DATA FILE:	AB575,576,579-82,587-592
Matrix:	Air

ANALYTE: Hg
ug/L RDL: 0.2
Analysis Method: 29
Instrument: P.E Zeeman 5100
Spike Conc. (ug/L) 5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPID	ug/L CONC	ml TV	ml FV	ml Aliquot	DIL FACTOR	Total ug RESULT	Avg. RESULT	RPD	%REC
FKL-02 FH	131-59-15A	0.064	N/A	100	25	1	< 0.080	–	–	–
FKL-02 FH D	131-59-15A D	0.064	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-03 BH	131-59-15C	0.074	410	N/A	20	1	< 0.410	–	–	–
FKL-03 BH D	131-59-15C D	0.048	410	N/A	20	1	< 0.410	< 0.410	–	–
FKL-04 HNO3	131-59-15B	0.015	66	N/A	30	1	< 0.044	–	–	–
FKL-04 HNO3 D	131-59-15B D	0.018	66	N/A	30	1	< 0.044	< 0.044	–	–
FKL-05 KMnO4	131-59-15D DX4	4.181	400	N/A	50	4	13.4	–	–	–
FKL-05 KMnO4 D	131-59-15D DX4D	4.565	400	N/A	50	4	14.6	14.0	–	–
FKL-05,06 HCl	131-59-15DE	1.034	200	N/A	50	1	0.413	–	–	–
FKL-05,06 HCl D	131-59-15DE D	1.073	200	N/A	50	1	0.429	0.421	–	–
FKL-08 FH	131-59-16A	0.110	N/A	100	25	1	< 0.080	–	–	–
FKL-08 FH D	131-59-16A D	0.098	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-09 BH	131-59-16B	0.025	440	N/A	25	1	< 0.352	–	–	–
FKL-09 BH D	131-59-16B D	0.038	440	N/A	25	1	< 0.352	< 0.352	–	–
FKL-10 HNO3	131-59-16C	0.037	59	N/A	25	1	< 0.047	–	–	–
FKL-10 HNO3 D	131-59-16C D	0.024	59	N/A	25	1	< 0.047	< 0.047	–	–
FKL-11 KMnO4	131-59-16D DX4	4.348	400	N/A	50	4	13.9	–	–	–
FKL-11 KMnO4 D	131-59-16D DX4D	4.178	400	N/A	50	4	13.4	13.6	–	–
FKL-11,12 HCl	131-59-16DE	2.306	100	N/A	50	1	0.461	–	–	–
FKL-11,12 HCl D	131-59-16DE D	2.229	100	N/A	50	1	0.446	0.453	–	–
FKL-14 FH	131-59-17A	0.135	N/A	100	25	1	< 0.080	–	–	–
FKL-14 FH D	131-59-17A D	0.120	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-15 BH	131-59-17C	0.067	435	N/A	50	1	< 0.174	–	–	–
FKL-15 BH D	131-59-17C D	0.067	435	N/A	50	1	< 0.174	< 0.174	–	–
FKL-16 HNO3	131-59-17B	0.034	61	N/A	25	1	< 0.049	–	–	–
FKL-16 HNO3 D	131-59-17B D	0.023	61	N/A	25	1	< 0.049	< 0.049	–	–
FKL-17 KMnO4	131-59-17D	8.058	400	N/A	50	1	6.45	–	–	–
FKL-17 KMnO4 D	131-59-17D D	8.189	400	N/A	50	1	6.55	6.50	–	–
FKL-17,18 HCl	131-59-17DE DX4	6.143	100	N/A	50	4	4.91	–	–	–
FKL-17,18 HCl D	131-59-17DEDX4D	6.209	100	N/A	50	4	4.97	4.94	–	–

Client: Eastern Research Group
Project Number: 38139

Sample Report

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Date Prepared:	July 24 - August 12, 1996
Date Analyzed:	August 6-13, 1996
DATA FILE:	AB575,576,579-82,587-592
Matrix:	Air

ANALYTE:	Hg
ug/L RDL:	0.2
Analysis Method:	29
Instrument:	P.E. Zeeman 5100
Spike Conc. (ug/L):	5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPID	ug/L CONC	ml TV	ml FV	ml Aliquot	DIL. FACTOR	Total ug RESULT	Avg. RESULT	RPD	%REC
FKL-125 FH	131-59-19A	0.054	N/A	100	25	1	< 0.080	–	–	–
FKL-125 FH D	131-59-19A D	0.043	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-127 BH	131-59-19C	0.117	290	N/A	50	1	< 0.116	–	–	–
FKL-127 BH D	131-59-19C D	0.111	290	N/A	50	1	< 0.116	< 0.116	–	–
FKL-128 HNO3	131-59-19B	0.017	50	N/A	20	1	< 0.050	–	–	–
FKL-128 HNO3 D	131-59-19B D	0.029	50	N/A	20	1	< 0.050	< 0.050	–	–
FKL-129 KMnO4	131-59-19D	0.043	400	N/A	50	1	< 0.160	–	–	–
FKL-129 KMnO4 D	131-59-19D D	0.052	400	N/A	50	1	< 0.160	< 0.160	–	–
FKL-129,130 HCl	131-59-19DE	0.146	200	N/A	50	1	< 0.080	–	–	–
FKL-129,130 HCl D	131-59-19DE D	0.140	200	N/A	50	1	< 0.080	< 0.080	–	–
FKL-131 NORTH FH	131-59-20B	0.046	N/A	100	25	1	< 0.080	–	–	–
FKL-131 NORTH FH D	131-59-20B D	0.037	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-132 SOUTH FH	131-59-20A	0.070	N/A	100	25	1	< 0.080	–	–	–
FKL-132 SOUTH FH D	131-59-20A D	0.060	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-79,112,113,114 FH	131-59-4ACE10A	0.035	N/A	100	25	1	< 0.080	–	–	–
FKL-79,112,113,114 FH D	131-59-4ACE10A D	0.029	N/A	100	25	1	< 0.080	< 0.080	–	–
FKL-79,81,113,115 BH	131-59-4DE10AB	0.013	150	N/A	25	1	< 0.120	–	–	–
FKL-79,81,113,115 BH D	131-59-4DE10AB D	0.016	150	N/A	25	1	< 0.120	< 0.120	–	–
FKL-79,113 HNO3	131-59-4E10A	0.010	20	N/A	10	1	< 0.040	–	–	–
FKL-79,113 HNO3 D	131-59-4E10A D	0.022	20	N/A	10	1	< 0.040	< 0.040	–	–
FKL-82,116 KMnO4	131-59-4F10C	0.063	400	N/A	50	1	< 0.160	–	–	–
FKL-82,116 KMnO4 D	131-59-4F10C D	0.054	400	N/A	50	1	< 0.160	< 0.160	–	–
FKL-83,117 HCl	131-59-4FG10CD	0.121	250	N/A	50	1	< 0.100	–	–	–
FKL-83,117 HCl D	131-59-4FG10CD D	0.130	250	N/A	50	1	< 0.100	< 0.100	–	–

Client: Eastern Research Group
Project Number: 38139

Sample Report

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Matrix:	Air

ANALYTE:	Hg
ug/L RDL:	0.2
Analysis Method:	29
Instrument:	P E Zeeman 5100
Spike Conc. (ug/L)	5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPID	ug/L CONC	ml TV	ml FV	ml Aliquot	DIL FACTOR	Total ug RESULT	Avg. RESULT	RPD	%REC
INCINERATOR										
FKL-87 BH MS	* 131-59-1D MS	3.144	620	N/A	25	1	7.80	–	–	63%
FKL-87 BH MSD	* 131-59-1D MSD	3.098	620	N/A	25	1	7.68	7.74	1.47%	62%
FKL-94 BH MS	* 131-59-2D MS	4.292	560	N/A	25	1	9.61	–	–	86%
FKL-94 BH MSD	* 131-59-2D MSD	3.673	560	N/A	25	1	8.23	8.92	15.5%	73%
FKL-101 BH MS	* 131-59-3D MS	4.106	600	N/A	25	1	9.86	–	–	82%
FKL-101 BH MSD	* 131-59-3D MSD	4.470	600	N/A	25	1	10.7	10.3	8.49%	89%
SALES GAS										
FKL-60 BH MS	* 131-59-7C MS	4.084	275	N/A	20	1	5.62	–	–	82%
FKL-60 BH MSD	* 131-59-7C MSD	5.394	275	N/A	20	1	7.42	6.52	27.6%	108%
FKL-67 BH MS	* 131-59-8C MS	5.552	305	N/A	25	1	6.77	–	–	111%
FKL-67 BH MSD	* 131-59-8C MSD	4.301	305	N/A	25	1	5.25	6.01	25.4%	86%
HEADER										
FKL-21 BH MS	131-59-12C MS	2.718	335	N/A	20	1	4.55	–	–	54%
FKL-21 BH MSD	131-59-12C MSD	2.328	335	N/A	20	1	3.90	4.23	15.5%	47%
FKL-27 BH MS	* 131-59-13C MS	3.923	370	N/A	20	1	7.26	–	–	78%
FKL-27 BH MSD	* 131-59-13C MSD	4.280	370	N/A	20	1	7.92	7.59	8.70%	86%
FKL-33 BH MS	131-59-14C MS	2.875	360	N/A	25	1	4.14	–	–	58%
FKL-33 BH MSD	131-59-14C MSD	3.833	360	N/A	25	1	5.52	4.83	28.5%	77%
FKL-03 BH MS	131-59-15C MS	3.269	410	N/A	20	1	6.70	–	–	65%
FKL-03 BH MSD	131-59-15C MSD	3.163	410	N/A	20	1	6.48	6.59	3.29%	63%
FKL-09 BH MS	131-59-16B MS	2.169	440	N/A	25	1	3.82	–	–	43%
FKL-09 BH MSD	131-59-16B MSD	2.156	440	N/A	25	1	3.79	3.81	0.59%	43%
INCINERATOR										
FKL-87 BH MS	True Spike MS	5	620	N/A	25	1	12.4	–	–	–
FKL-87 BH MSD	True Spike MSD	5	620	N/A	25	1	12.4	–	–	–
FKL-94 BH MS	True Spike MS	5	560	N/A	25	1	11.2	–	–	–
FKL-94 BH MSD	True Spike MSD	5	560	N/A	25	1	11.2	–	–	–
FKL-101 BH MS	True Spike MS	5	600	N/A	25	1	12.0	–	–	–
FKL-101 BH MSD	True Spike MSD	5	600	N/A	25	1	12.0	–	–	–
SALES GAS										
FKL-60 BH MS	True Spike MS	5	275	N/A	20	1	6.88	–	–	–
FKL-60 BH MSD	True Spike MSD	5	275	N/A	20	1	6.88	–	–	–
FKL-67 BH MS	True Spike MS	5	305	N/A	25	1	6.10	–	–	–
FKL-67 BH MSD	True Spike MSD	5	305	N/A	25	1	6.10	–	–	–

Client: Eastern Research Group
Project Number: 38139

Sample Report

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Matrix:	Air

ANALYTE: Hg	
ug/L RDL: 0.2	
Analysis Method	29
Instrument: P.E.Zeeman 5100	
Spike Conc. (ug/L)	5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPID	ug/L CONC	ml TV	ml FV	ml Aliquot	DIL FACTOR	Total ug RESULT	Avg. RESULT	RPD	%REC
HEADER										
FKL-21 BH MS	True Spike MS	5	335	N/A	20	1	8.38	-	-	-
FKL-21 BH MSD	True Spike MSD	5	335	N/A	20	1	8.38	-	-	-
FKL-27 BH MS	True Spike MS	5	370	N/A	20	1	9.25	-	-	-
FKL-27 BH MSD	True Spike MSD	5	370	N/A	20	1	9.25	-	-	-
FKL-33 BH MS	True Spike MS	5	360	N/A	25	1	7.20	-	-	-
FKL-33 BH MSD	True Spike MSD	5	360	N/A	25	1	7.20	-	-	-
FKL-03 BH MS	True Spike MS	5	410	N/A	20	1	10.3	-	-	-
FKL-03 BH MSD	True Spike MSD	5	410	N/A	20	1	10.3	-	-	-
FKL-09 BH MS	True Spike MS	5	440	N/A	25	1	8.80	-	-	-
FKL-09 BH MSD	True Spike MSD	5	440	N/A	25	1	8.80	-	-	-
Method Blank	* 38139 MB1	-0.023	-	-	-	-	-	-	-	-
Method Blank D	* 38139 MB1 D	-0.031	-	-	-	-	-	-	-	-
LCS	* 38139 LCS1	4.808	-	-	-	-	-	-	-	96%
LCSD	* 38139 LCS1 D	4.861	-	-	-	-	-	-	-	97%
Method Blank	* 38139 MB2	-0.003	-	-	-	-	-	-	-	-
Method Blank D	* 38139 MB2 D	-0.012	-	-	-	-	-	-	-	-
LCS	* 38139 LCS2	5.165	-	-	-	-	-	-	-	103%
LCSD	* 38139 LCS2 D	5.148	-	-	-	-	-	-	-	103%
Method Blank	38139 MB3	0.025	-	-	-	-	-	-	-	-
Method Blank D	38139 MB3 D	0.025	-	-	-	-	-	-	-	-
LCS	38139 LCS3	5.209	-	-	-	-	-	-	-	104%
LCSD	38139 LCS3 D	5.260	-	-	-	-	-	-	-	105%
Method Blank	38139 MB4	0.009	-	-	-	-	-	-	-	-
Method Blank D	38139 MB4 D	0.017	-	-	-	-	-	-	-	-
LCS	38139 LCS4	4.848	-	-	-	-	-	-	-	97%
LCSD	38139 LCS4 D	4.782	-	-	-	-	-	-	-	96%
Method Blank	38139 MB5	0.020	-	-	-	-	-	-	-	-
Method Blank D	38139 MB5 D	0.020	-	-	-	-	-	-	-	-
LCS	38139 LCS5	5.006	-	-	-	-	-	-	-	100%
LCSD	38139 LCS5 D	4.712	-	-	-	-	-	-	-	94%

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

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FRESH KILLS LANDFILL - EPA STUDY
CHAIN OF CUSTODY

RELINQUISHED BY = [illegible signature] Swift	DATE = 7-19-96	RECEIVED BY: [illegible signature]	DATE: 7-19-96
RELINQUISHED BY = [illegible signature]	DATE = 7-22-96	RECEIVED BY: [illegible signature] Swift	DATE: 7-22-96
Relinquished by [illegible signature] Swift	Date 7-22-96	Received by [illegible signature]	Date: 7/23/96

SAMPLE ID	FIELD ID						SAMPLE TYPE	PRESERVATIVE	COMMENTS
[redacted]									
FKL-112	FKL-	071896	M29-	INCIN-	ACE-	RB3	METHOD 29, INCINERATOR, RB3	ACETONE	
[redacted]									
FKL-84	FKL-	071896	M29-	INCIN-	APR-	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE	
[redacted]									
FKL-91	FKL-	071896	M29-	INCIN-	APR-	2	METHOD 29, INCINERATOR, RUN 2	ACETONE PROBE RINSE	
[redacted]									
FKL-98	FKL-	071996	M29-	INCIN-	APR-	3	METHOD 29, INCINERATOR, RUN 3	ACETONE PROBE RINSE	
[redacted]									
FKL-105	FKL-	071996	M29-	INCIN-	APR-	FB3	METHOD 29, INCINERATOR, FB3	ACETONE PROBE RINSE	

FRESH KILLS LANDFILL - EPA STUDY
CHAIN OF CUSTODY

RELINQUISHED BY = Audrey Swift	DATE = 7-19-96	RECEIVED BY: Danny Harmon	DATE: 7-19-96
RELINQUISHED BY = Danny Harmon	DATE = 7-22-96	RECEIVED BY: Audrey Swift	DATE: 7-22-96
Relinquished by Audrey Swift	Date 7-22-96	Received by Walter Manning	Date: 7/22/96

SAMPLE ID	FIELD ID						SAMPLE TYPE	PRESERVATIVE	COMMENTS
FKL-03	FKL-	[illegible]-	M29-	NHEAD-	BH-	3	METHOD 29, NORTH HEADER, RUN 3	HNO3/H2O2 BACK HALF	
FKL-21	FKL-	071696-	M29-	SHEAD-	BH-	1	METHOD 29, SOUTH HEADER, RUN 1	HNO3/H2O2 BACK HALF	
FKL-53	FKL-	071796-	M29-	SALES-	BH-	1	METHOD 29, SALES GAS, RUN 1	HNO3/H2O2 BACK HALF	
FKL-87	FKL-	071996-	M29-	INCIN-	BH-	1	METHOD 29, INCINERATOR, RUN 1	HNO3/H2O2 BACK HALF	
FKL-127	FKL-	071596-	M29-	AMB-	BH-	1	METHOD 29, AMBIENT, RUN 1	HNO3/H2O2 BACK HALF	
FKL-09	FKL-	071696-	M29-	NHEAD-	BH-	2	METHOD 29, NORTH HEADER, RUN 2	HNO3/H2O2 BACK HALF	
FKL-27	FKL-	071696-	M29-	SHEAD-	BH-	2	METHOD 29, SOUTH HEADER, RUN 2	HNO3/H2O2 BACK HALF	
FKL-60	FKL-	071196-	M29-	SALES-	BH-	2	METHOD 29, SALES GAS, RUN 2	HNO3/H2O2 BACK HALF	
FKL-94	FKL-	071896-	M29-	INCIN-	BH-	2	METHOD 29, INCINERATOR, RUN 2	HNO3/H2O2 BACK HALF	
[redacted]									
FKL-15	FKL-	071696-	M29-	NHEAD-	BH-	1	METHOD 29, NORTH HEADER, RUN 1	HNO3/H2O2 BACK HALF	
FKL-33	FKL-	071796-	M29-	SHEAD-	BH-	3	METHOD 29, SOUTH HEADER, RUN 3	HNO3/H2O2 BACK HALF	
FKL-67	FKL-	071896-	M29-	SALES-	BH-	3	METHOD 29, SALES GAS, RUN 3	HNO3/H2O2 BACK HALF	
FKL-101	FKL-	071796-	M29-	INCIN-	BH-	3	METHOD 29, INCINERATOR, RUN 3	HNO3/H2O2 BACK HALF	
[redacted]									
FKL-40	FKL-	071196-	M29-	HEADER-	BH-	FB1	METHOD 29, HEADER, FB1	HNO3/H2O2 BACK HALF	
FKL-74	FKL-	071896-	M29-	SALES-	BH-	FB2	METHOD 29, SALES GAS, FB2	HNO3/H2O2 BACK HALF	
FKL-108	FKL-	071796-	M29-	INCIN-	BH-	FB3	METHOD 29, INCINERATOR, FB3	HNO3/H2O2 BACK HALF	
FKL-47	FKL-	071996-	M29-	HEADER-	BH-	RB1	METHOD 29, HEADER, RB1	HNO3/H2O2	
FKL-81	FKL-	071896-	M29-	SALES-	BH-	RB2	METHOD 29, SALES GAS, RB2	HNO3/H2O2	
FKL-115	FKL-	071896-	M29-	INCIN-	BH-	RB3	METHOD 29, INCINERATOR, RB3	HNO3/H2O2	
[redacted]									

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FRESH KILLS LANDFILL - EPA STUDY
CHAIN OF CUSTODY

RELINQUISHED BY = Julie L. Swift DATE = 7 17 96 RECEIVED BY: Danny Thomas DATE: 7-19-96
RELINQUISHED BY = Danny Thomas DATE = 7-22-96 RECEIVED BY: Julie L. Swift DATE: 7-22-96
Relinquished by: Julie L Swift Date 7-22-96 Received by: Notch Murray Date: 7/22/96

SAMPLE ID	FIELD ID						SAMPLE TYPE	PRESERVATIVE	COMMENTS
FKL-04	FKL-	071796-	M29-	NHEAD-	BHM-	~~1~~ 3	METHOD 29, NORTH HEADER, RUN ~~1~~ 3	0.1N HNO3 RINSE - Hg	
FKL-22	FKL-	071696-	M29-	SHEAD-	BHM-	1	METHOD 29, SOUTH HEADER, RUN 1	0.1N HNO3 RINSE - Hg	
FKL-54	FKL-	071796-	M29-	SALES-	BHM-	1	METHOD 29, SALES GAS, RUN 1	0.1N HNO3 RINSE - Hg	
FKL-88	FKL-	071816-	M29-	INCIN-	BHM-	1	METHOD 29, INCINERATOR, RUN 1	0.1N HNO3 RINSE - Hg	
FKL-128	FKL-	071896-	M29-	AMB-	BHM-	1	METHOD 29, AMBIENT, RUN 1	0.1N HNO3 RINSE - Hg	
FKL-10	FKL-	071696-	M29-	NHEAD-	BHM-	2	METHOD 29, NORTH HEADER, RUN 2	0.1N HNO3 RINSE - Hg	
FKL-28	FKL-	071696-	M29-	SHEAD-	BHM-	2	METHOD 29, SOUTH HEADER, RUN 2	0.1N HNO3 RINSE - Hg	
FKL-61	FKL-	071796-	M29-	SALES-	BHM-	2	METHOD 29, SALES GAS, RUN 2	0.1N HNO3 RINSE - Hg	
FKL-95	FKL-	071896-	M29-	INCIN-	BHM-	2	METHOD 29, INCINERATOR, RUN 2	0.1N HNO3 RINSE - Hg	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
FKL-16	FKL-	071696-	M29-	NHEAD-	BHM-	~~3~~ 1	METHOD 29, NORTH HEADER, RUN ~~3~~ 1	0.1N HNO3 RINSE - Hg	
FKL-34	FKL-	071796-	M29-	SHEAD-	BHM-	3	METHOD 29, SOUTH HEADER, RUN 3	0.1N HNO3 RINSE - Hg	
FKL-68	FKL-	071896-	M29-	SALES-	BHM-	3	METHOD 29, SALES GAS, RUN 3	0.1N HNO3 RINSE - Hg	
FKL-102	FKL-	071996-	M29-	INCIN-	BHM-	3	METHOD 29, INCINERATOR, RUN 3	0.1N HNO3 RINSE - Hg	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
FKL-41	FKL-	011796-	M29-	HEADER-	BHM-	FB1	METHOD 29, HEADER, FB1	0.1N HNO3 RINSE - Hg	
FKL-75	FKL-	071996-	M29-	SALES-	BHM-	FB2	METHOD 29, SALES GAS, FB2	0.1N HNO3 RINSE - Hg	
FKL-109	FKL-	071996-	M29-	INCIN-	BHM-	FB3	METHOD 29, INCINERATOR, FB3	0.1N HNO3 RINSE - Hg	

FRESH KILLS LANDFILL - EPA STUDY
CHAIN OF CUSTODY

RELINQUISHED BY = Julie L. Swift	DATE = 7-19-96	RECEIVED BY: Danny Harrison	DATE: 7-19-96
RELINQUISHED BY = Danny Harrison	DATE = 7-22-96	RECEIVED BY: Julie L. Swift	DATE: 7-22-96
Relinquished by: Julie L. Swift	Date 7-22-96	Received by: Walter Munoz	Date: 7/22/96

SAMPLE ID	FIELD ID						SAMPLE TYPE	PRESERVATIVE	COMMENTS
~~[illegible]~~									
FKL-86	FKL-	071896 -	M29-	INCIN-	F-	1	METHOD 29, INCINERATOR, RUN 1	FILTER	
~~[illegible]~~									
~~[illegible]~~									
FKL-93	FKL-	071896 -	M29-	INCIN-	F-	2	METHOD 29, INCINERATOR, RUN 2	FILTER	
~~[illegible]~~									
~~[illegible]~~									
FKL-100	FKL-	071996 -	M29-	INCIN-	F-	3	METHOD 29, INCINERATOR, RUN 3	FILTER	
~~[illegible]~~									
~~[illegible]~~									
~~[illegible]~~									
FKL-107	FKL-	071896 -	M29-	INCIN-	F-	FB3	METHOD 29, INCINERATOR, FB3	FILTER	
~~[illegible]~~									
~~[illegible]~~									
FKL-114	FKL-	071896	M29-	INCIN-	F-	RB3	METHOD 29, INCINERATOR, RB3	FILTER	
~~[illegible]~~									

FRESH KILLS LANDFILL - EPA STUDY									
CHAIN OF CUSTODY									
RELINQUISHED BY =	Judith L. Swift				DATE =	7-19-96	RECEIVED BY: Danny Harris	DATE: 7-19-96	
RELINQUISHED BY =	Danny Harris				DATE =	7-22-96	RECEIVED BY: Judith L. Swift	DATE: 7-22-96	
Relinquished by	Judith L. Swift				Date:	7-22-96	Received by [illegible] Mosley	Date: 7/22/96	
SAMPLE ID	FIELD ID					SAMPLE TYPE	PRESERVATIVE	COMMENTS	
FKL-08	FKL-	071796 -	M29-	NHEAD-	HCI-	3	METHOD 29, NORTH HEADER, RUN 3	8N HCl RINSE - Hg	
FKL-24	FKL-	071696 -	M29-	SHEAD-	HCI-	1	METHOD 29, SOUTH HEADER, RUN 1	8N HCl RINSE - Hg	
FKL-56	FKL-	071796 -	M29-	SALES-	HCI-	1	METHOD 29, SALES GAS, RUN 1	8N HCl RINSE - Hg	
FKL-90	FKL-	071896 -	M29-	INCIN-	HCI-	1	METHOD 29, INCINERATOR, RUN 1	8N HCl RINSE - Hg	
FKL-130	FKL-	071896 -	M29-	AMB-	HCI-	1	METHOD 29, AMBIENT, RUN 1	8N HCl RINSE - Hg	
FKL-12	FKL-	071696 -	M29-	NHEAD-	HCI-	2	METHOD 29, NORTH HEADER, RUN 2	8N HCl RINSE - Hg	
FKL-30	FKL-	071696 -	M29-	SHEAD-	HCI-	2	METHOD 29, SOUTH HEADER, RUN 2	8N HCl RINSE - Hg	
FKL-63	FKL-	071796 -	M29-	SALES-	HCI-	2	METHOD 29, SALES GAS, RUN 2	8N HCl RINSE - Hg	
FKL-97	FKL-	071896 -	M29-	INCIN-	HCI-	2	METHOD 29, INCINERATOR, RUN 2	8N HCl RINSE - Hg	
[illegible]								~~8N HCl RINSE - Hg~~	
FKL-18	FKL-	071696 -	M29-	NHEAD-	HCI-	1	METHOD 29, NORTH HEADER, RUN 1	8N HCl RINSE - Hg	
FKL-36	FKL-	071796 -	M29-	SHEAD-	HCI-	3	METHOD 29, SOUTH HEADER, RUN 3	8N HCl RINSE - Hg	
FKL-70	FKL-	071896 -	M29-	SALES-	HCI-	3	METHOD 29, SALES GAS, RUN 3	8N HCl RINSE - Hg	
FKL-104	FKL-	071996 -	M29-	INCIN-	HCI-	3	METHOD 29, INCINERATOR, RUN 3	8N HCl RINSE - Hg	
[illegible]									
[illegible]									
FKL-43	FKL-	071796 -	M29-	HEADER-	HCI-	FB1	METHOD 29, HEADER, FB1	8N HCl RINSE - Hg	
FKL-77	FKL-	071896 -	M29-	SALES-	HCI-	FB2	METHOD 29, SALES GAS, FB2	8N HCl RINSE - Hg	
FKL-111	FKL-	071996 -	M29-	INCIN-	HCI-	FB3	METHOD 29, INCINERATOR, FB3	8N HCl RINSE - Hg	
FKL-49	FKL-	071696 -	M29-	HEADER-	HCI-	RB1	METHOD 29, HEADER, RB1	8N HCl	
FKL-83	FKL-	071796 -	M29-	SALES-	HCI-	RB2	METHOD 29, SALES GAS, RB2	8N HCl	
FKL-117	FKL-	071896 -	M29-	INCIN-	HCI-	RB3	METHOD 29, INCINERATOR, RB3	8N HCl	
~~[illegible]~~	~~FKL-~~		~~M29-~~	~~INCIN-~~	~~HCI-~~	~~RB4~~	~~METHOD 29, INCINERATOR, RB4~~	~~8N HCl~~	

FRESH KILLS LANDFILL - EPA STUDY

CHAIN OF CUSTODY

RELINQUISHED BY = Judith L. Swift	DATE = 7-19-96	RECEIVED BY: [illegible] DATE: 7-19-96
RELINQUISHED BY = [illegible]	DATE = 7-22-96	RECEIVED BY: Judith L. Swift DATE: 7-22-96
Relinquished by Judith L. Swift	Date: 7-22-96	Received by [illegible] Date 7/22/96

SAMPLE ID	FIELD ID						SAMPLE TYPE	PRESERVATIVE	COMMENTS
FKL-02	FKL-	071196-	M29-	NHEAD-	HN-	3	METHOD 29, NORTH HEADER, RUN 3	NITRIC ACID PROBE RINSE	
FKL-20	FKL-	071696-	M29-	SHEAD-	HN-	1	METHOD 29, SOUTH HEADER, RUN 1	NITRIC ACID PROBE RINSE	
FKL-51	FKL-	071196-	M29-	SALES-	HN-	1	METHOD 29, SALES GAS, RUN 1	NITRIC ACID PROBE RINSE	
FKL-85	FKL-	071896-	M29-	INCIN-	HN-	1	METHOD 29, INCINERATOR, RUN 1	NITRIC ACID PROBE RINSE	
FKL-125	FKL-	071896-	M29-	AMB-	HN-	1	METHOD 29, AMBIENT, RUN 1	NITRIC ACID PROBE RINSE	
FKL-08	FKL-	071696-	M29-	NHEAD-	HN-	2	METHOD 29, NORTH HEADER, RUN 2	NITRIC ACID PROBE RINSE	
FKL-26	FKL-	071696-	M29-	SHEAD-	HN-	2	METHOD 29, SOUTH HEADER, RUN 2	NITRIC ACID PROBE RINSE	
FKL-58	FKL-	071196-	M29-	SALES-	HN-	2	METHOD 29, SALES GAS, RUN 2	NITRIC ACID PROBE RINSE	
FKL-92	FKL-	071896-	M29-	INCIN-	HN-	2	METHOD 29, INCINERATOR, RUN 2	NITRIC ACID PROBE RINSE	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	~~NITRIC ACID PROBE RINSE~~	
FKL-14	FKL-	071696-	M29-	NHEAD-	HN-	1	METHOD 29, NORTH HEADER, RUN 1	NITRIC ACID PROBE RINSE	
FKL-32	FKL-	071196-	M29-	SHEAD-	HN-	3	METHOD 29, SOUTH HEADER, RUN 3	NITRIC ACID PROBE RINSE	
FKL-65	FKL-	071896-	M29-	SALES-	HN-	3	METHOD 29, SALES GAS, RUN 3	NITRIC ACID PROBE RINSE	
FKL-99	FKL-	071996-	M29-	INCIN-	HN-	3	METHOD 29, INCINERATOR, RUN 3	NITRIC ACID PROBE RINSE	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	~~METHOD 29, AMBIENT, RUN 3~~	~~NITRIC ACID PROBE RINSE~~	
FKL-38	FKL-	071196-	M29-	HEADER-	HN-	FB1	METHOD 29, HEADER, FB1	NITRIC ACID PROBE RINSE	
FKL-72	FKL-	071596-	M29-	SALES-	HN-	FB2	METHOD 29, SALES GAS, FB2	NITRIC ACID PROBE RINSE	
FKL-106	FKL-	071196-	M29-	INCIN-	HN-	FB3	METHOD 29, INCINERATOR, FB3	NITRIC ACID PROBE RINSE	
FKL-45	FKL-	071696-	M29-	HEADER-	HNO-	RB1	METHOD 29, HEADER, RB1	0.1N HNO3	
FKL-79	FKL-	071196-	M29-	SALES-	HNO-	RB2	METHOD 29, SALES GAS, RB2	0.1N HNO3	
FKL-113	FKL-	071896-	M29-	INCIN-	HNO-	RB3	METHOD 29, INCINERATOR, RB3	0.1N HNO3	
[illegible]	~~FKL-~~	[illegible]	[illegible]	~~INCIN-~~	~~HNO-~~	~~RB4~~	~~METHOD 29, INCINERATOR, RB4~~	~~0.1N HNO3~~	

FRESH KILLS LANDFILL - EPA STUDY
CHAIN OF CUSTODY

RELINQUISHED BY = Julie L. Swift	DATE = 7-19-96	RECEIVED BY: Danny Hamson	DATE: 7-19-96
RELINQUISHED BY = Danny Hamson	DATE = 7-22-96	RECEIVED BY: Julie L. Swift	DATE: 7-22-96
Relinquished by: Julie L. Swift	Date: 7-22-96	Received by: Waldi Murray	Date: 7/22/96

SAMPLE ID	FIELD ID						SAMPLE TYPE	PRESERVATIVE	COMMENTS
FKL-05	FKL-	071796-	M29-	NHEAD-	KMnO-	~~1~~ 3	METHOD 29, NORTH HEADER, RUN ~~1~~ 3	KMnO4 IMPINGERS	
FKL-23	FKL-	071696-	M29-	SHEAD-	KMnO-	1	METHOD 29, SOUTH HEADER, RUN 1	KMnO4 IMPINGERS	
FKL-55	FKL-	071796-	M29-	SALES-	KMnO-	1	METHOD 29, SALES GAS, RUN 1	KMnO4 IMPINGERS	
FKL-89	FKL-	071796-	M29-	INCIN-	KMnO-	1	METHOD 29, INCINERATOR, RUN 1	KMnO4 IMPINGERS	
FKL-129	FKL-	071896-	M29-	AMB-	KMnO-	1	METHOD 29, AMBIENT, RUN 1	KMnO4 IMPINGERS	
FKL-11	FKL-	071696-	M29-	NHEAD-	KMnO-	2	METHOD 29, NORTH HEADER, RUN 2	KMnO4 IMPINGERS	
FKL-29	FKL-	071696-	M29-	SHEAD-	KMnO-	2	METHOD 29, SOUTH HEADER, RUN 2	KMnO4 IMPINGERS	
FKL-62	FKL-	071796-	M29-	SALES-	KMnO-	2	METHOD 29, SALES GAS, RUN 2	KMnO4 IMPINGERS	
FKL-96	FKL-	071896-	M29-	INCIN-	KMnO-	2	METHOD 29, INCINERATOR, RUN 2	KMnO4 IMPINGERS	
[redacted]									
FKL-17	FKL-	071696-	M29-	NHEAD-	KMnO-	~~3~~ 1	METHOD 29, NORTH HEADER, RUN ~~3~~ 1	KMnO4 IMPINGERS	
FKL-35	FKL-	071796	M29-	SHEAD-	KMnO-	3	METHOD 29, SOUTH HEADER, RUN 3	KMnO4 IMPINGERS	
FKL-69	FKL-	071896	M29-	SALES-	KMnO-	3	METHOD 29, SALES GAS, RUN 3	KMnO4 IMPINGERS	
FKL-103	FKL-	071996-	M29-	INCIN-	KMnO-	3	METHOD 29, INCINERATOR, RUN 3	KMnO4 IMPINGERS	
[redacted]									
FKL-42	FKL-	071796-	M29-	HEADER-	KMnO-	FB1	METHOD 29, HEADER, FB1	KMnO4 IMPINGERS	
FKL-76	FKL-	071896-	M29-	SALES-	KMnO-	FB2	METHOD 29, SALES GAS, FB2	KMnO4 IMPINGERS	
FKL-110	FKL-	071996-	M29-	INCIN-	KMnO-	FB3	METHOD 29, INCINERATOR, FB3	KMnO4 IMPINGERS	
FKL-48	FKL-	071696-	M29-	HEADER-	KMnO-	RB1	METHOD 29, HEADER, RB1	KMnO4	
FKL-82	FKL-	071796	M29-	SALES-	KMnO-	RB2	METHOD 29, SALES GAS, RB2	KMnO4	
FKL-116	FKL-	071896-	M29-	INCIN-	KMnO-	RB3	METHOD 29, INCINERATOR, RB3	KMnO4	
[redacted]									

FRESH KILLS LANDFILL - EPA STUDY
SAMPLE LOG

RECOVERY PERSON = [illegible]
DATE = 7-16-96

SAMPLE ID	FIELD ID						SAMPLE TYPE	PRESERVATIVE	COMMENTS	TARE WT	FINAL WT
[illegible]	FKL	071696	M29	NHEAD	HW	3	Method 29, North Header, Run 3	Nitric Acid Probe Rinse	58.8	366.6	325.4
FKL-03	FKL-	071696 -	M29-	NHEAD-	BH-	1	METHOD 29, NORTH HEADER, RUN 1	HNO3/H2O2 BACK HALF	416.8	390.1	806.9
FKL-04	FKL-	071696 -	M29-	NHEAD-	BHM-	3	METHOD 29, NORTH HEADER, RUN 1	0.1N HNO3 RINSE - Hg	66.2	269.5	335.7
FKL-05	FKL-	071696 -	M29-	NHEAD-	KMnO-	3	METHOD 29, NORTH HEADER, RUN 1	KMnO4 IMPINGERS	433.3	391.4	824.7
FKL-06	FKL-	071696 -	M29-	NHEAD-	HCl-	3	METHOD 29, NORTH HEADER, RUN 1	8N HCl RINSE - Hg	182.5	266.7	449.2
FKL-08	FKL	071696	M29	NHEAD	HW	1	Method 29, North Header, Run 2	Nitric Acid Probe Rinse	68.2	265.6	333.8
FKL-09	FKL-	071696 -	M29-	NHEAD-	BH-	2	METHOD 29, NORTH HEADER, RUN 2	HNO3/H2O2 BACK HALF	445.1	392.0	837.7
FKL-10	FKL-	071696 -	M29-	NHEAD-	BHM-	2	METHOD 29, NORTH HEADER, RUN 2	0.1N HNO3 RINSE - Hg	59.1	266.4	325.1
FKL-11	FKL-	071696 -	M29-	NHEAD-	KMnO-	2	METHOD 29, NORTH HEADER, RUN 2	KMnO4 IMPINGERS	408.7	392.0	800.9
FKL-12	FKL-	071696 -	M29-	NHEAD-	HCl-	2	METHOD 29, NORTH HEADER, RUN 2	8N HCl RINSE - Hg	73.0	269.1	342.7
FKL-14	FKL	071696	M29	NHEAD	HW	3	Method 29, North Header, Run 3	Nitric Acid PR	33.4	267.3	300.7
FKL-15	FKL-	071696 -	M29-	NHEAD-	BH-	3	METHOD 29, NORTH HEADER, RUN 3	HNO3/H2O2 BACK HALF	442.9	390.4	833.3
FKL-16	FKL-	071696 -	M29-	NHEAD-	BHM-	3	METHOD 29, NORTH HEADER, RUN 3	0.1N HNO3 RINSE - Hg	61.5	265.2	326.7
FKL-17	FKL-	071696 -	M29-	NHEAD	KMnO-	3	METHOD 29, NORTH HEADER, RUN 3	KMnO4 IMPINGERS	391.9	392.8	784.7
FKL-18	FKL-	071696 -	M29-	NHEAD-	HCl-	3	METHOD 29, NORTH HEADER, RUN 3	8N HCl RINSE - Hg	65.7	268.3	334.0
FKL-20	FKL	071696	M29	S head	HW	1	Method 29, South Header, Run 1	Nitric Acid PR	71.2	266.3	344.5
FKL-21	FKL-	071696 -	M29-	SHEAD-	BH-	1	METHOD 29, SOUTH HEADER, RUN 1	HNO3/H2O2 BACK HALF	347.1	392.8	739.9
FKL-22	FKL-	071696 -	M29-	SHEAD-	BHM-	1	METHOD 29, SOUTH HEADER, RUN 1	0.1N HNO3 RINSE - Hg	47.7	265.9	313.6
FKL-23	FKL-	071696 -	M29-	SHEAD-	KMnO-	1	METHOD 29, SOUTH HEADER, RUN 1	KMnO4 IMPINGERS	372.8	390.8	763.6
FKL-24	FKL-	071696 -	M29-	SHEAD-	HCl-	1	METHOD 29, SOUTH HEADER, RUN 1	8N HCl RINSE - Hg	89.3	268.8	358.1
FKL-26	FKL	071696	M29	S head	HW	2	Method 29, South Header, Run 2	Nitric Acid PR	57.0	266.5	323.5
FKL-27	FKL-	071696 -	M29-	SHEAD-	BH-	2	METHOD 29, SOUTH HEADER, RUN 2	HNO3/H2O2 BACK HALF	380.7	391.2	771.9
FKL-28	FKL-	071696 -	M29-	SHEAD-	BHM-	2	METHOD 29, SOUTH HEADER, RUN 2	0.1N HNO3 RINSE - Hg	47.4	264.3	312.7

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TITLE Fresh Kills Landfill

Project No. [illegible]
Book No. 2077
RADIAN CORPORATION

FRESH KILLS LANDFILL - EPA STUDY
SAMPLE LOG

RECOVERY PERSON = [illegible signature]
DATE = 7-11-96

SAMPLE ID	FIELD ID						SAMPLE TYPE	PRESERVATIVE	COMMENTS	TARE WT	FINAL WT
FKL-29	FKL-	071196-	M29-	SHEAD-	KMnO-	2	METHOD 29, SOUTH HEADER, RUN 2	KMnO4 IMPINGERS	380.1	391.9	772.0
FKL-30	FKL-	071196-	M29-	SHEAD-	HCl-	2	METHOD 29, SOUTH HEADER, RUN 2	8N HCl RINSE - Hg	92.4	265.5	358.2
~~[illegible]~~	~~FKL-~~	~~[illegible]~~	~~[illegible]~~	~~SHEAD-~~	~~[illegible]~~	~~3~~	~~METHOD 29, SOUTH HEADER, RUN 3~~	~~[illegible]~~	60.8	246.0	315.8
FKL-33	FKL-	071396-	M29-	SHEAD-	BH-	3	METHOD 29, SOUTH HEADER, RUN 3	HNO3/H2O2 BACK HALF	375.7	392.0	767.7
FKL-34	FKL-	071396-	M29-	SHEAD-	BHM-	3	METHOD 29, SOUTH HEADER, RUN 3	0.1N HNO3 RINSE - Hg	51.7	270.7	322.4
FKL-35	FKL-	071396-	M29-	SHEAD-	KMnO-	3	METHOD 29, SOUTH HEADER, RUN 3	KMnO4 IMPINGERS	357.2	393.0	752.2
FKL-36	FKL-	071396-	M29-	SHEAD-	HCl-	3	METHOD 29, SOUTH HEADER, RUN 3	8N HCl RINSE - Hg	64.4	266.0	330.4
~~[illegible]~~	~~FKL-~~	~~[illegible]~~	~~M29-~~	~~HEADER-~~	~~[illegible]~~	~~FB1~~	~~Method 29, Header, FB~~	~~Nitric Acid Probe Rinse~~		265.5	311.9
~~[illegible]~~	~~FKL-~~		~~[illegible]~~	~~HEADER-~~	~~[illegible]~~	~~FB1~~	~~[illegible]~~	~~[illegible]~~			
FKL-40	FKL-	071396-	M29-	HEADER-	BH-	FB1	METHOD 29, HEADER, FB1	HNO3/H2O2 BACK HALF		301.2	751.7
FKL-41	FKL-	071196-	M29-	HEADER-	BHM-	FB1	METHOD 29, HEADER, FB1	0.1N HNO3 RINSE - Hg		261.3	311.8
FKL-42	FKL-	071196-	M29-	HEADER-	KMnO-	FB1	METHOD 29, HEADER, FB1	KMnO4 IMPINGERS		387.5	401.7
FKL-43	FKL-	071196-	M29-	HEADER-	HCl-	FB1	METHOD 29, HEADER, FB1	8N HCl RINSE - Hg		263.4	322.4
~~[illegible]~~	~~FKL-~~		~~M29-~~	~~HEADER-~~	~~ACE-~~	~~RB1~~	~~METHOD 29, HEADER, RB1~~	~~ACETONE~~			
FKL-45	FKL-	071196-	M29-	HEADER-	HNO-	RB1	METHOD 29, HEADER, RB1	0.1N HNO3		267.0	452.5
~~[illegible]~~	~~FKL-~~		~~M29-~~	~~HEADER-~~	~~F-~~	~~RB1~~	~~METHOD 29, HEADER, RB1~~	~~FILTER~~			
FKL-47	FKL-	071196-	M29-	HEADER-	BH-	RB1	METHOD 29, HEADER, RB1	HNO3/H2O2		263.6	462.7
FKL-48	FKL-	071196-	M29-	HEADER-	KMnO-	RB1	METHOD 29, HEADER, RB1	KMnO4		266.4	418.3
FKL-49	FKL-	071196-	M29-	HEADER-	HCl-	RB1	METHOD 29, HEADER, RB1	8N HCl		266.4	328.0
~~FKL-50~~	~~FKL-~~	~~071196-~~	~~M29-~~	~~SALES-~~	~~APR-~~	~~1~~	~~METHOD 29, SALES GAS, RUN 1~~	~~ACETONE PROBE RINSE~~			
FKL-51	FKL-	071196-	M29-	SALES-	HN	1	METHOD 29, SALES GAS, RUN 1	NITRIC ACID PROBE RINSE	58.7	265.5	324.2
~~FKL-52~~	~~FKL-~~	~~071196-~~	~~M29-~~	~~SALES-~~	~~F-~~	~~1~~	~~METHOD 29, SALES GAS, RUN 1~~	~~FILTER~~		~~391.2~~	
FKL-53	FKL-	071196-	M29-	SALES-	BH-	1	METHOD 29, SALES GAS, RUN 1	HNO3/H2O2 BACK HALF	271.5 +17.[illegible] [illegible]	391.2	662.7
FKL-54	FKL-	071196-	M29-	SALES-	BHM-	1	METHOD 29, SALES GAS, RUN 1	0.1N HNO3 RINSE - Hg	47.0	266.4	313.4
FKL-55	FKL-	071196-	M29-	SALES-	KMnO-	1	METHOD 29, SALES GAS, RUN 1	KMnO4 IMPINGERS	351.6	392.4	744.0
FKL-56	FKL-	071196-	M29-	SALES-	HCl-	1	METHOD 29, SALES GAS, RUN 1	8N HCl RINSE - Hg	69.0	266.1	335.1

RADIAN CORPORATION

Project No. 7356-5003

Book No. 29771

TITLE Fresh Kills Landfill

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FRESH KILLS LANDFILL - EPA STUDY SAMPLE LOG									RECOVERY PERSON = / DATE =	Stephen L. Swift / 7-18-96		
SAMPLE ID	FIELD ID							SAMPLE TYPE	PRESERVATIVE	COMMENTS	TARE WT	FINAL WT
FKL-85	FKL-	071896-	M29-	INCIN-	HN-	1		METHOD 29, INCINERATOR, RUN 1	NITRIC ACID PROBE RINSE	260.4	267.4	527.8
FKL-86	FKL-	071896-	M29-	INCIN-	F-	1		METHOD 29, INCINERATOR, RUN 1	FILTER	FK-03-F		
FKL-87	FKL-	071896-	M29-	INCIN-	BH-	1		METHOD 29, INCINERATOR, RUN 1	HNO3/H2O2 BACK HALF	627.1	392.3	1019.4
FKL-88	FKL-	071896-	M29-	INCIN-	BHM-	1		METHOD 29, INCINERATOR, RUN 1	0.1N HNO3 RINSE - Hg	64.1	269.0	333.1
FKL-89	FKL-	071896-	M29-	INCIN-	KMnO-	1		METHOD 29, INCINERATOR, RUN 1	KMnO4 IMPINGERS	371.6	392.3	763.9
FKL-90	FKL-	071896-	M29-	INCIN-	HCl-	1		METHOD 29, INCINERATOR, RUN 1	8N HCl RINSE - Hg	45.5	265.9	311.4
FKL-91	FKL-	071896-	M29-	INCIN-	APR-	2		METHOD 29, INCINERATOR, RUN 2	ACETONE PROBE RINSE	86.6	264.4	351.0
FKL-92	FKL-	071896-	M29-	INCIN-	HN-	2		METHOD 29, INCINERATOR, RUN 2	NITRIC ACID PROBE RINSE	262.7	265.4	528.1
FKL-93	FKL-	071896-	M29-	INCIN-	F-	2		METHOD 29, INCINERATOR, RUN 2	FILTER	FK-14-F		
FKL-94	FKL-	071896-	M29-	INCIN-	BH-	2		METHOD 29, INCINERATOR, RUN 2	HNO3/H2O2 BACK HALF	568.8	393.5	962.3
FKL-95	FKL-	071896-	M29-	INCIN-	BHM-	2		METHOD 29, INCINERATOR, RUN 2	0.1N HNO3 RINSE - Hg	54.9	268.8	323.7
FKL-96	FKL-	071896-	M29-	INCIN-	KMnO-	2		METHOD 29, INCINERATOR, RUN 2	KMnO4 IMPINGERS	368.1	392.9	761.0
FKL-97	FKL-	071896-	M29-	INCIN-	HCl-	2		METHOD 29, INCINERATOR, RUN 2	8N HCl RINSE - Hg	58.8	270.2	329.0
FKL-98	FKL-	071896-	M29-	INCIN-	APR-	3		METHOD 29, INCINERATOR, RUN 3	ACETONE PROBE RINSE		265.8	369.6
FKL-99	FKL-	071896-	M29-	INCIN-	HN-	3		METHOD 29, INCINERATOR, RUN 3	NITRIC ACID PROBE RINSE		265.9	479.2
FKL-100	FKL-	071896-	M29-	INCIN-	F-	3		METHOD 29, INCINERATOR, RUN 3	FILTER	FK-20-F		
FKL-101	FKL-	071896-	M29-	INCIN-	BH-	3		METHOD 29, INCINERATOR, RUN 3	HNO3/H2O2 BACK HALF		391.8	1003.2
FKL-102	FKL-	071896-	M29-	INCIN	BHM-	3		METHOD 29, INCINERATOR, RUN 3	0.1N HNO3 RINSE - Hg		264.5	329.7
FKL-103	FKL-	071896-	M29-	INCIN-	KMnO-	3		METHOD 29, INCINERATOR, RUN 3	KMnO4 IMPINGERS		392.7	758.9
FKL-104	FKL-	071896-	M29-	INCIN-	HCl-	3		METHOD 29, INCINERATOR, RUN 3	8N HCl RINSE - Hg		268.1	331.6
FKL-105	FKL-	071896-	M29-	INCIN-	APR-	FB3		METHOD 29, INCINERATOR, FB3	ACETONE PROBE RINSE		265.4	324.5
FKL-106	FKL-	071896-	M29-	INCIN-	HN-	FB3		METHOD 29, INCINERATOR, FB3	NITRIC ACID PROBE RINSE		264.9	403.8
FKL-107	FKL-	071896-	M29-	INCIN-	F-	FB3		METHOD 29, INCINERATOR, FB3	FILTER	FK-22-F		
FKL-108	FKL-	071896-	M29-	INCIN-	BH-	FB3		METHOD 29, INCINERATOR, FB3	HNO3/H2O2 BACK HALF		392.3	723.1
FKL-109	FKL-	071896-	M29-	INCIN-	BHM-	FB3		METHOD 29, INCINERATOR, FB3	0.1N HNO3 RINSE - Hg		266.1	334.3
FKL-110	FKL-	071896-	M29-	INCIN-	KMnO-	FB3		METHOD 29, INCINERATOR, FB3	KMnO4 IMPINGERS		390.8	719.0
FKL-111	FKL-	071896-	M29-	INCIN-	HCl-	FB3		METHOD 29, INCINERATOR, FB3	8N HCl RINSE - Hg		265.8	321.3
FKL-112	FKL-	071896-	M29-	INCIN-	ACE-	RB3		METHOD 29, INCINERATOR, RB3	ACETONE		264.6	344.1

TITLE Fresh Kills Landfill

From Page No.

Project No. 356503

Book No. 29771

RADIAN CORPORATION

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FRESH KILLS LANDFILL - EPA STUDY								RECOVERY PERSON =	[illegible signature]		
SAMPLE LOG								DATE =	7-17-96		
SAMPLE ID	FIELD ID						SAMPLE TYPE	PRESERVATIVE	COMMENTS	TARE WT	FINAL WT
FKL-113	FKL-	071596-	M20-	INCIN-	HNO-	RB3	METHOD 20, INCINERATOR, RB3	0.1N HNO3		269.4	311.8
FKL-114	FKL-	071596-	M20-	INCIN-	F-	RB3	METHOD 20, INCINERATOR, RB3	FILTER	FK-16F		
FKL-115	FKL-	071596-	M20-	INCIN-	BH-	RB3	METHOD 20, INCINERATOR, RB3	HNO3/H2O2		265.6	358.4
FKL-116	FKL-	071596-	M20-	INCIN-	KMnO-	RB3	METHOD 20, INCINERATOR, RB3	KMnO4		265.8	410.3
FKL-117	FKL-	071596-	M20-	INCIN-	HCl-	RB3	METHOD 20, INCINERATOR, RB3	8N HCl		270.5	416.6
~~[illegible]~~											
~~[illegible]~~											
~~[illegible]~~											
~~[illegible]~~											
~~[illegible]~~											
~~[illegible]~~											
FKL-124	FKL-	071196-	M20-	AMB-	APR-	1	METHOD 20, AMBIENT, RUN 1	ACETONE PROBE RINSE			
FKL-125	FKL-	071196-	M20-	AMB-	HN-	1	METHOD 20, AMBIENT, RUN 1	NITRIC ACID PROBE RINSE		266.0	322.9
FKL-126	FKL-	071196-	M20-	AMB-	F-	1	METHOD 20, AMBIENT, RUN 1	FILTER		3	
FKL-127	FKL-	071196-	M20-	AMB-	BH-	1	METHOD 20, AMBIENT, RUN 1	HNO3/H2O2 BACK HALF		391.8	690.3
FKL-128	FKL-	071196-	M20-	AMB-	BHM	1	METHOD 20, AMBIENT, RUN 1	0.1N HNO3 RINSE - Hg		268.3	319.2
FKL-129	FKL-	071196-	M20-	AMB-	KMnO-	1	METHOD 20, AMBIENT, RUN 1	KMnO4 IMPINGERS		391.9	752.9
FKL-130	FKL-	071196-	M20-	AMB-	HCl-	1	METHOD 20, AMBIENT, RUN 1	8N HCl RINSE - Hg		265.1	365.6
FKL-131	FKL-	071796-	M20-	North ~~AMB-~~	HNF ~~APR-~~	1-3 ~~2~~	METHOD 20, North Header - Ext ~~AMBIENT, RUN 2~~ 1-3	Final Probe Rinse from ~~ACETONE PROBE RINSE~~	Comb. One time only after all three runs 7-17-96	3 264.1	351.5
FKL-132	FKL-	071796-	M20-	South ~~AMB-~~	HNF ~~HN~~	1-3 ~~2~~	METHOD 20, South Header Run ~~AMBIENT, RUN 2~~ 1-3	~~NITRIC ACID PROBE RINSE~~		265.4	381.7
~~[illegible]~~											
~~[illegible]~~											
~~[illegible]~~											
~~[illegible]~~											
~~[illegible]~~											
~~[illegible]~~											
~~[illegible]~~											
~~[illegible]~~											

FRESH KILLS LANDFILL - EPA STUDY
SAMPLE LOG

RECOVERY PERSON = [illegible signature]
DATE = 7-17-96

SAMPLE ID	FIELD ID						SAMPLE TYPE	PRESERVATIVE	COMMENTS	TARE WT	FINAL WT
~~FKL-57~~	~~FKL-~~		~~M29-~~	~~SALES-~~	~~APR-~~	~~2~~	~~[illegible]~~	~~[illegible]~~			
FKL-58	FKL-	071796-	M29	SALES-	HN-	2	METHOD 29, SALES GAS, RUN 2	NITRIC ACID PROBE RINSE	85.7	266.5	352.2
~~[illegible]~~	~~FKL-~~		~~[illegible]~~	~~[illegible]~~	~~F-~~	~~[illegible]~~	~~[illegible]~~	~~FILTER~~			
FKL-60	FKL-	071796-	M29-	SALES-	BH-	2	METHOD 29, SALES GAS, RUN 2	HNO3/H2O2 BACK HALF	280.3	390.5	670.8
FKL-61	FKL-	071796-	M29-	SALES-	BHM-	2	METHOD 29, SALES GAS, RUN 2	0.1N HNO3 RINSE - Hg	42.2	266.0	308.2
FKL-62	FKL-	071796-	M29-	SALES-	KMnO-	2	METHOD 29, SALES GAS, RUN 2	KMnO4 IMPINGERS	402.6	391.6	794.2
FKL-63	FKL-	071796-	M29-	SALES-	HCl-	2	METHOD 29, SALES GAS, RUN 2	8N HCl RINSE - Hg	61.6	266.9	334.5
~~[illegible]~~	~~FKL-~~		~~M29-~~	~~SALES-~~	~~APR-~~	~~3~~	~~[illegible]~~	~~[illegible]~~			
FKL-65	FKL-	071896-	M29-	SALES-	HN-	3	METHOD 29, SALES GAS, RUN 3	NITRIC ACID PROBE RINSE	55.8	265.9	321.7
~~[illegible]~~	~~FKL-~~		~~M29-~~	~~SALES-~~	~~F-~~	~~3~~	~~[illegible]~~	~~FILTER~~			
FKL-67	FKL-	071896-	M29-	SALES-	BH-	3	METHOD 29, SALES GAS, RUN 3	HNO3/H2O2 BACK HALF	307.5	392.4	701.9
FKL-68	FKL-	071896-	M29-	SALES-	BHM-	3	METHOD 29, SALES GAS, RUN 3	0.1N HNO3 RINSE - Hg	42.5	266.5	309.0
FKL-69	FKL-	071896-	M29-	SALES-	KMnO-	3	METHOD 29, SALES GAS, RUN 3	KMnO4 IMPINGERS	367.1	392.8	159.9
FKL-70	FKL-	071896-	M29-	SALES-	HCl-	3	METHOD 29, SALES GAS, RUN 3	8N HCl RINSE - Hg	57.8	264.8	322.6
~~FKL-71~~	~~FKL-~~		~~M29-~~	~~SALES-~~	~~APR-~~	~~FB2~~	~~[illegible]~~	~~[illegible]~~			
FKL-72	FKL-	071896-	M29-	SALES-	HN-	FB2	METHOD 29, SALES GAS, FB2	NITRIC ACID PROBE RINSE		266.3	310.7
~~[illegible]~~	~~FKL-~~		~~M29-~~	~~SALES-~~	~~F-~~	~~FB2~~	~~METHOD 29, SALES GAS, FB2~~	~~FILTER~~			
FKL-74	FKL-	071896-	M29-	SALES-	BH-	FB2	METHOD 29, SALES GAS, FB2	HNO3/H2O2 BACK HALF		393.1	757.5
FKL-75	FKL-	071896-	M29-	SALES-	BHM-	FB2	METHOD 29, SALES GAS, FB2	0.1N HNO3 RINSE - Hg		265.5	334.6
FKL-76	FKL-	071896-	M29-	SALES-	KMnO-	FB2	METHOD 29, SALES GAS, FB2	KMnO4 IMPINGERS		390.2	703.4
FKL-77	FKL-	071896-	M29-	SALES-	HCl-	FB2	METHOD 29, SALES GAS, FB2	8N HCl RINSE - Hg		265.2	320.4
~~[illegible]~~	~~FKL-~~		~~[illegible]~~	~~[illegible]~~	~~APR-~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~			
FKL-79	FKL-	071796-	M29-	SALES-	HNO-	RB2	METHOD 29, SALES GAS, RB2	0.1N HNO3		266.0	366.6
~~[illegible]~~	~~FKL-~~		~~[illegible]~~	~~SALES-~~	~~F-~~	~~RB2~~	~~[illegible]~~	~~[illegible]~~			
FKL-81	FKL-	071796-	M29-	SALES-	BH	RB2	METHOD 29, SALES GAS, RB2	HNO3/H2O2		265.2	401.7
FKL-82	FKL-	071796-	M29-	SALES-	KMnO-	RB2	METHOD 29, SALES GAS, RB2	KMnO4		266.3	118.0
FKL-83	FKL-	071796-	M29-	SALES-	HCl-	RB2	METHOD 29, SALES GAS, RB2	8N HCl		266.4	327.1
FKL-84	FKL-	071896-	M29-	INCIN-	APR-	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE	121.5	265.2	386.7

TITLE Fresh Kills Landfill

Project No. 734-5002
Book No. 2977

RADIAN CORPORATION

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Custody Seal : Absent Chain of Custody : Present Sample Tags : Present Sample Tag Numbers: Listed SMC Forms : N/A	Sample Seals: Absent Accept.Cond.: YES	TLI Project Number : 38139 . Client: ERG02 : Eastern Research Group Date Received : 07/22/96 : By	Book 131 Page
Box	MC COOLANT	Carrier and Number : WALTER MURRY	59

TLI Number mR/H:CPM	Client ID	Matrix Location	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To ARCHIVE Date/Init	DISPOSED Date/Init
131-59-1A	FKL-86	FILTER METALS LAB	SB 7/23/96							
131-59-1B	FKL-84	FH ACETONE RNS METALS LAB								
131-59-1C	FKL-85	FH IMP HNO3 METALS LAB								
131-59-1D	FKL-87	BH HNO3/H2O2 METALS LAB								
131-59-1E	FKL-88	Hg HNO3 METALS LAB								
131-59-1F	FKL-89	Hg KMnO4 METALS LAB								
131-59-1G	~~FKL-[illegible]~~ 90 EG 7/23/96	Hg HCl METALS LAB								
131-59-2A	FKL-9[illegible]	FILTER METALS LAB								
131-59-2B	FKL-91	FH ACETONE RNS METALS LAB								
131-59-2C	FKL-92	FH IMP HNO3 METALS LAB								

Receiving Remarks:

Archive Remarks:

Custody Seal : Absent Chain of Custody : Present Sample Tags : Present Sample Tag Numbers: Listed SMO Forms : N/A	Sample Seals: Absent Accept.Cond.: YES	TLI Project Number : 38139 — Boo Client: ERG02 : Eastern Research Group — 13 Date Received : 07/22/96 : By — Pag
Box	NO COOLANT	Carrier and Number : WALTER MURRY — 59

TLI Number mR/H:CPM	Client ID	Matrix Location	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To ARCHIVE Date/Init	DISPOSED Date/Ini
131-59-3G	FKL-104	Hg HCl METALS LAB	SB/JC 7/23/96							
131-59-4A	FKL-114	FILTER METALS LAB								
131-59-4B	FKL-105	FH ACETONE RNS METALS LAB								
131-59-4C	FKL-112	ACETONE METALS LAB								
131-59-4D	FKL-115	HNO3/H2O2 METALS LAB								
131-59-4E	FKL-113	0.1NHNO3 METALS LAB								
131-59-4F	FKL-116	Hg KMnO4 METALS LAB								
131-59-4G	FKL-117	Hg HCl METALS LAB								
131-59-5A	FKL-107	FILTER METALS LAB								
131-59-5B	FKL-109	0.1NHNO3 METALS LAB								

Receiving Remarks:

Archive Remarks:

Custody Seal : Absent Chain of Custody : Present Sample Tags : Present Sample Tag Numbers: Listed SMO Forms : N/A	Sample Seals: Absent Accept.Cond.: YES	TLI Project Number: 38139 Client: ERG02 Eastern Research Group Date Received 07/22/96 By	Book 131 Page 59
Box	NO COOLANT	Carrier and Number: WALTER MURRY	

TLI Number mR/H:CPM	Client ID	Matrix Location	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To ARCHIVE Date/Init	DISPOSED Date/Init
131-59-5C	FKL-108	HNO3/H2O2 METALS LAB	SRB/? 7/23/96							
131-59-5D	FKL-106	NITRIC ACID METALS LAB								
131-59-5E	FKL-110	KMNO4 METALS LAB								
131-59-5F	FKL-111	HCl METALS LAB								
131-59-6A	FKL-51	NITRIC ACID METALS LAB								
131-59-6B	FKL-54	0.1NHNO3 METALS LAB								
131-59-6C	FKL-53	HNO3/H2O2 METALS LAB								
131-59-6D	FKL-55	KMNO4 METALS LAB								
131-59-6E	FKL-56	HCl METALS LAB								
131-59-7A	FKL-55	NITRIC ACID METALS LAB								

Receiving Remarks:

Archive Remarks:

Custody Seal : Absent Chain of Custody : Present Sample Tags : Present Sample Tag Numbers: Listed	Sample Seals: Absent Accept.Cond.: YES	TLI Project Number : 38139	Bo
		Client: ERG02 : Eastern Research Group	1
SMO Forms : N/A		Date Received : 07/22/96 : By	Pa
Box	NO COOLANT	Carrier and Number : WALTER MURRY	5

TLI Number mR/H:CPM	Client ID	Matrix Location	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To ARCHIVE Date/Init	DISPOSE Date/In
131-59-7B	FKL-61	0.1NHNO3 METALS LAB	SRB/TC 7/23/96							
131-59-7C	FKL-60	HNO3/H2O2 METALS LAB								
131-59-7D	FKL-62	KMNO4 METALS LAB								
131-59-7E	FKL-63	HCl METALS LAB								
131-59-8A	FKL-65	NITRIC ACID METALS LAB								
131-59-8B	FKL-68	0.1NHNO3 METALS LAB								
131-59-8C	FKL-67	HNO3/H2O2 METALS LAB								
131-59-8D	FKL-69	KMNO4 METALS LAB								
131-59-8E	FKL-70	HCl METALS LAB								
131-59-9A	FKL-72	NITRIC ACID METALS LAB								

Receiving Remarks:

Archive Remarks:

Custody Seal : Absent Chain of Custody : Present Sample Tags : Present Sample Tag Numbers: Listed SMO Forms : N/A	Sample Seals: Absent Accept.Cond.: YES	TLI Project Number: 38139	Book
		Client: ERG02 — Eastern Research Group	131
		Date Received: 07/22/96 By	Page
Box	NC COOLANT	Carrier and Number: WALTER MURRY	59

TLI Number mR/H:CPM	Client ID	Matrix Location	To LAB - Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To ARCHIVE Date/Init	DISPOSED Date/Init
131-59-9B	FXL-75	0.1NHNO3 METALS LAB	SRB/JC 7/23/96							
131-59-9C	FXL-74	HNO3/H2O2 METALS LAB								
131-59-9D	FXL-76	KMNO4 METALS LAB								
131-59-9E	FXL-77	HCL METALS LAB								
131-59-10A	FXL-79	0.1NHNO3 METALS LAB								
131-59-10B	FXL-81	HNO3/H2O2 METALS LAB								
131-59-10C	FXL-82	KMNO4 METALS LAB								
131-59-10D	FXL-83	HCl METALS LAB								
131-59-11A	FXL-38	NITRIC ACID METALS LAB								
131-59-11B	FXL-41	0.1NHNO3 METALS LAB								

Receiving Remarks:

Archive Remarks:

Custody Seal : Absent Chain of Custody : Present Sample Tags : Present Sample Tag Numbers: Listed SMO Forms : N/A	Sample Seals: Absent Accept.Cond.: YES	TLI Project Number : 38139	Boo
		Client: ERG02 : Eastern Research Group	13.
		Date Received : 07/22/96 : By	Page
Box	NC COOLANT	Carrier and Number : WALTER MURRAY	59

TLI Number aR/H:CPM	Client ID	Matrix Location	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To ARCHIVE Date/Init	DISPOSED Date/Init
131-59-11C	FKL-40	HNO3/H2O2 METALS LAB	7/23/96							
131-59-11D	FKL-42	KMNO4 METALS LAB								
131-59-11E	FKL-43	HCl METALS LAB								
131-59-12A	FKL-20	NITRIC ACID METALS LAB								
131-59-12B	FKL-22	0.1NHNO3 METALS LAB								
131-59-12C	FKL-21	HNO3/H2O2 METALS LAB								
131-59-12D	FKL-23	KMNO4 METALS LAB								
131-59-12E	FKL-24	HCl METALS LAB								
131-59-13A	FKL-26	NITRIC ACID METALS LAB								
131-59-13B	FKL-28	0.1NHNO3 METALS LAB								

Receiving Remarks:

Archive Remarks:

TRIANGLE LABORATORIES, INC.--LOG IN RECORD/CHAIN OF CUSTODY--REVISED 06/13/1996

Custody Seal : Absent Chain of Custody : Present Sample Tags : Present Sample Tag Numbers: Listed SMO Forms : N/A	Sample Seals: Absent Accept.Cond.: YES	TLI Project Number: 38139 Client: ERG02 — Eastern Research Group Date Received: 07/22/96 — By	Book 131 Page 59
Box	NO COOLANT	Carrier and Number: WALTER MURRY	

TLI Number mR/H:CPM	Client ID	Matrix / Location	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To ARCHIVE Date/Init	DISPOSED Date/Init
131-59-15C	FKL-03	HNO3/H2O2 METALS LAB	7/23/96							
131-59-15D	FKL-~~06~~ 05 EC um 7/23/96	KMNO4 METALS LAB								
131-59-15E	FKL-~~07~~ 06 EC um 7/23/96	HCl METALS LAB								
131-59-16A	FKL-08	NITRIC ACID METALS LAB								
131-59-16B	FKL-09	HNO3 / H2O2 EC um 7/23/96 METALS LAB								
131-59-16C	FKL-10	0.1 HNO3 ~~[illegible]~~ EC um 7/23/96 METALS LAB								
131-59-16D	FKL-11	KMNO4 METALS LAB								
131-59-16E	FKL-12	HCl METALS LAB								
131-59-17A	FKL-14	NITRIC ACID METALS LAB								
131-59-17B	FKL-16	0.1NHNO3 METALS LAB								

Receiving Remarks:

Archive Remarks:

TRIANGLE LABORATORIES, INC.--LOG IN RECORD/CHAIN OF CUSTODY--REVISED 06/13/1996

Custody Seal : Absent Chain of Custody : Present Sample Tags : Present Sample Tag Numbers: Listed SMO Forms : N/A	Sample Seals: Absent Accept.Cond.: YES	TLI Project Number: 38139 Client: ERG02 Eastern Research Group Date Received: 07/22/96 By	Book 131 Page 59
Box	NO COOLANT	Carrier and Number: WALTER MURRY	

TLI Number mR/H:CPM	Client ID	Matrix Location	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To ARCHIVE Date/Init	DISPOSED Date/Init
131-59-17C	FKL-15	HNO3/H2O2 METALS LAB	7/23/96							
131-59-17D	FKL-17	KMNO4 METALS LAB								
131-59-17E	FKL-18	HCl METALS LAB								
131-59-18A	FKL-45	0.1NHNO3 METALS LAB								
131-59-18B	FKL-47	HNO3/H2O2 METALS LAB								
131-59-18C	FKL-48	KMNO4 METALS LAB								
131-59-18D	FKL-49	HCl METALS LAB								
131-59-19A	FKL-125	NITRIC ACID METALS LAB								
131-59-19B	FKL-126	0.1NHNO3 METALS LAB								
131-59-19C	FKL-127	HNO3/H2O2 METALS LAB								

Receiving Remarks:

Archive Remarks:

Custody Seal : Absent Chain of Custody : Present Sample Tags : Present Sample Tag Numbers: Listed SMO Forms : N/A	Sample Seals: Absent Accept.Cond.: YES	TLI Project Number	38139	Book 131
		Client: ERG02	Eastern Research Group	
		Date Received	07/22/96 By	Page 59
Box	NO COOLANT	Carrier and Number	WALTER MURRY	

TLI Number mR/H:CPM	Client ID	Matrix Location	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To ARCHIVE Date/Init	DISPOSED Date/Init
131-59-19D	FKL-129	KMNO4 METALS LAB	7/23/96							
131-59-19E	FKL-130	HCl METALS LAB								
131-59-20A	FKL-132 SOUTH	FINAL PR METALS LAB								
131-59-20B	FKL-131 NORTH	FINAL PR METALS LAB								

Receiving Remarks:

Archive Remarks:

Project # 38139

Client: Eastern Research Group

Date/Int.: 7/24/96 x/SRB

Client Run# Incinerator, Run 1

Triangle Laboratories of RTP
(919) 544 5729

Analytes

ICP	GFAA	FLAA	CVAA
As Be Cd Cr Pb Sb			Hg

120

CONT # 1 — Filter Type: G or Q

label 131-59-1A

CONT # 2 — Acetone Rinse

label 131-59-1B

Volume 152 ml

Dessicate to dryness and redissolve in 10ml con HNO3 — Int x/SRB Date 7/24/96

Microwave dig with conc. HF and conc. HNO3 — Int x Date 7/30/96

CONT # 3 — HNO3 Rinse

label 131-59-1C

Volume 262 ml

Reduce volume to 20 ml on hotplate — Int x/SRB Date 7/24/96

Microwave dig with conc. HF and conc. HNO3 — Int x Date 7/30/96

label 131-59-1BC

Combine digestates

Front Half Digestate

Add ~~500~~ ul Sc

Dilute to 100 mls — Int x Date 7/30/96

label 131-59-1ABC
Volume 100 Ml

For Metal

label 131-59-1ABC Int x

Volume ~~100~~ 50 ml 9-4-96 Date 7/30/96

(1 post digest spike on FH for GFAA))

FH & BH Post dig. spk.

ppb (Instrument spiked)

For Hg

label 131-59-1ABC Int x

Volume ~~100~~ 50 ml Date 7/30/96

9/20/96

Allquot A 25 ml

(No spike required)

Aliquot B 25 ml x/KDJ 8/5/96

CONT # 4 — Back Half Impinger

label 131-59-1D

Volume 620 ml

For Metals

label 131-59-1D

Volume 520 ml

Reduce Volume to 20 ml on Hotplate — Int x/SRB Date 7/24/96

Hotplate dig with HNO3 and H2O2 — Int x Date 7/30/96

Add ~~500 ul Sc — Int — Date~~

Dilute to 100 mls — Int x Date 7/30/96

label 131-59-1D Int x

Volume 100 ml Date 7/30/96

(One post digestion spk on BH for GFAA)

For Hg

label 131-59-1D

Volume 100 ml

Hg Impingers

CONT # 5A — HNO3

label 131-59-1E

Volume 64 ml

Aliquot A 25 ml

Aliquot B 25 ml

Int x/KDJ

Date 8/5/96

CONT # 5B — KMnO4

label 131-59-1F

Volume 340 ml

Aliquot A 50 ml

Aliquot B 50 ml

Int x/KDJ

Date 8/5/96

CONT # 5C — HCl

label ~~131-59-1G~~ -1F

Volume 40 ml

Aliquot A 50 ml

Aliquot B 50 ml

Int LDJ

Date 8-6-96

(Duplicate Analysis of Ea[ch])

Sample

label 131-59-1D Int x/KDJ

Volume 100 ml Date 8/5/96

Aliquot A 25 ml

Aliquot B 25 ml

Spike
(1 BH Hg Spike required)

label 131-59-1D Int LDJ

Volume 100 ml Date 8/5/96

Aliquot A 25 ml

Aliquot B 25 ml

spk 5 ml of 100 ppb — Int LDJ

final spk conc. added 5 ppb — Date 8/5/96

FH & BH Serial dilution performed

ml to ml FV + ul Sc

Initials

Project # 38139

Client:

Date/Init.:

Client Run# Incinerator, Run 2

Triangle Laboratories of RTP

(919) 544 5729

Analytes: ICP, GFAA, FLAA, CVAA

121

Hg Impingers

CONT # (1) Filter Type: G or Q
label 131-59-2A

Microwave dig with conc. HF and conc. HNO3 — Init x — Date 7/30/96

CONT # (2) Acetone Rinse
label 131-59-2B
Volume 106 ml

Dessicate to dryness and redissolve in 10ml con HNO3 — Init x/SRB — Date 7/24/96

Combine digestates

Front Half Digestate

Add 500 ul Sc

Dilute to 100 mls — Init x — Date 7/30/96

label 131-59-2ABC
Volume 100 Ml

For Metal
label 131-59-2ABC — Init x
Volume ~~100 ml~~ 50 ml ~8/20/96 — Date 7/30/96
(post digest spike on FH for GFAA))

& BH Post dig. spk

[redacted] Pl[redacted]nsti[redacted]nt s[redacted]d)

For Hg
label 131-59-2ABC — Init x
Volume ~~100~~ 50 ml ~8/20/96 — Date 7/30/96

Aliquot A 25 ml
(No spike required)
Aliquot 25

x/LDJ

CONT # (3) HNO3 Rinse
label 131-59-2C
Volume 265 ml

Reduce volume to 20 ml on hotplate — Init x/SRB — Date 7/24/96

Microwave dig with conc. HF and conc. HNO3 — Init x — Date 7/30/96
label 131-59-2BC

CONT # (4) Back Half Impinger
label 131-59-2D
Volume 560 ml

For Metals
label 131-59-2D
Volume 460 ml

Reduce Volume to 20 ml on Hotplate — Init x/SRB — Date 7/24/96

Hotplate dig with HNO3 and H2O2 — Init x — Date 7/30/96

Add 500 ul Sc — Init — Date

Dilute to 100 mls — Init x — Date 7/30/96

label 131-59-2D — Init x
Volume 100 ml — Date 7/30/96

(One post digestion spk on BH for GFAA)

[redacted]

For Hg
label 131-59-2D
Volume 100 ml

Sample
label 131-59-2D — Init x/LDJ
Volume 100 ml — Date 8/5/96
Aliquot A 25 ml
Aliquot B 25 ml

CONT # (5A) HNO3
label 131-59-2E
Volume 55 ml
Aliquot A 25 ml
Aliquot B 25 ml
Init x/LDJ
Date 8/5/96

CONT # (5B) KMnO4
label 131-59-2F
Volume 340 ml
Aliquot A 50 ml
Aliquot B 50 ml
Init x/LDJ
Date 8/5/96

CONT # (5C) HCl
label 131-59-2G (2F)
Volume 53 ml
Aliquot A 50 ml
Aliquot B 50 ml
Init LDJ
Date 8-6-96

(Duplicate Analysis of Eac

Spike
(1 BH Hg Spike required)
label 131-59-2D — Init x/LDJ
Volume 100 ml — Date 8/5/96
Aliquot A 25 ml
Aliquot B 25 ml
spk 5 ml of 100 ppb — Init LDJ
final spk conc. added 5 ppb — Date 8/5/96

FH & BH Serial dilution performed
ml to ml FV ul Sc
Initials

[redacted]

Project # 38139

Client:

Date/Int.:

Client Run# Incinerator, Run 3

Triangle Laboratories of RTP
(919) 544-5729

Analytes: ICP | GFAA | FLAA | CVAA

122

CONT # (1) Filter Type: G or Q
label 131-59-3A

Microwave dig with conc. HF and conc. HNO3 — Int x — Date 7/30/96

CONT # (2) Acetone Rinse
label 131-59-3B
Volume 129 ml

Dessicate to dryness and redissolve in 10ml con HNO3 — Int x/SRB — Date 7/24/96

Combine digestates

Front Half Digestate

Add 500 ul Sc

Dilute to 100 mls — Int x — Date 7/30/96

label 131-59-3ABC
Volume 100 Ml

For Metal
label 131-59-3ABC — Int x
Volume 100 ml 50 — Date 7/30/96 — 7/1/96
(1 post digest spike on FH for GFAA))
FH & BH Post dig. spk
(ppb (instrument ...)

For Hg
label 131-59-3ABC — Int x
Volume 100 50 ml — Date 7/30/96 — 8/10/96
Aliquot A 25 ml — x/RDJ 8/5/96
(No spike required)

CONT # (3) HNO3 Rinse
label 131-59-3C
Volume 215 ml

Reduce volume to 20 ml on hotplate — Int x/SRB — Date 7/24/96

Microwave dig with conc. HF and conc. HNO3 — Int x — Date 7/30/96
label 131-59-3BC

CONT # (4) Back Half Impinger
label 131-59-3D
Volume 600 ml

For Metals — label 131-59-3D — Volume 500 ml
For Hg — label 131-59-3D — Volume 100 ml

Reduce Volume to 20 ml on Hotplate — Int. x/SRB — Date 7/24/96

Hotplate dig with HNO3 and H2O2 — Int. x — Date 7/30/96

Add 500 ul Sc — Int. — Date

Dilute to 100 mls — Int x — Date 7/30/96

label 131-59-3D — Int x
Volume 100 ml — Date 7/30/96
(One post digestion spk on BH for GFAA)

Hg Impingers

CONT # (5A) HNO3
label 131-59-3E
Volume 55 ml
Aliquot A 25 ml
Aliquot B 25 ml
Int x/RDJ
Date 8/5/96

CONT # (5B) KMnO4
label 131-59-3F
Volume 330 ml
Aliquot A 50 ml
Aliquot B 50 ml
Int x/RDJ
Date 8/5/96

CONT # (5C) HCl
label 131-59-3G 3F
Volume 58 ml
Aliquot A 50 ml
Aliquot B 50 ml
Int LDJ
Date 8-6-96

(Duplicate Analysis of Eac...

Sample
label 131-59-3D — Int x/RDJ
Volume 100 ml — Date 8/5/96
Aliquot A 25 ml
Aliquot B 25 ml

Spike
(1 FH Hg Spike required)
label 131-59-3D — Int x/RDJ
Volume 100 ml — Date 8/5/96
Aliquot A 25 ml
Aliquot B 25 ml
spk 5 ml of 100 ppb — Int LDJ
final spk conc added 5 ppb — Date 8/5/96

FH & BH Serial dilution performed
ml to ml FV of Sc
Initials

Project # 38139

Client:

Date/Init.:

Client Run# Incinerator, FB3 Blank

Triangle Laboratories of RTP
(919) 544-5729

Analytes: ICP GFAA FLAA CVAA

123

CONT # 1 — Filter Type G or Q — label 131-59-5A

CONT # 2 — Acetone Rinse — label 131-59-4B — Volume 80ml

Dessicate to dryness and redissolve in 10ml conc HNO3 — Init x/SRB — Date 7/24/96

CONT # 3 — HNO3 Rinse — label 131-59-5D — Volume 140ml TV, 100 ml used

Reduce volume to 20 ml on hotplate — Init x/SRB — Date 7/24/96

CONT # 4 — Back Half Impinger — label 131-59-5C (50ml), 131-59-5B (25ml) — Volume 325ml

Microwave dig with conc. HF conc. HNO3 — Init x — Date 7/30/96

Microwave dig with conc. HF and conc. HNO3 — Init x — Date 7/30/96 — label 131-59-4B5D

Combine digestates

Front Half Digestate

Add ~~500~~ ul Sc

Dilute to 100 mls — Init x — Date 7/30/96

label 131-59-5A4B5D — Volume 100 Ml

For Metal: label 131-59-5A4B5D — Volume ~~100ml~~ 50 @ — 7/30/96 — Init x — Date 7/30/96

(post digest spike on FH for GFAA))

FH & BH Post dig. spk.

For Hg: label 131-59-5A4B5D — Volume ~~100~~ 50 @ ml — 7/30/96 — Init x — Date 7/30/96

Aliquot A 25 ml — x/LDJ

(No spike required)

For Metals: label 131-59-5C5B — Volume 75ml

For Hg: label — Volume

Reduce Volume to 20 ml on Hotplate — Init x — Date 7/30/96

Hotplate dig with HNO3 and H2O2 — Init x — Date 7/31/96

~~100~~ 500 ~~ul~~ Sc — Init. — Date

Dilute to 100 mls — Init x — Date 7/31/96

label 131-59-5BC — Init x — Volume 100 ml — Date 7/31/96

(One post digestion spk on BH for GFAA)

Hg Impingers

	CONT # 5A HNO3	CONT # 5B KMNO4	CONT # 5C HCl
label	131-59-5B	131-59-5E	131-59-5F (5E)
Volume	68 TV ml, 43 ml	310 ml	51 ml
Aliquot A	20 ml	50 ml	50ml
Aliquot B	20 ml	50 ml	50ml
Init	x/LDJ	x/LDJ	LDJ
Date	8/5/96	8/5/96	8-6-96

(Duplicate Analysis of For

Sample: label 131-59-5BC — Init x/LDJ — Volume 100 ml — Date 8/5/96 — Aliquot A 25 ml — Aliquot B 25 ml

Spike (1 BH Hg Spike required): label — Init — Volume — Date — Aliquot A — Aliquot B — spk of ml ppb — Init — final spk conc added ppb — Date

FH & BH Serial dilution performed

ml to ml FV + ul Sc

Initials

Project # 38139

Client:

Date/Int.:

Client Run# Sales Gas, Run 1

Triangle Laboratories of RTP
(919) 544-5729

Analytes: ICP GFAA FLAA CVAA

124

CONT # (1) Filter Type: G or Q
label

CONT # (2) Acetone Rinse
label
Volume

Dessicate to dryness and redissolve in 10ml con HNO3 Int Date

Microwave dig with conc. HF and conc. HNO3 Int Date

Combine digestates

Front Half Digestate

Add 100 uL Sc

Dilute to 100 mls Int LDJ Date 7/26/96

label 131-54-6A
Volume 100 Ml

For Metal
label 131-59-6A Int
Volume 50 Date
(post digest spike on FH for GFAA)
FH & BH Post dig. spk
ppb (Instrument spiked)

For Hg
label 131-59-6A Int x/LRDJ
Volume ~~100~~ 50 ml Date 8/5/96 ~8/20/96
Aliquot A 25 ml
(No spike required)
Aliquot B 25 ml

CONT # (3) HNO3 Rinse
label 131-54-6A
Volume 58 ml

Reduce volume to 20 ml on hotplate Int x/SRB Date 7/24/96

Microwave dig with conc. HF and conc. HNO3 Int SRB Date 7/26/96

label 131-54-6A

CONT # (4) Back Half Impinger
label 131-54-6C
Volume 265 ml

For Metals
label 131-54-6C
Volume 165 ml

For Hg
label 131-54-6C
Volume 100 ml

Reduce Volume to 20 ml on Hotplate Int x/SRB Date 7/24/96

Hotplate dig with HNO3 and H2O2 Int x Date 7/30/96

Add 500 uL Sc Int Date

Dilute to 100 mls Int x Date 7/30/96

label 131-54-6C Int x
Volume 100 ml Date 7/30/96
(One post digestion spk on BH for GFAA)

Sample
label 131-54-6C Int x/LRDJ
Volume 100 ml Date 8/5/96
Aliquot A: 25 ml
Aliquot B: 25 ml

Hg Impingers

CONT # (5A) HNO3
label 131-54-6B
Volume 46 ml
Aliquot A 20 ml
Aliquot B 20 ml
Int x/LRDJ
Date 8/5/96

CONT # (5B) KMnO4
label 131-59-6D
Volume 320 ml
Aliquot A 50 ml
Aliquot B 50 ml
Int x/LRDJ
Date 8/5/96

CONT # (5C) HCl
label 131-59-6E (d)
Volume 62 ml
Aliquot A 50 ml
Aliquot B 50 ml
Int LDJ
Date 8-6-96

(Duplicate Analysis of Eac

Spike
(1 BH Hg Spike required)
label Int
Volume Date
Aliquot A
Aliquot B
spk ml of ppb Int
final spk conc added ppb Date

FH & BH Serial dilution performed
ml to ml FV = ul
Initials

Project # 38139

Client:

Date/Int.:

Client Run# Saks Gas, Run 2

Triangle Laboratories of RTP

(919) 544-5729

Analytes: ICP | GFAA | FLAA | CVAA

125

CONT # (X) Filter Type G or Q
label____

CONT # (X) Acetone Rinse
label____
Volume____

Dessicate to dryness and redissolve in 10ml con HNO3 — Int ____ Date ____

Microwave dig. conc. HF conc. HNO3 — Int ____ Date ____

Combine digestates

Front Half Digestate

Add 500 uL Sc

Dilute to 100 mls — Int LDJ — Date 7-29-96
label 131-59-7A
Volume 100 ML

For Metals:
label 131-59-7A — Int ____
Volume 50 — Date ____
(Post digest spike on FH for GFAA))
FH & BH Post dig. spk.

For Hg:
label 131-59-7A — Int x / LDJ
Volume ~~100~~ 50 ml — 8/6/96 — Date 8/5/96
Aliquot A: 25 ml
Aliquot B: 30

CONT # (3) HNO3 Rinse
label 131-59-7A
Volume 20ml

Reduce volume to 20 ml on hotplate — Int x / SRB — Date 7/24/96

Microwave dig with conc. HF and conc. HNO3 — Int SRB — Date 7/26/96
label 131-59-7A

CONT # (4) Back Half Impinger
label 131-59-7C
Volume 275ml

For Metals:
label 131-59-7C
Volume 175ml

For Hg:
label 131-59-7C
Volume 100ml

Reduce Volume to 20 ml on Hotplate — Int x / SRB — Date 7/31/96

Hotplate dig with HNO3 and H2O2 — Int x — Date 7/30/96

Add 500 uL Sc — Int. ____ Date ____

Dilute to 100 mls — Int. x — Date 7/31/96

label 131-59-7C — Int x
Volume 100ml — Date 7/31/96

(Post digest spk on FH for GFAA)

Hg Impingers

CONT # (5A) HNO3
label 131-59-7B
Volume 41 ml
Aliquot A 20ml
Aliquot B 20ml
Int x / LDJ
Date 8/5/96

CONT # (5B) KMNO4
label 131-59-7D
Volume 370 ml
Aliquot A 50ml
Aliquot B 50ml
Int x / LDJ
Date 8/5/96

CONT # (6C) HCl
label 131-59-7E 7D
Volume 61 ml
Aliquot A 50ml
Aliquot B 50ml
Int LDJ
Date 8-6-96

(Duplicate Analysis of Each)

Sample:
label 131-59-7C — Int LDJ
Volume 100ml — Date 8-6-96
Aliquot A: 20ml
Aliquot B: 20ml

Spike (1 till Hg Spike required):
label 131-59-7C — Int LDJ
Volume 100ml — Date 8-6-96
Aliquot A: 20ml
Aliquot B: 20ml
spk 5 ml of 100 ppb — Int LDJ
final spk conc added 5 ppb — Date 8-6-96

FH & BH Serial dilution performed
ml to ____ ml FV ____ ul Sc
Ids: ____

Project # 38139

Client:

Date/Int.:

Client Run# Sales Gas, Run 3

Triangle Laboratories of RTP
(919) 544 5729

Analytes: ICP | GFAA | FLAA | CVAA

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CONT # (1) Filter Type: G or Q
label

CONT # (2) Acetone Rinse
label
Volume

Dessicate to dryness and redissolve in 10ml con HNO3 Int Date

Microwave dig with conc. HF and conc. HNO3 Int Date

Combine digestates

Front Half Digestate

Add ~~500~~ ul Sc LDJ

Dilute to 100 mls Int LDJ Date 7/26/96

label 131-59-8A
Volume 100 Ml

For Metal
label 131-59-8A Int
Volume 50 Date
(One post digest spike on FH for GFAA)
FH & BH Post dig spk
ppb (Instrument spiked)

For Hg
label 131-59-8A Int x/LDJ
Volume ~~100~~ 50 ml ~7/30/96 Date 8/5/96
Aliquot A 25 ml
(No spike required)
Aliquot B 25 ml

CONT # (3) HNO3 Rinse
label 131-59-8A
Volume 56ml
Reduce volume to 20 ml on hotplate Int x/SRB Date 7/24/96
Microwave dig with conc. HF and conc. HNO3 Int SRB Date 7/26/96
label 131-59-8A

CONT # (4) Back Half Impinger
label 131-59-8C
Volume 305ml

For Metals
label 131-59-8C
Volume 205ml

Reduce Volume to 20 ml on Hotplate Int x/SRB Date 7/24/96

Hotplate dig with HNO3 and H2O2 Int x Date 7/30/96

Add 500 ul Sc Int Date

Dilute to 100 mls Int x Date 7/30/96

label 131-59-8C Int x
Volume 100ml Date 7/30/96
(One post digestion spk on BH for GFAA)

For Hg
label 131-59-8C
Volume 100ml

Hg Impingers

CONT # (5A) HNO3
label 131-59-8B
Volume 42 ml
Aliquot A 20ml
Aliquot B 20ml
Int x/LDJ
Date 8/5/96

CONT # (5B) KMNO4
label 131-59-8D
Volume 340 ml
Aliquot A 50ml
Aliquot B 50ml
Int x/LDJ
Date 8/5/96

CONT # (5C) HCl
label 131-59-8E -8D
Volume 57 ml
Aliquot A 50ml
Aliquot B 50ml
Int LDJ
Date 8-6-96

(Duplicate Analysis of Ea[ch]

Sample
label 131-59-8C Int LDJ
Volume 100ml Date 8-6-96
Aliquot A 25ml
Aliquot B 25ml

Spike (1.00 Hg Spike required)
label 131-59-8C Int LDJ
Volume 100ml Date 8-6-96
Aliquot A 25ml
Aliquot B 25ml
spk 5 ml of 100 ppb Int LDJ
final spk conc added 5 ppb Date 8-6-96

FH & BH Serial dilution performed
ml to ml FV ul Sc
Initials

Project # 38139

Client:

Date/Int.:

Client Run# Sales Gas, FB 2 Blank

Triangle Laboratories of RTP
(919) 544-5729

Analytes: ICP | GFAA | HAA | CVAA

127

CONT # 1 ~~Filter Type: G or Q~~ label

CONT # 2 ~~Acetone Rinse~~ label Volume

Dessicate to dryness and redissolve in 10ml con HNO3 Int Date

Microwave dig with conc. HF conc. HNO3 Int Date

Combine digestates

Front Half Digestate

~~Add 100 uL Sc~~

Dilute to 100 mls Int LDJ Date 7/26/96

label 131-59-9A(?) Volume 100 Ml

For Metal label 131-59-9A Int Volume 50 Date

(post digest spike on FH for GFAA)

& BH Post dig. spk

[redacted] ppb (instrument spiked) [redacted]

For Hg label 131-59-9A Int LDJ Volume ~~100~~ ml Date 8/6/96 50 - 8/20/96

Aliquot A: 25 ml

Aliquot B: 25 ml

CONT # 3 HNO3 Rinse

label 131-59-9A Volume 44ml

Reduce volume to 20 ml on hotplate Int 2/ SKB Date 7/24/96

Microwave dig with conc. HF and conc. HNO3 Int SKB Date 7/26/96

label 131-59-9A

CONT # 4 Back Half Impinger 9C TV=355ml

label 131-59-9C (50ml) 9B (25ml) Volume 75ml

For Metals label 131-59-9C 9B Volume 75ml

For Hg label Volume

Reduce Volume to 20 ml on Hotplate Int 2C Date 7/30/96

Hotplate dig with HNO3 and H2O2 Int 2C Date 7/31/96

~~Add 500 uL Sc Int Date~~

Dilute to 100 mls Int 2C Date 7/31/96

label 131-59-9BC Int 2C Volume 100ml Date 7/31/96

(One post digestion spk on BH for GFAA)

[redacted] [redacted] [redacted]

Hg Impingers

CONT # 5A HNO3 label 131-59-9B Volume 69ml used 44ml Aliquot A 20ml Aliquot B 20ml Int LDJ Date 8-6-96

CONT # 5B KMNO4 label 131-59-9D Volume 240 ml Aliquot A 50ml Aliquot B 50ml Int LDJ Date 8-6-96

CONT # 5C HCl label 131-59-9E (9D) Volume 49 ml Aliquot A 50ml Aliquot B 50ml Int LDJ Date 8-6-96

(Duplicate Analysis of Ea...

Sample label 131-59-9ABC Int LDJ Volume 100ml Date 8/6/96 Aliquot A: 25ml Aliquot B 25ml

Spike (1 BH Hg Spike required) label Int Volume Date Aliquot A Aliquot B

spk of ml ppb Int

final spk conc added ppb Date

FH & BH Serial dilution performed

ml to ml TV + of

ratio

Project # 38139

Client:

Date/Int.:

Client Run# Header, FBI Blank

Triangle Laboratories of RTP
(919) 544 5729

Analytes: ICP, GFAA, FLAA, CVAA

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CONT # (1) ~~Filter Type G or Q~~
label

CONT # (2) ~~Acetone Rinse~~
label
Volume

Dessicate to dryness and redissolve in 10ml con HNO3 — Int, Date

Microwave dig 4th conc. HF conc. HNO3 — Int, Date

Combine digestates

Front Half Digestate

~~Add 50 uL Sc~~

Dilute to 100 mls — Int LDJ, Date 7-26-96
label 131-59-11A
Volume 100 Ml

For Metal
label 131-59-11A Int
Volume 50 Date
(post digest spike on FH for GFAA))
FH & BH Post dig. spk
ppb (final conc. added)

For Hg
label 131-59-11A Int LDJ
Volume 59 ~~100~~ ml 8/6/96 Date 8/6/96
Aliquot A: 25 ml
(No spike required)

CONT # (3) HNO3 Rinse
label 131-59-11A
Volume 46 ml

Reduce volume to 20 ml on hotplate — Int x/SRB, Date 7/24/96

Microwave dig with conc. HF and conc. HNO3 — Int SRB, Date 7/26/96
label 131-59-11A

CONT # (4) Back Half Impinger
11C TV = 350 ml
label B1-59-11C (50ml), 131-59-11B (25ml)
Volume

For Metals
label 131-59-11BC
Volume 75 ml

For Hg
label
Volume

Reduce Volume to 20 ml on Hotplate — Int x, Date 7/30/96

Hotplate dig with HNO3 and H2O2 — Int x, Date 7/31/96

~~Add 500 uL Sc~~ — Int, Date

Dilute to 100 mls — Int x, Date 7/31/96

label B1 59-11BC Int x
Volume 100 ml Date 7/31/96
(One post digestion spk on BH for GFAA)

label 131-59-11A/11C Int LDJ
Volume 100 ml Date 8/6/96
Aliquot A: 25 ml
Aliquot B: 25 ml

Sample

CONT # (5A) HNO3
label 131-59-11B
Volume 44 TV ml, 19 ml
Aliquot A 5 ml
Aliquot B 5 ml
Int LDJ
Date 8/6/96

Hg Impingers

CONT # (5B) KMnO4
label 131-59-11D
Volume 380 ml
Aliquot A 50 ml
Aliquot B 50 ml
Int LDJ
Date 8/6/96

CONT # (5C) HCl
label 131-59-11E
Volume 80 ml
Aliquot A 50 ml
Aliquot B 50 ml
Int LDJ
Date 8/6/96

(Duplicate Analysis of Eac

Spike
(1 BH Hg Spike required)

label Int
Volume Date
Aliquot A:
Aliquot B:
spk ___ ml of ___ ppb Int
final spk conc added ___ ppb Date

FH & BH Serial dilution performed
ml to ml FV + ul Sc
Initials:

Project # 38139

Client:

Date/Int.:

Client Run# South Header, Run 1

Triangle Laboratories of RTP
(919) 544 5729

Analytes: ICP | GFAA | HAA | CVAA

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Hg Impingers

CONT # 1 — Filter Type: G or Q — label ___

CONT # 2 — Acetone Rinse — label ___ Volume ___

Dessicate to dryness and redissolve in 10ml con HNO3 — Int ___ Date ___

Microwave dig with conc. HF conc. HNO3 — Int ___ Date ___

CONT # 3 — HNO3 Rinse — label 131-59-12A — Volume 76ml

Reduce volume to 20 ml on hotplate — Int x/SRB — Date 7/24/96

Microwave dig with conc. HF and conc. HNO3 — Int SRB — Date 7/26/96 — label 131-59-12A

Combine digestates

Front Half Digestate

~~Add 500 uL Sc~~

Dilute to 100 mls — Int LDJ — Date 7-26-96 — label 131-59-12A — Volume 100ML

For Metal — label 131-59-12A — Int ___ — Volume 50 — Date ___

(post digest spike on FH for GFAA))

FH & BH Post dig. spk.

[redacted] Hg [redacted] instr [redacted] ml S [redacted] d)

For Hg — label 131-59-12A — Int LDJ — Volume ~~100~~ 50 ml — 8/20/96 — Date 8/6/96

Aliquot A 25 ml (No spike required) 25

CONT # 4 — Back Half Impinger — label 131-59-12C — Volume 335 ml

For Metals — label 131-59-12C — Volume 235ml

For Hg — label 131-59-12C — Volume 100ml

Reduce Volume to 20 ml on Hotplate — Int x/SRB — Date 7/24/96

Hotplate dig with HNO3 and H2O2 — Int x — Date 7/30/96

~~Add 500 uL Sc — Int — Date~~

Dilute to 100 mls — Int x — Date 7/30/96

label 131-59-12C — Int x — Volume 100 ml — Date 7/30/96

(One post digestion spk on BH for GFAA)

CONT # 5A — HNO3 — label 131-59-12B — Volume 47 ml — Aliquot A 20ml — Aliquot B 20ml — Int LDJ — Date 8/6/96

CONT # 5B — KMNO4 — label 131-59-12D — Volume 340 ml — Aliquot A 50ml — Aliquot B 50ml — Int LDJ — Date 8/6/96

CONT # 5C — HCl — label 131-59-12E (12D) — Volume 80 ml — Aliquot A 50ml — Aliquot B 50ml — Int LDJ — Date 8/12/96

(Duplicate Analysis of Lar

Sample — label 131-59-12C — Int LDJ — Volume 100ml — Date 8-12-96 — Aliquot A 20ml — Aliquot B 20ml

Spike (FH/Hg Spike required) — label 131-59-12Ddup — Int LDJ — Volume 100ml — Date 8-12-96 — Aliquot A 20ml — Aliquot B 20ml — spk 5 ml of 100 ppb — Int LDJ — final spk conc added 5 ppb — Date 8-12-96

FH & BH Serial dilution performed

___ ml to ___ ml FV + ___ uL Sc

Initials

Project # 38139

Client:

Date/Int.:

Client Run# South Header, Run 2

Triangle Laboratories of RTP
(919) 544 5729

Analytes: ICP GFAA FLAA CVAA

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CONT # (1) Filter Type: G or Q — label

CONT # (2) Acetone Rinse — label — Volume

Dessicate to dryness and redissolve in 10ml con HNO3 — Int — Date

Microwave dig with conc. HF and conc. HNO3 — Int — Date

Combine digestates

Front Half Digestate

~~Add 500 ul Sc~~

Dilute to 100 mls — Int LDJ — Date 7-26-96

label 131-59-13A

Volume 100 ml

For Metal — label 131-59-13A — Int — Volume 50 — Date

(One post digest spike on FH for GFAA)

FH & BH Post dig. spk

ppb (instrument spiked)

For Hg — label 131-59-13A — Int LDJ — Volume ~~100~~ 50 8/10/96 — Date 8-7-96

Aliquot A: 25 ml (No spike required)

Aliquot B: 25 ml

CONT # (3) HNO3 Rinse — label 131-59-13A — Volume 58 ml

Reduce volume to 20 ml on hotplate — Int x/SRB — Date 7/24/96

Microwave dig with conc. HF and conc. HNO3 — Int SRB — Date 7/26/96

label 131-59-13A

CONT # (4) Back Half Impinger — label 131-59-13C — Volume 370 ml

For Metals — label 131-59-13C — Volume 270 ml

For Hg — label 131-59-13C — Volume 100 ml

Reduce Volume to 20 ml on Hotplate — Int SRB/x — Date 7/24/96

Hotplate dig with HNO3 and H2O2 — Int x — Date 7/30/96

~~Add 500 uL Sc~~ — Int — Date

Dilute to 100 mls — Int x — Date 7/30/96

label 131-59-13C — Int x — Volume 100 ml — Date 7/30/96

(One post digestion spk on BH for GFAA)

Hg Impingers

CONT # (5A) HNO3 — label 131-59-13B — Volume 46 ml — Aliquot A 20 ml — Aliquot B 20 ml — Int LDJ — Date 8-7-96

CONT # (5B) KMNO4 — label 131-59-13D — Volume 350 ml — Aliquot A 50 ml — Aliquot B 50 ml — Int LDJ — Date 8-7-96

CONT # (5C) HCl — label 131-59-13E (13D) — Volume 83 ml — Aliquot A 50 ml — Aliquot B 50 ml — Int LDJ — Date 8-7-96

(Duplicate Analysis of Ea[ch])

Sample — label 131-59-13C — Int LDJ — Volume 100 ml — Date 8-6-96 — Aliquot A: 20 ml — Aliquot B: 20 ml

Spike (1 BH Hg Spike required) — label 131-59-13C — Int LDJ — Volume 100 ml — Date 8-6-96 — Aliquot A 20 ml — Aliquot B 20 ml

spk 5 ml of 100 ppb — Int LDJ

final spk conc. added 5 ppb — Date 8/6/96

FH & BH Serial dilution performed

ml to ml FV ul Sc

Initials

ojecl # 38139

lenl:

ale/Inl.:

lenl Run# South Header, Run 3

Triangle Laboratories of RTP

(919) 544-5729

Analytes

ICP | GFAA | FLAA | CVAA

131

CONT # 1 — Filter ...o. G or Q

Label

CONT # 2 — Acetone Rinse

Label

Volume

Dessicate to dryness and redissolve in 10ml con HNO3 — Int — Date

CONT # 3 — HNO3 Rinse

Label 131-59-14A

Volume 61 ml

Reduce volume to 20 ml on hotplate — Int x/SRB — Date 7/24/96

CONT # 4 — Back Half Impinger

Label 131-59-14C

Volume 360 ml

For Metals — For Hg

Label 131-59-14C — Label 131-59-14C

Volume 260 ml — Volume 100 ml

Hg Impingers

CONT # 5A — HNO3

Label 131-59-14B

Volume 51 ml

Aliquot A 25 ml

Aliquot B 25 ml

Int LDJ

Date 8/6/96

CONT # 5B — KMNO4

Label 131-59-14D

Volume 330 ml

Aliquot A 50 ml

Aliquot B 50 ml

Int LDJ

Date 8/6/96

CONT # 5C — HCl

Label 131-59-14E -14D

Volume 58 ml

Aliquot A 50 ml

Aliquot B 50 ml

Int LDJ

Date 8/6/96

(Duplicate Analysis of Ea...

...owave dig conc. HF conc. HNO3 — Int — Date

Microwave dig with conc. HF and conc. HNO3 — Int SRB — Date 7/26/96

Label 131-59-14A

Combine digestates

Front Half Digestate

Add ~~X~~00 ul Sc

Dilute to 100 mls — Int LDJ — Date 7-26-96

Label 131-59-14A

Volume 100 Ml

Reduce Volume to 20 ml on Hotplate — Int SRB/x — Date 7/24/96

Hotplate dig with HNO3 and H2O2 — Int x — Date 7/30/96

Add 500 ul Sc — X — Int — Date

Dilute to 100 mls — Int x — Date 7/30/96

Label 131-59-14C — Int x

Volume 100 ml — Date 7/30/96

(One post digestion spk on BH for GFAA)

Sample

Label 131-59-14G — Int LDJ

Volume 100 ml — Date 8-7-96

Aliquot A 25 ml

Aliquot B 25 ml

Spike

(1 BH Hg Spike required)

Label 131-59-14G — Int LDJ

Volume 100 ml — Date 8-12-96

Aliquot A 25 ml

Aliquot B 25 ml

spk 5 ml of 100 ppb — Int LDJ

final spk conc added 5 ppb — Date 8-12-96

FH & BH Serial dilution performed

ml to ml FV ul Sc

Initials

...r Metal

...el 131-59-14A — Int

...ume 50 — Date

...st digest spike on FH for GFAA)

BH Post dig. spk

DD sic ml si D

For Hg

Label 131-59-14A — Int LDJ

Volume 100 50 ml — Date 8-7-96

8/10/96

Aliquot A 25 ml

(No spike required) 25

Project # 38139

Client:

Date/Int.:

Client Run# North Header, Run 3

Triangle Laboratories of RTP
(919) 544-5729

ICP GFAA FLAA CVAA

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Hg Impingers

CONT # ~~1~~ Filter type: G or Q — label

CONT # ~~2~~ Acetone Rinse — label, Volume

Dessicate to dryness and redissolve in 10ml conc HNO3 — Int, Date

Reduce volume to 20 ml on hotplate

Microwave dig with conc. HF and conc HNO3 — Int, Date

Microwave dig with conc. HF and conc HNO3 — Int SRB, Date 7/26/96

label 131-59-15A

Combine digestates

Front Half Digestate

Add ~~20~~ ul Sc

Dilute to 100 mls — Int LDJ, Date 7-26-96

label 131-59-15A

Volume 100 ml

For Metal: label 131-59-15A, Int, Volume 50, Date

(post digest spike on FH for GFAA)

& BH Post dig. spk ... ppb (Instrument spiked)

For Hg: label 131-59-15A, Int LDJ, Volume ~~100~~ 90 ml, Date

Aliquot A 25 ml (No spike required)

Aliquot B 25 ml

CONT # 3 HNO3 Rinse

label 131-59-15A

Volume ~~13~~ 58 ml (EE 7/24/96)

Int X/SRB

Date 7/24/96

CONT # 4 Back Half Impinger

label 131-59-15C

Volume 410 ml

For Metals: label 131-59-15C, Volume 310 ml

For Hg: label 131-59-15C, Volume 100 ml

Reduce Volume to 20 ml on Hotplate — Int SRB/X, Date 7/24/96

Hotplate dig with HNO3 and H2O2 — Int X, Date 7/30/96

Add ~~500 uL Sc~~ — Int, Date

Dilute to 100 mls — Int X, Date 7/30/96

label 131-59-15C, Int X

Volume 100 ml, Date 7/30/96

(One post digestion spk on BH for GFAA)

CONT # 5A HNO3 — label 131-59-15B, Volume 66 ml, Aliquot A 30 ml, Aliquot B 30 ml, Int LDJ, Date 8-7-96

CONT # 5B KMNO4 — label 131-59-15D, Volume 400 ml, Aliquot A 50 ml, Aliquot B 50 ml, Int LDJ, Date 8-7-96

CONT # 5C HCl — label 131-59-15E (BD), Volume 164 ml, Aliquot A 50 ml, Aliquot B 50 ml, Int LDJ, Date 8-7-96

(Duplicate Analysis of Ea

Sample: label 131-59-15C, Int LDJ, Volume 100 ml, Date 8-7-96, Aliquot A: 20 ml, Aliquot B: 20 ml

Spike (1 BH Hg Spike required): label 131-59-15C, Int LDJ, Volume 100 ml, Date 8-12-96, Aliquot A: 20 ml, Aliquot B: 20 ml

spk 5 ml of 100 ppb — Int LDJ

final spk conc added 5 ppb — Date 8-12-96

FH & BH Serial dilution performed

ml to ... ml FV + ... ul Sc

Initials

roject # 38139

Client:

ate/Int.:

lient Run# North Header, Run 1

Triangle Laboratories of RTP

(919) 544 5729

Analytes

ICP GFAA FLAA CVAA

134

CONT # 1 ~~Filter pe G or Q~~

label

CONT # 2 ~~Acetone Rinse~~

label

Volume

CONT # 3 HNO3 Rinse

label 131-59-17A

Volume 32 ml

CONT # 4 Back Half Impinger

label 131-59-17C

Volume 435 ml

Hg Impingers

CONT # 5A HNO3

label 131-59-17B

Volume 61 ml

Aliquot A 25 ml

Aliquot B 25 ml

Int LDJ

Date 8-12-96

CONT # 5B KMnO4

label 131-59-17D

Volume 360 ml

Aliquot A 50 ml

Aliquot B 50 ml

Int LDJ

Date 8-12-96

CONT # 5C HCl

label 131-59-17E -17(I)

Volume 60 ml

Aliquot A 50 ml

Aliquot B 50 ml

Int LDJ

Date 8-12-96

Dessicate to dryness and redissolve in 10ml con HNO3 Int Date

Reduce volume to 20 ml on hotplate Int x/SRB Date 7/24/96

owave dig n conc. HF conc. HNO3 Int Date

Microwave dig with conc. HF and conc. HNO3 Int x Date 7/30/96

label 131-59-17A

Combine digestates

Front Half Digestate

Add ~~500~~ ul Sc

Dilute to 100 mls Int x Date 7/30/96

label 131-59-17A

Volume 100 Ml

For Metals

label 131-59-17C

Volume 335 ml

For Hg

label 131-59-17C

Volume 100 ml

Reduce Volume to 20 ml on Hotplate Int SRB/x Date 7/24/96

Hotplate dig with HNO3 and H2O2 Int x Date 7/30/96

Add ~~500 ul Sc~~ Int Date

Dilute to 100 mls Int x Date 7/30/96

label 131-59-17C Int x

Volume 100 ml Date 7/30/96

(One post digestion spk on BH for GFAA)

Sample

label 131-59-17C Int LDJ

Volume 100 ml Date 8-7-96

Aliquot A 50 ml

Aliquot B 50 ml

(Duplicate Analysis of Ea

Spike

(FH/BH Hg Spike required)

label Int

Volume Date

Aliquot A

Aliquot B

spk ml of ppb Int

final spk conc added ppb Date

FH & BH Serial dilution performed

ml to ml FV ul Sc

Initials

Metal

label 131-59-17A Int x

Volume ~~100 ml~~ 50 Date 7/30/96 ~8/20/96

ost digest spike on FH for GFAA)

BH Post dig spk

[redacted] ppb [redacted] slu [redacted] ul sl [redacted])

For Hg

label 131-59-17A

Volume ~~100~~ 50 ml ~8/20/96

Int x/LDJ

Date 7/30/96

Aliquot A 25 ml

(No spike required)

[redacted] Int 25

Project # 38139

Client:

Date/Int.:

Client Run# Header-RB1

Blank

Triangle Laboratories of RTP

(919) 544 5729

Archived 7/29/96 per J. McDaugherty

JL 7/29/96

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Analytes

ICP GFAA HAA CVAA

Hg Impingers

CONT # (1) Filter Type: G or Q

label

CONT # (2) Acetone Rinse

label

Volume

CONT # (3) 18A TV 194ml HNO3 Rinse

label 131-59-18A

Volume

CONT # (4) 18A TV 190ml Back Half Impinger

label 131-59-18B 18A

Volume

CONT # (5A) HNO3

label 131-59-18A

Volume ___ ml

Aliquot A

Aliquot B

Int

Date

CONT # (5B) KMNO4

label 131-59-16C

Volume 202 ml

Aliquot A

Aliquot B

Int

Date

CONT # (5C) HCl

label 131-59-18D

Volume 60 ml

Aliquot A

Aliquot B

Int

Date

Dessicate to dryness and redissolve in 10ml con HNO3 Int Date

Reduce volume to 20 ml on hotplate Int Date

Microwave dig with conc. HF and conc. HNO3 Int Date

Microwave dig with conc. HF and conc. HNO3 Int Date

label

Combine digestates

Front Half Digestate

Add 500 ul Sc

Dilute to 100 mls Int Date

label

Volume ___ Ml

For Metals

label Int

Volume Date

post digest spike on FH for GFAA)

& BH Post dig. spk

ppb (Instrument spiked)

For Hg

label Int

Volume ___ ml Date

Aliquot A ml

(No spike required)

Aliquot B ml

For Metals

label

Volume

For Hg

label

Volume

Reduce Volume to 20 ml on Hotplate Int Date

Hotplate dig with HNO3 and H2O2 Int Date

Add 500 ul Sc Int Date

Dilute to 100 mls Int Date

label Int

Volume Date

(One post digestion spk on BH for GFAA)

(Duplicate Analysis of Ea

Sample

label Int

Volume Date

Aliquot A

Aliquot B

Spike

(1 BH Hg Spike required)

label Int

Volume Date

Aliquot A

Aliquot B

spk ___ ml of ___ ppb Int

final spk conc added ___ ppb Date

FH & BH Serial dilution performed

ml to ml FV ul Sc

initials

Project # 38139

Client:

Date/Init.:

Client Run# Ambient, Run 1

Triangle Laboratories of RTP
(919) 544-5729

Analytes: ICP | GFAA | FLAA | CVAA

136

Hg Impingers

CONT # 1 ~~Filter Type: G or Q~~
label

CONT # 2 ~~Acetone Rinse~~
label
Volume

Dessicate to dryness and redissolve in 10ml con HNO3 — Int — Date

Microwave dig with conc. HF and conc. HNO3 — Int — Date

Combine digestates

Front Half Digestate

Add 500 ul Sc

Dilute to 100 mls — Int x — Date 7/30/96
label 131-59-19A
Volume 100 Ml

For Metal
label 131-59-19A — Int x
Volume ~~100~~ 50 ml — 8/20/96 — Date 7/30/96
(Post digest spike on FH for GFAA)
FH & BH Post dig. spk
ppb (instrumental spike)

For Hg
label 131-59-19A — Int x/LDJ
Volume ~~100~~ 50 ml — 8/20/96 — Date 7/30/96
Aliquot A 25 ml
(No spike required)
Int 25

CONT # 3 HNO3 Rinse
label 131-59-19A
Volume 58ml

Reduce volume to 20 ml on hotplate — Int x/SRB — Date 7/24/96

Microwave dig with conc. HF and conc. HNO3 — Int x — Date 7/30/96
label 131-59-19A

CONT # 4 Back Half Impinger
label 131-59-19C
Volume 290 ml

For Metals: label 131-59-19C — Volume 190ml
For Hg: label 131-59-19C — Volume 100ml

Reduce Volume to 20ml on Hotplate — Int SRB/x — Date 7/24/96

Hotplate dig with HNO3 and H2O2 — Int x — Date 7/30/96

~~Add 500 ul Sc~~ — Int — Date

Dilute to 100 mls — Int x — Date 7/30/96

label 131-59-19C — Int x
Volume 100ml — Date 7/30/96
(One post digestion spk on BH for GFAA)

Sample: label 131-59-19C — Int LDJ
Volume 100ml — Date 8-7-96
Aliquot A 50ml
Aliquot B 50ml

	CONT # 5A HNO3	CONT # 5B KMNO4	CONT # 5C HCl
label	131-59-19B	131-59-19D	131-59-~~19E~~ -19D
Volume	50 ml	335 ml	90 ml
Aliquot A	20ml	50ml	50ml
Aliquot B	20ml	50ml	50ml
Int	LDJ	LDJ	LDJ
Date	8-7-96	8-12-96	8-12-96

(Duplicate Analysis of Fa...)

Spike (1 HH Hg Spike required)
label — Int
Volume — Date
Aliquot A
Aliquot B
spk ml of ppb — Int
final spk conc. added ppb — Date

FH & BH Serial dilution performed
ml to ml FV ul Sc
Initials

Project # 38139

Client:

Date/Init.:

Client Run# Ambient, Run 1-3, North

Triangle Laboratories of RTP

(919) 544 5729

Analytes

ICP GFAA FLAA CVAA

137

CONT # 1 Filter Type: G or Q

label

Microwave dig with conc. HF & conc. HNO3 Int Date

CONT # 2 Acetone Rinse

label

Volume

Dessicate to dryness and redissolve in 10ml con HNO3 Int Date

CONT # 3 HNO3 Rinse

label 131-59-20B

Volume 85 ml

Reduce volume to 20 ml on hotplate Int x/SB Date 7/24/96

Microwave dig with conc HF and conc HNO3 Int x Date 7/30/96

label 131-59-20B

Combine digestates

Front Half Digestate

Add ~~500~~ ul Sc

Dilute to 100 mls Int x Date 7/30/96

label 131-59-20B

Volume 100 Ml

For Metal

label 131-59-20B Int x

Volume 100ml Date 7/30/96

8/24/96

(post digest spike on FH for GFAA))

FH & BH Post dig spk

ppb (Instrument spiked)

For Hg

label 131-59-20B Int x/LDJ

Volume 100 ml Date 7/30/96

7/30/96

Aliquot A: 25 ml

(No spike required)

Aliquot B: 25 ml

CONT # 4 Back Half Impinger

label

Volume

For Metals

label

Volume

Reduce Volume to 20 ml on Hotplate Int. Date

Hotplate dig with HNO3 and H2O2 Int. Date

Add 500 ul Sc Int. Date

Dilute to 100 mls Int Date

label Int

Volume Date

(One post digestion spk on BH for GFAA)

For Hg

label

Volume

Sample

label Int

Volume Date

Aliquot A:

Aliquot B:

Hg Impingers

CONT # 5A HNO3

label

Volume ml

Aliquot A

Aliquot B

Int

Date

CONT # 5B KMNO4

label

Volume ml

Aliquot A

Aliquot B

Int

Date

CONT # 5C HCl

label

Volume ml

Aliquot A

Aliquot B

Int

Date

(Duplicate Analysis of Fo

Spike

(1 BH Hg Spike required)

label Int

Volume Date

Aliquot A

Aliquot B

spk ml

of ppb Int

final spk conc. added ppb Date

FH & BH Serial dilution performed

ml to ml FV ul Sc

Initials

Project # 38139

Client:

Date/Int.:

Client Run# Ambient, Run 1-3, South

Triangle Laboratories of RTP
(919) 544-5729

Analytes: ICP | GFAA | FIAA | CVAA

135

CONT # 1 — Filter Type: G or Q — label

CONT # 2 — Acetone Rinse — label — Volume

Dessicate to dryness and redissolve in 10ml con HNO3 — Int — Date

Microwave dig with conc. HF conc. HNO3 — Int — Date

Combine digestates

Front Half Digestate

Add ~~500~~ uL Sc

Dilute to 100 mls — Int 2C — Date 7/30/96

label 131-59-20A

Volume 100 Ml

For Metal: label 131-59-20A — Int 2C — Volume ~~100~~ 500 ml — 1/1/97 — Date 7/30/96

(post digest spike on FH for GFAA))

FH & BH Post dig. spk

For Hg: label 131-59-20A — Int 2C/LDJ — Volume ~~100~~ 500 ml — 1/10/96 — Date 7/30/96

Aliquot A 25 ml (No spike required) 25

CONT # 3 — HNO3 Rinse — label 131-59-20A — Volume 104 ml

Reduce volume to 20 ml on hotplate — Int 2C/SKP — Date 7/24/96

Microwave dig with conc. HF and conc. HNO3 — Int 2C — Date 7/30/96

label 131-59-20A

CONT # 4 — Back Half Impinger — label — Volume

For Metals: label — Volume

For Hg: label — Volume

Reduce Volume to 20 mL on Hotplate — Int — Date

Hotplate dig with HNO3 and H2O2 — Int — Date

Add 500 uL Sc — Int — Date

Dilute to 100 mls — Int — Date

label — Int

Volume — Date

(One post digestion spk on BH for GFAA)

Hg Impingers

CONT # 5A HNO3 — label — Volume ml — Aliquot A — Aliquot B — Int — Date

CONT # 5B KMnO4 — label — Volume ml — Aliquot A — Aliquot B — Int — Date

CONT # 5C HCl — label — Volume ml — Aliquot A — Aliquot B — Int — Date

(Duplicate Analysis of Lo

Sample: label — Int — Volume — Date — Aliquot A — Aliquot B

Spike (1 BH Hg Spike required): label — Int — Volume — Date — Aliquot A — Aliquot B

spk ml of ppb — Int

final spk conc added ppb — Date

FH & BH Serial dilution performed

ml to ml FV uL Sc

Initials

Project # 38139

Client:

Date/Int.:

Client Run# Combined Sales Gas, RB2 & Incinerator, RB3

Blanks

Triangle Laboratories of RTP
(919) 544-5729

Analytes: ICP | GFAA | FLAA | CVAA

139

CONT # 1
Filter Type: G or Q
label 131-59-4A

CONT # 2
Acetone Rinse
label 131-59-4C
Volume 98ml
Dessicate to dryness and redissolve in 10ml con HNO3 — Int x/SRB — Date 7/24/96

Microwave dig. with conc. HF conc. HNO3 — Int x — Date 7/31/96

CONT # 3
HNO3 Rinse
label 131-59-4E, 131-59-10A
Volume 100 ml
Reduce volume to 20 ml on hotplate — Int x — Date 7/30/96
Microwave dig with conc. HF and conc. HNO3 — Int x — Date 7/31/96
label 131-59-4C, 4E, 10A

Combine digestates
Front Half Digestate
Add 500 ul Sc
Dilute to 100 mls — Int x — Date 7/31/96
label 131-59-4A4C4E10A
Volume 100 ML

For Metal
label 131-59-4A4C4E10A — Int x
Volume 50 100 ml ~8/20/96 — Date 7/31/96
(post digest spike on FH for GFAA)
FH & BH Post dig. spk.

For Hg
label 131-59-4A4C4E10A — Int x/LDJ
Volume 50 100 ml ~8/20/96 — Date 7/31/96
Aliquot A: 25 ml
(No spike required)

CONT # 4
Back Half Impinger
label 131-59-10B, 131-59-4D 100 ml
Volume 15ml; 131-59-10A, 131-59-4E 50ml
For Metals — label 131-59-10A1B, 4D4E — Volume 150ml
For Hg — label 131-59-10A1B, 4D4E — Volume

Reduce Volume to 20 ml on Hotplate — Int x — Date 7/30/96
Hotplate dig with HNO3 and H2O2 — Int x — Date 7/31/96
Add 500 ul Sc — Int — Date
Dilute to 100 mls — Int x — Date 7/31/96
label 131-59-10A1B, 4D4E — Int x
Volume 100ml — Date 7/31/96
(One post digestion spk on BH for GFAA)

Sample
label 131-59-10A1B, 4D1E — Int
Volume — Date
Aliquot A: 25ml
Aliquot B: 25ml

Hg Impingers

CONT # 5A
HNO3
label 131-59-4E, 131-59-10A
Volume 20 ml
Aliquot A 10ml
Aliquot B 10ml
Int LDJ
Date 8-7-96

CONT # 5B
KMNO4
label 131-59-4F, 131-59-10C
Volume ml
Aliquot A 50ml
Aliquot B 50ml
Int LDJ
Date 8-7-96

CONT # 6C ~8/11/96
HCl
label 131-59-4G, 131-59-10D (131-59-4F, 131-59-10C)
Volume ml
Aliquot A 50ml
Aliquot B 50ml
Int LDJ
Date 8-7-96

(Duplicate Analysis of Each)

Spike
(1 PPB Hg Spike required)
label — Int
Volume — Date
Aliquot A:
Aliquot B:
spk ml of ppb — Int
final spk conc added ppb — Date

FH & BH Serial dilution performed
ml to ml FV + ul Sc
Initials:

149

Project # 38139

Client:

Date/Init.:

Client Run# Sates Gas, RB2 Blank

Triangle Laboratories of RTP
(919) 544-5729

Analytes

ICP GFAA FLAA CVAA

CONT # 1 Filter Type: G or Q

label____

CONT # 2 Acetone Rinse

label____

Volume____

Dessicate to dryness and redissolve in 10ml con HNO3 Init ______ Date ______

Microwave dig with conc. HF conc. HNO3 Init ______ Date ______

Combine digestates

Front Half Digestate

Add 500 ul Sc

Dilute to 100 mls Init ______ Date ______

label____

Volume ____ Ml

Metal

For Hg

label____ Init ____

Volume____ Date ____

(post digest spike on FH for GFAA))

BH Post dig. spk.

label______ Init ______

Volume______ml Date ______

Aliquot A: ____ ml

(No spike required)

10A TV = 100 ml CONT # 3 HNO3 Rinse

label 131-59-10A

Volume____

Reduce volume to 20 ml on hotplate Init ______ Date ______

Microwave dig with conc. HF and conc. HNO3 Init ____ Date ______

label____

10B TV = 134 ml CONT # 4 Back Half Impinger

label 131-59-10B

Volume____

For Metals

label____

Volume____

For Hg

label____

Volume____

Reduce Volume to 20 ml on Hotplate Init. ____ Date______

Hotplate dig with HNO3 and H2O2 Init.______ Date______

Add 500 uL Sc Init. Date______

Dilute to 100 mls Init. ____ Date____

label Init

Volume Date

(One post digestion spk on BH for GFAA)

Hg Impingers

10A TV = 100 ml CONT # 5A HNO3

label 131-59-10A

Volume____ml

Aliquot A

Aliquot B____

Init

Date ______

CONT # 5B KMnO4

label 131-59-10C

Volume 138 ml

Aliquot A____

Aliquot B

Init

Date

CONT # 5C HCl

label 131-59-10D

Volume 54 ml

Aliquot A____

Aliquot B____

Init

Date ______

(Duplicate Analysis of Each)

Sample

label____ Init ______

Volume____ Date ______

Aliquot A:______

Aliquot B: ____

Spike

(1 FH Hg Spike required)

label____ Init

Volume____ Date ____

Aliquot A: ______

Aliquot B: ____

spk ____ ml of ____ ppb Init

final spk conc. added ____ ppb Date

FH & BH Serial dilution performed

____ ml to ____ ml FV ____ ul Sc

Inits:

[redacted]

Project # 38139
Client:
Date/Int.:
Client Run# Incinerator, RB3 Blank

Triangle Laboratories of RTP
(919) 544-5729

141

Analytes: ICP | GFAA | FLAA | CVAA

CONT # 1 — Filter Type: G or Q — label 131-59-4A

CONT # 2 — Acetone Rinse — label 131-59-4C — Volume 98ml

CONT # 3 — HNO3 Rinse — label 131-59-4E — Volume 70ml Total rec.

CONT # 4 — Back Half Impinger — label 131-59-4D 4E — Volume — 4D TV = 88ml

Hg Impingers

CONT # 5A HNO3 — label 131-59-4E — Volume 70 ml TV rec.

CONT # 5B KMnO4 — label 131-59-4F — Volume 132 ml

CONT # 5C HCl — label 131-59-4G — Volume 146 ml

Dessicate to dryness and redissolve in 10ml con HNO3 — Int 2C/JRB — Date 7/24/96

Reduce volume to 20 ml on hotplate — Int — Date

For Metals — For Hg — label — Volume

Aliquot A — Aliquot B — Int — Date

Microwave dig with conc. HF and conc. HNO3 — Int — Date

Microwave dig with conc. HF and conc. HNO3 — Int — Date — label

Combine digestates

Front Half Digestate

Add 500 ul Sc

Dilute to 100 mls — Int — Date

label — Volume — Ml

For Metal — For Hg

label — Int — label — Int

Volume — Date — Volume — ml — Date

(One post digest spike on FH for GFAA))

FH & BH Post dig. spk.

ppb (Instrument spiked)

Aliquot A ml (No spike required) Aliquot B ml

Reduce Volume to 20 mL on Hotplate — Int — Date

Hotplate dig with HNO3 and H2O2 — Int — Date

Add 500 ul Sc — Int — Date

Dilute to 100 mls — Int — Date

label — Int — Volume — Date

(One post digestion spk on BH for GFAA)

(Duplicate Analysis of Ea[ch])

Sample — label — Int — Volume — Date — Aliquot A — Aliquot B

Spike (1 BH Hg Spike required) — label — Int — Volume — Date — Aliquot A — Aliquot B — spk ml of ppb — Int — final spk conc. added ppb — Date

FH & BH Serial dilution performed — ml to — ml FV — ul Sc — Initials

TRIANGLE LABORATORIES, INC.
Sample Preparation Tracking & Management Form

Project: 38139 | Client: Eastern Research Group (ERG02)

Sample Information

Mercury

Method: 7470 | Extraction Date: __/__/__
Solvent/Acids(): H_2SO_4 / HNO_3 | Lot: 31502 / 116040

SRB 8/6/96 8/6/96

Sample # crd	TLI SAMPLE ID / CLIENT SAMPLE ID		Sample Wgt / Vol g / ml	Final Volume ml	__/__/__	Volume After Filtration (ml)	__/__/__	Digestion Date	__/__/__	__/__/__
00 (1)	TLI Blank MB MB1D	TLI Method Blank		100				8/5/96		
001	131-59-1A1B1C 131-59-1A1B1C D	FKL-86								
002 (1)	131-59-1B	FKL-94	25	100				8/5/96		
003	131-59-1C	FKL-85								
00 (1)	131-59-1D 131-59-1D D	FKL-87	25	100				8/5/96		
00 (1)	131-59-1E 131-59-1E D	FKL-88	25							
00 (1)	131-59-1F 131-59-1F D	FKL-89	50			400				
00 (2)	131-59-1GF 131-59-1GF D	FKL-90	50	100		100		8/6/96		
008	131-59-2A2B2C 131-59-2A2B2C D	FKL-93								
009 (1)	131-59-2B	FKL-91	25	100				8/5/96		
010	131-59-2C	FKL-92								

(1) Digested w/ QC #1
(2) Digested w/ QC #2
(3) Digested w/QC #3
(4) Digested w/ QC #4
(5) Digested w/ QC #5 X 8/13/96

Comments: See Hg-1 Spike Log p. 121, 122, 124
X 8/13/96

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC
Sample Preparation Tracking & Management Form

Project: 38139 Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470 Extraction Date: __/__/__ SR 8/5/96 8/6/96 Mercury
Solvent/Acids(): H_2SO_4 / HNO_3 Lot: 31502/116040

Sample #	crd	TLI SAMPLE ID / CLIENT SAMPLE ID		Sample Wgt / Vol g / ml	Final Volume ml	__/__/__	Volume after filtration (ml)	__/__/__	Digestion Date	__/__/__	__/__/__
011	1	131-59-2D 131-59-2D D	FKL-94	25	100						
012	1	131-59-2E 131-59-2E D	FKL-95	25	100				8/5/96		
013	1	131-59-2F 131-59-2F D	FKL-96	50	100		400		↓		
014	2	131-59-2GF 131-59-2GF	FKL-97	50	100		100		8/6/96		
015	1	131-59-3A3B3C 131-59-3A3B3C D	FKL-100	25	100				8/5/96		
016		131-59-3B	FKL-98								
017		131-59-3C	FKL-99								
018	1	131-59-3D 131-59-3D D	FKL-101	25	100				8/5/96		
019	1	131-59-3E 131-59-3E D	FKL-102	25	100				8/5/96		
020	1	131-59-3F 131-59-3F D	FKL-103	50	100		400		↓		
021	2	131-59-3GF 131-59-3GF D	FKL-104	50	100		100		8/6/96		

Comments: ______

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.
Sample Preparation Tracking & Management Form

Project: 38139 Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470 Extraction Date: __/__/__ Mercury
Solvent/Acids(): H_2SO_4 / HNO_3 Lot: 3/5B2/116040 SRB 8/8/96

Sample # ord	TLI SAMPLE ID / CLIENT SAMPLE ID		Sample Wgt / Vol g / ml	Final Volume ml	Volume After Filtration (ml)		Digestion Date		
022 (3)	131-59-4A 4C+E 10A / 131-59-4A4C+E10A D	FKL-114	25	100			8/8/96		
023	131-59-4B	FKL-105							
024	131-59-4C	FKL-112							
025 (3)	131-59-4D 4E 10A 10B / 131-59-4D4E10A10B D	FKL-115	25	100			8/8/96		
026 (3)	131-59-4E 10A / 131-59-4E10A D	FKL-113	10	100			8/8/96		
027 (3)	131-59-4F 10C / 131-59-4F 10C D	FKL-116	50	100	400		↓		
028 (3)	131-59-4GF 10C D / 131-59-4GF10CD D	FKL-117	50	100	250		8/8/96		
029 (1)	131-59-5A 4B 5D / 131-59-5A4B5D D	FKL-107	25	100			8/5/96		
030 (1)	131-59-5B 5C / 131-59-5B5C D	FKL-109	25	↓			↓		
031 (1)	131-59-5C 5B / 131-59-5B D	FKL-108	20	↓			↓		
032	131-59-5D	FKL-106	Combined w/ 131-59-5A 131-59-4B						

Comments: ______

REV 07/26/93 (FSTMF 7)

TRIANGLE LABORATORIES, INC.
Sample Preparation Tracking & Management Form

Project: 38139 Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470 Extraction Date: __/__/__ ~~8/5/96~~ 8/6/96 Mercury

Solvent/Acids(): H_2SO_4 / HNO_3 Lot: 31502/116C40

Sample #	crd	TLI SAMPLE ID / CLIENT SAMPLE ID		Sample Wgt / Vol (g / ml)	Final Volume ml	Volume After Filtration (ml)	Digestion Date		
033	1	131-59-5E 131-59-5E D	FKL-110	~~25~~ 50	100	400	8/5/96		
034	2	131-59-5FE 131-59-5FE D	FKL-111	50	100	100	8/6/96		
035	1	131-59-6A 131-59-6A D	FKL-51	25	100		8/5/96		
036	1	131-59-6B 131-59-6B D	FKL-54	20					
037	1	131-59-6C 131-59-6C D	FKL-53	25					
038	1	131-59-6D 131-59-6D D	FKL-55	50	100	400	8/5/96		
039	2	131-59-6ED 131-59-6ED D	FKL-56	50	100	100	8/6/96		
040	1	131-59-7A 131-59-7A D	FKL-58	25	100		8/5/96		
041	1	131-59-7B 131-59-7B D	FKL-61	20	100		8/5/96		
042	2	131-59-7C 131-59-7C D	FKL-60	20	100		8/6/96		
043	1	131-59-7D 131-59-7D D	FKL-52	50	100	400	8/5/96		

Comments:

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.
Sample Preparation Tracking & Management Form

Project: 38139 | Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470
Solvent/Acids(): H_2SO_4/HNO_3
Extraction Date: __/__/__
Lot: 3502/116040
SR 8/6/96 8/6/96
Mercury

Sample (crd)	TLI SAMPLE ID / CLIENT SAMPLE ID		Sample Wgt / Vol (g / ml)	Final Volume (ml)	__/__/__	Volume After Hg Heater (ml)	__/__/__	Digestion Date	__/__/__	__/__/__
344 (2)	131-59-7ED / 131-59-7ED D	FKL-63	50	100		100		8/6/96		
345 (1)	131-59-8A / 131-59-8A D	FKL-65	25	100				8/5/96		
346 (1)	131-59-8B / 131-59-8B D	FKL-68	20	↓				↓		
347 (2)	131-59-8C / 131-59-8C D	FKL-67	25	100				8/6/96		
348 (1)	131-59-8D / 131-59-8D D	FKL-69	50	100		400		8/5/96		
35 (2)	131-59-8ED / 131-59-8ED D	FKL-70	50	100		100		8/6/96		
350 (2)	131-59-9A / 131-59-9A D	FKL-72	25	↓				8/6/96		
35 (2)	131-59-9B 9C / 131-59-9B9C D	FKL-75	25	100				↓		
35 (2)	131-59-9B B ER 8/6/96 / 131-59-9B D	FKL-74	20	↓				↓		
35 (2)	131-59-9D / 131-59-9D D	FKL-76	50	↓		400		↓		
35 (4)	131-59-9ED / 131-59-9ED D	FKL-77	50	↓		100		↓		

Comments:

REV 07/26/93 (ISTMF 7)

TRIANGLE LABORATORIES, INC.
Sample Preparation Tracking & Management Form

Project: 38139 Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470 Extraction Date: __/__/__
Solvent/Acids(): H_2SO_4/HNO_3 Lot: 31502/11604 8/5/96 8/6/96

Sample #	crd	TLI SAMPLE ID / CLIENT SAMPLE ID		Sample Wgt / Vol g / ml	Final Volume ml	Volume After Digestion (ml)	Digestion Date
055		131-59-10A	FKL-79	Combined w/ 131-59-4E 131-59-10B 131-59-4D			
056		131-59-10B	FKL-81	Combined w/ 131-59-4D 131-59-10A 131-59-4E		8/7/96	
057		131-59-10C	FKL-82	Combined w/ 131-59-4F			
058		131-59-10D	FKL-83	Combined w/ 131-59-4G 131-59-4F 131-59-10C			
059	2	131-59-11A 131-59-11A D	FKL-38	25	100		8/6/96
060	2	131-59-11B 131-59-11B D	FKL-41	5	100		
061	2	131-59-11C B 131-59-11C B D	FKL-40	25	100		
062	2	131-59-11D 131-59-11D D	FKL-42	50	100	400	
063	2	131-59-11E D 131-59-11E D D	FKL-43	50	100	100	8/6/96
064	2	131-59-12A 131 59-12A D	FKL-20	25	100		
065	2	131-59-12B 131-59-12B D	FKL-22	20	100		8/6/96

Comments

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.
Sample Preparation Tracking & Management Form

Project: 38139

Client: Eastern Research Group (ERGC2)

Sample Information

Method: 7470
Solvent/Acids: H_2SO_4 / HNO_3
Extraction Date: / /
Lot: 31502/1160V0
SP 8/6/96 8/6/96

Sample ord	TLI SAMPLE ID / CLIENT SAMPLE ID		Sample Wgt / Vol g / ml	Final Volume ml	Volume after Dilution (ml)	Digestion Date
4	131-59-12C 131-59-12C D	FKL-21	20	100		
2	131-59-12D 131-59-12D D	FKL-23	50	100	400	8/6/96
4	131-59-12ED 131-59-12ED D	FKL-24	50	↓	100	8/12/96
4	131-59-13A 131-59-13A D	FKL-26	25	100		8/12/96
4	131-59-13B 131-59-13B D	FKL-28	20	↓		↓
2	131-59-13C 131-59-13C D	FKL-27	20	100		8/6/96
4	131-59-13D 131-59-13D D	FKL-29	50	100	400	8/12/96
4	131-59-13ED 131-59-13ED D	FKL-30	50 ~~20~~	100	200	↓
4	131-59-14A 131-59-14A D	FKL-32	25	100		↓
2	131-59-14B 131-59-14B D	FKL-34	25	100		8/6/96
4	131-59-14C 131-59-14C D	FKL-33	25	100		8/12/96

Comments:

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.
Sample Preparation Tracking & Management Form

Project: 38139 Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470 Extraction Date: __/__/__ Mercury
Solvent/Acids: H_2SO_4/HNO_3 Lot: 31502/116040 SRB 8/5/96 8/6/96

Sample # erd	TLI SAMPLE ID / CLIENT SAMPLE ID		Sample Wgt g / Vol ml	Final Volume ml	Volume after filtration (ml)	Digestion Date
077 ②	131-59-14D / 131-59-14D D	FKL-35	50	100	400	8/6/96
078 ②	131-59-14ED / 131-59-14ED D	FKL-36	50	↓	100	↓
079 ④	131-59-15A / 131-59-15A D	FKL-02	25	100		8/12/96
08 ④	131-59-15B / 131-59-15B D	FKL-04	30	100		↓
081 ⑤ ~~④~~	131-59-15C / 131-59-15C D	FKL-03	20	100		↓
082 ④	131-59-15D / 131-59-15D D	FKL-05	50	100	400	8/12/96
08 ④	131-59-15ED / 131-59-15ED D	FKL-06	50	100	200	8/12/96
08 ④ ~~③~~	131-59-16A / 131-59-16A D	FKL-08	25	100		↓
085 ③	131-59-16B / 131-59-16B D	FKL-09	25	100		8/8/96
08 ④	131-59-16C / 131-59-16C D	FKL-10	25	100		8/12/96
08 ④	131-59-16D / 131-59-16D D	FKL-11	50	100	400	↓

Comments: ______________________

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.
Sample Preparation Tracking & Management Form

Project: 38139 Client: Eastern Research Group (ERGC2)

Sample Information

Method. 7470 Extraction Date __/__/__ Mercury
Solvent/Acids: H_2SO_4/HNO_3 Lot: 3152/116040 SRS 8/5/96 8/6/96

Sample ord	TLI SAMPLE ID / CLIENT SAMPLE ID		Sample Wgt / Vol g / ml	Final Volume ml	Volume After Filtration (ml)	Digestion Date		
(4)	131-59-16ED 131-59-16ED D	FKL-12	50	100	100	8/12/96		
	131-59-17A 131-59-17A D	FKL-14	25	100		8/12/96		
	131-59-17B 131-59-17B D	FKL-16	25	100		↓		
(3)	131-59-17C 131-59-17C D	FKL-15	50	100		8/8/96		
	131-59-17D 131-59-17D D	FKL-17	50	100	400	8/12/96		
	131-59-17ED 131-59-17ED D	FKL-18	50	100	100	↓		
94	131-59-18A	FKL-45	Archive					
95	131-59-18B	FKL-47	8/5/96					
96	131-59-18C	FKL-48						
97	131-59-18D	FKL-49						
	131-59-19A 131-59-19A D	FKL-125	25	100		8/12/96		

EF 8/12/96

Comments

REV 07/26/93 (PSTMF 7

TRIANGLE LABORATORIES, INC.
Sample Preparation Tracking & Management Form

Project: 38139 Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470 Extraction Date: __/__/__ SPB 8/5/96 8/6/96 Mercury
Solvent/Acids(): H_2SO_4 / HNO_3 Lot 31502/116040

Sample #	crd	TLI SAMPLE ID / CLIENT SAMPLE ID		Sample Wgt / Vol g / ml	Final Volume ml		Volume After Filtration (ml)		Digestion Date		
109	5 4	131-59-19B / 131-59-19B D	FKL-128	20	100				8/12/96		
110	3	131-59-19C / 131-59-19C D	FKL-127	50	100				8/8/96		
1??	5 4	131-59-19D / 131-59-19D D	FKL-129	50	100		400		8/12/96		
1??	5 4	131-59-19ED / 131-59-19ED D	FKL-130	50	100		200		↓		
1?3	1	LCS D / LCS 1 D	Lab Control Spike		100				8/5/96		
1??	3	131-59-20A / 131-59-20A D		25	100				8/8/96		
1??	4	131-59-20B / 131-59-20B D		25	100				8/12/96		
	1	131-59-1D MS / 131-59-1D MSD		25	100				8/5/96		
	1	131-59-2D MS / 131-59-2D MSD		25	↓				↓		
	1	131-59-3D MS / 131-59-3D MSD		↓	↓				↓		
	2	131-59-7C MS / 131-59-7C MSD		20	100				8/6/96		

Comments: ______

REV 07/26/93 PSTMF 7

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 38139

Client: Eastern Research Group (ERG02)

Sample Information

Mercury

Method: 7470

Solvent/Acids(): H_2SO_4 / HNO_3

Extraction Date: __/__/__

Lot: 31502/116040

Sample crd	TLI SAMPLE ID / CLIENT SAMPLE ID	Sample Wgt g / Vol ml	Final Volume ml	__/__/__	__/__/__	__/__/__	Digestion Date	__/__/__	__/__/__
2	TLI Blank MB 2D / MB 2 TLI Method Blank		100				8/6/96		
2	LCS 2 / LCS 2D Lab Control Spike		↓				↓		
2	131-59-8C MS / 131-59-8C MSD	25	↓				↓		
2	131-59-13C MS / 131-59-13C MSD	20	↓				↓		
3	MB3 / MB3 D		100				8/8/96		
3	LCS 3 / LCS 3 D		↓				↓		
3	131-59-16B MS / 131-59-16B MSD	25	100				8/8/96		
4	MB4 / MB4 D		100				8/12/96		
4	LCS4 / LCS4 D		100				↓		
4	131-59-14C MS / 131-59-14C MSD	25	100				8/12/96		
5 ~~4~~	131-59-15C MS / 131-59-15C MSD	20	100				↓		

[illegible]

Comments ____________________________

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.
Sample Preparation Tracking & Management Form

Project: 38139
Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470
Solvent/Acids(): H_2SO_4/HNO_3
Extraction Date: __/__/__
Lot: 31502/1160V0

Mercury

Sample # crd	TLI SAMPLE ID / CLIENT SAMPLE ID		Sample Wgt g / Vol ml	Final Volume ml	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__
C66 4	131-59-12C MS 131-59-12C MSD	FKL-21	20	100			8/12/96			
4	131-59-12D 131-59-12D D	Reanalysis	50	100			↓			
5	MBS MBS D		/	100			↓			
5	LCS 5 LCS 5 D		/	100			↓			

Comments: ______

REV 07/26/93 (PSTMF 7)

INORGANICS SPIKE LOG

DATE	PROJECT # / SAMPLE IDs	ANALYTE	ORIGINAL STANDARD #	ORIGINAL STANDARD CONC (PPM)	SPIKE SAMPLE (µL) / FINAL VOLUME (mL)	SPIKE SAMPLE (PPB)	INITIALS	WITNESS
7-25-96	38167	*	2-101-8	*	1000/100	*	LDJ	SRB
	-LCS							
7-25-96	38168A	~~Cu~~ * EE SRB 7/25/96	2-101-8	*	1000/100	*	SRB	LDJ
	131-88-1MS							
	131-88-1MSD							
	-LCS							
7-26-96	38139	*	2-101-8	*	1000/100	*	SRB	LDJ
	-LCS						↓	↓

TLI # 38139

* SEE SPIKE LOG

Element	Standard ID	Orig Std (ppm)	Spike(uL) Fvol(100mL)	conc (ppm)	Spike(uL) FVol(100ml)	conc (ppb)	combined total
	Spiking Standard Preparation				**SPIKING** *from Spiking Standard*		
Ag	2-84-7	100	5000	5	1000	50	
As	2-84-6	100	5000	5	1000	50	
Al	2-84-7	100	5000	5	1000	50	
Al	2-75-3	10000	950	95	1000	950	1000
B	2-84-7	100	5000	5	1000	50	
Ba	2-84-7	100	5000	5	1000	50	
Be	2-84-6	100	5000	5	1000	50	
Ca	2-84-6	100	5000	5	1000	50	
Ca	2-75-7	10000	950	95	1000	950	1000
Cd	2-84-6	100	5000	5	1000	50	
Co	2-84-6	100	5000	5	1000	50	
Cr	2-84-6	100	5000	5	1000	50	
Cu	2-84-6	100	5000	5	1000	50	
Fe	2-84-6	100	5000	5	1000	50	
Fe	2-75-8	10000	950	95	1000	950	1000
K	2-84-7	1000	5000	50	1000	500	
K	2-80-2	10000	1500	150	1000	1500	2000
Mg	2-84-6	100	5000	5	1000	50	
Mg	2-75-9	10000	950	95	1000	950	1000
Mn	2-84-6	100	5000	5	1000	50	
Mo	2-84-6	100	5000	5	1000	50	
Na	2-84-7	100	5000	5	1000	50	
Na	2-80-1	10000	1950	195	1000	1950	2000
Ni	2-84-6	100	5000	5	1000	50	
Pb	2-84-6	100	5000	5	1000	50	
Sb	2-84-8	100	5000	5	1000	50	
Se	2-84-8	100	5000	5	1000	50	
Ti	2-84-8	100	5000	5	1000	50	
Tl	2-84-8	100	5000	5	1000	50	
V	2-84-8	100	5000	5	1000	50	
Zn	2-84-6	100	5000	5	1000	50	
Zn	2-88-9	1000	1500	15	1000	150	200

1000uL of the Spiking Standard gives the listed conc. of the above elements.

**Spike seperately

Element	Orig Std (ppm)	Spike(uL) Fvol(100	conc (ppb)
Au	1000	140	1400
Ce	1000	30	300
Li	1000	70	700
P	1000	100	1000
Pd	1000	160	1600
Pt	1000	300	3000
S	1000	350	3500
Si	10000	350	35000
Sn	1000	20	200
Sr	1000	5	50

Spiking Standard 2-101-8

Spiked by:
Predigestion- SRB 7/26/96

Postdigestion-

WITNESS	Date & Initials	TLI Project #	TLI Spiked Sample IDs	Original Spike Conc (Hg)	Spike Amount (ml)	# of std wkg std prepared from	Total Spike Added (Hg)	W I
LDJ	8/2/96 SRB	37933A	37933A-LCS	0.1 ppm	5ml	2-105-2	5ppb	2
			-LCSD					
			129-51-8 MS					
			129-51-8 MSD					
	8/4/96 LDJ	38116	38116- LCS3	0.1ppm	5ml	2-105-2	5ppb	2
SRB			-LCSD3					
			131-86-5CD MS					
			131-86-5CD MSD					
			131-86-6C MS					
			131-86-6C MSD					
			131-86-7CD MS					
			131-86-7CD MSD					
	8/4/96 LDJ	38280	38280- LCS	0.1ppm	5ml	2-105-2	5ppb	2
			- LCSD					
x			133-2-1 MS					
			133-2-1 MSD					
	8/5/96 LDJ	38139	38139 - LCS1	0.1ppm	5ml	2-105-2	5ppb	2
			LCS1D					
			131-59-1D MS					
			131-59-1D MSD					
SRB			131-59-2D MS					
			131-59-2D MSD					
			131-59-3D MS					
			131-59-3D MSD					

Date + INITIALS	TLI Project #	TLI Spiked Sample ID's	Original Spike Conc. (Hg)	Spike Amount (ml)	# of Std Wkg Std prepared from	Total Spike Added (Hg)	WITNESS	DATE & INI...
8-6-96 LDJ	38139	38139 ~~MB~~	0.1 ppm	5ml	2-105-2	5 ppb	SRB	8/7/ L...
		~~MBD~~ EE LDJ 8/6/96						
		LCS2						
		LCS2D						
		131-59-7C MS						
		131-59-7C MSD						
		131-59-8C MS						
		131-59-8C MSD						
		131-59-13C MS						
		131-59-13C MSD						8/8/ LD.
8/8/96 LDJ	38139	38139- LCS3	0.1 ppm	5ml	2-105-2	5ppb	JL	
		LCS3D						
		131-59-16B MS						
		131-59-16B MSD						
	38139	38139- LCS 4	0.1 ppm	5ml	2-105-2	5ppb		
		LCS 4D						
		131-59-12C MS						
		131-59-12C MSD						
		131-59-14C MS						
		131-59-14C MSD						
		131-59-15C MS						
		131-59-15C MSD						

sge 122 8/16/96

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DATE & INITIALS	TLI Project #	TLI Spiked Sample ID's	Original Spike Conc. (Hg)	Spike Amount (ml)	# of std. prepared from	Total Spike [illegible]	[illegible]
8/12/96	38193	38193 LCS	0.1 ppm	5 ml	2-105-6	[illegible]	[illegible]
[illegible]		LCS D					
		132-14-1D MS					
		132-14-1D MSD					
		132-14-2D MS					
		132-14-2D MSD					
		132-14-3D MS					
		132-14-3D MSD					
8/12/96 LDJ	38139	38139-LCS4	0.1 ppm	5 ml	2-105-6	5 ppb	LDJ
		-LCS4D					
		131-59-12CMS					
		131-59-12CMSD					
		131-59-14CMS					
		131-59-14CMSD					
8/12/96 LDJ	38139	38139-LCS5	0.1 ppm	~~0~~ 5 ml	2-105-6	5 ppb	[illegible]
		-LCS5D					
		131-59-15CMS					
		131-59-15CMSD					

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TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 38139

Transfer From: IWLM To: IA I

	Initials..	Date.......	Time...
Released by:	JC	8 / 13 / 96	15 : 30
Accepted by:		/ /	:

MILES.ID........		TLI_No......	Cust.Id.................
38139-	-030	131-59-5B	FKL-109
38139-	-031	131-59-5C	FKL-108
38139-	-032	131-59-5D	FKL-106
38139-	-033	131-59-5E	FKL-110
38139-	-034	131-59-5F	FKL-111
38139-	-035	131-59-6A	FKL-51
38139-	-036	131-59-6B	FKL-54
38139-	-037	131-59-6C	FKL-53
38139-	-038	131-59-6D	FKL-55
38139-	-039	131-59-6E	FKL-56
38139-	-040	131-59-7A	FKL-58
38139-	-041	131-59-7B	FKL-61
38139-	-042	131-59-7C	FKL-60
38139-	-043	131-59-7D	FKL-62
38139-	-044	131-59-7E	FKL-63
38139-	-045	131-59-8A	FKL-65
38139-	-046	131-59-8B	FKL-68
38139-	-047	131-59-8C	FKL-67
38139-	-048	131-59-8D	FKL-69
38139-	-049	131-59-8E	FKL-70
38139-	-050	131-59-9A	FKL-72
38139-	-051	131-59-9B	FKL-75
38139-	-052	131-59-9C	FKL-74
38139-	-053	131-59-9D	FKL-76
38139-	-054	131-59-9E	FKL-77
38139-	-055	131-59-10A	FKL-79
38139-	-056	131-59-10B	FKL-81
38139-	-057	131-59-10C	FKL-82
38139-	-058	131-59-10D	FKL-83
38139-	-059	131-59-11A	FKL-38

XfrCOC (Rev 11/01/94)

Additional comments or instructions:

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 38139

Transfer From: IWLM To: IA I

	Initials..	Date.......	Time...
Released by:	ZL	8/13/96	15:30
Accepted by:		/ /	:

MILES.ID........		TLI_No......	Cust.Id..................
38139-	-060	131-59-11B	FKL-41
38139-	-061	131-59-11C	FKL-40
38139-	-062	131-59-11D	FKL-42
38139-	-063	131-59-11E	FKL-43
38139-	-064	131-59-12A	FKL-20
38139-	-065	131-59-12B	FKL-22
38139-	-066	131-59-12C	FKL-21
38139-	-067	131-59-12D	FKL-23
38139-	-068	131-59-12E	FKL-24
38139-	-069	131-59-13A	FKL-26
38139-	-070	131-59-13B	FKL-28
38139-	-071	131-59-13C	FKL-27
38139-	-072	131-59-13D	FKL-29
38139-	-073	131-59-13E	FKL-30
38139-	-074	131-59-14A	FKL-32
38139-	-075	131-59-14B	FKL-34
38139-	-076	131-59-14C	FKL-33
38139-	-077	131-59-14D	FKL-35
38139-	-078	131-59-14E	FKL-36
38139-	-079	131-59-15A	FKL-02
38139-	-080	131-59-15B	FKL-04
38139-	-081	131-59-15C	FKL-03
38139-	-082	131-59-15D	FKL-05
38139-	-083	131-59-15E	FKL-06
38139-	-084	131-59-16A	FKL-08
38139-	-085	131-59-16B	FKL-09
38139-	-086	131-59-16C	FKL-10
38139-	-087	131-59-16D	FKL-11
38139-	-088	131-59-16E	FKL-12
38139-	-089	131-59-17A	FKL-14

XfrCOC (Rev 11/01/94)

Additional comments or instructions:

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 38139

Transfer From: IWLM To: IA I

	Initials..	Date.......	Time...
Released by:	x	8/13/96	15:30
Accepted by:		__/__/__	__:__

MILES.ID........		TLI_No......	Cust.Id..................
38139-	-090	131-59-17B	FKL-16
38139-	-091	131-59-17C	FKL-15
38139-	-092	131-59-17D	FKL-17
38139-	-093	131-59-17E	FKL-18
38139-	-094	131-59-18A	FKL-45
38139-	-095	131-59-18B	FKL-47
38139-	-096	131-59-18C	FKL-48
38139-	-097	131-59-18D	FKL-49
38139-	-098	131-59-19A	FKL-125
38139-	-099	131-59-19B	FKL-128
38139-	-100	131-59-19C	FKL-127
38139-	-101	131-59-19D	FKL-129
38139-	-102	131-59-19E	FKL-130
38139-	-103	LCS	Lab Control Spike
38139-	-104	131-59-20A	
38139-	-105	131-59-20B	

XfrCOC (Rev 11/01/94)

Additional comments or instructions:

Date	Project# Sample ID's	Analyte	Std ID	Std conc (ppm)	Spike vol / Sample vol mL/mL	Spike conc (ppb)	Initials	Witness
5/1/96 DKH	38246	✗	2-98-4	✗	500/50	✗	DKH	x
	132-67-2 PDS						↓	↓
5/1/96 DKH	38174	✗	2-98-4	✗	500/50	✗	DKH	x
	131-94-1 PDS						↓	↓
5/5/96 DKH	38116 C	✗	2-98-4	✗	500/50	✗	DKH	DKH
	131-36-16 PDS						↓	↓
5/5/96 DKH	38174 rl	✗	2-98-4	✗	500/50	✗	DKH	DKH
	131-94-1 PDS						↓	↓
5/6/96 DKH	38193	✗	2-98-4	✗	500/50	✗	DKH	DKH
	132-14-1A,B,C PDS	S	2-105-3	1000	175/50	3500		
		Si	2-103-3	10000	175/50	35000		
	132-14-1D PDS	↓	↓	↓	↓	↓	↓	↓
5/7/96 DKH	38116 C	Cr	2-78-5	1000	6/10	600	DKH	DKH
	131-36-16-17-13 PDS	Pb	2-94-9	1000	6/10	600	↓	↓
5/[illegible]	38280	✗	2-104-8	✗	500/50	✗	DKH	DKH
DKH	133-2-2 PDS						↓	↓
5/9/96 DKH	38297	✗	2-104-8	✗	500/50	✗	DKH	DKH
	133-19-2 PDS						↓	↓
5/13/96 DKH	38308	Ca ~~[illegible]~~	2-105-8	10000	50/10	50000	DKH	DKH
	133-30-2 x10 PDS						↓	↓
5/14/96 DKH	38139	✗	2-104-8	✗	100/10	✗	DKH	DKH
	131-59-1ABC PDS						↓	↓
	131-59-1D PDS							
	131-59-6A PDS							
	131-59-6C PDS						↓	↓
5/15/96	38139	✗	2-104-8	✗	100/10	✗	DKH	DKH
	131-59-12A PDS							
	131-59-12C PDS							
	131-59-19A PDS							
	131-59-19C PDS						↓	↓

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* SEE SPIKE LOG

Element	Standard ID	Orig. Std. (ppm)	Spiking Standard Preparation: Spike(uL) Fvol(100mL)	conc (ppm)	SPIKING from Spiking Standard: Spike(uL) FVol(100ml)	conc (ppb)	combined total
Ag	2-84-7	100	5000	5	1000	50	
As	2-84-6	100	5000	5	1000	50	
Al	2-84-7	100	5000	5	1000	50	
Al	2-75-3	10000	950	95	1000	950	1000
B	2-84-7	100	5000	5	1000	50	
Ba	2-84-7	100	5000	5	1000	50	
Be	2-84-6	100	5000	5	1000	50	
Ca	2-84-6	100	5000	5	1000	50	
Ca	2-75-7	10000	950	95	1000	950	1000
Cd	2-84-6	100	5000	5	1000	50	
Co	2-84-6	100	5000	5	1000	50	
Cr	2-84-6	100	5000	5	1000	50	
Cu	2-84-6	100	5000	5	1000	50	
Fe	2-84-6	100	5000	5	1000	50	
Fe	2-75-8	10000	950	95	1000	950	1000
K	2-84-7	1000	5000	50	1000	500	
K	2-80-2	10000	1500	150	1000	1500	2000
Mg	2-84-6	100	5000	5	1000	50	
Mg	2-75-8	10000	950	95	1000	950	1000
Mn	2-84-6	100	5000	5	1000	50	
Mo	2-84-6	100	5000	5	1000	50	
Na	2-84-7	100	5000	5	1000	50	
Na	2-80-1	10000	1950	195	1000	1950	2000
Ni	2-84-6	100	5000	5	1000	50	
Pb	2-84-6	100	5000	5	1000	50	
Sb	2-84-6	100	5000	5	1000	50	
Se	2-84-6	100	5000	5	1000	50	
Ti	2-84-6	100	5000	5	1000	50	
Tl	2-84-6	100	5000	5	1000	50	
V	2-84-6	100	5000	5	1000	50	
Zn	2-84-6	100	5000	5	1000	50	

1000uL of the Spiking Standard gives the listed conc. of the above elements.

**Spike seperately

Element	Orig Std (ppm)	Spike(uL) Fvol(100	conc (ppb)
Au	1000	140	1400
Ce	1000	30	300
Li	1000	70	700
P	1000	100	1000
Pd	1000	160	1600
Pt	1000	300	3000
S	1000	350	3500
Si	10000	350	35000
Sn	1000	20	200
Sr	1000	5	50

Spiking Standard 2-104-8

Spiked by:

Predigestion-

Postdigestion- DK 5/14/96
DK 5/15/96

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode	
1	STD1-BLANK	81496	TRIANGL2	08/14/96	07:41		X	IR	
2	STD3	81496	TRIANGL2	08/14/96	07:46		X	IR	
3	STD3	81496	TRIANGL2	08/14/96	07:51	DKH	Q	CONC	
4	CHECK LO	81496	TRIANGL2	08/14/96	07:57	DKH	Q	CONC	
5	ICV/CCV	81496	TRIANGL2	08/14/96	08:02	DKH	Q	CONC	
6	ICB/CCB	81496	TRIANGL2	08/14/96	08:07	DKH	Q	CONC	
7	ICSAB	81496	TRIANGL2	08/14/96	08:12	DKH	Q	CONC	
~~8~~	~~38139 MB~~	~~81496~~	~~TRIANGL2~~	~~08/14/96~~	~~09:16~~	~~DKH~~	~~S~~	~~CONC~~	Reanalyzed
9	38139 LCS	81496	TRIANGL2	08/14/96	09:23	DKH	S	CONC	Cr, Sb > 120%
10	131-59-1ABC	81496	TRIANGL2	08/14/96	09:40	DKH	S	CONC	
11	131-59-1ABC PDS	81496	TRIANGL2	08/14/96	09:50	DKH	S	CONC	
12	131-59-1ABC L	81496	TRIANGL2	08/14/96	09:55	DKH	S	CONC	
13	131-59-1D	81496	TRIANGL2	08/14/96	10:00	DKH	S	CONC	
14	131-59-1D PDS	81496	TRIANGL2	08/14/96	10:06	DKH	S	CONC	
15	131-59-1D L	81496	TRIANGL2	08/14/96	10:11	DKH	S	CONC	
16	131-59-2ABC	81496	TRIANGL2	08/14/96	10:16	DKH	S	CONC	
17	131-59-2ABC DA	81496	TRIANGL2	08/14/96	10:21	DKH	S	CONC	
18	ICV/CCV	81496	TRIANGL2	08/14/96	10:26	DKH	Q	CONC	
~~19~~	~~ICB/CCB~~	~~81496~~	~~TRIANGL2~~	~~08/14/96~~	~~10:51~~	~~DKH~~	~~Q~~	~~CONC~~	Reanalyzed
20	ICB/CCB	81496	TRIANGL2	08/14/96	10:57	DKH	Q	CONC	
21	131-59-2D	81496	TRIANGL2	08/14/96	11:02	DKH	S	CONC	
22	131-59-2D DA	81496	TRIANGL2	08/14/96	11:08	DKH	S	CONC	
23	131-59-3ABC	81496	TRIANGL2	08/14/96	11:19	DKH	S	CONC	
24	131-59-3D	81496	TRIANGL2	08/14/96	12:04	DKH	S	CONC	
25	131-59-5A&5D	81496	TRIANGL2	08/14/96	12:09	DKH	S	CONC	
26	131-59-5BC	81496	TRIANGL2	08/14/96	12:14	DKH	S	CONC	
27	38139 MB	81496	TRIANGL2	08/14/96	12:24	DKH	S	CONC	As=7.1 Cr=27 Sb=13
~~28~~	~~38139 LCS~~	~~81496~~	~~TRIANGL2~~	~~08/14/96~~	~~12:29~~	~~DKH~~	~~S~~	~~CONC~~	Confirmation only
29	131-59-1D L	81496	TRIANGL2	08/14/96	12:37	DKH	S	CONC	
30	ICV/CCV	81496	TRIANGL2	08/14/96	12:47	DKH	Q	CONC	
~~31~~	~~ICB/CCB~~	~~81496~~	~~TRIANGL2~~	~~08/14/96~~	~~12:53~~	~~DKH~~	~~Q~~	~~CONC~~	Reanalyzed
~~32~~	~~ICB/CCB~~	~~81496~~	~~TRIANGL2~~	~~08/14/96~~	~~13:01~~	~~DKH~~	~~Q~~	~~CONC~~	
33	ICB/CCB	81496	TRIANGL2	08/14/96	13:10	DKH	Q	CONC	
34	ICSAB	81496	TRIANGL2	08/14/96	13:15	DKH	Q	CONC	
35	131-59-6A	81496	TRIANGL2	08/14/96	13:29	DKH	S	CONC	
36	131-59-6A PDS	81496	TRIANGL2	08/14/96	13:34	DKH	S	CONC	
37	131-59-6A L	81496	TRIANGL2	08/14/96	13:39	DKH	S	CONC	
38	131-59-6C	81496	TRIANGL2	08/14/96	13:44	DKH	S	CONC	
39	131-59-6C PDS	81496	TRIANGL2	08/14/96	13:50	DKH	S	CONC	
40	131-59-6C L	81496	TRIANGL2	08/14/96	13:55	DKH	S	CONC	
41	131-59-7A	81496	TRIANGL2	08/14/96	14:00	DKH	S	CONC	
42	131-59-7A DA	81496	TRIANGL2	08/14/96	14:05	DKH	S	CONC	
43	131-59-7C	81496	TRIANGL2	08/14/96	14:10	DKH	S	CONC	
44	131-59-7C DA	81496	TRIANGL2	08/14/96	14:15	DKH	S	CONC	
45	ICV/CCV	81496	TRIANGL2	08/14/96	14:20	DKH	Q	CONC	
46	ICB/CCB	81496	TRIANGL2	08/14/96	14:31	DKH	Q	CONC	
47	131-59-8A	81496	TRIANGL2	08/14/96	14:36	DKH	S	CONC	
48	131-59-8C	81496	TRIANGL2	08/14/96	14:41	DKH	S	CONC	
49	131-59-9A	81496	TRIANGL2	08/14/96	14:46	DKH	S	CONC	
50	131-59-9BC	81496	TRIANGL2	08/14/96	14:52	DKH	S	CONC	
51	131-59-11A	81496	TRIANGL2	08/14/96	14:57	DKH	S	CONC	
52	131-59-11BC	81496	TRIANGL2	08/14/96	15:02	DKH	S	CONC	
53	ICV/CCV	81496	TRIANGL2	08/14/96	15:07	DKH	Q	CONC	

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
~~54~~	~~IC8/CC8~~	~~81496~~	~~TRIANGL2~~	~~08/14/96~~	~~15:12~~	~~DKH~~	~~Q~~	~~CONC~~
~~55~~	~~IC8/CC8~~	~~81496~~	~~TRIANGL2~~	~~08/14/96~~	~~15:18~~	~~DKH~~	~~Q~~	~~CONC~~
56	IC8/CC8	81496	TRIANGL2	08/14/96	15:26	DKH	Q	CONC
57	ICSAB	81496	TRIANGL2	08/14/96	15:31	DKH	Q	CONC

Reanalyzed.

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	STD1-BLANK	81596	TRIANGL2	08/15/96	19:11		X	IR
2	STD3	81596	TRIANGL2	08/15/96	19:17		X	IR
3	STD3	81596	TRIANGL2	08/15/96	19:22	DKH	Q	CONC
4	CHECK LO	81596	TRIANGL2	08/15/96	19:27	DKH	Q	CONC
5	ICV/CCV	81596	TRIANGL2	08/15/96	19:32	DKH	Q	CONC
6	STD1-BLANK	81596	TRIANGL2	08/15/96	20:00		X	IR
7	STD1-BLANK	81596	TRIANGL2	08/15/96	20:33		X	IR
8	STD3	81596	TRIANGL2	08/15/96	20:38		X	IR
9	STD3	81596	TRIANGL2	08/15/96	20:44	DKH	Q	CONC
10	CHECK LO	81596	TRIANGL2	08/15/96	20:49	DKH	Q	CONC
11	ICV/CCV	81596	TRIANGL2	08/15/96	20:54	DKH	Q	CONC
12	ICB/CCB	81596	TRIANGL2	08/15/96	20:59	DKH	Q	CONC
13	ICSAB	81596	TRIANGL2	08/15/96	21:04	DKH	Q	CONC
14	ICV/CCV	81596	TRIANGL2	08/15/96	22:04	DKH	Q	CONC
15	STD1-BLANK	81596	TRIANGL2	08/15/96	22:30		X	IR
16	STD3	81596	TRIANGL2	08/15/96	22:36		X	IR
17	STD3	81596	TRIANGL2	08/15/96	22:41		X	IR
18	STD3	81596	TRIANGL2	08/15/96	22:46	DKH	Q	CONC
19	CHECK LO	81596	TRIANGL2	08/15/96	22:52	DKH	Q	CONC
20	ICV/CCV	81596	TRIANGL2	08/15/96	23:00	DKH	Q	CONC
21	ICB/CCB	81596	TRIANGL2	08/15/96	23:05	DKH	Q	CONC
22	ICSAB	81596	TRIANGL2	08/15/96	23:10	DKH	Q	CONC
23	131-59-12A	81596	TRIANGL2	08/16/96	00:46	DKH	S	CONC
24	131-59-12A PDS	81596	TRIANGL2	08/16/96	00:51	DKH	S	CONC
25	131-59-12A L	81596	TRIANGL2	08/16/96	00:56	DKH	S	CONC
26	131-59-12C	81596	TRIANGL2	08/16/96	01:01	DKH	S	CONC
27	131-59-12C PDS	81596	TRIANGL2	08/16/96	01:06	DKH	S	CONC
28	131-59-12C L	81596	TRIANGL2	08/16/96	01:11	DKH	S	CONC
29	131-59-13A	81596	TRIANGL2	08/16/96	01:16	DKH	S	CONC
30	131-59-13A DA	81596	TRIANGL2	08/16/96	01:22	DKH	S	CONC
31	131-59-13C	81596	TRIANGL2	08/16/96	01:27	DKH	S	CONC
32	131-59-13C DA	81596	TRIANGL2	08/16/96	01:32	DKH	S	CONC
33	ICV/CCV	81596	TRIANGL2	08/16/96	01:43	DKH	Q	CONC
34	ICB/CCB	81596	TRIANGL2	08/16/96	01:48	DKH	Q	CONC
35	131-59-14A	81596	TRIANGL2	08/16/96	01:54	DKH	S	CONC
36	131-59-14C	81596	TRIANGL2	08/16/96	01:59	DKH	S	CONC
37	131-59-15A	81596	TRIANGL2	08/16/96	02:04	DKH	S	CONC
38	131-59-15C	81596	TRIANGL2	08/16/96	02:09	DKH	S	CONC
39	131-59-16A	81596	TRIANGL2	08/16/96	02:14	DKH	S	CONC
40	131-59-16B	81596	TRIANGL2	08/16/96	02:19	DKH	S	CONC
41	131-59-17A	81596	TRIANGL2	08/16/96	02:24	DKH	S	CONC
42	131-59-17C	81596	TRIANGL2	08/16/96	02:29	DKH	S	CONC
43	131-59-19A	81596	TRIANGL2	08/16/96	03:18	DKH	S	CONC
44	131-59-19A PDS	81596	TRIANGL2	08/16/96	03:23	DKH	S	CONC
45	ICV/CCV	81596	TRIANGL2	08/16/96	03:31	DKH	Q	CONC
46	ICB/CCB	81596	TRIANGL2	08/16/96	03:36	DKH	Q	CONC
47	ICB/CCB	81596	TRIANGL2	08/16/96	03:48	DKH	Q	CONC
48	131-59-19A L	81596	TRIANGL2	08/16/96	03:53	DKH	S	CONC
49	131-59-19C	81596	TRIANGL2	08/16/96	03:59	DKH	S	CONC
50	131-59-19C PDS	81596	TRIANGL2	08/16/96	04:04	DKH	S	CONC
51	131-59-19C L	81596	TRIANGL2	08/16/96	04:09	DKH	S	CONC
52	131-59-20B	81596	TRIANGL2	08/16/96	04:14	DKH	S	CONC
53	131-59-20B DA	81596	TRIANGL2	08/16/96	04:19	DKH	S	CONC

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
54	131-59-20A	81596	TRIANGL2	08/16/96	04:24	DKH	S	CONC
55	131-59-4A4C4E10A	81596	TRIANGL2	08/16/96	04:29	DKH	S	CONC
56	131-59-10A10B4D4E	81596	TRIANGL2	08/16/96	04:35	DKH	S	CONC
57	ICV/CCV	81596	TRIANGL2	08/16/96	04:41	DKH	Q	CONC
58	ICB/CCB	81596	TRIANGL2	08/16/96	04:46	DKH	Q	CONC
59	ICB/CCB	81596	TRIANGL2	08/16/96	04:52	DKH	Q	CONC
60	ICB/CCB	81596	TRIANGL2	08/16/96	04:58	DKH	Q	CONC
61	ICSAB	81596	TRIANGL2	08/16/96	05:03	DKH	Q	CONC

DKH 8/15/96

Table Name: HA233 Autosampler Type: TYPE TJA
Sample Positions: 122/192 QC Positions: 13/19 # Sets: 1
Rinse Station location is rack -1, pos. -1.

--- Racks ---

Rack #	Type	Usage	#Pos Left	Analyses/Pos
1	Aux. (L) Rack	STD/QC/BLANK	13	10
2	Sample (16mm)	Samples	0	1
3	Sample (16mm)	Samples	26	1
4	Sample (16mm)	Samples	48	1
5	Sample (16mm)	Samples	48	1

--- Sample Sets ---

Set#	Type	Prepare?	Description	Method	#Pos	Rack#	StartPos
1	Normal	No	38139	TRIANGL2	70	2	1

--- Preparation Info ---

Set#	Uptake	Uptake#2	Final	Dil.Factor

No Samples Prepared.

Rack #1

Pos	Row	Col	Sample Name	Set #	#Used	Type
1	1	1	STD3	-NA-	2	Standard 1-17-4P
2	1	2	STD1-BLANK	-NA-	1	Standard
3	1	3	ICSAB	-NA-	4	QC Standard 1-17-6P
4	1	4	CHECK LC	-NA-	1	QC Standard
5	1	5	ICV/CCV	-NA-	8	QC Standard 1-17-5P
6	1	6	ICB/CCB	-NA-	8	QC Standard

(7...19 Not Used)

8/14/96

Rack #2

Pos	Row	Col	Sample Name	Set #	#Used	Type
1	1	1	38139 MB	1	-NA-	Sample
2	1	2	38139 LCS	1	-NA-	Sample
3	1	3	131-59-1ABC	1	-NA-	Sample
4	1	4	131-59-1ABC PDS	1	-NA-	Sample
5	1	5	131-59-1ABC L	1	-NA-	Sample
6	1	6	131-59-1D	1	-NA-	Sample
7	1	7	131-59-1D PDS	1	-NA-	Sample
8	1	8	131-59-1D L	1	-NA-	Sample
9	1	9	131-59-2ABC	1	-NA-	Sample
10	1	10	131-59-2ABC DA	1	-NA-	Sample
11	1	11	131-59-2D	1	-NA-	Sample
12	1	12	131-59-2D DA	1	-NA-	Sample
13	2	1	131-59-3ABC	1	-NA-	Sample
14	2	2	131-59-3D	1	-NA-	Sample
15	2	3	131-59-5A4BSD	1	-NA-	Sample

Rack #2

Pos	Row	Col	Sample Name	Set #	#Used	Type
16	2	4	131-59-5BC	1	-NA-	Sample
17	2	5	131-59-6A	1	-NA-	Sample
18	2	6	131-59-6A PDS	1	-NA-	Sample
19	2	7	131-59-6A L	1	-NA-	Sample
20	2	8	131-59-6C	1	-NA-	Sample
21	2	9	131-59-6C PDS	1	-NA-	Sample
22	2	10	131-59-6C L	1	-NA-	Sample
23	2	11	131-59-7A	1	-NA-	Sample
24	2	12	131-59-7A DA	1	-NA-	Sample
25	3	1	131-59-7C	1	-NA-	Sample
26	3	2	131-59-7C DA	1	-NA-	Sample
27	3	3	131-59-8A	1	-NA-	Sample
28	3	4	131-59-8C	1	-NA-	Sample
29	3	5	131-59-9A	1	-NA-	Sample
30	3	6	131-59-9BC	1	-NA-	Sample
31	3	7	131-59-11A	1	-NA-	Sample
32	3	8	131-59-11BC	1	-NA-	Sample
33	3	9	131-59-12A	1	-NA-	Sample
34	3	10	131-59-12A PDS	1	-NA-	Sample
35	3	11	131-59-12A L	1	-NA-	Sample
36	3	12	131-59-12C	1	-NA-	Sample
37	4	1	131-59-12C PDS	1	-NA-	Sample
38	4	2	131-59-12C L	1	-NA-	Sample
39	4	3	131-59-13A	1	-NA-	Sample
40	4	4	131-59-13A DA	1	-NA-	Sample
41	4	5	131-59-13C	1	-NA-	Sample
42	4	6	131-59-13C DA	1	-NA-	Sample
43	4	7	131-59-14A	1	-NA-	Sample
44	4	8	131-59-14C	1	-NA-	Sample
45	4	9	131-59-15A	1	-NA-	Sample
46	4	10	131-59-15C	1	-NA-	Sample
47	4	11	131-59-16A	1	-NA-	Sample
48	4	12	131-59-16B	1	-NA-	Sample

Rack #3

Pos	Row	Col	Sample Name	Set #	#Used	Type
1	1	1	131-59-17A	1	-NA-	Sample
2	1	2	131-59-17C	1	-NA-	Sample
3	1	3	131-59-19A	1	-NA-	Sample
4	1	4	131-59-19A PDS	1	-NA-	Sample
5	1	5	131-59-19A L	1	-NA-	Sample
6	1	6	131-59-19C	1	-NA-	Sample
7	1	7	131-59-19C PDS	1	-NA-	Sample
8	1	8	131-59-19C L	1	-NA-	Sample
9	1	9	131-59-20B	1	-NA-	Sample
10	1	10	131-59-20B DA	1	-NA-	Sample
11	1	11	131-59-20A	1	-NA-	Sample
12	1	12	131-59-4A4C4E1CA	1	-NA-	Sample
13	2	1	131-59-10A10B4D4E	1	-NA-	Sample
14	2	2	(empty)	1	-NA-	-NA-
15	2	3	(empty)	1	-NA-	-NA-

Method: TRIANGL2 Sample Name: STD1-BLANK Operator:
Run Time: 08/14/96 07:41 Filename: 81496
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	count	count	count	count	count	count
Avge	-.00014	.00276	-.00042	.00239	.00004	.0002
SDev	.00007	.00002	.00009	.00008	.00001	0
%RSD	52.2844	.86713	22.7736	3.62684	40.8414	2.30931

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	count	count	count	count	count	count
Avge	.00049	-.00031	-.00033	-.00016	-.00019	.00195
SDev	.00003	.00025	.00038	.00006	.00005	.00003
%RSD	6.22329	80.7196	115.021	39.4047	27.8834	1.75193

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	count	count	count	count	count	count
Avge	.00004	2.34026	.04833	-.00005	.00003	.00004
SDev	.00002	.03606	.00064	.00006	0	.00004
%RSD	61.4077	1.54093	1.33015	112.259	12.8923	95.3039

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	count	count	count	count	count	count
Avge	.00266	-.00226	-.00104	.00041	-.00006	.00013
SDev	.00081	.00005	.00016	.00017	.0002	.00018
%RSD	30.4138	2.28083	15.1454	42.12	319.753	137.344

Elems	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
Units	count	count	count	count	count	count
Avge	-.00916	.00226	-.00061	0	-.00005	-.00037
SDev	.00074	.00037	.00018	.00003	.00017	.00008
%RSD	8.08876	16.4794	29.8574	50670.8	347.038	21.6768

Elems	V_2924	Zn2062	Si2881
Units	count	count	count
Avge	-.00042	.0000.	.01832
SDev	.00001	.00003	.00023
%RSD	3.0165	213.122	1.28679

Method: TRIANGL2 Sample Name: STD3 Operator:
Run Time: 08/14/96 07:46 Filename: 81496
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be313C
Units	count	count	count	count	count	count
Avge	.4702	.02239	.06192	.16739	.36803	.27668
SDev	.00158	.00028	.00027	.00085	.00114	.00121
%RSD	.33661	1.28483	.44431	.51361	.31026	.44016

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	count	count	count	count	count	count
Avge	.02278	.86904	.09169	.09115	.17497	.20019
SDev	.00012	.00302	.0003	.00038	.00075	.00182
%RSD	.56154	.34778	.33787	.42343	.43134	.91196

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	count	count	count	count	count	count
Avge	.00435	14.6248	9.22728	.02151	.13823	.08418
SDev	.00003	.08354	.04826	.00006	.00047	.00005
%RSD	.7331	.57126	.52304	.29445	.34099	.06828

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	count	count	count	count	count	count
Avge	.12451	.36687	.01836	.14905	.08869	.11872
SDev	.00277	.00187	.00013	.00036	.0004	.0004
%RSD	2.23173	.51035	.75159	.24772	.45434	.33885

Elems	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
Units	count	count	count	count	count	count
Avge	.29988	.14482	.12879	.99136	1.24061	.0322
SDev	.00156	.00073	.00024	.00258	.00146	.00019
%RSD	.52192	.50473	.18843	.26078	.11788	.59614

Elems	V_2924	Zn2062	Si2881	Pb2203	Se1960
Units	count	count	count		
Avge	.04171	.06427	.04525		
SDev	.0001	.0007	.00031		
%RSD	.2596	.83116	.70337		

Method: TRIANGL2 Sample Name: STD3 Operator: DKH
Run Time: 08/14/96 07:51 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	998.4	1002.	998.7	1001.	997.3	999.6
SDev	3.472	12.85	6.958	4.222	3.61	4.57
%RSD	.3478	1.283	.6967	.4216	.362	.4571

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1003.	1003.	999.4	1002.	1001.	998.1
SDev	6.255	3.38	.4523	3.614	4.964	9.135
%RSD	.6235	.337	.0453	.3607	.4958	.9153

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	993.6	10.14	1000.	1003.	1001.	997.0
SDev	7.471	.0759	7.811	3.528	2.975	.4214
%RSD	.7519	.7479	.781	.3518	.2972	.0423

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	10050.	1001.	1003.	1001.	1002.	1001.
SDev	202.8	2.822	4.903	4.909	5.155	3.238
%RSD	2.019	.282	.4888	.4903	.5143	.3236

Elems	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	999.3	992.3	1000.	991.9	997.1	1004.
SDev	6.166	4.695	3.095	2.784	.4416	10.48
%RSD	.617	.4731	.3095	.2807	.0443	1.044

Elems	V_2924	Zn2062	Si2881	Pb2203	Se1960
Units	ppb	ppb	ppb	ppb	ppb
Avge	1000.	1006.	501.0	1002.	994.7
SDev	2.231	10.23	3.279	3.279	3.578
%RSD	.223	1.017	.6544	.3272	.3597

Method: TRIANGL2 Sample Name: ICV/CCV Operator: DKH
Run Time: 08/14/96 08:02 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	510.0	513.5	503.9	510.1	510.6	512.1
SDev	2.612	8.52	2.755	1.151	1.928	1.493
%RSD	.5122	1.659	.5467	.2257	.3775	.2915

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	511.1	510.6	723.6	510.8	515.1	506.3
SDev	3.917	.8388	1.651	.7907	.5397	3.624
%RSD	.7663	.1643	.2282	.1548	.1048	.7157

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	508.8	5.295	497.3	512.2	506.5	509.5
SDev	1.428	.0057	2.029	5.81	.8094	2.003
%RSD	.2806	.1081	.408	1.134	.1598	.3931

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4994.	509.4	520.0	507.0	507.6	512.6
SDev	177.7	1.082	6.912	5.068	3.93	2.058
%RSD	3.558	.2124	1.329	.9996	.7744	.4014

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	507.1	503.3	507.4	504.6	512.4	506.1
SDev	6.279	7.747	.9454	5.788	3.466	1.223
%RSD	1.238	1.539	.1863	1.147	.6764	.2416

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	507.4	503.5	507.5	508.4	260.1
SDev	.3654	3.687	1.452	2.643	3.73
%RSD	.072	.7323	.2861	.5199	1.434

Method: TRIANGL2   Sample Name: ICB/CCB   Operator: DKH
Run Time: 08/14/96 08:07   Filename: 81496
Mode: CONC   Type: Q   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4926	4.241	-2.351	1.415	.2895	.2700
SDev	.1576	1.091	3.114	.945	.0495	.0834
%RSD	32	25.72	132.4	66.76	17.11	30.9

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.8428	.4542	3.804	.7013	.5289	.2621
SDev	.727	.1468	2.408	.5045	.2282	.1115
%RSD	86.26	32.32	63.31	71.94	43.15	42.56

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	3.670	.1573	.3172	8.507	.3024	.4317
SDev	1.232	.026	.0255	1.635	.0653	.683
%RSD	33.57	16.53	8.042	19.22	21.6	158.2

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-10.94	-.0137	-5.175	1.952	.2748	1.758
SDev	52.19	.444	4.906	2.745	.3019	1.953
%RSD	477	3239	94.8	140.6	109.9	111.1

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.620	-.6475	.8333	.4406	-1.113	.2810
SDev	3.274	1.198	1.034	1.649	.7827	.0632
%RSD	125	183.5	124	374.4	70.29	22.49

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	.2872	2.660	.5594	.0025	7.840
SDev	.0545	4.433	.3475	.8174	3.677
%RSD	18.96	166.6	62.13	32060	46.9

Method: TRIANGL2 Sample Name: ICSAB Operator: DXH
Run Time: 08/14/96 08:12 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	533.7	469100.	527.6	517.8	515.9	511.9
SDev	2.133	3536	1.48	1.285	1.844	2.565
%RSD	.3997	.7539	.2805	.2482	.3574	.5011

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	443000.	478.5	712.1	469.8	483.3	540.2
SDev	2989	.4596	1.089	1.258	2.344	5.521
%RSD	.6747	.0961	.1529	.2678	.485	1.022

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	168700.	22.58	656.9	488400.	519.6	501.3
SDev	613.8	.2092	6.439	575.3	2.758	2.464
%RSD	.3639	.9269	.9802	.1178	.5308	.4916

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5437.	468.4	574.0	476.4	495.5	510.5
SDev	232.7	1.913	15.29	3.031	6.676	2.341
%RSD	4.28	.4084	2.664	.6362	1.347	.4585

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	549.2	497.5	489.1	514.7	518.8	Q516.1
SDev	11.73	7.338	3.963	4.081	2.769	1.286
%RSD	2.136	1.475	.8101	.7928	.5337	.2492

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	496.8	478.7	493.4	448.8	499.4
SDev	.7974	10.49	.9334	3.957	2.656
%RSD	.1605	2.191	.1892	.8818	.5318

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Method: TRIANGL2 Sample Name: 38139 M8 Operator: DKH
Run Time: 08/14/96 09:16 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.356	L.0143	L-1.453	27.21	L.8065	14.71
SDev	5.003	.026	.1553	.7432	1.368	2.727
%RSD	68.01	181.2	10.69	2.732	169.7	18.54

Reanalyzed MKH 8/15/96

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Method: TRIANGL2 Sample Name: 38139 LCS Operator: DKH
Run Time: 08/14/96 09:23 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	54.21	46.10	45.46	78.01	43.40	64.45
SDev	1.938	.0742	.4856	.8738	1.571	3.384
%RSD	3.575	.1609	1.068	1.12	3.621	5.251

Method: TRIANGL2   Sample Name: 131-59-1ABC   Operator: DKH
Run Time: 08/14/96 09:40   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1607.	L.0089	L-10.83	201.5	L-15.31	1250.
SDev	14.19	.0254	.6098	1.347	2.037	5.672
%RSD	.883	283.8	5.631	.6688	13.3	.4539

Method: TRIANG12 Sample Name: 131-59-1ABC POS Operator: OKH
Run Time: 08/14/96 09:50 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1638.	47.62	35.46	252.3	32.40	1295.
SDev	13.79	.4581	1.129	3.525	4.353	13.32
%RSD	.8424	.962	3.184	1.397	13.44	1.029

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Method: TRIANGL2 Sample Name: 131-59-1ABC L   Operator: DKH
Run Time: 08/14/96 09:55   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	341.4	L.1217	L-2.422	53.29	L1.049	273.6
SDev	3.487	.0448	.2272	.7722	2.113	6.115
%RSD	1.021	36.86	9.38	1.449	201.4	2.235

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Method: TRIANGL2 Sample Name: 131-59-1D Operator: OKH
Run Time: 08/14/96 10:00 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	198.7	L.0800	3.052	27.89	14.86	130.5
SDev	2.823	.0499	.2338	1.774	3.716	3.023
%RSD	1.42	62.45	7.661	6.359	25	2.317

Method: TRIANGL2 Sample Name: 131-59-1D PDS Operator: DXH
Run Time: 08/14/96 10:06 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	236.2	48.31	52.71	75.18	64.32	174.8
SDev	1.217	.0505	.1893	.7803	.9228	3.208
%RSD	.515	.1045	.3592	1.038	1.435	1.835

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Method: TRIANGL2 Sample Name: 131-59-1D 1 Operator: DKH
Run Time: 08/14/96 10:11 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1031.	1022.	1022.	1029.	1026.	1045.
SDev	12.95	1.312	1.144	1.911	.916	8.189
%RSD	1.256	.1284.	.1119	.1857	.0893	.7839

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Method: TRIANGL2   Sample Name: 131-59-2ABC   Operator: DXH
Run Time: 08/14/96 10:16   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Sapl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1423.	L.6341	L-10.16	189.3	L-13.63	1090.
SDev	2.644	.2144	.2521	.9185	4.773	2.785
%RSD	.1858	33.81	2.482	.4852	35.01	.2555

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Method: TRIANGL2 Sample Name: 131-59-2ABC DA Operator: DXH
Run Time: 08/14/96 10:21 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1432.	L.1772	L-11.22	191.8	L-14.26	1112.
SDev	11	.0759	.6564	1.401	2.556	2.133
%RSD	.7682	42.85	5.849	.7304	17.93	.1918

Method: TRIANGL2 Sample Name: ICV/CCV Operator: DKH
Run Time: 08/14/96 10:26 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	517.4	541.6	512.5	2209.	520.3	512.9
SDev	1.374	6.095	2.152	449.2	-.1242	2.528
%RSD	.2656	1.125	.4198	20.34	.0239	.4929

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	507.7	512.5	734.2	511.5	525.6	517.5
SDev	.9792	1.283	1.315	.8716	3.182	2.196
%RSD	.1929	.2503	.179	.1704	.6055	.4244

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	525.0	5.333	497.3	522.7	512.1	512.3
SDev	6.705	.0373	3.137	1.647	1.759	1.604
%RSD	1.277	.6987	.6308	.3152	.3434	.3132

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5081.	514.9	536.3	494.3	508.6	521.6
SDev	151	1.301	.3154	7.471	7.245	3.829
%RSD	2.971	.2527	.0588	1.512	1.424	.734

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	510.0	511.0	503.8	510.6	501.1	512.8
SDev	4.13	.3716	2.363	1.606	2.687	.2003
%RSD	.8099	.0727	.469	.3145	.5363	.0391

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	512.5	511.8	513.0	507.8	69290.
SDev	.9768	1.814	.4937	3.091	4053
%RSD	.1906	.3545	.0962	.6086	5.849

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 08/14/96 10:31 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4912	31.92	1.041	1852.	.3487	.4684
SDev	.6147	~~2.891~~	~~.6975~~	~~292.3~~	~~.0629~~	~~.1181~~
%RSD	125.1	9.056	66.99	15.78	18.04	25.21
Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.704	.0886	4.268	.2167	2.775	.0219
SDev	.9196	.121	1.259	.2987	.7949	.2795
%RSD	53.97	136.5	29.5	137.8	28.64	1274
Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	13.11	.1106	.2542	5.133	.2290	.2394
SDev	11.61	.0185	.0503	1.727	.0769	.4817
%RSD	88.59	16.72	19.79	23.16	33.57	201.2
Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-135.0	1.067	5.568	-.4899	.4603	64.760
SDev	120.4	.3555	11.54	3.012	5.415	1.436
%RSD	89.22	33.33	207.2	614.8	1176	30.16
Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.064	4.260	.1439	4.195	-2.597	.3181
SDev	6.213	4.78	2.719	1.122	1.734	.0785
%RSD	152.9	112.2	1890	26.74	66.77	24.68
Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881	
Units	ppb	ppb	ppb	ppb	ppb	
Avge	.3628	2.625	.9709	-.2112	31570.	
SDev	.0605	.3281	.3466	.215	2537	
~~%RSD~~	16.68	~~12.5~~	~~35.7~~	101.8	8.037	

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Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 08/14/96 10:57 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2358	12.27	.6271	2990.	.0053	.0746
SDev	.2404	2.707	1.523	150.7	.0609	.022
%RSD	101.9	22.06	242.9	5.04	1156	29.48

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.641	.1392	1.596	.3199	.4132	.2292
SDev	.8201	.0831	2.332	.1528	.4663	.0805
%RSD	49.96	59.72	146.1	47.76	112.8	35.13

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	1.113	.0982	-.0097	5.839	-.0107	-.4733
SDev	5.545	.0265	.0483	4.578	.0017	.1632
%RSD	498.2	26.96	499.4	78.39	15.81	34.48

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-91.19	.1251	-6.239	2.979	-.2475	1.918
SDev	72.65	.6985	4.173	2.945	2.272	1.41
%RSD	79.67	558.3	66.88	98.85	918.1	73.54

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.491	1.617	.8269	3.573	.0893	.0271
SDev	5.945	2.45	.6292	2.457	1.403	.0239
%RSD	79.36	151.5	76.09	68.77	1572	88.14

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	-.0630	-.8441	.3652	-.0996	5270.
SDev	.219	5.373	.2694	.2818	190.2
%RSD	347.4	636.5	73.76	282.9	3.61

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Method: TRIANGL2 Sample Name: 131-59-2D   Operator: DKH
Run Time: 08/14/96 11:02   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Ba3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	259.1	L.0400	3.529	20.80	14.98	171.1
SDev	2.449	.0244	.0178	.1923	.8237	1.699
%RSD	.9453	60.96	.5052	.9245	5.497	.993

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Method: TRIANGL2 Sample Name: 131-59-2D DA   Operator: DKH
Run Time: 08/14/96 11:08   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	261.1	L.0214	3.838	20.75	15.66	175.7
SDev	1.857	.0422	.1074	.0207	.7004	1.646
%RSD	.7112	197.1	2.799	.0998	4.473	.9369

Method: TRIANGL2 Sample Name: 131-59-3ABC Operator: DKH
Run Time: 08/14/96 11:19 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1416.	L.0394	L-4.513	184.0	L-23.86	1111.
SDev	15.09	.0288	.6237	1.342	.763	16.47
%RSD	1.065	73.05	13.82	.7293	3.198	1.483

Method: TRIANGL2 Sample Name: 131-59-3D Operator: OXH
Run Time: 08/14/96 12:04 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	280.3	L.0492	26.79	24.72	23.99	205.9
SDev	.8221	.0444	.3831	.6845	1.601	1.473
%RSD	.2933	90.3	1.43	2.769	6.675	.7155

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Method: TRIANGL2 Sample Name: 131-59-5A4B5D   Operator: DXH
Run Time: 08/14/96 12:09   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Sapl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	33.41	L-.0115	L-12.24	140.4	L-32.86	87.39
SDev	2.626	.0264	.1321	.4843	2.867	3.393
%RSD	7.86	229.8	1.079	.3449	8.725	3.883

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Method: TRIANGL2 Sample Name: 131-59-58C   Operator: DKH
Run Time: 08/14/96 12:14   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Sapl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L.2593	L.0581	L.2104	19.39	3.579	7.296
SDev	3.084	.0247	.6768	1.064	.9489	3.773
%RSD	1190	42.54	321.7	5.484	26.52	51.71

Method: TRIANGL2 Sample Name: 38139 MB Operator: DKH
Run Time: 08/14/96 12:24 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.143	L.0312	L-1.894	27.16	L-.5356	13.03
SDev	2.398	.0252	.2637	2.145	1.02	3.787
%RSD	33.57	80.7	13.92	7.9	190.4	29.07

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Method: TRIANGL2 ~~Sample Name: 38139 LCS~~ ~~Operator: DKH~~
Run Time: 08/14/96 12:29 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: ~~38139~~

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	53.53	47.03	45.59	81.89	41.22	67.89
SDev	2.68	.0768	.157	1.472	1.994	1.67
%RSD	5.006	.1633	.3445	1.798	4.839	2.46

Method: TRIANGL2 Sample Name: 131-59-1D L Operator: DKH
Run Time: 08/14/96 12:37 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	44.41	L.0392	L.0669	15.24	2.034	32.28
SDev	.8398	.0237	.5021	1.181	-1.504	1.769
%RSD	1.891	60.49	750	7.753	73.91	5.48

Method: TRIANGL2   Sample Name: ICV/CCV   Operator: DKN
Run Time: 08/14/96 12:47   Filename: 81496
Mode: CONC   Type: Q   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	505.5	507.6	505.4	3053.	509.6	520.1
SDev	1.721	6.571	3.076	547.4	-.8282	1.44
%RSD	.3403	1.295	.6087	17.93	.1625	.2769

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	513.4	508.8	729.7	513.3	526.9	505.1
SDev	1.558	.3758	3.079	.7263	1.559	2.813
%RSD	.3036	.0739	.422	.1415	.296	.5569

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	533.7	4.970	465.5	508.3	513.6	511.2
SDev	13.55	.0221	1.857	1.172	.8212	1.569
%RSD	2.538	.4451	.3989	.2306	.1599	.3069

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4550.	511.7	516.2	497.4	499.8	510.6
SDev	56.95	2.699	12.85	4.404	4.182	.8458
%RSD	1.252	.5275	2.49	.8853	.8368	.1656

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	508.0	498.9	499.0	501.9	505.9	510.7
SDev	4.668	3.075	1.577	3.367	3.079	.8629
%RSD	.9189	.6164	.316	.6707	.6086	.169

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	510.7	499.4	511.6	516.2	83330.
SDev	.4301	2.304	.9804	2.061	3860
%RSD	.0842	.4614	.1915	.3992	4.632

Method: TRIANG.2 Sample Name: ICB/CCB Operator: DKH
Run Time: 08/14/96 12:53 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.7690	4.631	1.815	2743.	.3077	.3235
SDev	.3238	2.773	2.336	352.5	.041	.1069
%RSD	42.1	59.89	128.7	12.85	13.34	33.05

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.5999	.1289	4.797	-.1516	03.599	.3961
SDev	.7222	.1089	1.684	.7352	1.135	.2092
%RSD	120.4	84.55	35.1	485	31.55	52.82

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	11.75	.1785	.4067	3.218	.2933	.342
SDev	3.255	.0194	.0508	3.491	.0418	.4809
%RSD	27.7	10.9	12.5	108.5	14.25	140.6

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb206
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-111.3	2.041	-3.007	2.113	.8697	04.95
SDev	92.26	.4493	15.95	4.685	2.35	3.001
%RSD	82.93	22.02	530.6	221.7	270.2	60.58

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr421
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.523	3.300	1.284	4.040	-4.010	.3050
SDev	.2278	1.608	.4431	1.019	.8032	.0629
%RSD	4.124	48.72	34.52	25.23	20.03	20.63

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	.2642	2.379	.5580	-.5108	42270.
SDev	.0216	1.538	.2163	.4495	3325
%RSD	8.176	64.64	38.75	88	7.866

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 08/14/96 13:01 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.8378	6.076	1.192	2690.	.0459	.0450
SDev	.3852	2.157	3.979	274.3	.0448	.023
%RSD	45.93	35.49	333.5	10.2	97.48	51.22

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1395	.1218	2.767	-.2600	2.114	.4580
SDev	.7817	.0561	3.233	.2547	.1387	.3026
%RSD	560.5	46.1	116.8	97.96	6.558	66.09

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	4.534	.1684	.1186	3.822	-.0214	-.3958
SDev	1.325	.0157	.0302	3.207	.0384	.171
%RSD	29.24	9.305	25.49	83.89	179.1	43.21

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.295	1.709	-1.441	3.368	.7360	04.343
SDev	131.1	.7292	6.417	4.162	1.06	3.922
%RSD	1797	42.67	445.4	123.6	144.1	90.32

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.045	.3216	1.613	2.561	-2.965	.0473
SDev	.955	3.876	.6788	2.486	.8891	.0251
%RSD	13.56	1205	42.09	97.08	31.03	53.06

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	.0309	2.353	.2912	-.0243	24260.
SDev	.1213	3.934	.382	.6462	1736
%RSD	393.7	167.2	131.2	2664	7.155

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 08/14/96 13:10 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1041	6.833	1.026	3185.	-.0048	.0485
SDev	.2163	2.105	.8949	155.7	.0249	.0435
%RSD	207.8	30.81	87.2	4.888	521.6	89.6

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-2.026	.1689	-.1754	.2118	.9167	.3732
SDev	.8085	.3084	2.938	.4582	.1361	.2529
%RSD	39.91	182.6	1675	216.4	14.84	67.76

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	15.66	.1556	.0944	4.399	-.0888	-.0218
SDev	6.821	.0185	.0436	1.149	.0395	.4527
%RSD	43.55	11.88	46.15	26.11	44.45	2074

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-144.1	.1974	3.178	2.213	.8752	1.723
SDev	78.21	.8102	4.722	5.789	3.615	1.977
%RSD	54.28	410.5	148.6	261.6	413.1	114.7

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.896	.7288	1.321	1.783	-3.016	.0158
SDev	1.705	2.003	.8222	1.061	1.536	.0239
%RSD	43.78	274.8	62.25	59.48	50.94	151.8

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	-.0374	.4575	.0272	-.5831	12680.
SDev	.0917	5.091	.1795	.7511	710.7
%RSD	245.5	1113	659.6	128.8	5.603

Method: TRIANGL2 Sample Name: ICSAB Operator: DKH
Run Time: 08/14/96 13:15 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	544.9	475900.	528.6	4465.	522.0	525.0
SDev	1.054	1812	2.492	281.6	.6078	2.513
%RSD	.1934	.3808	.4715	6.307	.1164	.4787

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	456500.	487.1	729.1	481.2	497.1	547.2
SDev	2301	1.816	1.1	2.348	2.67	2.722
%RSD	.504	.3728	.1509	.4879	.5371	.4974

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	172700.	21.34	616.1	500500.	534.2	513.4
SDev	596.1	.0104	1.085	698.6	2.498	1.84
%RSD	.3452	.0487	.176	.1396	.4676	.3585

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5103.	477.2	546.1	491.3	501.7	511.7
SDev	137.6	1.302	10.72	3.659	5.903	5.299
%RSD	2.696	.2729	1.964	.7448	1.177	1.035

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	559.5	513.4	498.2	528.3	534.1	528.0
SDev	8.445	10.56	2.8	4.551	1.164	.2331
%RSD	1.509	2.057	.5621	.8606	.2179	.0441

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	507.8	484.5	504.9	464.8	10020.
SDev	1.031	9.121	1.264	5.305	287.4
%RSD	.203	1.882	.2504	1.141	2.869

Method: TRIANGL2   Sample Name: 131-59-6A   Operator: OKH
Run Time: 08/14/96 13:29   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.238	L-.0039	L.4488	21.00	13.98	9.039
SDev	2.035	.0379	.0937	1.391	.7242	1.12
%RSD	48.02	979.8	20.88	6.624	5.179	12.39

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Method: TRIANGL2   Sample Name: 131-59-6A PDS   Operator: DKH
Run Time: 08/14/96 13:34   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Sapl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	52.25	48.32	49.49	74.33	62.50	59.61
SDev	.8774	.1669	.4011	2.061	2.599	.7018
%RSD	1.679	.3454	.8105	2.773	4.159	1.177

Method: TRIANGL2 Sample Name: 131-59-6A L Operator: OKH
Run Time: 08/14/96 13:39 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L1.622	L.0446	L-.2453	11.29	L1.565	6.911
SDev	2.92	.0403	.1647	.7999	1.899	2.194
%RSD	180	90.42	67.17	7.085	121.3	31.75

Method: TRIANGL2   Sample Name: 131-59-6C   Operator: DKH
Run Time: 08/14/96 13:44   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-4.489	L-.0679	1.180	19.41	22.43	9.898
SDev	2.648	.0088	.7105	3.444	1.445	3.609
%RSD	58.99	12.9	60.19	17.74	6.442	36.47

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Method: TRIANGL2 Sample Name: 131-59-6C PDS Operator: DKH
Run Time: 08/14/96 13:50 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	42.36	47.28	49.82	65.80	71.66	55.98
SDev	1.738	.0677	.4384	2.031	.6983	4.441
%RSD	4.104	.1432	.8801	3.087	.9745	7.933

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Method: TRIANGL2   Sample Name: 131-59-6C L   Operator: DKH
Run Time: 08/14/96 13:55   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-2.853	L.0295	L.3105	4.411	5.617	5.610
SDev	2.332	.0285	.1875	.4016	1.514	1.755
%RSD	81.74	96.68	60.39	9.106	26.96	31.28

Method: TRIANGL2 Sample Name: 131-59-7A Operator: DKH
Run Time: 08/14/96 14:00 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L2.334	L-.0514	L-.6660	24.82	L-2.322	10.30
SDev	2.372	.0248	.246	1.681	1.945	3.622
%RSD	101.6	48.13	36.94	6.774	83.77	35.18

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Method: TRIANGL2   Sample Name: 131-59-7A DA   Operator: DKH
Run Time: 08/14/96 14:05   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L2.800	L-.0508	L-.6737	27.73	L-1.623	10.64
SDev	1.557	.024	.1616	2.342	1.78	.7192
%RSD	55.63	47.18	23.98	8.446	109.6	6.757

Method: TRIANGL2 Sample Name: 131-59-7C Operator: DKH
Run Time: 08/14/96 14:10 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-2.472	L-.0565	L-.1666	21.04	6.982	11.82
SDev	2.358	.0456	.4006	3.876	2.231	8.745
%RSD	95.36	80.81	240.5	18.42	31.95	73.98

Method: TRIANGL2 Sample Name: 131-59-7C DA Operator: DKH
Run Time: 08/14/96 14:15 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-1.397	L-.0341	L.3401	16.18	9.324	9.170
SDev	2.925	.0614	.5354	2.596	.4114	3.711
%RSD	209.4	180.1	157.4	16.04	4.412	40.46

Method: TRIANGL2   Sample Name: ICV/CCV   Operator: DKH
Run Time: 08/14/96 14:20   Filename: 81496
Mode: CONC   Type: Q   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	503.1	492.8	495.2	3177.	501.9	514.1
SDev	1.443	8.732	2.081	527.5	1.627	1.772
%RSD	.2868	1.772	.4202	16.6	.3241	.3446

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	505.8	502.9	716.7	507.6	519.3	495.2
SDev	2.244	1.403	4.161	2.05	2.881	4.001
%RSD	.4437	.2789	.5805	.4039	.5548	.8079

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	508.5	4.795	Q445.5	500.7	507.7	504.4
SDev	7.446	.0192	3.139	3.864	1.553	1.972
%RSD	1.464	.4007	.7045	.7717	.3059	.391

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	Q4368.	504.8	503.7	497.1	495.0	498.9
SDev	107.4	1.196	4.175	5.76	7.463	1.951
%RSD	2.459	.237	.8287	1.159	1.508	.3911

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	492.6	488.7	495.7	490.0	498.2	502.8
SDev	2.68	6.594	3.213	4.858	5.369	1.114
%RSD	.544	1.349	.6482	.9914	1.077	.2215

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	504.0	494.9	504.8	509.9	50650.
SDev	.9199	3.635	1.616	3.074	3194
%RSD	.1825	.7343	.3202	.6029	6.305

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DXH
Run Time: 08/14/96 14:31 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2910	4.770	1.669	3361.	.0574	.0699
SDev	.2033	2.041	1.384	211.1	.0153	.07
%RSD	69.87	42.78	82.89	6.281	26.69	100.1

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-2.062	.0689	3.614	.2979	2.202	.1946
SDev	.4446	.2308	2.244	.3651	.3005	.1511
%RSD	21.56	334.8	62.11	122.5	13.65	77.64

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	10.72	.1880	.1816	3.831	-.0865	-.3191
SDev	5.864	.0148	.0192	2.081	.079	.7945
%RSD	54.71	7.864	10.58	54.33	91.28	249

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-91.19	.9888	.5836	-.2545	1.453	3.150
SDev	129.7	.3299	6.216	5.118	1.483	.3961
%RSD	142.3	33.36	1065	2011	102.1	12.57

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.964	.8659	.8843	1.231	-3.408	.0674
SDev	2.106	3.185	1.849	1.642	1.97	.0255
%RSD	107.2	367.9	209	133.3	57.8	37.82

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	.0050	4.145	.0550	-.2474	26030.
SDev	.0917	2.673	.4108	.6653	1065
%RSD	1833	64.5	746.5	268.9	4.091

Method: TRIANGL2   Sample Name: 131-59-8A   Operator: OKH
Run Time: 08/14/96 14:36   Filename: 81496
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Sapl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.368	L-.3482	L-2.464	44.12	L-4.064	19.54
SDev	2.141	.0229	.3894	.8771	2.232	2.069
%RSD	29.05	6.581	15.81	1.988	54.93	10.59

Method: TRIANGL2 Sample Name: 131-59-8C Operator: DKH
Run Time: 08/14/96 14:41 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-2.712	L-.0125	L.0165	17.49	7.328	8.087
SDev	3.954	.038	.7381	3.422	.6925	4.633
%RSD	145.8	304.6	4484	19.56	9.451	57.28

Method: TRIANGL2 Sample Name: 131-59-9A Operator: DKH
Run Time: 08/14/96 14:46 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.973	L-.0430	L-1.504	24.27	L-.2793	7.572
SDev	3.066	.0355	.0403	1.856	.5464	4.924
%RSD	61.66	82.6	2.679	7.65	195.7	65.03

Method: TRIANGL2 Sample Name: 131-59-9BC Operator: DKM
Run Time: 08/14/96 14:52 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-4.839	L.0044	L-.8221	13.38	L.2132	6.394
SDev	1.009	.0225	.3608	2.047	.9845	4.882
%RSD	20.85	507	43.89	15.3	461.7	76.35

Method: TRIANGL2 Sample Name: 131-59-11A Operator: DKH
Run Time: 08/14/96 14:57 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L3.467	L-.0157	L.2618	22.83	15.62	10.67
SDev	2.23	.0157	.1073	1.415	1.107	1.894
%RSD	64.31	100.4	40.98	6.199	7.084	17.75

Method: TRIANGL2 Sample Name: 131-59-11BC Operator: OKH
Run Time: 08/14/96 15:02 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51.02	L.0643	L.4374	15.03	15.54	98.28
SDev	3.977	.0276	.4001	2.837	.828	1.52
%RSD	7.795	43.01	91.48	18.87	5.328	1.547

Method: TRIANGL2 Sample Name: ICV/CCV Operator: JKH
Run Time: 08/14/96 15:07 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	504.4	504.7	497.5	2949.	502.3	508.6
SDev	1.306	6.188	1.665	564.8	.9871	2.007
%RSD	.2588	1.226	.3347	19.15	.1965	.3945

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	500.9	496.6	716.0	504.1	516.8	500.5
SDev	2.588	.5528	1.942	1.495	2.443	2.569
%RSD	.5168	.1113	.2712	.2966	.4727	.5133

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	506.7	4.845	451.4	500.4	504.6	502.0
SDev	8.577	.0219	2.126	2.095	1.646	2.441
%RSD	1.693	.4525	.471	.4187	.3263	.4862

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4536.	501.5	510.1	494.4	493.4	504.9
SDev	35.88	2.319	17.25	3.403	7.071	4.305
%RSD	.791	.4624	3.383	.6883	1.433	.8526

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	498.5	491.6	493.8	493.9	495.1	502.0
SDev	2.49	8.711	3.606	6.6	2.448	.6083
%RSD	.4995	1.772	.7303	1.336	.4945	.1212

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	502.0	492.2	502.7	503.6	72760.
SDev	.62	6.178	1.649	5.445	5345
%RSD	.1235	1.255	.3281	1.081	7.346

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 08/14/96 15:12 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Ba3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.6003	8.345	1.234	2797.	.2112	.3058
SDev	.053	3.091	2.842	438.2	.0542	.0739
%RSD	8.826	37.04	230.3	15.66	25.65	24.17

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.167	.0524	-.2458	-.6660	4.035	.2519
SDev	1.418	.3059	3.853	.7054	1.018	.0984
%RSD	44.78	583.5	1568	105.9	25.22	39.06

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.361	.1562	.2954	2.203	.0730	-.2464
SDev	17.96	.0293	.0373	4.031	.0021	.7336
%RSD	335.1	18.72	12.62	183	2.892	297.8

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-124.0	1.682	-1.548	3.377	-3.192	3.781
SDev	49.34	.8794	3.382	3.566	2.519	2.118
%RSD	39.79	52.28	218.4	105.6	78.94	56.02

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	10.89	2.919	-1.004	05.574	-4.393	.2522
SDev	1.845	3.489	.5301	2.016	1.907	.062
%RSD	16.94	119.5	52.77	36.16	43.42	24.58

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	.1321	4.575	.4833	-.5526	51220.
SDev	.0791	.586	.8321	.9141	5048
%RSD	59.86	12.81	172.2	154.2	9.856

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKM
Run Time: 08/14/96 15:18 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4554	9.731	-.3090	2870.	.0402	.1166
SDev	.6505	3.884	4.327	469.1	.0297	.042
%RSD	142.9	39.92	1400	16.35	73.86	35.99

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.051	-.0485	3.868	-.4690	03.092	.3937
SDev	.5982	.2789	2.9	.4198	.4567	.3023
%RSD	19.61	575	74.97	89.52	14.77	76.79

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	9.251	.1620	.1259	5.005	-.1324	-.1674
SDev	3.428	.0168	.0042	4.295	.0009	.4577
%RSD	37.05	10.38	3.331	85.8	.7111	273.3

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-76.60	.8006	-2.382	2.519	-.2404	2.093
SDev	75.81	1.455	9.413	5.307	3.049	.9945
%RSD	98.97	181.8	395.2	210.7	1269	47.52

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6.659	.8552	.6784	2.788	-2.531	.0803
SDev	2.329	.4376	.2687	.5627	1.815	.0152
%RSD	34.98	51.16	39.62	20.18	71.71	18.98

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	.0973	-.4431	-.0258	-.3230	38070.
SDev	.1022	4.28	.5029	.4092	4420
%RSD	105.1	965.8	1948	126.7	11.61

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 08/14/96 15:26 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0820	12.46	.9563	3416.	.0050	.0808
SDev	.1629	4.831	.3461	354.3	.0782	.0161
%RSD	198.7	38.76	36.19	10.37	1565	19.92

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.650	-.0701	2.097	-.3266	2.128	.1720
SDev	.9927	.165	.4311	.0922	.2924	.2174
%RSD	27.2	235.5	20.56	28.24	13.74	126.4

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	8.435	.1535	.0726	5.284	-.1097	-.4310
SDev	8.822	.0266	.0524	4.634	.0385	.6768
%RSD	104.6	17.31	72.11	87.69	35.06	157

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-32.83	1.136	-1.836	.3812	-.4252	3.536
SDev	94.93	.5526	7.519	2.107	3.678	2.816
%RSD	289.2	48.63	409.6	552.6	865	79.64

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.824	-.7605	-.1567	.1001	-2.684	.0319
SDev	2.401	2.627	1.845	2.549	1.21	.0276
%RSD	131.6	345.4	1178	2546	45.09	86.51

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	-.0748	.8238	-.0137	-.6303	23390.
SDev	.1129	.9918	.5214	.8727	2725
%RSD	150.9	120.4	3800	138.5	11.65

Method: TRIANGL2 Sample Name: ICSAB Operator: DKH
Run Time: 08/14/96 15:31 Filename: 81496
Mode: CONC Type: 3 Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	549.3	479500.	528.7	4367.	524.2	521.3
SDev	2.843	4450	6.699	396	3.153	.4199
%RSD	.5176	.9281	1.267	9.068	.6015	.0805
Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	455000.	484.4	727.3	480.5	498.2	553.4
SDev	582.6	1.098	2.606	1.031	.6355	5.629
%RSD	.1281	.2266	.3583	.2146	.1276	1.017
Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	172300.	21.08	604.5	501600.	534.6	512.3
SDev	315.6	.0467	1.318	2099	.5221	.573
%RSD	.1832	.2218	.218	.4185	.0977	.1119
Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5141.	476.4	562.9	489.2	501.4	521.6
SDev	79.73	1.358	21.27	11.36	4.762	1.74
%RSD	1.551	.2851	3.779	2.323	.9498	.3336
Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	554.6	506.6	497.3	512.6	529.2	528.1
SDev	11.8	9.105	3.702	6.419	1.675	2.763
%RSD	2.127	1.797	.7444	1.228	.3164	.5232
Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881	
Units	ppb	ppb	ppb	ppb	ppb	
Avge	507.9	486.4	505.4	459.6	21440.	
SDev	1.367	5.215	.7817	2.371	2237	
%RSD	.2692	1.072	.1547	.5[illegible]47	10.43	

Table Name: HA234 Autosampler Type: TYPE TJA
Sample Positions: 163/192 QC Positions: 13/19 # Sets: 1
Rinse Station location is rack -1, pos. -1.

MKA 8/16/96

--- Racks ---

Rack #	Type	Usage	#Pos Left	Analyses/Pos
1	Aux. (L) Rack	STD/QC/BLANK	13	10
2	Sample (16mm)	Samples	19	1
3	Sample (16mm)	Samples	48	1
4	Sample (16mm)	Samples	48	1
5	Sample (16mm)	Samples	48	1

--- Sample Sets ---

Set#	Type	Prepare?	Description	Method	#Pcs	Rack#	StartPcs
1	Normal	No	38139	TRIANGL2	29	2	1

--- Preparation Info ---

Set#	Uptake	Uptake#2	Final	Dil.Factor

No Samples Prepared.

Rack #1

Pos	Row	Col	Sample Name	Set #	#Used	Type
1	1	1	STD3	-NA-	2	Standard 1-17-11 P
2	1	2	STD1-BLANK	-NA-	1	Standard
3	1	3	ICSAB	-NA-	2	QC Standard 1-17-6 P
4	1	4	CHECK LO	-NA-	1	QC Standard
5	1	5	ICV/CCV	-NA-	4	QC Standard 1-17-5 P
6	1	6	ICB/CCB	-NA-	4	QC Standard

(7...19 Not Used)

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Rack #2

Pos	Row	Col	Sample Name	Set #	#Used	Type
1	1	1	131-59-12A	1	-NA-	Sample
2	1	2	131-59-12A PDS	1	-NA-	Sample
3	1	3	131-59-12A L	1	-NA-	Sample
4	1	4	131-59-12C	1	-NA-	Sample
5	1	5	131-59-12C PDS	1	-NA-	Sample
6	1	6	131-59-12C L	1	-NA-	Sample
7	1	7	131-59-13A	1	-NA-	Sample
8	1	8	131-59-13A DA	1	-NA-	Sample
9	1	9	131-59-13C	1	-NA-	Sample
10	1	10	131-59-13C DA	1	-NA-	Sample
11	1	11	131-59-14A	1	-NA-	Sample
12	1	12	131-59-14C	1	-NA-	Sample
13	2	1	131-59-15A	1	-NA-	Sample
14	2	2	131-59-15C	1	-NA-	Sample
15	2	3	131-59-16A	1	-NA-	Sample

Rack #2

Pos	Row	Col	Sample Name	Set #	#Used	Type
16	2	4	131-59-16B	1	-NA-	Sample
17	2	5	131-59-17A	1	-NA-	Sample
18	2	6	131-59-17C	1	-NA-	Sample
19	2	7	131-59-19A	1	-NA-	Sample
20	2	8	131-59-19A PDS	1	-NA-	Sample
21	2	9	131-59-19A L	1	-NA-	Sample
22	2	10	131-59-19C	1	-NA-	Sample
23	2	11	131-59-19C PDS	1	-NA-	Sample
24	2	12	131-59-19C L	1	-NA-	Sample
25	3	1	131-59-20B	1	-NA-	Sample
26	3	2	131-59-20B DA	1	-NA-	Sample
27	3	3	131-59-20A	1	-NA-	Sample
28	3	4	131-59-4A4C4E10A	1	-NA-	Sample
29	3	5	131-59-10A10B4D4E	1	-NA-	Sample

(30...48 Not Used)

Rack #3

Pos	Row	Col	Sample Name	Set #	#Used	Type

(1...48 Not Used)

Rack #4

Pos	Row	Col	Sample Name	Set #	#Used	Type

(1...48 Not Used)

Rack #5

Pos	Row	Col	Sample Name	Set #	#Used	Type

(1...48 Not Used)

Method: TRIANGL2 Sample Name: STD1-BLANK Operator:
Run Time: 08/15/96 22:30 Filename: 81596
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	count	count	count	count	count	count
Avge	.00014	.00291	-.00025	.02502	.00004	.00022
SDev	.00027	.00005	.00017	.00049	.00002	0
%RSD	191.189	1.98536	67.0961	1.96849	52.9146	2.83457

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	count	count	count	count	count	count
Avge	.00043	-.00037	-.00013	-.00013	-.00012	.00207
SDev	.00001	.00009	.00008	.00004	.00007	.00003
%RSD	4.11596	26.4517	62.7355	31.3152	57.5159	1.49801

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	count	count	count	count	count	count
Avge	.00003	2.40199	.04919	.00003	.00002	.00003
SDev	.00001	.03344	.00061	.00006	0	.00004
%RSD	45.5658	1.39236	1.24188	201.698	24.3736	132.282

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	count	count	count	count	count	count
Avge	.00233	-.00205	-.00119	.00107	-.0001	.0004
SDev	.00157	.00043	.00019	.00016	.00013	.00012
%RSD	67.5519	21.2491	16.4977	15.1568	128.532	31.5919

Elems	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
Units	count	count	count	count	count	count
Avge	-.00847	.00222	-.00057	0	-.00012	-.00042
SDev	.00071	.00027	.00013	.00001	.00007	.00015
%RSD	8.46837	12.4699	23.231	465.104	65.0149	35.4605

Elems	V_2924	Zn2062	Si2881
Units	count	count	count
Avge	-.00041	-.00001	.03804
SDev	.00003	.00002	.00113
%RSD	7.64982	173.205	2.97807

Method: TRIANGL2 Sample Name: STD3 Operator:
Run Time: 08/15/96 22:36 Filename: B1596
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	count	count	count	count	count	count
Avge	.46058	.02191	.06091	.18833	.35816	.27777
SDev	.00803	.00046	.0011	.00338	.00639	.00552
%RSD	1.74534	2.12757	1.81789	1.79579	1.78469	1.98856

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	count	count	count	count	count	count
Avge	.02279	.86542	.08686	.09108	.17606	.19663
SDev	.00046	.01687	.00183	.00181	.00355	.00392
%RSD	2.03911	1.9497	2.10725	1.98841	2.01947	1.997

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	count	count	count	count	count	count
Avge	.00432	13.4996	8.45546	.02155	.13788	.08285
SDev	.0001	.07648	.0643	.00042	.00266	.00142
%RSD	2.53167	.56659	.76046	1.97681	1.93606	1.72107

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	count	count	count	count	count	count
Avge	.11506	.36223	.01872	.14869	.08798	.11709
SDev	.00197	.00777	.00035	.00203	.00179	.00248
%RSD	1.71478	2.1451	1.92214	1.36938	2.0434	2.12145

Elems	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
Units	count	count	count	count	count	count
Avge	.2972	.14421	.12858	.97623	1.22931	.03153
SDev	.00413	.00281	.00209	.01738	.02264	.0004
%RSD	1.3921	1.95056	1.62733	1.78054	1.84196	1.25671

~~Elem~~	~~V_2924~~	~~Zn2062~~	Si2881	Pb2203	~~Se1960~~
Unit	count	count	~~count~~		
Avge	.04123	~~.08499~~	.06708		
~~SDev~~	.0008	~~.00192~~	.00116		
%RSD	1.96142	2.26805	1.73795		

Method: TRIANGL2 Sample Name: STD3 Operator:
Run Time: 08/15/96 22:41 Filename: 81596
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	count	count	count	count	count	count
Avge	.46596	.02224	.06171	.18998	.36239	.28036
SDev	.00166	.0002	.00022	.00044	.00088	.00088
%RSD	.35753	.93775	.37002	.2325	.24461	.31401

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	count	count	count	count	count	count
Avge	.023	.87548	.09028	.09209	.17807	.19888
SDev	.00004	.00179	.00082	.00024	.00053	.00143
%RSD	.18732	.20529	.91165	.26712	.29905	.72131

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	count	count	count	count	count	count
Avge	.00437	13.5048	8.47404	.02176	.13924	.08362
SDev	.00004	.05532	.04117	.00013	.00024	.00019
%RSD	1.03596	.40966	.48594	.63878	.17329	.23133

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	count	count	count	count	count	count
Avge	.11511	.36614	.0191	.15018	.08885	.11768
SDev	.00164	.00044	.00027	.00079	.00045	.00049
%RSD	1.43078	.12085	1.43964	.52726	.5082	.42009

Elems	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
Units	count	count	count	count	count	count
Avge	.30089	.14534	.13052	.98462	1.24016	.032
SDev	.00345	.00203	.0001	.0014	.00053	.00015
%RSD	1.14888	1.39987	.07856	.14266	.04316	.49472

Elems	V_2924	Zn2062	Si2881	Pb2203	Se1960
Units	count	count	count		
Avge	.04168	.08612	.06814		
SDev	.00006	.0005	.00019		
%RSD	.15503	.59185	.28226		

Method: TRIANGL2   Sample Name: STD3   Operator: DKH
Run Time: 08/15/96 22:45   Filename: 81596
Mode: CONC   Type: Q   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	997.0	992.4	994.6	996.8	995.0	997.8
SDev	3.693	12.35	7.188	1.715	2.023	2.868
%RSD	.3704	1.245	.7226	.1721	.2033	.2874

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1000.	998.1	976.8	999.8	998.9	994.2
SDev	3.785	1.469	14.59	3.395	3.043	7.01
%RSD	.3785	.1472	1.494	.3396	.3046	.7051

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	998.6	10.06	992.5	1001.	998.1	997.4
SDev	4.568	.05	5.767	7.115	2.864	3.833
%RSD	.4574	.4971	.581	.711	.2869	.3843

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	9909.	997.7	1009.	994.6	1000.	1001.
SDev	268.2	.7942	5.737	12.98	8.923	1.608
%RSD	2.706	.0796	.5686	1.305	.8923	.1606

Elems	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl19C8
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	996.3	998.3	996.4	994.6	996.4	994.9
SDev	12.97	5.055	6.008	1.261	1.674	1.497
%RSD	1.302	.506	.603	.1268	.168	.1505

Elems	V_2924	Zn2062	Si2881	Pb2203	Se1960
Units	ppb	ppb	ppb	ppb	ppb
Avge	998.1	999.9	510.7	998.3	998.0
SDev	1.237	2.669	5.071	1.984	7.013
%RSD	.1239	.2669	.9928	.1987	.7027

Analysis Report   Averages   Fri 08-16-96 12:56:32 PM   page 20

Method: TRIANGL2   Sample Name: ICV/CCV   Operator: DKH
Run Time: 08/15/96 23:00   Filename: 81596
Mode: CONC   Type: Q   Corr. Factor: 1.00000
Lab ID.:   Cust. Sapl. ID.:   Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	508.5	502.0	497.3	503.9	506.0	503.1
SDev	2.394	5.732	4.627	2.019	1.263	1.429
%RSD	.4708	1.142	.9304	.4007	.2495	.284

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	505.7	502.9	723.4	504.2	505.5	498.8
SDev	1.876	2.149	3.499	.663	1.219	3.551
%RSD	.3709	.4273	.4837	.1315	.2411	.712

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	500.3	5.261	485.5	498.8	501.9	507.7
SDev	5.035	.0245	3.167	.7456	1.211	2.015
%RSD	1.006	.4657	.6523	.1495	.2413	.3969

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4958.	505.6	509.7	500.1	500.9	510.9
SDev	188.5	3.502	4.785	3.945	6.849	1.944
%RSD	3.801	.6925	.9387	.7889	1.367	.3806

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	501.1	498.6	500.6	499.5	496.0	497.3
SDev	2.339	3.725	4.062	3.263	.4093	1.011
%RSD	.4668	.747	.8113	.6533	.0825	.2032

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	500.0	497.1	502.9	502.8	208.0
SDev	.8074	6.667	1.189	2.451	17.75
%RSD	.1615	1.341	.2365	.4875	8.536

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 08/15/96 23:05 Filename: 81596
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3853	-.1302	-2.121	-9.589	.2874	.1905
SDev	.9496	2.399	1.614	.9498	.0663	.111
%RSD	246.5	1843	76.08	9.906	23.07	58.29

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1251	.4326	-.3835	.4814	.2859	-.0571
SDev	.7845	.1667	3.443	.544	.0932	.2715
%RSD	627.3	38.54	897.8	113	32.6	475.6

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	2.928	.1544	.2849	3.342	.2038	-.0730
SDev	6.701	.0225	.0597	2.177	.0401	.5599
%RSD	228.9	14.55	20.97	65.13	19.67	767.1

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	100.5	.0785	3.559	.3128	1.922	1.513
SDev	201.4	.3829	5.111	3.213	.6641	1.255
%RSD	200.4	488	143.6	1027	34.56	82.93

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.608	-.2920	1.386	1.340	-2.470	.2309
SDev	4.689	3.391	.7723	3.783	.5284	.0939
%RSD	101.8	1161	55.73	282.4	21.39	40.66

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	.2267	4.877	.7596	.0363	12.98
SDev	.0897	4.728	.5257	.3358	9.92
%RSD	39.59	96.94	69.2	925.3	76.42

Method: TRIANGL2 Sample Name: ICSAB Operator: DKH
Run Time: 08/15/96 23:10 Filename: 81596
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	551.0	490900.	532.1	527.8	525.8	511.8
SDev	.7156	2797	4.544	4.117	1.25	2.458
%RSD	.1299	.5697	.8539	.7799	.2378	.4803

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	456800.	482.7	737.1	474.9	487.3	551.1
SDev	2580	1.073	3.384	.5196	4.118	3.682
%RSD	.5648	.2222	.4592	.1094	.8451	.668

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	173700.	022.97	658.7	504300.	528.1	511.0
SDev	572.5	.0994	2.608	375.6	2.364	1.691
%RSD	.3295	.4327	.396	.0745	.4476	.3309

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5712.	477.2	583.4	482.4	503.1	497.6
SDev	260.5	1.191	7.414	4.331	7.146	10.63
%RSD	4.56	.2495	1.271	.898	1.42	2.136

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	547.8	505.8	496.2	519.8	518.4	522.8
SDev	8.629	7.849	3.324	2.362	3.599	.5125
%RSD	1.575	1.552	.6699	.4544	.6943	.098

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	503.2	489.6	502.8	453.9	515.2
SDev	.6895	2.631	2.524	5.672	14.45
%RSD	.137	.5374	.5019	1.25	2.804

Method: TRIANGL2 Sample Name: 131-59-12A Operator: DXH
Run Time: 08/16/96 00:46 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L3.958	L-.1386	1.391	37.51	L-3.136	16.30
SDev	1.987	.0455	.1915	1.441	4.96	1.364
%RSD	50.19	32.81	13.77	3.841	158.1	8.37

Method: TRIANGL2 Sample Name: 131-59-12A PDS Operator: DKH
Run Time: 08/16/96 00:51 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	53.73	46.95	50.19	88.56	44.07	68.79
SDev	3.76	.0499	.1283	1.384	2.304	4.051
%RSD	6.998	.1063	.2557	1.563	5.23	5.889

Method: TRIANGL2 Sample Name: 131-59-12A L Operator: DKH
Run Time: 08/16/96 00:56 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-.2896	L.0513	L.1914	13.43	L-.4022	6.933
SDev	3.96	.0209	.1463	.6354	1.951	2.153
%RSD	1367	40.75	76.46	4.729	485.1	31.05

Method: TRIANGL2 Sample Name: 131-59-12C Operator: DKH
Run Time: 08/16/96 01:01 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Ba3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1894.	L-.0873	3.422	19.12	8.445	3436.
SDev	.0908	.0507	.7397	3.61	1.987	22.71
%RSD	.0048	58.11	21.62	18.88	23.53	.6609

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Method: TRIANGL2   Sample Name: 131-59-12C PDS   Operator: DKH
Run Time: 08/16/96 01:06   Filename: 81596
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	C-2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1922.	46.29	52.14	63.62	55.77	3441.
SDev	16.03	.1501	.3653	1.488	1.33	32.81
%RSD	.8339	.3242	.7006	2.338	2.384	.9535

Method: TRIANGL2 Sample Name: 131-59-12C L Operator: DKH
Run Time: 08/16/96 01:11 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2066
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	401.8	L-.0188	1.035	3.183	2.126	743.3
SDev	3.27	.0076	.2048	.2844	.6112	13.84
%RSD	.814	40.66	19.79	8.934	28.75	1.861

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Method: TRIANGL2 Sample Name: 131-59-13A Operator: DKH
Run Time: 08/16/96 01:16 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L1.785	L-.0146	L-1.167	24.42	L.6792	24.55
SDev	4.548	.0093	.1283	2.244	2.327	2.952
%RSD	254.9	64.05	10.99	9.19	342.7	12.02

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Method: TRIANGL2 Sample Name: 131-59-13A DA Operator: DKH
Run Time: 08/16/96 01:22 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L2.263	L.0055	L-1.217	25.55	L.5275	19.64
SDev	2.841	.0261	.1319	1.874	1.256	4.563
%RSD	125.6	477.6	10.84	7.334	238.2	23.23

Method: TRIANGL2 Sample Name: 131-59-13C Operator: DKH
Run Time: 08/16/96 01:27 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1762.	L-.2306	L-.3936	27.33	2.299	3150.
SDev	5.158	.0299	.3176	4.02	.9119	23.13
%RSD	.2928	12.96	80.69	14.71	39.66	.7343

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Method: TRIANGL2   Sample Name: 131-59-13C DA   Operator: DKH
Run Time: 08/16/96 01:32   Filename: B1596
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1760.	L-.2594	L.2088	23.01	3.971	3157.
SDev	9.114	.0507	.1457	4.771	2.114	34.92
%RSD	.5177	19.54	69.77	20.73	53.24	1.106

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Method: TRIANGL2   Sample Name: ICV/CCV   Operator: DKH
Run Time: 08/16/96 01:43   Filename: 81596
Mode: CONC   Type: Q   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	504.0	515.8	490.5	3649.	507.4	497.9
SDev	2.149	11.45	3.309	339.2	2.075	2.015
%RSD	.4264	2.22	.6746	9.296	.4091	.4046
Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	496.5	497.2	723.2	497.5	504.0	501.5
SDev	1.894	.7251	1.157	1.594	2.335	4.395
%RSD	.3814	.1458	.1599	.3204	.4634	.8765
Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	505.8	5.253	486.4	496.8	498.5	502.3
SDev	11.96	.0233	3.616	3.9	1.549	1.192
%RSD	2.365	.4445	.7434	.785	.3107	.2371
Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4914.	500.4	504.9	485.4	496.5	517.8
SDev	130.9	1.823	4.8	6.715	5.793	4.386
%RSD	2.664	.3643	.9509	1.384	1.167	.8472
Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	495.8	493.0	492.8	493.9	481.9	498.8
SDev	3.208	1.359	2.711	1.97	1.583	1.581
%RSD	.6471	.2757	.55	.3989	.3284	.3169
Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881	
Units	ppb	ppb	ppb	ppb	ppb	
Avge	498.2	491.8	500.0	493.5	21500.	
SDev	1.096	3.616	1.06	4.471	2416	
%RSD	.2201	.7353	.2121	.906	11.24	

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 08/16/96 01:48 Filename: 81596
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be313C
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1988	10.87	-2.731	3498.	.2270	.2804
SDev	.8462	5.124	.5162	258	.1622	.0978
%RSD	425.6	47.13	18.91	7.376	71.44	34.86

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.424	.2577	.9136	-.0637	1.401	-.4636
SDev	.2387	.3054	1.921	.1063	.3749	.4712
%RSD	16.76	118.5	210.3	166.9	26.75	101.6

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	5.149	.1045	.2242	.7504	.2272	.4191
SDev	4.715	.0203	.0808	4.984	.1998	.6525
%RSD	91.56	19.39	36.05	664.2	87.95	155.7

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-49.26	.4829	4.886	1.070	1.910	2.068
SDev	150.3	.6173	8.541	2.421	2.499	.3297
%RSD	305.1	127.8	174.8	226.2	130.8	15.94

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.617	-2.302	1.631	-.6639	-2.092	.2409
SDev	2.728	2.646	1.321	1.07	2.407	.1249
%RSD	104.2	114.9	81.05	161.2	115	51.85

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	.1790	1.380	.3933	-.2964	15270.
SDev	.2454	2.629	.3964	.1737	705.6
%RSD	137.1	190.5	100.8	58.62	4.62

Method: TRIANGL2   Sample Name: 131-59-14A   Operator: DKH
Run Time: 08/16/96 01:54   Filename: 81596
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Sapl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L3.143	L-.0129	L-2.424	36.74	L-3.920	16.27
SDev	2.448	.0641	.0365	1.292	1.872	2.859
%RSD	77.9	496.3	1.506	3.516	47.76	17.57

Method: TRIANGL2 Sample Name: 131-59-14C Operator: DKH
Run Time: 08/16/96 01:59 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1533.	L-.0205	1.000	26.30	6.497	2874.
SDev	12.52	.066	.9011	3.235	2.622	24.3
%RSD	.8168	321.5	90.09	12.3	40.36	.8455

Method: TRIANGL2 Sample Name: 131-59-15A Operator: DXH
Run Time: 08/16/96 02:04 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11.03	L.0461	L.0748	22.16	9.939	34.98
SDev	2.389	.024	.2585	1.571	1.554	1.493
%RSD	21.65	52.05	345.5	7.09	15.64	4.268

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Method: TRIANGL2   Sample Name: 131-59-15C   Operator: DKH
Run Time: 08/16/96 02:09   Filename: 81596
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	929.5	L-.0304	L.1933	28.74	4.545	1594.
SDev	7.845	.0752	.5867	3.479	1.773	18.99
%RSD	.844	247.3	303.5	12.11	39.01	1.192

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Method: TRIANGL2 Sample Name: 131-59-16A Operator: DKH
Run Time: 08/16/96 02:14 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	16.42	L.0613	L-1.040	21.28	L-2.263	25.33
SDev	3.564	.0049	.3403	1.981	1.459	1.863
%RSD	21.7	7.972	32.73	9.309	64.45	7.356

Method: TRIANGL2   Sample Name: 131-59-16B   Operator: DKM
Run Time: 08/16/96 02:19   Filename: 81596
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	935.7	L-.0157	L-.8804	26.34	2.886	1648.
SDev	9.462	.0663	.6233	4.372	2.08	14.75
%RSD	1.011	423	70.8	16.6	72.06	.8949

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Method: TRIANGL2   Sample Name: 131-59-17A   Operator: DKH
Run Time: 08/16/96 02:24   Filename: 81596
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	20.07	L.0185	L-.4475	23.48	L.0872	24.94
SDev	1.806	.0138	.2067	1.705	1.323	2.79
%RSD	8.999	74.64	46.2	7.263	1518	11.19

Method: TRIANGL2   Sample Name: 131-59-17C   Operator: DKH
Run Time: 08/16/96 02:29   Filename: 81596
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1005.	L-.1303	L-.5955	25.45	4.327	1867.
SDev	6.769	.0454	.9268	5.522	.5763	19.85
%RSD	.6736	34.86	155.6	21.7	13.32	1.063

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Method: TRIANGL2 Sample Name: 131-59-19A   Operator: DXH
Run Time: 08/16/96 03:18   Filename: 81596
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Sampl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L1.671	L-.0061	L-1.270	24.06	L-.4357	12.52
SDev	2.598	.0188	.024	.98	.9908	1.707
%RSD	155.5	309.1	1.889	4.073	227.4	13.63

Method: TRIANGL2 Sample Name: 131-59-19A PDS Operator: DKH
Run Time: 08/16/96 03:23 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49.10	46.93	46.95	75.06	47.43	62.36
SDev	1.289	.1835	.0716	.7035	1.356	1.986
%RSD	2.626	.3911	.1526	.9372	2.859	3.185

Method: TRIANGL2 Sample Name: ICV/CCV Operator: DKH
Run Time: 08/16/96 03:31 Filename: 81596
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Sampl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	506.8	520.7	495.3	3166.	509.7	499.0
SDev	3.031	10.04	2.104	492.3	1.508	.5966
%RSD	.5981	1.929	.4248	15.55	.2959	.1196

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	497.0	496.7	727.3	495.8	512.0	500.1
SDev	.6977	.2426	.6462	.6987	.3539	3.378
%RSD	.1404	.0488	.0889	.1409	.0691	.6754

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	519.2	5.190	482.3	495.5	500.4	501.8
SDev	8.627	.0253	2.332	3.645	.524	1.294
%RSD	1.662	.4875	.4836	.7357	.1047	.2579

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4808.	507.0	497.4	475.8	493.4	512.5
SDev	124.6	2.136	5.998	9.248	6.204	1.896
%RSD	2.592	.4212	1.206	1.943	1.257	.3699

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	492.3	493.7	487.6	493.3	475.6	501.4
SDev	6.747	9.503	3.417	7.599	3.332	1.374
%RSD	1.37	1.925	.7008	1.541	.7006	.274

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	500.3	494.7	502.4	495.4	97480.
SDev	.5844	3.02	1.448	1.89	4374
%RSD	.1168	.6105	.2881	.3815	4.488

Method: TRIANG.2   Sample Name: ICB/CCB   Operator: DXN
Run Time: 08/16/96 03:36   Filename: 81596
Mode: CONC   Type: Q   Corr. Factor: 1.00000
Lab ID.:   Cust. Sapl. ID.:   Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3767	Q-120.2	.4654	612.6	.1005	-.6892
SDev	.0664	.7845	.5513	186.5	.0061	.0086
%RSD	17.62	.6527	118.5	30.45	6.034	1.244

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	9.069	.3914	1.773	.6909	1.631	Q-8.878
SDev	.0928	.0347	.5494	.0693	.183	.0357
%RSD	1.024	8.862	30.99	10.04	11.22	.4022

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	.2584	.5738	.9496	-.7333	-.0470	-.3171
SDev	3.016	.0075	.0317	.4163	.0113	.1233
%RSD	1167	1.299	3.333	56.77	23.98	38.88

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.882	Q3.202	Q32.59	-6.448	2.307	-.2900
SDev	104.1	.6036	.4514	.7418	.3403	.0738
%RSD	1321	18.85	1.385	11.5	14.75	25.44

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	14.46	-8.426	-.6083	-.8059	.1208	.0451
SDev	.4274	.7984	.0506	.4425	.3862	.0078
%RSD	2.956	9.475	8.315	54.91	319.8	17.38

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	.1060	Q9.343	Q8.272	.1352	11890.
SDev	.0531	.3593	.1606	.1171	1591
%RSD	50.11	3.846	1.941	86.64	13.39

Method: TRIANGL2   Sample Name: ICB/CCB   Operator: DKH
Run Time: 08/16/96 03:48   Filename: 81596
Mode: CONC   Type: Q   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0727	17.00	-1.558	4333.	.0521	.1001
SDev	.6166	5.989	2.952	285.1	.0288	.026
%RSD	848	35.22	189.5	6.579	55.34	26

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-2.258	.0431	1.992	-.4778	2.407	-1.003
SDev	.7197	.171	1.532	.3791	.1698	.3815
%RSD	31.87	396.5	76.91	79.34	7.054	38.04

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	9.522	.0885	-.0158	2.299	-.0005	-.0346
SDev	4.508	.0264	.0475	3.529	.0387	.2402
%RSD	47.34	29.86	300	153.5	7682	693.6

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-33.50	.4293	5.253	-2.336	-.0621	2.705
SDev	111	.1835	10.03	2.119	2.093	2.839
%RSD	331.2	42.74	190.9	90.69	3372	104.9

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.479	-1.751	-.8194	-.6750	-2.769	.0289
SDev	.1045	2.576	1.094	1.708	2.578	.0109
%RSD	7.062	147.2	133.6	253.1	93.1	37.59

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	.0842	3.504	.6845	-.1487	30580.
SDev	.1082	1.881	.3427	.5056	3787
%RSD	128.5	53.68	50.07	340	12.39

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Method: TRIANGL2 Sample Name: 131-59-19A L Operator: DKH
Run Time: 08/16/96 03:53 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-2.006	L.0953	L-.4158	6.463	L-.5571	L1.929
SDev	3.028	.0498	.0929	.4151	.3579	1.238
%RSD	151	52.26	22.34	6.423	64.24	64.17

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Method: TRIANGL2 Sample Name: 131-59-19C Operator: DKM
Run Time: 08/16/96 03:59 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-11.00	L.0541	8.609	12.09	4.834	L1.187
SDev	.8069	.0701	.3122	1.423	.8429	2.406
%RSD	7.332	129.6	3.627	11.77	17.44	202.8

Method: TRIANGL2 Sample Name: 131-59-19C PDS Operator: DKH
Run Time: 08/16/96 04:04 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	43.38	45.81	56.51	59.48	53.55	50.08
SDev	3.763	.0213	.1838	.7894	2.195	3.841
%RSD	8.674	.0465	.3252	1.327	4.098	7.668

Method: TRIANGL2   Sample Name: 131-59-19C L   Operator: DKH
Run Time: 08/16/96 04:09   Filename: 81596
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-2.680	L.0790	2.074	3.062	L.6380	L2.177
SDev	1.943	.0484	.1732	.3516	1.394	2.755
%RSD	72.5	61.22	8.351	11.48	218.5	126.6

Method: TRIANGL2   Sample Name: 131-59-208   Operator: DKH
Run Time: 08/16/96 04:14   Filename: 81596
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Sapl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	..5532	L.0689	L-1.450	21.83	L.5836	11.45
SDev	1.201	.0181	.2307	1.757	1.55	3.116
%RSD	217	26.3	15.91	8.048	265.6	27.21

Method: TRIANGL2 Sample Name: 131-59-208 DA Operator: DKH
Run Time: 08/16/96 04:19 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-.2532	L.0645	L-1.250	23.44	L1.415	14.19
SDev	4.455	.0359	.1377	1.734	.7968	2.185
%RSD	1760	55.71	11.01	7.396	56.3	15.39

Method: TRIANGL2 Sample Name: 131-59-20A Operator: DKH
Run Time: 08/16/96 04:24 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L1.490	L.0352	L-1.420	24.24	L1.642	15.93
SDev	3.438	.0121	.2115	1.589	2.036	2.552
%RSD	230.7	34.45	14.9	6.556	124	16.02

Method: TRIANGL2 Sample Name: 131-S9-4A4C4E10A Operator: DKH
Run Time: 08/16/96 04:29 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	32.42	L-45.99	L-6.643	325.3	19.84	45.97
SDev	5.971	.5855	.617	2.385	4.008	4.42
%RSD	18.42	1.273	9.288	.7332	20.2	9.616

Method: TRIANGL2   Sample Name: 131-59-10A10B4D4E   Operator: DKH
Run Time: 08/16/96 04:35   Filename: 81596
Mode: CONC   Type: S   Corr. Factor: 1.00000
Lab ID.:   Cust. Sepl. ID.:   Cust. ID.: 38139

Elems	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-5.548	L.0411	L-1.575	19.59	L-.4853	6.825
SDev	1.59	.013	.4581	3.831	2.378	2.764
%RSD	28.66	31.77	29.08	19.56	489.9	40.5

Method: TRIANGL2 Sample Name: ICV/CCV Operator: DKH
Run Time: 08/16/96 04:41 Filename: 81596
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	506.2	527.3	492.2	2928.	506.2	498.5
SDev	2.181	14.59	4.477	560.7	.792	1.638
%RSD	.4308	2.766	.9097	19.15	.1565	.3285

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	519.1	497.4	720.3	496.3	510.8	496.0
SDev	6.055	1.378	.0227	.5759	2.495	3.018
%RSD	1.166	.277	.0031	.116	.4883	.6086

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	503.8	5.066	465.1	491.9	501.1	501.0
SDev	7.437	.0097	.8391	3.637	1.225	1.282
%RSD	1.476	.1916	.1804	.7395	.2445	.2559

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4798.	503.5	491.7	478.7	494.5	506.8
SDev	154.6	.667	7.914	11.21	9.98	1.381
%RSD	3.223	.1325	1.61	2.341	2.018	.3712

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	489.1	485.8	489.2	486.9	476.6	493.3
SDev	12.68	2.207	2.933	4.436	.5386	.0499
%RSD	2.593	.4544	.5995	.911	.113	.0101

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	494.6	491.5	502.6	496.6	69750.
SDev	.8673	2.849	1.224	3.395	8582
%RSD	.1754	.5796	.2434	.6836	12.3

Method: TRIANGL2   Sample Name: ICB/CCB   Operator: DKH
Run Time: 08/16/96 04:46   Filename: 81596
Mode: CONC   Type: 2   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	~~Ba4934~~	~~Be3130~~
Units	ppb	~~ppb~~	~~ppb~~	ppb	ppb	ppb
Avge	.1375	24.36	-.2940	3032.	.2907	.3014
SDev	.6494	5.374	4.067	454.3	.0842	.1133
%RSD	472.3	22.06	1383	14.98	28.97	37.6

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.747	.1040	-.5586	-.2550	04.096	-1.06
SDev	2.786	.1446	2.231	.4479	.5693	.24
%RSD	58.7	139.1	399.5	175.7	13.9	22.49

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	15.29	.1579	.3112	2.415	.0981	.2539
SDev	7.652	.0299	.0374	3.184	.0841	.8458
%RSD	50.06	18.94	12.01	131.8	85.79	333.1

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	31.53	1.857	.6316	-1.290	.2675	2.786
SDev	204.8	.9966	6.721	2.977	2.498	2.775
%RSD	649.6	53.67	1064	230.8	934	99.59

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6.125	3.124	-.2511	4.125	-5.583	.3242
SDev	1.191	2.642	2.102	2.094	2.201	.1156
%RSD	19.45	84.52	837.4	50.76	39.43	35.66

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	.4735	05.337	1.105	~~-.4290~~	~~47160.~~
SDev	~~.1173~~	~~4.642~~	.5697	.6521	3952
%RSD	24.77	86.97	51.55	152	8.38

Method: TRIANGL2   Sample Name: ICB/CCB   Operator: DKH
Run Time: 08/16/96 04:52   Filename: 61596
Mode: CONC   Type: Q   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	Ag3280	Al3062	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0395	21.39	-.1448	~~3079.~~	.0568	.1266
SDev	.467	5.601	2.536	471.5	~~.0548~~	~~.0475~~
%RSD	1182	26.18	~~1752~~	15.31	96.51	37.51

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.8942	-.0327	-.5887	-.8879	2.726	-1.270
SDev	.39	.3065	1.512	.4941	.9862	.1758
%RSD	43.61	938	256.8	55.64	36.18	13.84

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	10.01	.1546	.1451	-1.329	.0043	-.0258
SDev	2.584	.0268	.0477	5.107	.0399	.4375
%RSD	25.81	17.35	32.88	384.3	935.8	1698

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.941	1.343	12.00	-2.642	-1.923	.4381
SDev	130.2	.9441	1.356	4.214	.4244	1.756
%RSD	3305	70.3	11.3	159.5	22.07	400.3

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	~~ppb~~
Avge	.4346	1.304	-2.162	1.014	-5.466	.0793
SDev	1.595	.0937	~~1.277~~	.5143	.4106	.0064
%RSD	367.1	~~7.185~~	~~59.06~~	50.7	7.511	8.005

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	.1165	1.602	.6484	-.5018	36110.
SDev	.1587	5.179	.1899	.5172	4800
%RSD	136.2	323.4	29.29	103.1	13.29

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 08/16/96 04:58 Filename: 81596
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2901	21.61	-1.643	3472.	.0124	.1063
SDev	.4915	4.524	.7087	462.8	.0672	.0423
%RSD	169.4	20.94	43.15	13.33	542.8	39.79

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-2.860	-.1443	-.5223	-.4730	2.021	-1.257
SDev	.5413	.1275	.4007	.6991	.87	.1552
%RSD	18.92	88.34	76.72	147.8	43.05	12.35

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	5.505	.1518	.1161	1.380	-.0421	-.1355
SDev	6.872	.0304	.0527	3.81	.0805	.7562
%RSD	124.8	20.01	45.4	276	190.9	558

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-70.94	.9225	.0574	-1.071	.7333	1.260
SDev	101	.8447	5.06	4.956	2.48	3.448
%RSD	142.4	91.57	8813	462.6	338.2	273.7

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.545	-.1869	.1323	1.389	-2.940	.0332
SDev	2.349	2.456	1.458	1.371	2.707	.0149
%RSD	51.68	1314	1102	98.74	92.08	44.92

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	-.0457	2.798	.6941	-.1231	28100.
SDev	.0772	5.338	1.041	.2352	3090
%RSD	168.9	190.8	149.9	191.1	11

Method: TRIANGL2   Sample Name: ICSAB   Operator: DKH
Run Time: 08/16/96 05:03   Filename: 81596
Mode: CONC   Type: Q   Corr. Factor: 1.00000
Lab ID.:   Cust. Smpl. ID.:   Cust. ID.: 38139

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	551.3	487600.	530.6	5102.	528.9	512.6
SDev	.8462	3241	1.389	491.8	1.988	1.622
%RSD	.1535	.6646	.2618	9.639	.357	.3164

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	459800.	483.7	737.3	473.5	493.5	547.1
SDev	2304	1.203	.4679	1.391	2.28	3.871
%RSD	.5012	.2487	.0635	.2938	.462	.7076

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	174600.	21.93	621.1	505500.	533.6	508.4
SDev	395.2	.0144	.7118	492.5	1.925	1.391
%RSD	.2264	.0657	.1146	.0974	.3607	.2736

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5346.	480.1	539.0	474.8	507.3	506.0
SDev	158.8	1.485	18.09	6.577	9.285	8.81
%RSD	2.97	.3093	3.357	1.385	1.83	1.741

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	539.9	503.0	496.5	515.3	509.3	523.7
SDev	19.99	6.71	4.259	5.764	2.513	1.006
%RSD	3.703	1.334	.8579	1.118	.4934	.1921

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	503.3	486.9	505.3	456.4	25650.
SDev	.5122	3.975	2.133	5.042	3397
%RSD	.1018	.8164	.422	1.105	13.25

ample Volume: 100 mL Nominal Weight: 1.0 g

Loc.	Sample ID	Weight	Dilution
0	STD BLANK		
1	STD1=0.2 ug/L		
2	STD2=0.5 ug/L		
3	STD3=1.0 ug/L		
4	STD4=2.0 ug/L		
5	STD5=5.0 ug/L		
6	STD6=10.0 ug/L		
7	ICV=4.0 ug/L 2		
8	ICB		
9	CHECK LD		
10	38139 MB1		
11	38139 MB1 D		
12	38139 LCS1		
13	38139 LCS1 D		
14	131-59-1D		
15	131-59-1D D		
16	131-59-1D MS		
17	131-59-1D MSD		
18	131-59-1ABC		
19	131-59-1ABC D		
20	CCV1=6.0 ug/L		
21	CCB1		
22	131-59-1E		
23	131-59-1E D		
24	131-59-1F		
25	131-59-1F D		
26	131-59-2ABC		
27	131-59-2ABC D		
28	131-59-2E		
29	131-59-2E D		
30	131-59-2F		
31	131-59-2F D		
32	CCV2=6.0 ug/L		
33	CCB2		
34	131-59-2D		
35	131-59-2D D		
36	131-59-2D MS		
37	131-59-2D MSD		
38	131-59-3ABC		
39	131-59-3ABC D		
40	131-59-3E		
41	131-59-3E D		
42	131-59-3F		
43	131-59-3F D		
44	CCV3=6.0 ug/L		
45	CCB3		
46	131-59-5AD4B		
47	131-59-5AD4B D		
48	131-59-5BC		
49	131-59-5BC D		
50	131-59-5B		
51	131-59-5B D		
52	131-59-5E		
53	131-59-5E D		

Loc.	Sample ID	Weight	Dilution
54	131-59-6A		
55	131-59-6A D		
56	CCV4=6.0 ug/L :		
57	CCB4		
58	131-59-3D		
59	131-59-3D D		
60	131-59-3D MS		
61	131-59-3D SMD		
62	131-59-6B		
63	131-59-6B D		
64	131-59-6D		
65	131-59-6D D		
66	131-59-6C		
67	131-59-6C D		
68	CCV5=6.0 ug/L :		
69	CCB5		
70	131-59-7A		
71	131-59-7A D		
72	131-59-7B		
73	131-59-7B D		
74	131-59-7D		
75	131-59-7D D		
76	131-59-8A		
77	131-59-8A D		
78	131-59-8B		
79	131-59-8B D		
80	131-59-8D		
81	131-59-8D D		
82	CCV6=6.0 ug/L :		
83	CCB6		

Element: Hg2 Analyst: CROKER
Print Data: Main+Suppl. Peak Storage: None
Print: Calib. Curve
Remarks:
STANDARDS= 2-105-1
QC= 2-105-2

INSTRUMENT: 5100 Technique: MHS Version: 7.01
Wavelength: 253.7 Peak Slit: 0.7 Low
Signal Type: AA Signal Measurement: Peak Height (5)
Read Time: 30.0 Read Delay: 1.0 BOC Time: 2
Sample Replicates: 1
Standard Replicates: 1

FLAME:
Flame Type: Air Flame Sensor: On
Oxidant Flow: 10.0 L/min Fuel Flow: 2.0 L/min

CALIBRATION:

Solutions	ID	Conc
Calib. Blank	STD BLK	----------
Standard 1	STD 1	0.200
Standard 2	STD 2	0.500
Standard 3	STD 3	1.000
Standard 4	STD 4	2.000
Standard 5	STD 5	5.000
Standard 6	STD 6	10.000

Calibration Units: ug/L Sample Units: ug/L
Calibration Type: Linear

QC:
Matrix Check Calculations:
% Difference for Dupls: No Locations:
% Recovery for Spike: No Locations: Conc:

Element File: HG_.MEL   Element: Hg2   Wavelength: 253.7
Date: 08/06/96   Time: 08:12   Slit: 0.7 L
Data File: AB575.DAT   ID/Wt File: AB575.IDW   Lamp Current: 0
Technique: MHS   Calib. Type: Linear   Energy: 75
Remark 1: STANDARDS= 2-105-1
Remark 2: CC= 2-105-2

Hg2 ID: STD BLANK   Seq. No.: 00003   A/S Pos.: --   Date: 08/06/96

Replicate 1   Time: 08:13
Peak Area (A-s): 0.023   Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001

Auto-zero performed.

Hg2 ID: STD1=0.2 ug/L   Seq. No.: 00004   A/S Pos.: --   Date: 08/06/96

Replicate 1   Time: 08:15
Peak Area (A-s): 0.119   Peak Height (A): 0.005
Blank Corrected Pk Height (A): 0.005

Standard number 1 applied. [0.200]
Correlation coefficient: 1.00000   Slope: 0.0261

Hg2 ID: STD2=0.5 ug/L   Seq. No.: 00005   A/S Pos.: --   Date: 08/06/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 08:16
Peak Area (A-s): 0.331   Peak Height (A): 0.014
Blank Corrected Pk Height (A): 0.014
Concentration (ug/L): 0.554

Standard number 2 applied. [0.500]
Correlation coefficient: 0.99628   Slope: 0.0285

Hg2 ID: STD3=1.0 ug/L   Seq. No.: 00006   A/S Pos.: --   Date: 08/06/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 08:17
Peak Area (A-s): 0.691   Peak Height (A): 0.030
Blank Corrected Pk Height (A): 0.030
Concentration (ug/L): 1.055

Standard number 3 applied. [1.000]
Correlation coefficient: 0.99854   Slope: 0.0298

Hg2 ID: STD4=2.0 ug/L   Seq. No.: 00007   A/S Pos.: --   Date: 08/06/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 08:18
Peak Area (A-s): 1.499   Peak Height (A): 0.067
Blank Corrected Pk Height (A): 0.067
Concentration (ug/L): 2.248

Standard number 4 applied. [2.000]
Correlation coefficient: 0.99638   Slope: 0.0326

Hg2   ID: STD5=5.0 ug/L   Seq. No.: 00008   A/S Pos.: --   Date: 08/06/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 08:19
Peak Area (A-s): 3.932   Peak Height (A): 0.176
Blank Corrected Pk Height (A): 0.176
Concentration (ug/L): 5.395

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99876   Slope: 0.0348

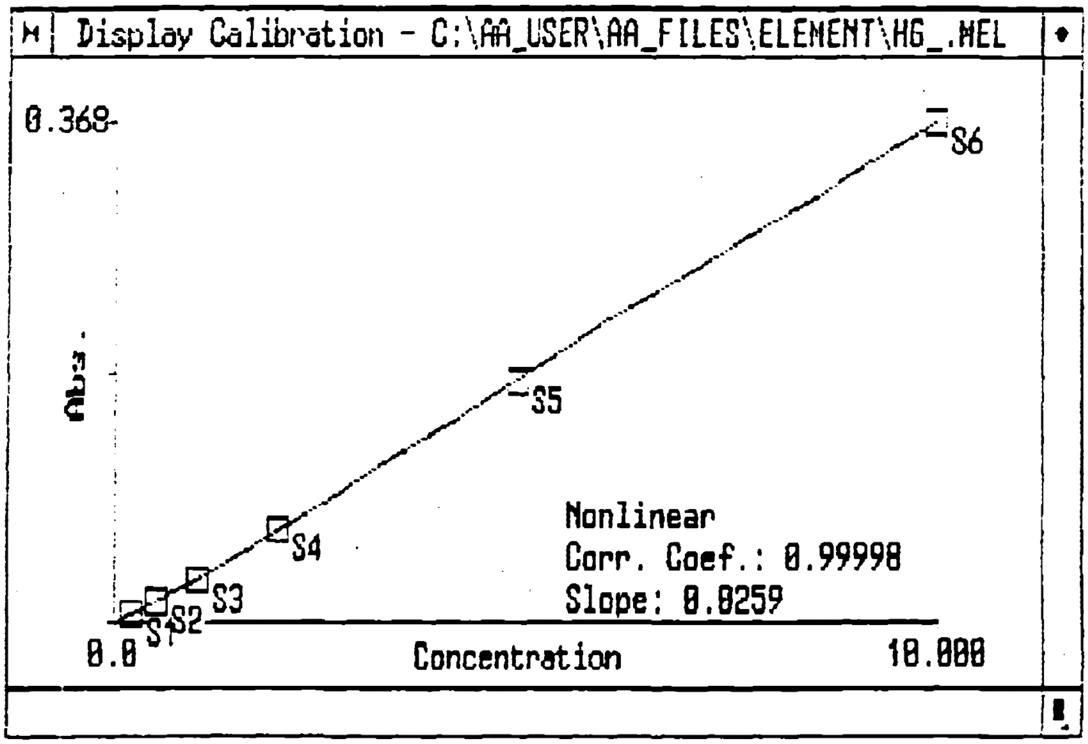
Hg2   ID: STD6=10.0 ug/L   Seq. No.: 00009   A/S Pos.: --   Date: 08/06/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 08:20
Peak Area (A-s): 8.239   Peak Height (A): 0.368
Blank Corrected Pk Height (A): 0.368
Concentration (ug/L): 10.577

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99925   Slope: 0.0364

Element File: HG_.MEL	Element: Hg2	Wavelength: 253.7
Date: 08/26/96	Time: 08:2'	Slit: 0.7 L
Data File: AB575.DAT	ID/Wt File: AB575.IDW	Lamp Current: 0
Technique: MHS	Calib. Type: Linear	Energy: 75

Remark 1: STANDARDS= 2-105-'
Remark 2: QC= 2-105-2



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Element File: HG_.MEL          Element: Hg2                 Wavelength: 253.7
Date: 08/06/96                 Time: 08:22                  Slit: 0.7 L
Data File: AB575.DAT           ID/Wt File: AB575.IDW        Lamp Current: 0
Technique: MHS                 Calib. Type: Nonlinear       Energy: 75
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2
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Hg2   ID: ICV=4.0 ug/L        Seq. No.: 00010   A/S Pos.: --   Date: 08/06/96

Replicate  1                          Time: 08:23
Peak Area (A-s): 3.264                Peak Height (A): 0.147
Blank Corrected Pk Height (A): 0.147
Concentration (ug/L  ): 4.194

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Hg2   ID: ICB                 Seq. No.: 00011   A/S Pos.: --   Date: 08/06/96

Replicate  1                          Time: 08:24
Peak Area (A-s): -0.014               Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L  ): -0.019

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Hg2   ID: CHECK LO            Seq. No.: 00012   A/S Pos.: --   Date: 08/06/96

Replicate  1                          Time: 08:26
Peak Area (A-s): 0.127                Peak Height (A): 0.006
Blank Corrected Pk Height (A): 0.006
Concentration (ug/L  ): 0.207

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Hg2   ID: 38139 MB1           Seq. No.: 00013   A/S Pos.: --   Date: 08/06/96

Replicate  1                          Time: 08:27
Peak Area (A-s): -0.019               Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L  ): -0.023

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Hg2   ID: 38139 MB1 D         Seq. No.: 00014   A/S Pos.: --   Date: 08/06/96

Replicate  1                          Time: 08:28
Peak Area (A-s): -0.020               Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L  ): -0.031

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Hg2   ID: 38139 LCS1          Seq. No.: 00015   A/S Pos.: --   Date: 08/06/96

Replicate  1                          Time: 08:29
Peak Area (A-s): 3.944                Peak Height (A): 0.170
Blank Corrected Pk Height (A): 0.170
Concentration (ug/L  ): 4.808

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Hg2   ID: 38139 LCS1 D        Seq. No.: 00016   A/S Pos.: --   Date: 08/06/96
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Replicate 1 Time: 08:30
Peak Area (A-s): 3.953 Peak Height (A): 0.172
Blank Corrected Pk Height (A): 0.172
Concentration (ug/L): 4.861

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Hg2 ID: 131-59-1D Seq. No.: 00017 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:31
Peak Area (A-s): 0.013 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.019

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Hg2 ID: 131-59-1D D Seq. No.: 00018 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:32
Peak Area (A-s): 0.008 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.015

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Hg2 ID: 131-59-1D MS Seq. No.: 00019 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:34
Peak Area (A-s): 2.475 Peak Height (A): 0.107
Blank Corrected Pk Height (A): 0.107
Concentration (ug/L): 3.144

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Hg2 ID: 131-59-1D MSD Seq. No.: 00020 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:35
Peak Area (A-s): 2.442 Peak Height (A): 0.106
Blank Corrected Pk Height (A): 0.106
Concentration (ug/L): 3.098

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Hg2 ID: 131-59-1ABC Seq. No.: 00021 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:36
Peak Area (A-s): 0.022 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.031

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Hg2 ID: 131-59-1ABC D Seq. No.: 00022 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:37
Peak Area (A-s): 0.018 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.031

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Hg2 ID: CCV1=6.0 ug/L Seq. No.: 00023 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:38
Peak Area (A-s): 3.753 Peak Height (A): 0.170
Blank Corrected Pk Height (A): 0.170
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Hg2   ID: CCB1              Seq. No.: 00024   A/S Pos.: --   Date: 08/06/96

Replicate  1                        Time: 08:40
Peak Area (A-s): -0.012             Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L  ): -0.012
-----------------------------------------------------------------------------
Hg2   ID: 131-59-1E         Seq. No.: 00025   A/S Pos.: --   Date: 08/06/96

Replicate  1                        Time: 08:41
Peak Area (A-s): -0.006             Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L  ): 0.000
-----------------------------------------------------------------------------
Hg2   ID: 131-59-1E D       Seq. No.: 00026   A/S Pos.: --   Date: 08/06/96

Replicate  1                        Time: 08:42
Peak Area (A-s): -0.015             Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L  ): -0.019
-----------------------------------------------------------------------------
Hg2   ID: 131-59-1F         Seq. No.: 00027   A/S Pos.: --   Date: 08/06/96

Replicate  1                        Time: 08:44
Peak Area (A-s): 0.195              Peak Height (A): 0.009
Blank Corrected Pk Height (A): 0.009
Concentration (ug/L  ): 0.309
-----------------------------------------------------------------------------
Hg2   ID: 131-59-1F D       Seq. No.: 00028   A/S Pos.: --   Date: 08/06/96

Replicate  1                        Time: 08:45
Peak Area (A-s): 0.203              Peak Height (A): 0.009
Blank Corrected Pk Height (A): 0.009
Concentration (ug/L  ): 0.326
-----------------------------------------------------------------------------
Hg2   ID: 131-59-2ABC       Seq. No.: 00029   A/S Pos.: --   Date: 08/06/96

Replicate  1                        Time: 08:49
Peak Area (A-s): 0.040              Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L  ): 0.072
-----------------------------------------------------------------------------
Hg2   ID: 131-59-2ABC D     Seq. No.: 00030   A/S Pos.: --   Date: 08/06/96

Replicate  1                        Time: 08:50
Peak Area (A-s): 0.045              Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L  ): 0.072
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Hg2 ID: 131-59-2E Seq. No.: 00031 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:51
Peak Area (A-s): -0.006 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.000

Hg2 ID: 131-59-2E D Seq. No.: 00032 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:52
Peak Area (A-s): -0.008 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.008

Hg2 ID: 131-59-2F Seq. No.: 00033 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:53
Peak Area (A-s): 1.534 Peak Height (A): 0.069
Blank Corrected Pk Height (A): 0.069
Concentration (ug/L): 2.086

Hg2 ID: 131-59-2F D Seq. No.: 00034 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:55
Peak Area (A-s): 1.616 Peak Height (A): 0.072
Blank Corrected Pk Height (A): 0.072
Concentration (ug/L): 2.194

Hg2 ID: CCV2=6.0 ug/L Seq. No.: 00035 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:57
Peak Area (A-s): 4.062 Peak Height (A): 0.184
Blank Corrected Pk Height (A): 0.184
Concentration (ug/L): 5.174

Hg2 ID: CCB2 Seq. No.: 00036 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 08:59
Peak Area (A-s): -0.011 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.008

Hg2 ID: 131-59-2D Seq. No.: 00037 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:00
Peak Area (A-s): 0.024 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.035

Hg2 ID: 131-59-2D D Seq. No.: 00038 A/S Pos.: -- Date: 08/06/96

[illegible]
Peak Area (A-s): 0.038 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.065

Hg2 ID: 131-59-2D MS Seq. No.: 00039 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:03
Peak Area (A-s): 3.318 Peak Height (A): 0.150
Blank Corrected Pk Height (A): 0.150
Concentration (ug/L): 4.292

Hg2 ID: 131-59-2D MSD Seq. No.: 00040 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:04
Peak Area (A-s): 2.930 Peak Height (A): 0.127
Blank Corrected Pk Height (A): 0.127
Concentration (ug/L): 3.673

Hg2 ID: 131-59-3ABC Seq. No.: 00041 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:06
Peak Area (A-s): 0.041 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.069

Hg2 ID: 131-59-3ABC D Seq. No.: 00042 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:07
Peak Area (A-s): 0.040 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.069

Hg2 ID: 131-59-3E Seq. No.: 00043 A/S Pos.: — Date: 08/06/96

Replicate 1 Time: 09:08
Peak Area (A-s): 0.011 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.023

Hg2 ID: 131-59-3E D Seq. No.: 00044 A/S Pos.: — Date: 08/06/96

Replicate 1 Time: 09:09
Peak Area (A-s): 0.018 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.038

Hg2 ID: 131-59-3F Seq. No.: 00045 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:10
Peak Area (A-s): 3.914 Peak Height (A): 0.172
Blank Corrected Pk Height (A): 0.172

Concentration (ug/L): 4.866

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Hg2 ID: 131-59-3F D Seq. No.: 00046 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:11
Peak Area (A-s): 4.018 Peak Height (A): 0.178
Blank Corrected Pk Height (A): 0.178
Concentration (ug/L): 5.039

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Hg2 ID: CCV3=6.0 ug/L Seq. No.: 00047 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:14
Peak Area (A-s): 4.109 Peak Height (A): 0.185
Blank Corrected Pk Height (A): 0.185
Concentration (ug/L): 5.213

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Hg2 ID: CCB3 Seq. No.: 00048 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:15
Peak Area (A-s): -0.009 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.008

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Hg2 ID: 131-59-5AD4B Seq. No.: 00049 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:17
Peak Area (A-s): -0.000 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.004

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Hg2 ID: 131-59-5AD4B D Seq. No.: 00050 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:18
Peak Area (A-s): 0.002 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.004

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Hg2 ID: 131-59-5BC Seq. No.: 00051 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:19
Peak Area (A-s): -0.019 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.016

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Hg2 ID: 131-59-5BC D Seq. No.: 00052 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:20
Peak Area (A-s): -0.019 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.027
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Hg2 ID: 131-59-5B Seq. No.: 00053 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:22
Peak Area (A-s): -0.020 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.023

Hg2 ID: 131-59-5B D Seq. No.: 00054 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:24
Peak Area (A-s): -0.018 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.023

Hg2 ID: 131-59-5E Seq. No.: 00055 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:25
Peak Area (A-s): 0.024 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.035

Hg2 ID: 131-59-5E D Seq. No.: 00056 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:26
Peak Area (A-s): 0.022 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.035

Hg2 ID: 131-59-6A Seq. No.: 00057 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:28
Peak Area (A-s): -0.009 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.016

Hg2 ID: 131-59-6A D Seq. No.: 00058 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:29
Peak Area (A-s): -0.019 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.019

Hg2 ID: CCV4=6.0 ug/L Seq. No.: 00059 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:33
Peak Area (A-s): 4.360 Peak Height (A): 0.198
Blank Corrected Pk Height (A): 0.198
Concentration (ug/L): 5.557

Hg2 ID: CCB4 Seq. No.: 00060 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:34
Peak Area (A-s): -0.005 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.008

Hg2 ID: 131-59-3D Seq. No.: 00061 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:35
Peak Area (A-s): 0.039 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.061

Hg2 ID: 131-59-3D D Seq. No.: 00062 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:36
Peak Area (A-s): 0.016 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.027

Hg2 ID: 131-59-3D MS Seq. No.: 00063 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:38
Peak Area (A-s): 3.323 Peak Height (A): 0.143
Blank Corrected Pk Height (A): 0.143
Concentration (ug/L): 4.106

Hg2 ID: 131-59-3D ~~SMD~~ MSD e.c. 8/19/96 Seq. No.: 00064 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:39
Peak Area (A-s): 3.494 Peak Height (A): 0.157
Blank Corrected Pk Height (A): 0.157
Concentration (ug/L): 4.470

Hg2 ID: 131-59-6B Seq. No.: 00065 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:40
Peak Area (A-s): -0.009 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.019

Hg2 ID: 131-59-6B D Seq. No.: 00066 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:41
Peak Area (A-s): -0.021 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.035

Hg2 ID: 131-59-6D Seq. No.: 00067 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:42
Peak Area (A-s): -0.008 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000

Hg2 ID: 131-59-6D D Seq. No.: 00068 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:43
Peak Area (A-s): -0.007 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.008

Hg2 ID: 131-59-6C Seq. No.: 00069 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:44
Peak Area (A-s): 0.021 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.038

Hg2 ID: 131-59-6C D Seq. No.: 00070 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:45
Peak Area (A-s): 0.060 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.124

Hg2 ID: CCV5=6.0 ug/L Seq. No.: 00071 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:48
Peak Area (A-s): 4.176 Peak Height (A): 0.189
Blank Corrected Pk Height (A): 0.189
Concentration (ug/L): 5.306

Hg2 ID: CCB5 Seq. No.: 00072 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:49
Peak Area (A-s): -0.011 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.008

Hg2 ID: 131-59-7A Seq. No.: 00073 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:50
Peak Area (A-s): -0.017 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.023

Hg2 ID: 131-59-7A D Seq. No.: 00074 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:51
Peak Area (A-s): -0.017 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.023

Hg2 ID: 131-59-7B Seq. No.: 00075 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:52
Peak Area (A-s): -0.023 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.035

Hg2 ID: 131-59-7B D Seq. No.: 00076 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:53
Peak Area (A-s): -0.024 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.039

Hg2 ID: 131-59-7D Seq. No.: 00077 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:54
Peak Area (A-s): 0.080 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.124

Hg2 ID: 131-59-7D D Seq. No.: 00078 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:55
Peak Area (A-s): 0.079 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.124

Hg2 ID: 131-59-8A Seq. No.: 00079 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:57
Peak Area (A-s): -0.016 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.019

Hg2 ID: 131-59-8A D Seq. No.: 00080 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:58
Peak Area (A-s): -0.015 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.023

Hg2 ID: 131-59-8B Seq. No.: 00081 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 09:59
Peak Area (A-s): -0.017 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.027

Hg2 ID: 131-59-8B D Seq. No.: 00082 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 10:00
Peak Area (A-s): -0.016 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.027

Hg2 ID: 131-59-8D Seq. No.: 00083 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 10:01
Peak Area (A-s): 0.049 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.069

Hg2 ID: 131-59-8D D Seq. No.: 00084 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 10:02
Peak Area (A-s): 0.054 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.084

Hg2 ID: CCV6=6.0 ug/L Seq. No.: 00085 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 10:03
Peak Area (A-s): 4.374 Peak Height (A): 0.196
Blank Corrected Pk Height (A): 0.196
Concentration (ug/L): 5.499

Hg2 ID: CCB6 Seq. No.: 00086 A/S Pos.: -- Date: 08/06/96

Replicate 1 Time: 10:04
Peak Area (A-s): -0.009 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.008

Dryweight File: A8576.IDW　　　　Analyst: CROKER
Sample Volume: 100 mL　　　　Nominal Weight: 1.0 g

Hg
38139 partial
x
8/7/96

Loc.	Sample ID	Weight	Dilution
0	STD BLANK		
1	STD1=0.2 ug/L		
2	STD2=0.5 ug/L		
3	STD3=1.0 ug/L	2-105-1	
4	STD4=2.0 ug/L	x	
5	STD5=5.0 ug/L	8/7/96	
6	STD6=10.0 ug/L		
7	ICV=4.0 ug/L 2-105-2		
8	ICB	x	
9	CHECK LO	8/7/96	
10	38139 MB2		
11	38139 MB2 D		
12	38139 LCS2		
13	38139 LCS2 D		
14	131-59-7C		
15	131-59-7C D		
16	131-59-7C MS		
17	131-59-7C MSD		
18	131-59-8DE		
19	131-59-8DE D		
20	CCV1=6.0 ug/L 2-105-2		
21	CCB1	x	
22	131-59-9A	8/7/96	
23	131-59-9A D		
24	131-59-9BC		
25	131-59-9BC D		
26	131-59-9B		
27	131-59-9B D		
28	131-59-9D		
29	131-59-9D D		
30	131-59-9DE		
31	131-59-9DE D		
32	CCV2=6.0 ug/L 2-105-2		
33	CCB2	x	
34	131-59-8C	8/7/96	
35	131-59-8C D		
36	131-59-8C MS		
37	131-59-8C MSD		
38	131-59-11A		
39	131-59-11A D		
40	131-59-11BC		
41	131-59-11BC D		
42	131-59-11B		
43	131-59-11B D		
44	CCV3=6.0 ug/L 2-105-2		
45	CCB3	x	
46	131-59-11D	8/7/96	
47	131-59-11D D		
48	131-59-11DE		
49	131-59-11DE D		
50	131-59-12A		
51	131-59-12A D		
52	131-59-12B		
53	131-59-12B D		

Loc.	Sample ID	Weight	Dilution
54	131-59-12D	Must reanalyze x 8/7/96	
55	131-59-12D D		
56	CCV4=5.0 ug/L	2-105-2 x 8/7/96	
57	CCB4		
58	131-59-13C		
59	131-59-13C D		
60	131-59-13C MS		
61	131-59-13C MSD		
62	131-59-14B		
63	131-59-14B D		
64	131-59-14D		
65	131-59-14D DX10		
66	131-59-14DDX10D		
67	131-59-14DE		
68	131-59-14DE D		
69	CCV5=6.0 ug/L	2-105-2 x 8/7/96	
70	CCB5		
71	131-59-6DE		
72	131-59-6DE D		
73	131-59-1FG		
74	131-59-1FG D		
75	131-59-2FG		
76	131-59-2FG D		
77	131-59-3FG		
78	131-59-3FG D		
79	131-59-5EF		
80	131-59-5EF D		
81	131-59-7DE		
82	131-59-7DE D		
83	CCV5=6.0 ug/L	2-105-2 x 8/7/96	
84	CCB6		

Element File: HG_.MEL
Element: Hg2
Print Data: Main+Suppl.
Print: Calib. Curve
Remarks:
STANDARDS= 2-105-1
QC= 2-105-2

Analyst: CROKER
Peak Storage: None

INSTRUMENT: 5100
Wavelength: 253.7 Peak
Signal Type: AA
Read Time: 30.0
Sample Replicates: 1
Standard Replicates: 1

Technique: MHS
Slit: 0.7 Low
Signal Measurement: Peak Height (5)
Read Delay: 1.0

Version: 7.01
BCC Time: 2

FLAME:
Flame Type: Air
Oxidant Flow: 10.0 L/min

Flame Sensor: On
Fuel Flow: 2.0 L/min

CALIBRATION:

Solutions	ID	Conc
Calib. Blank	STD BLK	----------
Standard 1	STD 1	0.200
Standard 2	STD 2	0.500
Standard 3	STD 3	1.000
Standard 4	STD 4	2.000
Standard 5	STD 5	5.000
Standard 6	STD 6	10.000

Calibration Units: ug/L
Calibration Type: Linear

Sample Units: ug/L

QC:
Matrix Check Calculations:
% Difference for Dupls: No   Locations:
% Recovery for Spike: No   Locations: Conc:

Element File: HG_.MEL   Element: Hg2   Wavelength: 253.7
Date: 08/07/96   Time: 11:42   Slit: 0.7 L
Data File: AB576.DAT   ID/Wt File: AB576.IDW   Lamp Current: 0
Technique: MHS   Calib. Type: Linear   Energy: 75
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2

Hg2 ID: STD BLANK   Seq. No.: 00003   A/S Pos.: --   Date: 08/07/96

Replicate 1   Time: 11:43
Peak Area (A-s): -0.001   Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000

Auto-zero performed.

Hg2 ID: STD1=0.2 ug/L   Seq. No.: 00004   A/S Pos.: --   Date: 08/07/96

Replicate 1   Time: 11:44
Peak Area (A-s): 0.147   Peak Height (A): 0.006
Blank Corrected Pk Height (A): 0.006

Standard number 1 applied. [0.200]
Correlation coefficient: 1.00000   Slope: 0.0306

Hg2 ID: STD2=0.5 ug/L   Seq. No.: 00005   A/S Pos.: --   Date: 08/07/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 11:45
Peak Area (A-s): 0.386   Peak Height (A): 0.016
Blank Corrected Pk Height (A): 0.016
Concentration (ug/L): 0.528

Standard number 2 applied. [0.500]
Correlation coefficient: 0.99892   Slope: 0.0321

Hg2 ID: STD3=1.0 ug/L   Seq. No.: 00006   A/S Pos.: --   Date: 08/07/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 11:46
Peak Area (A-s): 0.739   Peak Height (A): 0.033
Blank Corrected Pk Height (A): 0.033
Concentration (ug/L): 1.029

Standard number 3 applied. [1.000]
Correlation coefficient: 0.99958   Slope: 0.0328

Hg2 ID: STD4=2.0 ug/L   Seq. No.: 00007   A/S Pos.: --   Date: 08/07/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 11:49
Peak Area (A-s): 1.516   Peak Height (A): 0.068
Blank Corrected Pk Height (A): 0.068
Concentration (ug/L): 2.085

Standard number 4 applied. [2.000]
Correlation coefficient: 0.99947 Slope: 0.0339

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Hg2 ID: STD5=5.0 ug/L Seq. No.: 00008 A/S Pos.: -- Date: 08/07/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 11:50
Peak Area (A-s): 3.753 Peak Height (A): 0.172
Blank Corrected Pk Height (A): 0.172
Concentration (ug/L): 5.073

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99991 Slope: 0.0343

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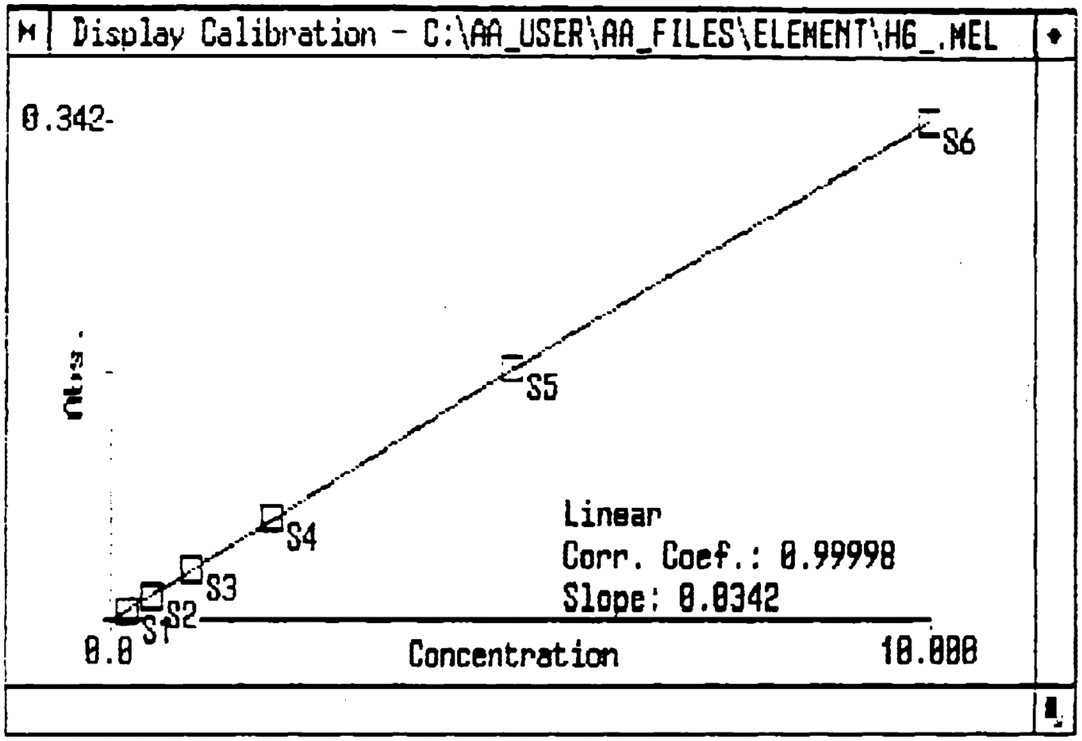
Hg2 ID: STD6=10.0 ug/L Seq. No.: 00009 A/S Pos.: -- Date: 08/07/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 11:51
Peak Area (A-s): 7.577 Peak Height (A): 0.342
Blank Corrected Pk Height (A): 0.342
Concentration (ug/L): 9.984

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99998 Slope: 0.0342

Element File: HG_.MEL   Element: Hg2   Wavelength: 253.7
Date: 05/07/96   Time: 11:51   Slit: 0.7 L
Data File: AB576.DAT   ID/Wt File: AB576.IDW   Lamp Current: 0
Technique: MHS   Calib. Type: Linear   Energy: 75
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2



Element File: HG_.MEL   Element: Hg2   Wavelength: 253.7
Date: 08/07/96   Time: 11:54   Slit: 0.7 L
Data File: AB576.DAT   ID/Wt File: AB576.IDW   Lamp Current: 0
Technique: MHS   Calib. Type: Linear   Energy: 75
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2

Hg2 ID: ICV=4.0 ug/L   Seq. No.: 00010   A/S Pos.: --   Date: 08/07/96

Replicate 1   Time: 11:55
Peak Area (A-s): 2.999   Peak Height (A): 0.135
Blank Corrected Pk Height (A): 0.135
Concentration (ug/L): 3.929

Hg2 ID: ~~ICB~~ ICV= 4.0 µg/L   Seq. No.: 00011   A/S Pos.: --   Date: 08/07/96
EL 8/7/96

Replicate 1   Time: 11:56
Peak Area (A-s): 3.061   Peak Height (A): 0.132
Blank Corrected Pk Height (A): 0.132
Concentration (ug/L): 3.867

Hg2 ID: ICB   Seq. No.: 00012   A/S Pos.: --   Date: 08/07/96

Replicate 1   Time: 11:57
Peak Area (A-s): 0.010   Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.000

Hg2 ID: CHECK LO   Seq. No.: 00013   A/S Pos.: --   Date: 08/07/96

Replicate 1   Time: 11:58
Peak Area (A-s): 0.167   Peak Height (A): 0.007
Blank Corrected Pk Height (A): 0.007
Concentration (ug/L): 0.199

Hg2 ID: 38139 MB2   Seq. No.: 00014   A/S Pos.: --   Date: 08/07/96

Replicate 1   Time: 12:00
Peak Area (A-s): -0.001   Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.003

Hg2 ID: 38139 MB2 D   Seq. No.: 00015   A/S Pos.: --   Date: 08/07/96

Replicate 1   Time: 12:01
Peak Area (A-s): -0.000   Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.012

Hg2 ID: 38139 LCS2   Seq. No.: 00016   A/S Pos.: --   Date: 08/07/96

Replicate 1	Time: 12:02
Peak Area (A-s): 3.992	Peak Height (A): 0.177
Blank Corrected Pk Height (A): 0.177
Concentration (ug/L): 5.165

Hg2 ID: 38139 LCS2 D Seq. No.: 00017 A/S Pos.: -- Date: 08/07/96

Replicate 1	Time: 12:03
Peak Area (A-s): 4.013	Peak Height (A): 0.176
Blank Corrected Pk Height (A): 0.176
Concentration (ug/L): 5.148

Hg2 ID: 131-59-7C Seq. No.: 00018 A/S Pos.: -- Date: 08/07/96

Replicate 1	Time: 12:04
Peak Area (A-s): 0.042	Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.041

Hg2 ID: 131-59-7C D Seq. No.: 00019 A/S Pos.: -- Date: 08/07/96

Replicate 1	Time: 12:05
Peak Area (A-s): 0.067	Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.073

Hg2 ID: 131-59-7C MS Seq. No.: 00020 A/S Pos.: -- Date: 08/07/96

Replicate 1	Time: 12:06
Peak Area (A-s): 3.174	Peak Height (A): 0.140
Blank Corrected Pk Height (A): 0.140
Concentration (ug/L): 4.084

Hg2 ID: 131-59-7C MSD Seq. No.: 00021 A/S Pos.: -- Date: 08/07/96

Replicate 1	Time: 12:07
Peak Area (A-s): 3.932	Peak Height (A): 0.185
Blank Corrected Pk Height (A): 0.185
Concentration (ug/L): 5.394

Hg2 ID: 131-59-8DE Seq. No.: 00022 A/S Pos.: -- Date: 08/07/96

Replicate 1	Time: 12:09
Peak Area (A-s): 0.069	Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.053

Hg2 ID: 131-59-8DE D Seq. No.: 00023 A/S Pos.: -- Date: 08/07/96

Replicate 1	Time: 12:10
Peak Area (A-s): 0.054	Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002

Concentration (ug/L): 0.050

Hg2 ID: CCV1=6.0 ug/L Seq. No.: 00024 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:12
Peak Area (A-s): 4.856 Peak Height (A): 0.227
Blank Corrected Pk Height (A): 0.227
Concentration (ug/L): 6.639

Hg2 ID: CCB1 Seq. No.: 00025 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:13
Peak Area (A-s): 0.018 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.006

Hg2 ID: 131-59-9A Seq. No.: 00026 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:14
Peak Area (A-s): 0.007 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.000

Hg2 ID: 131-59-9A D Seq. No.: 00027 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:15
Peak Area (A-s): 0.002 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.006

Hg2 ID: 131-59-9BC Seq. No.: 00028 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:16
Peak Area (A-s): 0.000 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.003

Hg2 ID: 131-59-9BC D Seq. No.: 00029 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:17
Peak Area (A-s): 0.002 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.009

Hg2 ID: 131-59-9B Seq. No.: 00030 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:19
Peak Area (A-s): 0.000 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.009

Hg2 ID: 131-59-9B D Seq. No.: 00031 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:20
Peak Area (A-s): 0.003 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.006

Hg2 ID: 131-59-9D Seq. No.: 00032 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:21
Peak Area (A-s): 0.037 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.035

Hg2 ID: 131-59-9D D Seq. No.: 00033 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:22
Peak Area (A-s): 0.038 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.032

Hg2 ID: 131-59-9DE Seq. No.: 00034 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:24
Peak Area (A-s): 0.058 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.053

Hg2 ID: 131-59-9DE D Seq. No.: 00035 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:25
Peak Area (A-s): 0.055 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.041

Hg2 ID: CCV2=6.0 ug/L Seq. No.: 00036 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:27
Peak Area (A-s): 4.856 Peak Height (A): 0.223
Blank Corrected Pk Height (A): 0.223
Concentration (ug/L): 6.510

Hg2 ID: CCB2 Seq. No.: 00037 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:28
Peak Area (A-s): 0.013 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.000

Hg2 ID: 131-59-8D Seq. No.: 00038 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:29
Peak Area (A-s): 0.055 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.064

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Hg2 ID: 131-59-8C D Seq. No.: 00039 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:30
Peak Area (A-s): 0.044 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.047

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Hg2 ID: 131-59-8C MS Seq. No.: 00040 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:31
Peak Area (A-s): 4.166 Peak Height (A): 0.190
Blank Corrected Pk Height (A): 0.190
Concentration (ug/L): 5.552

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Hg2 ID: 131-59-8C MSD Seq. No.: 00041 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:32
Peak Area (A-s): 3.319 Peak Height (A): 0.147
Blank Corrected Pk Height (A): 0.147
Concentration (ug/L): 4.301

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Hg2 ID: 131-59-11A Seq. No.: 00042 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:33
Peak Area (A-s): 0.025 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.012

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Hg2 ID: 131-59-11A D Seq. No.: 00043 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:35
Peak Area (A-s): 0.013 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.003

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Hg2 ID: 131-59-11BC Seq. No.: 00044 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:35
Peak Area (A-s): 0.011 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.012

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Hg2 ID: 131-59-11BC D Seq. No.: 00045 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:37
Peak Area (A-s): 0.008 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
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Concentration (ug/L): -0.006

Hg2 ID: 131-59-11B Seq. No.: 00046 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:38
Peak Area (A-s): 0.008 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.006

Hg2 ID: 131-59-11B D Seq. No.: 00047 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:38
Peak Area (A-s): 0.005 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.003

Hg2 ID: CCV3=6.0 ug/L Seq. No.: 00048 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:39
Peak Area (A-s): 4.702 Peak Height (A): 0.218
Blank Corrected Pk Height (A): 0.218
Concentration (ug/L): 6.366

Hg2 ID: CCB3 Seq. No.: 00049 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:40
Peak Area (A-s): 0.021 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.012

Hg2 ID: 131-59-11D Seq. No.: 00050 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:42
Peak Area (A-s): 0.159 Peak Height (A): 0.006
Blank Corrected Pk Height (A): 0.006
Concentration (ug/L): 0.182

Hg2 ID: 131-59-11D D Seq. No.: 00051 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:42
Peak Area (A-s): 0.161 Peak Height (A): 0.006
Blank Corrected Pk Height (A): 0.006
Concentration (ug/L): 0.188

Hg2 ID: 131-59-11DE Seq. No.: 00052 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:43
Peak Area (A-s): 0.071 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.073

Hg2 ID: 131-59-11DE D Seq. No.: 00053 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:45
Peak Area (A-s): 0.087 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.079

Hg2 ID: 131-59-12A Seq. No.: 00054 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:46
Peak Area (A-s): 0.002 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.009

Hg2 ID: 131-59-12A D Seq. No.: 00055 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:47
Peak Area (A-s): 0.004 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.009

Hg2 ID: 131-59-12B Seq. No.: 00056 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:48
Peak Area (A-s): 0.004 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.012

Hg2 ID: 131-59-12B D Seq. No.: 00057 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:49
Peak Area (A-s): 0.004 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.003

Hg2 ID: 131-59-12D Seq. No.: 00058 A/S Pos.: -- Date: 08/07/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 12:50
Peak Area (A-s): 31.232 Peak Height (A): 1.356
Blank Corrected Pk Height (A): 1.356
Concentration (ug/L): 39.610

Hg2 ID: 131-59-12D D Seq. No.: 00059 A/S Pos.: -- Date: 08/07/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 12:50
Peak Area (A-s): 31.546 Peak Height (A): 1.380
Blank Corrected Pk Height (A): 1.380
Concentration (ug/L): 40.307

Hg2 ID: CCV4=6.0 ug/L Seq. No.: 00060 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:55
Peak Area (A-s): 4.814 Peak Height (A): 0.218
Blank Corrected Pk Height (A): 0.218
Concentration (ug/L): 6.355

Hg2 ID: CCB4 Seq. No.: 00061 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:56
Peak Area (A-s): 0.027 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.018

Hg2 ID: 131-59-13C Seq. No.: 00062 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 12:59
Peak Area (A-s): 0.091 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.097

Hg2 ID: 131-59-13C D Seq. No.: 00063 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:00
Peak Area (A-s): 0.053 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.044

Hg2 ID: 131-59-13C MS Seq. No.: 00064 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:01
Peak Area (A-s): 2.950 Peak Height (A): 0.134
Blank Corrected Pk Height (A): 0.134
Concentration (ug/L): 3.923

Hg2 ID: 131-59-13C MSD Seq. No.: 00065 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:02
Peak Area (A-s): 3.412 Peak Height (A): 0.147
Blank Corrected Pk Height (A): 0.147
Concentration (ug/L): 4.280

Hg2 ID: 131-59-14B Seq. No.: 00066 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:03
Peak Area (A-s): 0.044 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.035

Hg2 ID: 131-59-14B D Seq. No.: 00067 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:04
Peak Area (A-s): 0.036 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.023

Hg2 ID: 131-59-14D Seq. No.: 00068 A/S Pos.: -- Date: 08/07/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 13:05
Peak Area (A-s): 33.260 Peak Height (A): 1.432
Blank Corrected Pk Height (A): 1.432
Concentration (ug/L): 41.816

Hg2 ID: 131-59-~~14D DX10 Seq. No.: 00069 A/S Pos.: --~~ Date: 08/07/96

Replicate 1 Time: 13:12
Peak Area (A-s): 4.493 Peak Height (A): 0.193
Blank Corrected Pk Height (A): 0.193
Concentration (ug/L): 5.631

Hg2 ID: 131-59-14DDX10D Seq. No.: 00070 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:14
Peak Area (A-s): 3.613 Peak Height (A): 0.156
Blank Corrected Pk Height (A): 0.156
Concentration (ug/L): 4.547

Hg2 ID: 131-59-14D DX10 Seq. No.: 00071 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:19
Peak Area (A-s): 3.508 Peak Height (A): 0.149
Blank Corrected Pk Height (A): 0.149
Concentration (ug/L): 4.342

Hg2 ID: 131-59-14DDX10D Seq. No.: 00072 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:20
Peak Area (A-s): 3.460 Peak Height (A): 0.143
Blank Corrected Pk Height (A): 0.143
Concentration (ug/L): 4.190

Hg2 ID: 131-59-14DE Seq. No.: 00073 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:21
Peak Area (A-s): 5.378 Peak Height (A): 0.228
Blank Corrected Pk Height (A): 0.228
Concentration (ug/L): 6.648

Hg2 ID: 131-59-14DE D Seq. No.: 00074 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:22
Peak Area (A-s): 5.800 Peak Height (A): 0.247

Concentration (ug/L): 7.225

Hg2 ID: CCV5=6.0 ug/L Seq. No.: 00075 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:23
Peak Area (A-s): 4.789 Peak Height (A): 0.218
Blank Corrected Pk Height (A): 0.218
Concentration (ug/L): 6.372

Hg2 ID: CCB5 Seq. No.: 00076 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:24
Peak Area (A-s): 0.044 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.038

Hg2 ID: 131-59-6DE Seq. No.: 00077 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:25
Peak Area (A-s): 0.228 Peak Height (A): 0.009
Blank Corrected Pk Height (A): 0.009
Concentration (ug/L): 0.252

Hg2 ID: 131-59-6DE D Seq. No.: 00078 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:26
Peak Area (A-s): 0.223 Peak Height (A): 0.008
Blank Corrected Pk Height (A): 0.008
Concentration (ug/L): 0.243

Hg2 ID: 131-59-1FG Seq. No.: 00079 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:27
Peak Area (A-s): 7.705 Peak Height (A): 0.314
Blank Corrected Pk Height (A): 0.314
Concentration (ug/L): 9.182

Hg2 ID: 131-59-1FG D Seq. No.: 00080 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:28
Peak Area (A-s): 7.817 Peak Height (A): 0.326
Blank Corrected Pk Height (A): 0.326
Concentration (ug/L): 9.533

Hg2 ID: 131-59-2FG Seq. No.: 00081 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:29
Peak Area (A-s): 4.257 Peak Height (A): 0.180
Blank Corrected Pk Height (A): 0.180
Concentration (ug/L): 5.256

Hg2 ID: 131-59-2FG D Seq. No.: 00082 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:30
Peak Area (A-s): 4.421 Peak Height (A): 0.185
Blank Corrected Pk Height (A): 0.185
Concentration (ug/L): 5.402

Hg2 ID: 131-59-3FG Seq. No.: 00083 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:31
Peak Area (A-s): 1.180 Peak Height (A): 0.047
Blank Corrected Pk Height (A): 0.047
Concentration (ug/L): 1.371

Hg2 ID: 131-59-3FG D Seq. No.: 00084 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:32
Peak Area (A-s): 1.035 Peak Height (A): 0.043
Blank Corrected Pk Height (A): 0.043
Concentration (ug/L): 1.242

Hg2 ID: 131-59-5EF Seq. No.: 00085 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:33
Peak Area (A-s): 0.087 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.079

Hg2 ID: 131-59-5EF D Seq. No.: 00086 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:34
Peak Area (A-s): 0.083 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.085

Hg2 ID: 131-59-7DE Seq. No.: 00087 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:35
Peak Area (A-s): 0.084 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.088

Hg2 ID: 131-59-7DE D Seq. No.: 00088 A/S Pos.: -- Date: 08/07/96

Replicate 1 Time: 13:37
Peak Area (A-s): 0.080 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.079

Hg2 ID: CCV6=6.0 ug/L Seq. No.: 00089 A/S Pos.: -- Date: 08/07/96

Rep Date 1 Time: 13:36
Peak Area (A-s): 4.687 Peak Height (A): 0.213
Blank Corrected Pk Height (A): 0.213
Concentration (ug/L): 6.232

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Hg2 ID: CCB6 **Seq. No.: 00090 A/S Pos.: -- Date: 08/07/96**

Replicate 1 Time: 13:39
Peak Area (A-s): 0.015 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.006
~~~~~~

ID/Weight File: AB579.IDW	Analyst: CROKER
• Sample Volume: 100 mL	Nominal Weight: 1.0 g

Loc.	Sample ID	Weight	Dilution
0	STD BLANK-CAL 1		
1	STD1=0.2 ug/L		
2	STD2=0.5 ug/L		
3	STD3=1.0 ug/L		
4	STD4=2.0 ug/L		
5	STD5=5.0 ug/L		
6	STD6=10.0 ug/		

Element: Hg2
Print Data: Main+Suppl.
Print: Calib. Curve
Remarks:
STANDARDS= 2-105-1
QC= 2-105-2

Analyst: CROKER
Peak Storage: None

INSTRUMENT: 5100
Technique: MHS
Version: 7.0
Wavelength: 253.7 Peak
Slit: 0.7 Low
Signal Type: AA
Signal Measurement: Peak Height (5)
Read Time: 30.0
Read Delay: 1.0
BOC Time: 2
Sample Replicates: 1
Standard Replicates: 1

FLAME:
Flame Type: Air
Flame Sensor: On
Oxidant Flow: 10.0 L/min
Fuel Flow: 2.0 L/min

CALIBRATION:

Solutions	ID	Conc
Calib. Blank	STD BLK	----------
Standard 1	STD 1	0.200
Standard 2	STD 2	0.500
Standard 3	STD 3	1.000
Standard 4	STD 4	2.000
Standard 5	STD 5	5.000
Standard 6	STD 6	10.000

Calibration Units: ug/L
Sample Units: ug/L
Calibration Type: Linear

QC:
Matrix Check Calculations:
% Difference for Dupls: No   Locations:
% Recovery for Spike: No   Locations: Conc:

Element File: HG_.MEL Element: Hg2 Wavelength: 253.7
Date: 08/08/96 Time: 14:34 Slit: 0.7 L
Data File: AB579.DAT ID/Wt File: AB579.IDW Lamp Current: 0
Technique: MHS Calib. Type: Linear Energy: 75
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2

Hg2 ID: STD BLANK-CAL 1 Seq. No.: 00004 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 14:35
Peak Area (A-s): -0.005 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000

Auto-zero performed.

Hg2 ID: STD1=0.2 ug/L Seq. No.: 00005 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 14:36
Peak Area (A-s): 0.112 Peak Height (A): 0.004
Blank Corrected Pk Height (A): 0.004

Standard number 1 applied. [0.200]
Correlation coefficient: 1.00000 Slope: 0.0221

Hg2 ID: STD2=0.5 ug/L Seq. No.: 00006 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:37
Peak Area (A-s): 0.313 Peak Height (A): 0.014
Blank Corrected Pk Height (A): 0.014
Concentration (ug/L): 0.618

Standard number 2 applied. [0.500]
Correlation coefficient: 0.98519 Slope: 0.0267

Hg2 ID: STD3=1.0 ug/L Seq. No.: 00007 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:39
Peak Area (A-s): 0.649 Peak Height (A): 0.028
Blank Corrected Pk Height (A): 0.028
Concentration (ug/L): 1.037

Standard number 3 applied. [1.000]
Correlation coefficient: 0.99752 Slope: 0.0275

Hg2 ID: STD4=2.0 ug/L Seq. No.: 00008 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:40
Peak Area (A-s): 1.384 Peak Height (A): 0.062
Blank Corrected Pk Height (A): 0.062
Concentration (ug/L): 2.257

Standard number 4 applied. [2.000]
Correlation coefficient: 0.99599 Slope: 0.0302

~~~~~~

Hg2 ID: STD5=5.0 ug/L Seq. No.: 00009 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:41
Peak Area (A-s): 3.610 Peak Height (A): 0.160
Blank Corrected Pk Height (A): 0.160
Concentration (ug/L): 5.286

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99908 Slope: 0.0317

~~~~~~

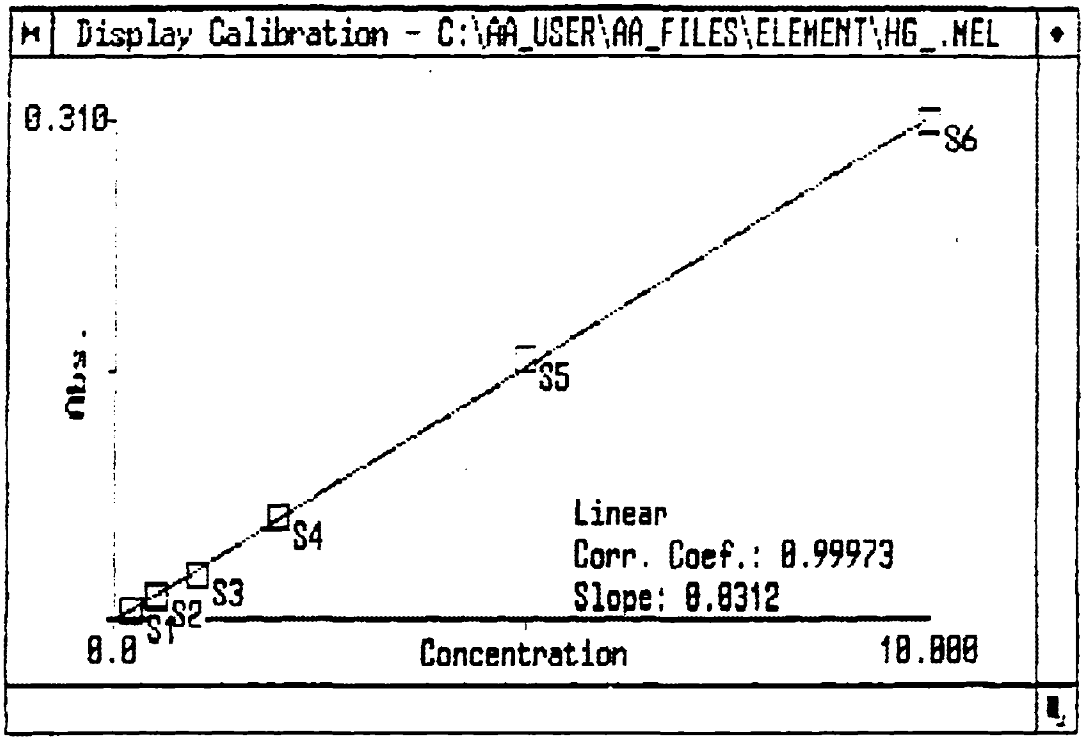
Hg2 ID: STD6=10.0 ug/L Seq. No.: 00010 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:42
Peak Area (A-s): 7.291 Peak Height (A): 0.310
Blank Corrected Pk Height (A): 0.310
Concentration (ug/L): 9.793

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99973 Slope: 0.0312

Element File: HG_.MEL	Element: Hg2	Wavelength: 253.7
Date: 08/08/96	Time: 14:43	Slit: 0.7 L
Data File: AB579.DAT	ID/Wt File: AB579.IDW	Lamp Current: 0
Technique: MHS	Calib. Type: Linear	Energy: 75

Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2



Element File: HG_.MEL   Element: Hg2   Wavelength: 253.7
Date: 08/08/96   Time: 14:53   Slit: 0.7 L
Data File: AB580.DAT   ID/Wt File: AB580.IDW   Lamp Current: 0
Technique: MHS   Calib. Type: Linear   Energy: 75
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2

Hg2 ID: STD BLANK-CAL 2 Seq. No.: 00002 A/S Pos.: -- Date: 08/08/96

Replicate 1   Time: 14:53
Peak Area (A-s): -0.001   Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000

Auto-zero performed.

Hg2 ID: STD1=0.2 ug/L Seq. No.: 00003 A/S Pos.: -- Date: 08/08/96

Replicate 1   Time: 14:55
Peak Area (A-s): 0.132   Peak Height (A): 0.006
Blank Corrected Pk Height (A): 0.006

Standard number 1 applied. [0.200]
Correlation coefficient: 1.00000   Slope: 0.0276

Hg2 ID: STD2=0.5 ug/L Seq. No.: 00004 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 14:56
Peak Area (A-s): 0.336   Peak Height (A): 0.014
Blank Corrected Pk Height (A): 0.014
Concentration (ug/L): 0.520

Standard number 2 applied. [0.500]
Correlation coefficient: 0.99943   Slope: 0.0285

Hg2 ID: STD3=1.0 ug/L Seq. No.: 00005 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 14:58
Peak Area (A-s): 0.707   Peak Height (A): 0.032
Blank Corrected Pk Height (A): 0.032
Concentration (ug/L): 1.121

Standard number 3 applied. [1.000]
Correlation coefficient: 0.99570   Slope: 0.0313

Hg2 ID: STD4=2.0 ug/L Seq. No.: 00006 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 15:00
Peak Area (A-s): 1.428   Peak Height (A): 0.063
Blank Corrected Pk Height (A): 0.063
Concentration (ug/L): 2.026

Standard number 4 applied. [2.000]
Correlation coefficient: 0.99921 Slope: 0.0316

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Hg2 ID: STD5=5.0 ug/L Seq. No.: 00007 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 15:01
Peak Area (A-s): 3.582 Peak Height (A): 0.161
Blank Corrected Pk Height (A): 0.161
Concentration (ug/L): 5.085

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99986 Slope: 0.0320

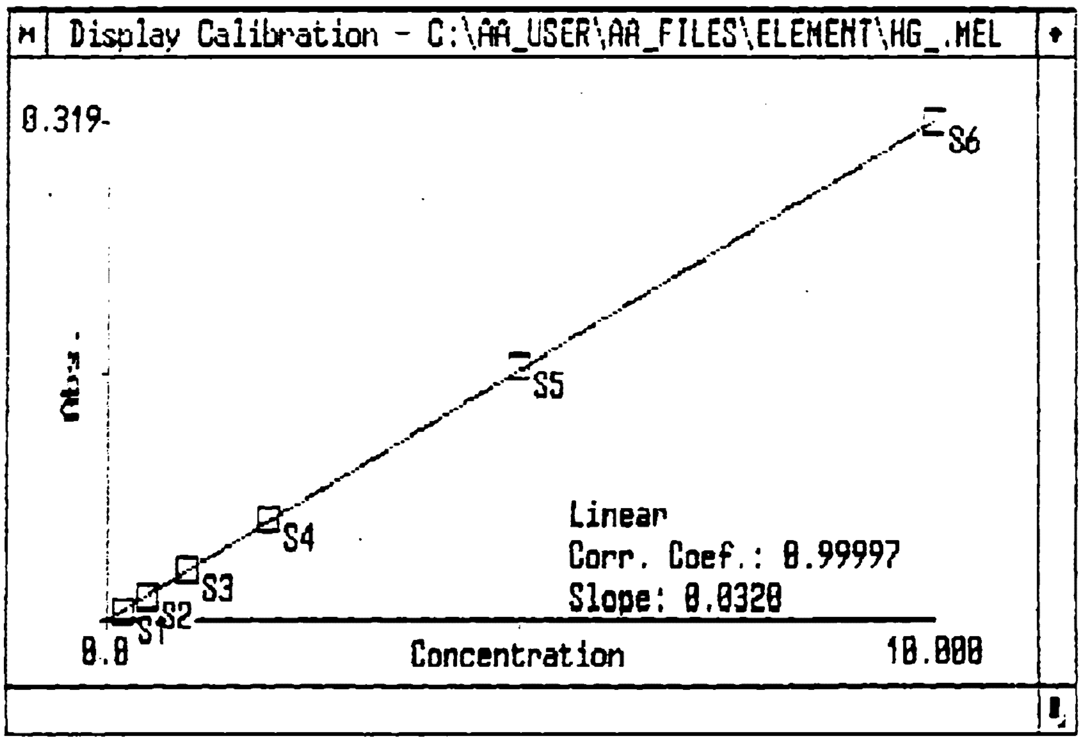
~~~~~~

Hg2 ID: STD6=10.0 ug/L Seq. No.: 00008 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 15:02
Peak Area (A-s): 7.102 Peak Height (A): 0.319
Blank Corrected Pk Height (A): 0.319
Concentration (ug/L): 9.960

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99997 Slope: 0.0320

Element File: HG_.MEL	Element: Hg2	Wavelength: 253.7
Date: 08/28/96	Time: 15:03	Slit: 0.7 L
Data File: AB580.DAT	ID/Wt File: AB580.IDW	Lamp Current: 0
Technique: MHS	Calib. Type: Linear	Energy: 75
Remark 1: STANDARDS= 2-105-1		
Remark 2: QC= 2-105-2		



Element File: HG_.MEL   Element: Hg2   Wavelength: 253.7
Date: 08/08/96   Time: 15:05   Slit: 0.7 L
Data File: AB580.DAT   ID/Wt File: AB580.IDW   Lamp Current: 0
Technique: MHS   Calib. Type: Linear   Energy: 75
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2

Hg2 ID: ICV=4.0 ug/L   Seq. No.: 00009   A/S Pos.: --   Date: 08/08/96

Replicate 1   Time: 15:07
Peak Area (A-s): 2.988   Peak Height (A): 0.138
Blank Corrected Pk Height (A): 0.138
Concentration (ug/L): 4.314

Hg2 ID: ICB   Seq. No.: 00010   A/S Pos.: --   Date: 08/08/96

Replicate 1   Time: 15:08
Peak Area (A-s): 0.015   Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.025

Hg2 ID: CHECK LO   Seq. No.: 00011   A/S Pos.: --   Date: 08/08/96

Replicate 1   Time: 15:09
Peak Area (A-s): 0.154   Peak Height (A): 0.007
Blank Corrected Pk Height (A): 0.007
Concentration (ug/L): 0.214

Hg2 ID: 38139 MB3   Seq. No.: 00012   A/S Pos.: --   Date: 08/08/96

Replicate 1   Time: 15:10
Peak Area (A-s): 0.023   Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.025

Hg2 ID: 38139 MB3 D   Seq. No.: 00013   A/S Pos.: --   Date: 08/08/96

Replicate 1   Time: 15:11
Peak Area (A-s): 0.024   Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.025

Hg2 ID: 38139 LCS3   Seq. No.: 00014   A/S Pos.: --   Date: 08/08/96

Replicate 1   Time: 15:12
Peak Area (A-s): 3.770   Peak Height (A): 0.164
Blank Corrected Pk Height (A): 0.164
Concentration (ug/L): 5.143

Hg2 ID: 38139 LCS3 D   Seq. No.: 00015   A/S Pos.: --   Date: 08/08/96

Replicate 1 Time: 15:13
Peak Area (A-s): 3.753 Peak Height (A): 0.166
Blank Corrected Pk Height (A): 0.166
Concentration (ug/L): 5.193

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Hg2 ID: 131-59-20A Seq. No.: 00016 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 15:14
Peak Area (A-s): 0.060 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.069

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Hg2 ID: 131-59-20A D Seq. No.: 00017 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 15:16
Peak Area (A-s): 0.050 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.060

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Hg2 ID: 131-59-16B Seq. No.: 00018 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 15:17
Peak Area (A-s): 0.023 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.025

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Hg2 ID: 131-59-16B D Seq. No.: 00019 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 15:18
Peak Area (A-s): 0.026 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.038

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Hg2 ID: 131-59-16B MS Seq. No.: 00020 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 15:19
Peak Area (A-s): 1.612 Peak Height (A): 0.068
Blank Corrected Pk Height (A): 0.068
Concentration (ug/L): 2.141

~~~~~~

Hg2 ID: 131-59-16B MSD Seq. No.: 00021 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 15:21
Peak Area (A-s): 1.559 Peak Height (A): 0.068
Blank Corrected Pk Height (A): 0.068
Concentration (ug/L): 2.129

~~~~~~

Hg2 ID: 131-59-4ACE10A Seq. No.: 00022 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 15:22
Peak Area (A-s): 0.029 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
~~~~~~

Hg2 ID: 131-59-4ACE10AD Seq. No.: 00023 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 15:23
Peak Area (A-s): 0.026 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.028

Hg2 ID: CCV1=6.0 ug/L Seq. No.: 00024 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 15:24
Peak Area (A-s): 3.816 Peak Height (A): 0.172
Blank Corrected Pk Height (A): 0.172
Concentration (ug/L): 5.397

Hg2 ID: CCB1 Seq. No.: 00025 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 15:25
Peak Area (A-s): 0.021 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.022

ID/Weight File: A558[illegible].IDW   Analyst: CROKER
Sample Volume: 100 mL   Nominal Weight: 1.0 g

Loc.	Sample ID	Weight	Dilution
0	STD BLANK-CAL		
1	STD1=0.2 ug/L		
2	STD2=0.5 ug/L		
3	STD3=1.0 ug/L		
4	STD4=2.0 ug/L		
5	STD5=5.0 ug/L		
6	STD6=10.0 ug/L		

```
Element File: HG_.MEL          Element: Hg2                Wavelength: 253.7
Date: 08/08/96                 Time: 15:48                 Slit: 0.7 L
Data File: AB581.DAT           ID/Wt File: AB581.IDW       Lamp Current: 0
Technique: MHS                 Calib. Type: Linear         Energy: 75
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2
--------------------------------------------------------------------------------

Hg2   ID: STD BLANK-CAL 1     Seq. No.: 00002    A/S Pos.: --    Date: 08/08/96

Replicate  1                         Time: 15:49
Peak Area (A-s): 0.001               Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000

Auto-zero performed.

Hg2   ID: STD1=0.2 ug/L       Seq. No.: 00003    A/S Pos.: --    Date: 08/08/96

Replicate  1                         Time: 15:50
Peak Area (A-s): 0.135               Peak Height (A): 0.006
Blank Corrected Pk Height (A): 0.006

Standard number 1 applied.  [0.200]
Correlation coefficient: 1.00000     Slope: 0.0301

Hg2   ID: STD2=0.5 ug/L       Seq. No.: 00004    A/S Pos.: --    Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate  1                         Time: 15:52
Peak Area (A-s): 0.328               Peak Height (A): 0.015
Blank Corrected Pk Height (A): 0.015
Concentration (ug/L  ): 0.483

Standard number 2 applied.  [0.500]
Correlation coefficient: 0.99955     Slope: 0.0292

Hg2   ID: STD3=1.0 ug/L       Seq. No.: 00005    A/S Pos.: --    Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate  1                         Time: 15:54
Peak Area (A-s): 0.669               Peak Height (A): 0.031
Blank Corrected Pk Height (A): 0.031
Concentration (ug/L  ): 1.047

Standard number 3 applied.  [1.000]
Correlation coefficient: 0.99924     Slope: 0.0303

Hg2   ID: STD4=2.0 ug/L       Seq. No.: 00006    A/S Pos.: --    Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate  1                         Time: 15:55
Peak Area (A-s): 1.393               Peak Height (A): 0.064
Blank Corrected Pk Height (A): 0.064
Concentration (ug/L  ): 2.119
```

Standard number 4 applied. [2.000]
Correlation coefficient: 0.99902 Slope: 0.0317

Hg2 ID: STD5=5.0 ug/L Seq. No.: 00007 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 15:56
Peak Area (A-s): 3.326 Peak Height (A): 0.149
Blank Corrected Pk Height (A): 0.149
Concentration (ug/L): 4.699

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99930 Slope: 0.0301

Hg2 ID: STD6=10.0 ug/L Seq. No.: 00008 A/S Pos.: -- Date: 08/08/96

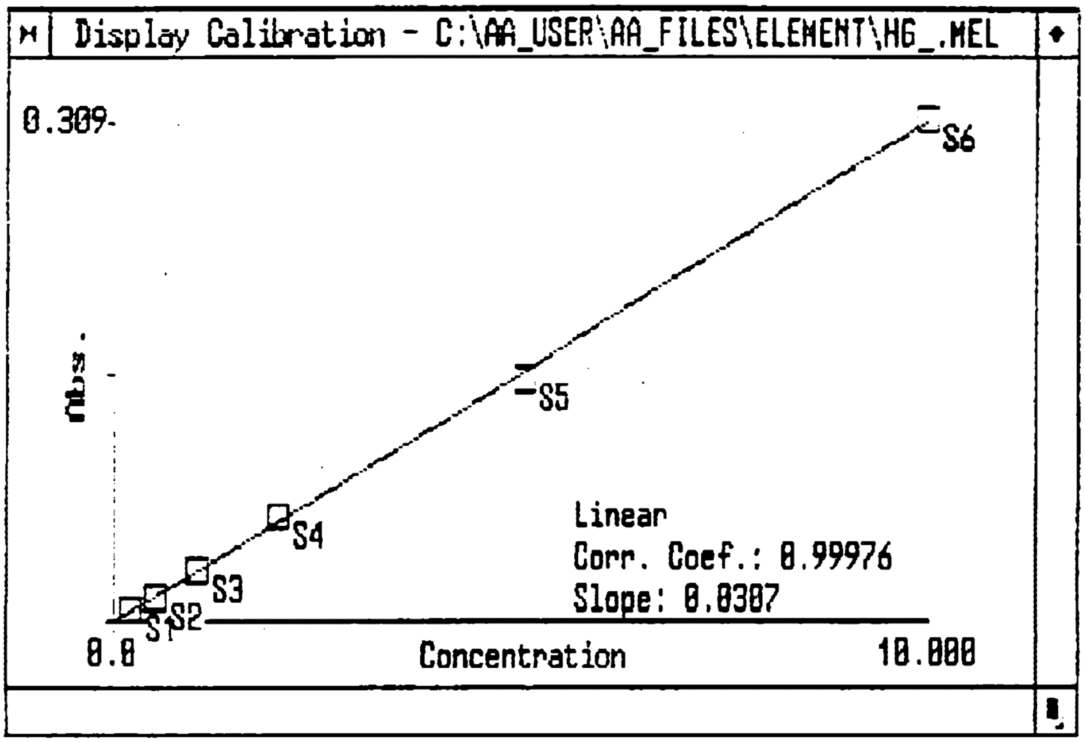
Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 15:57
Peak Area (A-s): 6.823 Peak Height (A): 0.309
Blank Corrected Pk Height (A): 0.309
Concentration (ug/L): 10.247

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99976 Slope: 0.0307

Element File: HG_.MEL
Date: 08/08/96
Data File: AB581.DAT
Technique: MHS
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2

Element: Hg2
Time: 15:57
ID/Wt File: AB581.IDW
Calib. Type: Linear

Wavelength: 253.7
Slit: 0.7 L
Lamp Current: 0
Energy: 75



ID/weight File: AB582.IDW   Analyst: CROKER
Sample Volume: 100 mL   Nominal Weight: 1.0 g

Loc.	Sample ID	Weight	Dilution
0	STD BLANK-CAL 2		
1	STD1=0.2 ug/L		
2	STD2=0.5 ug/L		
3	STD3=1.0 ug/L		
4	STD4=2.0 ug/L		
5	STD5=5.0 ug/L		
6	STD6=10.0 ug/L		
7	ICV=4.0 ug/L 2-10		
8	ICB		
9	CHECK LO		
10	131-59-4DE10AB		
11	131-59-4DE10ABD		
12	131-59-4E10A		
13	131-59-4E10A D		
14	131-59-4F10C		
15	131-59-4F10C D		
16	131-59-4FG10CD		
17	131-59-4FG10CDD		
18	131-59-17C		
19	131-59-17C D		
20	131-59-19C		
21	131-59-19C D		
22	CCV1=6.0 ug/L 2-1		
23	CCB1		

```
Element File: HG_.MEL          Element: Hg2                    Wavelength: 253.7
Date: 08/08/96                 Time: 16:04                     Slit: 0.7 L
Data File: AB582.DAT           ID/Wt File: AB582.IDW           Lamp Current: 0
Technique: MHS                 Calib. Type: Linear             Energy: 75
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2
--------------------------------------------------------------------------------
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2   ID: STD BLANK-CAL 2   Seq. No.: 00002   A/S Pos.: --   Date: 08/08/96

Replicate  1                       Time: 16:05
Peak Area (A-s): -0.003            Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000

Auto-zero performed.

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Hg2   ID: STD1=0.2 ug/L     Seq. No.: 00003   A/S Pos.: --   Date: 08/08/96

Replicate  1                       Time: 16:06
Peak Area (A-s): 0.148             Peak Height (A): 0.007
Blank Corrected Pk Height (A): 0.007

Standard number 1 applied.  [0.200]
Correlation coefficient: 1.00000        Slope: 0.0336

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Hg2   ID: STD2=0.5 ug/L     Seq. No.: 00004   A/S Pos.: --   Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate  1                       Time: 16:07
Peak Area (A-s): 0.372             Peak Height (A): 0.017
Blank Corrected Pk Height (A): 0.017
Concentration (ug/L  ): 0.513

Standard number 2 applied.  [0.500]
Correlation coefficient: 0.99974        Slope: 0.0344

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Hg2   ID: STD3=1.0 ug/L     Seq. No.: 00005   A/S Pos.: --   Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate  1                       Time: 16:09
Peak Area (A-s): 0.725             Peak Height (A): 0.034
Blank Corrected Pk Height (A): 0.034
Concentration (ug/L  ): 0.983

Standard number 3 applied.  [1.000]
Correlation coefficient: 0.99986        Slope: 0.0339

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Hg2   ID: STD4=2.0 ug/L     Seq. No.: 00006   A/S Pos.: --   Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate  1                       Time: 16:10
Peak Area (A-s): 1.555             Peak Height (A): 0.074
Blank Corrected Pk Height (A): 0.074
Concentration (ug/L  ): 2.184
```

Standard number 4 applied. [2.000]
Correlation coefficient: 0.99804 Slope: 0.0364

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Hg2 ID: STD5=5.0 ug/L Seq. No.: 00007 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 16:11
Peak Area (A-s): 3.408 Peak Height (A): 0.160
Blank Corrected Pk Height (A): 0.160
Concentration (ug/L): 4.410

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99730 Slope: 0.0329

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Hg2 ID: STD6=10.0 ug/L Seq. No.: C0008 A/S Pos.: -- Date: 08/08/96

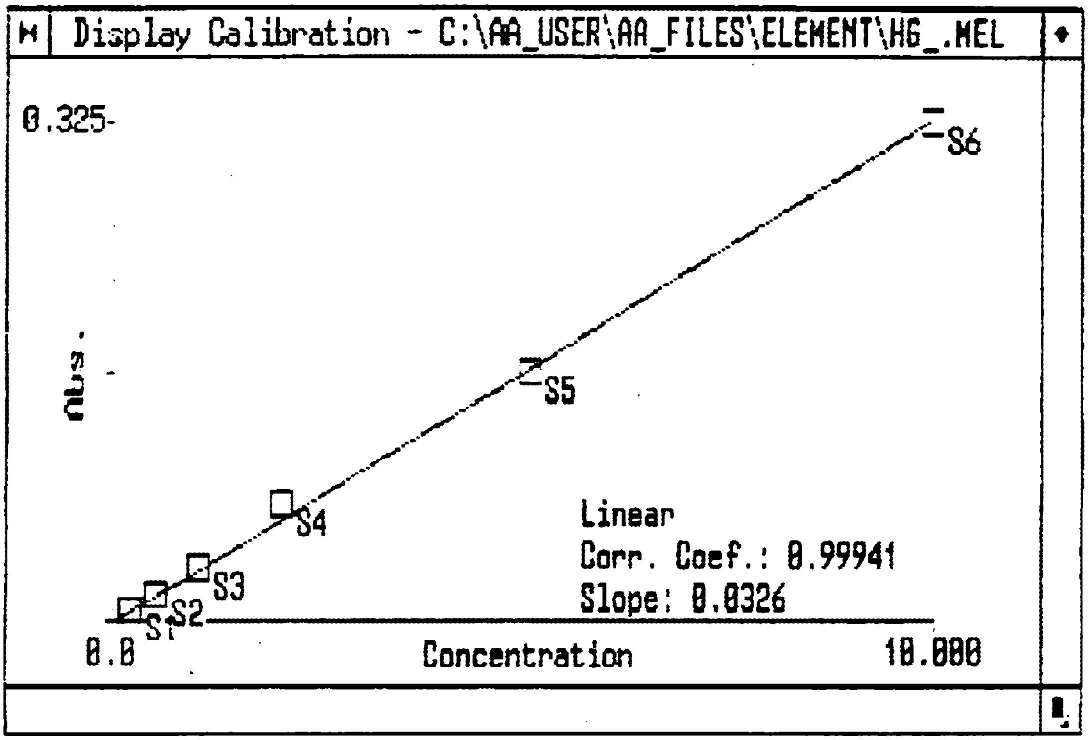
Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 16:12
Peak Area (A-s): 7.005 Peak Height (A): 0.325
Blank Corrected Pk Height (A): 0.325
Concentration (ug/L): 9.879

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99941 Slope: 0.0326

Element File: HG_.MEL
Date: 08/08/96
Data File: AB582.DAT
Technique: MHS
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2

Element: Hg2
Time: 16:13
ID/Wt File: AB582.IDW
Calib. Type: Linear

Wavelength: 253.7
Slit: 0.7 L
Lamp Current: 0
Energy: 75



Element File: HG_.MEL Element: Hg2 Wavelength: 253.7
Date: 08/08/96 Time: 16:15 Slit: 0.7 L
Data File: AB582.DAT ID/Wt File: AB582.IDW Lamp Current: 0
Technique: MHS Calib. Type: Linear Energy: 75
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2

Hg2 ID: ICV=4.0 ug/L Seq. No.: 00009 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:16
Peak Area (A-s): 2.913 Peak Height (A): 0.133
Blank Corrected Pk Height (A): 0.133
Concentration (ug/L): 4.076

Hg2 ID: ICB Seq. No.: 00010 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:17
Peak Area (A-s): 0.003 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.000

Hg2 ID: CHECK LO Seq. No.: 00011 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:18
Peak Area (A-s): 0.137 Peak Height (A): 0.006
Blank Corrected Pk Height (A): 0.006
Concentration (ug/L): 0.185

Hg2 ID: 131-59-4DE10AB Seq. No.: 00012 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:19
Peak Area (A-s): 0.015 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.012

Hg2 ID: 131-59-4DE10ABD Seq. No.: 00013 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:20
Peak Area (A-s): 0.013 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.015

Hg2 ID: 131-59-4E10A Seq. No.: 00014 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:21
Peak Area (A-s): 0.012 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.009

Hg2 ID: 131-59-4E10A D Seq. No.: 00015 A/S Pos.: -- Date: 08/08/96

Peak Area (A-s): 0.013 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.022

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Hg2 ID: 131-59-4F10C Seq. No.: 00016 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:23
Peak Area (A-s): 0.051 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.062

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Hg2 ID: 131-59-4F10C D Seq. No.: 00017 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:24
Peak Area (A-s): 0.045 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.052

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Hg2 ID: 131-59-4FG10CD Seq. No.: 00018 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:25
Peak Area (A-s): 0.089 Peak Height (A): 0.004
Blank Corrected Pk Height (A): 0.004
Concentration (ug/L): 0.117

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Hg2 ID: 131-59-4FG10CDD Seq. No.: 00019 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:26
Peak Area (A-s): 0.097 Peak Height (A): 0.004
Blank Corrected Pk Height (A): 0.004
Concentration (ug/L): 0.126

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Hg2 ID: 131-59-17C Seq. No.: 00020 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:27
Peak Area (A-s): 0.040 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.065

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Hg2 ID: 131-59-17C D Seq. No.: 00021 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:28
Peak Area (A-s): 0.047 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.065

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Hg2 ID: 131-59-19C Seq. No.: 00022 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:29
Peak Area (A-s): 0.086 Peak Height (A): 0.004
Blank Corrected Pk Height (A): 0.004
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Concentration (ug/L): 0.114

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Hg2 ID: 131-59-19C D Seq. No.: 00023 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:30
Peak Area (A-s): 0.082 Peak Height (A): 0.004
Blank Corrected Pk Height (A): 0.004
Concentration (ug/L): 0.108

~~~~~~

Hg2 ID: CCV1=6.0 ug/L Seq. No.: 00024 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:31
Peak Area (A-s): 4.151 Peak Height (A): 0.188
Blank Corrected Pk Height (A): 0.188
Concentration (ug/L): 5.766

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Hg2 ID: CCB1 Seq. No.: 00025 A/S Pos.: -- Date: 08/08/96

Replicate 1 Time: 16:33
Peak Area (A-s): 0.002 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.000
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ID/Weight File: AB58..IDW Analyst: CROKER
Sample Volume: 100 mL Nominal Weight: 1.0 g

Loc.	Sample ID	Weight	Dilution
0	STD BLANK		
1	STD1=0.2 ug/L		
2	STD2=0.5 ug/L		
3	STD3=1.0 ug/L		
4	STD4=2.0 ug/L		
5	STD5=5.0 ug/L		
6	STD6=10.0 ug/L		

Element File: HG_.MEL
Element: Hg2
Print Data: Main+Suppl.
Print: Calib. Curve
Remarks:
STANDARDS= 2-105-5
QC= 2-105-6

Analyst: CROKER
Peak Storage: None

INSTRUMENT: 5100
Wavelength: 253.7 Peak
Signal Type: AA
Read Time: 30.0
Sample Replicates: 1
Standard Replicates: 1

Technique: MHS
Slit: 0.7 Low
Signal Measurement: Peak Height (5)
Read Delay: 1.0
Version: 7.01
BOC Time: 2

FLAME:
Flame Type: Air
Oxidant Flow: 10.0 L/min
Flame Sensor: On
Fuel Flow: 2.0 L/min

CALIBRATION:

Solutions	ID	Conc
Calib. Blank	STD BLK	
Standard 1	STD 1	0.200
Standard 2	STD 2	0.500
Standard 3	STD 3	1.000
Standard 4	STD 4	2.000
Standard 5	STD 5	5.000
Standard 6	STD 6	10.000

Calibration Units: ug/L
Sample Units: ug/L
Calibration Type: Linear

QC:
Matrix Check Calculations:
% Difference for Dupls: No   Locations:
% Recovery for Spike: No   Locations: Conc:

Element File: HG_.MEL Element: Hg2 Wavelength: 253.7
Date: 08/13/96 Time: 09:41 Slit: 0.7 L
Data File: AB587.DAT ID/Wt File: AB587.IDW Lamp Current: 0
Technique: MHS Calib. Type: Linear Energy: 75
Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6

Hg2 ID: STD BLANK Seq. No.: 00003 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 09:42
Peak Area (A-s): -0.007 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001

Auto-zero performed.

Hg2 ID: STD1=0.2 ug/L Seq. No.: 00004 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 09:43
Peak Area (A-s): 0.128 Peak Height (A): 0.005
Blank Corrected Pk Height (A): 0.005

Standard number 1 applied. [0.200]
Correlation coefficient: 1.00000 Slope: 0.0251

Hg2 ID: STD2=0.5 ug/L Seq. No.: 00005 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 09:44
Peak Area (A-s): 0.369 Peak Height (A): 0.016
Blank Corrected Pk Height (A): 0.016
Concentration (ug/L): 0.636

Standard number 2 applied. [0.500]
Correlation coefficient: 0.98133 Slope: 0.0311

Hg2 ID: STD3=1.0 ug/L Seq. No.: 00006 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 09:46
Peak Area (A-s): 0.740 Peak Height (A): 0.031
Blank Corrected Pk Height (A): 0.031
Concentration (ug/L): 1.008

Standard number 3 applied. [1.000]
Correlation coefficient: 0.99743 Slope: 0.0313

Hg2 ID: STD4=2.0 ug/L Seq. No.: 00007 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 09:47
Peak Area (A-s): 1.614 Peak Height (A): 0.069
Blank Corrected Pk Height (A): 0.069
Concentration (ug/L): 2.215

Standard number 4 applied. [2.000]
Correlation coefficient: 0.99697 Slope: 0.0340

Hg2 ID: STD5=5.0 ug/L Seq. No.: 00008 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 09:48
Peak Area (A-s): 3.953 Peak Height (A): 0.169
Blank Corrected Pk Height (A): 0.169
Concentration (ug/L): 4.988

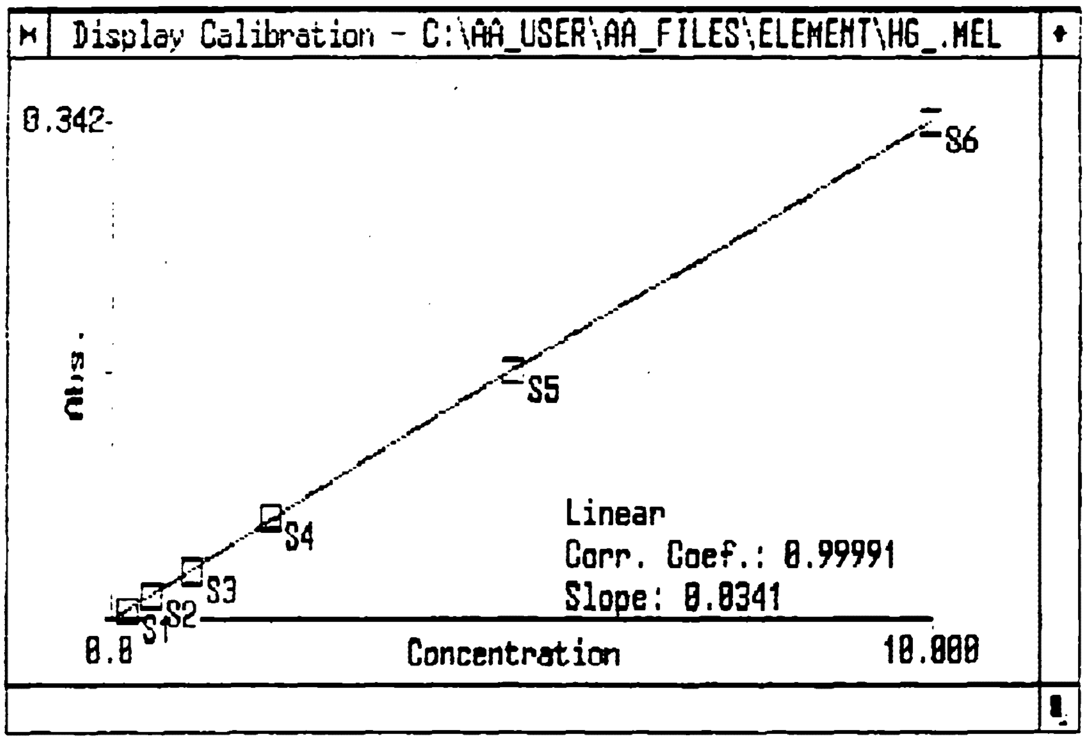
Standard number 5 applied. [5.000]
Correlation coefficient: 0.99963 Slope: 0.0339

Hg2 ID: STD6=10.0 ug/L Seq. No.: 00009 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 09:49
Peak Area (A-s): 8.014 Peak Height (A): 0.342
Blank Corrected Pk Height (A): 0.342
Concentration (ug/L): 10.093

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99991 Slope: 0.0341

Element File: HG_.MEL	Element: Hg2	Wavelength: 253.7
Date: 08/13/96	Time: 09:50	Slit: 0.7 L
Data File: AB587.DAT	ID/Wt File: AB587.IDW	Lamp Current: 0
Technique: MHS	Calib. Type: Linear	Energy: 75
Remark 1: STANDARDS= 2-105-5		
Remark 2: QC= 2-105-6		



ID/weight File: AB638.IDW
Sample Volume: 100 mL

Analyst: CROKER
Nominal weight: 1.0 g

Loc.	Sample ID	Weight	Dilution
0	STD BLANK		
1	STD1=0.2 ug/L		
2	STD2=0.5 ug/L		
3	STD3=1.0 ug/L		
4	STD4=2.0 ug/L		
5	STD5=5.0 ug/L		
6	STD6=10.0 ug/L		
7	ICV=4.0 ug/L		
8	ICB		
9	CHECK LO		
10	38139 MB4		
11	38139 MB4 D		
12	38139 LCS4		
13	38139 LCS4 D		
14	131-59-12C		
15	131-59-12C D		
16	131-59-12C MS		
17	131-59-12C MSD		
18	131-59-12DE		
19	131-59-12DE D		
20	131-59-13A		
21	131-59-13A D		
22	131-59-13B		
23	131-59-13B D		
24	131-59-13D		
25	131-59-13D DX1		
26	131-59-13DDX10		
27	131-59-13DE		
28	131-59-13DE D		
29	131-59-14A		
30	131-59-14A D		
31	131-59-12D		
32	131-59-12D DX1		
33	131-59-12DDX10		
34	CCV1=6.0 ug/L		
35	CCB1		

```
--------------------------------------------------------------------------
Element File: HG_.MEL          Element: Hg2                Wavelength: 253.7
Date: 08/13/96                 Time: 09:58                 Slit: 0.7 L
Data File: AB588.DAT           ID/Wt File: AB588.IDW       Lamp Current: 0
Technique: MHS                 Calib. Type: Linear         Energy: 75
Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6
--------------------------------------------------------------------------
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Hg2   ID: STD BLANK         Seq. No.: 00002    A/S Pos.: --    Date: 08/13/96

Replicate  1                         Time: 10:00
Peak Area (A-s): -0.000              Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000

Auto-zero performed.

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Hg2   ID: STD1=0.2 ug/L     Seq. No.: 00003    A/S Pos.: --    Date: 08/13/96

Replicate  1                         Time: 10:01
Peak Area (A-s): 0.152               Peak Height (A): 0.006
Blank Corrected Pk Height (A): 0.006

Standard number 1 applied.  [0.200]
Correlation coefficient: 1.00000     Slope: 0.0321

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Hg2   ID: STD2=0.5 ug/L     Seq. No.: 00004    A/S Pos.: --    Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate  1                         Time: 10:02
Peak Area (A-s): 0.382               Peak Height (A): 0.017
Blank Corrected Pk Height (A): 0.017
Concentration (ug/L  ): 0.516

Standard number 2 applied.  [0.500]
Correlation coefficient: 0.99965     Slope: 0.0330

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Hg2   ID: STD3=1.0 ug/L     Seq. No.: 00005    A/S Pos.: --    Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate  1                         Time: 10:04
Peak Area (A-s): 0.804               Peak Height (A): 0.035
Blank Corrected Pk Height (A): 0.035
Concentration (ug/L  ): 1.059

Standard number 3 applied.  [1.000]
Correlation coefficient: 0.99886     Slope: 0.0345

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Hg2   ID: STD4=2.0 ug/L     Seq. No.: 00006    A/S Pos.: --    Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate  1                         Time: 10:05
Peak Area (A-s): 1.608               Peak Height (A): 0.071
Blank Corrected Pk Height (A): 0.071
Concentration (ug/L  ): 2.053
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Standard number 4 applied. [2.000]
Correlation coefficient: 0.99962 Slope: 0.0352

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Hg2 ID: STD5=5.0 ug/L Seq. No.: 00007 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 10:06
Peak Area (A-s): 4.004 Peak Height (A): 0.177
Blank Corrected Pk Height (A): 0.177
Concentration (ug/L): 5.037

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99995 Slope: 0.0354

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Hg2 ID: STD5=10.0 ug/L Seq. No.: 00008 A/S Pos.: -- Date: 08/13/96

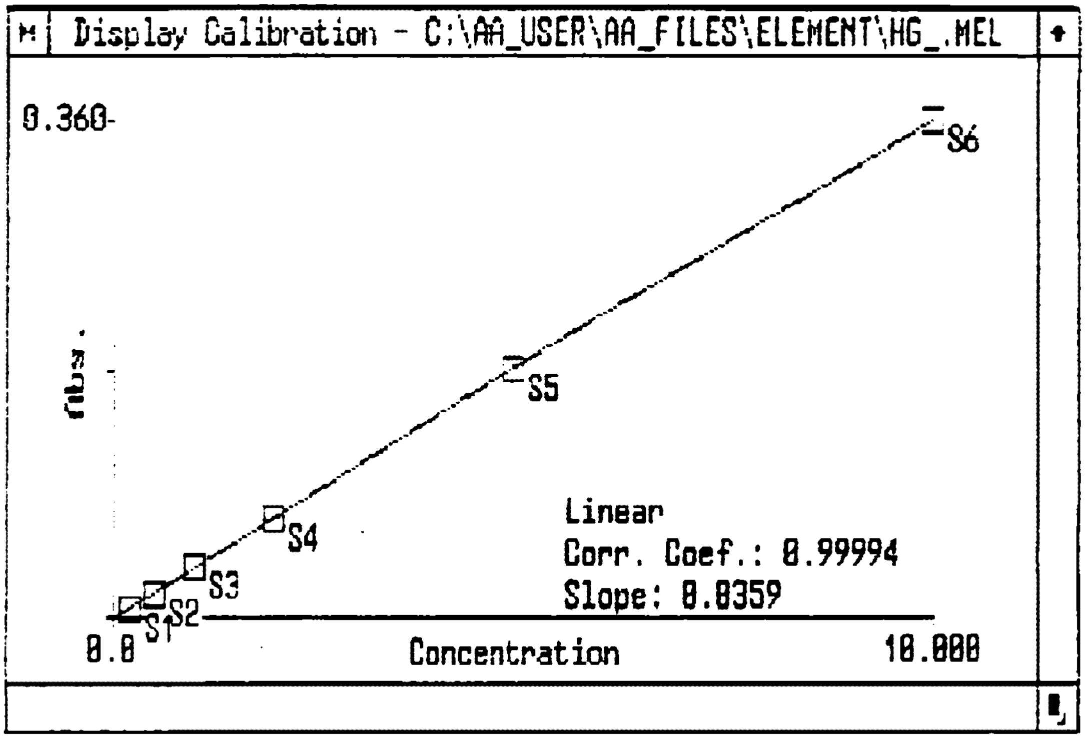
Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 10:07
Peak Area (A-s): 7.998 Peak Height (A): 0.360
Blank Corrected Pk Height (A): 0.360
Concentration (ug/L): 10.169

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99994 Slope: 0.0359

Element File: HG_.MEL
Date: 08/13/96
Data File: AB58S.DAT
Technique: MHS
Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6

Element: Hg2
Time: 10:10
ID/Wt File: AB588.IDW
Calib. Type: Linear

Wavelength: 253.7
Slit: 0.7 L
Lamp Current: 0
Energy: 75



Element File: HG_.MEL　　Element: Hg2　　Wavelength: 253.7
Date: 08/13/96　　Time: 10:12　　Slit: 0.7 L
Data File: AB538.DAT　　ID/Wt File: AB588.IDW　　Lamp Current: 0
Technique: MHS　　Calib. Type: Linear　　Energy: 75
Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6

Hg2　ID: ICV=4.0 ug/L　　Seq. No.: 00009　A/S Pos.: --　Date: 08/13/96

Replicate 1　　Time: 10:13
Peak Area (A-s): 3.225　　Peak Height (A): 0.144
Blank Corrected Pk Height (A): 0.144
Concentration (ug/L): 4.014

Hg2　ID: ICB　　Seq. No.: 00010　A/S Pos.: --　Date: 08/13/96

Replicate 1　　Time: 10:14
Peak Area (A-s): 0.012　　Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.008

Hg2　ID: CHECK LO　　Seq. No.: 00011　A/S Pos.: --　Date: 08/13/96

Replicate 1　　Time: 10:15
Peak Area (A-s): 0.162　　Peak Height (A): 0.007
Blank Corrected Pk Height (A): 0.007
Concentration (ug/L): 0.196

Hg2　ID: 38139 MB4　　Seq. No.: 00012　A/S Pos.: --　Date: 08/13/96

Replicate 1　　Time: 10:16
Peak Area (A-s): 0.010　　Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.008

Hg2　ID: 38139 MB4 D　　Seq. No.: 00013　A/S Pos.: --　Date: 08/13/96

Replicate 1　　Time: 10:17
Peak Area (A-s): 0.013　　Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.017

Hg2　ID: 38139 LCS4　　Seq. No.: 00014　A/S Pos.: --　Date: 08/13/96

Replicate 1　　Time: 10:18
Peak Area (A-s): 3.904　　Peak Height (A): 0.170
Blank Corrected Pk Height (A): 0.170
Concentration (ug/L): 4.730

Hg2　ID: 38139 LCS4 D　　Seq. No.: 00015　A/S Pos.: --　Date: 08/13/96

Replicate 1 Time: 10:19
Peak Area (A-s): 3.831 Peak Height (A): 0.167
Blank Corrected Pk Height (A): 0.167
Concentration (ug/L): 4.665

Hg2 ID: 131-59-12C Seq. No.: 00016 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:20
Peak Area (A-s): 0.043 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.045

Hg2 ID: 131-59-12C D Seq. No.: 00017 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:22
Peak Area (A-s): 0.036 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.036

Hg2 ID: 131-59-12C MS Seq. No.: 00018 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:23
Peak Area (A-s): 2.175 Peak Height (A): 0.095
Blank Corrected Pk Height (A): 0.095
Concentration (ug/L): 2.651

Hg2 ID: 131-59-12C MSD Seq. No.: 00019 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:25
Peak Area (A-s): 1.883 Peak Height (A): 0.081
Blank Corrected Pk Height (A): 0.081
Concentration (ug/L): 2.271

Hg2 ID: 131-59-12DE Seq. No.: 00020 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:26
Peak Area (A-s): 4.466 Peak Height (A): 0.204
Blank Corrected Pk Height (A): 0.204
Concentration (ug/L): 5.678

Hg2 ID: 131-59-12DE D Seq. No.: 00021 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:27
Peak Area (A-s): 5.324 Peak Height (A): 0.233
Blank Corrected Pk Height (A): 0.233
Concentration (ug/L): 6.486

Hg2 ID: 131-59-13A Seq. No.: 00022 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:29
Peak Area (A-s): 0.060 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002

Concentration (ug/L): 0.062

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Hg2 ID: 131-59-13A D Seq. No.: 00023 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:30
Peak Area (A-s): 0.029 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.025

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Hg2 ID: 131-59-13B Seq. No.: 00024 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:31
Peak Area (A-s): 0.042 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.039

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Hg2 ID: 131-59-13B D Seq. No.: 00025 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:32
Peak Area (A-s): 0.034 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.039

~~~~~~

Hg2 ID: 131-59-13D Seq. No.: 00026 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 10:33
Peak Area (A-s): 28.286 Peak Height (A): 1.184
Blank Corrected Pk Height (A): 1.184
Concentration (ug/L): 33.007

~~~~~~

Hg2 ID: 131-59-13D DX10 Seq. No.: 00027 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:40
Peak Area (A-s): 3.087 Peak Height (A): 0.127
Blank Corrected Pk Height (A): 0.127
Concentration (ug/L): 3.547

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Hg2 ID: 131-59-13DDX10D Seq. No.: 00028 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:41
Peak Area (A-s): 3.051 Peak Height (A): 0.128
Blank Corrected Pk Height (A): 0.128
Concentration (ug/L): 3.560

~~~~~~

Hg2 ID: 131-59-13DE ~~0~~ Seq. No.: 00029 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:42
Peak Area (A-s): 1.956 Peak Height (A): 0.080
Blank Corrected Pk Height (A): 0.080
Concentration (ug/L): 2.226
~~~~~~

Hg2 ID: 131-59-13DE D Seq. No.: 00030 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:44
Peak Area (A-s): 2.099 Peak Height (A): 0.087
Blank Corrected Pk Height (A): 0.087
Concentration (ug/L): 2.425

Hg2 ID: 131-59-14A Seq. No.: 00031 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:45
Peak Area (A-s): 0.024 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.020

Hg2 ID: 131-59-14A D Seq. No.: 00032 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:46
Peak Area (A-s): 0.020 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.020

Hg2 ID: 131-59-12D Seq. No.: 00033 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 10:47
Peak Area (A-s): 27.777 Peak Height (A): 1.177
Blank Corrected Pk Height (A): 1.177
Concentration (ug/L): 32.805

Hg2 ID: 131-59-12D DX10 Seq. No.: 00034 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:53
Peak Area (A-s): 2.753 Peak Height (A): 0.111
Blank Corrected Pk Height (A): 0.111
Concentration (ug/L): 3.107

Hg2 ID: 131-59-12DDX10D Seq. No.: 00035 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:54
Peak Area (A-s): 2.887 Peak Height (A): 0.120
Blank Corrected Pk Height (A): 0.120
Concentration (ug/L): 3.340

Hg2 ID: CCV1=6.0 ug/L Seq. No.: 00036 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:55
Peak Area (A-s): 4.272 Peak Height (A): 0.188
Blank Corrected Pk Height (A): 0.188
Concentration (ug/L): 5.241

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Hg2 ID: CCB1 Sec. No.: 00037 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:56
Peak Area (A-s): 0.039 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.034
~~~~~~

ID/Weight File: AB0d9.[illegible]W		Analyst: CROKER
Sample Volume: 100 mL		Nominal Weight: 1.0 g

Loc.	Sample ID	Weight	Dilution
0	STD BLANK		
1	STD1=0.2 ug/L		
2	STD2=0.5 ug/L		
3	STD3=1.0 ug/L		
4	STD4=2.0 ug/L		
5	STD5=5.0 ug/L		
6	STD6=10.0 ug/L		

```
Element File: HG_.MEL            Element: Hg2                    Wavelength: 253.7
Date: 08/13/96                   Time: 11:44                     Slit: 0.7 L
Data File: AB589.DAT             ID/Wt File: AB589.IDW           Lamp Current: 0
Technique: MHS                   Calib. Type: Linear             Energy: 75
Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6
```

Hg2   ID: STD BLANK   Seq. No.: 00002   A/S Pos.: --   Date: 08/13/96

Replicate 1 — Time: 11:45
Peak Area (A-s): -0.001 — Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000

Auto-zero performed.

Hg2   ID: STD1=0.2 ug/L   Seq. No.: 00003   A/S Pos.: --   Date: 08/13/96

Replicate 1 — Time: 11:46
Peak Area (A-s): 0.150 — Peak Height (A): 0.006
Blank Corrected Pk Height (A): 0.006

Standard number 1 applied. [0.200]
Correlation coefficient: 1.00000 — Slope: 0.0321

Hg2   ID: STD2=0.5 ug/L   Seq. No.: 00004   A/S Pos.: --   Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 — Time: 11:47
Peak Area (A-s): 0.379 — Peak Height (A): 0.017
Blank Corrected Pk Height (A): 0.017
Concentration (ug/L): 0.519

Standard number 2 applied. [0.500]
Correlation coefficient: 0.99949 — Slope: 0.0331

Hg2   ID: STD3=1.0 ug/L   Seq. No.: 00005   A/S Pos.: --   Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 — Time: 11:53
Peak Area (A-s): 0.741 — Peak Height (A): 0.033
Blank Corrected Pk Height (A): 0.033
Concentration (ug/L): 0.987

Standard number 3 applied. [1.000]
Correlation coefficient: 0.99987 — Slope: 0.0328

Hg2   ID: STD4=2.0 ug/L   Seq. No.: 00006   A/S Pos.: --   Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 — Time: 11:54
Peak Area (A-s): 1.521 — Peak Height (A): 0.069
Blank Corrected Pk Height (A): 0.069
Concentration (ug/L): 2.116

Standard number 4 applied. [2.000]
Correlation coefficient: 0.99917 Slope: 0.0343

Hg2 ID: STD5=5.0 ug/L Seq. No.: 00007 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 11:55
Peak Area (A-s): 3.655 Peak Height (A): 0.167
Blank Corrected Pk Height (A): 0.167
Concentration (ug/L): 4.886

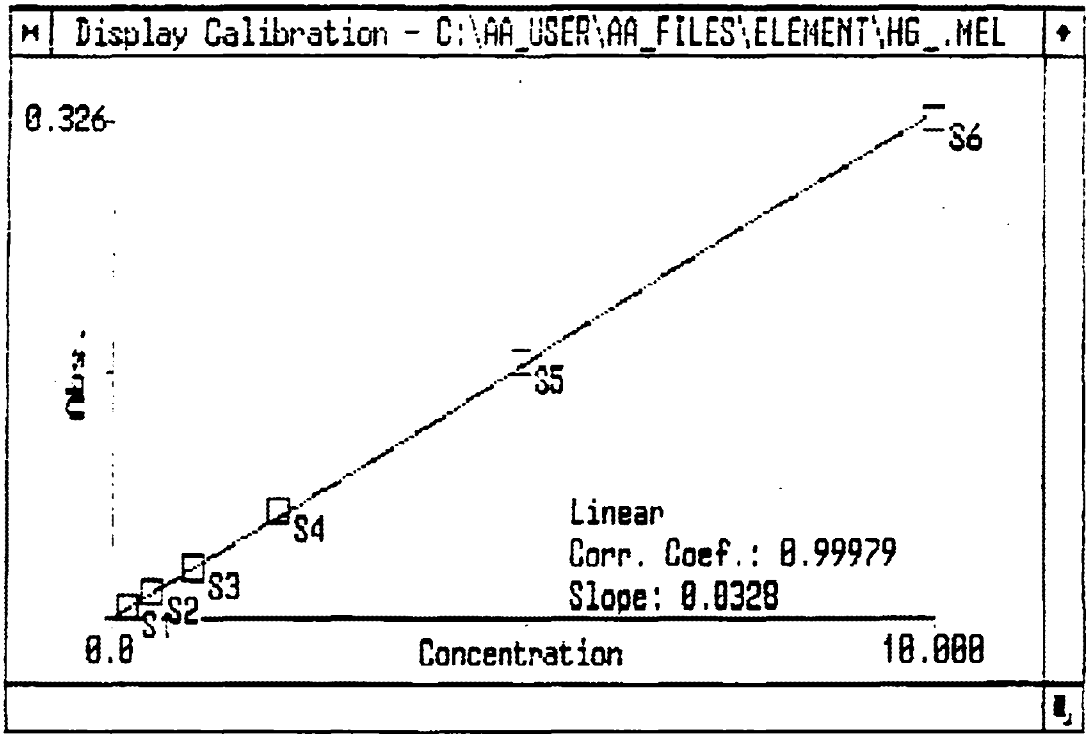
Standard number 5 applied. [5.000]
Correlation coefficient: 0.99982 Slope: 0.0336

Hg2 ID: STD6=10.0 ug/L Seq. No.: 00008 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 11:58
Peak Area (A-s): 7.340 Peak Height (A): 0.326
Blank Corrected Pk Height (A): 0.326
Concentration (ug/L): 9.581

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99979 Slope: 0.0328

Element File: HG_.MEL	Element: Hg2	Wavelength: 253.7
Date: 08/13/96	Time: 11:58	Slit: 0.7 L
Data File: AB589.DAT	ID/Wt File: AB589.IDW	Lamp Current: 0
Technique: MHS	Calib. Type: Linear	Energy: 75
Remark 1: STANDARDS= 2-105-5		
Remark 2: QC= 2-105-6		



[illegible] Analyte: CHROME
Sample Volume: 100 mL | Nominal Weight: 1.0 g

Loc.	Sample ID	Weight	Dilution
0	STD BLANK		
1	STD1=0.2 ug/L		
2	STD2=0.5 ug/L		
3	STD3=1.0 ug/L		
4	STD4=2.0 ug/L		
5	STD5=5.0 ug/L		
6	STD6=10.0 ug/L		
7	ICV=4.0 ug/L 2 -		
8	ICB		
9	CHECK LD		
10	131-59-14C		
11	131-59-14C D		
12	131-59-14C MS		
13	131-59-14C MSD		
14	131-59-15A		
15	131-59-15A D		
16	131-59-15B		
17	131-59-15B D		
18	131-59-15D		
19	131-59-15D DX4		
20	131-59-15D DX4D		
21	131-59-15DE		
22	131-59-15DE D		
23	131-59-16A		
24	131-59-16A D		
25	131-59-16C		
26	131-59-16C D		
27	131-59-16D		
28	131-59-16D DX4		
29	131-59-16D DX4D		
30	131-59-16DE		
31	131-59-16DE D		
32	131-59-20B		
33	131-59-20B D		
34	CCV1=6.0 ug/L 2		
35	CCB1		

```
--------------------------------------------------------------------------------
Element File: HG_.MEL          Element: Hg2                Wavelength: 253.7
Date: 08/13/96                 Time: 12:05                 Slit: 0.7 L
Data File: AB59C.DAT           ID/Wt File: AB59C.IDW       Lamp Current: 0
Technique: MHS                 Calib. Type: Linear         Energy: 75
Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6
--------------------------------------------------------------------------------
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Hg2  ID: STD BLANK           Seq. No.: 00002    A/S Pos.: --    Date: 08/13/96

Replicate  1                       Time: 12:06
Peak Area (A-s): 0.001             Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000

Auto-zero performed.
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2  ID: STD1=0.2 ug/L       Seq. No.: 00003    A/S Pos.: --    Date: 08/13/96

Replicate  1                       Time: 12:08
Peak Area (A-s): 0.146             Peak Height (A): 0.007
Blank Corrected Pk Height (A): 0.007

Standard number 1 applied.  [0.200]
Correlation coefficient: 1.00000       Slope: 0.0331
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2  ID: STD2=0.5 ug/L       Seq. No.: 00004    A/S Pos.: --    Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate  1                       Time: 12:09
Peak Area (A-s): 0.373             Peak Height (A): 0.017
Blank Corrected Pk Height (A): 0.017
Concentration (ug/L  ): 0.500

Standard number 2 applied.  [0.500]
Correlation coefficient: 1.00000       Slope: 0.0331
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2  ID: STD3=1.0 ug/L       Seq. No.: 00005    A/S Pos.: --    Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate  1                       Time: 12:10
Peak Area (A-s): 0.747             Peak Height (A): 0.034
Blank Corrected Pk Height (A): 0.034
Concentration (ug/L  ): 1.021

Standard number 3 applied.  [1.000]
Correlation coefficient: 0.99985       Slope: 0.0337
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2  ID: STD4=2.0 ug/L       Seq. No.: 00006    A/S Pos.: --    Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate  1                       Time: 12:11
Peak Area (A-s): 1.480             Peak Height (A): 0.066
Blank Corrected Pk Height (A): 0.066
Concentration (ug/L  ): 1.950
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Standard number 4 applied. [2.000]
Correlation coefficient: 0.99980   Slope: 0.0330

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Hg2   ID: STD5=5.0 ug/L   Seq. No.: 00007   A/S Pos.: --   Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 12:13
Peak Area (A-s): 3.714   Peak Height (A): 0.168
Blank Corrected Pk Height (A): 0.168
Concentration (ug/L): 5.102

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99992   Slope: 0.0336

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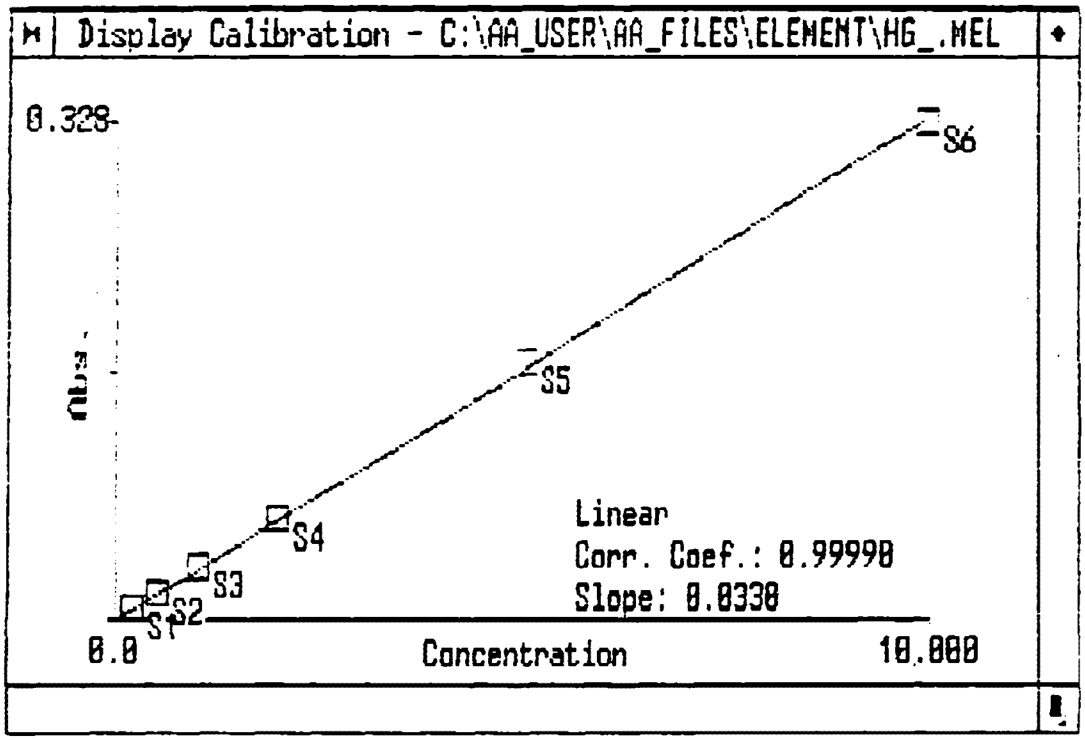
Hg2   ID: STD6=10.0 ug/L   Seq. No.: 00008   A/S Pos.: --   Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 12:14
Peak Area (A-s): 7.341   Peak Height (A): 0.328
Blank Corrected Pk Height (A): 0.328
Concentration (ug/L): 9.777

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99990   Slope: 0.0330

Element File: HG_.MEL	Element: Hg2	Wavelength: 253.7
Date: 08/13/96	Time: 12:14	Slit: 0.7 L
Data File: AB590.DAT	ID/Wt File: AB590.IDW	Lamp Current: 0
Technique: MHS	Calib. Type: Linear	Energy: 75
Remark 1: STANDARDS= 2-105-5		
Remark 2: QC= 2-105-6		



Element File: HG_.MEL Element: Hg2 Wavelength: 253.7
Date: 08/13/96 Time: 12:16 Slit: 0.7 L
Data File: AB590.DAT ID/Wt File: AB590.IDW Lamp Current: 0
Technique: MHS Calib. Type: Linear Energy: 75
Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6

Hg2 ID: ICV=4.0 ug/L Seq. No.: 00009 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 12:17
Peak Area (A-s): 3.121 Peak Height (A): 0.143
Blank Corrected Pk Height (A): 0.143
Concentration (ug/L): 4.344

Hg2 ID: ICB Seq. No.: 00010 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 12:18
Peak Area (A-s): 0.007 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.012

Hg2 ID: CHECK LC Seq. No.: 00011 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 12:19
Peak Area (A-s): 0.155 Peak Height (A): 0.007
Blank Corrected Pk Height (A): 0.007
Concentration (ug/L): 0.210

Hg2 ID: 131-59-14C Seq. No.: 00012 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 12:21
Peak Area (A-s): 0.065 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.079

Hg2 ID: 131-59-14C D Seq. No.: 00013 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 12:22
Peak Area (A-s): 0.084 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.103

Hg2 ID: 131-59-14C MS Seq. No.: 00014 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 12:23
Peak Area (A-s): 2.127 Peak Height (A): 0.095
Blank Corrected Pk Height (A): 0.095
Concentration (ug/L): 2.867

Hg2 ID: 131-59-14C MSD Seq. No.: 00015 A/S Pos.: -- Date: 08/13/96

Replicate 1   Time: 12:24
Peak Area (A-s): 2.801   Peak Height (A): 0.125
Blank Corrected Pk Height (A): 0.125
Concentration (ug/L): 3.821

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Hg2   ID: 131-59-15A   Seq. No.: 00016   A/S Pos.: --   Date: 08/13/96

Replicate 1   Time: 12:25
Peak Area (A-s): 0.049   Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.064

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Hg2   ID: 131-59-15A D   Seq. No.: 00017   A/S Pos.: --   Date: 08/13/96

Replicate 1   Time: 12:26
Peak Area (A-s): 0.045   Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.064

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Hg2   ID: 131-59-15B   Seq. No.: 00018   A/S Pos.: --   Date: 08/13/96

Replicate 1   Time: 12:27
Peak Area (A-s): 0.012   Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.015

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Hg2   ID: 131-59-15B D   Seq. No.: 00019   A/S Pos.: --   Date: 08/13/96

Replicate 1   Time: 12:28
Peak Area (A-s): 0.015   Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.018

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Hg2   ID: 131-59-15D   Seq. No.: 00020   A/S Pos.: --   Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 12:29
Peak Area (A-s): 13.249   Peak Height (A): 0.576
Blank Corrected Pk Height (A): 0.576
Concentration (ug/L): 17.455

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Hg2   ID: 131-59-15D DX4   Seq. No.: 00021   A/S Pos.: --   Date: 08/13/96

Replicate 1   Time: 12:36
Peak Area (A-s): 3.243   Peak Height (A): 0.138
Blank Corrected Pk Height (A): 0.138
Concentration (ug/L): 4.168

~~~~~~

Hg2   ID: 131-59-15D DX4D   Seq. No.: 00022   A/S Pos.: --   Date: 08/13/96

Replicate 1   Time: 12:37
Peak Area (A-s): 3.469   Peak Height (A): 0.150
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Concentration (ug/L): 4.551

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Hg2 ID: 131-59-15DE Seq. No.: 00023 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 12:38
Peak Area (A-s): 0.801 Peak Height (A): 0.034
Blank Corrected Pk Height (A): 0.034
Concentration (ug/L): 1.031

~~~~~~

Hg2 ID: 131-59-15DE D Seq. No.: 00024 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 12:39
Peak Area (A-s): 0.855 Peak Height (A): 0.035
Blank Corrected Pk Height (A): 0.035
Concentration (ug/L): 1.070

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Hg2 ID: 131-59-16A Seq. No.: 00025 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 12:40
Peak Area (A-s): 0.080 Peak Height (A): 0.004
Blank Corrected Pk Height (A): 0.004
Concentration (ug/L): 0.109

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Hg2 ID: 131-59-16A D Seq. No.: 00026 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 12:43
Peak Area (A-s): 0.073 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L): 0.097

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Hg2 ID: 131-59-16C Seq. No.: 00027 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 12:45
Peak Area (A-s): 0.022 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.036

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Hg2 ID: 131-59-16C D Seq. No.: 00028 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 12:46
Peak Area (A-s): 0.017 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.024

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Hg2 ID: 131-59-16D Seq. No.: 00029 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 12:47
Peak Area (A-s): 12.863 Peak Height (A): 0.562
Blank Corrected Pk Height (A): 0.562
Concentration (ug/L): 17.023
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Hg2   ID: 131-59-16D DX4     Seq. No.: 00030    A/S Pos.: --    Date: 08/13/96

Replicate  1                         Time: 12:54
Peak Area (A-s): 3.263               Peak Height (A): 0.143
Blank Corrected Pk Height (A): 0.143
Concentration (ug/L  ): 4.335
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2   ID: 131-59-16D DX4D    Seq. No.: 00031    A/S Pos.: --    Date: 08/13/96

Replicate  1                         Time: 12:55
Peak Area (A-s): 3.287               Peak Height (A): 0.137
Blank Corrected Pk Height (A): 0.137
Concentration (ug/L  ): 4.165
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2   ID: 131-59-16DE        Seq. No.: 00032    A/S Pos.: --    Date: 08/13/96

Replicate  1                         Time: 12:56
Peak Area (A-s): 1.795               Peak Height (A): 0.076
Blank Corrected Pk Height (A): 0.076
Concentration (ug/L  ): 2.298
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2   ID: 131-59-16DE D      Seq. No.: 00033    A/S Pos.: --    Date: 08/13/96

Replicate  1                         Time: 12:56
Peak Area (A-s): 1.749               Peak Height (A): 0.073
Blank Corrected Pk Height (A): 0.073
Concentration (ug/L  ): 2.222
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2   ID: 131-59-20B         Seq. No.: 00034    A/S Pos.: --    Date: 08/13/96

Replicate  1                         Time: 12:58
Peak Area (A-s): 0.040               Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L  ): 0.046
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2   ID: 131-59-20B D       Seq. No.: 00035    A/S Pos.: --    Date: 08/13/96

Replicate  1                         Time: 12:58
Peak Area (A-s): 0.031               Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L  ): 0.036
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2   ID: CCV1=6.0 ug/L      Seq. No.: 00036    A/S Pos.: --    Date: 08/13/96

Replicate  1                         Time: 12:59
Peak Area (A-s): 4.575               Peak Height (A): 0.210
Blank Corrected Pk Height (A): 0.210
Concentration (ug/L  ): 6.365
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2   ID: CCB1               Seq. No.: 00037    A/S Pos.: --    Date: 08/13/96
```

Replicate · Time: 13:00
Peak Area (A-s): 0.018 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.018

ID/Weight File: AB591.IDW
Sample Volume: 100 mL

Analyst: CROKER
Nominal Weight: 1.0 g

Loc.	Sample ID	Weight	Dilution
0	STD BLANK		
1	STD1=0.2 ug/L		
2	STD2=0.5 ug/L		
3	STD3=1.0 ug/L		
4	STD4=2.0 ug/L		
5	STD5=5.0 ug/L		
6	STD6=10.0 ug/L		

```
Element File: HG_.MEL          Element: Hg2                  Wavelength: 253.7
Date: 08/13/96                 Time: 13:07                   Slit: 0.7 L
Data File: AB591.DAT           ID/Wt File: AB591.IDW         Lamp Current: 0
Technique: MHS                 Calib. Type: Linear           Energy: 75
Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6
------------------------------------------------------------------------------
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2   ID: STD BLANK          Seq. No.: 00002    A/S Pos.: --    Date: 08/13/96

Replicate  1                          Time: 13:08
Peak Area (A-s): 0.001                Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000

Auto-zero performed.

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2   ID: STD1=0.2 ug/L      Seq. No.: 00003    A/S Pos.: --    Date: 08/13/96

Replicate  1                          Time: 13:09
Peak Area (A-s): 0.160                Peak Height (A): 0.007
Blank Corrected Pk Height (A): 0.007

Standard number 1 applied.  [0.200]
Correlation coefficient: 1.00000      Slope: 0.0326

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2   ID: STD2=0.5 ug/L      Seq. No.: 00004    A/S Pos.: --    Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate  1                          Time: 13:10
Peak Area (A-s): 0.400                Peak Height (A): 0.018
Blank Corrected Pk Height (A): 0.018
Concentration (ug/L  ): 0.538

Standard number 2 applied.  [0.500]
Correlation coefficient: 0.99801      Slope: 0.0348

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Hg2   ID: STD3=1.0 ug/L      Seq. No.: 00005    A/S Pos.: --    Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate  1                          Time: 13:11
Peak Area (A-s): 0.806                Peak Height (A): 0.036
Blank Corrected Pk Height (A): 0.036
Concentration (ug/L  ): 1.047

Standard number 3 applied.  [1.000]
Correlation coefficient: 0.99902      Slope: 0.0361

------------------------------------------------------------------------------
Hg2   ID: STD4=2.0 ug/L      Seq. No.: 00006    A/S Pos.: --    Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate  1                          Time: 13:12
Peak Area (A-s): 1.594                Peak Height (A): 0.072
Blank Corrected Pk Height (A): 0.072
Concentration (ug/L  ): 1.986
```

Standard number 4 applied. [2.000]
Correlation coefficient: 0.99982   Slope: 0.0359

~~~~~~

Hg2 ID: STD5=5.0 ug/L   Seq. No.: 00007   A/S Pos.: --   Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 13:14
Peak Area (A-s): 3.855   Peak Height (A): 0.171
Blank Corrected Pk Height (A): 0.171
Concentration (ug/L): 4.759

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99962   Slope: 0.0345

~~~~~~

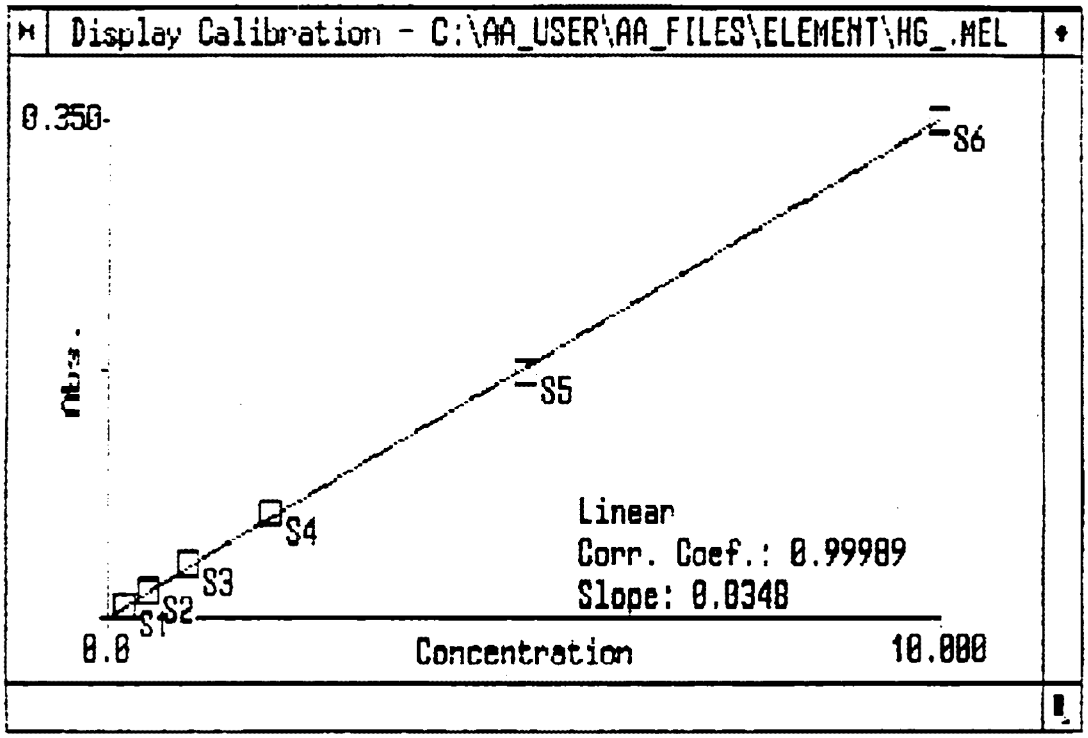
Hg2 ID: STD6=10.0 ug/L   Seq. No.: 00008   A/S Pos.: --   Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 13:15
Peak Area (A-s): 7.737   Peak Height (A): 0.350
Blank Corrected Pk Height (A): 0.350
Concentration (ug/L): 10.142

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99989   Slope: 0.0348

Element File: HG_.MEL	Element: HG2	Wavelength: 253.7
Date: 08/13/96	Time: 13:16	Slit: 0.7 L
Data File: AB591.DAT	ID/Wt File: AB591.IDW	Lamp Current: 0
Technique: MHS	Calib. Type: Linear	Energy: 75

Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6



ID/weight File: AB530.IDW
Sample volume: 100 mL

Analyst: CROKER
Nominal weight: 1.0 g

Loc.	Sample ID	Weight	Dilution
0	STD BLANK		
1	STD1=0.2 ug/L		
2	STD2=0.5 ug/L		
3	STD3=1.0 ug/L		
4	STD4=2.0 ug/L		
5	STD5=5.0 ug/L		
6	STD6=10.0 ug/		
7	ICV=4.0 ug/L		
8	ICB		
9	CHECK LO		
10	38139 MB5		
11	38139 MB5 D		
12	38139 LCS5		
13	38139 LCS5 D		
14	131-59-17A		
15	131-59-17A D		
16	131-59-17B		
17	131-59-17B D		
18	131-59-17D		
19	131-59-17D D		
20	131-59-15C		
21	131-59-15C D		
22	131-59-15C MS		
23	131-59-15C MSD		
24	131-59-17DE		
25	131-59-17DE DX4		
26	131-59-17DEDX4D		
27	131-59-19A		
28	131-59-19A D		
29	131-59-19B		
30	131-59-19B D		
31	131-59-19D		
32	131-59-19D D		
33	131-59-19DE		
34	131-59-19DE D		
35	CCV1=6.0 ug/L		
36	CCB1		

Element File: HG_.MEL   Element: Hg2   Wavelength: 253.7
Date: 08/13/96   Time: 13:22   Slit: 0.7 L
Data File: AB592.DAT   ID/Wt File: AB592.IDW   Lamp Current: 0
Technique: MHS   Calib. Type: Linear   Energy: 75
Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6

Hg2   ID: STD BLANK   Seq. No.: 00002   A/S Pos.: --   Date: 08/13/96

Replicate 1   Time: 13:23
Peak Area (A-s): -0.001   Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000

Auto-zero performed.

Hg2   ID: STD1=0.2 ug/L   Seq. No.: 00003   A/S Pos.: --   Date: 08/13/96

Replicate 1   Time: 13:24
Peak Area (A-s): 0.169   Peak Height (A): 0.008
Blank Corrected Pk Height (A): 0.008

Standard number 1 applied. [0.200]
Correlation coefficient: 1.00000   Slope: 0.0386

Hg2   ID: STD2=0.5 ug/L   Seq. No.: 00004   A/S Pos.: --   Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 13:25
Peak Area (A-s): 0.409   Peak Height (A): 0.018
Blank Corrected Pk Height (A): 0.018
Concentration (ug/L): 0.475

Standard number 2 applied. [0.500]
Correlation coefficient: 0.99898   Slope: 0.0370

Hg2   ID: STD3=1.0 ug/L   Sec. No.: 00005   A/S Pos.: --   Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 13:27
Peak Area (A-s): 0.803   Peak Height (A): 0.036
Blank Corrected Pk Height (A): 0.036
Concentration (ug/L): 0.965

Standard number 3 applied. [1.000]
Correlation coefficient: 0.99943   Slope: 0.0360

Hg2   ID: STD4=2.0 ug/L   Seq. No.: 00006   A/S Pos.: --   Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1   Time: 13:28
Peak Area (A-s): 1.614   Peak Height (A): 0.074
Blank Corrected Pk Height (A): 0.074
Concentration (ug/L): 2.049

Standard number 4 applied. [2.000]
Correlation coefficient: 0.99976 Slope: 0.0367

~~~~~~

Hg2 ID: STD5=5.0 ug/L Seq. No.: 00007 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 13:29
Peak Area (A-s): 3.971 Peak Height (A): 0.183
Blank Corrected Pk Height (A): 0.183
Concentration (ug/L): 4.980

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99997 Slope: 0.0365

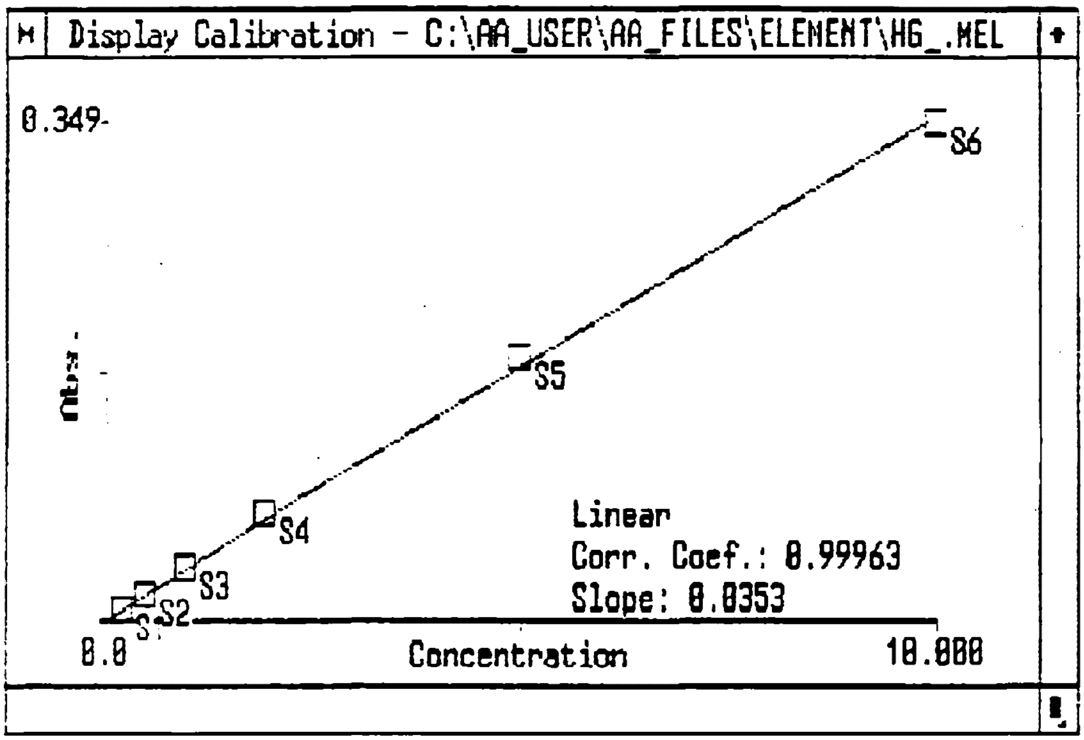
~~~~~~

Hg2 ID: STD6=10.0 ug/L Seq. No.: 00008 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 13:30
Peak Area (A-s): 7.697 Peak Height (A): 0.349
Blank Corrected Pk Height (A): 0.349
Concentration (ug/L): 9.543

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99963 Slope: 0.0353

Element File: HG_.MEL	Element: Hg2	Wavelength: 253.7
Date: 08/13/96	Time: 13:31	Slit: 0.7 L
Data File: AB592.DAT	ID/Wt File: AB592.IDW	Lamp Current: 0
Technique: MHS	Calib. Type: Linear	Energy: 75
Remark 1: STANDARDS= 2-105-5		
Remark 2: QC= 2-105-6		



```
Element File: HG_.MEL         Element: Hg2                Wavelength: 253.7
Date: 08/13/96                Time: 13:32                 Slit: 0.7 L
Data File: AB592.DAT          ID/Wt File: AB592.IDW       Lamp Current: 0
Technique: MHS                Calib. Type: Linear         Energy: 75
Remark 1: STANDARDS= 2-105-5
Remark 2: CC= 2-105-5
```

```
Hg2  ID: ICV=4.0 ug/L      Seq. No.: 00009   A/S Pos.: --   Date: 08/13/96

Replicate 1                           Time: 13:33
Peak Area (A-s): 3.182                Peak Height (A): 0.143
Blank Corrected Pk Height (A): 0.143
Concentration (ug/L ): 4.041
```

```
Hg2  ID: ICB               Seq. No.: 00010   A/S Pos.: --   Date: 08/13/96

Replicate 1                           Time: 13:34
Peak Area (A-s): 0.019                Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.014
```

```
Hg2  ID: CHECK LO          Seq. No.: 00011   A/S Pos.: --   Date: 08/13/96

Replicate 1                           Time: 13:35
Peak Area (A-s): 0.171                Peak Height (A): 0.008
Blank Corrected Pk Height (A): 0.008
Concentration (ug/L ): 0.216
```

```
Hg2  ID: 38139 MB5         Seq. No.: 00012   A/S Pos.: --   Date: 08/13/96

Replicate 1                           Time: 13:36
Peak Area (A-s): 0.021                Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.020
```

```
Hg2  ID: 38139 MB5 D       Seq. No.: 00013   A/S Pos.: --   Date: 08/13/96

Replicate 1                           Time: 13:37
Peak Area (A-s): 0.018                Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.020
```

```
Hg2  ID: 38139 LCS5        Seq. No.: 00014   A/S Pos.: --   Date: 08/13/96

Replicate 1                           Time: 13:38
Peak Area (A-s): 3.969                Peak Height (A): 0.175
Blank Corrected Pk Height (A): 0.175
Concentration (ug/L ): 4.974
```

```
Hg2  ID: 38139 LCS5 D      Seq. No.: 00015   A/S Pos.: --   Date: 08/13/96
```

Replicate 1 Time: 13:39
Peak Area (A-s): 3.859 Peak Height (A): 0.165
Blank Corrected Pk Height (A): 0.165
Concentration (ug/L): 4.681

Hg2 ID: 131-59-17A Seq. No.: 00016 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 13:41
Peak Area (A-s): 0.113 Peak Height (A): 0.005
Blank Corrected Pk Height (A): 0.005
Concentration (ug/L): 0.134

Hg2 ID: 131-59-17A D Seq. No.: 00017 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 13:42
Peak Area (A-s): 0.097 Peak Height (A): 0.004
Blank Corrected Pk Height (A): 0.004
Concentration (ug/L): 0.119

Hg2 ID: 131-59-17B Seq. No.: 00018 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 13:43
Peak Area (A-s): 0.025 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.034

Hg2 ID: 131-59-17B D Seq. No.: 00019 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 13:44
Peak Area (A-s): 0.022 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.023

Hg2 ID: 131-59-17D Seq. No.: 00020 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 13:45
Peak Area (A-s): 6.515 Peak Height (A): 0.282
Blank Corrected Pk Height (A): 0.282
Concentration (ug/L): 8.006

Hg2 ID: 131-59-17D D Seq. No.: 00021 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 13:46
Peak Area (A-s): 6.543 Peak Height (A): 0.287
Blank Corrected Pk Height (A): 0.287
Concentration (ug/L): 8.137

Hg2 ID: 131-59-15C Seq. No.: 00022 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 13:47
Peak Area (A-s): 0.074 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003

Concentration (ug/L): 0.074

~~~~~~

Hg2 ID: 131-59-15C D Seq. No.: 00023 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 13:48
Peak Area (A-s): 0.050 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.046

~~~~~~

Hg2 ID: 131-59-15C MS Seq. No.: 00024 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 13:49
Peak Area (A-s): 2.785 Peak Height (A): 0.115
Blank Corrected Pk Height (A): 0.115
Concentration (ug/L): 3.248

~~~~~~

Hg2 ID: 131-59-15C MSD Seq. No.: 00025 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 13:50
Peak Area (A-s): 2.598 Peak Height (A): 0.111
Blank Corrected Pk Height (A): 0.111
Concentration (ug/L): 3.143

~~~~~~

Hg2 ID: 131-59-17DE Seq. No.: 00026 A/S Pos.: -- Date: 08/13/96

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 13:51
Peak Area (A-s): 13.103 Peak Height (A): 0.543
Blank Corrected Pk Height (A): 0.543
Concentration (ug/L): 15.400

~~~~~~

Hg2 ID: 131-59-17DE DX4 Seq. No.: 00027 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 13:58
Peak Area (A-s): 5.033 Peak Height (A): 0.215
Blank Corrected Pk Height (A): 0.215
Concentration (ug/L): 6.103

~~~~~~

Hg2 ID: 131-59-17DEDX4D Seq. No.: 00028 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 13:59
Peak Area (A-s): 5.066 Peak Height (A): 0.218
Blank Corrected Pk Height (A): 0.218
Concentration (ug/L): 6.169

~~~~~~

Hg2 ID: 131-59-19A Seq. No.: 00029 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 14:00
Peak Area (A-s): 0.054 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.054
~~~~~~

Hg2 ID: 131-59-19A D Seq. No.: 00030 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 14:01
Peak Area (A-s): 0.042 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.043

Hg2 ID: 131-59-19B Seq. No.: 00031 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 14:03
Peak Area (A-s): 0.021 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.017

Hg2 ID: 131-59-19B D Seq. No.: 00032 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 14:04
Peak Area (A-s): 0.02[illegible] Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.028

Hg2 ID: 131-59-19D Seq. No.: 00033 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 14:05
Peak Area (A-s): 0.039 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.043

Hg2 ID: 131-59-19D D Seq. No.: 00034 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 14:05
Peak Area (A-s): 0.039 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.051

Hg2 ID: 131-59-19DE Seq. No.: 00035 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 14:06
Peak Area (A-s): 0.129 Peak Height (A): 0.005
Blank Corrected Pk Height (A): 0.005
Concentration (ug/L): 0.145

Hg2 ID: 131-59-19DE D Seq. No.: 00036 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 14:07
Peak Area (A-s): 0.122 Peak Height (A): 0.005
Blank Corrected Pk Height (A): 0.005
Concentration (ug/L): 0.139

Hg2 ID: CCV1=5.0 ug/L Seq. No.: 00037 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 14:09
Peak Area (A-s): 4.733 Peak Height (A): 0.212
Blank Corrected Pk Height (A): 0.212
Concentration (ug/L): 6.018

~~~~~~

Hg2 ID: CCB1 Seq. No.: 00038 A/S Pos.: -- Date: 08/13/95

Replicate 1 Time: 14:10
Peak Area (A-s): 0.015 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.017
~~~~~~

Appendix B

Field Data

B-1	Jerome Analyzer Field Data
B-2	M-29 Field Data Sheets
B-3	Moisture Recovery Sheets
B-4	Meter Calibration Data sheet
B-5	Traverse Point Location and K Factor Calculation
B-6	Header and Sales Gas Flow Rates

Appendix B

Field Data

B-1 **Jerome Analyzer Field Data**

[illegible]

— — .170 1st Cal.

— .184 2nd Cal.

7/16/96

.283 N.H.
.214
.168
.158
.144
.139 → instrument saturated Regen performed

After Regen zero cal. to 0.000
Sampled room air / w scrubber = 0.000
Cal check = 0.181 at 24° C

Run 1

System Syringe = 0.000 0-25%
N. Hook = .475
Several Blk samples to get to 0.000 25-50%
S. H. = 0.258
Blk = 0.000 now 50-75% sat
S.H. = 0.204
Regen → Cal v = 0.180
Blk = 0.00
N.H. = 0.854
S.H. = 0.295 50-75% sat.
S.H. = 0.295

7/16/96

13:55 Plant's 1 & 2 engines tripped at — Header sampling stopped

2 Header Runs completed

Plant back up in ≈ 5 min. Analyzed Run 2 N+S bags in Room

left plant at 8:30 pm completed at 12:30 AM on 7/17/96

Run 2

7/16/96

Regen
Blk = 0.00
Calv = 0.137 @ 24°C
Blk = 0.000 50-753 Set
N.H = 0.898
Bk = 0.00 753-120 Set
S.H = .338
Regen
Blk = 0.000 50-753 Set
S.H = 0.859
Regen
Blk = 0.000
S.H = over range
Regen
Blk = 0.00
N.H = over range

10:30 PM Regen

7/17/96

Regen
Regen
Cal. 1 3. .3 @ 13°C

7/17/96

Arrived at plant 07:55

Leak check for Header Run 3 completed at 09:15 + holding while Solids gas is set up for Run 1 — Solids gas Run 1 & 2 & Header Run 3 + Header FBlk completed. [illegible] H.F.Blk taken to Location. Leak check + allow to set for 3:50 min — leak checked — recovered

left plant at 07:30

Setup ignition for testing, prepared probes etc., cleaned parts

N + S Header Teflon line recovered by plant + rinsed with 100 ml 0.1 N HNO3

Blk = 0.000

Run 1 S.H = Over Range

Regen

per EPA — replaced internal c/s [illegible] scrubber — 7/17/96

Regen

Blk = 0.000

Cal ✓ = 0.167 at 21°C

Blk = 0.000

Inj #1 Solids Run #1 = 0.000

Inj #2 " = 0.000

Inj 3 " = 0.000

Inj 1 Solids Run #2 = 0.000

2 " 0.000

3 " 0.000

Cal ✓ 0.186 @ 23°C

7/18/96 Thursday

DH - John arrived at 07:15 others at 07:45

Sol Gas Run 3 started at ≈ 09:30
Preliminary stack traverse performed jointly by TRG + ERG

Jerome Reagan
BK = 0.000
Cal ✓ = 0.140 at 19°C
inj 1 Sol Run # 3 BK = 0.002
2 " 3 0.000
3 " 3 0.000
0.000
BK = 0.000
Cal ✓ = 0.214 at 24°C
BK = 0.000

with replacement scrubber

Thursday 17:18

ig1	N Rm 3	0,000
ig2	"	0,000

~~S Rm 3~~

cal V	.170
Blk =	0,003
S Rm 3 =	0,000
S Rm 2 =	0,012
Blk =	0,000
N Rm 1 =	.011
~~S Rm~~	
V cal	.177

Bag holder has problem

Arizona Instrument

Certificate of Instrument Calibration

Calibration Status as Received (Check One):

☐NEW ☐IN Calibration ☐OUT of Calibration (Data Attached)

☐Non-functional - Unable to Verify

This is to certify that the JEROME 431-X GOLD FILM MERCURY ANALYZER, Serial Number 1061, was factory calibrated to units traceable to NIST.

I have inspected this instrument's operation, calibration and appearance and approve it for meeting all factory specifications.

As long as a functional test is within range, according to the procedure outlined in the Operator's Manual, the instrument is performing correctly.

Factory recalibration is recommended every twelve months.

Inspected By: Michael F. Marchand

Date: 6-5-96

Arizona Instruments certifies that the above listed instrument meets or exceeds all published specifications and has been calibrated using standards whose accuracy are traceable to the National Institute of Standards Technology within the limitations of the Institute's calibration services, or have been derived from accepted values of natural physical constants, or have been derived by the ratio type of self-calibration techniques. Arizona Instrument has reviewed MIL STD 45662A and believes to comply.

DISCLAIMER: Any unauthorized adjustments, removal or breaking of QC seals, or other customer modifications on your Jerome Analyzer WILL VOID this factory calibration certificate. Because any of the above acts could affect the calibration and readings of the instrument, this certificate will no longer be valid and, further, Arizona Instrument Corporation will NOT be responsible for any liabilities created as a result of using the instrument after such adjustments, seal removal, or modifications.

Specific adjustments detailed in the User's Manual may be performed according to the directions, and within the limits, set by the manual. Factory calibrations are recommended at least yearly.

4114 East Wood Street
Phoenix, Arizona 85040
(602) 470-1414, (800) 528-7411

CONTROLLED DOCUMENT AUG 28 1995 AZI

Appendix B

Field Data

B-2 **M-29 Field Data Sheets**

Eastern Research Group, Inc.

FIELD DATA

Plant	AIR PRODUCTS	Probe Length and Type	5' QUARTZ	Height of Location (ft)	15'
Date	7/18/96	Nozzle ID (in.)	.265	Duct Dimensions (in)	49"
Sampling Location	INCINERATOR	Meter Box Number	A-39	Filter Number	FK03F
Sample Type	M-29	Meter ΔH@	1.761	Assumed Moisture (%)	13%
Run Number	1	Yd	0.988	O2 (%)	16%
Operator	MWH	K Factor	1.49	CO2 (%)	16%
Ambient Temperature (°F)	95° F	Probe Heater Setting (°F)	250°	O2/CO2 Method	FRYERITE
Barometric Pressure (in)	30.16	Heater Box Setting (°F)	250°	Moisture Collected (g)	249.9
Static Pressure (in H2O)	-1.0	Initial Leak Check	.008@12"	Final Leak Check	.008@12"

Diagram of Duct

Read and Record All Data Every ____ Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	0	09:55	375.400									
B-1	7.5	10:02.5	380.0	.74	1.10	993	–	262	98	91	66°	1"
B-2	15.0	10:10	386.7	1.6	2.68	966	–	274	114	91	54°	2.3"
B-3	22.5	10:17.5	399.4	2.2	3.28	987	–	274	118	94	50°	3.0
B-4	30.0	10:25	406.8	2.0	2.98	987	–	275	121	98	56°	2.9
B-5	37.5	10:37.5	412.5	1.5	2.24	988	–	274	119	99	60	2.4
B-6	45.0	10:40	419.1	2.1	3.1	979	–	261	119	98	55	3.2
B-7	52.5	10:47.5	422.4	.29	.44	978	–	257	118	99	53	2.0
B-8	60	10:55	424.9	.45	.67	982	–	251	110	99	60	2.2
B-9	67.5	11:02.5	427.5	.52	.77	987	–	253	112	98	57	2.5
B-10	75	11:10	431.2	.52	.77	981	–	255	112	98	54	2.5
B-11	82.5	11:17.5	434.7	.42	.63	978	–	261	114	99	56	2.5
B-12	90	11:25	436.546	.13	.19	980	–	261	110	98	51	1.0
				leak	check	.005 @ 10"						
	90	11:50	436.735									
A-1	97.5	11:57.5	446.2	3.5	5.21	995	–	239	96	96	[illegible]	4.5
A-2	105	12:05	456.0	3.9	5.8	987	–	250	123	98	58	5.1
A-3	112.5	12:12.5	464.9	3.1	4.62	989	–	255	119	100	65	4.7
A-4	120	12:20	472.7	2.3	3.42	984	–	261	115	101	50	3.9
A-5 STOP	127.5	12:27.5	480.157	1.8	2.68	991	–	259	115	101	48	3.2
A-6 START	~~135~~	12:35	481.375	~~0.12~~	~~0.18~~	~~975~~	–	~~149~~	~~111~~	~~98~~	~~97~~	~~1.0~~
A-7	142.5	12:42.5	483.60	0.12	0.18	975	–	149	111	98	87	1.0
A-8	150	13:30	483.687	-0.06	–	987	–	225	100	94	54	–
A-9	157.5	13:37.5	483.687	-0.24	–	985	–	225	98	97	74	–
A-10	165	13:45	483.687	-0.23	–	983	–	250	97	98	78	–
A-11	172.5	13:52.5	483.687	-0.23	–	987	–	250	98	97	82	–
A-12	180	~~13:50~~	483.687	-0.23	–	982	–	250	98	97	82	–

Comments: 14:00

Eastern Research Group, Inc.

Plant	AIRPROD.	Location	INCINERATOR	Run Number	1
Date	7/18/96	Sample Type	M-29	Operator	MWH

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	172.5	14:20	483.687									
A-12	180	14:27.5	483.687	-0.23	—	985	—	250	99	98	74	—

Comments:

ERG
Eastern Research Group, Inc.

FIELD DATA

Run 2

Page 1 of 1

Plant	AIR PRODUCTS	Probe Length and Type	5' QUARTZ	Height of Location (ft)	15'
Date	7/18/96	Nozzle ID (in.)	.265	Duct Dimensions (in)	49" DIA
Sampling Location	INCINERATOR	Meter Box Number	A-39	Filter Number	FK14F
Sample Type	M-29	Meter ΔH@	1.761	Assumed Moisture (%)	13.5
Run Number	2	Yd	0.988	O2 (%)	15
Operator	MWH	K Factor	1.49	CO2 (%)	16
Ambient Temperature (°F)	95°	Probe Heater Setting (°F)	—	O2/CO2 Method	FRYERITE
Barometric Pressure (in)	30.07	Heater Box Setting (°F)	250°	Moisture Collected (g)	
Static Pressure (in H2O)	+1.0	Initial Leak Check	.008 @ 10" .016 @ 15"	Final Leak Check	.008 @ 10"

Diagram of Duct

Read and Record All Data Every Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	0	15:15	484.687									
A-1	7.5	15:22.5	484.687	-.18	—	988	—	125	96	95	94	—
2	15	15:30	484.687	-.28	—	984	—	142	96	95	93	—
3	22.5	15:37.5	484.7	-.18	—	986	—	193	96	95	93	—
4	30	15:45	484.7	-.22	—	989	—	218	96	95	93	—
5	37.5	15:52.5	484.7	-.04	—	981	—	234	96	95	91	—
6	45	16:00	487.5	+.12	.18	983	—	244	96	95	77	1.0
7	52.5	16:07.5	493.0	1.6	2.5	999	—	246	105	94	59	3.4
8	60	16:15	500.2	2.3	3.6	987	—	256	107	94	49	4.8
9	67.5	16:22.5	508.1	2.6	4.1	997	—	267	107	94	46	5.3
10	75	16:30	517.3	3.1	4.8	991	—	260	108	95	50	6.7
11	82.5	16:37.5	527.6	3.7	5.8	985	—	257	108	95	50	7.4
12	90	16:45	537.027	4.1	6.4	984	—	260	106	95	54	9.1
	90	17:00	537.192									
B-1	97.5	17:07.5	540.8	.36	.56	986	—	240	91	91	84	1.0
2	105	17:15	544.6	.45	.70	986	—	237	100	91	66	2.0
3	112.5	17:22.5	547.35	.47	.73	986	—	240	100	91	59	2.7
4	120	17:30	551.8	.53	.83	989	—	235	100	91	57	2.9
5	127.5	17:37.5	555.4	.45	.70	990	—	236	100	91	57	2.9
6	135	17:45	559.5	.56	.87	988	—	233	99	91	56	3.0
7		17:52.5	564.1	.96	1.50	983	—	243	99	91	56	3.0
8	150	18:00	570.1	1.5	2.34	983	—	251	102	91	55	4.0
9		18:07.5	578.3	2.1	3.3	985	—	257	100	91	57	5.0
10	165	18:15	585.5	2.1	3.3	983	—	247	100	92	60	5.0
11		18:22.5	593.1	1.8	2.6	981	—	259	99	91	63	5.0
12	180	18:30	598.149	.77	1.2	981	—	249	101	91	66	3.1

Comments:

ERG
Eastern Research Group, Inc.

Plant		Location		Run Number	
Date		Sample Type		Operator	

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft^3)	Velocity Head ΔP (in H_2O)	Orifice Pressure Differential ΔH (in H_2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)

Comments:

ERG
Eastern Research Group, Inc.

FIELD DATA

Plant	[illegible] PRODUCTS	Probe Length and Type	5' QUARTZ	Height of Location (ft)	15'
Date	7/19/96	Nozzle ID (in.)	.265	Duct Dimensions (in)	49"
Sampling Location	Incinerator	Meter Box Number	A-39	Filter Number	
Sample Type	M-29	Meter ΔH@	1.761	Assumed Moisture (%)	10%
Run Number	3	Yd	0.988	O2 (%)	16
Operator	MWH	K Factor	1.51	CO2 (%)	16
Ambient Temperature (°F)	75°	Probe Heater Setting (°F)	—	O2/CO2 Method	Fyrite
Barometric Pressure (in) 100?		Heater Box Setting (°F)	250	Moisture Collected (g)	
Static Pressure (in H2O)	-1.0	Initial Leak Check	.005@8"	Final Leak Check	.015@12"

Diagram of Duct

Read and Record All Data Every ____ Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	0	08:45	599.773									
B-1	7.5	52.5	602.7	.32	.50	977	—	250	77	76	68	1.0
2	15	9:00	606.1	.45	.70	968	—	240	89	77	64	1.0
3	22.5	9:07.5	609.8	.45	.70	967	—	250	94	78	58	1.0
4	30	9:15	[illegible]	.52	.81	975	—	248	96	79	57	1.0
5	37.5	9:22.5	[illegible]	.45	.70	977	—	239	98	80	55	1.0
6	45	9:30	621.1	.45	.70	975	—	23[illegible]	99	81	56	1.0
7		9:37.5	626.0	1.1	1.72	975	—	231	101	82	56	2.0
8	60	9:45	632.5	1.4	2.2	985	—	248	103	83	56	2.4
9		9:52.5	639.0	2.1	3.2	968	—	255	109	84	59	3.0
10	75	10:00	646.8	2.1	3.2	946	—	256	108	84	59	3.0
11		10:07.5	652.0	1.1	1.7	950	—	266	107	85	62	3.0
12	90	10:15	658.710	1.7	2.65	950	—	230	108	85	62	3.0
	90	10:30	658.966									
A-1	97.5	10:37.5	658.966	-0.32	—	960	—	229	81	80	72	—
2	105	10:45	658.966	-0.37	—	965	—	227	80	79	72	—
3	112.5	10:52.5	658.966	-0.41	—	964	—	238	80	79	74	—
4	120	11:00	658.966	-0.27	—	965	—	253	81	80	77	—
5	127.5	11:07.5	658.966	-0.27	—	972	—	267	81	80	81	—
6	135	11:15	658.966	-0.04	—	972	—	263	81	80	80	—
7	142.5	11:22.5	664.8	1.5	2.34	987	—	266	92	81	58	2.8
8	150	11:30	672.3	2.3	3.6	988	—	270	100	81	45	4.0
9	157.5	11:37.5	681.0	2.8	4.37	981	—	253	102	83	48	4.3
10	165	11:45	690.0	3.4	5.30	980	—	253	101	84	50	5.1
11	172.5	11:52.5	701.1	4.2	6.55	980	—	257	102	85	53	6.2
12	180	12:00	711.200	4.2	6.55	978	—	256	101	86	58	6.5

Comments:

ERG
Eastern Research Group, Inc.

Plant		Location		Run Number	
Date		Sample Type		Operator	

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft^3)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)

Comments:

[illegible]RG
[illegible]tern Research Group, Inc.

FIELD DATA

Plant	Fuel [illegible]	Probe Length and Type		Height of Location (ft)	
Date	7-11-96	Nozzle ID (in.)		Duct Dimensions (in)	
Sampling Location	Sales GAS	Meter Box Number	A-37	Filter Number	
Sample Type	Metals	Meter ΔH@		Assumed Moisture (%)	
Run Number		Yd		O2 (%)	
Operator	MKD	K Factor		CO2 (%)	
Ambient Temperature (°F)	79 °F	Probe Heater Setting (°F)		O2/CO2 Method	
Barometric Pressure (in)	~~[illegible]~~ 30.01	Heater Box Setting (°F)		Moisture Collected (g)	
Static Pressure (in H2O)		Initial Leak Check	0.001 @ 7" of H2O	Final Leak Check	

Diagram of Duct

Bag Time 10:50 start end

Read and Record All Data Every 5 Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	0	1050	328.60									
EPC	5	1055	335.40		3.0				80	80	66	10"
	10	1100	339.63		2.1				80	80	62	10"
	15	1105	344.84		2.0				80	80	62	10"
	20	11:10	349.95		2.0				80	80	60	10"
	25	11:15	355.15		2.0				82	82	57	12"
	30	11:20	360.15		2.0				83	83	57	13"
	35	11:25	365.41		2.0				82	82	56	15"
	40	11:30	370.51		2.0				82	82	57	15"
	45	11:35	375.20		2.0				83	83	57	16"
	50	11:40	380.99		2.0				83	83	57	17"
	55	11:45	386.09		2.0				83	83	57	18"
	60	11:50	391.10		2.0				83	83	57	18"
	65	11:55	396.31		2.0				84	84	57	18"
	70	12:00	401.38		2.0				84	84	57	19"
	75	12:05	406.39		2.0				84	84	58	20"
	80	12:10	411.42		2.0				84	84	56	20"
	85	12:15	416.45		2.0				84	84	56	20"
	90	12:20	421.49		1.8				84	84	55	20"
	95	12:25	426.56		1.8				85	85	54	20"
	100	12:30	431.62		1.8				85	85	53	20"
	105	12:35	436.60		1.8				85	85	54	20"
	110	12:40	441.77		1.8				85	85	54	20"
	115	12:45	446.65		1.8				85	85	55	20"
	120	12:50	451.89		1.8				85	85	56	20"
	125	12:55	457.17		1.8				85	85	56	20"
	130	13:00	462.02		1.8				86	86	57	20"

Comments:

ERG
Eastern Research Group, Inc

Plant		Location		Run Number	
Date		Sample Type		Operator	

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head Δ P (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature		Impinger Exit (°F)	Pump Vacuum (in. Hg)
									Inlet (°F)	Outlet (°F)		

Comments:

Eastern Research Group, Inc

FIELD DATA

Plant	Fresh Kills	Probe Length and Type		Height of Location (ft)		
Date	7-17-96	Nozzle ID (in.)		Duct Dimensions (in)		
Sampling Location	Sales gas	Meter Box Number	A 37	Filter Number		
Sample Type	Metals	Meter ΔH@		Assumed Moisture (%)		
Run Number	2	Yd		O2 (%)		
Operator	D.G.	K Factor		CO2 (%)		
Ambient Temperature (°F)	85°	Probe Heater Setting (°F)		O2/CO2 Method		
Barometric Pressure (in)	30.01	Heater Box Setting (°F)		Moisture Collected (g)		
Static Pressure (in H2O)		Initial Leak Check		Final Leak Check		

5 @ 18" of H2O

Read and Record All Data Every ____ Minutes

Diagram of Duct

Bag Time start 15:15

Bag end

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	0	15:15	513.13									
S/P	5	15:20	518.38		1.8				88	88	60	20"
	10	15:25	523.48		1.8				89	89	60	20"
	15	15:30	528.58		1.8				90	90	59	20"
	20	15:35	533.65		1.8				90	90	59	20"
	25	15:40	538.75		1.8				90	90	58	20"
	30	15:45	543.84		1.8				90	90	58	20"
	35	15:50	548.94		1.8				90	90	58	20"
	40	15:55	554.05		1.8				90	90	58	20"
	45	16:00	559.25		1.8				90	90	57	20"
	50	16:05	564.25		1.8				90	90	54	20"
	55	16:10	569.05		1.8				90	90	53	20"
	60	16:15	574.45		1.8				90	90	54	20"
	65	16:20	579.60		1.8				90	90	55	20"
	70	16:25	585.61		1.8				90	90	55	20"
	75	16:30	589.65		1.8				90	90	56	20"
	80	16:35	594.05		1.8				90	90	56	20"
	85	16:40	600.15		1.8				90	90	55	20"
	90	16:45	605.31		1.8				90	90	54	20"
	95	16:50	610.35		1.8				90	90	54	20"
	100	16:55	615.68		1.8				91	91	53	20"
	105	17:00	620.08		1.8				91	91	53	20"
	110	17:05	625.08		1.8				91	91	54	20"
	115	17:10	631.23		1.8				91	91	54	20"
	120	17:15	636.55		1.8				91	91	54	20"
	125	17:20	641.65		1.8				91	91	54	20"
	130	17:25	646.85		1.8				91	91	54	20"

Comments:

ERG

Eastern Research Group, Inc.

Plant		Location		Run Number	
Date		Sample Type		Operator	

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head Δ P (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)

Comments:

ERG
Eastern Research Group, Inc

FIELD DATA

Plant	Fresh Kills	Probe Length and Type		Height of Location (ft)		
Date	7-17-96	Nozzle ID (in.)		Duct Dimensions (in)		
Sampling Location	Sales gas	Meter Box Number	A-37	Filter Number		
Sample Type	Metals	Meter ΔH@		Assumed Moisture (%)		
Run Number	2	Yd		O2 (%)		
Operator	D.H.	K Factor		CO2 (%)		
Ambient Temperature (°F)	85	Probe Heater Setting (°F)		O2/CO2 Method		
Barometric Pressure (in)	30.01	Heater Box Setting (°F)		Moisture Collected (g)		
Static Pressure (in H2O)		Initial Leak Check	5" @ 20" H2O	Final Leak Check		

Diagram of Duct

Read and Record All Data Every ____ Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
S/P	135	17:30	651.06		1.8				91	91	54	20"
	140	17:35	657.36		1.8				91	91	55	20"
	145	17:40	662.03		1.8				91	91	55	20"
	150	17:45	667.61		1.8				91	91	54	20"
	155	17:50	672.88		1.8				91	91	54	20"
	160	17:55	678.01		1.8				92	92	53	20"
	165	18:00	683.21		1.8				92	92	54	20"
	170	18:05	689.00		1.8				92	92	54	20"
	175	18:10	693.55		1.8				92	92	54	20"
	180	18:15	698.73		1.8				92	92	54	20"
	~~185~~	~~18:2~~										
	~~190~~											
			195.66									

Comments:

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Plant		Location		Run Number	
Date		Sample Type		Operator	

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft^3)	Velocity Head ΔP (in H_2O)	Orifice Pressure Differential ΔH (in H_2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)

Comments:

ERG

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FIELD DATA

Plant	Fresh Kills	Probe Length and Type		Height of Location (ft)	
Date	7-18-96	Nozzle ID (in.)		Duct Dimensions (in)	
Sampling Location	Sales gas	Meter Box Number	A-37	Filter Number	
Sample Type	Metals	Meter ΔH@		Assumed Moisture (%)	
Run Number	3	Yd		O2 (%)	
Operator	D.W.	K Factor		CO2 (%)	
Ambient Temperature (°F)	78	Probe Heater Setting (°F)		O2/CO2 Method	
Barometric Pressure (in)	30.01	Heater Box Setting (°F)		Moisture Collected (g)	
Static Pressure (in H2O)		Initial Leak Check	5@20"	Final Leak Check	

Diagram of Duct

Read and Record All Data Every ____ Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	0	9:30	698.91									
S/P	5	9:35	704.01		1.8				77	77	50	20"
	10	9:40	709.98		1.8				77	77	50	20"
	15	9:45	715.10		1.8				77	77	50	20"
	20	9:50	720.17		1.8				77	77	51	20"
	25	9:55	725.19		1.8				77	77	52	20"
	30	10:00	730.54		1.8				78	78	54	20"
	35	10:05	735.20		1.8				78	78	54	20"
	40	10:10	740.31		1.8				78	78	55	20"
	45	10:15	745.42		1.8				78	78	55	20"
	50	10:20	750.57		1.8				79	79	54	20"
	55	10:25	755.67		1.8				79	79	55	20"
	60	10:30	760.79		1.8				79	79	55	20"
	65	10:35	765.88		1.8				79	79	56	20"
	70	10:40	771.07		1.8				80	80	57	20"
	75	10:45	776.11		1.8				80	80	57	20"
	80	10:50	781.65		1.8				80	80	57	20"
	85	10:55	787.05		1.8				80	80	57	20"
	90	11:00	791.65		1.8				80	80	56	20"
	95	11:05	797.05		1.8				80	80	52	20"
	100	11:10	802.15		1.8				80	80	50	20"
	105	11:15	807.34		1.8				80	80	50	20"
	110	11:20	812.45		1.8				81	81	50	20"
	115	11:25	817.25		1.8				82	82	50	20"
	120	11:30	822.99		1.8				82	82	50	20"
	125	11:35	828.13		1.8				83	83	50	20"
	130	11:40	833.31		1.8				83	83	50	20"

Comments:

ERG

Eastern Research Group, Inc.

Plant		Location		Run Number	
Date		Sample Type		Operator	

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)

Comments:

ERG
Eastern Research Group, Inc.

FIELD DATA

Plant	Fresh Kills	Probe Length and Type		Height of Location (ft)		
Date	7-18-96	Nozzle ID (in.)		Duct Dimensions (in)		
Sampling Location	Sales gas	Meter Box Number	A-37	Filter Number		
Sample Type	Metals	Meter ΔH@		Assumed Moisture (%)		
Run Number	3	Yd		O2 (%)		
Operator	DH.	K Factor		CO2 (%)		
Ambient Temperature (°F)	90	Probe Heater Setting (°F)		O2/CO2 Method		
Barometric Pressure (in)	30.01	Heater Box Setting (°F)		Moisture Collected (g)		
Static Pressure (in H2O)		Initial Leak Check		Final Leak Check. 50 @ 20"		

Diagram of Duct

Read and Record All Data Every Minutes

Bag stop 12:30

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
S/P	135	11:45	838.48		1.8				84	84	50	20"
	140	11:50	843.64		1.8				84	84	50	20"
	145	11:55	848.78		1.8				84	84	50	20"
	150	12:00	853.89		1.8				85	85	50	20"
	155	12:05	858.99		1.8				85	85	50	20"
	160	12:10	864.17		1.8				85	85	50	20"
	165	12:15	869.32		1.8				85	85	50	20"
	170	12:20	874.48		1.8				85	85	50	20"
	175	12:25	879.64		1.8				86	86	50	20"
	180	12:30	884.89		1.8				86	86	50	20"
			185.98									

Comments:

ERG 884 Sull
Eastern Research Group, Inc.

Plant		Location		Run Number	
Date		Sample Type		Operator	

1:30

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft^3)	Velocity Head ΔP (in H_2O)	Orifice Pressure Differential ΔH (in H_2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)

Comments:

ERG
Eastern Research Group, Inc

FIELD DATA

Run ____
Page 1 of 1

Plant	Fresh Kills	Probe Length and Type		Height of Location (ft)	
Date	7-18-96	Nozzle ID (in.)		Duct Dimensions (in)	
Sampling Location	Sales gas	Meter Box Number	A-37	Filter Number	
Sample Type		Meter ΔH@		Assumed Moisture (%)	
Run Number	~~Fld~~ BLANK	Yd		O2 (%)	
Operator	D. Harris	K Factor		CO2 (%)	
Ambient Temperature (°F)	85°	Probe Heater Setting (°F)		O2/CO2 Method	
Barometric Pressure (in)	30.01	Heater Box Setting (°F)		Moisture Collected (g)	
Static Pressure (in H2O)		Initial Leak Check		Final Leak Check	

Diagram of Duct

Read and Record All Data Every ____ Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	0	13:30	884.17									
S/P	30	16:30										
	60											
	90											
	120											
	150											
	180	~~16:30~~										

Comments:

ERG
Eastern Research Group, Inc

Plant		Location		Run Number	
Date		Sample Type		Operator	

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head Δ P (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)

Comments:

ERG
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FIELD DATA

North

Run 1

Page 1 of

...e	Ford RAS	Probe Length and Type		Height of Location (ft)	
...ate	9-16-96	Nozzle ID (in.)		Duct Dimensions (in)	
...mpling Location	Headers	Meter Box Number	A 38-AN	Filter Number	
Sample Type	Metals	Meter ΔH@	1.850	Assumed Moisture (%)	
Run Number	1	Yd	.999	O2 (%) 10.16	<.05
Operator	MKO	K Factor		CO2 (%)	
Ambient Temperature (°F)		Probe Heater Setting (°F)		O2/CO2 Method	
Barometric Pressure (in)	29.98	Heater Box Setting (°F)		Moisture Collected (g)	
Static Pressure (in H2O)		Initial Leak Check	0.003 at 28"	Final Leak Check	0.010 at 28"

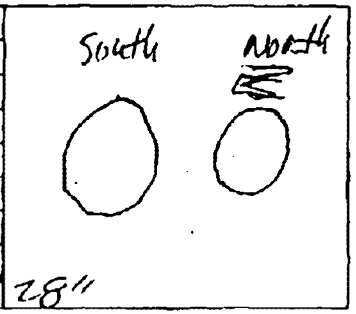

Diagram of Duct

Read and Record All Data Every _____ Minutes

Traverse Point Number	Sampling Time 0 (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	~~0945~~	0945	435.75									
5 pt	5	0950	437.76	N/A	.28	N/A	N/A	N/A	80	83	60	28"
	10	0955	439.18		.28				85	85	67	25
	15	1000	440.86		.28				86	85	67	25"
	20	1005	442.37		.28				85	85	56	25"
	25	1010	443.88		.28				85	85	56	25"
	30	1015	445.46		.28				88	86	57	25"
	35	1020	447.0		.26				88	87	56	25"
	40	1025	450.18		.28				88	87	57	25"
	45	1030	451.82		.28				88	87	60	25"
	50	1035	452.15		.26				88	87	55	25"
	55	1040	453.35		.26				88	87	55	25"
	60	1045	454.95		.27				89	87	54	25
	65	1050	456.3		.27				89	87	55	25"
	70	1055	458.02		.27				90	87	56	25"
	75	1100	459.63		.27				91	87	56	25"
	80	1105	461.17		.27				91	87	57	25
	85	1110	462.75		.27				91	88	57	25
	90	1115	464.41		.27				91	88	57	25
	95	1120	465.94		.27				91	88	57	25
	100	1125	467.45		.27				91	88	57	25
	105	1130	468.98		.27				91	88	56	25
	110	1135	470.43		.27				91	88	57	25
	115	1140	471.95		.27				91	88	57	25
	120	1145	473.63		.27				91	88	53	25
	125	1150	475.10		.27				90	89	55	25
	130	1155	476.63		.27				91	90	60	25

Comments:

Eastern Research Group, Inc.

Plant	[illegible]	Location	Header	[illegible]	Run Number	1
Date	7-16-96	Sample Type	M.	Metals	Operator	[illegible]

N

7069

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	130	1155	476.63									
5 pt	135	1200	478.27	N/A	.27	N/A	N/A	N/A	92	89	56	25
	140	1205	479.76		.27				92	90	57	25
	145	1210	481.80		.28				92	90	58	25
	150	1215	482.76		.28				93	90	59	25
	155	1220	484.47		.27				93	90	54	25
	160	1225	485.97		.28				93	90	53	25
	165	1230	487.21		.28				93	90	54	25
	170	1235	488.35		.27				94	90	55	25
	175	1240	490.73		.27				94	90	56	25
	180	1245	492.05		.27				94	90	54	25
	185	1250	493.62		.27				94	91	54	25
	190	1255	495.37		.27				94	90	55	25
	195	1300	496.63		.27				93	90	56	25
	200	1305	498.28		.26				92	90	57	25
	205	1310	499.72		.27				93	90	57	25
	210	1315	501.33		.28				93	92	57	25
	215	1320	502.83		.27				93	92	57	24
	220	1325	504.44		.28				93	91	56	24
	225	1330	505.95		.28				93	91	58	25
	230	1335	506.69		.28				95	90	59	25
	~~235~~	~~1340~~										
	~~240~~	~~1345~~										
			70.69									

Comments: 12:05 Fyrite O_2 less than .05 %

Eastern Research Group, Inc.

FIELD DATA

Run 2

Page 1 of

Plant	Fresh Kills	Probe Length and Type		Height of Location (ft)	
Date	9-16-96	Nozzle ID (in.)		Duct Dimensions (in)	
Sampling Location	N. Header	Meter Box Number	A 38-[illegible]	Filter Number	
Sample Type	Metals	Meter ΔH@	1.850	Assumed Moisture (%)	
Run Number	2	Yd	.994	O2 (%)	
Operator	MKO	K Factor		CO2 (%)	
Ambient Temperature (°F)	~~[illegible]~~ 94	Probe Heater Setting (°F)		O2/CO2 Method	
Barometric Pressure (in)	29.98	Heater Box Setting (°F)		Moisture Collected (g)	
Static Pressure (in H2O)		Initial Leak Check	0.014 at 18"	Final Leak Check	0.069 at 18"

North

Diagram of Duct

Read and Record All Data Every 5 Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	0	1525	508.255									
5 pt	5	1530	510.33		.28				106	101	68	25
	10	1535	511.85		.29				106	101	59	25
	15	1540	513.57		.29				106	101	58	25
	20	1545	515.15		.29				107	101	60	25
	25	1550	516.76		.29				107	101	68	25
	30	1555	518.58		.29				107	101	64	25
	35	1600	520.15		.29				108	102	65	25
	40	1605	521.63		.29				107	106	61	25
	45	1610	523.25		.29				107	106	61	25
	50	1615	525.07		.29				107	104	60	25
	55	1620	527.60		.30				108	104	61	25
	60	1625	528.14		.30				108	104	61	25
	65	1630	529.87		.29				108	105	62	25
	70	1635	531.51		.29				108	105	59	25
	75	1640	533.06		.29				108	105	66	25
	80	1645	534.63		.29				108	106	658	25
	85	1650	536.22		.30				108	106	58	25
	90	1655	537.86		.29				108	105	58	25
	95	1700	539.53		.29				108	105	59	25
	100	1705	541.24		.29				108	105	59	25
	105	1710	543.23		.29				108	105	58	25
	110	1715	544.32		.29				106	103	58	25
	115	1720	545.95		.29				103	101	53	25
	120	1725	547.72		.29				103	100	53	25
	125	1730	549.15		.29				103	99	54	25
	130	1735	550.65		.29				102	99	54	25

Comments:

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Eastern Research Group, Inc.

Plant	Fresh Kills	Location	Header	Run Number	2
Date	7-16-96	Sample Type	Metals	Operator	MKD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	130	1735	550.65									
SPT	135	1740	552.26	~~.27~~	.29				106	101	56	25
	140	1745	553.93	~~.27~~	.29				106	101	56	25
	145	1750	555.74		.29				107	100	57	25
	150	1755	557.77		.29				107	100	57	25
	155	1800	558.88		.27				107	100	58	25
	160	1805	560.37		.27				107	101	58	25
	165	1810	562.16		.29				107	102	57	25
	170	1815	563.55		.29				104	101	58	25
	175	1820	565.63		.28				105	102	57	2.5
	180	1825	566.87		.28				104	100	60	2.5
	185	1830	568.72		.28				104	100	60	25
	190	1835	570.37		.27				104	100	61	25
*	195	1840	571.70		.27				107	100	54	2.5
	200	~~1845~~ 1900	573.37		.29				94	92	54	2.5
	205	~~1850~~ 1905	575.14		.29				94	92	53	25
	210	~~1855~~ 1910	576.56		.29				94	91	52	25
	~~215~~	~~1900~~ ~~1915~~										
	~~220~~	~~1920~~										
	~~225~~	~~1925~~										
	~~230~~	~~1930~~										
			68.30									

* plant went down at @ 1840 Start Back 1900

Comments:

Fyzilte W < .15 1837 Time

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FIELD DATA

Run 3
Page 1 of

Plant	Fresh Kills	Probe Length and Type		Height of Location (ft)		North
Date	7-17-96	Nozzle ID (in.)		Duct Dimensions (in)		
Sampling Location	Header	Meter Box Number	A-38	Filter Number		
Sample Type	Metals	Meter ΔH@		Assumed Moisture (%)		
Run Number	3	Yd		O2 (%)		
Operator	MKC	K Factor		CO2 (%)		
Ambient Temperature (°F)	80 °F	Probe Heater Setting (°F)		O2/CO2 Method		
Barometric Pressure (in)	30.01	Heater Box Setting (°F)		Moisture Collected (g)		
Static Pressure (in H2O)		Initial Leak Check	0.01 at 28"	Final Leak Check	0.014 at 25"	Diagram of Duct

Read and Record All Data Every 5 Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	0	1110	577.77									
5 pt	5	1115	579.45		.27				91	90	68	25
	10	1120	581.12		.27				91	90	66	25
	15	1125	582.65		.27				92	90	58	25
	20	1130	584.18		.27				92	90	58	25
	25	1135	585.83		.28				92	90	58	25
	30	1140	587.32		.28				93	90	57	25
	35	1145	588.88		.29				93	90	58	25
	40	1150	590.52		.28				94	90	59	25
	45	1155	592.03		.27				94	92	61	25
	50	1200	593.76		.27				94	92	61	25
	55	1205	594.95		.27				94	93	61	25
	60	1210	596.87		.27				94	93	61	25
	65	1215	597.95		.27				94	93	64	25
	70	1220	600.00		.27				94	93	64	25
	75	1225	601.56		.27				94	93	60	25
	80	1230	603.25		.27				94	92	60	25
	85	1235	604.85		.27				95	92	60	25
	90	1240	606.24		.27				95	92	60	25
	95	1245	608.25		.27				95	92	60	25
	100	1250	609.84		.27				95	93	60	25
	105	1255	611.57		.27				96	94	60	25
	110	1300	612.75		.27				96	94	58	25
	115	1305	614.37		.27				93	94	63	25
	120	1310	616.07		.27				96	94	62	25
	125	1315	617.76		.29				96	94	60	25
	130	1320	619.08		.29				97	94	59	25

Comments:

ERG
Eastern Research Group, Inc

Plant	Fresh Kills	Location	Header	Run Number	3
Date	7-17-96	Sample Type	Metals	Operator	MKO

N

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	130	1320	619.08									
	135	1325	620.68		.28				97	95	59	25
	140	1330	622.35		.28				98	95	60	25
	145	1335	623.82		.27				97	95	61	25
	150	1340	625.53		.27				98	97	60	25
	155	1345	627.01		.27				99	96	60	25
	160	1350	628.53		.27				100	97	64	25
	165	1355	630.64		.27				100	97	63	25
	170	1400	632.23		.27				100	97	64	25
	175	1405	633.75		.27				100	99	63	25
	180	1410	634.85		.27				100	99	63	25
	185	1415	636.62		.27				100	99	63	25
	190	1420	638.86		.27				100	99	64	2.5
	195	1425	641.42		.27				100	99	64	25
	200	1430	642.67		.27				100	99	64	25
			64.86									

Comments:

Fyrite < 105 O_2

ERG

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FIELD DATA

South

Plant	Fresh Kills	Probe Length and Type		Height of Location (ft)	
Date	7-16-96	Nozzle ID (in.)		Duct Dimensions (in)	
Sampling Location	Headers	Meter Box Number	A-37 5	Filter Number	
Sample Type	Metals	Meter ΔH@	1.839	Assumed Moisture (%)	
Run Number	1	Yd	.983	O2 (%)	~~[illegible]~~ 1012 ~~[illegible]~~ 6.05
Operator	MKO	K Factor		CO2 (%)	
Ambient Temperature (°F)	74°F	Probe Heater Setting (°F)		O2/CO2 Method	
Barometric Pressure (in)	29.95	Heater Box Setting (°F)		Moisture Collected (g)	
Static Pressure (in H2O)		Initial Leak Check	.016 @ 28"	Final Leak Check	0.019 @ 28"

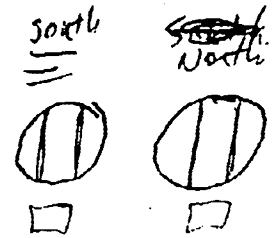

Diagram of Duct

Read and Record All Data Every 5 Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	0	0945	~~[illegible]~~ 253.18									
S. pt	5	0950	255.65	N/A	.30	N/A	N/A	N/A	80	80	68	28"
	10	0955	256.61	N/A	.30				83	81	60	25"
	15	1000	258.36		.30				81	81	58	25"
	20	1005	259.85		.30				83	82	58	25"
	25	1010	261.55		.30				85	83	58	25"
	30	1015	263.15		.30				85	83	57	25"
	35	1020	264.85		.30				86	84	56	25"
	40	1025	266.94		~~.30~~ .28				86	84	57	25"
	45	1030	268.01		.26				86	84	57	25"
	50	1035	269.43		.26				87	85	54	25"
	55	1040	270.98		.26				87	85	54	25
	60	1045	272.57		.26				88	85	54	25"
	65	1050	274.02		.26				88	86	54	25"
	70	1055	275.68		.26				88	86	55	25"
	75	1100	277.32		.26				88	86	55	25"
	80	1105	278.88		.26				88	86	57	25
	85	1110	280.03		.26				88	86	58	25"
	90	1115	281.88		.26				88	86	58	25"
	95	1120	283.55		.26				90	88	58	25"
	100	1125	285.13		.26				90	87	56	25"
	105	1130	286.66		.27				91	88	55	25"
	110	1135	288.15		.27				90	88	56	25
	115	1140	289.72		.27				91	88	56	25
	120	1145	291.44		.28				93	89	59	25
	125	1150	292.93		.28				93	89	57	25
	130	1155	294.57		.29				93	90	59	25

Comments:

ERG
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Plant	Fresh Kills	Location	Header	Run Number	1
Date	7-16-96	Sample Type	Metals	Operator	MKC

5 47.48 1.00 753.7

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	130	1155	294.57									
S. pt	135	1200	296.63	~~.30~~	.30	N/A	N/A	N/A	89	88	57	25
	140	1205	297.93		.30				91	89	57	25
	145	1210	299.50		.31				92	88	57	25
	150	1215	301.16		.31				92	88	60	26
	155	1220	302.72		.28				90	89	57	25
	160	1225	304.31		.26				90	89	53	25
	165	1230	305.86		.26				91	90	54	25
	170	1235	307.38		.26				91	90	54	26
	175	1240	309.02		.26				91	90	55	26
	180	1245	310.47		.26				91	90	54	26
	185	1250	312.05		.26				91	90	55	26
	190	1255	313.65		.26				90	90	54	27
	195	1300	315.16		.26				91	89	54	26
	200	1305	316.60		.26				91	89	55	26
	205	1310	318.41		.27				92	90	55	26
	210	1315	319.83		.29				93	90	52	26
	215	1320	321.53		.27				93	90	53	26
	220	1325	322.92		.27				93	91	54	27
	225	1330	324.52		.27				92	91	53	27
	230	1335	326.51		.25				92	91	52	27
		1340										
			71.33									

Comments: 1205 Fyrite O_2 ~~[illegible]~~ less than .05 %

Research Group, Inc.

FIELD DATA

Plant	Fresh Kills	Probe Length and Type		Height of Location (ft)		South
Date	7-16-96	Nozzle ID (in.)		Duct Dimensions (in)		
Sampling Location	Header	Meter Box Number	A-39 &	Filter Number		
Sample Type	Metals	Meter ΔH@	1.761 / 1.889	Assumed Moisture (%)		
Run Number	2	Yd	.988	O2 (%)	.05 SO2	
Operator	MKO	K Factor		CO2 (%)		
Ambient Temperature (°F)	88	Probe Heater Setting (°F)		O2/CO2 Method		
Barometric Pressure (in)	29.98	Heater Box Setting (°F)		Moisture Collected (g)		
Static Pressure (in H2O)		Initial Leak Check	0.014 at 28"	Final Leak Check	0.011 at 28"	

Diagram of Duct

Read and Record All Data Every 5 Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	0	1525	238.58									
5 pt	5	1530	240.26		.27				99	98	60	25.
	10	1535	241.96		.27				100	99	68	25
	15	1540	243.30		.27				100	99	68	25
	20	1545	244.95		.27				100	100	67	25
	25	1550	246.52		.27				100	100	67	25
	30	1555	248.16		.27				103	101	63	25
	35	1600	250.23		.27				104	101	57	25
	40	1605	251.15		.27				104	101	59	25
	45	1610	252.66		.27				106	102	57	25
	50	1615	254.38		.28				106	102	55	25
	55	1620	255.75		.27				107	102	56	25
	60	1625	257.38		.27				108	102	57	25
	65	1630	258.96		.27				108	102	61	25
	70	1635	259.16		.27				104	100	63	25
	75	1640	260.53		.27				105	100	62	25
	80	1645	262.95		.27				105	100	62	25
	85	1650	264.65		.27				106	100	63	25
	90	1655	266.57		.27				106	100	63	25
	95	1700	268.13		.28				107	101	62	25
	100	1705	269.85		.27				107	101	61	25
	105	1710	271.72		.27				105	100	58	25
	110	1715	272.73		.27				104	100	56	25
	115	1720	274.33		.27				100	100	57	25
	120	1725	275.85		.26				100	99	58	25
	125	1730	277.35		.26				99	97	57	25
	130	1735	278.85		.26				99	97	60	25

Comments:

ERG Eastern Research Group, Inc.

Plant	Fresh Kills	Location	Headers	Run Number	2
Date	7-16-96	Sample Type	metals	Operator	[illegible]

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	130	1735	278.85									
5 pt	135	1740	280.38	.26	.26				100	99	63	2.5
	140	1745	281.92	.26	.26				102	100	63	2.5
	145	1750	283.47		.26				103	101	64	2.5
	150	1755	285.15		.26				103	101	64	2.5
	155	1800	286.68		.26				103	101	62	2.5
	160	1805	288.15		.26				103	100	64	2.5
	165	1810	289.83		.27				103	101	65	2.5
	170	1815	291.22		.26				101	99	64	2.5
	175	1820	292.83		.27				101	99	63	2.5
	180	1825	294.41		.27				101	99	65	2.5
	185	1830	295.93		.27				101	98	65	2.5
	190	1835	297.52		.27				100	98	63	2.5
*	195	1840	299.15		.27				100	98	63	2.5
	200	1900	300.52		.27				95	93	57	2.5
	205	1905	302.22		.27				94	94	60	2.5
	210	1910	303.78		.27				95	95	54	2.5
	~~215~~											
	~~220~~											
	~~225~~											
	~~230~~		25.20									

* Plant went down at 1840 start Back 1900

Comments:

1835 Fyrite < .5

ERG
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FIELD DATA

Plant	Fresh Kills	Probe Length and Type		Height of Location (ft)	
Date	7-17-96	Nozzle ID (in.)		Duct Dimensions (in)	
Sampling Location	Header	Meter Box Number	#39	Filter Number	
Sample Type	Metals	Meter ΔH@		Assumed Moisture (%)	
Run Number	3	Yd		O2 (%)	
Operator	MKO	K Factor		CO2 (%)	
Ambient Temperature (°F)	80°F	Probe Heater Setting (°F)		O2/CO2 Method	
Barometric Pressure (in)	30.01	Heater Box Setting (°F)		Moisture Collected (g)	
Static Pressure (in H2O)		Initial Leak Check	0.008 @ 28"	Final Leak Check	0.018 @ 25"

South

Diagram of Duct

Read and Record All Data Every 5 Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	0	1110	310.48									
5pt	5	1115	312.20		.26				87	84	68	25
	10	1120	313.46		.26				87	84	66	25
	15	1125	314.55		.26				88	89	58	25
	20	1130	316.58		.26				88	89	58	25
	25	1135	318.02		.26				87	86	57	25
	30	1140	319.53		.26				87	86	58	25
	35	1145	321.07		.27				89	86	59	25
	40	1150	322.64		.27				90	86	56	25
	45	1155	324.15		.27				90	86	60	25
	50	1200	325.89		.27				91	86	64	25
	55	1205	327.45		.27				91	86	64	25
	60	1210	328.83		.27				91	86	64	25
	65	1215	329.84		.27				91	87	64	25
	70	1220	331.81		.27				91	87	65	25
	75	1225	333.34		.27				91	87	57	25
	80	1230	335.02		.27				91	88	60	25
	85	1235	336.55		.27				92	89	61	25
	90	1240	338.02		.27				93	90	61	25
	95	1245	339.25		.27				93	90	61	25
	100	1250	340.26		.27				93	90	60	25
	105	1255	341.54		.27				93	90	64	25
	110	1300	344.32		.27				90	89	65	25
	115	1305	345.86		.27				91	90	65	25
	120	1310	347.35		.27				91	90	65	25
	125	1315	349.15		.27				91	90	66	25
	130	1320	350.65		.27				91	90	65	25

Comments:

ERG

Eastern Research Group, Inc.

Plant	Fresh Kills	Location	Header	Run Number	3
Date	7-11-96	Sample Type	Metals	Operator	MKD

5

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
	130	1320	350.65									
	135	1325	351.95		.27				91	90	65	25
	140	1330	353.45		.27				91	90	64	25
	145	1335	355.02		.27				91	90	64	25
	150	1340	356.67		.27				92	91	65	25
	155	1345	358.18		.27				93	90	66	25
	160	1350	359.67		.27				94	90	67	25
	165	1355	361.28		.27				95	94	65	25
	170	1400	363.20		.27				99	94	64	25
	175	1405	364.35		.27				99	94	64	25
	180	1410	365.75		.27				100	94	63	25
	185	1415	367.43		.27				100	94	63	25
	190	1420	369.38		.27				100	94	63	25
	195	1425	372.06		.27				100	95	65	25
	200	1430	373.59		.27				100	95	64	25
		~~1435~~										
			63.11									

Comments:

[illegible]

Eastern Research Group, Inc.

FIELD DATA

Plant	Fresh Kills	Probe Length and Type		Height of Location (ft)	
Date	7-18-96	Nozzle ID (in.)		Duct Dimensions (in)	
Sampling Location	INTAKE	Meter Box Number	A-38	Filter Number	
Sample Type	A-Air	Meter ΔH@		Assumed Moisture (%)	
Run Number	BLANK	Yd		O2 (%)	
Operator	D. Harris	K Factor		CO2 (%)	
Ambient Temperature (°F)	90°	Probe Heater Setting (°F)		O2/CO2 Method	
Barometric Pressure (in)	30.01	Heater Box Setting (°F)		Moisture Collected (g)	
Static Pressure (in H2O)		Initial Leak Check		Final Leak Check	

Diagram of Duct

Read and Record All Data Every ____ Minutes

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature Inlet (°F)	Dry Gas Meter Temperature Outlet (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
		13:30	571.28									
S/P		18:45	762.89									
			191.61									

Comments:

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Eastern Research Group, Inc

Plant		Location		Run Number	
Date		Sample Type		Operator	

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft^3)	Velocity Head Δ P (in H2O)	Orifice Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Temperature		Impinger Exit (°F)	Pump Vacuum (in. Hg)
									Inlet (°F)	Outlet (°F)		

Comments:

Appendix B

Field Data

B-3 Moisture Recovery Sheets

Eastern Research Group, Inc

MOISTURE RECOVERY FORM FOR METHOD 4

Plant	Fresh Kills Landfill
Date	7-18-96
Sampling Location	Incinerator
Sample Type	Method 29
Run Number	1
Impinger Box Number	Incinerator
Recovery Person	JLSwift
Recovery Rinses	3 x 0.1N HNO3
Sample Identification	FKL-85 10-90
Filter Number	FK-03-F
XAD Number	NA

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight Final (g)	Impinger Weight Initial (g)	Impinger Weight Weight Gain (g)
1	MT	xxx	KO	526.4	460.0	66.4
2	5% HNO3/ 10% H2O2	~ 100 g	MGS	754.0	635.0	119
3	5% HNO3/ 10% H2O2	~ 100 g	GS	626.4	606.2	20.2
4	MT	xxx	KO	486.4	476.8	9.6
5	4% KMnO4/ 10% H2SO4	~ 100 g	MGS	575.7	567.9	7.8
6	4% KMnO4/ 10% H2SO4	~ 100 g	GS	586.2	581.1	5.1
7	Silica Gel	~ 300 g	GS	815.0	793.2	21.8
					Total Weight Gain (g)	249.9

Eastern Research Group, Inc.

MOISTURE RECOVERY FORM FOR METHOD 4

Plant	*Fresh Kills Landfill*
Date	7-18-96
Sampling Location	Incinerator
Sample Type	*Method 29*
Run Number	2
Impinger Box Number	Incinerator
Recovery Person	*JLSwift*
Recovery Rinses	*3 x 0.1N HNO3*
Sample Identification	*FKL-* ~~94 to .97~~ .91 to .97
Filter Number	FK-14-F
XAD Number	*NA*

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight: Final (g)	Impinger Weight: Initial (g)	Impinger Weight: Weight Gain (g)
1	*MT*	*xxx*	*KO*	~~779.3~~	NA ~~480.4~~ JLS 7/18/96	
2	*5% HNO3/ 10% H2O2*	*~ 100 g*	*MGS*	779.3	575.8	203.5
3	*5% HNO3/ 10% H2O2*	*~ 100 g*	*GS*	585.6	567.9 ~~566.8~~ ~~567.2~~ JLS 7-18-96	17.7
4	*MT*	*xxx*	*KO*	470.1	~~462.0~~ ~~461.7~~ 459.6	10.5
5	*4% KMnO4/ 10% H2SO4*	*~ 100 g*	*MGS*	578.7	573.7	5.0
6	*4% KMnO4/ 10% H2SO4*	*~ 100 g*	*GS*	584.0	582.4	1.6
7	*Silica Gel*	*~ 300 g*	*GS*	813.2	788.6	24.6
					Total Weight Gain (g)	262.9

Eastern Research Group, Inc.

MOISTURE RECOVERY FORM FOR METHOD 4

Plant	Fresh Kills Landfill
Date	7-19-96
Sampling Location	Incinerator
Sample Type	Method 29
Run Number	3
Impinger Box Number	Incinerator
Recovery Person	JLSwift
Recovery Rinses	3 x 0.1N HNO3
Sample Identification	FKL-99 to -104
Filter Number	FK-17-F
XAD Number	NA

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight Final (g)	Impinger Weight Initial (g)	Impinger Weight Weight Gain (g)
1	MT	xxx	KO	~~477~~	463.8	NA
2	5% HNO3/ 10% H2O2	~ 100 g	MGS	797.7	619.7	178.0
3	5% HNO3/ 10% H2O2	~ 100 g	GS	658.9	602.9	56.0
4	MT	xxx	KO	493.7	481.2	12.5
5	4% KMnO4/ 10% H2SO4	~ 100 g	MGS	587.4	580.1	7.3
6	4% KMnO4/ 10% H2SO4	~ 100 g	GS	~~568~~ 568.3	564.3	4.0
7	Silica Gel	~ 300 g	GS	803.3	776.5	26.8

Total Weight Gain (g): 284.6

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MOISTURE RECOVERY FORM FOR METHOD 4

Plant	*Fresh Kills Landfill*
Date	7-17-96
Sampling Location	Sales
Sample Type	*Method 29*
Run Number	1
Impinger Box Number	Sales
Recovery Person	*JLSwift*
Recovery Rinses	*3 x 0.1N HNO3*
Sample Identification	*FKL-* 51, 53-56
Filter Number	NA
XAD Number	*NA*

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight		
				Final (g)	Initial (g)	Weight Gain (g)
1	*MT*	*xxx*	*KO*	459.8 ~~598.4~~ JLSwift 7-17-96	459.5	0.3
2	*5% HNO3/ 10% H2O2*	*~ 100 g*	*MGS*	597.0	617.7 ~~581.2~~ JLS 7-17-96	-20.7
3	*5% HNO3/ 10% H2O2*	*~ 100 g*	*GS*	588.2	596.6	-8.4
4	*MT*	*xxx*	*KO*	422.3	421.3 ~~422.7~~ ~~499.7~~ JLS 7-17-96	1.0
5	*4% KMnO4/ 10% H2SO4*	*~ 100 g*	*MGS*	598.4	~~585.6~~ ~~584.8~~ JLS 601.0	-2.6
6	*4% KMnO4/ 10% H2SO4*	*~ 100 g*	*GS*	586.6	585.6 ~~584.9~~ JLS	1.0
7	*Silica Gel*	*~ 300 g*	*GS*	877.0	851.1 ~~850.0~~ JLS	25.9
					Total Weight Gain (g)	-3.5

Eastern Research Group, Inc.

MOISTURE RECOVERY FORM FOR METHOD 4

Plant	Fresh Kills Landfill
Date	7-17-96
Sampling Location	Method 29
Sample Type	Method 29
Run Number	2
Impinger Box Number	Sales
Recovery Person	JLSwift
Recovery Rinses	3 x 0.1N HNO3
Sample Identification	FKL-58, 60-63
Filter Number	NA
XAD Number	NA

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight		
				Final (g)	Initial (g)	Weight Gain (g)
1	MT	xxx	KO	459.6	459.8	-0.2
2	5% HNO3/ 10% H2O2	~ 100 g	MGS	605.0	627.2	-22.2
3	5% HNO3/ 10% H2O2	~ 100 g	GS	~~6~~ JLS 594.7	598.9	-4.2
4	MT	xxx	KO	425.7	424.9	0.8
5	4% KMnO4/ 10% H2SO4	~ 100 g	MGS	622.9	626.6	-3.7
6	4% KMnO4/ 10% H2SO4	~ 100 g	GS	596.9	596.0	0.9
7	Silica Gel	~ 300 g	GS	855.6	828.9	26.7 ~~3.3~~ JLSwift 7-18-96

Total Weight Gain (g)	-1.9

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Eastern Research Group, Inc.

MOISTURE RECOVERY FORM FOR METHOD 4

Plant	Fresh Kills Landfill
Date	7-18-96
Sampling Location	Sales
Sample Type	Method 29
Run Number	3
Impinger Box Number	Sales
Recovery Person	JLSwift
Recovery Rinses	3 x 0.1N HNO3
Sample Identification	FKL-65, 67-70
Filter Number	NA
XAD Number	NA

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight Final (g)	Impinger Weight Initial (g)	Impinger Weight Weight Gain (g)
1	MT	xxx	KO	467.0	460.7	6.3
2	5% HNO3/ 10% H2O2	~ 100 g	MGS	611.0	632.8	-21.8
3	5% HNO3/ 10% H2O2	~ 100 g	GS	594.9	598.4	-3.5
4	MT	xxx	KO	424.9	424.5	0.4
5	4% KMnO4/ 10% H2SO4	~ 100 g	MGS	621.8	624.7	-2.9
6	4% KMnO4/ 10% H2SO4	~ 100 g	GS	597.4	598.1	-0.7
7	Silica Gel	~ 300 g	GS	848.6	822.0	26.6

Total Weight Gain (g) 4.4

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MOISTURE RECOVERY FORM FOR METHOD 4

Plant	Fresh Kills Landfill
Date	7-10-96
Sampling Location	North Header
Sample Type	Method 29
Run Number	1
Impinger Box Number	North
Recovery Person	JLSwift
Recovery Rinses	3 x 0.1N HNO3
Sample Identification	FKL-14 to FKL-18
Filter Number	NA
XAD Number	NA

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight Final (g)	Impinger Weight Initial (g)	Impinger Weight Weight Gain (g)
1	MT	xxx	KO	477.8	425.1	52.7
2	5% HNO3/ 10% H2O2	~ 100 g	MGS	579.1	569.4	9.7
3	5% HNO3/ 10% H2O2	~ 100 g	GS	598.8	599.4	-0.6
4	MT	xxx	KO	503.6	498.0	5.6
5	4% KMnO4/ 10% H2SO4	~ 100 g	MGS	571.5	567.1	4.4
6	4% KMnO4/ 10% H2SO4	~ 100 g	GS	543.9	545.3	-1.4
7	Silica Gel	~ 300 g	GS	802.1	757.8	44.3
					Total Weight Gain (g)	114.7

1 751.3
2 838.2

Eastern Research Group, Inc.

MOISTURE RECOVERY FORM FOR METHOD 4

Plant	Fresh Kills Landfill
Date	7-16-96
Sampling Location	North Header
Sample Type	Method 29
Run Number	2
Impinger Box Number	North 1
Recovery Person	JLSwift
Recovery Rinses	3 x 0.1N HNO3
Sample Identification	FKL-08 to -12
Filter Number	NA
XAD Number	NA

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight Final (g)	Impinger Weight Initial (g)	Impinger Weight Weight Gain (g)
1	MT	xxx	KO	483.2	427.5	55.7
2	5% HNO3/ 10% H2O2	~ 100 g	MGS	590.4	580.8	9.6
3	5% HNO3/ 10% H2O2	~ 100 g	GS	566.5	572.6 ~~4~~ JLS 7-16-96	- 6.1
4	MT	xxx	KO	508.9	502.4 ~~497.0~~ JLS 7-16-96	6.5
5	4% KMnO4/ 10% H2SO4	~ 100 g	MGS	585.7	565.1	20.6
6	4% KMnO4/ 10% H2SO4	~ 100 g	GS	572.5	570.8	1.7
7	Silica Gel	~ 300 g	GS	804.2	761.3	42.9

Total Weight Gain (g) 130.9

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MOISTURE RECOVERY FORM FOR METHOD 4

Plant	Fresh Kills Landfill
Date	7-17-96
Sampling Location	North
Sample Type	Method 29
Run Number	3
Impinger Box Number	North
Recovery Person	JLSwift
Recovery Rinses	3 x 0.1N HNO3
Sample Identification	FKL-~~32 to 36~~ JLS 7-17-96 -02 to 06
Filter Number	NA
XAD Number	NA

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight Final (g)	Impinger Weight Initial (g)	Impinger Weight Weight Gain (g)
1	MT	xxx	KO	474.9	428.7	46.2
2	5% HNO3/ 10% H2O2	~ 100 g	MGS	586.6	577.4	9.2
3	5% HNO3/ 10% H2O2	~ 100 g	GS	597.2	595.9	1.3
4	MT	xxx	KO	509.4	499.7 ~~421.3~~ ~~501.7~~ JLS	9.7
5	4% KMnO4/ 10% H2SO4	~ 100 g	MGS	572.9	585.6 ~~601.0~~ ~~[illegible]~~ JLS	-12.7
6	4% KMnO4/ 10% H2SO4	~ 100 g	GS	559.4	562.3	-2.9
7	Silica Gel	~ 300 g	GS	809.1	766.3	42.8
					Total Weight Gain (g)	93.6

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MOISTURE RECOVERY FORM FOR METHOD 4

Plant	*Fresh Kills Landfill*
Date	7-16-96
Sampling Location	South Header
Sample Type	*Method 29*
Run Number	~~2~~ 1
Impinger Box Number	South
Recovery Person	*JLSwift*
Recovery Rinses	*3 x 0.1N HNO3*
Sample Identification	*FKL-* 20 to FKL-24
Filter Number	NA
XAD Number	*NA*

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight Final (g)	Impinger Weight Initial (g)	Impinger Weight Weight Gain (g)
1	*MT*	*xxx*	*KO*	517.2	487.6	29.6
2	*5% HNO3/ 10% H2O2*	*~ 100 g*	*MGS*	629.8	621.0	8.8
3	*5% HNO3/ 10% H2O2*	*~ 100 g*	*GS*	590.7	583.9	6.8
4	*MT*	*xxx*	*KO*	505.2	501.6	3.6
5	*4% KMnO4/ 10% H2SO4*	*~ 100 g*	*MGS*	584.0	584.4	-0.4
6	*4% KMnO4/ 10% H2SO4*	*~ 100 g*	*GS*	576.7	574.2	2.5
7	*Silica Gel*	*~ 300 g*	*GS*	795.0	755.7	39.3
					Total Weight Gain (g)	90.2

Eastern Research Group, Inc.

MOISTURE RECOVERY FORM FOR METHOD 4

Plant	Fresh Kills Landfill
Date	7-16-96
Sampling Location	South
Sample Type	Method 29
Run Number	2
Impinger Box Number	South
Recovery Person	JLSwift
Recovery Rinses	3 x 0.1N HNO3
Sample Identification	FKL-26 to -30
Filter Number	NA
XAD Number	NA

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight Final (g)	Impinger Weight Initial (g)	Impinger Weight Weight Gain (g)
1	MT	xxx	KO	517.5	491.0	26.5
2	5% HNO3/ 10% H2O2	~ 100 g	MGS	642.2	630.0	12.2
3	5% HNO3/ 10% H2O2	~ 100 g	GS	589.9	587.0	2.9
4	MT	xxx	KO	508.9	505.9	3.0
5	4% KMnO4/ 10% H2SO4	~ 100 g	MGS	586.3	585.0	1.3
6	4% KMnO4/ 10% H2SO4	~ 100 g	GS	571.1	575.1	-4.0
7	Silica Gel	~ 300 g	GS	879.9	838.2	41.7
					Total Weight Gain (g)	83.6

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Eastern Research Group, Inc.

MOISTURE RECOVERY FORM FOR METHOD 4

Plant	Fresh Kills Landfill
Date	7-17-96
Sampling Location	South
Sample Type	Method 29
Run Number	3
Impinger Box Number	South
Recovery Person	JLSwift
Recovery Rinses	3 x 0.1N HNO3
Sample Identification	FKL-32 to -36
Filter Number	NA
XAD Number	NA

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight Final (g)	Impinger Weight Initial (g)	Impinger Weight Weight Gain (g)
1	MT	xxx	KO	520.3	491.1	29.2
2	5% HNO3/ 10% H2O2	~ 100 g	MGS	628.9	626.4	2.5
3	5% HNO3/ 10% H2O2	~ 100 g	GS	592.2	590.0	2.2
4	MT	xxx	KO	510.9	506.1	4.8
5	4% KMnO4/ 10% H2SO4	~ 100 g	MGS	583.6	585.5	-1.9
6	4% KMnO4/ 10% H2SO4	~ 100 g	GS	567.0	573.3	-6.3
7	Silica Gel	~ 300 g	GS	856.7	809.2	47.5
					Total Weight Gain (g)	78.0

Eastern Research Group, Inc.

MOISTURE RECOVERY FORM FOR METHOD 4

Plant	Fresh Kills Landfill
Date	7-18-96
Sampling Location	Ambient
Sample Type	Method 29
Run Number	1
Impinger Box Number	Ambient
Recovery Person	JLSwift
Recovery Rinses	3 x 0.1N HNO3
Sample Identification	FKL-124 to - 129
Filter Number	NA
XAD Number	NA

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight Final (g)	Impinger Weight Initial (g)	Impinger Weight Weight Gain (g)
1	MT	xxx	KO	NA	NA	NA
2	5% HNO3/ 10% H2O2	~ 100 g	MGS	553.2	575.4	-22.2
3	5% HNO3/ 10% H2O2	~ 100 g	GS	584.5	591.4	-6.9
4	MT	xxx	KO	505.2	499.4	5.8
5	4% KMnO4/ 10% H2SO4	~ 100 g	MGS	599.0	609.4	-10.4
6	4% KMnO4/ 10% H2SO4	~ 100 g	GS	552.3	553.9	-1.6
7	Silica Gel	~ 300 g	GS	823.6	781.4	42.2
					Total Weight Gain (g)	6.9

Appendix B

Field Data

B-4 Meter Calibration Data sheet

Filename: F:\DATAFILE\CALIBRAT\CAL_MENU.DSK\DGM_POST.3P\DGM_POS3.WK1

Model Number:	511	Date:	->7/23/96
Serial Number:	A-37	Barometric Pressure:	-> 29.60 (in. Hg)
		Calibration Meter Factor Yc:	-> 1.0023 (number)

		DRY GAS METER READING				GAS		CALIBRATION METER READINGS			CALIBRATION METER	
	Elapsed	Volume	Volume	Volume		Temperature		Volume	Volume	Volume	Temperature	
dH	Time	Initial	Final	Total		Inlet	Outlet	Initial	Final	Total	Inlet	Outlet
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)		(deg F)	(deg F)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)
0.27	16.50	889.184	894.452	5.268	Initial->	84.0	86.0	457.819	463.016	5.197	76.0	76.0
					Final--->	87.0	85.0					
0.27	17.50	894.452	900.037	5.585	Initial->	86.0	85.0	463.016	468.530	5.514	76.0	76.0
					Final--->	89.0	85.0					
0.27	21.00	900.037	906.725	6.688	Initial->	87.0	85.0	468.530	475.129	6.599	76.0	76.0
					Final--->	90.0	86.0					

	DRY GAS METER METER CALIBRATION FACTOR Y		DRY GAS METER ORIFICE CALIBRATION FACTOR dH@	
	Value (number)	Variation (number)	Value (in H2O)	Variation (in H2O)
	1.006	-0.002	1.528	-0.002
	1.008	0.000	1.528	-0.002
	1.009	0.001	1.535	0.005
Average	1.007		1.531	

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H2O that equates to 0.75 cfm of at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

I certify that the above Dry Gas Meter was calibrated in accordance with E.P.A. Method 5 , paragraph 7.1 ;CFR 40 Part 60 using the Precision Wet Test Meter # 11AE6, which in turn was calibrated using the American Bell Prover # 3785, certificate # F107, which is traceable to the National Bureau of Standards (N.I.S.T.).

Signature ____________________ Date 7-23-96

APEX INSTRUMENTS
EPA METHOD 5
Meter Box Post-Test Calibration
English Meter Box and English Calibration Meter Units

Filename: F:\DATAFILE\CALIBRAT\CAL_MENU.DSK\DGM_POST.3P\A37CAL2.WK1

Model Number:	511	Date:	->7/23/96
Serial Number:	A-37CAL2	Barometric Pressure:	-> 29.60 (in. Hg)
		Calibration Meter Factor Yc:	-> 1.0023 (number)

dH (in H2O)	Elapsed Time (min)	DRY GAS METER READING Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)		GAS Temperature Inlet (deg F)	Outlet (deg F)	CALIBRATION METER READINGS Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	CALIBRATION METER Temperature Inlet (deg F)	Outlet (deg F)
1.80	8.00	906.725	913.016	6.291	Initial->	87.0	86.0	475.129	481.379	6.250	76.0	76.0
					Final--->	99.0	87.0					
1.80	12.50	913.016	922.907	9.891	Initial->	93.0	87.0	481.379	491.175	9.796	76.0	76.0
					Final--->	103.0	88.0					
1.80	10.00	922.907	930.804	7.897	Initial->	97.0	88.0	491.175	498.979	7.804	76.0	76.0
					Final--->	104.0	89.0					

	DRY GAS METER METER CALIBRATION FACTOR Y Value (number)	Variation (number)		DRY GAS METER ORIFICE CALIBRATION FACTOR dHa Value (in H2O)	Variation (in H2O)
	1.017	-0.002		1.653	0.005
	1.019	0.000		1.640	-0.008
	1.020	0.001		1.650	0.003
Average	1.019		Average	1.648	

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor dHa, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

I certify that the above Dry Gas Meter was calibrated in accordance with E.P.A. Method 5 , paragraph 7.1 ;CFR 40 Part 60 using the Precision Wet Test Meter # 11AE6, which in turn was calibrated using the American Bell Prover # 3785, certificate # P107, which is traceable to the National Bureau of Standards (N.I.S.T.).

Signature ________________ Date 7-23-96

Meter Box Calibration

Post Calibration Form

A-3'

Claibration Temp.(F)	Readout Temp.(F)
0	
50	
100	
250	
500	

Job:

Date | Cal Meter # | Pbar

Box # | Cal Meter Yd: | Vaccum "Hg

Orifice Setting	Cal. Meter Pressure	Gas Volume Cal. Meter		Gas Volume Meter Box	Cal. Temp In	Cal. Temp Out	Meter Temp In	Meter Temp Out	Time	Yd	Delta H@
		Final								.983	1.839
		Init.									
		Total			Avg.		Avg.				
		Final									
		Init.									
		Total			Avg.		Avg.				
		Final									
		Init.									
		Total			Avg.		Avg.				
									Ave.		

ΔH .27

in 91

out 87

vac 25"

ΔH 1.84

in 85

out 85

APEX INSTRUMENTS
EPA METHOD 5
Meter Box Post-Test Calibration
English Meter Box and English Calibration Meter Units

Filename: F:\DATAFILE\CALIBRAT\CAL_MENU.DSK\DGM_POST.3P\A-39.WK1

Model Number:	511	Date:	->7/24/96
Serial Number:	A-39	Barometric Pressure:	-> 29.70 (in. Hg)
		Calibration Meter Factor Yc:	-> 1.0023 (number)

dH (in H2O)	Elapsed Time (min)	DRY GAS METER READING Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)		GAS Temperature Inlet (deg F)	Outlet (deg F)	CALIBRATION METER READINGS Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	CALIBRATION METER Temperature Inlet (deg F)	Outlet (deg F)
2.40	6.00	712.616	718.120	5.504	Initial->	79.0	76.0	523.412	528.818	5.406	77.0	77.0
					Final--->	89.0	77.0					
2.40	7.50	718.120	725.045	6.925	Initial->	87.0	77.0	528.818	535.600	6.782	77.0	77.0
					Final--->	94.0	78.0					
2.40	7.50	725.045	731.934	6.889	Initial->	91.0	78.0	535.600	542.335	6.735	77.0	77.0
					Final--->	98.0	79.0					

	DRY GAS METER METER CALIBRATION FACTOR Y Value (number)	Variation (number)		DRY GAS METER ORIFICE CALIBRATION FACTOR dH@ Value (in H2O)	Variation (in H2O)
	0.985	-0.004		1.688	0.003
	0.989	0.000		1.673	-0.012
	0.991	0.003		1.693	0.008
Average	0.988		Average	1.685	

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

I certify that the above Dry Gas Meter was calibrated in accordance with E.P.A. Method 5 , paragraph 7.1 ;CFR 40 Part 60 using the Precision Wet Test Meter # 11AE6, which in turn was calibrated using the American Bell Prover # 3785, certificate # F107, which is traceable to the National Bureau of Standards (N.I.S.T.).

Signature [signature] Date 7-24-96

APEX INSTRUMENTS
EPA METHOD 5
Meter Box Post-Test Calibration
English Meter Box and English Calibration Meter Units

Filename: F:\DATAFILE\CALIBRAT\CAL_MENU.DSK\DGM_POST.3P\A-39CAL2.WK1

Model Number:	511	Date:	->7/24/96	
Serial Number:	A-39CAL2	Barometric Pressure:	-> 29.70	(in. Hg)
		Calibration Meter Factor Yc:	-> 1.0023	(number)

		DRY GAS METER READING				GAS		CALIBRATION METER READINGS			CALIBRATION METER	
	Elasped	Volume	Volume	Volume		Temperature		Volume	Volume	Volume	Temperature	
dH	Time	Initial	Final	Total		Inlet	Outlet	Initial	Final	Total	Inlet	Outlet
(in H20)	(min)	(cu ft)	(cu ft)	(cu ft)		(deg F)	(deg F)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)
0.27	16.50	731.934	737.031	5.097	Initial->	81.0	79.0	542.335	547.283	4.948	77.0	77.0
					Final--->	88.0	80.0					
0.27	18.50	737.031	742.655	5.624	Initial->	86.0	79.0	547.283	552.734	5.451	77.0	77.0
					Final--->	90.0	80.0					
0.27	17.50	742.655	748.093	5.438	Initial->	89.0	80.0	552.734	558.005	5.271	77.0	77.0
					Final--->	92.0	84.0					

	DRY GAS METER METER CALIBRATION FACTOR Y			DRY GAS METER ORIFICE CALIBRATION FACTOR dH@	
	Value (number)	Variation (number)		Value (in H2O)	Variation (in H2O)
	0.981	-0.003		1.705	-0.013
	0.983	-0.001		1.766	0.048
	0.988	0.004		1.682	-0.036
Average	0.984		Average	1.718	

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H2O that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

I certify that the above Dry Gas Meter was calibrated in accordance with E.P.A. Method 5 , paragraph 7.1 ;CFR 40 Part 60, using the Precision Wet Test Meter # 11AE6, which in turn was calibrated using the American Bell Prover # 3785, certificate # F107, which is traceable to the National Bureau of Standards (N.I.S.T.).

Signature Van Ag Date 7-24-96

APEX INSTRUMENTS
EPA METHOD 5
Meter Box Post-Test Calibration
English Meter Box and English Calibration Meter Units

Filename: F:\DATAFILE\CALIBRAT\CAL_MENU.DSK\DGM_POST.3P\A-38.WK1

Model Number:	511	Date:	->7/23/96
Serial Number:	A-38	Barometric Pressure:	-> 29.60 (in. Hg)
		Calibration Meter Factor Yc:	-> 1.0023 (number)

dH (in H2O)	Elasped Time (min)	DRY GAS METER READING Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)		GAS Temperature Inlet (deg F)	Outlet (deg F)	CALIBRATION METER READINGS Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	CALIBRATION METER Temperature Inlet (deg F)	Outlet (deg F)
0.28	22.00	766.821	773.886	7.065	Initial->	91.0	91.0	504.268	511.059	6.791	77.0	77.0
					Final--->	94.0	91.0					
0.28	17.50	773.886	779.497	5.611	Initial->	93.0	91.0	511.059	516.473	5.414	78.0	78.0
					Final--->	94.0	92.0					
0.28	19.00	779.497	785.586	6.089	Initial->	94.0	92.0	516.473	522.340	5.867	78.0	78.0
					Final--->	95.0	92.0					

	DRY GAS METER METER CALIBRATION FACTOR Y Value (number)	Variation (number)		DRY GAS METER ORIFICE CALIBRATION FACTOR dH@ Value (in H20)	Variation (in H20)
	0.989	-0.002		1.639	0.000
	0.992	0.001		1.637	-0.002
	0.992	0.001		1.641	0.002
Average	0.991		Average	1.639	

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of a at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

I certify that the above Dry Gas Meter was calibrated in accordance with E.P.A. Method 5 , paragraph 7.1 ;CFR 40 Part 60 using the Precision Wet Test Meter # 11AE6, which in turn was calibrated using the American Bell Prover # 3785, certificate # F107, which is traceable to the National Bureau of Standards (N.I.S.T.).

Signature [signature] Date 7-23-96

A-38

Meter Box Calibration

Post Calibration Form

Job:

Date Cal Meter # Pbar

Box # Cal Meter Yd: Vaccum °Hg

Claibration Temp.(F)	Readout Temp.(F)
0	
50	
100	
250	
500	

Orifice Setting	Cal. Meter Pressure	Gas Volume Cal. Meter		Gas Volume Meter Box	Cal. Temp In	Cal. Temp Out	Meter Temp In	Meter Temp Out	Time	Yd	Delta H@
		Final								.994	1.850
		Init.									
		Total			Avg.		Avg.				
		Final									
		Init.									
		Total			Avg.		Avg.				
		Final									
		Init.									
		Total			Avg.		Avg.				
									Ave.		

ΔH = .276

IN 96.6

out 94

Vac. 25"

Appendix B

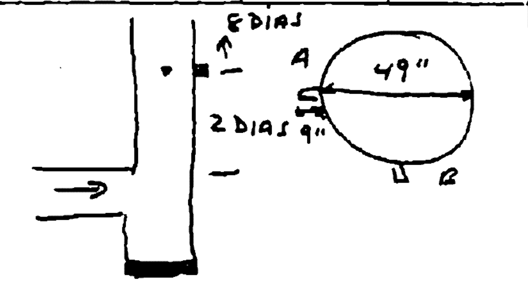
Field Data

B-5 Traverse Point Location and K Factor Calculation

ERG
Eastern Research Group, Inc.

Traverse Point Location Form

		Sample Ports Information	Number	I.D. (in)
Plant	AIR PRODUCTS			
Date	JULY 17 1966			
Sampling Location	INCINERATOR			
Total Duct Depth (Distance A)	58"			
(Inside Far Wall to Outside of Nipple/Port)	9"			
Nipple/Port Length (Distance B)				
(Inside Near Wall to Outside End of Nipple/Port)				
Stack Depth (Dist A – Dist B)				
Stack Width (If rectangular)				
Nearest Upstream Disturbance	2 DIAS.			
Nearest Downstream Disturbance	8 DIAS.			
Calculator	MWH.			



Schematic of Sampling Location
(Cross Section of Duct)

1 Traverse Point Number	2 Percent Fraction of Stack ID	3 Stack ID (in)	4 Product of Columns 2 & 3 (to nearest 1/8 inch)	5 Distance B (in)	6 Traverse Point Location from Outside of Nipple (sum of columns 4 & 5)
A-1	2.1	49"	1.0	9"	10"
2	6.7		3.25		12.25
3	11.8		5.75		14.75
4	17.7		8.67		17.67
5	25.0		12.25		21.25
6	35.6		17.44		26.44
7	64.4		31.56		40.56
8	75.0		36.75		45.75
9	82.3		40.33		49.33
10	88.2		43.25		52.25
11	93.3		45.75		54.75
12	97.9		48.00		57.00

K-FACTOR CALCULATION FORM

Plant	AIR PRODUCTS	Operator	MWH
Date	7/17/96	Used for runs	
Location/Sampling Train			

C_p (S-type: 0.84; Std: 0.99)	.84
P_b (barometric pressure at location) 1119	30.10
D_n (nozzle diameter, inches)	.265
B_w (moisture in gas stream, fractional percent)	13.4
P_m (barometric pressure at meter, Hg) = (Average ΔH / 13.6) + P_b	30.22
ΔH@ (pressure differential of orifice in meterbox, H_2O)	1.761
P_s (stack pressure, in. Hg) = P_b ± (stack static pressure (in. H_2O) / 13.6) 1.5" H_2O	30.21
T_s (average stack temperature, °R) = ___ °F + 460 = ___ °R 1036 460	1496
T_m (average meter temperature, °R) = $T_{ambient}$ + 20°F + 460 = ___ °R	560° R
M_d (molecular weight of stack gas, dry, lb/lb-mole) = (0.44 x %CO_2) + (0.32 x %O_2) + (0.28 x %N_2)	29.9
M_s (molecular weight of stack gas with water vapor, lb/lb-mole) = [M_d x (1 - B_w)] + [18 x B_w]	29.48
$K = (846.720)(D_n)^4(\Delta H@)(C_p)^2(1-B_w)^2(M_d/M_s)(P_s/P_m)(T_m/T_s)$	1.48

$\Delta H = K \Delta P$
Correlation Chart

1		2		3	
ΔH	**ΔP**	**ΔH**	**ΔP**	**ΔH**	**ΔP**

Comments: ______________________________

Appendix B

Field Data

B-6 Header and Sales Gas Flow Rates

Plant data 7/19/96

920 gallons - 1st run (condensate)
786 gallons - 2nd run (condensate)
720 gallons - 3rd run (condensate)

4.5 gal/min.

Total header (7/16) 346,000 cf/hr ÷ 2 = 173,000 NH & SH
Total header (7/17) 351,000 cf/hr ÷ 2 = 175,500 NH & SA

Sales (7/17) 180,000 cf/hr
Sales (7/18) 176,000 cf/hr

Both Gas Meters

CO_2 stream ~~7.7 reading~~
Average 3.7 ~~MM~~MCF/day.

Section 1/9 north and
Goodfrun south well fields

Collected from C. Bunnell
at Control room.

TEST RESULTS FOR FRESH KILLS LANDFILL INCINERATOR
(NEGATIVE FLOWS INCLUDED)

Facility: FRESH KILLS
Date: 07/18/96
Location: INCINERATOR
Run Number: 1
Sample Type: M-29

Total Sampling Time (min)	180.0
Corrected Barometric Pressure (in Hg)	30.15
Absolute Stack Pressure (in H2O)	30.08
Stack Static Pressure (in H2O)	-1.00
Average Stack Temperature (°F)	984.08
Stack Area (sq in)	1885.74
Actual Meter Volume (cu ft)	108.098
Average Meter Pressure (in H2O)	0.73
Average Meter Temperature (°F)	103.60
Moisture Collected (g)	249.90
Carbon Dioxide Concentration (%V)	16.0
Oxygen Concentration (%V)	16.0
Nitrogen Concentration (%V)	68.0
Dry Gas Meter Factor	0.9880
Nozzle Diameter (in)	0.265
Pitot Constant	0.84
Average Sampling Rate (dscfm)	0.555
Standard Metered Volume (dscf)	99.902
Standard Metered Volume (dscm)	2.829
Stack Moisture (%V)	10.55
Mole Fraction Dry Stack Gas	0.894
Dry Molecular Weight	31.20
Wet Molecular Weight	29.81
Stack Gas Velocity (fpm)	3999.24
Stack Gas Velocity (mpm)	1218.97
Volumetric Flow Rate (acfm)	52371.75
Volumetric Flow Rate (acmm)	1483.17
Volumetric Flow Rate (dscfm)	17212.95
Volumetric Flow Rate (dscmm)	487.47
Percent Isokinetic	96.72
Percent Excess Air	814.00
Concentration (g/dscm)	0.00
Emissions (kg/hr)	0.00
Concentration (ppmv)	0.00
Emissions (lb/hr)	0.00

TEST RESULTS FOR FRESH KILLS LANDFILL INCINERATOR
(NEGATIVE FLOWS INCLUDED)

Facility:	FRESH KILLS
Date:	07/19/96
Location:	INCINERATOR
Run Number:	2
Sample Type:	M-29

Total Sampling Time (min)	180.0
Corrected Barometric Pressure (in Hg)	30.06
Absolute Stack Pressure (in H2O)	29.99
Stack Static Pressure (in H2O)	-1.00
Average Stack Temperature (°F)	986.63
Stack Area (sq in)	1885.74
Actual Meter Volume (cu ft)	113.297
Average Meter Pressure (in H2O)	0.83
Average Meter Temperature (°F)	96.63
Moisture Collected (g)	262.90
Carbon Dioxide Concentration (%V)	16.0
Oxygen Concentration (%V)	15.0
Nitrogen Concentration (%V)	69.0
Dry Gas Meter Factor	0.9880
Nozzle Diameter (in)	0.265
Pitot Constant	0.84
Average Sampling Rate (dscfm)	0.590
Standard Metered Volume (dscf)	106.170
Standard Metered Volume (dscm)	3.007
Stack Moisture (%V)	10.45
Mole Fraction Dry Stack Gas	0.895
Dry Molecular Weight	31.16
Wet Molecular Weight	29.78
Stack Gas Velocity (fpm)	4531.32
Stack Gas Velocity (mpm)	1381.15
Volumetric Flow Rate (acfm)	59339.51
Volumetric Flow Rate (acmm)	1680.50
Volumetric Flow Rate (dscfm)	19431.20
Volumetric Flow Rate (dscmm)	550.29
Percent Isokinetic	94.96
Percent Excess Air	464.43
Concentration (g/dscm)	0.00
Emissions (kg/hr)	0.00
Concentration (ppmv)	0.00
Emissions (lb/hr)	0.00

TEST RESULTS FOR FRESH KILLS LANDFILL INCINERATOR

(NEGATIVE FLOWS INCLUDED)

Facility:	FRESH KILLS
Date:	07/19/96
Location:	INCINERATOR
Run Number:	3
Sample Type:	M-29

Total Sampling Time (min)	180.0
Corrected Barometric Pressure (in Hg)	29.76
Absolute Stack Pressure (in H2O)	29.69
Stack Static Pressure (in H2O)	-1.00
Average Stack Temperature (°F)	971.04
Stack Area (sq in)	1885.74
Actual Meter Volume (cu ft)	111.171
Average Meter Pressure (in H2O)	0.78
Average Meter Temperature (°F)	87.98
Moisture Collected (g)	284.60
Carbon Dioxide Concentration (%V)	16.0
Oxygen Concentration (%V)	16.0
Nitrogen Concentration (%V)	68.0
Dry Gas Meter Factor	0.9880
Nozzle Diameter (in)	0.265
Pitot Constant	0.84
Average Sampling Rate (dscfm)	0.586
Standard Metered Volume (dscf)	105.428
Standard Metered Volume (dscm)	2.986
Stack Moisture (%V)	11.29
Mole Fraction Dry Stack Gas	0.887
Dry Molecular Weight	31.20
Wet Molecular Weight	29.71
Stack Gas Velocity (fpm)	4287.09
Stack Gas Velocity (mpm)	1306.70
Volumetric Flow Rate (acfm)	56141.22
Volumetric Flow Rate (acmm)	1589.92
Volumetric Flow Rate (dscfm)	18227.80
Volumetric Flow Rate (dscmm)	516.21
Percent Isokinetic	94.45
Percent Excess Air	814.00
Concentration (g/dscm)	0.00
Emissions (kg/hr)	0.00
Concentration (ppmv)	0.00
Emissions (lb/hr)	0.00

AIR PRODUCTS
Run 1 Location: Sales
DATE: 07/17/96

Clock Time	Test Time	Vm	Delta-P	SQRT DP	Delta-H	Flue Gas Temp	Inlet Temp		Outlet Temp
		328.6							
		335.4			3.00		80		80
		339.63			2.10		80		80
		344.84			2.00		80		80
		349.95			2.00		80		80
		355.15			2.00		82		82
		360.15			2.00		83		83
		365.41			2.00		82		82
		370.51			2.00		82		82
		375.2			2.00		83		83
		380.99			2.00		83		83
		386.09			2.00		83		83
		391.1			2.00		83		83
		391.1							
		396.31			2.00		84		84
		401.38			2.00		84		84
		406.39			2.00		84		84
		411.42			2.00		84		84
		416.45			2.00		84		84
		421.49			1.80		84		84
		426.56			1.80		85		85
		431.62			1.80		85		85
		436.6			1.80		85		85
		441.77			1.80		85		85
		446.65			1.80		85		85
		451.89			1.80		85		85
		451.89							
		457.17			1.80		85		85
		462.02			1.80		86		86
		467.16			1.80		86		86
		472.19			1.80		86		86
		477.28			1.80		86		86
		482.34			1.80		86		86
		487.43			1.80		87		87
		491.99			1.80		87		87
		497			1.80		87		87
		502.68			1.80		87		87
		507.82			1.80		87		87
		513.08			1.80		87		87
Total =	0	184.480	Avg. =	ERR	1.93	ERR	84.22	84.22	84.22

Bar. Press	30.01	Vmstd	177.300 cf
Static Press	0	% H2O	-0.09
Yd	0.983	Md	1.001
H20 Collected	-3.5	MWd	28.00
O2	0	MW	28.01
CO2	0	velocity	ERR
Stack Area	0	Qstd	ERR
Nozzle Dia	0	% Isokenetic	ERR

AIR PRODUCTS
Run 2 Location: Sales
DATE. 07/17/96

Clock Time	Test Time	Vm	Delta-P	SQRT DP	Delta-H	Flue Gas Temp	Inlet Temp		Outlet Temp
		513.13							
		518.38			1.80		88		88
		523.48			1.80		89		89
		528.58			1.80		90		90
		533.65			1.80		90		90
		538.75			1.80		90		90
		543.84			1.80		90		90
		548.94			1.80		90		90
		554.05			1.80		90		90
		559.25			1.80		90		90
		564.25			1.80		90		90
		569.05			1.80		90		90
		574.45			1.80		90		90
		574.45							
		579.6			1.80		90		90
		585.61			1.80		90		90
		589.65			1.80		90		90
		594.05			1.80		90		90
		600.5			1.80		90		90
		605.31			1.80		90		90
		610.35			1.80		90		90
		615.68			1.80		91		91
		620.08			1.80		91		91
		625.08			1.80		91		91
		631.23			1.80		91		91
		636.55			1.80		91		91
		636.55							
		641.65			1.80		91		91
		646.85			1.80		91		91
		651.06			1.80		91		91
		657.36			1.80		91		91
		663.03			1.80		91		91
		667.61			1.80		91		91
		672.88			1.80		91		91
		678.01			1.80		92		92
		683.21			1.80		92		92
		689			1.80		92		92
		693.55			1.80		92		92
		698.73			1.80		92		92
Total =	0	185.600	Avg. =	ERR	1.80	ERR	90.53	91	90.53

Bar. Press	30.01	Vmstd	176.279 cf
Static Press	0	% H2O	-0.09
Yd	0.983	Md	1.001
H20 Collected	-1.9	MWd	28.00
O2	0	MW	28.01
CO2	0	velocity	ERR
Stack Area	0	Qstd	ERR
Nozzle Dia	0	% Isokenetic	ERR

AIR PRODUCTS
Run 3 Location: Sales
DATE: 07/18/96

Clock Time	Test Time	Vm	Delta-P	SQRT DP	Delta-H	Flue Gas Temp	Inlet Temp		Outlet Temp
		698.91							
		704.01			1.80		77		77
		709.98			1.80		77		77
		715.1			1.80		77		77
		720.17			1.80		77		77
		725.19			1.80		77		77
		730.54			1.80		78		78
		735.2			1.80		78		78
		740.31			1.80		78		78
		745.42			1.80		78		78
		750.57			1.80		79		79
		755.67			1.80		79		79
		760.79			1.80		79		79
		760.79							
		765.88			1.80		79		79
		771.07			1.80		80		80
		776.11			1.80		80		80
		781.65			1.80		80		80
		787.05			1.80		80		80
		791.65			1.80		80		80
		797.05			1.80		80		80
		802.15			1.80		80		80
		807.34			1.80		80		80
		812.45			1.80		81		81
		817.25			1.80		82		82
		822.99			1.80		82		82
		822.99							
		828.13			1.80		83		83
		833.31			1.80		83		83
		838.48			1.80		84		84
		843.64			1.80		84		84
		848.78			1.80		84		84
		853.89			1.80		85		85
		858.99			1.80		85		85
		864.17			1.80		85		85
		869.32			1.80		85		85
		874.48			1.80		85		85
		879.64			1.80		86		86
		884.89			1.80		86		86
Total =	0	185.980	Avg. =	ERR	1.80	ERR	80.92	81	80.92

Bar. Press	30.01	Vmstd	179.779	cf
Static Press	0	% H2O	-0.09	
Yd	0.983	Md	1.001	
H20 Collected	4.4	MWd	28.00	
O2	0	MW	28.01	
CO2	0	velocity	ERR	
Stack Area	0	Qstd	ERR	
Nozzle Dia	0	% Isokenetic	ERR	

AIR PRODUCTS
Run 1 Location North Header
DATE: 07/16/96

Clock Time	Test Time	Vm	Delta-P	SQRT DP	Delta-H	Flue Gas Temp	Inlet Temp		Outlet Temp
		435.95							
		437.76			0.28		84		83
		439.18			0.28		85		85
		440.86			0.28		86		85
		447.32			0.28		85		85
		443.88			0.28		85		85
		445.44			0.28		88		86
		447.05			0.28		88		87
		450.18			0.28		88		87
		451.82			0.28		88		87
		452.15			0.26		88		87
		456.35			0.26		88		87
		454.95			0.27		89		87
		454.95							
		456.3			0.27		89		87
		458.02			0.27		90		87
		459.63			0.27		91		87
		461.17			0.27		91		87
		462.75			0.27		91		88
		464.4			0.27		91		88
		465.94			0.27		91		88
		467.45			0.27		91		88
		468.96			0.27		91		88
		470.43			0.27		91		88
		471.95			0.27		91		88
		476.63			0.27		91		88
		473.63							
		475.1			0.27		90		89
		476.63			0.27		91		90
		478.27			0.27		92		89
		479.76			0.27		92		90
		481.8			0.28		92		90
		482.76			0.28		93		90
		484.42			0.27		93		90
		485.92			0.28		93		90
		487.21			0.28		93		90
		489.35			0.27		94		90
		490.73			0.27		94		90
		491.05			0.27		94		90
		491.05							
		493.62			0.27		94		91
		495.37			0.27		94		90
		496.63			0.27		93		90
		498.28			0.26		92		90
		499.72			0.27		93		90
		501.33			0.28		93		92
		502.83			0.27		93		92
		504.44			0.28		93		91
		505.95			0.28		93		91
		506.64			0.28		95		90
Total =	0	70.69	Avg. =	ERR	0.27	ERR	90.76	89.60	88.43

Bar. Press	29.98	Vmstd	67.685 cf
Static Press	0	% H2O	-0.24
Yd	0.994	Md	1.002
H20 Collected	114.7	MWd	28.00
O2	0	MW	28.02
CO2	0	velocity	ERR
Stack Area	0	Qstd	ERR
Nozzle Dia	0	% Isokenetic	ERR

AIR PRODUCTS
Run 2 Location. North Header
DATE: 07/16/96

Clock Time	Test Time	Vm	Delta-P	SQRT DP	Delta-H	Flue Gas Temp	Inlet Temp		Outlet Temp
		508.255							
		510.33			0.28		106		101
		511.85			0.29		106		101
		513.57			0.29		106		101
		515.15			0.29		107		101
		516.76			0.29		107		101
		518.58			0.29		107		101
		520.15			0.29		108		102
		521.63			0.29		107		106
		523.25			0.29		107		106
		525.07			0.29		107		104
		527			0.30		108		104
		528.14			0.30		108		104
		528.14							
		529.87			0.29		108		105
		531.51			0.29		108		105
		533.06			0.29		108		105
		534.63			0.29		108		106
		536.22			0.30		108		106
		537.86			0.29		108		105
		539.53			0.29		108		105
		541.24			0.29		108		105
		543.23			0.29		108		105
		544.32			0.28		103		103
		545.95			0.29		101		101
		547.72			0.29		100		100
		547.72							
		549.15			0.29		99		99
		550.65			0.29		99		99
		552.26			0.29		106		101
		553.93			0.29		106		101
		555.74			0.29		107		100
		557.72			0.29		107		100
		558.88			0.29		107		100
		560.37			0.29		107		101
		562.16			0.29		107		101
		563.55			0.29		104		101
		565.63			0.28		105		102
		566.87			0.28		104		100
		566.87							
		568.72			0.28		104		100
		570.32			0.29		104		100
		571.7			0.29		102		100
		573.37			0.29		94		92
		575.14			0.29		94		92
		576.56			0.29		94		91
Total =	0	68.31	Avg. =	0.000	0.29	ERR	105.00	103.25	101.50

Bar. Press	29.98	Vmstd	63.819 cf
Static Press	0	% H2O	-0.26
Yd	0.994	Md	1.003
H20 Collected	130.9	MWd	28.00
O2	0	MW	28.03
CO2	0	velocity	ERR
Stack Area	0	Qstd	ERR
Nozzle Dia	0	% Isokenetic	ERR

AIR PRODUCTS
Run 3 Location: North Header
DATE: 07/17/96

Clock Time	Test Time	Vm	Delta-P	SQRT DP	Delta-H	Flue Gas Temp	Inlet Temp		Outlet Temp
		577.77							
		579.45			0.27		91		90
		581.12			0.27		91		90
		582.65			0.27		92		90
		584.18			0.27		92		90
		585.83			0.28		92		90
		587.32			0.28		93		90
		588.88			0.28		93		90
		590.52			0.28		94		90
		592.03			0.27		94		92
		593.76			0.27		94		93
		594.95			0.27		94		93
		596.82			0.27		94		93
		596.82							
		597.95			0.27		94		93
		600			0.27		94		93
		601.55			0.27		94		93
		602.25			0.27		94		92
		604.85			0.27		95		92
		606.24			0.27		95		92
		608.25			0.27		95		92
		609.84			0.27		95		93
		611.57			0.27		96		94
		612.75			0.27		96		94
		614.32			0.27		95		94
		616.07			0.27		96		94
		616.07							
		617.28			0.29		96		94
		619.08			0.29		97		94
		619.08			0.28		97		95
		620.68			0.28		98		95
		622.35			0.28		97		95
		623.82			0.27		98		97
		625.53			0.27		99		96
		627.07			0.27		100		97
		628.53			0.27		100		97
		630.04			0.27		100		97
		632.23			0.27		100		99
		633.25			0.27		100		99
		634.85			0.27		100		91
		634.85							
		636.62			0.27		100		99
		638.86			0.27		100		99
		641.42			0.27		100		99
		642.63			0.27		100		99
Total =	0	64.86	Avg =	ERR	0.27	ERR	95.98	94.93	93.86

Bar. Press	30.01	Vmstd	61.568 cf
Static Press	0	% H2O	-0.27
Yd	0.994	Md	1.003
H20 Collected	93.6	MWd	28.00
O2	0	MW	28.03
CO2	0	velocity	ERR
Stack Area	0	Qstd	ERR
Nozzle Dia	0	% Isokenetic	ERR

AIR PRODUCTS
Run 1 Location: South Header
DATE: 07/16/96

Clock Time	Test Time	Vm	Delta-P	SQRT DP	Delta-H	Flue Gas Temp	Inlet Temp		Outlet Temp
		253.18							
		255.05			0.30		84		80
		256.61			0.30		83		81
		258.35			0.30		81		81
		259.88			0.30		83		82
		261.55			0.30		85		83
		263.15			0.30		85		83
		264.85			0.30		86		84
		266.44			0.28		86		84
		268.01			0.26		86		84
		269.43			0.26		87		85
		270.98			0.26		87		85
		272.57			0.26		88		85
		272.57							
		274.02			0.26		88		86
		275.68			0.26		88		86
		277.32			0.26		88		86
		278.88			0.26		88		86
		280.03			0.26		88		86
		281.88			0.26		88		86
		283.55			0.26		90		88
		285.13			0.26		90		87
		286.66			0.27		91		88
		288.15			0.27		90		88
		289.72			0.27		91		88
		291.44			0.27		93		89
		291.44							
		292.93			0.28		93		90
		294.57			0.29		93		90
		296.63			0.30		89		88
		297.93			0.30		91		89
		299.9			0.31		92		89
		301.16			0.31		92		89
		302.72			0.28		90		89
		303.31			0.26		90		89
		304.86			0.26		91		90
		307.38			0.26		91		90
		309.02			0.26		91		90
		310.47			0.26		91		90
		310.47							
		312.05			0.26		91		90
		313.65			0.26		90		90
		315.12			0.26		91		89
		316.6			0.26		91		89
		318.41			0.27		92		90
		319.83			0.29		93		90
		321.53			0.27		93		90
		322.92			0.27		93		91
		324.52			0.27		92		91
		326.51			0.25		92		91
Total =	0	73.33	Avg. =	ERR	0.27	ERR	89.26	88.27	87.28

Bar. Press	29.98	Vmstd	69.604 cf
Static Press	0	% H2O	24.79
Yd	0.983	Md	0.752
H20 Collected	90.2	MWd	127.20
O2	0	MW	100.13
CO2	0	velocity	ERR
Stack Area	0	Qstd	ERR
Nozzle Dia	0	% Isokenetic	ERR

AIR PRODUCTS
Run 2 Location. South Header
DATE 07/16/96

Clock Time	Test Time	Vm	Delta-P	SQRT DP	Delta-H	Flue Gas Temp	Inlet Temp		Outlet Temp
		238.58							
		240.26			0.27		99		98
		241.96			0.27		100		99
		243.35			0.27		100		99
		244.95			0.27		100		100
		246.52			0.27		100		100
		248.16			0.27		103		101
		250.23			0.27		104		101
		251.15			0.27		104		101
		252.66			0.27		106		102
		254.38			0.28		106		102
		255.75			0.28		107		102
		257.38			0.27		108		102
		257.38							
		258.96			0.27		108		102
		259.16			0.27		104		100
		261.53			0.27		105		100
		262.95			0.27		105		100
		264.65			0.27		106		100
		266.57			0.27		106		100
		268.13			0.28		107		101
		267.85			0.27		107		101
		271.72			0.27		105		100
		272.73			0.27		104		100
		274.33			0.27		100		100
		275.85			0.26		100		99
		275.85							
		277.35			0.26		99		97
		278.85			0.26		99		97
		280.38			0.26		100		99
		281.72			0.26		102		100
		283.47			0.26		103		101
		285.15			0.26		103		101
		286.68			0.26		103		101
		288.15			0.26		103		100
		289.83			0.27		103		101
		291.22			0.26		101		99
		292.83			0.27		101		99
		294.41			0.27		101		99
		294.41							
		295.93			0.27		101		98
		297.52			0.27		100		98
		299.15			0.27		100		98
		300.52			0.27		95		93
		302.22			0.27		94		94
		303.78			0.27		95		95
Total =	0	65.20	Avg. =	ERR	0.27	ERR	102.31	100.92	99.52

Bar. Press	29.98	Vmstd	60.614 cf
Static Press	0	% H2O	-0.27
Yd	0.985	Md	1.003
H2O Collected	83.6	MWd	28.00
O2	0	MW	28.03
CO2	0	velocity	ERR
Stack Area	0	Qstd	ERR
Nozzle Dia	0	% Isokenetic	ERR

AIR PRODUCTS
Run 3 Location: South Header
DATE: 07/16/96

Clock Time	Test Time	Vm	Delta-P	SQRT DP	Delta-H	Flue Gas Temp	Inlet Temp		Outlet Temp
		310.48							
		312.2			0.26		87		84
		313.46			0.26		87		84
		314.55			0.26		88		84
		316.58			0.26		88		84
		318.02			0.26		89		86
		319.53			0.26		89		86
		321.07			0.27		89		86
		322.64			0.27		90		86
		324.15			0.27		90		86
		325.89			0.27		91		86
		327.45			0.27		91		86
		328.83			0.27		91		86
		328.83							
		329.84			0.27		91		87
		331.81			0.27		91		87
		333.34			0.27		91		87
		335.02			0.27		91		88
		336.55			0.27		92		89
		338.02			0.27		93		90
		339.25			0.27		93		90
		340.26			0.27		93		90
		341.54			0.27		93		90
		344.32			0.27		90		89
		345.88			0.27		91		90
		347.35			0.27		91		90
		347.35							
		349.15			0.27		91		90
		350.65			0.27		91		90
		351.95			0.27		91		90
		353.45			0.27		91		90
		355.02			0.27		91		90
		356.67			0.27		92		91
		358.18			0.27		93		90
		359.67			0.27		94		90
		361.28			0.27		95		94
		363.24			0.27		99		94
		364.35			0.27		99		94
		365.75			0.27		100		94
		365.75							
		367.43			0.27		100		94
		369.54			0.27		100		94
		372.06			0.27		100		95
		373.59			0.27		100		95
Total =	0	63.11	Avg. =	ERR	0.27	ERR	92.43	90.79	89.15

Bar. Press	30.01	Vmstd	59.810 cf
Static Press	0	% H2O	-0.28
Yd	0.985	Md	1.003
H20 Collected	78	MWd	28.00
O2	0	MW	28.03
CO2	0	velocity	ERR
Stack Area	0	Qstd	ERR
Nozzle Dia	0	% Isokenetic	ERR

Appendix C

EPA Method 29

Method 29 - Determination of Metals Emissions from Stationary Sources

1. Applicability and Principle

1.1 Applicability. This method is applicable to the determination of antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), lead (Pb), manganese (Mn), mercury (Hg), nickel (Ni), phosphorus (P), selenium (Se), silver (Ag), thallium (Tl), and zinc (Zn) emissions from stationary sources. This method may be used to determine particulate emissions in addition to the metals emissions if the prescribed procedures and precautions are followed.

1.1.1 Hg emissions can be measured, alternatively, using EPA Method 101A of Appendix B, 40 CFR Part 61. Method 101-A measures only Hg but it can be of special interest to sources which need to measure both Hg and Mn emissions.

1.2 Principle. A stack sample is withdrawn isokinetically from the source, particulate emissions are collected in the probe and on a heated filter, and gaseous emissions are then collected in an aqueous acidic solution of hydrogen peroxide (analyzed for all metals including Hg) and an aqueous acidic solution of potassium permanganate (analyzed only for Hg). The recovered samples are digested, and appropriate fractions are analyzed for Hg by cold vapor atomic absorption spectroscopy (CVAAS) and for Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Ni, P, Se, Ag, Tl, and Zn by inductively coupled argon plasma emission spectroscopy (ICAP) or atomic absorption spectroscopy (AAS). Graphite furnace atomic absorption spectroscopy (GFAAS) is used for analysis of Sb, As, Cd, Co, Pb, Se, and Tl if these elements require greater analytical sensitivity than can be obtained by ICAP. If one so chooses, AAS may be used for analysis of all listed metals if the resulting in-stack method detection limits meet the goal of the testing program. Similarly, inductively coupled plasma-mass spectroscopy (ICP-MS) may be used for analysis of Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Ni, As, Tl and Zn.

2. Range, Detection Limits, Precision, and Interferences

2.1 Range. For the analysis described and for similar analyses, the ICAP response is linear over several orders of magnitude. Samples containing metal concentrations in the nanograms per ml (ng/ml) to micrograms per ml (μg/ml) range in the final analytical solution can be analyzed using this method. Samples containing greater than approximately 50 μg/ml As, Cr, or Pb should be diluted to that level or lower for final analysis. Samples containing greater than approximately 20 μg/ml of Cd should be diluted to that level before analysis.

2.2 Analytical Detection Limits.

NOTE: See Section 2.3 for the description of in-stack detection limits.

2.2.1 ICAP analytical detection limits for the sample solutions (based on SW-846, Method 6010) are approximately as follows: Sb (32 ng/ml), As (53 ng/ml), Ba (2 ng/ml), Be (0.3 ng/ml), Cd (4 ng/ml), Cr (7 ng/ml), Co (7 ng/ml), Cu (6 ng/ml), Pb (42 ng/ml), Mn (2 ng/ml), Ni (15 ng/ml), P (75 ng/ml), Se (75 ng/ml), Ag (7 ng/ml), Tl (40 ng/ml), and Zn (2 ng/ml). ICP-MS analytical detection limits (based on SW-846, Method 6020) are lower generally by a factor of ten or more. Be is lower by a factor of three. The actual sample analytical detection limits are sample dependent and may vary due to the sample matrix.

2.2.2 The analytical detection limits for analysis by direct aspiration AAS (based on SW-846, Method 7000 series) are approximately as follow: Sb (200 ng/ml), As (2 ng/ml), Ba (100 ng/ml), Be (5 ng/ml), Cd (5 ng/ml), Cr (50 ng/ml), Co (50 ng/ml), Cu (20 ng/ml), Pb (100 ng/ml), Mn (10 ng/ml), Ni (40 ng/ml), Se (2 ng/ml), Ag (10 ng/ml), Tl (100 ng/ml), and Zn (5 ng/ml).

2.2.3 The detection limit for Hg by CVAAS (on the resultant volume of the digestion of the aliquots taken for Hg analyses) can be approximately 0.02 to 0.2ng/ml, depending upon the type of CVAAS analytical instrument used.

2.2.4 The use of GFAAS can enhance the detection limits compared to direct aspiration AAS as follows: Sb (3 ng/ml), As (1 ng/ml), Be (0.2 ng/ml), Cd (0.1 ng/ml), Cr (1 ng/ml), Co (1 ng/ml), Pb (1 ng/ml), Se (2 ng/ml), and Tl (1 ng/ml).

2.3 In-stack Detection Limits.

2.3.1 For test planning purposes in-stack detection limits can be developed by using the following information: (1) the procedures described in this method, (2) the analytical detection limits described in Section 2.2 and in SW-846, (3) the normal volumes of 300 ml (Analytical Fraction 1) for the front-half and 150 ml (Analytical Fraction 2A) for the back-half samples, and (4) a stack gas sample volume of 1.25 m^3. The resultant in-stack method detection limits for the above set of conditions are presented in Table 29-1 and were calculated by using Eq. 29-1.

$$A \times \frac{B}{C} = D \qquad \text{Eq. 29-1}$$

where:

A = Analytical detection limit, μg/ml.
B = Liquid volume of digested sample prior to aliquotting for analysis, ml.
C = Stack sample gas volume, dsm^3.
D = In-stack detection limit, $\mu g/m^3$.

TABLE 29-1. IN-STACK METHOD DETECTION LIMITS ($\mu g/m^3$) FOR THE FRONT-HALF, THE BACK-HALF, AND THE TOTAL SAMPLING TRAIN USING ICAP AND AAS.

Metal	Front-half: Probe and Filter	Back-half: Impingers 1-3	Back-half: Impingers 4-6[a]	Total Train:
Antimony	[1]7.7 (0.7)	[1]3.8 (0.4)		[1]11.5 (1.1)
Arsenic	[1]12.7 (0.3)	[1]6.4 (0.1)		[1]19.1 (0.4)
Barium	0.5	0.3		0.8
Beryllium	[1]0.07 (0.05)	[1]0.04 (0.03)		[1]0.11 (0.08)
Cadmium	[1]1.0 (0.02)	[1]0.5 (0.01)		[1]1.5 (0.03)
Chromium	[1]1.7 (0.2)	[1]0.8 (0.1)		[1]2.5 (0.3)
Cobalt	[1]1.7 (0.2)	[1]0.8 (0.1)		[1]2.5 (0.3)
Copper	1.4	0.7		2.1
Lead	[1]10.1 (0.2)	[1]5.0 (0.1)		[1]15.1 (0.3)
Manganese	[1]0.5 (0.2)	[1]0.2 (0.1)		[1]0.7 (0.3)
Mercury	[2]0.06	[2]0.3	[2]0.2	[2]0.56
Nickel	3.6	1.8		5.4
Phosphorus	18	9		27
Selenium	[1]18 (0.5)	[1]9 (0.3)		[1]27 (0.8)
Silver	1.7	0.9 (0.7)		2.6
Thallium	[1]9.6 (0.2)	[1]4.8 (0.1)		[1]14.4 (0.3)
Zinc	0.5	0.3		0.8

[a]Mercury analysis only.
[1]Detection limit when analyzed by GFAAS.
[2]Detection limit when analyzed by CVAAS, estimated for Back-half and Total Train. See Sections 2.2 and 5.4.3.
Note: Actual method in-stack detection limits may vary from these values, as described in Section 2.3.3.

2.3.2 To ensure optimum precision/resolution in the analyses, the target concentrations of metals in the analytical solutions should be at least ten times their respective analytical detection limits. Under certain conditions, and with greater care in the analytical procedure, these concentrations can be as low as approximately three times the respective analytical detection limits without seriously impairing the precision of the analyses. On at least one sample run in the source test, and for each metal analyzed, perform either repetitive analyses, Method of Standard Additions, serial dilution, or matrix spike addition, etc., to document the quality of the data.

2.3.3 Actual in-stack method detection limits are based on actual source sampling parameters and analytical results as described above. If required, the method in-stack detection limits can be improved over those shown in Table 29-1 for a specific test by either increasing the sampled stack gas volume, reducing the total volume of the digested samples, improving the analytical detection limits, or any combination of the three. For extremely low levels of Hg only, the aliquot size selected for digestion and analysis can be increased to as much as 10 ml, thus improving the in-stack detection limit by a factor of ten compared to a 1 ml aliquot size.

2.3.3.1 A nominal one hour sampling run will collect a stack gas sampling volume of about 1.25 m^3. If the sampling time is increased to four hours and 5 m^3 are collected, the in-stack method detection limits would be improved by a factor of four compared to the values shown in Table 29-1.

2.3.3.2 The in-stack detection limits assume that all of the sample is digested and the final liquid volumes for analysis are the normal values of 300 ml for Analytical Fraction 1, and 150 ml for Analytical Fraction 2A. If the volume of Analytical Fraction 1 is reduced from 300 to 30 ml, the in-stack detection limits for that fraction of the sample would be improved by a factor of ten. If the volume of Analytical Fraction 2A is reduced from 150 to 25 ml, the in-stack detection limits for that fraction of the sample would be improved by a factor of six. Matrix effect checks are necessary on sample analyses and typically are of much greater significance for samples that have been concentrated to less than the normal original sample volume. Reduction of Analytical Fractions 1 and 2A to volumes of less than 30 and 25 ml, respectively, could interfere with the redissolving of the residue and could increase interference by other compounds to an intolerable level.

2.3.3.3 When both of the modifications described in Sections 2.3.3.1 and 2.3.3.2 are used simultaneously on one sample, the resultant improvements are multiplicative. For example, an increase in stack gas volume by a factor of four and a reduction in the total liquid sample digested volume of both Analytical Fractions 1 and 2A by a factor of six would result in an improvement by a factor of twenty-four of the in-stack method detection limit.

2.4 Precision. The precision (relative standard deviation) for each metal detected in a method development test performed at a sewage sludge incinerator were found to be as follows:
Sb (12.7 percent), As (13.5 percent), Ba (20.6 percent),
Cd (11.5 percent), Cr (11.2 percent), Cu (11.5 percent),
Pb (11.6 percent), P (14.6 percent), Se (15.3 percent),
Tl (12.3 percent), and Zn (11.8 percent). The precision for Ni was 7.7 percent for another test conducted at a source simulator. Be, Mn, and Ag were not detected in the tests. However, based on the analytical detection limits of the ICAP for these metals,

their precisions could be similar to those for the other metals when detected at similar levels.

2.5 Interferences. Iron (Fe) can be a spectral interference during the analysis of As, Cr, and Cd by ICAP. Aluminum (Al) can be a spectral interference during the analysis of As and Pb by ICAP. Generally, these interferences can be reduced by diluting the analytical sample, but such dilution raises the in-stack detection limits. Background and overlap ycorrections may be used to adjust for spectral interferences. Refer to Method 6010 of Citation 1 of the Bibliography or the other analytical methods used for details on potential interferences to this method. For all GFAAS analyses, use matrix modifiers to limit interferences, and matrix match all standards.

3. Apparatus

3.1 Sampling. A schematic of the sampling train is shown in Figure 29-1. It has general similarities to the Method 5 train.

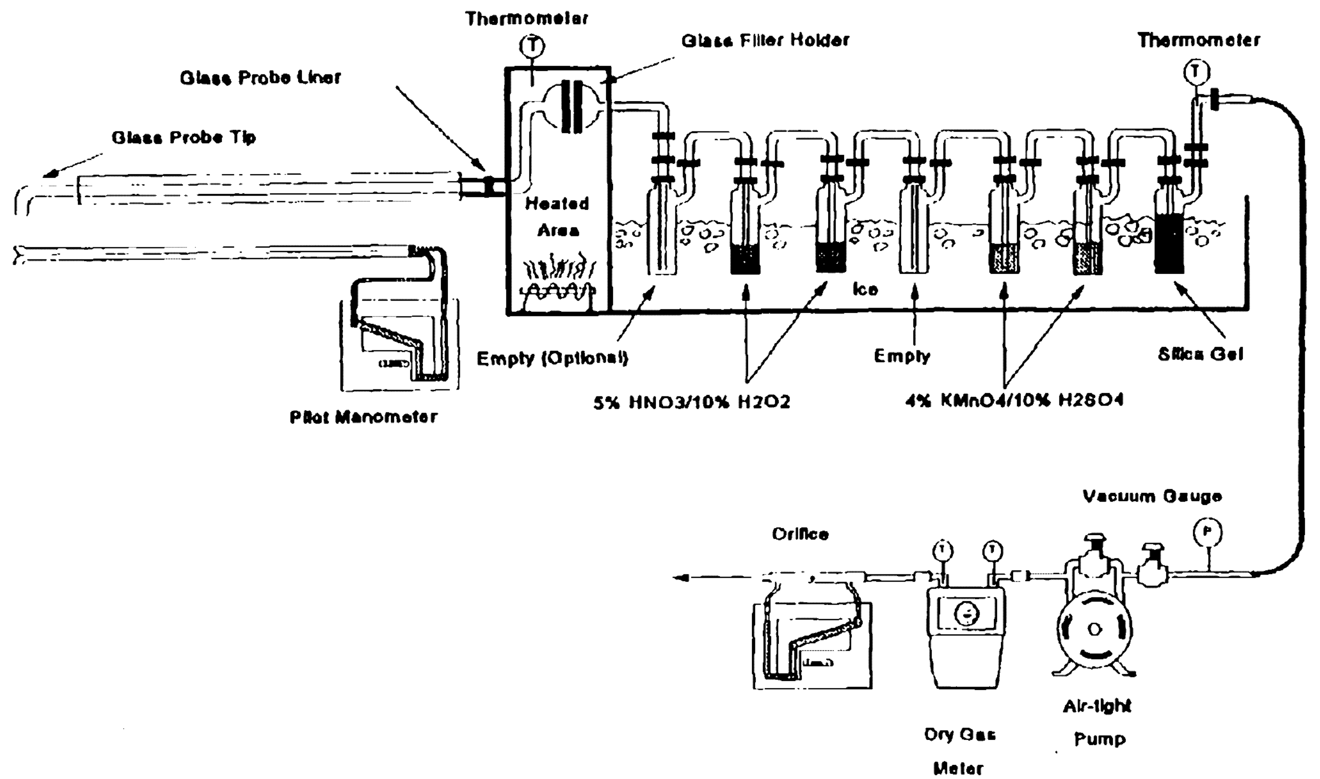


Figure 29-1. Sampling train.

3.1.1 Probe Nozzle (Probe Tip) and Borosilicate or Quartz Glass Probe Liner. Same as Method 5, Sections 2.1.1 and 2.1.2, except that glass nozzles are required unless alternate tips are constructed of materials that are free from contamination and will not interfere with the sample. If a probe tip other than glass is used, no correction to the sample test results to compensate for the nozzle's effect on the sample is allowed. Probe fittings of plastic such as Teflon, polypropylene, etc. are recommended instead of metal fittings to prevent contamination. If one chooses to do so, a single glass piece consisting of a combined probe tip and probe liner may be used.

3.1.2 Pitot Tube and Differential Pressure Gauge. Same as Method 2, Sections 2.1 and 2.2, respectively.

3.1.3 Filter Holder. Glass, same as Method 5, Section 2.1.5, except use a Teflon filter support or other non-metallic, non-contaminating support in place of the glass frit.

3.1.4 Filter Heating System. Same as Method 5, Section 2.1.6.

3.1.5 Condenser. Use the following system for condensing and collecting gaseous metals and determining the moisture content of the stack gas. The condensing system shall consist of four to seven impingers connected in series with leak-free ground glass fittings or other leak-free, non-contaminating fittings. Use the first impinger as a moisture trap. The second impinger (which is the first HNO_3/H_2O_2 impinger) shall be identical to the first impinger in Method 5. The third impinger (which is the second HNO_3/H_2O_2 impinger) shall be a Greenburg Smith impinger with the standard tip as described for the second impinger in Method 5, Section 2.1.7. The fourth (empty) impinger and the fifth and sixth (both acidified $KMnO_4$) impingers are the same as the first impinger in Method 5. Place a thermometer capable of measuring to within 1°C (2°F) at the outlet of the last impinger. If no Hg analysis is planned, then the fourth, fifth, and sixth impingers are not used.

3.1.6 Metering System, Barometer, and Gas Density Determination Equipment. Same as Method 5, Sections 2.1.8 through 2.1.10, respectively.

3.1.7 Teflon Tape. For capping openings and sealing connections, if necessary, on the sampling train.

3.2 Sample Recovery. Same as Method 5, Sections 2.2.1 through 2.2.8 (Probe-Liner and Probe-Nozzle Brushes or Swabs, Wash Bottles, Sample Storage Containers, Petri Dishes, Glass Graduated Cylinder, Plastic Storage Containers, Funnel and Rubber Policeman, and Glass Funnel), respectively, with the following exceptions and additions:

3.2.1 Non-metallic Probe-Liner and Probe-Nozzle Brushes or Swabs. Use non-metallic probe-liner and probe-nozzle brushes or swabs for quantitative recovery of materials collected in the front-half of the sampling train.

3.2.2 Sample Storage Containers. Use glass bottles (see the **Precaution:** in Section 4.3.2 of this Method) with Teflon-lined caps that are non-reactive to the oxidizing solutions, with capacities of 1000- and 500-ml, for storage of acidified $KMnO_4$-

containing samples and blanks. Glass or polyethylene bottles may be used for other sample types.

3.2.3 Graduated Cylinder. Glass or equivalent.

3.2.4 Funnel. Glass or equivalent.

3.2.5 Labels. For identifying samples.

3.2.6 Polypropylene Tweezers and/or Plastic Gloves. For recovery of the filter from the sampling train filter holder.

3.3 Sample Preparation and Analysis.

3.3.1 Volumetric Flasks, 100-ml, 250-ml, and 1000-ml. For preparation of standards and sample dilutions.

3.3.2 Graduated Cylinders. For preparation of reagents.

3.3.3 Parr® Bombs or Microwave Pressure Relief Vessels with Capping Station (CEM Corporation model or equivalent). For sample digestion.

3.3.4 Beakers and Watch Glasses. 250-ml beakers, with watch glass covers, for sample digestion.

3.3.5 Ring Stands and Clamps. For securing equipment such as filtration apparatus.

3.3.6 Filter Funnels. For holding filter paper.

3.3.7 Disposable Pasteur Pipets and Bulbs.

3.3.8 Volumetric Pipets.

3.3.9 Analytical Balance. Accurate to within 0.1 mg.

3.3.10 Microwave or Conventional Oven. For heating samples at fixed power levels or temperatures, respectively.

3.3.11 Hot Plates.

3.3.12 Atomic Absorption Spectrometer (AAS). Equipped with a background corrector.

3.3.12.1 Graphite Furnace Attachment. With Sb, As, Cd, Co, Pb, Se, and Tl hollow cathode lamps (HCLs) or electrodeless discharge lamps (EDLs). Same as Bibliography Citation 1 Methods 7041 (Sb), 7060 (As), 7131 (Cd), 7201 (Co), 7421 (Pb), 7740 (Se), and 7841 (Tl).

3.3.12.2 Cold Vapor Mercury Attachment. With a mercury HCL or EDL, an air recirculation pump, a quartz cell, an aerator apparatus, and a heat lamp or desiccator tube. The heat lamp shall be capable of raising the temperature at the quartz cell by 10°C above ambient, so that no condensation forms on the wall of the quartz cell. Same as Method 7470 in Citation 2 of the Bibliography. See **Note No. 2:** Section 5.4.3 for other acceptable approaches for analysis of Hg in which analytical detection limits of 0.002 ng/ml were obtained.

3.3.13 Inductively Coupled Argon Plasma Spectrometer. With either a direct or sequential reader and an alumina torch. Same as EPA Method 6010 in Citation 2 of the Bibliography.

3.3.14 Inductively Coupled Plasma-Mass Spectrometer. Same as EPA Method 6020 in Citation 2 of the Bibliograpy.

4. Reagents

4.1 Unless otherwise indicated, it is intended that all reagents conform to the specifications established by the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available. Otherwise, use the best available grade.

4.2 Sampling Reagents.

4.2.1 Sample Filters. Without organic binders. The filters shall contain less than 1.3 $\mu g/in.^2$ of each of the metals to be measured. Analytical results provided by filter manufacturers stating metals content of the filters are acceptable. However, if no such results are available, analyze filter blanks for each target metal prior to emission testing. Quartz fiber filters meeting these requirements are recommended. However, if glass fiber filters become available which meet these requirements, they may be used. Filter efficiencies and unreactiveness to sulfur dioxide (SO_2) or sulfur trioxide (SO_3) shall be as described in Section 3.1.1 of Method 5.

4.2.2 Water. To conform to ASTM Specification D1193-77, Type II (incorporated by reference). If necessary, analyze the water for all target metals prior to field use. All target metals should be less than 1 ng/ml.

4.2.3 Nitric Acid (HNO_3). Concentrated. Baker Instra-analyzed or equivalent.

4.2.4 Hydrochloric Acid (HCL). Concentrated. Baker Instra-analyzed or equivalent.

4.2.5 Hydrogen Peroxide (H_2O_2), 30 Percent (V/V).

4.2.6 Potassium Permanganate ($KMnO_4$).

4.2.7 Sulfuric Acid (H_2SO_4). Concentrated.

4.2.8 Silica Gel and Crushed Ice. Same as Method 5, Sections 3.1.2 and 3.1.4, respectively.

4.3 Pretest Preparation of Sampling Reagents.

4.3.1 HNO_3/H_2O_2 Absorbing Solution, 5 Percent HNO_3/10 Percent H_2O_2. Add carefully with stirring 50 ml of concentrated HNO_3 to a 1000-ml volumetric flask containing approximately 500 ml of water, and then add carefully with stirring 333 ml of 30 percent H_2O_2. Dilute to volume with water. Mix well. This reagent shall contain less than 2 ng/ml of each target metal.

4.3.2 Acidic $KMnO_4$ Absorbing Solution, 4 Percent $KMnO_4$ (W/V), 10 Percent H_2SO_4 (V/V). Prepare fresh daily. Mix carefully, with stirring, 100 ml of concentrated H_2SO_4 into approximately 800 ml of water, and add water with stirring to make a volume of 1 liter: this solution is 10 percent H_2SO_4 (V/V). Dissolve, with stirring, 40 g of $KMnO_4$ into 10 percent H_2SO_4 (V/V) and add 10 percent H_2SO_4 (V/V) with stirring to make a volume of 1 liter. Prepare and store in glass bottles to prevent degradation. This reagent shall contain less than 2 ng/ml of Hg.

Precaution: To prevent autocatalytic decomposition of the permanganate solution, filter the solution through Whatman 541 filter paper. Also, due to the potential reaction of the potassium permanganate with the acid, there could be pressure buildup in the solution storage bottle. Therefore these bottles shall not be fully filled and shall be vented to relieve excess pressure and prevent explosion potentials. Venting is required, but not in a manner that will allow contamination of the solution. A No. 70-72 hole drilled in the container cap and Teflon liner has been used.

4.3.3 HNO_3, 0.1 N. Add with stirring 6.3 ml of concentrated HNO_3 (70 percent) to a flask containing approximately 900 ml of water. Dilute to 1000 ml with water.

Mix well. This reagent shall contain less than 2 ng/ml of each target metal.

4.3.4 HCl, 8 N. Carefully add with stirring 690 ml of concentrated HCl to a flask containing 250 ml of water. Dilute to 1000 ml with water. Mix well. This reagent shall contain less than 2 ng/ml of Hg.

4.4 Glassware Cleaning Reagents.

4.4.1 HNO_3, Concentrated. Fisher ACS grade or equivalent.

4.4.2 Water. To conform to ASTM Specifications D1193-77, Type II.

4.4.3 HNO_3, 10 Percent (V/V). Add with stirring 500 ml of concentrated HNO_3 to a flask containing approximately 4000 ml of water. Dilute to 5000 ml with water. Mix well. This reagent shall contain less than 2 ng/ml of each target metal.

4.5 Sample Digestion and Analysis Reagents.

The metals standards, except Hg, may also be made from solid chemicals as described in Citation 3 of the Bibliography. Refer to Citations 1, 2, or 5 of the Bibliography for additional information on Hg standards. The 1000 µg/ml Hg stock solution standard may be made according to Section 6.2.5 of Method 101A.

4.5.1 HCL, Concentrated.

4.5.2 Hydrofluoric Acid (HF), Concentrated.

4.5.3 HNO_3, Concentrated. Baker Instra-analyzed or equivalent.

4.5.4 HNO_3, 50 Percent (V/V). Add with stirring 125 ml of concentrated HNO_3 to 100 ml of water. Dilute to 250 ml with water. Mix well. This reagent shall contain less than 2 ng/ml of each target metal.

4.5.5 HNO_3, 5 Percent (V/V). Add with stirring 50 ml of concentrated HNO_3 to 800 ml of water. Dilute to 1000 ml with water. Mix well. This reagent shall contain less than 2 ng/ml of each target metal.

4.5.6 Water. To conform to ASTM Specifications D1193-77, Type II.

4.5.7 Hydroxylamine Hydrochloride and Sodium Chloride Solution. See Citation 2 of the Bibliography for preparation.

4.5.8 Stannous Chloride. See Citation 2 of the Bibliography for preparation.

4.5.9 $KMnO_4$, 5 Percent (W/V). See Citation 2 of the Bibliography for preparation.

4.5.10 H_2SO_4, Concentrated.

4.5.11 Potassium Persulfate, 5 Percent (W/V). See Citation 2 of the Bibliography for preparation.

4.5.12 Nickel Nitrate, $Ni(NO_3)_2 \cdot 6H_2O$.

4.5.13 Lanthanum Oxide, La_2O_3.

4.5.14 Hg Standard (AAS Grade), 1000 µg/ml.

4.5.15 Pb Standard (AAS Grade), 1000 µg/ml.

4.5.16 As Standard (AAS Grade), 1000 µg/ml.

4.5.17 Cd Standard (AAS Grade), 1000 µg/ml.

4.5.18 Cr Standard (AAS Grade), 1000 µg/ml.

4.5.19 Sb Standard (AAS Grade), 1000 µg/ml.

4.5.20 Ba Standard (AAS Grade), 1000 µg/ml.

4.5.21 Be Standard (AAS Grade), 1000 µg/ml.

4.5.22 Co Standard (AAS Grade), 1000 µg/ml.

4.5.23 Cu Standard (AAS Grade), 1000 μg/ml.
4.5.24 Mn Standard (AAS Grade), 1000 μg/ml.
4.5.25 Ni Standard (AAS Grade), 1000 μg/ml.
4.5.26 P Standard (AAS Grade), 1000 μg/ml.
4.5.27 Se Standard (AAS Grade), 1000 μg/ml.
4.5.28 Ag Standard (AAS Grade), 1000 μg/ml.
4.5.29 Tl Standard (AAS Grade), 1000 μg/ml.
4.5.30 Zn Standard (AAS Grade), 1000 μg/ml.
4.5.31 Al Standard (AAS Grade), 1000 μg/ml.
4.5.32 Fe Standard (AAS Grade), 1000 μg/ml.

4.5.33 Hg Standards and Quality Control Samples. Prepare fresh weekly a 10 μg/ml intermediate Hg standard by adding 5 ml of 1000 μg/ml Hg stock solution prepared according to Method 101A to a 500-ml volumetric flask; dilute with stirring to 500 ml by first carefully adding 20 ml of 15 percent HNO_3 and then adding water to the 500-ml volume. Mix well. Prepare a 200 ng/ml working Hg standard solution fresh daily: add 5 ml of the 10 μg/ml intermediate standard to a 250-ml volumetric flask, and dilute to 250 ml with 5 ml of 4 percent $KMnO_4$, 5 ml of 15 percent HNO_3, and then water. Mix well. Use at least five separate aliquots of the working Hg standard solution and a blank to prepare the standard curve. These aliquots and blank shall contain 0.0, 1.0, 2.0, 3.0, 4.0, and 5.0 ml of the working standard solution containing 0, 200, 400, 600, 800, and 1000 ng Hg, respectively. Prepare quality control samples by making a separate 10 μg/ml standard and diluting until in the calibration range.

4.5.34 ICAP Standards and Quality Control Samples. Calibration standards for ICAP analysis can be combined into four different mixed standard solutions as follows:

MIXED STANDARD SOLUTIONS FOR ICAP ANALYSIS

Solution	Elements
I	As, Be, Cd, Mn, Pb, Se, Zn
II	Ba, Co, Cu, Fe
III	Al, Cr, Ni
IV	Ag, P, Sb, Tl

Prepare these standards by combining and diluting the appropriate volumes of the 1000 μg/ml solutions with 5 percent HNO_3. A minimum of one standard and a blank can be used to form each calibration curve. However, prepare a separate quality control sample spiked with known amounts of the target metals in quantities in the mid-range of the calibration curve. Suggested standard levels are 25 μg/ml for Al, Cr and Pb, 15 μg/ml for Fe, and 10 μg/ml for the remaining elements. Prepare any standards containing less than 1 μg/ml of metal on a daily basis. Standards containing greater than 1 μg/ml of metal should be stable for a minimum of 1 to 2 weeks. For ICP-MS, follow Method 6020 in SW-846.

4.5.35 GFAAS Standards. Sb, As, Cd, Co, Pb, Se, and Tl. Prepare a 10 μg/ml standard by adding 1 ml of 1000 μg/ml standard to a 100-ml volumetric flask. Dilute with stirring to 100 ml with 10 percent HNO_3. For GFAAS, matrix match the standards.

Prepare a 100 ng/ml standard by adding 1 ml of the 10 µg/ml standard to a 100-ml volumetric flask, and dilute to 100 ml with the appropriate matrix solution. Prepare other standards by diluting the 100 ng/ml standards. Use at least five standards to make up the standard curve. Suggested levels are 0, 10, 50, 75, and 100 ng/ml. Prepare quality control samples by making a separate 10 µg/ml standard and diluting until it is in the range of the samples. Prepare any standards containing less than 1 µg/ml of metal on a daily basis. Standards containing greater than 1 µg/ml of metal should be stable for a minimum of 1 to 2 weeks.

4.5.36 Matrix Modifiers.

4.5.36.1 Nickel Nitrate, 1 Percent (V/V). Dissolve 4.956 g of $Ni(NO_3)_2 \cdot 6H_2O$ or other nickel compound suitable for preparation of this matrix modifier in approximately 50 ml of water in a 100-ml volumetric flask. Dilute to 100 ml with water.

4.5.36.2 Nickel Nitrate, 0.1 Percent (V/V). Dilute 10 ml of 1 percent nickel nitrate solution to 100 ml with water. Inject an equal amount of sample and this modifier into the graphite furnace during GFAAS analysis for As.

4.5.36.3 Lanthanum. Carefully dissolve 0.5864 g of La_2O_3 in 10 ml of concentrated HNO_3, and dilute the solution by adding it with stirring to approximately 50 ml of water. Dilute to 100 ml with water, and mix well. Inject an equal amount of sample and this modifier into the graphite furnace during GFAAS analysis for Pb.

4.5.37 Whatman 40 and 541 Filter Papers (or equivalent). For filtration of digested samples.

5. Procedure

5.1 Sampling. The complexity of this method is such that, to obtain reliable results, both testers and analysts must be trained and experienced with the test procedures, including source sampling; reagent preparation and handling; sample handling; safety equipment and procedures; analytical calculations; reporting; and the specific procedural descriptions throughout this method.

5.1.1 Pretest Preparation. Follow the same general procedure given in Method 5, Section 4.1.1, except that, unless particulate emissions are to be determined, the filter need not be desiccated or weighed. First, rinse all sampling train glassware with hot tap water and then wash in hot soapy water. Next, rinse glassware three times with tap water, followed by three additional rinses with water. Then soak all glassware in a 10 percent (V/V) nitric acid solution for a minimum of 4 hours, rinse three times with water, rinse a final time with acetone, and allow to air dry. Cover all glassware openings where contamination can occur until the sampling train is assembled for sampling.

5.1.2 Preliminary Determinations. Same as Method 5, Section 4.1.2.

5.1.3 Preparation of Sampling Train.

5.1.3.1 Set up the sampling train as shown in Figure 29-1. Follow the same general procedures given in Method 5, Section 4.1.3, except place 100 ml of the HNO_3/H_2O_2 solution (Section 4.3.1 of this method) in each of the second and third impingers as shown in Figure 29-1. Place 100 ml of the acidic $KMnO_4$ absorbing solution (Section 4.3.2 of this method) in each of the fifth and sixth impingers as shown in Figure 29-1, and transfer approximately 200 to 300 g of pre-weighed silica gel from its container to the last impinger. Alternatively, the silica gel may be weighed directly in the impinger just prior to final train assembly.

5.1.3.2 Based on the specific source sampling conditions, the use of an empty first impinger can be eliminated if the moisture to be collected in the impingers will be less than approximately 100 ml.

5.1.3.3 If Hg analysis will not be performed, the fourth, fifth, and sixth impingers as shown in Figure 29-1 are not required.

5.1.3.4 To insure leak-free sampling train connections and to prevent possible sample contamination problems, use Teflon tape or other non-contaminating material instead of silicone grease.

Precaution: Exercise extreme care to prevent contamination within the train. Prevent the acidic $KMnO_4$ from contacting any glassware that contains sample material to be analyzed for Mn. Prevent acidic H_2O_2 from mixing with the acidic $KMnO_4$.

5.1.4 Leak-Check Procedures. Follow the leak-check procedures given in Method 5, Section 4.1.4.1 (Pretest Leak-Check), Section 4.1.4.2 (Leak-Checks During the Sample Run), and Section 4.1.4.3 (Post-Test Leak-Checks).

5.1.5 Sampling Train Operation. Follow the procedures given in Method 5, Section 4.1.5. When sampling for Hg, use a procedure analagous to that described in Section 7.1.1 of Method 101A, 40 CFR Part 61, Appendix B, if necessary to maintain the desired color in the last acidified permanganate impinger. For each run, record the data required on a data sheet such as the one shown in Figure 5-2 of Method 5.

5.1.6 Calculation of Percent Isokinetic. Same as Method 5, Section 4.1.6.

5.2 Sample Recovery.

5.2.1 Begin cleanup procedures as soon as the probe is removed from the stack at the end of a sampling period. The probe should be allowed to cool prior to sample recovery. When it can be safely handled, wipe off all external particulate matter near the tip of the probe nozzle and place a rinsed, non-contaminating cap over the probe nozzle to prevent losing or gaining particulate matter. Do not cap the probe tip tightly while the sampling train is cooling; a vacuum can form in the filter holder with the undesired result of drawing liquid from the impingers onto the filter.

5.2.2 Before moving the sampling train to the cleanup site, remove the probe from the sampling train and cap the open outlet. Be careful not to lose any condensate that might be present. Cap the filter inlet where the probe was fastened. Remove the umbilical cord from the last impinger and cap the impinger. Cap the filter holder outlet and impinger inlet. Use non-contaminating caps, whether ground-glass stoppers, plastic caps, serum caps, or Teflon tape to close these openings.

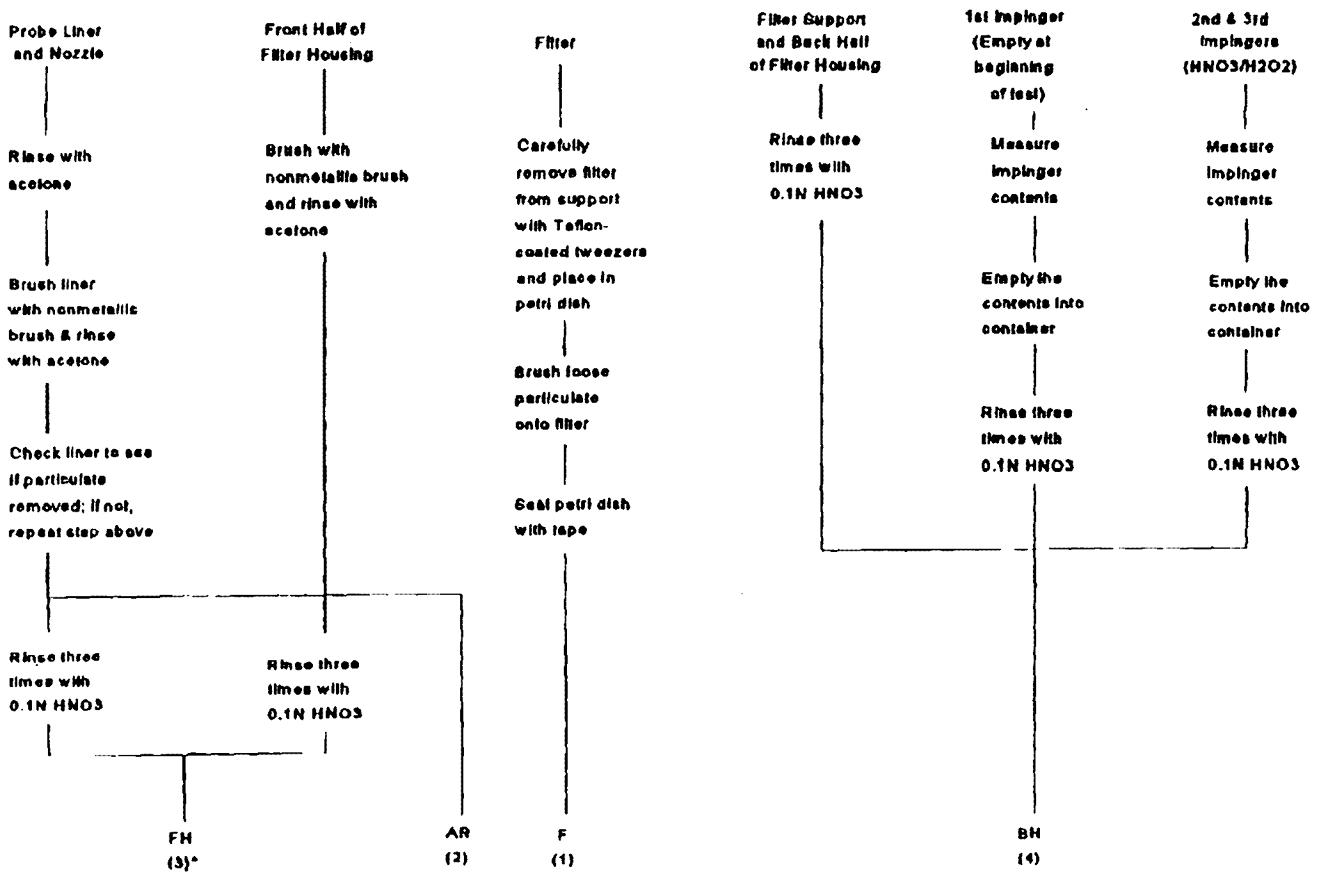
5.2.3 Alternatively, the folowing procedure may be used to disassemble the train before the probe and filter holder/oven are completely cooled: Initially disconnect the filter holder outlet/impinger inlet and loosely cap the open ends. Then disconnect the probe from the filter holder or cyclone inlet and loosely cap the open ends. Cap the probe tip and remove the umbilical cord as previously described.

5.2.4 Transfer the probe and filter-impinger assembly to a cleanup area that is clean and protected from the wind and other potential causes of contamination or loss of sample. Inspect the train before and during disassembly and note any abnormal conditions. Take special precautions to assure that all the items necessary for recovery do not contaminate the samples. The sample is recovered and treated as follows (see schematic in Figures 29-2a and 29-2b):

5.2.5 Container No. 1 (Sample Filter). Carefully remove the filter from the filter holder and place it in its labeled petri dish container. To handle the filter, use either acid-washed polypropylene or Teflon coated tweezers or clean, disposable surgical gloves rinsed with water and dried. If it is necessary to fold the filter, make certain the particulate cake is inside the fold. Carefully transfer the filter and any particulate matter or filter fibers that adhere to the filter holder gasket to the petri dish by using a dry (acid-cleaned) nylon bristle brush. Do not use any metal-containing materials when recovering this train. Seal the labeled petri dish.

5.2.6 Container No. 2 (Acetone Rinse). Perform this procedure only if a determination of particulate emissions is to be made. Quantitatively recover particulate matter and any condensate from the probe nozzle, probe fitting, probe liner, and front half of the filter holder by washing these components with a total of 100 ml of acetone, while simultaneously taking great care to see that no dust on the outside of the probe or other surgfaces gets in the sample. The use of exactly 100 ml is necessary for the subsequent blank correction procedures. Distilled water may be used instead of acetone when approved by the Administrator and shall be used when specified by the Administrator; in these cases, save a water blank and follow the Administrator's directions on analysis.

5.2.6.1 Carefully remove the probe nozzle, and clean the inside surface by rinsing with acetone from a wash bottle while brushing with a non-metallic brush. Brush until the acetone rinse shows no visible particles, then make a final rinse of the inside surface with acetone.



* Number in parentheses indicates container number

Figure 29-2a. Sample recovery scheme.

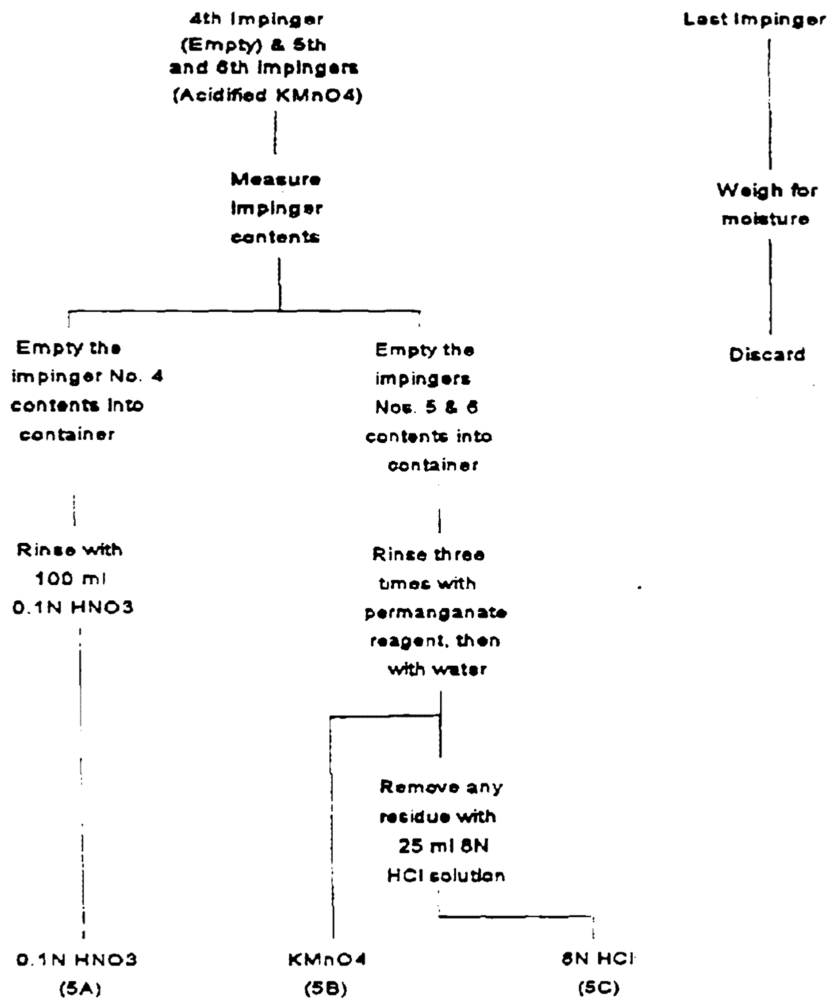


Figure 29-2b. Sample recovery scheme.

5.2.6.2 Brush and rinse the sample exposed inside parts of the probe fitting with acetone in a similar way until no visible particles remain. Rinse the probe liner with acetone by tilting and rotating the probe while squirting acetone into its upper end so that all inside surfaces will be wetted with acetone. Allow the acetone to drain from the lower end into the sample

container. A funnel may be used to aid in transferring liquid washings to the container. Follow the acetone rinse with a non-metallic probe brush. Hold the probe in an inclined position, squirt acetone into the upper end as the probe brush is being pushed with a twisting action three times through the probe. Hold a sample container underneath the lower end of the probe, and catch any acetone and particulate matter which is brushed through the probe until no visible particulate matter is carried out with the acetone or until none remains in the probe liner on visual inspection. Rinse the brush with acetone, and quantitatively collect these washings in the sample container. After the brushing, make a final acetone rinse of the probe as described above.

5.2.6.3 It is recommended that two people clean the probe to minimize sample losses. Between sampling runs, keep brushes clean and protected from contamination. Clean the inside of the front-half of the filter holder by rubbing the surfaces with a non-metallic brush and rinsing with acetone. Rinse each surface. three times or more if needed to remove visible particulate. Make a final rinse of the brush and filter holder. After all acetone washings and particulate matter have been collected in the sample container, tighten the lid so that acetone will not leak out when shipped to the laboratory. Mark the height of the fluid level to determine whether or not leakage occurred during transport. Clearly label the container to identify its contents.

5.2.7 Container No. 3 (Probe Rinse). Keep the probe assembly clean and free from contamination during the probe rinse. Rinse the probe nozzle and fitting, probe liner, and front-half of the filter holder thoroughly with a total of 100 ml of 0.1 N HNO_3, and place the wash into a sample storage container.

NOTE: The use of a total of exactly 100 ml is necessary for the subsequent blank correction procedures.

Perform the rinses as applicable and generally as described in Method 12, Section 5.2.2. Record the volume of the rinses. Mark the height of the fluid level on the outside of the storage container and use this mark to determine if leakage occurs during transport. Seal the container, and clearly label the contents. Finally, rinse the nozzle, probe liner, and front-half of the filter holder with water followed by acetone, and discard these rinses.

5.2.8 Container No. 4 (Impingers 1 through 3, Moisture Knockout Impinger, when used, HNO_3/H_2O_2 Impingers Contents and Rinses). Due to the potentially large quantity of liquid involved, the tester may place the impinger solutions from impingers 1 through 3 in more than one container, if necessary. Measure the liquid in the first three impingers to within 0.5 ml using a graduated cylinder. Record the volume. This information is required to calculate the moisture content of the sampled flue gas. Clean each of the first three impingers, the filter support, the back half of the filter housing, and connecting glassware by thoroughly rinsing with 100 ml of 0.1 N HNO_3 using the procedure as applicable in Method 12, Section 5.2.4.

NOTE: The use of exactly 100 ml of 0.1 N HNO_3 rinse is necessary for the subsequent blank correction procedures.

Combine the rinses and impinger solutions, measure and record the final total volume. Mark the height of the fluid level, seal the container, and clearly label the contents.

5.2.9 Container Nos. 5A (0.1 N HNO_3), 5B ($KMnO_4/H_2SO_4$ absorbing solution), and 5C (8 N HCl rinse and dilution).

5.2.9.1 When sampling for Hg, pour all the liquid from the impinger (normally impinger No. 4) that immediately preceded the two permanganate impingers into a graduated cylinder and measure the volume to within 0.5 ml. This information is required to calculate the moisture content of the sampled flue gas. Place the liquid in Container No. 5A. Rinse the impinger with exactly 100 ml of 0.1 N HNO_3 and place this rinse in Container No. 5A.

5.2.9.2 Pour all the liquid from the two permanganate impingers into a graduated cylinder and measure the volume to within 0.5 ml. This information is required to calculate the moisture content of the sampled flue gas. Place this acidic $KMnO_4$ solution into Container No. 5B. Using a total of exactly 100 ml of fresh acidified $KMnO_4$ solution for all rinses (approximately 33 ml per rinse), rinse the two permanganate impingers and connecting glassware a minimum of three times. Pour the rinses into Container No. 5B, carefully assuring transfer of all loose precipitated materials from the two impingers. Similarly, using 100 ml total of water, rinse the permanganate impingers and connecting glass a minimum of three times, and pour the rinses into Container 5B, carefully assuring transfer of any loose precipitated material. Mark the height of the fluid level, and clearly label the contents. Read the **Precaution:** in Section 4.3.2.

NOTE: Due to the potential reaction of $KMnO_4$ with acid, pressure buildup can occur in the sample storage bottles. Do not fill these bottles completely and take precautions to relieve excess pressure. A No. 70-72 hole drilled in the container cap and Teflon liner has been used successfully.

5.2.9.3 If no visible deposits remain after the water rinse, no further rinse is necessary. However, if deposits remain on the impinger surfaces, wash them with 25 ml of 8 N HCl, and place the wash in a separate sample container labeled No. 5C containing 200 ml of water. First, place 200 ml of water in the container. Then wash the impinger walls and stem with the HCl by turning the impinger on its side and rotating it so that the HCl contacts all inside surfaces. Use a total of only 25 ml of 8 N HCl for rinsing both permanganate impingers combined. Rinse the first impinger, then pour the actual rinse used for the first impinger into the second impinger for its rinse. Finally, pour the 25 ml of 8 N HCl rinse carefully into the container. Mark the height of the fluid level on the outside of the container to determine if leakage occurs during transport.

5.2.10 Container No. 6 (Silica Gel). Note the color of the indicating silica gel to determine whether it has been completely spent and make a notation of its condition. Transfer the silica gel from its impinger to its original container and seal it. The tester may use a funnel to pour the silica gel and a rubber policeman to remove the silica gel from the impinger. The small amount of particles that might adhere to the impinger wall need not be removed. Do not use water or other liquids to transfer the silica gel since weight gained in the silica gel impinger is used for moisture calculations. Alternatively, if a balance is available in the field, record the weight of the spent silica gel (or silica gel plus impinger) to the nearest 0.5 g.

5.2.11 Container No. 7 (Acetone Blank). If particulate emissions are to be determined, at least once during each field test, place a 100-ml portion of the acetone used in the sample recovery process into a container labeled No. 7. Seal the container.

5.2.12 Container No. 8A (0.1 N HNO_3 Blank). At least once during each field test, place 300 ml of the 0.1 N HNO_3 solution used in the sample recovery process into a container labeled No. 8A. Seal the container.

5.2.13 Container No. 8B (Water Blank). At least once during each field test, place 100 ml of the water used in the sample recovery process into a container labeled No. 8B. Seal the container.

5.2.14 Container No. 9 (5 Percent HNO_3/10 Percent H_2O_2 Blank). At least once during each field test, place 200 ml of the 5 Percent HNO_3/10 Percent H_2O_2 solution used as the nitric acid impinger reagent into a container labeled No. 9. Seal the container.

5.2.15 Container No. 10 (Acidified $KMnO_4$ Blank). At least once during each field test, place 100 ml of the acidified $KMnO_4$ solution used as the impinger solution and in the sample recovery process into a container labeled No. 10. Prepare the container as described in Section 5.2.9.2. Read the **Precaution:** in Section 4.3.2. and read the **NOTE** in Section 5.2.9.2.

5.2.16 Container No. 11 (8 N HCl Blank). At least once during each field test, place 200 ml of water into a sample container labeled No. 11. Then carefully add with stirring 25 ml of 8 N HCl. Mix well and seal the container.

5.2.17 Container No. 12 (Sample Filter Blank). Once during each field test, place into a petri dish labeled No. 12 three unused blank filters from the same lot as the sampling filters. Seal the petri dish.

5.3 Sample Preparation. Note the level of the liquid in each of the containers and determine if any sample was lost during shipment. If a noticeable amount of leakage has occurred, either void the sample or use methods, subject to the approval of the Administrator, to correct the final results. A diagram

For conventional heating, heat the Parr[R] Bombs at 140°C (285°F) for 6 hours. Then cool the samples to room temperature, and combine with the acid digested probe rinse as required in Section 5.3.3.

5.3.1.3 If the sampling train includes an optional glass cyclone in front of the filter, prepare and digest the cyclone catch by the procedures described in Section 5.3.1.2 and then combine the digestate with the digested filter sample.

5.3.2 Container No. 2 (Acetone Rinse). Note the level of liquid in the container and confirm on the analysis sheet whether or not leakage occurred during transport. If a noticeable amount of leakage has occurred, either void the sample or use methods, subject to the approval of the Administrator, to correct the final results. Measure the liquid in this container either volumetrically within 1 ml or gravimetrically within 0.5 g. Transfer the contents to an acid-cleaned, tared 250-ml beaker and evaporate to dryness at ambient temperature and pressure. If particulate emissions are being determined, desiccate for 24 hours without added heat, weigh to a constant weight according to the procedures described in Section 4.3 of Method 5, and report the results to the nearest 0.1 mg. Redissolve the residue with 10 ml of concentrated HNO_3. Quantitatively combine the resultant sample, including all liquid and any particulate matter, with Container No. 3 before beginning Section 5.3.3.

5.3.3 Container No. 3 (Probe Rinse). Verify that the pH of this sample is 2 or lower. If it is not, acidify the sample by careful addition with stirring of concentrated HNO_3 to pH 2. Use water to rinse the sample into a beaker, and cover the beaker with a ribbed watch glass. Reduce the sample volume to approximately 20 ml by heating on a hot plate at a temperature just below boiling. Digest the sample in microwave vessels or Parr[R] Bombs by quantitatively transferring the sample to the vessel or bomb, carefully adding the 6 ml of concentrated HNO_3, 4 ml of concentrated HF, and then continuing to follow the procedures described in Section 5.3.1.2. Then combine the resultant sample directly with the acid digested portions of the filter prepared previously in Section 5.3.1.2. The resultant combined sample is referred to as "Sample Fraction 1". Filter the combined sample using Whatman 541 filter paper. Dilute to 300 ml (or the appropriate volume for the expected metals concentration) with water. This diluted sample is "Analytical Fraction 1". Measure and record the volume of Analytical Fraction 1 to within 0.1 ml. Quantitatively remove a 50-ml aliquot and label as "Analytical Fraction 1B". Label the remaining 250-ml portion as "Analytical Fraction 1A". Analytical Fraction 1A is used for ICAP or AAS analysis for all desired metals except Hg. Analytical Fraction 1B is used for the determination of front-half Hg.

5.3.4 Container No. 4 (Impingers 1-3). Measure and record the total volume of this sample to within 0.5 ml and label it "Sample Fraction 2". Remove a 75- to 100-ml aliquot for Hg analysis and label the aliquot "Analytical Fraction 2B". Label the remaining portion of Container No. 4 as "Sample Fraction 2A". Sample Fraction 2A defines the volume of Analytical Fraction 2A prior to digestion. All of Sample Fraction 2A is digested to produce "Analytical Fraction 2A". Analytical Fraction 2A defines the volume of Sample Fraction 2A after its digestion and the volume of Analytical Fraction 2A is normally 150 ml. Analytical Fraction 2A is analyzed for all metals except Hg. Verify that the pH of Sample Fraction 2A is 2 or lower. If necessary, use concentrated HNO_3 by careful addition and stirring to lower Sample Fraction 2A to pH 2. Use water to rinse Sample Fraction 2A into a beaker and then cover the beaker with a ribbed watchglass. Reduce Sample Fraction 2A to approximately 20 ml by heating on a hot plate at a temperature just below boiling. Then follow either of the digestion procedures described in Sections 5.3.4.1 or 5.3.4.2.

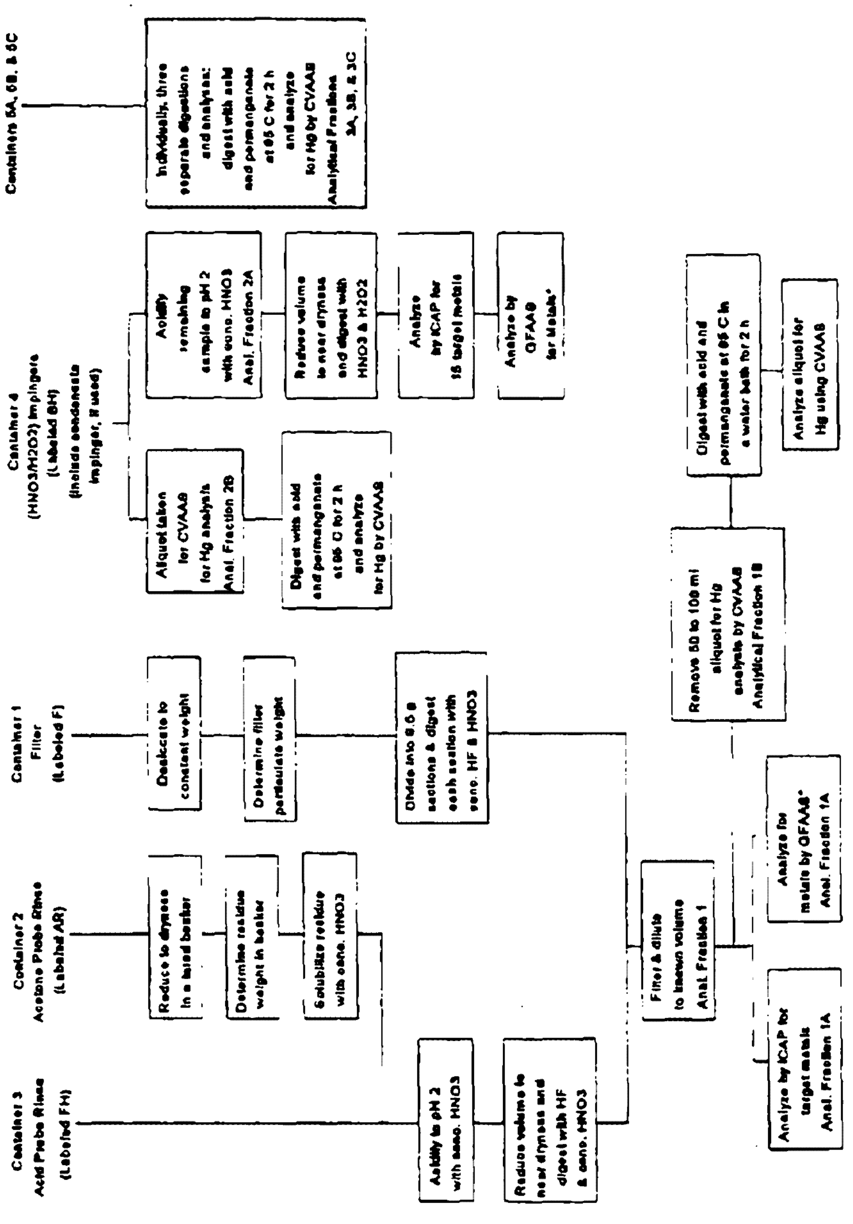
5.3.4.1 Conventional Digestion Procedure. Add 30 ml of 50 percent HNO_3, and heat for 30 minutes on a hot plate to just below boiling. Add 10 ml of 3 percent H_2O_2 and heat for 10 more minutes. Add 50 ml of hot water, and heat the sample for an additional 20 minutes. Cool, filter the sample, and dilute to 150 ml (or the appropriate volume for the expected metals concentrations) with water. This dilution produces Analytical Fraction 2A. Measure and record the volume to within 0.1 ml.

5.3.4.2 Microwave Digestion Procedure. Add 10 ml of 50 percent HNO_3 and heat for 6 minutes total heating time in alternations of 1 to 2 minutes at 600 Watts followed by 1 to 2 minutes with no power, etc., similar to the procedure described in Section 5.3.1. Allow the sample to cool. Add 10 ml of 3 percent H_2O_2 and heat for 2 more minutes. Add 50 ml of hot illustrating sample preparation and analysis procedures for each of the sample train components is shown in Figure 29-3.

5.3.1 Container No. 1 (Sample Filter).

5.3.1.1 If particulate emissions are being determined, first desiccate the filter and filter catch without added heat (do not heat the filters to speed the drying) and weigh to a constant weight as described in Section 4.3 of Method 5.

5.3.1.2 Following this procedure, or initially, if particulate emissions are not being determined in addition to metals analysis, divide the filter with its filter catch into portions containing approximately 0.5 g each. Place the pieces in the analyst's choice of either individual microwave pressure relief vessels or Parr® Bombs. Add 6 ml of concentrated HNO_3 and 4 ml of concentrated HF to each vessel. For microwave heating, microwave the samples for approximately 12 to 15 minutes total heating time as follows: heat for 2 to 3 minutes, then turn off the microwave for 2 to 3 minutes, then heat for 2 to 3 minutes, etc., continue this alternation until the 12 to 15 minutes total heating time are completed (this procedure should comprise approximately 24 to 30 minutes at 600 watts). Microwave heating times are approximate and are dependent upon the number of samples being digested simultaneously. Sufficient heating is evidenced by sorbent reflux within the vessel.



*Analyze by AAS for metals found at less than 2 ug/ml in digestate solution, if desired. Or analyze for each metal by AAS, if desired.

Figure 29-3. Sample preparation and analysis scheme.

water, and heat for an additional 5 minutes. Cool, filter the sample, and dilute to 150 ml (or the appropriate volume for the expected metals concentrations) with water. This dilution produces Analytical Fraction 2A. Measure and record the volume to within 0.1 ml.

NOTE: All microwave heating times given are approximate and are dependent upon the number of samples being digested at a time. Heating times as given above have been found acceptable for simultaneous digestion of up to 12 individual samples. Sufficient heating is evidenced by solvent reflux within the vessel.

5.3.5 Container No. 5A (Impinger 4), Container Nos. 5B and 5C (Impingers 5 and 6). Keep the samples in Containers Nos. 5A, 5B, and 5C separate from each other. Measure and record the volume of 5A to within 0.5 ml. Label the contents of Container No. 5A to be Analytical Fraction 3A. To remove any brown MnO_2 precipitate from the contents of Container No. 5B, filter its contents through Whatman 40 filter paper into a 500 ml volumetric flask and dilute to volume with water. Save the filter for digestion of the brown MnO_2 precipitate. Label the 500 ml filtrate from Container No. 5B to be Analytical Fraction 3B. Analyze Analytical Fraction 3B for Hg within 48 hours of the filtration step. Place the saved filter, which was used to remove the brown MnO_2 precipitate, into an appropriately sized vented container, which will allow release of any gases including chlorine formed when the filter is digested. In a laboratory hood which will remove any gas produced by the digestion of the MnO_2, add 25 ml of 8 N HCl to the filter and allow to digest for a minimum of 24 hours at room temperature. Filter the contents of Container No. 5C through a Whatman 40 filter into a 500-ml volumetric flask. Then filter the result of the digestion of the brown MnO_2 from Container No. 5B through a Whatman 40 filter into the same 500-ml volumetric flask, and dilute and mix well to volume with water. Discard the Whatman 40 filter. Mark this combined 500-ml dilute HCl solution as Analytical Fraction 3C.

5.3.6 Container No. 6 (Silica Gel). Weigh the spent silica gel (or silica gel plus impinger) to the nearest 0.5 g using a balance.

5.4 Sample Analysis. For each sampling train sample run, seven individual analytical samples are generated ; two for all desired metals except Hg, and five for Hg. A schematic identifying each sample container and the prescribed analytical preparation and analysis scheme is shown in Figure 29-3. The first two analytical samples, labeled Analytical Fractions 1A and 1B, consist of the digested samples from the front-half of the train. Analytical Fraction 1A is for ICAP, ICP-MS or AAS analysis as described in Sections 5.4.1 and 5.4.2, respectively. Analytical Fraction 1B is for front-half Hg analysis as described in Section 5.4.3. The contents of the back-half of the train are used to prepare the third through seventh analytical samples.

The third and fourth analytical samples, labeled Analytical Fractions 2A and 2B, contain the samples from the moisture removal impinger No. 1, if used, and HNO_3/H_2O_2 impingers Nos. 2 and 3. Analytical Fraction 2A is for ICAP, ICP-MS or AAS analysis for target metals, except Hg. Analytical Fraction 2B is for analysis for Hg. The fifth through seventh analytical samples, labeled Analytical Fractions 3A, 3B, and 3C, consist of the impinger contents and rinses from the empty impinger No. 4 and the $H_2SO_4/KMnO_4$ Impingers Nos. 5 and 6. These analytical samples are for analysis for Hg as described in Section 5.4.3. The total back-half Hg catch is determined from the sum of Analytical Fractions 2B, 3A, 3B, and 3C. Analytical Fractions 1A and 2A can be combined proportionally prior to analysis.

5.4.1 ICAP and ICP-MS Analysis. Analyze Analytical Fractions 1A and 2A by ICAP using Method 6010 or Method 200.7 (40 CFR 136, Appendix C). Calibrate the ICAP, and set up an analysis program as described in Method 6010 or Method 200.7. Follow the quality control procedures described in Section 7.3.1. Recommended wavelengths for analysis are as follows:

Element	Wavelength (nm)
Aluminum	308.215
Antimony	206.833
Arsenic	193.696
Barium	455.403
Beryllium	313.042
Cadmium	226.502
Chromium	267.716
Cobalt	228.616
Copper	324.754
Iron	259.940
Lead	220.353
Manganese	257.610
Nickel	231.604
Phosphorous	214.914
Selenium	196.026
Silver	328.068
Thallium	190.864
Zinc	213.856

These wavelengths represent the best combination of specificity and potential detection limit. Other wavelengths may be substituted if they can provide the needed specificity and detection limit, and are treated with the same corrective techniques for spectral interference. Initially, analyze all samples for the target metals (except Hg) plus Fe and Al. If Fe and Al are present, the sample might have to be diluted so that each of these elements is at a concentration of less than 50 ppm so as to reduce their spectral interferences on As, Cd, Cr, and Pb. Perform ICP-MS analysis by following Method 6020 in SW-846.

<u>NOTE</u>: When analyzing samples in a HF matrix, an alumina torch should be used; since all front-half samples will contain HF, use an alumina torch.

5.4.2 AAS by Direct Aspiration and/or GFAAS. If analysis of metals in Analytical Fractions 1A and 2A by using GFAAS or direct aspiration AAS is needed, use Table 29-2 to determine

Table 29-2. Applicable techniques, methods and minimization of interference for AAS analysis.

al	Technique	SW-846 Method No.	Wavelength (nm)	Interferences Cause	Interferences Minimization
	Aspiration	7380	248.3	Contamination	Great care taken to avoid contamination
	Aspiration	7420	283.3	217.0 nm alternate	Background correction required
	Furnace	7421	283.3	Poor recoveries	Matrix modifier, add 10 ul of phosphorus acid to 1 ml of prepared sample in sampler cup
	Aspiration	7460	279.5	403.1 nm alternate	Background correction required
	Aspiration	7520	232.0	352.4 nm alternate	Background correction required
				Fe, Co, and Cr	Matrix matching or nitrous-oxide/ acetylene flame
				Nonlinear response	Sample dilution or use 352.3 nm line
	Furnace	7740	196.0	Volatility	Spike samples and reference materials and add nickel nitrate to minimize volatilization
				Adsorption & scatter	Background correction is required and Zeeman background correction can be useful
	Aspiration	7760	328.1	Adsorption & scatter	Background correction is required
				AgCl insoluble	Avoid hydrochloric acid unless silver is in solution as a chloride complex
					Sample and standards monitored for aspiration rate
	Aspiration	7840	276.8		Background correction is required
					Hydrochloric acid should not be used
	Furnace	7841	276.8	Hydrochloric acid or chloride	Background correction is required
					Verify that losses are not occurring for volatization by spiked samples or standard addition; Palladium is a suitable matrix modifier
	Aspiration	7950	213.9	High Si, Cu, & P	Strontium removes Cu and phosphate
				Contamination	Great care taken to avoid contamination

Table 29-2 cont.

Metal	Technique	SW-846 Method No.	Wavelength (nm)	Interferences Cause	Minimization
Sb	Aspiration	7040	217.6	1000 mg/ml Pb Ni, Cu, or acid	Use secondary wavelenths of 231.1 nm; match sample & standards' acid concentration or use nitrous oxide/acetylene flame
Sb	Furnace	7041	217.6	High Pb	Secondary wavelength or Zeeman correction
As	Furnace	7060	193.7	Arsenic volatilization Aluminum	Spiked samples and add nickel nitrate solution to digestates prior to analysis Use Zeeman background correction
Ba	Aspiration	7080	553.6	Calcium Barium ionization	High hollow cathode current and narrow band set 2 ml of KCl per 100 ml of sample
Be	Aspiration	7090	234.9	500 ppm Al High Mg and Si	Add 0.1% fluoride Use method of standard additions
Be	Furnace	7091	234.9	Be in optical path	Optimize parameters to minimize effects
Cd	Aspiration	7130	228.8	Absorption and light scattering	Background correction is required
Cd	Furnace	7131	228.8	As above Excess chloride Pipet tips	As above Ammonium phosphate used as a matrix modifier Use cadmium-free tips
Cr	Aspiration	7190	357.9	Alkali metal	KCl ionization suppressant in samples and standards--Consult mfgs' literature
Co	Furnace	7201	240.7	Excess chloride	Use Method of Standard Additions
Cr	Furnace	7191	357.9	200 mg/L Ca and P	All calcium nitrate for a known constant effect and to eliminate effect of phosphate
Cu	Aspiration	7210	324.7	Absorption & scatter	Consult manufacturer's manual

which techniques and procedures to apply for each target metal. Use Table 29-2, if necessary, to determine techniques for minimization of interferences. Calibrate the instrument according to Section 6.3 and follow the quality control procedures specified in Section 7.3.2.

5.4.3 CVAAS Hg analysis. Analyze Analytical Fractions 1B, 2B, 3A, 3B, and 3C separately for Hg using CVAAS following the method outlined in EPA SW-846 Method 7470 or in Standard Methods for Water and Wastewater Analysis, 15th Edition, Method 303F, or, optionally using NOTE No. 2 at the end of this section. Set up the calibration curve (zero to 1000 ng) as described in SW-846 Method 7470 or similar to Method 303F using 300-ml BOD bottles instead of Erlenmeyers. Perform the following for each Hg analysis. From each original sample, select and record an aliquot in the size range from 1 ml to 10 ml. If no prior knowledge of the expected amount of Hg in the sample exists, a 5 ml aliquot is suggested for the first dilution to 100 ml (see NOTE No. 1 at end of this Section). The total amount of Hg in the aliquot shall be less than 1 μg and within the range (zero to 1000 ng) of the calibration curve. Place the sample aliquot into a separate 300-ml BOD bottle, and add enough water to make a total volume of 100 ml. Next add to it sequentially the sample digestion solutions and perform the sample preparation described in the procedures of SW-846 Method 7470 or Method 303F. (See NOTE No. 2 at the end of this Section). If the maximum readings are off-scale (because Hg in the aliquot exceeded the calibration range; including the situation where only a 1-ml aliquot of the original sample was digested), then dilute the original sample (or a portion of it) with 0.15 percent HNO_3 (1.5 ml concentrated HNO_3 per liter aqueous solution) so that when a 1- to 10-ml aliquot of the "0.15 HNO_3 percent dilution of the original sample" is digested and analyzed by the procedures described above, it will yield an analysis within the range of the calibration curve.

NOTE No. 1: When Hg levels in the sample fractions are below the in-stack detection limit given in Table 29-1, select a 10 ml aliquot for digestion and analysis as described.

NOTE No. 2: Optionally, Hg can be analyzed by using the CVAAS analytical procedures given by some instrument manufacturer's directions. These include calibration and quality control procedures for the Leeman Model PS200, the Perkin Elmer FIAS systems, and similar models, if available, of other instrument manufacturers. For digestion and analyses by these instruments, perform the following two

steps: (1), Digest the sample aliquot through the addition of the aqueous hydroxylamine hydrochloride/sodium chloride solution the same as described in this Section 5.4.3.: (The Leeman, Perkin Elmer, and similar instruments described in this note add automatically the necessary stannous chloride solution during the automated analysis of Hg.); (2), Upon completion of the digestion described in (1), analyze the sample according to the instrument manufacturer's directions. This approach allows multiple (including duplicate) automated analyses of a digested sample aliquot.

6. Calibration

Maintain a laboratory log of all calibrations.

6.1 Sampling Train Calibration. Calibrate the sampling train components according to the indicated sections of Method 5: Probe Nozzle (Section 5.1); Pitot Tube (Section 5.2); Metering System (Section 5.3); Probe Heater (Section 5.4); Temperature Gauges (Section 5.5); Leak-Check of the Metering System (Section 5.6); and Barometer (Section 5.7).

6.2 Inductively Coupled Argon Plasma Spectrometer Calibration. Prepare standards as outlined in Section 4.5. Profile and calibrate the instrument according to the manufacturer's recommended procedures using those standards. Check the calibration once per hour. If the instrument does not reproduce the standard concentrations within 10 percent, perform the complete calibration procedures. Perform ICP-MS analysis by following Method 6020 in SW-846.

6.3 Atomic Absorption Spectrometer - Direct Aspiration AAS, GFAAS, and CVAAS analyses. Prepare the standards as outlined in Section 4.5 and use them to calibrate the spectrometer. Calibration procedures are also outlined in the EPA methods referred to in Table 29-2 and in SW-846 Method 7470 or in Standard Methods for Water and Wastewater Method 303F (for Hg). Run each standard curve in duplicate and use the mean values to calculate the calibration line. Recalibrate the instrument approximately once every 10 to 12 samples.

7. Quality Control

7.1 Field Reagent Blanks, if analyzed. Perform the digestion and analysis of the blanks in Container Nos. 7 through 12 that were produced in Sections 5.2.11 through 5.2.17, respectively. For Hg field reagent blanks, use a 10 ml aliquot for digestion and analysis.

7.1.1 Digest and analyze one of the filters from Container No. 12 per Section 5.3.1, 100 ml from Container No. 7 per Section 5.3.2, and 100 ml from Container No. 8A per Section 5.3.3. This step produces blanks for Analytical Fractions 1A and 1B.

7.1.2 Combine 100 ml of Container No. 8A with 200 ml from Container No. 9, and digest and analyze the resultant volume per

Section 5.3.4. This step produces blanks for Analytical Fractions 2A and 2B.

7.1.3 Digest and analyze a 100-ml portion of Container No. 8A to produce a blank for Analytical Fraction 3A.

7.1.4 Combine 100 ml from Container No. 10 with 33 ml from Container No. 8B to produce a blank for Analytical Fraction 3B. Filter the resultant 133 ml as described for Container No. 5B in Section 5.3.5, except do not dilute the 133 ml. Analyze this blank for Hg within 48 hr of the filtration step, and use 400 ml as the blank volume when calculating the blank mass value. Use the actual volumes of the other analytical blanks when calculating their mass values.

7.1.5 Digest the filter that was used to remove any brown MnO_2 precipitate from the blank for Analytical Fraction 3B by the same procedure as described in Section 5.3.5 for the similar sample filter. Filter the digestate and the contents of Container No. 11 through Whatman 40 paper into a 500-ml volumetric flask, and dilute to volume with water. These steps produce a blank for Analytical Fraction 3C.

7.1.6 Analyze the blanks for Analytical Fraction Blanks 1A and 2A per Section 5.4.1 and/or Section 5.4.2. Analyze the blanks for Analytical Fractions 1B, 2B, 3A, 3B, and 3C per Section 5.4.3. Analysis of the blank for Analytical Fraction 1A produces the front-half reagent blank correction values for the desired metals except for Hg; Analysis of the blank for Analytical Fraction 1B produces the front-half reagent blank correction value for Hg. Analysis of the blank for Analytical Fraction 2A produces the back-half reagent blank correction values for all of the desired metals except for Hg, while separate analyses of the blanks for Analytical Fractions 2B, 3A, 3B, and 3C produce the back-half reagent blank correction value for Hg.

7.2 Quality Control Samples. Analyze the following quality control samples.

7.2.1 ICAP and ICP-MS Analysis. Follow the respective quality control descriptions in Section 8 of Methods 6010 and 6020 of SW-846. For the purposes of a source test that consists of three sample runs, modify those requirements to include the following: two instrument check standard runs, two calibration blank runs, one interference check sample at the beginning of the analysis (analyze by Method of Standard Additions unless within 25 percent), one quality control sample to check the accuracy of the calibration standards (required to be within 25 percent of calibration), and one duplicate analysis (required to be within 20 percent of average or repeat all analyses).

7.2.2 Direct Aspiration AAS and/or GFAAS Analysis for Sb, As, Ba, Be, Cd, Cu, Cr, Co, Pb, Ni, Mn, Hg, P, Se, Ag, Tl, and Zn. Analyze all samples in duplicate. Perform a matrix spike on at least one front-half sample and one back-half sample, or one combined sample. If recoveries of less than 75 percent or greater than 125 percent are obtained for the matrix spike, analyze each sample by the Method of Standard Additions. Analyze a quality control sample to check the accuracy of the calibration standards. If the results are not within 20 percent, repeat the calibration.

7.2.3 CVAAS Analysis for Hg. Analyze all samples in duplicate. Analyze a quality control sample to check the accuracy of the calibration standards (if not within 15 percent, repeat calibration). Perform a matrix spike on one sample (if not within 25 percent, analyze all samples by the Method of Standard Additions). Additional information on quality control can be obtained from EPA SW-846 Method 7470 or in Standard Methods for Water and Wastewater Method 303F.

8. Calculations

8.1 Dry Gas Volume. Using the data from this test, calculate $V_{m(std)}$, the dry gas sample volume at standard conditions as outlined in Section 6.3 of Method 5.

8.2 Volume of Water Vapor and Moisture Content. Using the total volume of condensate collected during the source sampling, calculate the volume of water vapor $V_{w(std)}$ and the moisture content B_{ws} of the stack gas. Use Equations 5-2 and 5-3 of Method 5.

8.3 Stack Gas Velocity. Using the data from this test and Equation 2-9 of Method 2, calculate the average stack gas velocity.

8.4 Metals (Except Hg) in Source Sample.

8.4.1 Analytical Fraction 1A, Front-Half, Metals (except Hg). Calculate separately the amount of each metal collected in Sample Fraction 1 of the sampling train using the following equation:

$$M_{fh} = C_{a1} F_d V_{soln,1} \qquad \text{Eq. 29-1}$$

where:

M_{fh} = Total mass of each metal (except Hg) collected in the front half of the sampling train (Sample Fraction 1), µg.

C_{a1} = Concentration of metal in Analytical Fraction 1A as read from the standard curve, µg/ml.

F_d = Dilution factor (F_d = the inverse of the fractional portion of the concentrated sample in the solution actually used in the instrument to produce the reading C_{a1}. For example, if a 2 ml aliquot of Analytical Fraction 1A is diluted to 10 ml to place it in the calibration range, F_d = 5).

$V_{soln,1}$ = Total volume of digested sample solution (Analytical Fraction 1), ml.

NOTE: If Analytical Fractions 1A and 2A are combined, use proportional aliquots. Then make appropriate changes in Equations 29-1 through 29-3 to reflect this approach.

8.4.2 Analytical Fraction 2A, Back-Half, Metals (except Hg). Calculate separately the amount of each metal collected in Fraction 2 of the sampling train using the following equation.

$$M_{bh} = C_{a2} F_a V_a \qquad \text{Eq. 29-2}$$

where:

M_{bh} = Total mass of each metal (except Hg) collected in the back-half of the sampling train (Sample Fraction 2), μg.

C_{a2} = Concentration of metal in Analytical Fraction 2A as read from the standard curve, ($\mu g/ml$).

F_a = Aliquot factor, volume of Sample Fraction 2 divided by volume of Sample Fraction 2A (see Section 5.3.4.)

V_a = Total volume of digested sample solution (Analytical Fraction 2A), ml (see Section 5.3.4.1 or 5.3.4.2, as applicable).

8.4.3 Total Train, Metals (except Hg). Calculate the total amount of each of the quantified metals collected in the sampling train as follows:

$$M_t = (M_{fh} - M_{fhb}) + (M_{bh} - M_{bhb} \qquad \text{Eq. 29-3}$$

where:

M_t = Total mass of each metal (separately stated for each metal) collected in the sampling train, μg.

M_{fhb} = Blank correction value for mass of metal detected in front-half field reagent blank, μg.

M_{bhb} = Blank correction value for mass of metal detected in back-half field reagent blank, μg.

NOTE: If the measured blank value for the front half (M_{fhb}) is in the range 0.0 to "A" μg [where "A" μg equals the value determined by multiplying 1.4 $\mu g/in.^2$ times the actual area in $in.^2$ of the sample filter], use M_{fhb} to correct the emission sample value (M_{fh}); if M_{fhb} exceeds "A" μg, use the greater of I or II:

I. "A" μg.

II. the lesser of (a) M_{fhb}, or (b) 5 percent of M_{fh}.

If the measured blank value for the back-half (M_{bhb}) is in the range 0.0 to 1 μg, use M_{bhb} to correct the emission sample value (M_{bh}); if M_{bhb} exceeds 1 μg, use the greater of I or II:

I. 1 μg.

II. the lesser of (a) M_{bhb}, or (b) 5 percent of M_{bh}.

8.5 Hg in Source Sample.

8.5.1 Analytical Fraction 1B; Front-Half Hg. Calculate the amount of Hg collected in the front-half, Sample Fraction 1, of the sampling train by using Equation 29-4:

$$Hg_{fh} = \frac{Q_{fh}}{V_{f1B}} (V_{soln,1}) \qquad \text{Eq. 29-4}$$

where:

Hg_{fh} = Total mass of Hg collected in the front- half of the sampling train (Sample Fraction 1), µg.

Q_{fh} = Quantity of Hg, µg, TOTAL in the ALIQUOT of Analytical Fraction 1B selected for digestion and analysis . **NOTE**: For example, if a 10 ml aliquot of Analytical Fraction 1B is taken and digested and analyzed (according to Section 5.4.3 and its NOTES Nos. 1 and 2), then calculate and use the total amount of Hg in the 10 ml aliquot for Q_{fh}.

$V_{soln,1}$ = Total volume of Analytical Fraction 1, ml.

V_{f1B} = Volume of aliquot of Analytical Fraction 1B analyzed, ml. **NOTE**: For example, if a 1 ml aliquot of Analytical Fraction 1B was diluted to 50 ml with 0.15 percent HNO_3 as described in Section 5.4.3 to bring it into the proper analytical range, and then 1 ml of that 50-ml was digested according to Section 5.4.3 and analyzed, V_{f1B} would be 0.02 ml.

8.5.2 Analytical Fractions 2B, 3A, 3B, and 3C; Back Half Hg.

8.5.2.1 Calculate the amount of Hg collected in Sample Fraction 2 by using Equation 29-5:

$$Hg_{bh2} = \frac{Q_{bh2}}{V_{f2B}} (V_{soln,2}) \qquad \text{Eq. 29-5}$$

where:

Hg_{bh2} = Total mass of Hg collected in Sample Fraction 2, µg.

Q_{bh2} = Quantity of Hg, µg, TOTAL in the ALIQUOT of Analytical Fraction 2B selected for digestion and analysis . **NOTE**: For example, if a 10 ml aliquot of Analytical Fraction 2B is taken and digested and analyzed (according to Section 5.4.3 and its NOTES Nos. 1 and 2), then calculate and use the total amount of Hg in the 10 ml aliquot for Q_{bh2}.

$V_{soln,2}$ = Total volume of Sample Fraction 2, ml.

V_{f2B} = Volume of Analytical Fraction 2B analyzed, ml. NOTE: For example, if 1 ml of Analytical Fraction 2B was diluted to 10 ml with 0.15 percent HNO_3 as described in Section 5.4.3 to bring it into the proper analytical range, and then 5 ml of that 10-ml was analyzed, V_{f2B} would be 0.5 ml.

8.5.2.2 Calculate each of the back-half Hg values for Analytical Fractions 3A, 3B, and 3C by using Equation 29-6:

$$Hg_{bh3(A,B,C)} = \frac{Q_{bh3(A,B,C)}}{V_{f3(A,B,C)}} \left(V_{soln,3(A,B,C,)}\right) \qquad \text{Eq. 29-6}$$

where:

$Hg_{bh3(A,B,C)}$ = Total mass of Hg collected separately in Fraction 3A, 3B, or 3C, μg.

$Q_{bh3(A,B,C)}$ = Quantity of Hg, μg, TOTAL, separately, in the ALIQUOT of Analytical Fraction 3A, 3B, or 3C selected for digestion and analysis , (see previous notes in Sections 8.5.1 and 8.5.2 describing the quantity "Q" and calculate similarly).

$V_{f3(A,B,C)}$ = Volume, separately, of Analytical Fraction 3A, 3B, or 3C analyzed, ml (see previous notes in Sections 8.5.1 and 8.5.2, describing the quantity "V" and calculate similarly).

$V_{soln,3(A,B,C)}$ = Total volume, separately, of Analytical Fraction 3A, 3B, or 3C, ml.

8.5.2.3 Calculate the total amount of Hg collected in the back-half of the sampling train by using Equation 29-7:

$$Hg_{bh} = Hg_{bh2} + Hg_{bh3A} + Hg_{bh3B} + Hg_{bh3C} \qquad \text{Eq. 29-7}$$

where:

Hg_{bh} = Total mass of Hg collected in the back-half of the sampling train, μg.

8.5.3 Total Train Hg Catch. Calculate the total amount of Hg collected in the sampling train by using Equation 29-8:

$$Hg_t = (Hg_{fh} - Hg_{fhb}) + (Hg_{bh} - Hg_{bhb}) \qquad \text{Eq. 29-8}$$

where:

Hg_t = Total mass of Hg collected in the sampling train, μg.

Hg_{fhb} = Blank correction value for mass of Hg detected in front-half field reagent blank, µg.

Hg_{bhb} = Blank correction value for mass of Hg detected in back-half field reagent blanks, µg.

NOTE: If the total of the measured blank values (Hg_{fhb} + Hg_{bhb}) is in the range of 0.0 to 0.6 µg, then use the total to correct the sample value (Hg_{fh} + Hg_{bh}); if it exceeds 0.6 µg, use the greater of I. or II:

I. 0.6 µg.

II. the lesser of (a) (Hg_{fhb} + Hg_{bhb}), or (b) 5 percent of the sample value (Hg_{fh} + Hg_{bh}).

8.6 Individual Metal Concentrations in Stack Gas. Calculate the concentration of each metal in the stack gas (dry basis, adjusted to standard conditions) by using Equation 29-9:

$$C_s = \frac{K_4 M_t}{V_{m(std)}} \qquad \text{Eq. 29-9}$$

where:

C_s = Concentration of a metal in the stack gas, mg/dscm.

K_4 = 10^{-3} mg/µg.

M_t = Total mass of that metal collected in the sampling train, µg; (substitute Hg_t for M_t for the Hg calculation).

$V_{m(std)}$ = Volume of gas sample as measured by the dry gas meter, corrected to dry standard conditions, dscm.

8.7 Isokinetic Variation and Acceptable Results. Same as Method 5, Sections 6.11 and 6.12, respectively.

9. Bibliography

1. Method 303F in Standard Methods for the Examination of Water Wastewater, 15th Edition, 1980. Available from the American Public Health Association, 1015 18th Street N.W., Washington, D.C. 20036.

2. EPA Methods 6010, 6020, 7000, 7041, 7060, 7131, 7421, 7470, 7740, and 7841, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. SW-846, Third Edition. September 1988. Office of Solid Waste and Emergency Response, U. S. Environmental Protection Agency, Washington, D.C. 20460.

3. EPA Method 200.7, Code of Federal Regulations, Title 40, Part 136, Appendix C. July 1, 1987.

4. EPA Methods 1 through 5, Code of Federal Regulations, Title 40, Part 60, Appendix A, July 1, 1991.

5. EPA Method 101A, Code of Federal Regulations, Title 40, Part 61, Appendix B, July 1, 1991.