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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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February 27, 1997

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Recipient of the Report, "Mercury and Other Metals Testing at the GSF Energy Inc. Gas Recovery Plant at the Fresh Kills Landfill," dated January 1997, by Eastern Research Group, Inc.

Dear Reader:

Enclosed is a copy of the report, "Mercury and Other Metals Testing at the GSF Energy Inc. Gas Recovery Plant at the Fresh Kills Landfill," dated January 1997, by Eastern Research Group (ERG), Inc.

This report contains data from follow-up tests that were conducted in response to the preliminary mercury findings in the November 10, 1995 report by Radian Corporation entitled: "Determination of Landfill Gas Composition and Pollutant Emission Rates at Fresh Kills Landfill." The Radian report had indicated the need for refine testing of the mercury emissions from the landfill. The results of the ERG tests indicated mercury levels that are similar to those found at other landfills. This ERG report is a supplement to the Radian report.

For questions about the ERG report, you may contact Mr. Yue On Chiu at EPA Region II, telephone number (212) 637-4065.

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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Disclaimer

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Contents

Section 1.0 Introduction	1
Section 2.0 Results And Discussion	3
Method 29	3
Discussion of the Analytical Results	3
Discussion of Emission Rates	12
Jerome Analyzer Results	28
North and South Headers	28
Sales Gas	32
Section 3.0 On-Site Testing	33
Description of Facility	33
Inlet Gas Headers	34
Description of Test Location	34
Method 29 Procedures	35
Pre-Test Preparation	35
Description of Sampling Train	36
Reagents	38
Sample Recovery	39
Jerome Mercury Vapor Analyzer	43
Sampling	43
Analysis	43
Sales Gas	45
Description of Test Location	45
Method 29 Procedures	45
Leak Checks	46
Sampling	46
Jerome Mercury Vapor Analyzer	46
Thermal Oxidizer	46
Description of Test Location	46
Method 29 Procedures	47
Description of the Sampling Train	47
Reagents	48
Sampling	48
Sample Recovery	50
Background (Ambient Air)	50

Contents, Continued

Section 4.0 Analysis	51
Mercury by Cold Vapor Atomic Absorption (CVAA)	51
Other Metals (ICAPS)	54
Section 5.0 Laboratory Interferent Studies	55
Section 6.0 Example Calculations	56
Mercury (CVAA)	56
Other Metals (ICAP)	57
Section 7.0 Quality Control	58
Field Test	58
Field Blanks	58
Leak Checks	58
Summary of Quality Assurance Objectives	59
Completeness	59
Precision	59
Accuracy	60
Quality Assurance Audits	60
Performance Audits	60

Addendum

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

Appendices

- A Laboratory Data Package**
- B Field Data**
- C EPA Method 29**

List of Tables

2-1	Amount of Metal Collected in Train, μg , Thermal Oxidizer	4
2-2	Amount of Metal Collected in Train, μg , Sales Gas	5
2-3	Amount of Metal Collected in Train, μg , North Header	6
2-4	Amount of Metal Collected in Train, μg , South Header	7
2-5	Amount of Metal Collected in Train, μg , Background	8
2-6	Amount of Metal Collected in Train, μg , Blank Corrected, Thermal Oxidizer	14
2-7	Amount of Metal Collected in Train, μg , Blank Corrected, Sales Gas	15
2-8	Amount of Metal Collected in Train, μg , Blank Corrected, North Header	16
2-9	Amount of Metal Collected in Train, μg , Blank Corrected, South Header	17
2-10	Amount of Metal Collected in Train, μg , Blank Corrected, Background	18
2-11	Volume of Sample Collected	18
2-12	Metals Concentration, $\mu\text{g}/\text{m}^3$, Blank Corrected, Thermal Oxidizer	19
2-13	Metals Concentration, $\mu\text{g}/\text{m}^3$, Blank Corrected, Sales Gas	19
2-14	Metals Concentration, $\mu\text{g}/\text{m}^3$, Blank Corrected, North Header	20
2-15	Metals Concentration, $\mu\text{g}/\text{m}^3$, Blank Corrected, South Header	20
2-16	Metals Concentration, $\mu\text{g}/\text{m}^3$, Blank Corrected, Background	21
2-17	Process Flow Rates	23
2-18	Average Mass Flow Rate into Plant Through Headers, Blank Corrected	24
2-19	Average Mass Emission Rate, Blank Corrected	25
2-20	Average Metals Concentration ($\mu\text{g}/\text{dscm}$) in the North and South Headers, Sales Gas, and Thermal Oxidizer Stack, Blank Corrected	26

List of Tables, Continued

2-21	Method Detection Limits, $\mu\text{g}/\text{m}^3$	27
2-22	Summary of Jerome Analyzer Results	29
3-1	Landfill Gas Parameters	34

List of Figures

3-1	Sampling Train	37
3-2	Sample Recovery Scheme	41
4-1	Sample Preparation and Analysis Scheme	53

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 in the 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 #					Total	
	1	2	3	4	5		
Run 1						Equal To	But Less Than
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	

^aValues preceded with "<" are based on the analytical component being not detected at the MDL.

^bResults have not been blank corrected

^cLess than 5 times the MDL

^dReagent contamination likely

**Table 2-2. Amount of Metal Collected in Train, μg
Sales Gas^{a,b}**

Metal	Fraction #					Total	
	1	2	3	4	5		
Run 1						Equal To	But Less Than
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	

^aValues preceded with "<" are based on the analytical component being not detected at the MDL.

^bResults have not been blank corrected

^cLess than 5 times the MDL

^dReagent contamination likely

Table 2-3. Amount of Metal Collected in Train, μg
North Header^{a,b}

Metal	Fraction #					Total	
	1	2	3	4	5		
Run 1						Equal to	But Less Than
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	

^aValues preceded with "<" are based on the analytical component being not detected at the MDL.

^bResults have not been blank corrected

^cLess than 5 times the MDL

^dReagent contamination likely

**Table 2-4. Amount of Metal Collected in Train, μg
South Header^{a,b}**

Metal	Fraction #					Total	
	1	2	3	4	5		
Run 1						Equal to	But Less Than
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	

^aValues preceded with "<" are based on the analytical component being not detected at the MDL.

^bResults have not been blank corrected

^cLess than 5 times the MDL

^dReagent contamination likely

Table 2-5. Amount of Metal Collected in Train, μg Background^{a,b}

Metal	Fraction #					Equal To	But Less Than
	1	2	3	4	5		
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

^aValues preceded with "<" are based on the analytical component being not detected at the MDL.

^bResults have not been blank corrected

^cLess than 5 times the MDL

^dReagent 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 mercury 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 $\mu\text{g}/\text{m}^3$.

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

Metal	Fraction #					Total	
	1	2	3	4	5		
Run 1						Equal To	But Less Than
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 #					Total	
	1	2	3	4	5		
Run 1						Equal To	But Less Than
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 #					Total	
	1	2	3	4	5		
Run 1						Equal to	But Less Than
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 #					Total	
	1	2	3	4	5		
Run 1						Equal to	But Less Than
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 #					Equal To	But Less Than
	1	2	3	4	5		
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, $\mu\text{g}/\text{m}^3$, 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 ⁺	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

* Reagent contamination likely

Table 2-13. Metals Concentration, $\mu\text{g}/\text{m}^3$, 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	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

* Reagent contamination likely

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

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	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*	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

* Reagent contamination likely

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

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	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	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

* Reagent contamination likely

Table 2-16. Metals Concentration, $\mu\text{g}/\text{m}^3$, 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*	0.08	0.11
Pb		0.07
Sb	0.16	0.26

* 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

^adscfm, dry standard cubic feet per minute (68°F, 29.92" Hg)

^bdscmm, 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 ^{ac}	2.5 ^a	0.05 ^{ac}	0.05 ^a	64 ^{ac}		1.2 ^{ac}	
Pb	2.5 ^c	2.6	0.05 ^c	0.05	17	19	0.3	0.4
Sb	1.5 ^{ac}		0.03 ^{ac}		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 ($\mu\text{g}/\text{dscm}$) in the North and South Headers, Sales Gas, and Thermal Oxidizer Stack, Blank Corrected

Metal	micrograms/dry standard cubic meter ($\mu\text{g}/\text{dscm}$)							
	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 ^{ad}		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, $\mu\text{g}/\text{m}^3$ ^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

^aValues 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/m³ with the five subsequent readings slowly decreasing to 0.139 mg/m³ 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/m³. 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/m³. 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/m³ 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/m ³	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/m ³	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/m³	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/m³ 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/m³. The North Header sample Run 1 (originally analyzed on 7/16/96) was re-analyzed with a reading of 0.011 mg/m³. These results indicate that whatever 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 (H₂S) laboratory interferant studies (discussed in Section 5.0) show that H₂S 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 ₂ S 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

Glassware—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.

Dry Gas Meters—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®.

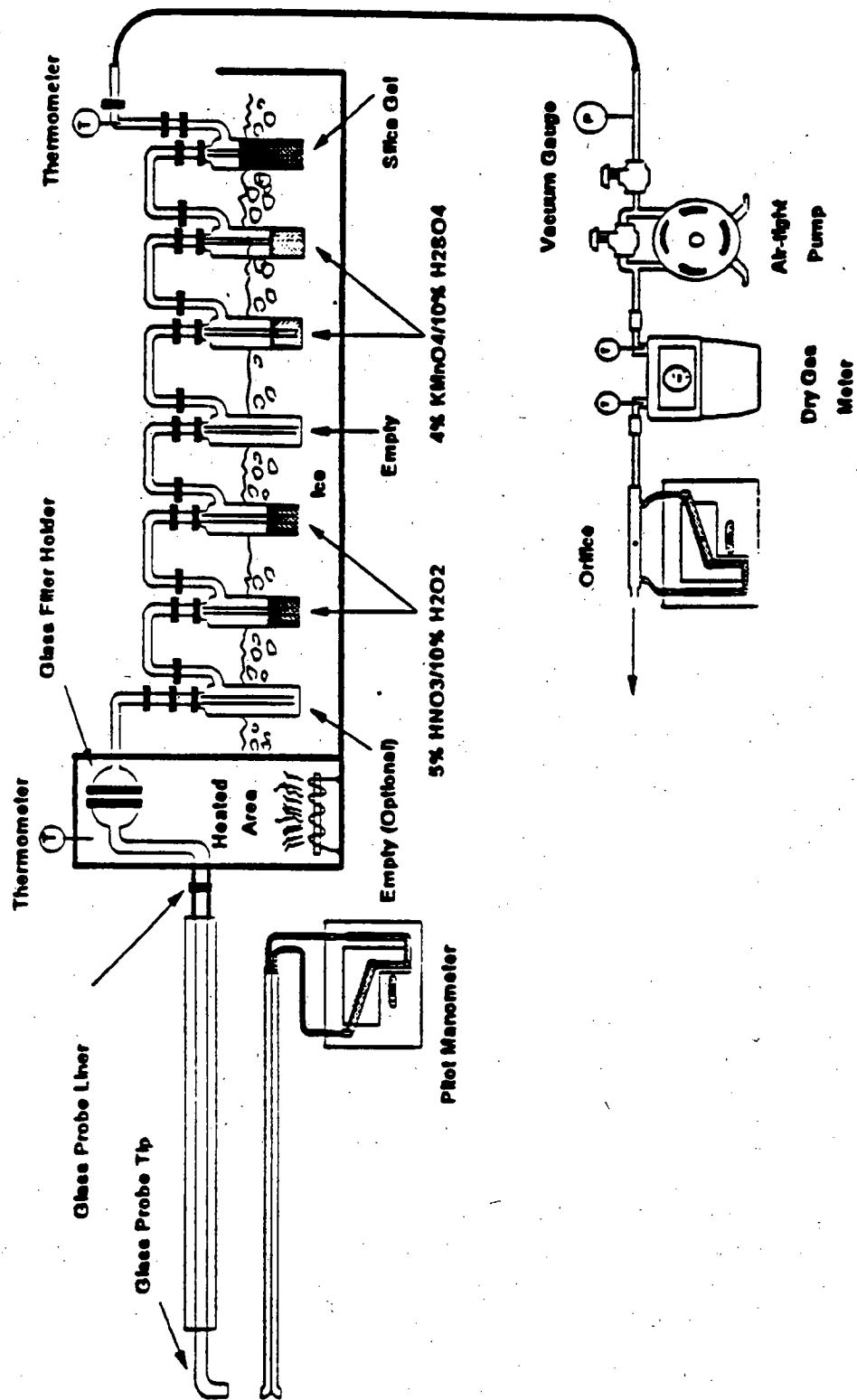


Figure 3-1. Sampling Train

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).

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

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

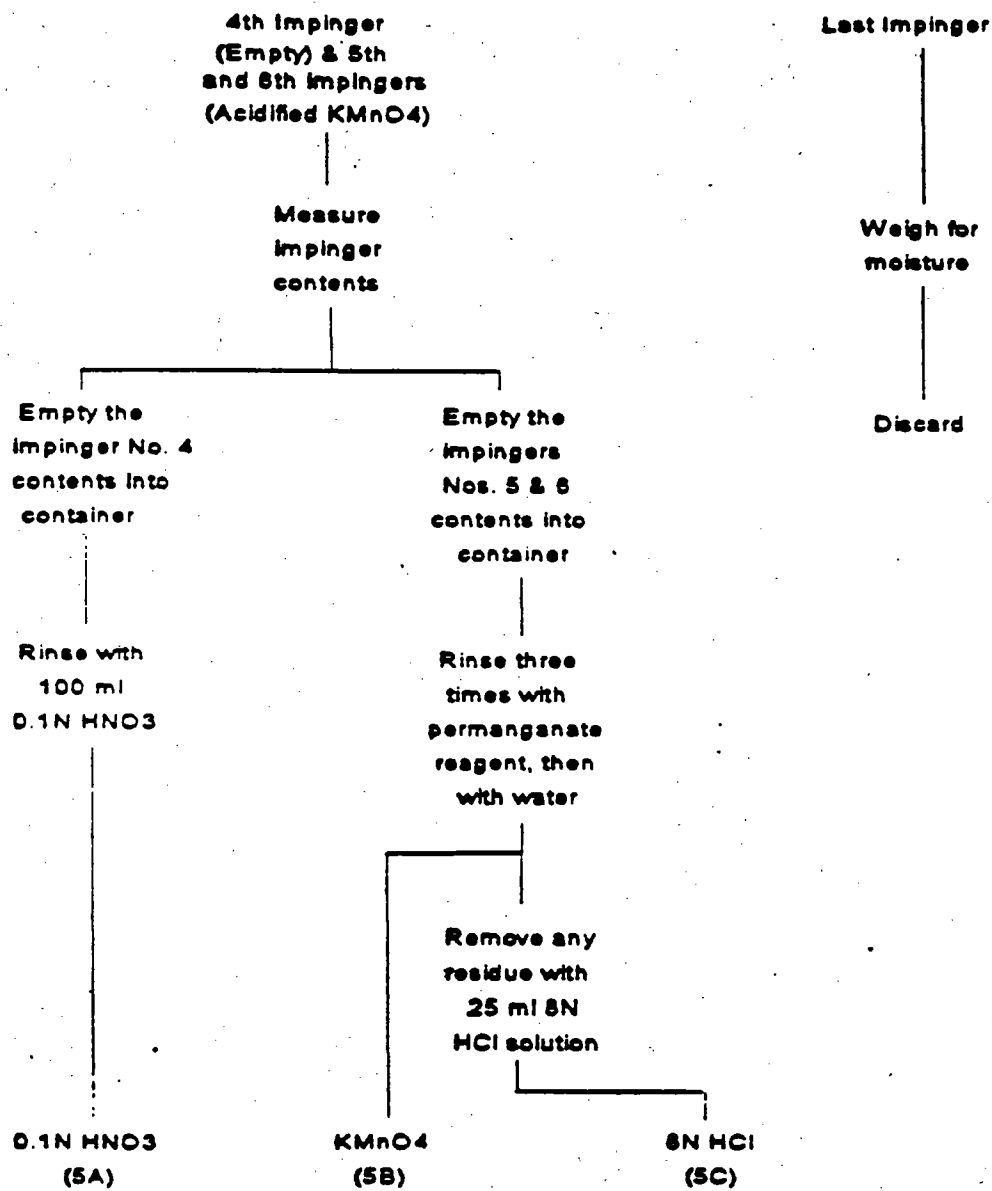
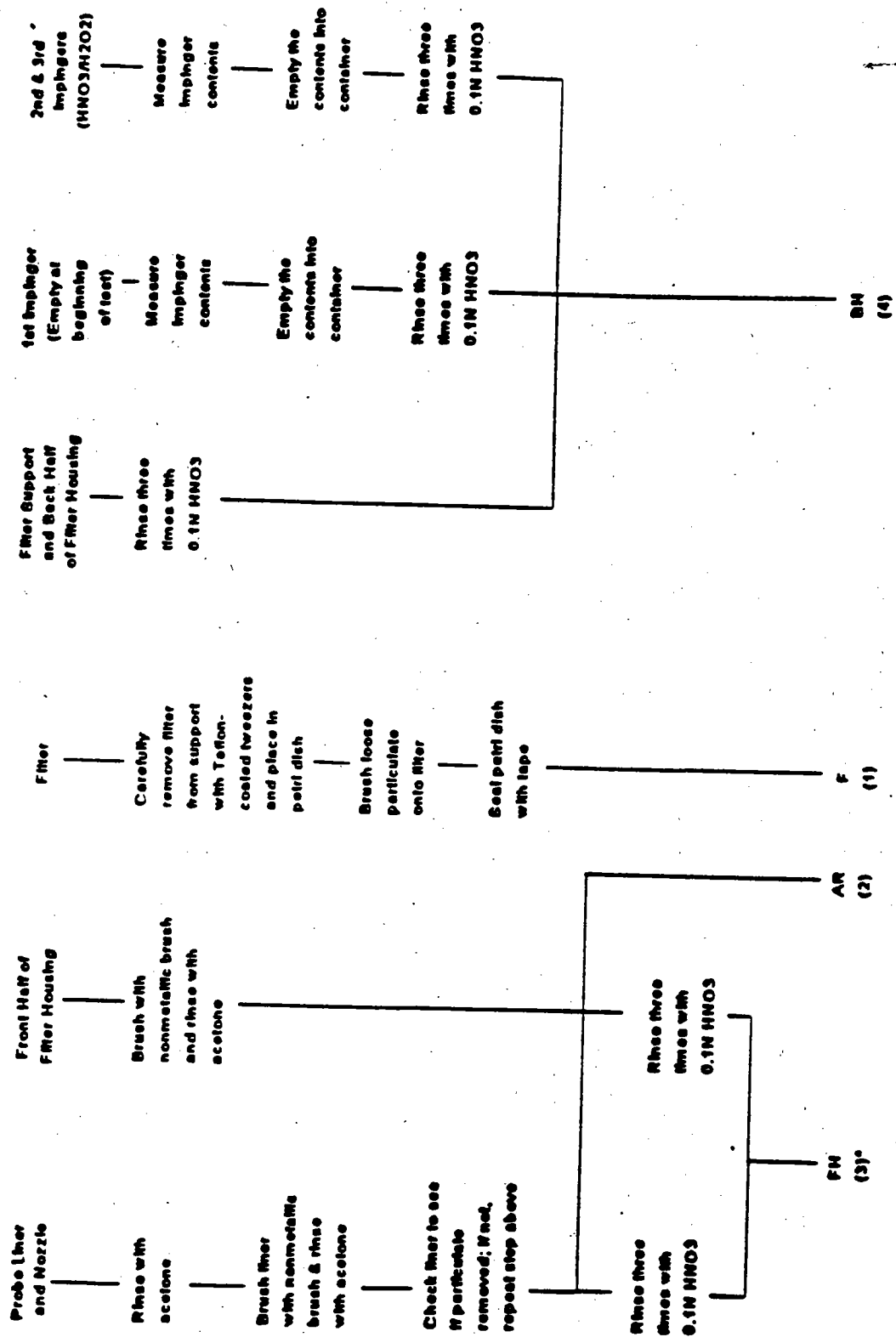


Figure 3-2. Continued



* Number in parentheses indicates container number

Figure 3-2. Sample Recovery Scheme

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

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

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 Oxidizer

Description of Test Location

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 rotameter for collection of sample in a Tedlar® bag. Each rotameter 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 diaphragm.

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:

- 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 Tissuequartz 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.

The thermal oxidizer 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;

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.

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

- 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.

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)

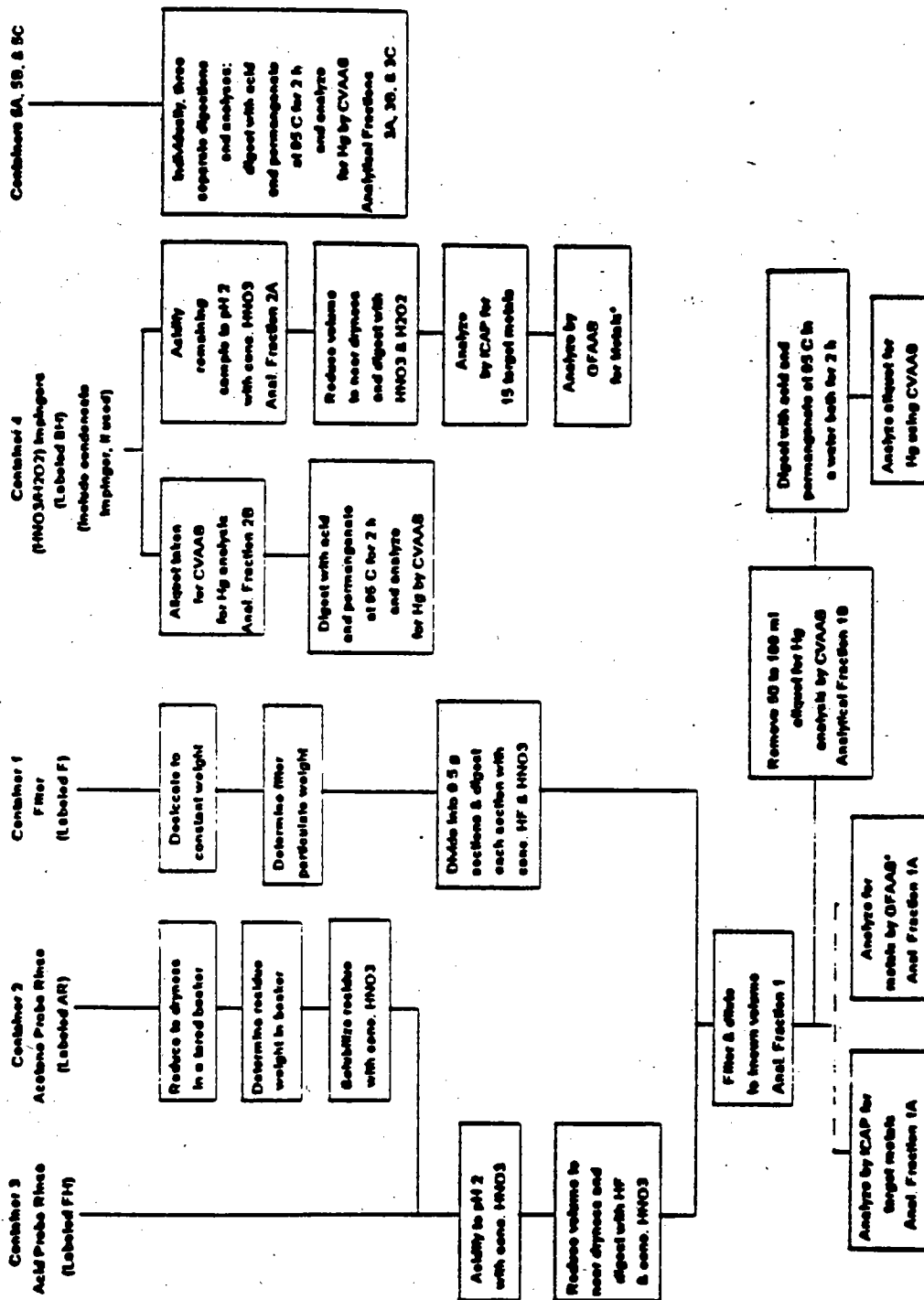
EPA Method 7470 (as recommended in the EPA Method 29) and EPA Method 7470A (an updated version of 7470) were used for the analysis of mercury in each sample. Method 7470 requires "a new calibration" (interpreted to mean a new multi-point calibration) every 10 samples where Method 7470A requires "a calibration 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

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.



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

Figure 4-1. Sample Preparation and Analysis Scheme

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, $\mu\text{g/L}$ 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 $0.031 \mu\text{g/L}$ which is less than the IDL. Therefore, a value of $0.2 \mu\text{g/L}$ 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 $\mu\text{g/mL}$) multiply $0.2 \mu\text{g/L}$ 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 $0.08 \mu\text{g}$ of

Section 5.0

Laboratory Interferent Studies

The laboratory H₂S 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 H₂S 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 H₂S, certified to $\pm 2\%$, 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 H₂S. These results differ from the 1995 study where a positive interference was first noticed at a nominal H₂S concentration of 25 ppm.

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.

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 $\mu\text{g/L}$, multiply this value by 0.1L (remembering that the total original volume was 100 mL) and after rounding the result is 161 μg .

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 as a Quality Assurance Officer from the EPA were present on site during the field test. Both individuals observed all tests and were available to provide 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

TRIANGLE LABS

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

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Rev. 10/10/95

Triangle Laboratories, Inc.	
801 Capitola Drive	P.O. Box 13485
Durham, NC 27713-4411	Research Triangle Park, NC 27709-3485
919-544-5729	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, HNO₃, FKL-82,116 KMnO₄, 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 interferences 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 interferences 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.

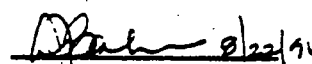
By our interpretation, the analytical data in this project are valid based on the guidelines of Method 29 April 1994 Rev. Any specific QC concerns or problems have been discussed in the QC REMARKS section with emphasis on their effect on the data. Should Eastern Research Group have any questions or comments 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
Report Preparation Chemist


to Jerry P. Roach
Report Preparation Chemist

The total number of pages in this data package is: 370.



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.

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 drinking water. ID #'s - Drinking water and/or pollution control - E-215. Solid or Hazardous Waste - E-1209.

Commonwealth of Kentucky, Department for Environmental Protection. Drinking Water for Dioxin. ID# 90060. 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-OG; 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):

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

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

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):

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

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

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:

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

%REC (Percent Recovery) for PDS:

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

%REC (Percent Recovery) for LCS/LCSD:

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

RPDs:

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

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

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

[illegible]

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

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

[illegible]

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Client: Eastern Research Group
Project Number: 38139

Sample Report

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

[illegible]

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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

[illegible]

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

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

[illegible]

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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-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

[illegible]

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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-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

[illegible]

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

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

[illegible]

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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-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

[illegible]

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

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

Client: Eastern Research Group
Project Number: 38139

Sample Report

Client Sample ID:	FKL-51
TLI Sample ID:	131-59-5A
Date Received:	July 22, 1996
Date Prepared:	July 24-31, 1996
Date Analyzed:	August 14-16, 1996
Matrix:	Air

[illegible]

Triangle Laboratories, Inc.
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Printed: 19-Aug-96 at 11:09 AM

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

[illegible]

Triangle Laboratories, Inc.
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Printed: 20-Aug-96 at 09:56 AM

Client: Eastern Research Group
Project Number: 38139

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

[illegible]

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Printed: 19-Aug-96 at 11:09 AM

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

[illegible]

Triangle Laboratories, Inc.
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Printed: 20-Aug-96 at 09:56 AM

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

[illegible]

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Printed: 19-Aug-96 at 11:09 AM

Project Number: 38139

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

[illegible]

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Printed: 20-Aug-96 at 09:56 AM

Project Number: 38139

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

[illegible]

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Printed: 19-Aug-96 at 11:09 AM

Client: Eastern Research Group
Project Number: 38139

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

[illegible]

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Printed: 20-Aug-96 at 09:56 AM

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

[illegible]

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Printed: 19-Aug-96 at 11:09 AM

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

[illegible]

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Printed: 19-Aug-96 at 11:09 AM

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

[illegible]

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Printed: 19-Aug-96 at 11:09 AM

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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

Project Number: 38139

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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

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

[illegible]

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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

[illegible]

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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

[illegible]

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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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

Project Number: 38139

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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

Client: Eastern Research Group
Project Number: 38139

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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

Project Number: 38139

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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

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

[illegible]

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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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

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

[illegible]

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Printed: 19-Aug-96 at 11:38 AM

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

[illegible]

Triangle Laboratories, Inc.
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Printed: 19-Aug-96 at 01:19 PM

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

[illegible]

Triangle Laboratories, Inc.
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Printed: 19-Aug-96 at 01:19 PM

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

[illegible]

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Printed: 19-Aug-96 at 01:19 PM

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

[illegible]

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Printed: 19-Aug-96 at 01:19 PM

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

[illegible]

Triangle Laboratories, Inc.
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Printed: 19-Aug-96 at 01:19 PM

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

[illegible]

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Project Number: 38139

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

[illegible]

Printed: 20-Aug-96 at 04:19 PM

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

[illegible]

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Project Number: 38139

Client Sample ID:	EKL-93.91.92	EKL-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

[illegible]

at 10:48 AM

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

[illegible]

Triangle Laboratories, Inc.
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P : 19-Aug-96

ai

10:48 AM

Client: Eastern Research Group
Project Number: 38139

QA: Duplicate

Client Sample ID:	EKL-58	EKL-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

[illegible]

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Pr 19-Aug-96

ai

11:11 AM

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

[illegible]

Tele: (919) 544-5729 * Fax: (919) 544-5491

P 20-Aug-96

at

09:56 AM

Project Number: 38139

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

[illegible]

at 11:40 AM

Client: Eastern Research Group
Project Number: 38139

QA: Duplicate

Client Sample ID:	EKL-27	EKL-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

[illegible]

Triangle Laboratories, Inc.
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P 19-Aug-96

at 11:40 AM

Project Number:

Eastern Research Group

38139

QA: Duplicate

Client Sample ID:	EKL-131 NORTH	EKL-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

[illegible]

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Pr 19-Aug-96

ai

01:20 PM

Project Number: 38139

QA: Serial Dilution

Client Sample ID:	FKL-86.84.85	FKL-86.84.85 I
TLI Sample ID:	131-59-1ABC	131-59-1ABC I
Date Prepared:	July 24-31, 1996	July 24-31, 1996
Date Analyzed:	August 14-16, 1996	August 14-16, 1996
Matrix:	Air	Air

[illegible]

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Pr 19-Aug-96

ai

10:48 AM

Client: Eastern Research Group
Project Number: 38139

QA: Serial Dilution

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

[illegible]

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P 19-Aug-96

at

10:48 AM

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

[illegible]

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Tele: (919) 544-5729 * Fax: (919) 544-5491

Pr 19-Aug-96

21

11:11 AM

Project Number: 38139

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

Triangle Laboratories, Inc.

Pr 20-Aug-96

at 09:56 AM

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

[illegible]

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Pr 19-Aug-96 .

ai

11:40 AM

Project Number: 38139

QA: Serial Dilution

Client Sample ID:	EKL-21	EKL-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

[illegible]

Triangle Laboratories, Inc.

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Tele: (919) 544-5729 * Fax: (919) 544-5491

P 19-Aug-96

at

11:40 AM

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

[illegible]

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Tele: (919) 544-5729 * Fax: (919) 544-5491

Pr 19-Aug-96

at

01:20 PM

77

Project Number: 38139

QA: Serial Dilution

Client Sample ID:	EKL-127	EKL-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

[illegible]

Triangle Laboratories, Inc.

801 Capitola Drive * Durham, NC 27713
Tele: (919) 544-5729 * Fax: (919) 544-5491

P 19-Aug-96

at 01:20 PM

Project Number: 38139

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	

[illegible]

Printed: 19-Aug-96 at 10:48 AM

Project Number: 38139

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	

[illegible]

Printed: 19-Aug-96 at 10:48 AM

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	

[illegible]

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

Printed: 19-Aug-96 at 11:11 AM

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	

[illegible]

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801 Capitola Drive * Durham, NC 27713
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Printed: 19-Aug-96 at 11:11 AM

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	

[illegible]

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

Printed: 19-Aug-96 at 11:40 AM

Project Number: 38139

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	

[illegible]

Printed: 19-Aug-96 at 11:40 AM

Client: Eastern Research Group
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

[illegible]

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

Printed: 19-Aug-96 at 01:20 PM

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	

[illegible]

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

Printed: 19-Aug-96 at 01:20 PM

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

[illegible]

Triangle Laboratories, Inc.
801 Capitola Drive * Durham, NC 2771
Tele: (919) 544-5729 * Fax: (919) 544-5491

Printed: 19-Aug-96

at

10:48 AM

Project Number: 38139

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

[illegible]

Printed: 19-Aug-96 at 10:48 AM

Client: Eastern Research Group
Project Number: 38139

Sample Report

Page 1 of 8

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
µg/L RDI: 0.2
Analysis Method: 29
Instrument: P.E. Zeeman 5100
Spike Conc. (µg/L): 5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPLE	µg/L CONC.	ml TV	ml FV	ml Aliquot	DIL FACTOR	Total µg 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	0.089	N/A	100	25	1	< 0.080	-	-	-
FKL-98,99,100 FH D	* 131-59-3ABC D	0.089	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

38139

Page 2 of 8

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

CYAA ANALYTE SUMMARY REPORT

REVISED PAGE 90

WM 915/96

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Client: Eastern Research Group
Project Number: 38139

Sample Report

Page 3 of 8

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
upl BDL:	0.2
Analysis Method:	29
Instrument:	P E Zeeman 5100
Spike Conc. (upl)	5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TL SAMPLE	mg/L CONC	mg/L TV	mg/L PV	mg/L ABLVD	FB FACTOR	Testing RESULT	Avg RESULT	REF	SPK
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	0.084	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	< 0.080	-	-	-
FKL-74.75 BH D	* 131-59-9BC D	-0.009	75	N/A	25	1	< 0.080	< 0.080	-	-
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	< 0.080	< 0.080	-	-
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

Page 4 of 8

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
uol RDI:	0.2
Analysis Method:	29
Instrument:	P.E. Zeeman 5100
Spikes Conc. (uol):	5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPLE ID	ng/L CONC	ml TV	ml RV	ml Aliquot	Dil FACTOR	Yrning 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	0.025	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:
Project Number:

Eastern Research Group
38139

Sample Report

Page 5 of 8

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

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPLE ID	up/L CONC	IN TV	IN PV	IN Aliquot	DL 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	0.046	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	2.305	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

Page 6 of 8

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

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TL1 SAMPLE ID	R/L CONC	ml TV	ml FV	ml Aliquot	DL FACTOR	Totaling RESULT	Aug RESULT	RPD	SPIC
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

Page 7 of 8

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
uM RDL:	0.2
Analysis Method:	29
Instrument:	P.E. Zeeman 5100
Spike Conc. (uM)	5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPLE	HPL CONC	ml TV	ml PV	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	9.85	-	-	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%	106%
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	0.56%	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

Page 8 of 8

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

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPLE ID	up/L CONC	ml TV	ml PV	ml Alquot	DIL FACTOR	Total ug RESULT	ug 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 Caprola Drive * Durham, North Carolina 27713
Tele (919) 544-5729 * Fax: (919) 544-5491

Printed: 21-Aug-96 at 03:14 PM

FRESH KILL & LANDFILL - EPA STUDY									
CHAIN OF CUSTODY									
RELINQUISHED BY -		DATE -		RECEIVED BY:		DATE:			
Relinquished by <u>John S. Smith</u>		7-13-96		Received by: <u>Paul S. Smith</u>		7-14-96			
SAMPLE ID		FIELD ID		SAMPLE TYPE		PRESERVATIVE		COMMENTS	
FKL-105	FKL-071996	M29	INCIN	APR	FB3	METHOD 29, INCINERATOR, FB3	ACETONE PROBE RINSE		
FKL-98	FKL-071996	M29	INCIN	APR	3	METHOD 29, INCINERATOR, RUN 3	ACETONE PROBE RINSE		
FKL-91	FKL-071896	M29	INCIN	APR	2	METHOD 29, INCINERATOR, RUN 2	ACETONE PROBE RINSE		
FKL-84	FKL-071896	M29	INCIN	APR	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE		
FKL-77	FKL-071896	M29	INCIN	APR	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE		
FKL-70	FKL-071896	M29	INCIN	APR	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE		
FKL-63	FKL-071896	M29	INCIN	APR	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE		
FKL-56	FKL-071896	M29	INCIN	APR	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE		
FKL-49	FKL-071896	M29	INCIN	APR	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE		
FKL-42	FKL-071896	M29	INCIN	APR	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE		
FKL-35	FKL-071896	M29	INCIN	APR	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE		
FKL-28	FKL-071896	M29	INCIN	APR	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE		
FKL-21	FKL-071896	M29	INCIN	APR	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE		
FKL-14	FKL-071896	M29	INCIN	APR	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE		
FKL-07	FKL-071896	M29	INCIN	APR	1	METHOD 29, INCINERATOR, RUN 1	ACETONE PROBE RINSE		

FRESH KILLS LANDFILL - EPA STUDY									
CHAIN OF CUSTODY									
RELINQUISHED BY -		RELINQUISHED BY -		DATE -		RECEIVED BY: <i>Donna Danner</i>		DATE: <i>7-19-96</i>	
Collected by <i>Donna Danner</i>		Collected by <i>Donna Danner</i>		DATE -		RECEIVED BY: <i>Donna Danner</i>		DATE: <i>7-22-96</i>	
SAMPLE ID		FIELD ID		SAMPLE TYPE		PRESERVATIVE		COMMENTS	
FKL-03	FKL-03	011876	M29	NHEAD-	BH- 3	METHOD 29, NORTH HEADER, RUN 3	HNO3/H2O2 BACK HALF		
FKL-21	FKL-21	011876	M29	SHEAD-	BH- 1	METHOD 29, SOUTH HEADER, RUN 1	HNO3/H2O2 BACK HALF		
FKL-53	FKL-53	011876	M29	SALES-	BH- 1	METHOD 29, SALES GAS, RUN 1	HNO3/H2O2 BACK HALF		
FKL-87	FKL-87	011876	M29	INCIN-	BH- 1	METHOD 29, INCINERATOR, RUN 1	HNO3/H2O2 BACK HALF		
FKL-127	FKL-127	011876	M29	AMB-	BH- 1	METHOD 29, AMBIENT, RUN 1	HNO3/H2O2 BACK HALF		
FKL-09	FKL-09	011876	M29	NHEAD-	BH- 2	METHOD 29, NORTH HEADER, RUN 2	HNO3/H2O2 BACK HALF		
FKL-27	FKL-27	011876	M29	SHEAD-	BH- 2	METHOD 29, SOUTH HEADER, RUN 2	HNO3/H2O2 BACK HALF		
FKL-80	FKL-80	011876	M29	SALES-	BH- 2	METHOD 29, SALES GAS, RUN 2	HNO3/H2O2 BACK HALF		
FKL-84	FKL-84	011876	M29	INCIN-	BH- 2	METHOD 29, INCINERATOR, RUN 2	HNO3/H2O2 BACK HALF		
FKL-15	FKL-15	011876	M29	NHEAD-	BH- 3	METHOD 29, NORTH HEADER, RUN 3	HNO3/H2O2 BACK HALF		
FKL-33	FKL-33	011876	M29	SHEAD-	BH- 3	METHOD 29, SOUTH HEADER, RUN 3	HNO3/H2O2 BACK HALF		
FKL-67	FKL-67	011876	M29	SALES-	BH- 3	METHOD 29, SALES GAS, RUN 3	HNO3/H2O2 BACK HALF		
FKL-101	FKL-101	011876	M29	INCIN-	BH- 3	METHOD 29, INCINERATOR, RUN 3	HNO3/H2O2 BACK HALF		
FKL-40	FKL-40	011876	M29	HEADER-	BH- FB1	METHOD 29, HEADER, FB1	HNO3/H2O2 BACK HALF		
FKL-74	FKL-74	011876	M29	SALES-	BH- FB2	METHOD 29, SALES GAS, FB2	HNO3/H2O2 BACK HALF		
FKL-106	FKL-106	011876	M29	INCIN-	BH- FB3	METHOD 29, INCINERATOR, FB3	HNO3/H2O2 BACK HALF		
FKL-47	FKL-47	011876	M29	HEADER-	BH- RB1	METHOD 29, HEADER, RB1	HNO3/H2O2		
FKL-81	FKL-81	011876	M29	SALES-	BH- RB2	METHOD 29, SALES GAS, RB2	HNO3/H2O2		
FKL-115	FKL-115	011876	M29	INCIN-	BH- RB3	METHOD 29, INCINERATOR, RB3	HNO3/H2O2		

FRESH KILLS LANDFILL - EPA STUDY									
CHAIN OF CUSTODY									
RELINQUISHED BY -		DATE -		RECEIVED BY:		DATE:			
RELINQUISHED BY - <u>Sherry Smith</u>		DATE - <u>7-22-96</u>		RECEIVED BY: <u>Sherry Smith</u>		DATE: <u>7-19-96</u>			
RELINQUISHED BY - <u>Sherry Smith</u>		DATE - <u>7-22-96</u>		RECEIVED BY: <u>Sherry Smith</u>		DATE: <u>7-23-96</u>			
RELINQUISHED BY - <u>Sherry Smith</u>		DATE - <u>7-22-96</u>		RECEIVED BY: <u>Sherry Smith</u>		DATE: <u>7-22-96</u>			
SAMPLE ID		FIELD ID		SAMPLE TYPE		PRESERVATIVE		COMMENTS	
FKL-04	FKL-011796	M29	NHEAD	BHM-1	3	METHOD 29, NORTH HEADER, RUN 3	0.1N HNO3 RINSE - Hg		
FKL-22	FKL-011796	M29	SHEAD	BHM-1	1	METHOD 29, SOUTH HEADER, RUN 1	0.1N HNO3 RINSE - Hg		
FKL-54	FKL-011796	M29	SALES	BHM-1	1	METHOD 29, SALES GAS, RUN 1	0.1N HNO3 RINSE - Hg		
FKL-86	FKL-011796	M29	INCIN	BHM-1	1	METHOD 29, INCINERATOR, RUN 1	0.1N HNO3 RINSE - Hg		
FKL-128	FKL-011796	M29	AMB	BHM-1	1	METHOD 29, AMBIENT, RUN 1	0.1N HNO3 RINSE - Hg		
FKL-10	FKL-011796	M29	NHEAD	BHM-2	2	METHOD 29, NORTH HEADER, RUN 2	0.1N HNO3 RINSE - Hg		
FKL-28	FKL-011796	M29	SHEAD	BHM-2	2	METHOD 29, SOUTH HEADER, RUN 2	0.1N HNO3 RINSE - Hg		
FKL-81	FKL-011796	M29	SALES	BHM-2	2	METHOD 29, SALES GAS, RUN 2	0.1N HNO3 RINSE - Hg		
FKL-85	FKL-011796	M29	INCIN	BHM-2	2	METHOD 29, INCINERATOR, RUN 2	0.1N HNO3 RINSE - Hg		
FKL-16	FKL-011796	M29	NHEAD	BHM-2	2	METHOD 29, NORTH HEADER, RUN 2	0.1N HNO3 RINSE - Hg		
FKL-34	FKL-011796	M29	SHEAD	BHM-3	3	METHOD 29, SOUTH HEADER, RUN 3	0.1N HNO3 RINSE - Hg		
FKL-89	FKL-011796	M29	SALES	BHM-3	3	METHOD 29, SALES GAS, RUN 3	0.1N HNO3 RINSE - Hg		
FKL-102	FKL-011796	M29	INCIN	BHM-3	3	METHOD 29, INCINERATOR, RUN 3	0.1N HNO3 RINSE - Hg		
FKL-41	FKL-011796	M29	HEADER	BHM-1	1	METHOD 29, HEADER, FBI	0.1N HNO3 RINSE - Hg		
FKL-75	FKL-011796	M29	SALES	BHM-1	1	METHOD 29, SALES GAS, FBI	0.1N HNO3 RINSE - Hg		
FKL-108	FKL-011796	M29	INCIN	BHM-1	1	METHOD 29, INCINERATOR, FBI	0.1N HNO3 RINSE - Hg		

FRESH KILLS LANDFILL - EPA STUDY									
CHAIN OF CUSTODY									
RELINQUISHED BY -		DATE -		RECEIVED BY: <i>James Thomas</i>		DATE: 7-19-96			
RELINQUISHED BY - <i>James Thomas</i>		DATE -		RECEIVED BY: <i>James Thomas</i>		DATE: 7-22-96			
Relinquished by <i>James Thomas</i>		DATE -		Received by: <i>James Thomas</i>		DATE: 7/22/96			
SAMPLE ID	FIELD ID	SALES	F	DATE	METHOD	PRESERVATIVE	COMMENTS		
FKL-06	FKL-011816	M28	INCIN-	F- 1	METHOD 28, INCINERATOR, RUN 1	FILTER			
FKL-09	FKL-011816	M28	INCIN-	F- 2	METHOD 28, INCINERATOR, RUN 2	FILTER			
FKL-100	FKL-011816	M28	INCIN-	F- 3	METHOD 28, INCINERATOR, RUN 3	FILTER			
FKL-107	FKL-011816	M28	INCIN-	F- 3	METHOD 28, INCINERATOR, RUN 3	FILTER			
FKL-114	FKL-011816	M28	INCIN-	F- 3	METHOD 28, INCINERATOR, RUN 3	FILTER			
FKL-120	FKL-011816	M28	INCIN-	F- 3	METHOD 28, INCINERATOR, RUN 3	FILTER			

FRESH KILLS LANDFILL - EPA STUDY									
CHAIN OF CUSTODY									
RELINQUISHED BY -		RECEIVED BY -		DATE -		DATE -			
Relinquished by: <u>John Smith</u>		Received by: <u>John Smith</u>		7-19-96		7-22-96			
SAMPLE ID		FIELD ID		DATE -		DATE -			
				7-22-96		7-22-96			
				SAMPLE TYPE					
FKL-08	FKL-011796	M29	NHEAD	HCI	1	METHOD 29, NORTH HEADER, RUN 1	0N HCI RINSE - Hg		
FKL-24	FKL-011796	M29	SHEAD	HCI	1	METHOD 29, SOUTH HEADER, RUN 1	0N HCI RINSE - Hg		
FKL-56	FKL-011796	M29	SALES	HCI	1	METHOD 29, SALES GAS, RUN 1	0N HCI RINSE - Hg		
FKL-90	FKL-011816	M29	INCIN	HCI	1	METHOD 29, INCINERATOR, RUN 1	0N HCI RINSE - Hg		
FKL-130	FKL-011816	M29	AMB	HCI	1	METHOD 29, AMBIENT, RUN 1	0N HCI RINSE - Hg		
FKL-12	FKL-011816	M29	NHEAD	HCI	2	METHOD 29, NORTH HEADER, RUN 2	0N HCI RINSE - Hg		
FKL-30	FKL-011816	M29	SHEAD	HCI	2	METHOD 29, SOUTH HEADER, RUN 2	0N HCI RINSE - Hg		
FKL-63	FKL-011796	M29	SALES	HCI	2	METHOD 29, SALES GAS, RUN 2	0N HCI RINSE - Hg		
FKL-97	FKL-011816	M29	INCIN	HCI	2	METHOD 29, INCINERATOR, RUN 2	0N HCI RINSE - Hg		
FKL-16	FKL-011816	M29	NHEAD	HCI	2	METHOD 29, NORTH HEADER, RUN 3	0N HCI RINSE - Hg		
FKL-36	FKL-011796	M29	SHEAD	HCI	3	METHOD 29, SOUTH HEADER, RUN 3	0N HCI RINSE - Hg		
FKL-70	FKL-011816	M29	SALES	HCI	3	METHOD 29, SALES GAS, RUN 3	0N HCI RINSE - Hg		
FKL-104	FKL-011816	M29	INCIN	HCI	3	METHOD 29, INCINERATOR, RUN 3	0N HCI RINSE - Hg		
FKL-43	FKL-011796	M29	HEADER	HCI	FB1	METHOD 29, HEADER, FB1	0N HCI RINSE - Hg		
FKL-77	FKL-011816	M29	SALES	HCI	FB2	METHOD 29, SALES GAS, FB2	0N HCI RINSE - Hg		
FKL-111	FKL-011796	M29	INCIN	HCI	FB3	METHOD 29, INCINERATOR, FB3	0N HCI RINSE - Hg		
FKL-49	FKL-011816	M29	HEADER	HCI	RB1	METHOD 29, HEADER, RB1	0N HCI		
FKL-83	FKL-011796	M29	SALES	HCI	RB2	METHOD 29, SALES GAS, RB2	0N HCI		
FKL-117	FKL-011816	M29	INCIN	HCI	RB3	METHOD 29, INCINERATOR, RB3	0N HCI		
FKL-100	FKL-011816	M29	INCIN	HCI	RB4	METHOD 29, INCINERATOR, RB4	0N HCI		

FRESH KILLS LANDFILL - EPA STUDY										
CHAIN OF CUSTODY										
RELINQUISHED BY -		DATE -		RECEIVED BY: <i>David Thomas</i>		DATE: 7-19-96				
RELINQUISHED BY - <i>David Thomas</i>		DATE -		RECEIVED BY: <i>David Thomas</i>		DATE: 7-22-96				
Relinquished by <i>David Thomas</i>		DATE: 7-22-96		RECEIVED BY: <i>David Thomas</i>		DATE: 7-22-96				
SAMPLE ID	FIELD ID	DATE	SAMPLE TYPE	PRESERVATIVE	COMMENTS					
FKL-02	FKL-02	M29	NHEAD	HN-13	METHOD 29, NORTH HEADER, RUN 3	NITRIC ACID PROBE RINSE				
FKL-20	FKL-20	M29	SHEAD	HN-1	METHOD 29, SOUTH HEADER, RUN 1	NITRIC ACID PROBE RINSE				
FKL-51	FKL-51	M29	SALES	HN-1	METHOD 29, SALES GAS, RUN 1	NITRIC ACID PROBE RINSE				
FKL-05	FKL-05	M29	INCIN	HN-1	METHOD 29, INCINERATOR, RUN 1	NITRIC ACID PROBE RINSE				
FKL-125	FKL-125	M29	AMB	HN-1	METHOD 29, AMBIENT, RUN 1	NITRIC ACID PROBE RINSE				
FKL-06	FKL-06	M29	NHEAD	HN-2	METHOD 29, NORTH HEADER, RUN 2	NITRIC ACID PROBE RINSE				
FKL-28	FKL-28	M29	SHEAD	HN-2	METHOD 29, SOUTH HEADER, RUN 2	NITRIC ACID PROBE RINSE				
FKL-56	FKL-56	M29	SALES	HN-2	METHOD 29, SALES GAS, RUN 2	NITRIC ACID PROBE RINSE				
FKL-92	FKL-92	M29	INCIN	HN-2	METHOD 29, INCINERATOR, RUN 2	NITRIC ACID PROBE RINSE				
FKL-14	FKL-14	M29	NHEAD	HN-3	METHOD 29, NORTH HEADER, RUN 3	NITRIC ACID PROBE RINSE				
FKL-32	FKL-32	M29	SHEAD	HN-3	METHOD 29, SOUTH HEADER, RUN 3	NITRIC ACID PROBE RINSE				
FKL-65	FKL-65	M29	SALES	HN-3	METHOD 29, SALES GAS, RUN 3	NITRIC ACID PROBE RINSE				
FKL-99	FKL-99	M29	INCIN	HN-3	METHOD 29, INCINERATOR, RUN 3	NITRIC ACID PROBE RINSE				
FKL-36	FKL-36	M29	HEADER	HN-1	METHOD 29, HEADER, FB1	NITRIC ACID PROBE RINSE				
FKL-72	FKL-72	M29	SALES	HN-1	METHOD 29, SALES GAS, FB2	NITRIC ACID PROBE RINSE				
FKL-108	FKL-108	M29	INCIN	HN-1	METHOD 29, INCINERATOR, FB3	NITRIC ACID PROBE RINSE				
FKL-45	FKL-45	M29	HEADER	HN-1	METHOD 29, HEADER, RB1	0.1N HNO3				
FKL-79	FKL-79	M29	SALES	HN-1	METHOD 29, SALES GAS, RB2	0.1N HNO3				
FKL-113	FKL-113	M29	INCIN	HN-1	METHOD 29, INCINERATOR, RB3	0.1N HNO3				

FRESH KILLS LANDFILL - EPA STUDY									
CHAIN OF CUSTODY									
RELINQUISHED BY -		RELINQUISHED BY -		DATE -		RECEIVED BY: <i>Danny Thomas</i>		DATE: 7-19-96	
Relinquished by: <i>Danny Thomas</i>		Relinquished by: <i>Danny Thomas</i>		DATE -		RECEIVED BY: <i>Danny Thomas</i>		DATE: 7-22-96	
SAMPLE ID		FIELD ID		SAMPLE TYPE		PRESERVATIVE		COMMENTS	
FKL-05	FKL-01179L	M29	NHEAD	KMNO-13	METHOD 29, NORTH HEADER, RUN 3	KMNO4 IMPINGERS			
FKL-23	FKL-01185L	M29	SHEAD	KMNO-1	METHOD 29, SOUTH HEADER, RUN 1	KMNO4 IMPINGERS			
FKL-55	FKL-01171L	M29	SALES	KMNO-1	METHOD 29, SALES GAS, RUN 1	KMNO4 IMPINGERS			
FKL-89	FKL-01179L	M29	INCIN	KMNO-1	METHOD 29, INCINERATOR, RUN 1	KMNO4 IMPINGERS			
FKL-129	FKL-01179L	M29	AMB	KMNO-1	METHOD 29, AMBIENT, RUN 1	KMNO4 IMPINGERS			
FKL-11	FKL-01179L	M29	NHEAD	KMNO-2	METHOD 29, NORTH HEADER, RUN 2	KMNO4 IMPINGERS			
FKL-29	FKL-01179L	M29	SHEAD	KMNO-2	METHOD 29, SOUTH HEADER, RUN 2	KMNO4 IMPINGERS			
FKL-62	FKL-01171L	M29	SALES	KMNO-2	METHOD 29, SALES GAS, RUN 2	KMNO4 IMPINGERS			
FKL-96	FKL-01185L	M29	INCIN	KMNO-2	METHOD 29, INCINERATOR, RUN 2	KMNO4 IMPINGERS			
FKL-17	FKL-01179L	M29	NHEAD	KMNO-3	METHOD 29, NORTH HEADER, RUN 3	KMNO4 IMPINGERS			
FKL-35	FKL-01179L	M29	SHEAD	KMNO-3	METHOD 29, SOUTH HEADER, RUN 3	KMNO4 IMPINGERS			
FKL-89	FKL-01171L	M29	SALES	KMNO-3	METHOD 29, SALES GAS, RUN 3	KMNO4 IMPINGERS			
FKL-103	FKL-01179L	M29	INCIN	KMNO-3	METHOD 29, INCINERATOR, RUN 3	KMNO4 IMPINGERS			
FKL-42	FKL-01179L	M29	HEADER	FBI	METHOD 29, HEADER, FBI	KMNO4 IMPINGERS			
FKL-76	FKL-01179L	M29	SALES	FBI	METHOD 29, SALES GAS, FBI	KMNO4 IMPINGERS			
FKL-110	FKL-01179L	M29	INCIN	FBI	METHOD 29, INCINERATOR, FBI	KMNO4 IMPINGERS			
FKL-48	FKL-01179L	M29	HEADER	RBI	METHOD 29, HEADER, RBI	KMNO4			
FKL-82	FKL-01179L	M29	SALES	RBI	METHOD 29, SALES GAS, RBI	KMNO4			
FKL-118	FKL-01179L	M29	INCIN	RBI	METHOD 29, INCINERATOR, RBI	KMNO4			

FREEMAN'S LANDFILL - EPA STUDY

SAMPLE LOG		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

SAMPLE ID	FIELD ID	SAMPLE TYPE	PRESERVATIVE	COMMENTS	TARE WT	FINAL WT
FRL-01	FRL-01	METHOD 20, NORTH HEADER, RUN 1	INCONDOZ BACK HALF	58.1	306.6	325.4
FRL-02	FRL-02	METHOD 20, NORTH HEADER, RUN 1	INCONDOZ BACK HALF	46.1	300.1	306.9
FRL-03	FRL-03	METHOD 20, NORTH HEADER, RUN 1	0.1 IN INDO RINGE - 1g	66.1	260.5	335.2
FRL-04	FRL-04	METHOD 20, NORTH HEADER, RUN 1	INCONDOZ BACK HALF	43.3	311.4	324.7
FRL-05	FRL-05	METHOD 20, NORTH HEADER, RUN 1	0.1 IN INDO RINGE - 1g	182.5	266.7	449.2
FRL-06	FRL-06	METHOD 20, NORTH HEADER, RUN 1	INCONDOZ BACK HALF	68.7	260.6	333.8
FRL-07	FRL-07	METHOD 20, NORTH HEADER, RUN 2	0.1 IN INDO RINGE - 1g	445.1	302.0	337.7
FRL-08	FRL-08	METHOD 20, NORTH HEADER, RUN 2	0.1 IN INDO RINGE - 1g	59.1	265.4	325.1
FRL-09	FRL-09	METHOD 20, NORTH HEADER, RUN 2	INCONDOZ BACK HALF	406.1	302.0	302.5
FRL-10	FRL-10	METHOD 20, NORTH HEADER, RUN 2	0.1 IN INDO RINGE - 1g	73.0	266.3	341.7
FRL-11	FRL-11	METHOD 20, NORTH HEADER, RUN 2	INCONDOZ BACK HALF	33.4	267.3	300.7
FRL-12	FRL-12	METHOD 20, NORTH HEADER, RUN 2	0.1 IN INDO RINGE - 1g	442.7	300.4	333.3
FRL-13	FRL-13	METHOD 20, NORTH HEADER, RUN 2	0.1 IN INDO RINGE - 1g	61.5	260.2	326.2
FRL-14	FRL-14	METHOD 20, NORTH HEADER, RUN 2	INCONDOZ BACK HALF	391.9	312.8	184.7
FRL-15	FRL-15	METHOD 20, NORTH HEADER, RUN 2	0.1 IN INDO RINGE - 1g	66.1	268.3	334.0
FRL-16	FRL-16	METHOD 20, NORTH HEADER, RUN 2	INCONDOZ BACK HALF	71.2	266.3	304.5
FRL-17	FRL-17	METHOD 20, NORTH HEADER, RUN 2	0.1 IN INDO RINGE - 1g	347.1	312.8	731.9
FRL-18	FRL-18	METHOD 20, NORTH HEADER, RUN 2	0.1 IN INDO RINGE - 1g	43.7	265.4	313.6
FRL-19	FRL-19	METHOD 20, NORTH HEADER, RUN 2	INCONDOZ BACK HALF	332.8	300.8	743.6
FRL-20	FRL-20	METHOD 20, NORTH HEADER, RUN 2	0.1 IN INDO RINGE - 1g	61.3	268.8	358.1
FRL-21	FRL-21	METHOD 20, SOUTH HEADER, RUN 1	INCONDOZ BACK HALF	57.0	266.5	323.5
FRL-22	FRL-22	METHOD 20, SOUTH HEADER, RUN 1	0.1 IN INDO RINGE - 1g	380.7	311.2	111.9
FRL-23	FRL-23	METHOD 20, SOUTH HEADER, RUN 1	INCONDOZ BACK HALF	47.4	264.3	312.7
FRL-24	FRL-24	METHOD 20, SOUTH HEADER, RUN 1	0.1 IN INDO RINGE - 1g			
FRL-25	FRL-25	METHOD 20, SOUTH HEADER, RUN 1	INCONDOZ BACK HALF			
FRL-26	FRL-26	METHOD 20, SOUTH HEADER, RUN 1	0.1 IN INDO RINGE - 1g			
FRL-27	FRL-27	METHOD 20, SOUTH HEADER, RUN 2	INCONDOZ BACK HALF			
FRL-28	FRL-28	METHOD 20, SOUTH HEADER, RUN 2	0.1 IN INDO RINGE - 1g			

FRESH KILLS LANDFILL - SPASIVITY									
SAMPLE LOG									
SAMPLE ID	FIELD ID	FIELD	SAMPLE TYPE	PRESERVATIVE	RECOVERY PERSON - DATE	COMMENTS	TARE WT	FINAL WT	
FRL-29	FRL-0110K	M29	SHEAD	NUMO 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-30	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-31	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-32	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-33	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-34	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-35	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-36	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-37	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-38	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-39	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-40	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-41	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-42	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-43	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-44	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-45	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-46	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-47	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-48	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-49	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-50	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-51	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-52	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-53	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-54	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-55	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-56	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-57	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-58	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-59	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	
FRL-60	FRL-0110K	M29	SHEAD	HCI 2	METHOD 29, SOUTH HEADER, RUN 2	NUMO4 APPENDS	391.9	172.0	

265.5	374.2
266.4	375.3
267.0	376.4
268.1	377.5
269.2	378.6
270.3	379.7
271.4	380.8
272.5	381.9
273.6	383.0
274.7	384.1
275.8	385.2
276.9	386.3
278.0	387.4
279.1	388.5
280.2	389.6
281.3	390.7
282.4	391.8
283.5	392.9
284.6	394.0
285.7	395.1
286.8	396.2
287.9	397.3
289.0	398.4
290.1	399.5
291.2	400.6
292.3	401.7
293.4	402.8
294.5	403.9
295.6	405.0
296.7	406.1
297.8	407.2
298.9	408.3
299.0	409.4
300.1	410.5
301.2	411.6
302.3	412.7
303.4	413.8
304.5	414.9
305.6	416.0
306.7	417.1
307.8	418.2
308.9	419.3
309.0	420.4
310.1	421.5
311.2	422.6
312.3	423.7
313.4	424.8
314.5	425.9
315.6	427.0
316.7	428.1
317.8	429.2
318.9	430.3
319.0	431.4
320.1	432.5
321.2	433.6
322.3	434.7
323.4	435.8
324.5	436.9
325.6	438.0
326.7	439.1
327.8	440.2
328.9	441.3
329.0	442.4
330.1	443.5
331.2	444.6
332.3	445.7
333.4	446.8
334.5	447.9
335.6	449.0
336.7	450.1
337.8	451.2
338.9	452.3
339.0	453.4
340.1	454.5
341.2	455.6
342.3	456.7
343.4	457.8
344.5	458.9
345.6	460.0
346.7	461.1
347.8	462.2
348.9	463.3
349.0	464.4
350.1	465.5
351.2	466.6
352.3	467.7
353.4	468.8
354.5	469.9
355.6	471.0
356.7	472.1
357.8	473.2
358.9	474.3
359.0	475.4
360.1	476.5
361.2	477.6
362.3	478.7
363.4	479.8
364.5	480.9
365.6	482.0
366.7	483.1
367.8	484.2
368.9	485.3
369.0	486.4
370.1	487.5
371.2	488.6
372.3	489.7
373.4	490.8
374.5	491.9
375.6	493.0
376.7	494.1
377.8	495.2
378.9	496.3
379.0	497.4
380.1	498.5
381.2	499.6
382.3	500.7
383.4	501.8
384.5	502.9
385.6	504.0
386.7	505.1
387.8	506.2
388.9	507.3
389.0	508.4
390.1	509.5
391.2	510.6
392.3	511.7
393.4	512.8
394.5	513.9
395.6	515.0
396.7	516.1
397.8	517.2
398.9	518.3
399.0	519.4
400.1	520.5
401.2	521.6
402.3	522.7
403.4	523.8
404.5	524.9
405.6	526.0
406.7	527.1
407.8	528.2
408.9	529.3
409.0	530.4
410.1	531.5
411.2	532.6
412.3	533.7
413.4	534.8
414.5	535.9
415.6	537.0
416.7	538.1
417.8	539.2
418.9	540.3
419.0	541.4
420.1	542.5
421.2	543.6
422.3	544.7
423.4	545.8
424.5	546.9
425.6	548.0
426.7	549.1
427.8	550.2
428.9	551.3
429.0	552.4
430.1	553.5
431.2	554.6
432.3	555.7
433.4	556.8
434.5	557.9
435.6	559.0
436.7	560.1
437.8	561.2
438.9	562.3
439.0	563.4
440.1	564.5
441.2	565.6
442.3	566.7
443.4	567.8
444.5	568.9
445.6	570.0
446.7	571.1
447.8	572.2
448.9	573.3
449.0	574.4
450.1	575.5
451.2	576.6
452.3	577.7
453.4	578.8
454.5	579.9
455.6	581.0
456.7	582.1
457.8	583.2
458.9	584.3
459.0	585.4
460.1	586.5
461.2	587.6
462.3	588.7
463.4	589.8
464.5	590.9
465.6	592.0
466.7	593.1
467.8	594.2
468.9	595.3
469.0	596.4
470.1	597.5
471.2	598.6
472.3	599.7
473.4	600.8
474.5	601.9
475.6	603.0
476.7	604.1
477.8	605.2
478.9	606.3
479.0	607.4
480.1	608.5
481.2	609.6
482.3	610.7
483.4	611.8
484.5	612.9
485.6	614.0
486.7	615.1
487.8	616.2
488.9	617.3
489.0	618.4
490.1	619.5
491.2	620.6
492.3	621.7
493.4	622.8
494.5	623.9
495.6	625.0
496.7	626.1
497.8	627.2
498.9	628.3
499.0	629.4
500.1	630.5
501.2	631.6
502.3	632.7
503.4	633.8
504.5	634.9
505.6	636.0
506.7	637.1
507.8	638.2
508.9	639.3
509.0	640.4
510.1	641.5
511.2	642.6
512.3	643.7
513.4	644.8
514.5	645.9
515.6	647.0
516.7	648.1
517.8	649.2
518.9	650.3
519.0	651.4
520.1	652.5
521.2	653.6
522.3	654.7
523.4	655.8
524.5	656.9
525.6	658.0
526.7	659.1
527.8	660.2
528.9	661.3
529.0	662.4
530.1	663.5
531.2	664.6
532.3	665.7
533.4	666.8
534.5	667.9
535.6	669.0
536.7	670.1
537.8	671.2
538.9	672.3
539.0	673.4
540.1	674.5
541.2	675.6
542.3	676.7
543.4	677.8
544.5	678.9
545.6	680.0
546.7	681.1
547.8	682.2
548.9	683.3
549.0	684.4
550.1	685.5
551.2	686.6
552.3	687.7
553.4	688.8
554.5	689.9
555.6	691.0
556.7	692.1
557.8	693.2
558.9	694.3
559.0	695.4
560.1	696.5
561.2	697.6
562.3	698.7
563.4	699.8
564.5	700.9
565.6	702.0
566.7	703.1
567.8	704.2
568.9	705.3
569.0	706.4
570.1	707.5
571.2	708.6
572.3	709.7
573.4	710.8
574.5	711.9
575.6	713.0
576.7	714.1
577.8	715.2
578.9	716.3
579.0	717.4
580.1	718.5
581.2	719.6
582.3	720.7
583.4	721.8
584.5	722.9
585.6	724.0
586.7	725.1
587.8	726.2
588.9	727.3
589.0	728.4
590.1	729.5
591.2	730.6
592.3	731.7
593.4	732.8
594.5	733.9
595.6	735.0
596.7	736.1
597.8	737.2
598.9	738.3
599.0	739.4
600.1	740.5
601.2	741.6
602.3	742.7
603.4	743.8
604.5	744.9
605.6	746.0
606.7	747.1
607.8	748.2
608.9	749.3
609.0	750.4
610.1	751.5
611.2	752.6
612.3	753.7
613.4	754.8
614.5	755.9
615.6	757.0
616.7	758.1

RADIAN

Project No. 7356503
Book No. 29771

FRESH WASTE LANDFILL - EPA STUDY
SAMPLE LOG

SAMPLE ID	FIELD NO				SAMPLE TYPE	RECOVERY PERSON - DATE	PRESERVATIVE	COMMENTS	TARE WT	FINAL WT
	FWL	Q1	Q2	Q3						
FWL-03	FWL-03	Q1-03	Q2-03	Q3-03	METHOD 29, INCINERATOR, RUN 1	CK, B. L. Smith 7-18-96	NITRIC ACID PROBE RINSE FILTER	260.4	267.4	527.8
FWL-04	FWL-04	Q1-04	Q2-04	Q3-04	METHOD 29, INCINERATOR, RUN 1		INCINERATOR BACK HALF 0.1N HNO3 RINSE - 1H	673.1	372.3	1019.4
FWL-05	FWL-05	Q1-05	Q2-05	Q3-05	METHOD 29, INCINERATOR, RUN 1		0.1N HNO3 RINSE - 1H	64.1	269.0	333.1
FWL-06	FWL-06	Q1-06	Q2-06	Q3-06	METHOD 29, INCINERATOR, RUN 1		KMNO4 IMPROVERS 0.1N HNO3 RINSE - 1H	331.6	372.3	763.9
FWL-07	FWL-07	Q1-07	Q2-07	Q3-07	METHOD 29, INCINERATOR, RUN 1		0.1N HNO3 RINSE - 1H	45.5	265.7	311.4
FWL-08	FWL-08	Q1-08	Q2-08	Q3-08	METHOD 29, INCINERATOR, RUN 2		ACETONE PROBE RINSE	86.6	264.4	351.0
FWL-09	FWL-09	Q1-09	Q2-09	Q3-09	METHOD 29, INCINERATOR, RUN 2		NITRIC ACID PROBE RINSE FILTER	262.7	265.4	528.1
FWL-10	FWL-10	Q1-10	Q2-10	Q3-10	METHOD 29, INCINERATOR, RUN 2		INCINERATOR BACK HALF 0.1N HNO3 RINSE - 1H	FW-14-F 568.8	393.5	963.3
FWL-11	FWL-11	Q1-11	Q2-11	Q3-11	METHOD 29, INCINERATOR, RUN 2		0.1N HNO3 RINSE - 1H	54.9	268.8	323.7
FWL-12	FWL-12	Q1-12	Q2-12	Q3-12	METHOD 29, INCINERATOR, RUN 2		KMNO4 IMPROVERS 0.1N HNO3 RINSE - 1H	368.1	292.9	161.0
FWL-13	FWL-13	Q1-13	Q2-13	Q3-13	METHOD 29, INCINERATOR, RUN 2		ACETONE PROBE RINSE	58.8	270.2	321.0
FWL-14	FWL-14	Q1-14	Q2-14	Q3-14	METHOD 29, INCINERATOR, RUN 3		NITRIC ACID PROBE RINSE FILTER	FW-20-F 365.9	265.4	479.2
FWL-15	FWL-15	Q1-15	Q2-15	Q3-15	METHOD 29, INCINERATOR, RUN 3		INCINERATOR BACK HALF 0.1N HNO3 RINSE - 1H	391.8	391.8	1003.2
FWL-16	FWL-16	Q1-16	Q2-16	Q3-16	METHOD 29, INCINERATOR, RUN 3		0.1N HNO3 RINSE - 1H	264.5	264.5	329.7
FWL-17	FWL-17	Q1-17	Q2-17	Q3-17	METHOD 29, INCINERATOR, RUN 3		KMNO4 IMPROVERS 0.1N HNO3 RINSE - 1H	332.7	332.7	752.9
FWL-18	FWL-18	Q1-18	Q2-18	Q3-18	METHOD 29, INCINERATOR, RUN 3		0.1N HNO3 RINSE - 1H	268.1	268.1	331.6
FWL-19	FWL-19	Q1-19	Q2-19	Q3-19	METHOD 29, INCINERATOR, RUN 3		ACETONE PROBE RINSE	265.4	265.4	324.5
FWL-20	FWL-20	Q1-20	Q2-20	Q3-20	METHOD 29, INCINERATOR, RUN 3		NITRIC ACID PROBE RINSE FILTER	FW-22-F 264.9	264.9	403.8
FWL-21	FWL-21	Q1-21	Q2-21	Q3-21	METHOD 29, INCINERATOR, RUN 3		INCINERATOR BACK HALF 0.1N HNO3 RINSE - 1H	392.3	392.3	713.1
FWL-22	FWL-22	Q1-22	Q2-22	Q3-22	METHOD 29, INCINERATOR, RUN 3		0.1N HNO3 RINSE - 1H	266.1	266.1	334.3
FWL-23	FWL-23	Q1-23	Q2-23	Q3-23	METHOD 29, INCINERATOR, RUN 3		KMNO4 IMPROVERS 0.1N HNO3 RINSE - 1H	390.8	390.8	717.0
FWL-24	FWL-24	Q1-24	Q2-24	Q3-24	METHOD 29, INCINERATOR, RUN 3		0.1N HNO3 RINSE - 1H	265.8	265.8	341.3
FWL-25	FWL-25	Q1-25	Q2-25	Q3-25	METHOD 29, INCINERATOR, RUN 3		ACETONE	264.6	264.6	344.1

00000 & U2

FRESHWATER LARVAE - EPA STUDY
SAMPLE 100

SAMPLE ID	FIELD ID				SAMPLE TYPE	RECOVERY PERSON - DATE		COMMENTS	TARE WT	FINAL WT
	FL	Q	ACQ	INCIN		PRESERVATIVE	DATE			
FLU-113	FLU	Q113K	ACQ	INCIN	INNO	0.1 INNO	2-17-74	FK-16 F	249.4	341.8
FLU-114	FLU	Q113K	ACQ	INCIN	F	0.1 INNO				
FLU-115	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-116	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-117	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-118	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-119	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-120	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-121	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-122	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-123	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-124	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-125	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-126	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-127	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-128	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-129	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-130	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-131	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-132	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-133	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-134	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-135	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-136	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-137	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-138	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-139	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-140	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-141	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-142	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-143	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-144	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-145	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-146	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-147	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-148	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-149	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-150	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-151	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-152	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-153	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-154	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-155	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-156	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-157	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-158	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-159	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-160	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-161	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-162	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-163	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-164	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-165	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-166	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-167	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-168	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-169	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-170	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-171	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-172	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-173	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-174	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-175	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-176	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-177	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-178	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-179	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-180	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-181	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-182	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-183	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-184	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-185	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-186	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-187	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-188	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-189	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-190	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-191	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-192	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-193	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-194	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-195	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-196	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-197	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-198	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-199	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				
FLU-200	FLU	Q113K	ACQ	INCIN	BI	0.1 INNO				

FRESHWATER LANDFILL - EPA STUDY
 SAMPLE LOG

SAMPLE ID	FIELD ID	SAMPLE TYPE	PRESERVATIVE	RECOVERY PERSON - DATE	COMMENT	TARE WT	FINAL WT
FW-01	FW-01	SALES	NITRIC ACID PROBE RINSE	1-11-76	85.7	266.5	352.2
FW-02	FW-02	SALES	NITRIC ACID PROBE RINSE		280.3	390.5	670.8
FW-03	FW-03	SALES	NITRIC ACID PROBE RINSE		42.2	266.0	308.2
FW-04	FW-04	SALES	NITRIC ACID PROBE RINSE		402.6	391.4	794.2
FW-05	FW-05	SALES	NITRIC ACID PROBE RINSE		61.6	266.9	331.5
FW-06	FW-06	SALES	NITRIC ACID PROBE RINSE		55.8	265.9	321.7
FW-07	FW-07	SALES	NITRIC ACID PROBE RINSE		301.5	392.4	701.9
FW-08	FW-08	SALES	NITRIC ACID PROBE RINSE		42.5	246.5	309.0
FW-09	FW-09	SALES	NITRIC ACID PROBE RINSE		362.1	392.8	755.9
FW-10	FW-10	SALES	NITRIC ACID PROBE RINSE		57.8	244.8	302.6
FW-11	FW-11	SALES	NITRIC ACID PROBE RINSE			246.3	310.7
FW-12	FW-12	SALES	NITRIC ACID PROBE RINSE			313.1	757.5
FW-13	FW-13	SALES	NITRIC ACID PROBE RINSE			245.5	334.6
FW-14	FW-14	SALES	NITRIC ACID PROBE RINSE			390.2	703.4
FW-15	FW-15	SALES	NITRIC ACID PROBE RINSE			245.2	300.4
FW-16	FW-16	SALES	NITRIC ACID PROBE RINSE			266.0	346.6
FW-17	FW-17	SALES	NITRIC ACID PROBE RINSE			245.2	401.7
FW-18	FW-18	SALES	NITRIC ACID PROBE RINSE			246.5	418.0
FW-19	FW-19	SALES	NITRIC ACID PROBE RINSE			246.4	377.1
FW-20	FW-20	SALES	NITRIC ACID PROBE RINSE		121.5	245.2	366.7

121.5

Custody Seal : Absent	Sample Seals: Absent	TLI Project Number : 38139	Book
Chain of Custody : Present	Accept. Cond.: YES	Client: ER602	Eastern Research Group
Sample Tags : Present		Date Received : 07/22/96	By
Sample Tag Numbers: Listed			Page
SNO Forms : N/A			

Box

NO COOLANT

Carrier and Number : WALTER MURRY

59

TLI Number	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	FXL-86	FILTER	7/23/96							
		METALS LAB								
131-59-1B	FXL-84	PH ACETONE RMC								
		METALS LAB								
131-59-1C	FXL-85	PH LIN ANCO								
		METALS LAB								
131-59-1D	FXL-87	PH ANCO/H2O2								
		METALS LAB								
131-59-1E	FXL-88	PH ANCO								
		METALS LAB								
131-59-1F	FXL-89	PH ANCO								
		METALS LAB								
131-59-1G	90 FXL-90	PH ANCO	7/23/96							
		METALS LAB								
131-59-1H	FXL-91	FILTER								
		METALS LAB								
131-59-1I	FXL-92	PH ACETONE RMC								
		METALS LAB								
131-59-1J	FXL-93	PH LIN ANCO								
		METALS LAB								

Receiving Remarks:

Archive Remarks:

Custody Seal : Absent	Sample Seals: Absent	TLI Project Number : 38139	800
Chain of Custody : Present	Accept. Cond.: YES		
Sample Tags : Present		Client: ER602	Eastern Research Group
Sample Tag Numbers: Listed			131
SMO Forms : N/A		Date Received : 07/22/96	By
			Page

Box	NO COOLANT	Carrier and Number : WALTER MURRY	59

TLI Number	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
131-59-3G	FKL-104	Hg HCl	8/5/96	7/23/96						
		METALS LAB								
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	O.1NHN03								
		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	O.1NHN03								
		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

NO COOLANT

Carrier and Number : WALTER MURRY

59

TLI Number	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	HN03/H202	7/23/96							
		METALS LAB								
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	O.I.NHNO3								
		METALS LAB								
131-59-6C	FKL-53	HN03/H202								
		METALS LAB								
131-59-6D	FKL-55	KMNO4								
		METALS LAB								
131-59-6E	FKL-56	HCl								
		METALS LAB								
131-59-7A	FKL-58	NITRIC ACID								
		METALS LAB								

Receiving Remarks:

Archive Remarks:

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

Custody Seal : Absent	Sample Seals: Absent	TLI Project Number : 38139	80c
Chain of Custody : Present	Accept. Cond.: YES	Client: ER602	13
Sample Tags : Present		Eastern Research Group	
Sample Tag Numbers: Listed			
SMD Forms : N/A		Date Received : 07/22/96	By
			Page

Box	NO COOLANT	Carrier and Number : WALTER MURRY	59

TLI Number	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
131-59-7B	FKL-61	0.1NHNO3 METALS LAB	7/23/96							
131-59-7C	FKL-60	HN03/H202 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	HN03/H202 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

Client: ER602 Eastern Research Group

Date Received 07/22/96 By

Box

NO COOLANT

Carrier and Number WALTER MURRY

TLI Number	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

131-59-98

FKL-75

0.1MHN03

METALS LAB

131-59-9C

FKL-74

HN03/H202

METALS LAB

131-59-9D

FKL-76

KMNO4

METALS LAB

131-59-9E

FKL-77

HCL

METALS LAB

131-59-10A

FKL-79

0.1MHN03

METALS LAB

131-59-10B

FKL-81

HN03/H202

METALS LAB

131-59-10C

FKL-82

KMNO4

METALS LAB

131-59-10D

FKL-83

HCL

METALS LAB

131-59-11A

FKL-38

NITRIC ACID

METALS LAB

131-59-11B

FKL-41

0.1MHN03

METALS LAB

Receiving Remarks:

Archive Remarks:

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

Custody Seal	: Absent	Sample Seals: Absent	TLI Project Number	38139	Book
Chain of Custody	: Present	Accept. Cond.: YES	Client: ER602	Eastern Research Group	131
Sample Tags	: Present		Date Received	07/22/96	By
Sample Tag Numbers:	Listed				Page
SMD Forms	: N/A				
Box	NO COOLANT	Carrier and Number	WALTER MURRAY		59

TLI Number	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	HM03/H202 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	0.1NHN03 METALS LAB								
131-59-12C	FKL-21	HM03/H202 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	0.1NHN03 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

Box

NO COOLANT

Carrier and Number WALTER MURRY

TLI Number

MR/H:CPH

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: DISPOSED

Date/Init

131-59-15C

FKL-03

HN03/H202

METALS LAB

131-59-15D

FKL-05

KMN04

METALS LAB

131-59-15E

FKL-06

H01

METALS LAB

131-59-16A

FKL-08

NITRIC ACID

METALS LAB

131-59-16B

FKL-09

HN03 / H202

METALS LAB

131-59-16C

FKL-10

0.1 INHNO3

METALS LAB

131-59-16D

FKL-11

KMN04

METALS LAB

131-59-16E

FKL-12

H01

METALS LAB

131-59-17A

FKL-14

NITRIC ACID

METALS LAB

131-59-17B

FKL-16

0.1 INHNO3

METALS LAB

Receiving Remarks:

Archive Remarks:

Custody Seal	: Absent	Sample Seals: Absent	TLI Project Number	38139	Book
Chain of Custody	: Present	Accept. Cond.: YES	Client: ER602	Eastern Research Group	131
Sample Tags	: Present		Date Received	07/22/96	By
Sample Tag Numbers:	Listed				Page
SMD Forms	: N/A				
Box	NO COOLANT	Carrier and Number	WALTER MURRY		59

TLI Number	Matrix	To LAB	To STORAGE	To LAB	To STORAGE	To LAB	To STORAGE	To ARCHIVE	DISPOSED
MR/H:CPM	Client ID	Location	Date/Init	Date/Init	Date/Init	Date/Init	Date/Init	Date/Init	Date/Init
131-59-17C	FKL-15	HM03/H202	12/29/96						
		METALS LAB							
131-59-17D	FKL-17	KMN04							
		METALS LAB							
131-59-17E	FKL-18	HC1							
		METALS LAB							
131-59-18A	FKL-45	0.1NHN03							
		METALS LAB							
131-59-18B	FKL-47	HM03/H202							
		METALS LAB							
131-59-18C	FKL-48	KMN04							
		METALS LAB							
131-59-18D	FKL-49	HC1							
		METALS LAB							
131-59-19A	FKL-125	NITRIC ACID							
		METALS LAB							
131-59-19B	FKL-128	0.1NHN03							
		METALS LAB							
131-59-19C	FKL-127	HM03/H202							
		METALS LAB							

Receiving Remarks:

Archive Remarks:

Custody Seal : Absent
 Chain of Custody : Present
 Sample Tags : Present
 Sample Tag Numbers: Listed
 SNO Forms : N/A

Sample Seals: Absent
 Accept. Cond.: YES

TLI Project Number 38139

Client: ER602 Eastern Research Group

Date Received 07/22/96 By

Box

NO COOLANT

Carrier and Number WALTER MURRY

TLI Number	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

131-59-190

FKL-129

KMN04

METALS LAB

131-59-19E

FKL-130

H01

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:

Anchors				
ICP	GFAN	FLAN	CVAN	CD

12

Filter per G or Q	Acetone Rinse	HNO ₃ Rinse	Backfill Impinger	HNO ₃	KMnO ₄	HCl
5A					5B	5C

[illegible]

(Duplicate Analysis of
Combining abilities

↓ ↓

Model III-94/BC.

Order to fill	Int <u>2</u>	Date <u>7/30/96</u>	with LINOS cond H ₂ O?	Date <u>7/30/96</u>	Volume/ <u>cond</u> Date <u>8/5/96</u>	Aliquot A <u>25ml</u>	Volume/ <u>cond</u> Date <u>8/5/96</u>	Aliquot A <u>25ml</u>

	1
of Metal	<u> 1 </u>
for Hyg	<u> </u>
Polluto to	<u> <i>x</i> </u>
Inl <i>x</i>	<u> </u>
splk 5 ml of 100 ppb	<u> Inl L-<i>D</i>-<i>S</i> </u>

50 g - 44% Volume 160 ml	50 g - 44% Volume 160 ml
Label 131-59-1D	Label 131-59-1D
Date 7/30/06	Date 7/30/06
Initials	Initials
Signature	Signature
Checked 3	Checked 3
Prepared 3	Prepared 3

Post digest spiked control (for C1AA))

~ 4/24/16

Aliquot A 25 ml

Volume/cond Date 7/30/16

Final & initial optical condition performance

into ml IV 1 of

(Date paid: 1/19/96) (To whom paid: CHAA)
(Who spoke regarding: Alcohol in AZ)
(To be instrument signed) 1/19/96 1/19/96
with its

object # 38139

sent: _____

date/int.: _____

sent Run# Incinerator, Run 2

Triangle Laboratories of RTP

(919) 544-5729

ICP: GFAA IAA CMA 121

CONI # (1) CONI # (2) CONI # (3) CONI # (4) CONI # (5A) CONI # (5B) CONI # (5C)

Filler: G or Q Acetone Phos. HNO3 HCl

label 131-59-24 Volume 100ml label 131-59-28 Volume 100ml label 131-59-20 Volume 245ml label 131-59-2D Volume 500ml label 131-59-2E Volume 55ml label 131-59-2F Volume 53ml

Dissociate to dryness and redissolve in 10ml conc HNO3 Reduce volume to 20 ml on duplicate label 131-59-20 Volume 100ml label 131-59-2D Volume 100ml label 131-59-2E Volume 55ml label 131-59-2F Volume 53ml

Microactive clig with conc. HNO3 and conc. HNO3 label 131-59-28C Volume 100ml label 131-59-2D Volume 100ml label 131-59-2E Volume 55ml label 131-59-2F Volume 53ml

Combine digestates Front Heat Digestate Add 500ul Se. Reduce Volume to 20 ml on duplicate label 131-59-28C Volume 100ml label 131-59-2D Volume 100ml label 131-59-2E Volume 55ml label 131-59-2F Volume 53ml

Polite to 100 ml label 131-59-28C Volume 100ml label 131-59-2D Volume 100ml label 131-59-2E Volume 55ml label 131-59-2F Volume 53ml

Metals: 131-59-28C Volume 100ml label 131-59-2D Volume 100ml label 131-59-2E Volume 55ml label 131-59-2F Volume 53ml

1st Post clig. spike Aliquot A 25 ml Aliquot B 25ml label 131-59-28C Volume 100ml label 131-59-2D Volume 100ml label 131-59-2E Volume 55ml label 131-59-2F Volume 53ml

Final spike conc. added 5 ppb Date 8/5/96

Project # 38139

Client: _____

Date/Inl: _____

Client Run# Incinerator, Run 3

Triangle Laboratories of RTP

(919) 544-5729

ICP GFAA TLAA CVAA
Analytes
21
12

CONT # (1)	CONT # (2)	CONT # (3)	CONT # (4)	CONT # (5A)	CONT # (5B)	CONT # (5C)

Filter type: G or A	Acetone Plus	INNO3 Plus	Back Half Impinger	INNO3	INNO3	INNO3

Label <u>131-59-34</u>	Label <u>131-59-3B</u>	Label <u>131-59-3C</u>	Label <u>131-59-3D</u>	Label <u>131-59-3E</u>	Label <u>131-59-3F</u>	Label <u>131-59-3G</u>

Volume <u>129ml</u>	Volume <u>245ml</u>	Volume <u>600ml</u>	Volume <u>55ml</u>	Volume <u>330ml</u>	Volume <u>58ml</u>	Volume <u>50ml</u>

Int <u>2</u>	Int <u>2</u>	Int <u>2</u>	Int <u>2</u>	Int <u>2</u>	Int <u>2</u>	Int <u>2</u>

Date <u>7/30/96</u>	Date <u>7/30/96</u>	Date <u>7/30/96</u>	Date <u>7/30/96</u>	Date <u>8/5/96</u>	Date <u>8/5/96</u>	Date <u>8/5/96</u>

Int <u>2</u>	Int <u>2</u>	Int <u>2</u>	Int <u>2</u>	Int <u>2</u>	Int <u>2</u>	Int <u>2</u>

Date <u>7/30/96</u>	Date <u>7/30/96</u>	Date <u>7/30/96</u>	Date <u>7/30/96</u>	Date <u>8/5/96</u>	Date <u>8/5/96</u>	Date <u>8/5/96</u>

Volume <u>100ml</u>	Volume <u>100ml</u>	Volume <u>100ml</u>	Volume <u>100ml</u>	Volume <u>100ml</u>	Volume <u>100ml</u>	Volume <u>100ml</u>

Int <u>2</u>	Int <u>2</u>	Int <u>2</u>	Int <u>2</u>	Int <u>2</u>	Int <u>2</u>	Int <u>2</u>

Date <u>7/30/96</u>	Date <u>7/30/96</u>	Date <u>7/30/96</u>	Date <u>7/30/96</u>	Date <u>8/5/96</u>	Date <u>8/5/96</u>	Date <u>8/5/96</u>

ent; _____

ile/lnl: _____

ent Runtl Incinerator, FB3

Blank

Triangle Laboratories of RRP

(919) 544-5729

Audyles
ICP CMA IMA CMA

123

CONT #	CONT #	CONT #	CONT #		(Highlanders)	CONT #	CONT #
①	②	③	④				

Miller
 D: G or Q
 Accounting
 Office
 Miller
 Office
 Buck Hall
 Engineering
 (5A)
 (5B)
 (5C)

	ISSN	COUNTRY OF ORIGIN	NUMBER OF PAGES	DATE OF ACQUISITION	REMARKS
Volume 80nd	0001-7977	USA	131-59-5A	1961/31-59-5D	Label 131-59-5C (25 m)
Volume 140nd TV	0001-7977	USA	131-59-5B	1961/31-59-5E	Label 131-59-5B
Volume 975nd	0001-7977	USA	131-59-5B	1961/31-59-5F	Label 131-59-5B

Described to chemistry and redissolve in 10ml conc HNO ₃	In	Date	Prepared volume to 20 ml on incubate	In	Date	For Metals resd or lig	Volume	Volume	Volume
	2/50B	7/27/66		2/50B	7/27/66		68 TV 43 ml	310 ml	51
							200 ml		
							100 of waste		

[illegible]

Combine eluates	Label 131-59-485D	↓	Sample	Spike (quantity spike required)	(Duplicate Analysis of)
Front Half Digestate					
	Reduce Volume to 20 ml on 100 µl	↓			

Add	Sub	Sec
Volume to 100 mls	Inl	a
Date	7/30/96	
Hypodermic clyg with HNECJ and IECJ	Inl	a
Date	7/31/96	
Volume	100 ml	
Date	8/5/96	

Label	131-59-5H465D		
Volume	100 Ml		
Material			
Relates to	500 ~~500~~ 50		
Date			
Initials	<i>JK</i>		
Aliquot A	25 ml		
Aliquot B	25 ml		
Aliquot C			
Aliquot D			
Aliquot E			
Aliquot F			
Aliquot G			
Aliquot H			
Aliquot I			
Aliquot J			
Aliquot K			
Aliquot L			
Aliquot M			
Aliquot N			
Aliquot O			
Aliquot P			
Aliquot Q			
Aliquot R			
Aliquot S			
Aliquot T			
Aliquot U			
Aliquot V			
Aliquot W			
Aliquot X			
Aliquot Y			
Aliquot Z			

[illegible]

Digest spike on filter (C/N) 7/24/86
 All post dig. spike 25 ml
 All post dig. spike 25 ml
 Volume/100 ml (Date 7/31/86)
 (One post digestion spike on filter (C/N))

III & III Sealed chamber performed
radio radio V 1 at 50
radio

Project # 38139

Client: _____

Date/Inl: _____

Client Run# Sales Gas, Run 1

Triangle Laboratories of RTP

(919) 544-5729

ICP GFAA TAA CAAA

CONT # ~~(1)~~ CONT # ~~(2)~~ CONT # (3) CONT # (4) CONT # (5A) CONT # (5B) CONT # (5C)

Label Volume Label Volume Label 131-54-6A Volume 58ml Label 131-54-6C Volume 265ml Label 131-54-6B Volume 46ml Label 131-54-6D Volume 300ml Label 131-54-6E Volume 62ml

Label Volume Label 131-54-6A Volume 58ml Label 131-54-6C Volume 265ml Label 131-54-6B Volume 46ml Label 131-54-6D Volume 300ml Label 131-54-6E Volume 62ml

Label Volume Label 131-54-6A Volume 58ml Label 131-54-6C Volume 265ml Label 131-54-6B Volume 46ml Label 131-54-6D Volume 300ml Label 131-54-6E Volume 62ml

Label Volume Label 131-54-6A Volume 58ml Label 131-54-6C Volume 265ml Label 131-54-6B Volume 46ml Label 131-54-6D Volume 300ml Label 131-54-6E Volume 62ml

Label Volume Label 131-54-6A Volume 58ml Label 131-54-6C Volume 265ml Label 131-54-6B Volume 46ml Label 131-54-6D Volume 300ml Label 131-54-6E Volume 62ml

Label Volume Label 131-54-6A Volume 58ml Label 131-54-6C Volume 265ml Label 131-54-6B Volume 46ml Label 131-54-6D Volume 300ml Label 131-54-6E Volume 62ml

Label Volume Label 131-54-6A Volume 58ml Label 131-54-6C Volume 265ml Label 131-54-6B Volume 46ml Label 131-54-6D Volume 300ml Label 131-54-6E Volume 62ml

Label Volume Label 131-54-6A Volume 58ml Label 131-54-6C Volume 265ml Label 131-54-6B Volume 46ml Label 131-54-6D Volume 300ml Label 131-54-6E Volume 62ml

Label Volume Label 131-54-6A Volume 58ml Label 131-54-6C Volume 265ml Label 131-54-6B Volume 46ml Label 131-54-6D Volume 300ml Label 131-54-6E Volume 62ml

Label Volume Label 131-54-6A Volume 58ml Label 131-54-6C Volume 265ml Label 131-54-6B Volume 46ml Label 131-54-6D Volume 300ml Label 131-54-6E Volume 62ml

Spec # 3839

Int: _____

Re/Int: _____

ent Run# Sales Gas Run#

Triangle Laboratories of RIP

(919) 544-5729

ICP GMA IMA CMA

CON #

~~Filter~~
el G br Q

~~Acid~~
HNO3

bel _____

Volume _____

Dessicate to dryness and redissolve in 10ml con HNO3

Reduce volume to 20 ml on 100µl

Label 131-54-7A
Volume 8ml

Label 131-54-7C
Volume 895ml

CONI # (3)

CONI # (4)

CONI # (5A)

CONI # (5B)

CONI # (6C)

100µl impingers

Move cly. onc. HNO3

Microwave cly with conc. HNO3

Label 131-54-7A
Volume 100ml

Label 131-54-7C
Volume 100ml

Aliquot A 20ml
Int 2/105
Date 8/5/96

Aliquot A 50ml
Int 2/105
Date 8/5/96

Aliquot A 50ml
Int 2/105
Date 8/5/96

(Duplicate Analysis of Each)

Combine digestates

Front Half Digestate

Add 500 ul Sc

Dilute to 100 mls
Label 131-54-7A
Volume 100 ml

Reduce volume to 20 ml on 100µl

Label 131-54-7C
Volume 100ml
Date 8/6/96

Label 131-54-7C
Volume 100ml
Date 8/6/96

Label 131-54-7A

Label 131-54-7A
Volume 100 ml
Date 8/5/96

Label 131-54-7C
Volume 100ml
Date 7/3/96

digest spike on fill for GFAA)

Post cly. spk. Aliquot A: 85 ml

Volume 100ml
Date 7/3/96

FTI & BIL Serial dilution performed

Int to Int IV Int to Int V

Project # 38139

Client: _____

Date/Inl: _____

Client Run# Sales Gas, Run 3

Triangle Laboratories of RTP

(919) 544-5729

ICP C1A C1AA C1AB

CONT # (1) CONT # (2) CONT # (3) CONT # (4) CONT # (5A) CONT # (5B) CONT # (5C)

Label 131-59-8A Label 131-59-8A Label 131-59-8A Label 131-59-8C Label 131-59-8B Label 131-59-8D Label 131-59-8E

Volume 50ml Volume 50ml Volume 50ml Volume 305ml Volume 42ml Volume 340ml Volume 57ml

Inl 2/15/96 Inl 2/15/96 Inl 2/15/96 Inl 2/15/96 Inl 2/15/96 Inl 2/15/96 Inl 2/15/96

Date 7/24/96 Date 7/24/96 Date 7/24/96 Date 7/24/96 Date 7/24/96 Date 7/24/96 Date 7/24/96

Reduction Volume 20ml on Reduction Volume 20ml on Reduction Volume 20ml on Reduction Volume 20ml on Reduction Volume 20ml on Reduction Volume 20ml on Reduction Volume 20ml on

Inl 2 Inl 2 Inl 2 Inl 2 Inl 2 Inl 2 Inl 2

Date 7/24/96 Date 7/24/96 Date 7/24/96 Date 7/24/96 Date 7/24/96 Date 7/24/96 Date 7/24/96

Project # 38139

Client: _____

File/Int: _____

Client Run# Sales Gas, EB 2

Blank

Triangle Laboratories of RIP

(919) 544-5729

ICP CAA IAA CAA

Analytics

127

CONT #

1

File Name

or G or Q

CONT #

2

File Name

or G or Q

CONT #

3

File Name

or G or Q

CONT #

4

File Name

or G or Q

CONT #

5A

File Name

or G or Q

CONT #

5B

File Name

or G or Q

CONT #

5C

File Name

or G or Q

Label

Describe to dryness and reconstitute in 100ml conc. HNO₃

Reduce volume to 20ml on hotplate

For Metals

Volume 49 ml

Aliquot A 50 ml

Aliquot B 50 ml

Int. Date

Microwave dig with conc. HNO₃

Int. Date

Volume 75 ml

Aliquot A 25 ml

Aliquot B 50 ml

Aliquot C 50 ml

Combine digestates

Front Heft Digestate

Reduce Volume to 20ml on hotplate

Sample

Spiked (Duplicating Spikes required)

(Duplicate Analysis of For

Add 100 ul 5C

Int. Date

Volume 100 ml

Int. Date

Label 131-59-9A

Int. Date

Volume 100 ml

Aliquot A 25 ml

Aliquot B 25 ml

Aliquot C 25 ml

Int. Date

Volume 50 ml

Int. Date

Label 131-59-9A

Int. Date

Volume 100 ml

Aliquot A 25 ml

Aliquot B 25 ml

Int. Date

Volume 50 ml

Int. Date

Label 131-59-9A

Int. Date

Volume 100 ml

Aliquot A 25 ml

Aliquot B 25 ml

Int. Date

Volume 50 ml

Int. Date

Label 131-59-9A

Int. Date

Volume 100 ml

Aliquot A 25 ml

Aliquot B 25 ml

Final spk conc. (ppb)

Final spk conc. (ppb)

Final spk conc. (ppb)

Project # 38139

ICP GFAA IAA CVA

Client: Triangle Laboratories of RTP
Date/Int: (919) 544-5729

Client Run# Header, FB1

Blank

CONT #	CONT #	CONT #	CONT #	CONT #	CONT #
(1)	(2)	(3)	(4)	(5A)	(5B)
Initial	None	INNO3	Back Half	INNO3	INNO3
Volume	Volume	Volume	Volume	Volume	Volume

Label	Volume	Label	Volume	Label	Volume
Desiccate to dryness and redissolve in 10ml conc HNO3	Label 131-59-11A	Reduce volume to 20 ml on hydroplate	Label 131-59-11B (50ml)	Label 131-59-11C (50ml)	Label 131-59-11D
Label	Volume	Label	Volume	Label	Volume

Label	Volume	Label	Volume	Label	Volume
Combine digestates	Label 131-59-11A	Reduce volume to 20 ml on hydroplate	Label 131-59-11B	Label 131-59-11C	Label 131-59-11D
Label <td>Volume</td> <td>Label<td>Volume</td><td>Label<td>Volume</td></td></td>	Volume	Label <td>Volume</td> <td>Label<td>Volume</td></td>	Volume	Label <td>Volume</td>	Volume

Label	Volume	Label	Volume	Label	Volume
Front Half Digestate	Label 131-59-11A	Hydroplate dig with HNO3 conc HNO3	Label 131-59-11B	Label 131-59-11C	Label 131-59-11D
Label <td>Volume</td> <td>Label<td>Volume</td><td>Label<td>Volume</td></td></td>	Volume	Label <td>Volume</td> <td>Label<td>Volume</td></td>	Volume	Label <td>Volume</td>	Volume

Label	Volume	Label	Volume	Label	Volume
Post digest spike on H for GFAA	Label 131-59-11A	Allylquol A	25 ml	Allylquol B	25 ml
Label <td>Volume</td> <td>Label<td>Volume</td><td>Label<td>Volume</td></td></td>	Volume	Label <td>Volume</td> <td>Label<td>Volume</td></td>	Volume	Label <td>Volume</td>	Volume

Project # 38134

Client: _____

Sample Int.: _____

Client Run# South Header, Run 1

Triangle Laboratories of RPP

(919) 544-5729

ICP GFAA IAA CMA

129

CONI #

CONI #

CONI # (3)

CONI # (4)

CONI # (5A)

CONI # (5B)

CONI # (5C)

Filler
per: G or Q

Acetone
Rinse

HNO₃
Rinse

Black Half
Impinger

HNO₃

KMNO₄

HCl

Label _____

Volume _____

Label 131-59-12A

Label 131-59-12C

Label 131-59-12B

Label 131-59-12D

Label 131-59-12E

Describe to
chiness and
redissolve in
100ml conc HNO₃

Reduce
volume
to 20 ml on
impinger

Int 2/SLB
Date 7/24/96

For Metals For Hg

Volume 47 ml

Volume 340 ml

Volume 80 ml

Wave dig
conc. H
conc. HNO₃

Microwave dig
with conc. H
conc. HNO₃

Int SLB
Date 7/26/96

Label 131-59-12C
Label 131-59-12C
Volume 100ml

Aliquot A 20ml
Int LDJ
Date 8/6/96

Aliquot A 50ml
Int LDJ
Date 8/6/96

Aliquot A 50ml
Int LDJ
Date 8/12/96

Combine digestates

Label 131-59-12A

Front Half Digestate

Add 5 ml
Int LDJ
Date 7/26/96

Int LDJ
Date 7/26/96

Label 131-59-12A
Volume 100ml

Metals

For Hg

131-59-12A

Label 131-59-12A

Int LDJ

Label 131-59-12C

Int 2

Label 131-59-12C
Volume 100ml

Aliquot A 20ml
Int LDJ
Date 8/12/96

Aliquot A 20ml
Int LDJ
Date 8/12/96

Int LDJ

Time 50 Date _____

Volume 100ml

Date 8/6/96

Label 131-59-12C

Int 2

Label 131-59-12C
Volume 100ml

Aliquot A 20ml
Int LDJ
Date 8/12/96

Aliquot A 20ml
Int LDJ
Date 8/12/96

Int LDJ

digest spike on H (for GFAA)

Aliquot A 25 ml

Volume 100ml Date 7/30/96

Post dig. spike

Volume 100ml Date 7/30/96

HA & BH Sealed digestion performed

Client:

Triangle Laboratories of RTP

(919) 544 5129

Date/In.:

Client Run#1 South Heads, Run 2

CONT #	(1)	Illegal Type: 6 of 62	
CONT #	(2)	Nothing Phase	
CONT #	(3)	UNCO Phase	
CONT #	(4)	Back Half Trapping	
CONT #	(5A)	UNCO	
Big Implegers	CONT #	(5B)	UNCO
CONT #	(5C)	HCI	

Label	Volume	Label	Volume	Label	Volume	Label	Volume
131-59-13A	58 ml	131-59-13C	370 ml	131-59-13D	350 ml	131-59-13E	83 ml
131-59-13B	210 ml	131-59-13F	100 ml	131-59-13G	50 ml	131-59-13H	50 ml
131-59-13I	100 ml	131-59-13J	100 ml	131-59-13K	100 ml	131-59-13L	100 ml
131-59-13M	100 ml	131-59-13N	100 ml	131-59-13O	100 ml	131-59-13P	100 ml
131-59-13Q	100 ml	131-59-13R	100 ml	131-59-13S	100 ml	131-59-13T	100 ml
131-59-13U	100 ml	131-59-13V	100 ml	131-59-13W	100 ml	131-59-13X	100 ml
131-59-13Y	100 ml	131-59-13Z	100 ml	131-59-13AA	100 ml	131-59-13AB	100 ml
131-59-13AC	100 ml	131-59-13AD	100 ml	131-59-13AE	100 ml	131-59-13AF	100 ml
131-59-13AG	100 ml	131-59-13AH	100 ml	131-59-13AI	100 ml	131-59-13AJ	100 ml
131-59-13AK	100 ml	131-59-13AL	100 ml	131-59-13AM	100 ml	131-59-13AN	100 ml
131-59-13AO	100 ml	131-59-13AP	100 ml	131-59-13AQ	100 ml	131-59-13AR	100 ml
131-59-13AS	100 ml	131-59-13AT	100 ml	131-59-13AU	100 ml	131-59-13AV	100 ml
131-59-13AW	100 ml	131-59-13AX	100 ml	131-59-13AY	100 ml	131-59-13AZ	100 ml
131-59-13BA	100 ml	131-59-13BB	100 ml	131-59-13BC	100 ml	131-59-13BD	100 ml
131-59-13BE	100 ml	131-59-13BF	100 ml	131-59-13BG	100 ml	131-59-13BH	100 ml
131-59-13BI	100 ml	131-59-13BJ	100 ml	131-59-13BK	100 ml	131-59-13BL	100 ml
131-59-13BM	100 ml	131-59-13BN	100 ml	131-59-13BO	100 ml	131-59-13BP	100 ml
131-59-13BQ	100 ml	131-59-13BR	100 ml	131-59-13BS	100 ml	131-59-13BT	100 ml
131-59-13BU	100 ml	131-59-13BV	100 ml	131-59-13BW	100 ml	131-59-13BX	100 ml
131-59-13BY	100 ml	131-59-13BZ	100 ml	131-59-13CA	100 ml	131-59-13CB	100 ml
131-59-13CC	100 ml	131-59-13CD	100 ml	131-59-13CE	100 ml	131-59-13CF	100 ml
131-59-13CG	100 ml	131-59-13CH	100 ml	131-59-13CI	100 ml	131-59-13CJ	100 ml
131-59-13CK	100 ml	131-59-13CL	100 ml	131-59-13CM	100 ml	131-59-13CN	100 ml
131-59-13CO	100 ml	131-59-13CP	100 ml	131-59-13CQ	100 ml	131-59-13CR	100 ml
131-59-13CS	100 ml	131-59-13CT	100 ml	131-59-13CU	100 ml	131-59-13CV	100 ml
131-59-13CW	100 ml	131-59-13CX	100 ml	131-59-13CY	100 ml	131-59-13CZ	100 ml
131-59-13DA	100 ml	131-59-13DB	100 ml	131-59-13DC	100 ml	131-59-13DD	100 ml
131-59-13DE	100 ml	131-59-13DF	100 ml	131-59-13DG	100 ml	131-59-13DH	100 ml
131-59-13DI	100 ml	131-59-13DJ	100 ml	131-59-13DK	100 ml	131-59-13DL	100 ml
131-59-13DM	100 ml	131-59-13DN	100 ml	131-59-13DO	100 ml	131-59-13DP	100 ml
131-59-13DQ	100 ml	131-59-13DR	100 ml	131-59-13DS	100 ml	131-59-13DT	100 ml
131-59-13DU	100 ml	131-59-13DV	100 ml	131-59-13DW	100 ml	131-59-13DX	100 ml
131-59-13DY	100 ml	131-59-13DZ	100 ml	131-59-13EA	100 ml	131-59-13EB	100 ml
131-59-13EC	100 ml	131-59-13ED	100 ml	131-59-13EE	100 ml	131-59-13EF	100 ml
131-59-13EG	100 ml	131-59-13EH	100 ml	131-59-13EI	100 ml	131-59-13EJ	100 ml
131-59-13EK	100 ml	131-59-13EL	100 ml	131-59-13EM	100 ml	131-59-13EN	100 ml
131-59-13EO							

[illegible][illegible]

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(919) 544-5729

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Object # 38139

ICP GFAA IFAA CFAA

len: _____

Triangle Laboratories of RIP

13

le/Int: _____

(919) 544-5729

len/Run# North Header, Run 3

CONI # (3) CONI # (4) CONI # (5A) CONI # (5B) CONI # (5C)

Filter X Acetone Phase X HNO3 Phase (3) Backfill Impinger (4) HNO3 (5A) KMnO4 (5B) HCl (5C)

Label Volume Label Volume Label Volume Label Volume Label Volume

Desiccator to dryness and redissolve in 10ml conc HNO3 Int 7/24/96 Int 7/24/96 Int 7/24/96 Int 7/24/96 Int 7/24/96

Int 7/24/96 Int 7/24/96 Int 7/24/96 Int 7/24/96 Int 7/24/96

Combine digestates Front Half Digestate Int 7/24/96 Int 7/24/96 Int 7/24/96 Int 7/24/96 Int 7/24/96

Add 500 ul 5C Int 7/24/96 Int 7/24/96 Int 7/24/96 Int 7/24/96 Int 7/24/96

Int 7/24/96 Int 7/24/96 Int 7/24/96 Int 7/24/96 Int 7/24/96

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Winnipeg (cont'd)

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Analyses

Triangle Laboratories of RTP, *North Carolina*

(919) 544-5729

Archibald J. Mc
11/29/96

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135

CONFIDENTIAL

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07-15631-59-180

Volume	ml	Volume	ml	Volume	ml
Aliquot A	1	Aliquot A	2	Aliquot A	3

int	int	int
Date	Date	Date

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Spinoza (1632-1677)

kebeci

Volume 1

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III & III 'sackel' children performed

Duplicate Analysis of Eo

Triangle Laboratories of RIP

(919) 544 5729

Project # 36139
 Client: _____
 Role/Int: _____
 Client Run# Ambient, Run 1-3, North

CONI # <u>(1)</u>	CONI # <u>(2)</u>	CONI # <u>(3)</u>	CONI # <u>(4)</u>	CONI # <u>(5A)</u>	CONI # <u>(5B)</u>	CONI # <u>(5C)</u>

Filter per G or Q	Acetone Rinse	HNO3 Rinse	Back Half Rinsing	HNO3	KMNO4	HCl

Label _____	Volume _____	Label <u>131-59-208</u>	Volume <u>85 ml</u>	Label _____	Volume _____	Label _____	Volume _____

Dissociate to dryness and redissolve in 100ml conc HNO3	Int _____	Reduce to 20 ml on 100ml conc HNO3	Int <u>2/15/88</u>	Label <u>2/15/88</u>	Volume _____	Label _____	Volume _____
	Date _____	Date <u>7/24/91</u>	Int _____	Label _____	Volume _____	Label _____	Volume _____

Microwave dig with conc HNO3 and conc HNO3	Int <u>2</u>	Label <u>131-59-208</u>	Volume _____	Label _____	Volume _____	Label _____	Volume _____
Date _____	Date <u>7/30/91</u>	Int _____	Label _____	Volume _____	Label _____	Volume _____	Label _____

Combine digestates	Label <u>131-59-208</u>	Volume _____	Label _____	Volume _____	Label _____	Volume _____	Label _____

Front Half Digestate	Label _____	Volume _____	Label _____	Volume _____	Label _____	Volume _____	Label _____

Add 500 ul Sc	Label <u>131-59-208</u>	Volume _____	Label _____	Volume _____	Label _____	Volume _____	Label _____
Date _____	Date <u>7/30/91</u>	Int _____	Label _____	Volume _____	Label _____	Volume _____	Label _____

Reduce Volume to 20 ml on 100ml conc HNO3	Int _____	Label _____	Volume _____	Label _____	Volume _____	Label _____	Volume _____
Date _____	Date <u>7/30/91</u>	Int _____	Label _____	Volume _____	Label _____	Volume _____	Label _____

Acid 500 ul Sc	Int _____	Label _____	Volume _____	Label _____	Volume _____	Label _____	Volume _____
Date _____	Date <u>7/30/91</u>	Int _____	Label _____	Volume _____	Label _____	Volume _____	Label _____

Allyquot A	Int <u>25</u>	Label _____	Volume _____	Label _____	Volume _____	Label _____	Volume _____
Date _____	Date <u>7/30/91</u>	Int _____	Label _____	Volume _____	Label _____	Volume _____	Label _____

Final Spk conc added	Int _____	Label _____	Volume _____	Label _____	Volume _____	Label _____	Volume _____
Date _____	Date _____	Int _____	Label _____	Volume _____	Label _____	Volume _____	Label _____

Del 131-59-208
 Int 2
 Date 7/30/91
 Volume 100
 Label 131-59-208
 Volume 100 ml

Del 131-59-208
 Int 2
 Date 7/30/91
 Volume 100
 Label 131-59-208
 Volume 100 ml

Del 131-59-208
 Int 2
 Date 7/30/91
 Volume 100
 Label 131-59-208
 Volume 100 ml

Object # 38134

len: _____

le/Int: _____

len Run# Ambient, Run 1-3, South

Triangle Laboratories of RIP

(919) 544-5729

ICP CAA IAA CAA

135

CONT # (1) CONT # (2) CONT # (3) CONT # (4) CONT # (5A) CONT # (5B) CONT # (5C)

Filter g: G or Q Acetone thuse HNO3 thuse Backfill hupinger HNO3 thuse HNO3 thuse

Label _____ Volume _____ Label 131-59-204 Label _____ Volume _____ Label _____ Volume _____ Label _____ Volume _____

Dessiccate to dryness and redissolve in 10ml conc HNO3 Int 2/24/96 Reduce volume to 20ml on 100ml Date 7/24/96 Volume 100ml For Match, For Hg Aliquot A _____ Aliquot B _____

Micro wave dig with conc. HNO3 Int 2/24/96 Volume _____ Aliquot A _____ Aliquot B _____

Combine digestates Int 131-59-204 Reduce Volume to 20ml on 100ml Date _____ Volume _____ Aliquot A _____ Aliquot B _____

Front Half Digestate Int 2/24/96 Volume _____ Aliquot A _____ Aliquot B _____

Add 500 ul 5c Int 2/24/96 Volume _____ Aliquot A _____ Aliquot B _____

Dilute to 100ml Int 2/24/96 Volume _____ Aliquot A _____ Aliquot B _____

11 Post dig. spk. Aliquot A 25 ml Volume _____ Date _____

Final spk conc. _____ Date _____

Final spk conc. _____ Date _____

Archives
ICP GINA IINA CINA

Analysis

(919) 544-5729

Combined Sales Co., R82 + discriminator, R83

Blanks

[illegible][illegible][illegible]

Combine digestates	label 51-54-42		
Front Half Digestate	10A		
Reduce Volume to 20 ml on	10A		
10A/B	10A/B		
10A/C	10A/C		
10A/D	10A/D		
10A/E	10A/E		
10A/F	10A/F		
10A/G	10A/G		
10A/H	10A/H		
10A/I	10A/I		
10A/J	10A/J		
10A/K	10A/K		
10A/L	10A/L		
10A/M	10A/M		
10A/N	10A/N		
10A/O	10A/O		
10A/P	10A/P		
10A/Q	10A/Q		
10A/R	10A/R		
10A/S	10A/S		
10A/T	10A/T		
10A/U	10A/U		
10A/V	10A/V		
10A/W	10A/W		
10A/X	10A/X		
10A/Y	10A/Y		
10A/Z	10A/Z		
10A/AA	10A/AA		
10A/AB	10A/AB		
10A/AC	10A/AC		
10A/AD	10A/AD		
10A/AE	10A/AE		
10A/AF	10A/AF		
10A/AG	10A/AG		
10A/AH	10A/AH		
10A/AI	10A/AI		
10A/AJ	10A/AJ		
10A/AK	10A/AK		
10A/AL	10A/AL		
10A/AM	10A/AM		
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10A/AU	10A/AU		
10A/AV	10A/AV		
10A/AW	10A/AW		
10A/AX	10A/AX		
10A/AY	10A/AY		
10A/AZ	10A/AZ		
10A/BA	10A/BA		
10A/BB	10A/BB		
10A/BC	10A/BC		
10A/BD	10A/BD		
10A/BE	10A/BE		
10A/BF	10A/BF		
10A/BG	10A/BG		
10A/BH	10A/BH		
10A/BI	10A/BI		
10A/BJ	10A/BJ		
10A/BK	10A/BK		
10A/BL	10A/BL		
10A/BM	10A/BM		
10A/BN	10A/BN		
10A/BO	10A/BO		
10A/BP	10A/BP		
10A/BQ	10A/BQ		
10A/BR	10A/BR		
10A/BS	10A/BS		
10A/BT	10A/BT		
10A/BU	10A/BU		
10A/BV	10A/BV		
10A/BW	10A/BW		
10A/BX	10A/BX		
10A/BY	10A/BY		
10A/BZ	10A/BZ		
10A/CA	10A/CA		
10A/CB	10A/CB		
10A/CC	10A/CC		
10A/CD	10A/CD		
10A/CE	10A/CE		
10A/CF	10A/CF		
10A/CG	10A/CG		
10A/CH	10A/CH		
10A/CI	10A/CI		
10A/CJ	10A/CJ		
10A/CK	10A/CK		
10A/CL	10A/CL		
10A/CM	10A/CM		
10A/CN	10A/CN		
10A/CO	10A/CO		
10A/CP	10A/CP		
10A/CQ	10A/CQ		
10A/CR	10A/CR		
10A/CS	10A/CS		
10A/CT	10A/CT		
10A/CU	10A/CU		
10A/CA	10A/CA		
10A/CB	10A/CB		
10A/CC	10A/CC		
10A/CD	10A/CD		
10A/CE	10A/CE		
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Add ~~50~~ ²⁰ ul. SC			
Dilute to 100 mls	Inl <u>2</u>		
Date <u>7/31/96</u>			

Multiplicate clyg with H ₂ NOS and H ₂ O ₂	Inl <u>2</u>		
Date <u>7/31/96</u>			
Aliquot A:	Volume	Date	
<u>85 ml</u>			

Label	Inl		
Volume	Date		
Aliquot A:			

Label 131-S4-4A9C4E10A	500 µL Se	Date	Aliquot B:	Aliquot B:
Volume 100 mL			<u>25 ml</u>	
Material S4-4A9C4E10A	Calculate to 100 units	Inl. <u>X</u>		spk _____ ml of _____ ppb
Label 131-S4-4A9C4E10A	Date <u>7/31/86</u>			Inl _____ Inl _____ Inl ml spk conc. Date

del 131-59-10A10B, 404E
SD 201 ml Date 7/31/96
Volume 100 ml Date 7/31/96
~ 1/10/96
Ingest spk on fill for GFM))

k III Post dig. spk.
Aliquot A: 85 ml
(No spk reqd)

(One post digestion spk on fill for GFM))

Volume 100 ml Date 7/31/96
Ingest

added _____ ppb

III & III Sequential dilution performed

ml to _____ ml V + _____ ml SC

in dilute:

Object # 38139

Label: _____

File/Int: _____

ent Run# Sales Gas, KB 2

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Triangle Laboratories of RTP

(919) 544-5729

ICP GFAA HAA CMAA

140

CONI # 1 10^6 100 mL
File # 1 10^6 100 mL
e: G or Q

Acetone
Rinses

Label _____
Volume _____

Desiccator to dryness and redissolve in 100 ml conc. HNO₃

Reduce volume to 20 ml on hotplate

Label 131-59-10A

Label 131-59-10B

CONI # 1 10^6 134 mL
File # 1 10^6 134 mL

Black Teflon
Impingers

Volume _____

For Metals For Hg

Acid clyg. conc. H₂SO₄ 10% HNO₃

Microwave clyg. with conc. H₂SO₄ and conc. HNO₃

Label _____
Volume _____

Label 131-59-10A
Volume _____

Label 131-59-10C
Volume 38 ml

Label 131-59-10D
Volume 54 ml

CONI # 5A 10^6 100 mL
File # 5A 10^6 100 mL

CONI # 5B 10^6 100 mL
File # 5B 10^6 100 mL

CONI # 5C 10^6 100 mL
File # 5C 10^6 100 mL

Hg Impingers

Front Half Digestion

Add 500 ul Sc

Dilute to 100 mls

Label _____
Volume _____

Reduce Volume to 20 ml on hotplate

Hotplate clyg. with HNO₃ and H₂O₂

Add 500 ul Sc

Dilute to 100 mls

Label _____
Volume _____

Digest spike on fill for GFAA

Post clyg. spk.

Aliquot A: _____

Volume _____

Sample

Spike (1000 ug spike required)

(Duplicate Analysis of Each)

Label _____
Volume _____

Label _____
Volume _____

Aliquot A: _____

Aliquot B: _____

Label _____
Volume _____

Label _____
Volume _____

Aliquot A: _____

Aliquot B: _____

Final spk conc. added _____ ppb

FTIR & HPLC analysis performed

_____ ml to _____ ml IV _____ ul Sc

Project # 38139

Client: _____

Date/Inl: _____

Client Run# Incinerator, RB3
Blank

Triangle Laboratories of RTP
(919) 544-5729

ICP GFAA TAA CMA

Analytes

1171

CONI # (1)

Filter
Type: G or Q

Label 131-59-4A

Volume 98ml

CONI # (2)

Acetone
Phase

Label 131-59-4C

Volume 98ml

CONI # (3)

HNO₃
Phase

Label 131-59-4E

Volume 70ml

CONI # (4)

Wet Cell
Impinger

Label 131-59-4D

Volume 98ml

CONI # (5A)

HNO₃

Label 131-59-4E

Volume 70ml

CONI # (5B)

KMnO₄

Label 131-59-4F

Volume 146ml

CONI # (5C)

HCl

Label 131-59-4G

Volume 146ml

Remove dig
th conc. H
conc. HNO₃ Date: _____

Microwave dig
with conc. H
conc. HNO₃ Date: _____

Label _____

Volume _____

Label _____

Aliquot A _____

Aliquot B _____

Label _____

Volume _____

Date _____

Label _____

Volume _____

Date _____

Combine digestates

Front Half Digestate

Add 500 ul 5c

Filter to
100 mls Date: _____

Label _____

Volume _____

Label _____

Volume _____

Label _____

Volume _____

Label _____

Reduce Volume
to 20 ml on
Hotplate

Hotplate dig
with HNO₃
and H₂O₂ Date: _____

Label _____

Volume _____

Label _____

Volume _____

Label _____

Volume _____

Label _____

Volume _____

Label _____

Volume _____

Sample

Label _____

Volume _____

Label _____

Volume _____

Label _____

Volume _____

Label _____

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Label _____

Spike

(Adding Spike required)

Label _____

Volume _____

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Volume _____

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Volume _____

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Volume _____

Label _____

Volume _____

Final spike conc. added _____ ppb

Final spike conc. added _____ ppb

Final spike conc. added _____ ppb

Final spike conc. added _____ ppb

Post digest spike on filter (GFAA)
(1 & 3) Post dig. spike
(ppb) (Instrumental spike)

Aliquot A _____
(Photo spike required)
Aliquot B _____

Aliquot A _____
(Photo spike required)
Aliquot B _____

Aliquot A _____
(Photo spike required)
Aliquot B _____

Aliquot A _____
(Photo spike required)
Aliquot B _____

Aliquot A _____
(Photo spike required)
Aliquot B _____

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 38139

Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470

Extraction Date: 8/5/96

Solvent/Acids (1): H_2SO_4/HNO_3

Lot: 31502/116040

SRB 8/5/96
8/16/96

Mercury

Sample #	TLI Sample ID	CLIENT SAMPLE ID	Sample Wgt g	Final Vol ml	Volume After Filtration (ml)	Digestion Date
000	TLI Blank MB	TLI Method Blank		100		8/5/96
001	131-59-1A1B1C	FKL-86				
002	131-59-1A1B1C D	FKL-84	25	100		8/5/96
003	131-59-1C	FKL-85				
004	131-59-1D	FKL-87	25	100		8/5/96
005	131-59-1E	FKL-88	25			
006	131-59-1F	FKL-89	50		400	
007	131-59-1G	FKL-90	50	100	100	8/6/96
008	131-59-2A2B2C	FKL-93				
009	131-59-2A2B2C D	FKL-91	25	100		8/5/96
010	131-59-2C	FKL-92				

Comments:

See Hg-1 Spike Log p. 121, 122, 124

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 8/13/96

8/13/96

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: 31502/116040

SPB 8/5/96
8/6/96

Mercury

Sample #	TLI	CLIENT	Sample Wgt	Final Vol	Volume After Filtration (ml)	Digestion Date
crd	SAMPLE ID	SAMPLE ID	g	ml	ml	
011 ①	131-59-2D	FKL-94	25	100		
	131-59-2D D					
012 ①	131-59-2E	FKL-95	25	100		8/5/96
	131-59-2E D					
013 ①	131-59-2F	FKL-96	50	100	400	↓
	131-59-2F D					
014 ②	131-59-2G	FKL-97	50	100	100	8/6/96
	131-59-2G F					
015 ①	131-59-3A3B3C	FKL-100				
	131-59-3A3B3C D					
016 ①	131-59-3B	FKL-98	25	100		8/5/96
017	131-59-3C	FKL-99				
018 ①	131-59-3D	FKL-101	25	100		8/5/96
	131-59-3D D					
019 ①	131-59-3E	FKL-102	25	100		8/5/96
	131-59-3E D					
020 ①	131-59-3F	FKL-103	50	100	400	↓
	131-59-3F D					
021 ②	131-59-3G	FKL-104	50	100	100	8/6/96
	131-59-3G F D					

Comments:

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 38139

Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470

Extraction Date: / /

Solvent/Acids (1): H_2SO_4 / HNO_3

Lot: 31522/116040

SRB #16196

Mercury

Sample #	TLI SAMPLE ID	CLIENT SAMPLE ID	Sample Wgt g	Final Vol ml	Volume After Filtration (ml)	Digestion Date
022	③ 131-59-4A 4C 4E 10A 131-59-4A 4C 4E 10A 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 131-59-4D 4E 10A 10B D	FKL-115	25	100		8/8/96
026	③ 131-59-4E 10A 131-59-4E 10A 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	③ 131-59-4G F 10C D 131-59-4G F 10C D D	FKL-117	50	100	250	8/8/96
029	① 131-59-5A 4B 5D 131-59-5A 4B 5D D	FKL-107	25	100		8/5/96
030	① 131-59-5B 5C 131-59-5B 5C D	FKL-109	25	↓		↓
031	① 131-59-5B 131-59-5B D	FKL-108	20	↓		↓
032	131-59-5D	FKL-106	Combined w/ 131-59-5A 131-59-4B			

Comments:

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 38139

Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470

Extraction Date: / /

Lot: 31502/116040

Solvent/Acids(): H_2SO_4/HNO_3 8/5/96
8/6/96

Mercury

Sample #	TLI SAMPLE ID	CLIENT SAMPLE ID	Sample		Volume After Filtration (ml)	Digestion Date
			Wgt g	Vol ml		
033 ①	131-59-5E 131-59-5E D	FKL-110	50 25	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-62	50	100	400	8/5/96

Comments:

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 38139

Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470

Extraction Date: / /

Solvent/Acids (1): H_2SO_4/HNO_3

Lot: 31502/116040

SRB 8/6/96
8/6/96

Mercury

Sample	TLI	CLIENT	Sample	Final	Volume	Digestion
Card	SAMPLE ID	SAMPLE ID	Wgt / Vol	Volume	After	Date
			g ml	ml	Extraction	
					(ml)	
14	② 131-59-7ED	FKL-63	50	100	100	8/6/96
	131-59-7ED D					
145	① 131-59-8A	FKL-65	25	100		8/5/96
	131-59-8A D					
146	① 131-59-8B	FKL-68	20	↓		↓
	131-59-8B D					
147	② 131-59-8C	FKL-67	25	100		8/6/96
	131-59-8C D					
148	① 131-59-8D	FKL-69	50	100	400	8/5/96
	131-59-8D D					
149	② 131-59-8ED	FKL-70	50	100	100	8/6/96
	131-59-8ED D					
150	② 131-59-9A	FKL-72	25	↓		8/6/96
	131-59-9A D					
151	② 131-59-9B9C	FKL-75	25	100		↓
	131-59-9B9C D					
152	② 131-59-9B ET 8/6/96	FKL-74	20	↓		↓
	131-59-9B D					
153	② 131-59-9D	FKL-76	50	↓	400	↓
	131-59-9D D					
154	④ 131-59-9ED	FKL-77	50	↓	100	↓
	131-59-9ED D					

Comments:

REV 07/26/93 (FORM 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: 31502/116040

8/5/96
8/6/96

#	TLI SAMPLE ID	CLIENT SAMPLE ID	Sample		Final Volume ml	Volume After Extraction (ml)	Digestion Date
			Wgt g	Vol ml			
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				
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	131-59-11A	FKL-38	25	100			8/6/96
060	131-59-11B	FKL-41	5	100			
061	131-59-11C	FKL-40	25	100			
062	131-59-11D	FKL-42	50	100	400		
063	131-59-11E	FKL-43	50	100	100		8/6/96
064	131-59-12A	FKL-20	25	100			
065	131-59-12B	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 (ERG02)

Sample Information

Method: 7470

Extraction Date:

Solvent/Acids(): H_2SO_4/HNO_3

Lot: 31502/116040

SRB 8/6/96
8/6/96

Sample	TLI	CLIENT	Sample	Final	Volume	Digestion
crd	SAMPLE ID	SAMPLE ID	Wgt / Vol	Volume	g/g fraction (ml)	Date
			g / ml	ml		
16 (4)	131-59-12C	FKL-21	20	100		
16 (2)	131-59-12D	FKL-23	50	100	400	8/6/96
16 (4)	131-59-12ED	FKL-24	50	↓	100	8/12/96
16 (4)	131-59-13A	FKL-26	25	100		8/12/96
16 (4)	131-59-13B	FKL-28	20	↓		↓
16 (2)	131-59-13C	FKL-27	20	100		8/6/96
16 (4)	131-59-13D	FKL-29	50	100	400	8/12/96
16 (4)	131-59-13ED	FKL-30	50 20 20	100	200	↓
16 (4)	131-59-14A	FKL-32	25	100		↓
16 (2)	131-59-14B	FKL-34	25	100		8/6/96
16 (4)	131-59-14C	FKL-33	25	100		8/12/96

Comments:

TRIANGLE LABORATORIES, INC.
Sample Preparation Tracking & Management Form

Project: 38139

Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470

Extraction Date: 8/15/96

Solvent/Acids(): H_2SO_4/HNO_3

Lot: 31502/116040

SRD 8/15/96
8/16/96

Mercury

Sample	TLI	CLIENT	Sample		Final	Volume	Digestion
			Wgt	Vol			
#	crd	SAMPLE ID	g	ml	ml	After Extraction (ml)	Date
077	②	131-59-14D	FKL-35	50	100	400	8/6/96
078	②	131-59-14ED D	FKL-36	50	↓	100	↓
079	④	131-59-15A	FKL-02	25	100		8/12/96
080	④	131-59-15B D	FKL-04	30	100		↓
081	⑤	131-59-15C	FKL-03	20	100		↓
082	④	131-59-15D	FKL-05	50	100	400	8/12/96
083	④	131-59-15ED D	FKL-06	50	100	200	8/12/96
084	③	131-59-16A	FKL-08	25	100		↓
085	③	131-59-16B D	FKL-09	25	100		8/8/96
086	④	131-59-16C	FKL-10	25	100		8/12/96
087	④	131-59-16D	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 (ERG02)

Sample Information

Method: 7470

Extraction Date: 8/15/96

Solvent/Acids(): H_2SO_4/HNO_3

Lot: 3152116040

SRB 8/15/96
8/16/96

Mercury

Sample	TLI	CLIENT	Sample	Final	Volume	Digestion
card	SAMPLE ID	SAMPLE ID	Wgt / Vol	Volume	After	Date
			g / ml	ml	(ml)	
④	131-59-16ED	FKC-12	50	100	100	8/12/96
⑤	131-59-16ED D					
⑤	131-59-17A	FKC-14	25	100		8/12/96
⑤	131-59-174 D					
⑤	131-59-17B	FKC-16	25	100		↓
⑤	131-59-173 D					
③	131-59-17C	FKC-15	50	100		8/8/96
③	131-59-17C D					
③	131-59-17D	FKC-17	50	100	400	8/12/96
③	131-59-17D D					
③	131-59-17ED	FKC-18	50	100	100	↓
③	131-59-17ED D					
094	131-59-18A	FKC-45				
095	131-59-18B	FKC-47				
096	131-59-18C	FKC-48				
097	131-59-18D	FKC-49				
⑤	131-59-19A	FKC-125	25	100		8/12/96
⑤	131-59-19A D					

Archive
or
8/15/96

Comments

TRIANGLE LABORATORIES, INC.
Sample Preparation Tracking & Management Form

Project: 38139

Client: Eastern Research Group (ERG02)

Sample Information

Method: 7470

Extraction Date: / /

Solvent/Acids (1): H_2SO_4 / $4HNO_3$

Lot: 31502 / 116040

SPB
8/5/96
8/6/96

Mercury

#	crd	TLI	SAMPLE ID	CLIENT	SAMPLE ID	Sample Wgt g	Final Vol ml	Volume After Filtration (ml)	Digestion Date
5			131-59-19B						
09	4		131-59-19B D	FKL-128	20	100			8/12/96
			131-59-19C						
100	3		131-59-19C D	FKL-127	50	100			8/8/96
			131-59-19D						
101	4		131-59-19D D	FKL-129	50	100	400		8/12/96
			131-59-19ED						
112	4		131-59-19ED D	FKL-130	50	100	200		↓
			LCS D						
103	1		LCS 1 D	Lab Control Spike		100			8/5/96
			131-59-20A						
104	3		131-59-20A D		25	100			8/8/96
			131-59-20B						
105	4		131-59-20B D		25	100			8/12/96
			131-59-1D MS						
	1		131-59-1D MSD		25	100			8/5/96
			131-59-2D MS						
	1		131-59-2D MSD		25	↓			↓
			131-59-3D MS						
	1		131-59-3D MSD		↓	↓			↓
			131-59-7C MS						
	2		131-59-7C MSD		20	100			8/6/96

Comments:

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 38139

Client: Eastern Research Group (EMG02)

Sample Information

Method: 7470

Extraction Date: / /

Solvent/Acids: H_2SO_4/HNO_3

Lot: 31502/116040

Mercury

Sample ID	CLIENT	Sample Wgt g	Final Vol ml	Digestion Date
② TLB Blank MB 2D	TLB Method Blank	/	100	8/6/96
② LCS 2	Lab Control Spike	/	↓	↓
② 131-54-8C MS		25	↓	↓
② 131-54-8C MSD			↓	↓
② 131-54-13C MS		20	↓	↓
② 131-54-13C MSD			↓	↓
③ MB 3		/	100	8/8/96
③ MB 3 D		/	↓	↓
③ LCS 3		/	↓	↓
③ LCS 3 D		/	↓	↓
③ 131-54-16 B MS		25	100	8/8/96
③ 131-54-16 B MSD				
④ MB 4		/	100	8/12/96
④ MB 4 D		/	↓	↓
④ LCS 4		/	100	↓
④ LCS 4 D		/	↓	↓
④ 131-54-14C MS		25	100	8/12/96
④ 131-54-14C MSD				
④ 131-54-15C MS		20	100	↓
④ 131-54-15C MSD				

Comments:

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: 31502/116040

Mercury

TLI		CLIENT		Sample	Final										
Sample #	crd	SAMPLE ID	SAMPLE ID	Wgt g	Vol ml	Volume ml									
④		131-59-12C MS													
066		131-59-12C MSD	FKL-21	20	100									8/12/96	
④		131-59-12D	Reanalysis	50	100									↓	
⑤		MBS												↓	
		MBS D													
⑤		LCS S													
		LCS S D													

Comments:

-REV 07/26/93 (PSTMF 7)

INORGANICS SPIKE LOG

DATE	PROJECT #	ANALYTE	ORIGINAL STANDARD #	ORIGINAL STANDARD CONC. (PPM)	SPIKE SAMPLE (μL)	SPIKE SAMPLE (PPB)	INITIALS	WITNESS
	SAMPLE IDS				FINAL VOLUME (mL)			
7-25-96	38167	*	2-101-8	*	$\frac{1000}{100}$	*	LDT	SRB
	-LCS							
7-25-96	38168A	~~EE~~ *	2-101-8	*	$\frac{1000}{100}$	*	SRB	LDT
	131-88-1MS	EE SRB 7/25/96						
	131-88-1HSD							
	-LCS							
7-26-96	38139	*	2-101-8	*	$\frac{1000}{100}$	*	SRB	LDT
	-LCS						↓	↓

TLI # 38134

* SEE SPIKE LOG

Spiking Standard Preparation					SPIKING		
Element	Standard ID	Orig. Std. (ppm)	Spike (uL) Fvol(100mL)	conc (ppm)	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	2-75-9	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	2-84-6	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	
Zn	2-88-9	1000	1500	15	1000	150	200

1000uL of the Spiking Standard gives the listed conc. of the above elements.

**Spike separately

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	180	1800
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-

Postdigestion-

SLB 7/26/96

W T N E S	Date b Initials	TLI Project #	TLI Spiked Sample IDs	Original SpYke Conc (Hg)	Spike Amount (ml)	# of std wkg std prepared from	Total Spike Added (Hg)	W I
LDJ	8/2/96	37933A	37933A - LCS	0.1 ppm	5ml	2-105-2	5ppb	2
	SRB		- LCS D					
			129-51-8 MS					
			129-51-8 MSD					
LDJ	8/4/96	38116	38116 - LCS 3	0.1 ppm	5ml	2-105-2	5ppb	2
	SRB		- LCS D					
			131-86-5CDMS					
			131-86-5CDMSI)					
			131-86-6CMS					
			131-86-6CMSI)					
			131-86-7CD MS					
			131-86-7CD MSI)					
LDJ	8/4/96	38280	38280 - LCS	0.1 ppm	5ml	2-105-2	5ppb	2
	SRB		- LCS I)					
			133-2-1MS					
			133-2-1MSI)					
LDJ	8/5/96	38139	38139 - LCS 1	0.1 ppm	5ml	2-105-2	5ppb	2
	SRB		LCS 1 D					
			131-59-1D MS					
			131-59-1D MSI)					
			131-59-2D MS					
			131-59-2D MSI)					
			131-59-3D MS					
			131-59-3D MSI)					

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)	UL T N E S	DAI ↓ INI
8-6-96 LDJ	38139	38139-ALB ~~EE-ALB~~ 8/6/96 LCS LCS1)	0.1 ppm	5ml	2-105-2	5ppb	SRB	8/7/96 LDJ
		131-59-7C MS						
		131-59-7C MS1)						
		131-59-8C MS						
		131-59-8C MS1)						
		131-59-13C MS						
		131-59-13C MS1)	↓	↓	↓	↓	↓	8/8/96 LDJ
8/8/96 LDJ	38139	38139-LCS3 LCS3D	0.1 ppm	5ml	2-105-2	5ppb	XL	
		131-59-16B MS	↓	↓	↓	↓	↓	
		131-59-16B MSD	↓	↓	↓	↓	↓	
	38139	38139-LCS4 LCS4D	0.1 ppm	5ml	2-105-2	5ppb		
		131-59-12C MS						
		131-59-12C MSD						
		131-59-14C MS						
		131-59-14C MSD						
		131-59-15C MS						
		131-59-15C MSD	↓	↓	↓	↓		
8/12/96	8/16/96						157	

INITIALS	Project #	Splited Sample ID's	Spike Conc. (H ₂)	Amount (ml)	city sb prepared from	Spike	Initials
8/12/96 Z	3873	3873 LCS	0.1 ppm	5ml	2-105-6		
		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	5ml	2-105-6	5ppb	LDJ
		-LCS4D					
		131-59-12CMS					
		131-59-12CMSD					
		131-59-14CMS					
		131-59-14CMSD					
8/12/96 LDJ	38139	38139-LCS5	0.1 ppm	5ml	2-105-6	5ppb	K 76
		-LCS5D					
		131-59-15CMS					
		131-59-15CMSD					

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 38139

Transfer From: IWLM To: IA I

Initials.. Date..... Time...

Released by: XC 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: *α* 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:

α8 / 13 / 9615:30

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	Analysis	SH ID	SH conc (ppm)	Spike vol sample vol ml/ml	Spike conc (ppb)	Initial	W. time
3/1/96 OKH	38246 132-67-2 PDS	+	2-98-4	+	500/50	+	OKH ↓	OKH ↓
3/1/96 OKH	38174 131-94-1 PDS	+	2-98-4	+	500/50	+	OKH ↓	OKH ↓
3/5/96 OKH	38116 C 131-36-16 PDS	+	2-98-4	+	500/50	+	OKH ↓	OKH ↓
3/5/96 OKH	38174-1 131-94-1 PDS	+	2-98-4	+	500/50	+	OKH ↓	OKH ↓
3/6/96 OKH	38193 132-14-1A/B/C PDS	+	2-98-4	+	500/50 175/50	+	OKH ↓	OKH ↓
		S	2-105-3	10000	175/50	35000	↓	↓
		S	2-103-3	10000	↓	↓	↓	↓
3/7/96 OKH	38116 C 131-36-16-17-18 PDS	C	2-78-5	1000	6/10	600	OKH ↓	OKH ↓
3/7/96 OKH	38250 133-2 2 PDS	+	2-104-8	+	500/50	+	OKH ↓	OKH ↓
3/7/96 OKH	38297 133-14-2 PDS	+	2-104-8	+	500/50	+	OKH ↓	OKH ↓
3/12/96 OKH	38308 133-30-2x10 PDS	C 2-105-8	2-105-8	10000	50/10	50,000	OKH ↓	OKH ↓
3/14/96 OKH	38139 131-59-1A/B/C PDS	+	2-104-8	+	100/10	+	OKH ↓	OKH ↓
	131-59-1D PDS						↓	↓
	131-59-6A PDS						↓	↓
	131-59-6C PDS						↓	↓
3/15/96	38139 131-59-12A PDS	+	2-104-8	+	100/10	+	OKH ↓	OKH ↓
	131-59-12C PDS						↓	↓
	131-59-19A PDS						↓	↓
	131-59-19C PDS						↓	↓

* SEE SPIKE LOG

Spiking Standard Preparation					SPIKING		
Element	Standard ID	Orig. Std. (ppm)	Spike(μL) FVol(100mL)	conc (ppm)	from Spiking Standard Spike(μL) 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	1000
Al	2-75-3	10000	950	95	1000	950	
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	1000
Ca	2-75-7	10000	950	95	1000	950	
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	1000
Fe	2-75-8	10000	950	95	1000	950	
K	2-84-7	1000	5000	50	1000	500	2000
K	2-80-2	10000	1500	150	1000	1500	
Mg	2-84-6	100	5000	5	1000	50	1000
Mg	2-75-9	10000	950	95	1000	950	
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	2000
Na	2-80-1	10000	1950	195	1000	1950	
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	

1000μL of the Spiking Standard gives the listed conc. of the above elements.

**Spike separately

Element	Orig Std (ppm)	Spike(μL) 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+ 8/14/96

DK+ 8/15/96

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	STD1-BLANK	81496	TRIANG2	08/14/96	07:41	X	IR	
2	STD3	81496	TRIANG2	08/14/96	07:46	X	IR	
3	STD3	81496	TRIANG2	08/14/96	07:51	DKH	Q	CONC
4	CHECK LO	81496	TRIANG2	08/14/96	07:57	DKH	Q	CONC
5	ICV/CCV	81496	TRIANG2	08/14/96	08:02	DKH	Q	CONC
6	ICB/CCB	81496	TRIANG2	08/14/96	08:07	DKH	Q	CONC
7	ICSAB	81496	TRIANG2	08/14/96	08:12	DKH	Q	CONC
8	~~38139 MB~~	~~81496~~	~~TRIANG2~~	~~08/14/96~~	~~09:16~~	~~DKH~~	~~S~~	~~CONC~~
9	38139 LCS	81496	TRIANG2	08/14/96	09:23	DKH	S	CONC
10	131-59-1ABC	81496	TRIANG2	08/14/96	09:40	DKH	S	CONC
11	131-59-1ABC PDS	81496	TRIANG2	08/14/96	09:50	DKH	S	CONC
12	131-59-1ABC L	81496	TRIANG2	08/14/96	09:55	DKH	S	CONC
13	131-59-1D	81496	TRIANG2	08/14/96	10:00	DKH	S	CONC
14	131-59-1D PDS	81496	TRIANG2	08/14/96	10:06	DKH	S	CONC
15	131-59-1D L	81496	TRIANG2	08/14/96	10:11	DKH	S	CONC
16	131-59-2ABC	81496	TRIANG2	08/14/96	10:16	DKH	S	CONC
17	131-59-2ABC DA	81496	TRIANG2	08/14/96	10:21	DKH	S	CONC
18	ICV/CCV	81496	TRIANG2	08/14/96	10:26	DKH	Q	CONC
19	~~ICB/CCB~~	~~81496~~	~~TRIANG2~~	~~08/14/96~~	~~10:31~~	~~DKH~~	~~Q~~	~~CONC~~
20	ICB/CCB	81496	TRIANG2	08/14/96	10:57	DKH	Q	CONC
21	131-59-2D	81496	TRIANG2	08/14/96	11:02	DKH	S	CONC
22	131-59-2D DA	81496	TRIANG2	08/14/96	11:08	DKH	S	CONC
23	131-59-3ABC	81496	TRIANG2	08/14/96	11:19	DKH	S	CONC
24	131-59-3D	81496	TRIANG2	08/14/96	12:04	DKH	S	CONC
25	131-59-5A485D	81496	TRIANG2	08/14/96	12:09	DKH	S	CONC
26	131-59-5BC	81496	TRIANG2	08/14/96	12:14	DKH	S	CONC
27	38139 MB	81496	TRIANG2	08/14/96	12:24	DKH	S	CONC
28	~~38139 LCS~~	~~81496~~	~~TRIANG2~~	~~08/14/96~~	~~12:29~~	~~DKH~~	~~S~~	~~CONC~~
29	131-59-1D L	81496	TRIANG2	08/14/96	12:37	DKH	S	CONC
30	ICV/CCV	81496	TRIANG2	08/14/96	12:47	DKH	Q	CONC
31	~~ICB/CCB~~	~~81496~~	~~TRIANG2~~	~~08/14/96~~	~~12:53~~	~~DKH~~	~~Q~~	~~CONC~~
32	~~ICB/CCB~~	~~81496~~	~~TRIANG2~~	~~08/14/96~~	~~13:01~~	~~DKH~~	~~Q~~	~~CONC~~
33	ICB/CCB	81496	TRIANG2	08/14/96	13:10	DKH	Q	CONC
34	ICSAB	81496	TRIANG2	08/14/96	13:15	DKH	Q	CONC
35	131-59-6A	81496	TRIANG2	08/14/96	13:29	DKH	S	CONC
36	131-59-6A PDS	81496	TRIANG2	08/14/96	13:34	DKH	S	CONC
37	131-59-6A L	81496	TRIANG2	08/14/96	13:39	DKH	S	CONC
38	131-59-6C	81496	TRIANG2	08/14/96	13:44	DKH	S	CONC
39	131-59-6C PDS	81496	TRIANG2	08/14/96	13:50	DKH	S	CONC
40	131-59-6C L	81496	TRIANG2	08/14/96	13:55	DKH	S	CONC
41	131-59-7A	81496	TRIANG2	08/14/96	14:00	DKH	S	CONC
42	131-59-7A DA	81496	TRIANG2	08/14/96	14:05	DKH	S	CONC
43	131-59-7C	81496	TRIANG2	08/14/96	14:10	DKH	S	CONC
44	131-59-7C DA	81496	TRIANG2	08/14/96	14:15	DKH	S	CONC
45	ICV/CCV	81496	TRIANG2	08/14/96	14:20	DKH	Q	CONC
46	ICB/CCB	81496	TRIANG2	08/14/96	14:31	DKH	Q	CONC
47	131-59-8A	81496	TRIANG2	08/14/96	14:36	DKH	S	CONC
48	131-59-8C	81496	TRIANG2	08/14/96	14:41	DKH	S	CONC
49	131-59-9A	81496	TRIANG2	08/14/96	14:46	DKH	S	CONC
50	131-59-9BC	81496	TRIANG2	08/14/96	14:52	DKH	S	CONC
51	131-59-11A	81496	TRIANG2	08/14/96	14:57	DKH	S	CONC
52	131-59-11BC	81496	TRIANG2	08/14/96	15:02	DKH	S	CONC
53	ICV/CCV	81496	TRIANG2	08/14/96	15:07	DKH	Q	CONC

Reanalyzed
Cr, Sb > 120%

Reanalyzed

As=7.1 Cr=27 Sb=13

Confirmation only

Reanalyzed

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
54	ICB/CCB	81496	TRIANG2	08/14/96	15:12	DKH	Q	CONC
55	ICB/CCB	81496	TRIANG2	08/14/96	15:18	DKH	Q	CONC
56	ICB/CCB	81496	TRIANG2	08/14/96	15:26	DKH	Q	CONC
57	ICSAB	81496	TRIANG2	08/14/96	15:31	DKH	Q	CONC

Reanalyzed

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	STD1-BLANK	81596	TRIANG2	08/15/96	19:11	X	IR	
2	STD3	81596	TRIANG2	08/15/96	19:17	X	IR	
3	STD3	81596	TRIANG2	08/15/96	19:22	DKH Q	CONC	
4	CHECK LO	81596	TRIANG2	08/15/96	19:27	DKH Q	CONC	
5	ICV/CCV	81596	TRIANG2	08/15/96	19:32	DKH Q	CONC	
6	STD1-BLANK	81596	TRIANG2	08/15/96	20:00	X	IR	
7	STD1-BLANK	81596	TRIANG2	08/15/96	20:33	X	IR	
8	STD3	81596	TRIANG2	08/15/96	20:38	X	IR	
9	STD3	81596	TRIANG2	08/15/96	20:44	DKH Q	CONC	
10	CHECK LO	81596	TRIANG2	08/15/96	20:49	DKH Q	CONC	
11	ICV/CCV	81596	TRIANG2	08/15/96	20:54	DKH Q	CONC	
12	ICB/CCB	81596	TRIANG2	08/15/96	20:59	DKH Q	CONC	
13	ICSAB	81596	TRIANG2	08/15/96	21:04	DKH Q	CONC	
14	ICV/CCV	81596	TRIANG2	08/15/96	22:04	DKH Q	CONC	
15	STD1-BLANK	81596	TRIANG2	08/15/96	22:30	X	IR	
16	STD3	81596	TRIANG2	08/15/96	22:36	X	IR	
17	STD3	81596	TRIANG2	08/15/96	22:41	X	IR	
18	STD3	81596	TRIANG2	08/15/96	22:46	DKH Q	CONC	
19	CHECK LO	81596	TRIANG2	08/15/96	22:52	DKH Q	CONC	
20	ICV/CCV	81596	TRIANG2	08/15/96	23:00	DKH Q	CONC	
21	ICB/CCB	81596	TRIANG2	08/15/96	23:05	DKH Q	CONC	
22	ICSAB	81596	TRIANG2	08/15/96	23:10	DKH Q	CONC	
23	131-59-12A	81596	TRIANG2	08/16/96	00:46	DKH S	CONC	
24	131-59-12A PDS	81596	TRIANG2	08/16/96	00:51	DKH S	CONC	
25	131-59-12A L	81596	TRIANG2	08/16/96	00:56	DKH S	CONC	
26	131-59-12C	81596	TRIANG2	08/16/96	01:01	DKH S	CONC	
27	131-59-12C PDS	81596	TRIANG2	08/16/96	01:06	DKH S	CONC	
28	131-59-12C L	81596	TRIANG2	08/16/96	01:11	DKH S	CONC	
29	131-59-13A	81596	TRIANG2	08/16/96	01:16	DKH S	CONC	
30	131-59-13A DA	81596	TRIANG2	08/16/96	01:22	DKH S	CONC	
31	131-59-13C	81596	TRIANG2	08/16/96	01:27	DKH S	CONC	
32	131-59-13C DA	81596	TRIANG2	08/16/96	01:32	DKH S	CONC	
33	ICV/CCV	81596	TRIANG2	08/16/96	01:43	DKH Q	CONC	
34	ICB/CCB	81596	TRIANG2	08/16/96	01:48	DKH Q	CONC	
35	131-59-14A	81596	TRIANG2	08/16/96	01:54	DKH S	CONC	
36	131-59-14C	81596	TRIANG2	08/16/96	01:59	DKH S	CONC	
37	131-59-15A	81596	TRIANG2	08/16/96	02:04	DKH S	CONC	
38	131-59-15C	81596	TRIANG2	08/16/96	02:09	DKH S	CONC	
39	131-59-16A	81596	TRIANG2	08/16/96	02:14	DKH S	CONC	
40	131-59-16B	81596	TRIANG2	08/16/96	02:19	DKH S	CONC	
41	131-59-17A	81596	TRIANG2	08/16/96	02:24	DKH S	CONC	
42	131-59-17C	81596	TRIANG2	08/16/96	02:29	DKH S	CONC	
43	131-59-19A	81596	TRIANG2	08/16/96	03:18	DKH S	CONC	
44	131-59-19A PDS	81596	TRIANG2	08/16/96	03:23	DKH S	CONC	
45	ICV/CCV	81596	TRIANG2	08/16/96	03:31	DKH Q	CONC	
46	ICB/CCB	81596	TRIANG2	08/16/96	03:36	DKH Q	CONC	
47	ICB/CCB	81596	TRIANG2	08/16/96	03:48	DKH Q	CONC	
48	131-59-19A L	81596	TRIANG2	08/16/96	03:53	DKH S	CONC	
49	131-59-19C	81596	TRIANG2	08/16/96	03:59	DKH S	CONC	
50	131-59-19C PDS	81596	TRIANG2	08/16/96	04:04	DKH S	CONC	
51	131-59-19C L	81596	TRIANG2	08/16/96	04:09	DKH S	CONC	
52	131-59-20B	81596	TRIANG2	08/16/96	04:14	DKH S	CONC	
53	131-59-20B DA	81596	TRIANG2	08/16/96	04:19	DKH S	CONC	

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
54	131-59-20A	81596	TRIANG2	08/16/96	04:24	DKH	S	CONC
55	131-59-4A4C4E10A	81596	TRIANG2	08/16/96	04:29	DKH	S	CONC
56	131-59-10A1084D4E	81596	TRIANG2	08/16/96	04:35	DKH	S	CONC
57	ICV/CCV	81596	TRIANG2	08/16/96	04:41	DKH	Q	CONC
58	ICB/CCB	81596	TRIANG2	08/16/96	04:46	DKH	Q	CONC
59	ICB/CCB	81596	TRIANG2	08/16/96	04:52	DKH	Q	CONC
60	ICB/CCB	81596	TRIANG2	08/16/96	04:58	DKH	Q	CONC
61	ICSA8	81596	TRIANG2	08/16/96	05:03	DKH	Q	CONC

DKH 0/1-1

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	TRIANG2	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 LO	-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)						

5/14/96

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	131-59-5A4BBD	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	131-59-4A4C4E10A	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.:

Elms	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	count	count	count	count	count	count
Avg	-.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

Elms	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	count	count	count	count	count	count
Avg	.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

Elms	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	count	count	count	count	count	count
Avg	.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	95.8039

Elms	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	count	count	count	count	count	count
Avg	.00266	-.00226	-.00104	.00041	-.00006	.00013
SDev	.00081	.00005	.00016	.00017	.0002	.00018
%RSD	30.4138	2.28083	16.1454	42.12	319.753	137.344

Elms	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
Units	count	count	count	count	count	count
Avg	-.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

Elms	V_2924	Zn2062	Si2881
Units	count	count	count
Avg	-.00042	.00001	.01832
SDev	.00001	.00003	.00023
%RSD	3.0165	218.122	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.:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	count	count	count	count	count	count
Avg	.4702	.02239	.06192	.16739	.36803	.27668
SDev	.00158	.00028	.00027	.00085	.00114	.00121
%RSD	.33661	1.28483	.44431	.51361	.31026	.44016

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	count	count	count	count	count	count
Avg	.02278	.86904	.09169	.09115	.17497	.20019
SDev	.00012	.00302	.0003	.00038	.00075	.00182
%RSD	.56154	.34778	.33787	.42343	.43134	.91196

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	count	count	count	count	count	count
Avg	.00435	14.6248	9.22728	.02151	.13823	.08418
SDev	.00003	.08354	.04826	.00006	.00047	.00005
%RSD	.7331	.57126	.52304	.29445	.34099	.06828

Elem	Na3302	Mi2316	P_2149	2203-1	2203-2	Sb2068
Units	count	count	count	count	count	count
Avg	.12451	.36687	.01836	.14905	.08869	.11872
SDev	.00277	.00187	.00013	.00036	.0004	.0004
%RSD	2.23173	.51035	.75159	.24772	.45434	.33885

Elem	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
Units	count	count	count	count	count	count
Avg	.29988	.14482	.12879	.99136	1.24061	.0322
SDev	.00156	.00073	.00024	.00258	.00146	.00019
%RSD	.52192	.50473	.18843	.26078	.11788	.59614

Elem	V_2924	Zn2062	Si2881	Pb2203	Se1960
Units	count	count	count		
Avg	.04171	.08427	.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. Smpl. ID.: Cust. ID.: 38139

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	V_2924	Zn2062	Si2881	Pb2203	Se1960
Units	ppb	ppb	ppb	ppb	ppb
Avg	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

Elms	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elms	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elms	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avg	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

Elms	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elms	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elms	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	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: TRIANGLE2 Sample Name: ICB/CCB Operator: DKH
 Run Time: 08/14/96 08:07 Filename: 81496
 Mode: COMC Type: Q Corr. Factor: 1.00000
 Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elms	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	.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

Elms	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	.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

Elms	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elms	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-10.94	-.0137	-5.175	1.952	.2748	1.758
SDev	52.19	.444	4.906	2.745	.3019	1.953
%RSD	477	3239	94.2	140.6	109.9	111.1

Elms	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	2.620	-.6475	.8333	.4406	-1.113	.2810
SDev	3.274	1.188	1.034	1.649	.7827	.0632
%RSD	125	183.5	124	374.4	70.29	22.49

Elms	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	.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: DKH
 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

Elem	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

Elem	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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	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

Elem	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

Elem	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

Elem	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

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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	7.356	1.0143	1.453	27.21	1.8065	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
M.H. 8/15/96

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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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: 131-59-1A8C Operator: DKH
Run Time: 08/14/96 09:40 Filename: 81496
Mode: CGMC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elms	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1607.	1.0089	1-10.83	201.5	1-15.31	1250.
SDev	14.19	.0254	.6098	1.347	2.037	5.672
%RSD	.883	283.8	5.631	.6688	13.3	.4539

Method: TRIANGL2 Sample Name: 131-59-1ABC POS Operator: DKH
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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	341.4	1.1217	1-2.422	53.29	11.049	273.6
SDev	3.487	1.0448	.2272	.7722	2.113	6.115
%RSD	1.021	36.86	9.38	1.449	201.4	2.235

Method: TRIANGL2 Sample Name: 131-59-10 Operator: DKH
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

Elms	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	198.7	1.0800	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 POS Operator: DKH
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

Elem	As1890	Se3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Method: TRIANGL2 Sample Name: 131-59-10 L 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

Elms	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

NIV wing sample loaded
Renalyzed
DMA 8/15/96

Method: TRIANGL2 Sample Name: 131-59-2A8C Operator: DKH
Run Time: 08/14/96 10:16 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elms	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	1423.	1.6341	1-10.16	189.3	1-13.63	1090.
SDev	2.644	.2144	.2521	.9185	4.773	2.785
%RSD	.1858	33.81	2.482	.4852	35.01	.2555

Method: TRIANGL2 Sample Name: 131-59-2ABC DA Operator: DKH
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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	1432.	1.1772	1-11.22	191.8	1-14.26	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: IGV/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

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	517.4	541.6	512.5	2209.	520.3	512.9
SDev	1.374	6.095	2.152	449.2	1.1242	2.528
%RSD	.2656	1.125	.4198	20.34	.0239	.4929

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	508.1	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

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	.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

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	13.11	.1106	.2542	6.133	.2290	.2394
SDev	11.61	.0185	.0503	1.727	.0769	.4817
%RSD	88.59	16.72	19.79	28.16	33.57	201.2

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-135.0	1.067	5.568	-.4899	.4603	94.760
SDev	120.4	.3555	11.54	3.012	5.415	1.436
%RSD	89.22	33.33	207.2	614.8	1176	30.16

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	.3628	2.625	.9709	-.2112	31570.
SDev	.0605	.3281	.3466	.215	2537
%RSD	16.68	12.5	35.7	101.8	8.037

PKct 8/15/96

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. Smp1. ID.: Cust. ID.: 38139

Elens	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

Elens	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

Elens	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

Elens	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	72.66	.6985	4.173	2.945	2.272	1.41
%RSD	79.67	558.3	66.88	98.85	918.1	73.54

Elens	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

Elens	Ti3349	Ti1908	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

Method: TRIANGL2 Sample Name: 131-59-20 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

Elms	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	259.1	1.0400	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

Method: TRIANGL2 Sample Name: 131-59-20 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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	261.1	1.0214	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

Elens	As1890	Se3130	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: DXH
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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	280.3	1.0492	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

Method: TRIANGL2 Sample Name: 131-59-5A485D Operator: DKH
Run Time: 08/14/96 12:09 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elms	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

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. Smp. ID.: Cust. ID.: 38139

Elms	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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.143	1.0312	1-1.894	27.16	1-.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

Method: TRIANGL2 Sample Name: 38139 LCS Operator: BKH
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

Elms	As1890	Be3130	Cd2265	Ce2677	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

Confirmation only
DKH 8/15/96

Method: TRIANGL2 Sample Name: 131-59-ID 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

Elens	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	44.41	1.0392	1.0669	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: DKH
 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

Elements	Ag3280	Al3082	As1890	B_2496	Ba4934	Ba3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elements	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elements	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elements	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elements	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elements	Ti3340	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	510.7	499.4	511.8	516.2	83330.
SDev	.4301	2.304	.9804	2.061	3860
%RSD	.0842	.4614	.1915	.3992	4.632

Method: TRIANGL2 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. Smpl. ID.: Cust. ID.: 38139

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	.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

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	.5999	.1289	4.797	-.1516	Q3.599	.3961
SDev	.7222	.1089	1.684	.7352	1.135	.2092
%RSD	120.4	84.55	35.1	485	31.55	52.82

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	11.75	.1785	.4067	3.218	.2933	.3420
SDev	3.255	.0194	.0508	3.491	.0418	.4809
%RSD	27.7	10.9	12.5	108.5	14.25	140.6

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-111.3	2.041	-3.007	2.113	.8697	Q4.954
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

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	.2642	2.379	.5580	-.5108	42270.
SDev	.0216	1.538	.2163	.4495	3325
%RSD	8.176	64.64	38.75	88	7.866

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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

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	.8378	6.076	1.192	2690.	.0459	.0450
SDev	.3852	2.157	3.975	274.3	.0448	.023
%RSD	45.98	35.49	333.5	10.2	97.48	51.22

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	.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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	7.045	.3216	1.613	2.561	-2.365	.0473
SDev	.955	3.876	.6788	2.486	.8891	.0251
%RSD	13.56	1205	42.09	97.08	31.03	53.06

Elem	Ti3349	Ti1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	.0309	2.353	.2912	-.0243	24260.
SDev	.1218	3.934	.382	.6462	1736
%RSD	393.7	167.2	131.2	2664	7.155

OK 3/1/96

Method: TRIANGL2 Sample Name: ICB/CC8 Operator: DKH
 Run Time: 08/14/96 13:10 Filename: 81496
 Mode: CONC Type: Q Corr. Factor: 1.00000
 Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elms	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

Elms	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

Elms	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

Elms	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

Elms	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

Elms	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: DXH
 Run Time: 08/14/96 13:15 Filename: 81496
 Mode: CONC Type: Q Corr. Factor: 1.00000
 Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elem	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

Elem	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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	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

Elem	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

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	559.5	513.4	498.2	528.8	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

Elem	Ti3349	Ti1908	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: DKH
Run Time: 08/14/96 13:29 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elem	As1890	Se3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	4.238	1.0039	1.4488	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

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. Smpl. ID.: Cust. ID.: 38139

Elem	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: DXH
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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	11.622	1.0446	1.2453	11.29	11.565	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

Elms	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

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

Elem	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

Method: TRIANGL2 Sample Name: 131-59-60 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

Elms	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1-2.853	1.0295	1.3105	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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	12.334	1-.0514	1-.6660	24.82	1-2.322	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

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

Elem	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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	1-2.472	1-.0565	1-.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

Elem	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: 131-59-8A Operator: DKH
Run Time: 08/14/96 14:36 Filename: 81496
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elens	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. Smpl. ID.: Cust. ID.: 38139

Elem	As1890	Se3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	1-2.712	1-.0125	1.0165	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

Elms	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: 131-59-98C Operator: DKH
 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

Elem	As1890	Se3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elements	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	13.467	1.0157	1.2618	22.83	15.62	10.67
SD	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: 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

Elens	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	.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

Elens	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-3.167	.0524	-.2458	-.6660	04.035	.2519
SDev	1.418	.3059	3.853	.7054	1.018	.0984
%RSD	44.78	583.5	1568	105.4	25.22	39.06

Elens	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elens	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-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

Elens	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	10.89	2.919	-1.004	05.574	-4.393	.2522
SDev	1.846	3.489	.5301	2.016	1.907	.062
%RSD	16.94	119.5	52.77	36.16	43.42	24.58

Elens	Ti3349	Tl1908	V_2924	Zn2062	Si2861
Units	ppb	ppb	ppb	ppb	ppb
Avg	.1321	4.575	.4833	-.5926	5.220
SDev	.0791	.586	.8321	.9141	5048
%RSD	59.86	12.81	172.2	154.2	9.856

DKH 5/15/96

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 08/14/96 15:18 Filename: 81496
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	.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

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-3.051	-.0485	3.868	-.4690	83.092	3937
SDev	.5982	.2789	2.9	.4198	.4567	.3023
%RSD	19.61	575	74.97	89.52	14.77	76.79

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avg	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	275.3

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-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

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	.0973	-.4431	-.0258	-.3230	38070.
SDev	.1022	4.28	.5029	.4092	4420
%RSD	105.1	965.8	1948	126.7	11.61

DKH 381596

Method: TRIANGL2 Sample Name: 131-59-118C Operator: DKH
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

Elms	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51.02	1.0643	1.4374	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: DKH
Run Time: 08/14/96 15:07 Filename: 81496
Mode: CDNC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	506.7	4.846	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

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ti3349	Tl1908	V_2924	Zn2062	Si2881	
Units	ppb	ppb	ppb	ppb	ppb	
Avg	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 15:26 Filename: 81496
 Mode: CONC Type: Q Corr. Factor: 1.00000
 Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elem	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

Elem	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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	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

Elem	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

Elem	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

Elem	Ti3349	Ti1908	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: Q Corr. Factor: 1.00000
 Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	554.6	506.6	497.3	512.6	529.2	528.1
SDev	11.8	9.105	3.702	6.419	1.575	2.763
%RSD	2.127	1.797	.7444	1.228	.3164	.5232

Elem	Ti3349	Ti1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	507.9	486.4	505.4	459.6	21440.
SDev	1.367	5.215	.7817	2.371	2237
%RSD	.2692	1.072	.1547	.6247	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.

PKA 8/14/96

--- 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	#Pos	Rack#	StartPos
1	Normal	No	38139	TRIANG2	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	ICSAE	-NA-	2	QC Standard 1-17-CP PKA 8/15/96
4	1	4	CHECK LC	-NA-	1	QC Standard
5	1	5	ICV/CCV	-NA-	4	QC Standard 1-17-5P
6	1	6	ICB/CCB	-NA-	4	QC Standard

(7...19 Not Used)

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. Smp. ID.: Cust. ID.:

Elens	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

Elens	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

Elens	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

Elens	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

Elens	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Ti1908
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	36.4605

Elens	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: 81596

Mode: IR

Type: X

Corr. factor: 1.00000

Lab ID.:

Cust. Smpl. ID.:

Cust. ID.:

Elms	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	count	count	count	count	count	count
Avg	.46058	.02191	.06091	.18833	.35816	.27777
SDev	.00803	.00046	.0011	.00336	.00439	.00552
%RSD	1.74534	2.12757	1.81785	1.79579	1.78469	1.98856

Elms	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	count	count	count	count	count	count
Avg	.02279	.86542	.08686	.09108	.17606	.19663
SDev	.00046	.01687	.00183	.00181	.00355	.00572
%RSD	2.03911	1.9497	2.10725	1.98841	2.01947	1.997

Elms	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	count	count	count	count	count	count
Avg	.00432	13.4996	8.45546	.02155	.13788	.08285
SDev	.0001	.07648	.0643	.00042	.00266	.00142
%RSD	2.53167	.56659	.76046	1.97681	1.93606	1.72407

Elms	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	count	count	count	count	count	count
Avg	.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

Elms	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
Units	count	count	count	count	count	count
Avg	.2972	.14421	.12898	.97623	1.22931	.03183
SDev	.00415	.00281	.00209	.01738	.02264	.0004
%RSD	1.3921	1.95056	1.62733	1.78054	1.84196	1.25571

Elms	V_2924	Zn2062	Si2881	Pb2203	Se1960
Units	count	count	count		
Avg	.04123	.08499	.06708		
SDev	.0008	.00192	.00116		
%RSD	1.96142	2.26805	1.73795		

Reanalyzed
PKT 8/16/96

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.:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	count	count	count	count	count	count
Avg	.46596	.02224	.06171	.18998	.36239	.28036
SDev	.00166	.0002	.00022	.00044	.00088	.00088
%RSD	.35753	.93775	.37002	.2325	.24461	.31401

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	count	count	count	count	count	count
Avg	.023	.87548	.09028	.09209	.17807	.19888
SDev	.00004	.00179	.00082	.00024	.00053	.00143
%RSD	.18732	.20529	.91165	.26712	.29905	.72131

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	count	count	count	count	count	count
Avg	.00437	13.5048	8.47404	.02176	.13924	.08362
SDev	.00004	.05532	.04117	.00013	.00024	.00019
%RSD	1.03596	.40966	.48594	.63878	.17329	.23133

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	count	count	count	count	count	count
Avg	.11511	.36614	.0191	.15018	.08885	.11768
SDev	.00164	.00044	.00027	.00079	.00045	.00049
%RSD	1.43078	.12085	1.43964	.52726	.5082	.42009

Elem	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Ti1908
Units	count	count	count	count	count	count
Avg	.30089	.14534	.13052	.98462	1.24016	.032
SDev	.00345	.00203	.0001	.0014	.00053	.00015
%RSD	1.14888	1.39987	.07856	.14266	.04316	.49472

Elem	V_2924	Zn2062	Si2881	Pb2203	Se1960
Units	count	count	count		
Avg	.04168	.08612	.06814		
SDev	.00006	.0005	.00019		
%RSD	.15503	.59185	.28226		

Method: TRIANGL2 Sample Name: STD3 Operator: DKH
 Run Time: 08/15/96 22:46 Filename: 81596
 Mode: CONC Type: Q Corr. Factor: 1.00000
 Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elens	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

Elens	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	3.786	1.469	14.59	3.395	3.043	7.01
%RSD	.3785	.1472	1.494	.3396	.3046	.7051

Elens	Fe2714	K_7664	Li6707	Hg2790	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	2.364	3.833
%RSD	.4574	.4971	.581	.711	.2869	.3843

Elens	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	1.508
%RSD	2.706	.0796	.5686	1.305	.8923	.1606

Elens	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	996.3	998.8	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

Elens	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

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. Sopl. ID.: Cust. ID.: 38139

Elens	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elens	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elens	Fe2714	K_7664	Li6707	Hg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elens	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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	.6926	.9387	.7889	1.367	.3806

Elens	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elens	Ti3349	Ti1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	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. Sapl. ID.: Cust. ID.: 38139

Elem	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

Elem	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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	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

Elem	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

Elem	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

Elem	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

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	173700.	922.97	658.7	504300.	528.1	511.0
SDev	572.5	.0994	2.608	375.8	2.364	1.691
%RSD	.3295	.4327	.396	.0745	.4476	.3309

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ti3349	Ti1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	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: DKH
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

Elms	As1890	Se3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	13.958	1-.1386	1.391	37.51	1-3.136	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

Elms	As1890	8e3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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. Smpl. ID.: Cust. ID.: 38139

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	1-.2896	1.0513	1.1914	13.43	1-.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. Sapl. ID.: Cust. ID.: 38139

Elens	As1890	8e3130	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

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

Elem	As1890	Be3130	Cd2265	Cr2677	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

Elms	As1890	8e3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	401.8	1-.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

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. Smpl. ID.: Cust. ID.: 38139

Elem	As1890	Se3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11.785	1-.0146	1-1.167	24.42	1.6792	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

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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	12.263	1.0055	1-1.217	25.55	1.5275	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

Elem	As1890	Se3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Method: TRIANGL2 Sample Name: 131-59-13C DA Operator: DKH
Run Time: 08/16/96 01:32 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smp. ID.: Cust. ID.: 38139

Elem	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

Method: TRIANGL2 Sample Name: IGV/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

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	504.0	515.8	490.5	364.9	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

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avg	505.8	5.253	486.4	496.8	498.5	502.5
SDev	11.96	.0233	3.616	3.9	1.549	1.192
%RSD	2.365	.4445	.7434	.785	.3107	.2371

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	4914.	500.4	504.8	485.4	496.5	517.8
SDev	130.9	1.823	4.8	5.715	5.793	4.386
%RSD	2.664	.3643	.9509	1.384	1.167	.8472

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
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

Elem	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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	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

Elem	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

Elem	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

Elem	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. Smpl. ID.: Cust. ID.: 38139

Elem	As1890	Se3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	13.143	1-.0129	1-2.424	36.74	1-3.920	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. Smpl. ID.: Cust. ID.: 38139

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	1533.	1-.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: DKH
Run Time: 08/16/96 02:04 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elens	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	11.03	1.0461	1.0748	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

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

Elms	As1890	Se3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	929.5	1.0304	1.1933	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

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. Sapl. ID.: Cust. ID.: 38139

Elms	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	16.42	1.0613	1-1.040	21.28	1-2.263	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: 131-59-168 Operator: DKH
 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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Method: TRIANGL2 Sample Name: 131-59-17A Operator: DXH
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

Elms	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	20.07	1.0185	1.4475	23.48	1.0872	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. Sapl. ID.: Cust. ID.: 38139

Elms	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

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. Smpl. ID.: Cust. ID.: 38139

Elms	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	11.671	1-.0061	1-1.000	24.06	1-.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

Elem	As1890	Se3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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. Smpl. ID.: Cust. ID.: 38139

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	492.3	493.7	487.6	493.3	475.6	501.4
SDev	6.747	9.502	3.417	7.599	3.332	1.374
%RSD	1.37	1.925	.7008	1.541	.7006	.274

Elem	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	500.5	494.7	502.4	495.4	97480.
SDev	.5844	3.02	1.446	1.89	4374
%RSD	.1168	.6105	.2881	.3815	4.488

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
 Run Time: 08/16/96 03:36 Filename: 81596
 Mode: CONC Type: Q Corr. Factor: 1.00000
 Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elms	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	- .3767	Q-120.2	.4654	612.6	.1005	-.6891
SDev	.0664	.7845	.5513	186.5	.0061	.0086
%RSD	17.62	.6527	118.5	30.45	6.034	1.244

Elms	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elms	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	.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

Cu, mp 5
DKH 8/16/96

Elms	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	7.982	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

Elms	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elms	Ti3349	Ti1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	.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

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-0.0727	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

Elem	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

Elem	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

Elem	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	2.838
%RSD	331.2	42.74	190.9	90.69	3372	104.9

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1999	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.479	-1.751	-.8194	-.5750	-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

Elem	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

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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	1-2.006	1.0953	1-.4158	6.463	1-.5571	11.929
SDev	3.028	.0498	.0929	.4151	.3579	1.238
%RSD	151	52.26	22.34	6.423	64.24	64.17

Method: TRIANGL2 Sample Name: 131-59-19C Operator: DKH
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

Elem	As1890	Se3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-11.00	1.0541	8.609	12.09	4.834	11.187
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. Sapl. ID.: Cust. ID.: 38139

Elms	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

Elem	As1890	Se3130	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. Smpl. ID.: Cust. ID.: 38139

Elens	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.5532	1.0689	1-1.450	21.83	1.5836	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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	11.490	1.0352	1-1.420	24.24	11.642	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: 131-59-4A4C4E10A Operator: DKH
Run Time: 08/16/96 04:29 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	32.42	145.99	16.643	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: 131-59-10A1084D4E Operator: DKH
Run Time: 08/16/96 04:35 Filename: 81596
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elem	As1890	Be3130	Cd2265	Cr2677	Pb2203	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1-5.548	1.0411	1-1.575	19.59	1-.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. Sapl. ID.: Cust. ID.: 38139

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	506.2	527.3	492.2	2928.	506.2	498.5
SD	2.181	14.59	4.477	560.7	.792	1.638
%RSD	.4308	2.766	.9097	19.15	.1565	.3285

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	519.1	497.4	720.3	496.3	510.8	496.0
SD	6.055	1.378	.0227	.5759	2.495	3.018
%RSD	1.166	.277	.0031	.116	.4883	.6086

Elem	Fe2714	K_7664	Li6707	Hg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	503.8	5.066	465.1	491.9	501.1	501.0
SD	7.437	.0097	.8391	3.637	1.225	1.282
%RSD	1.476	.1916	.1804	.7395	.2445	.2559

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	4798.	503.5	491.7	478.7	494.5	506.8
SD	154.6	.667	7.914	11.21	9.98	1.881
%RSD	3.223	.1325	1.61	2.341	2.018	.3712

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	489.1	485.8	489.2	486.9	476.6	493.8
SD	12.68	2.207	2.933	4.436	.5386	.0499
%RSD	2.593	.4544	.5995	.911	.113	.0101

Elem	Ti3349	Ti1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	494.6	491.5	502.6	496.6	69750.
SD	.8673	2.849	1.224	3.395	8582
%RSD	.1754	.5796	.2434	.6836	12.3

Method: TRIANGL2 Sample Name: ICB/CC8 Operator: DKH
 Run Time: 08/16/96 04:46 Filename: 81596
 Mode: CONC Type: Q Corr. Factor: 1.00000
 Lab ID.: Cust. Smpl. ID.: Cust. ID.: 38139

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	.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

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	4.747	.1040	-.5586	-.2550	04.096	-1.067
SDev	2.786	.1446	2.231	.4479	.5693	.24
%RSD	58.7	139.1	399.5	175.7	13.9	22.49

*Reanalyzed
DKH 8/16/96*

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4213
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	6.125	3.126	-.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

Elem	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	.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: 81596
 Mode: CONC Type: Q Corr. Factor: 1.00000
 Lab ID.: Cust. Sapl. ID.: Cust. ID.: 38139

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-.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

Elem	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-.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

Elem	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	10.01	.1546	.1451	-1.329	.0043	-.0258
SDev	2.584	.0268	.0477	5.107	.0399	.4375
%RSD	25.81	17.35	32.98	384.3	935.8	1698

Elem	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-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

Elem	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	.4346	1.304	0-2.162	1.014	-5.466	.0793
SDev	1.595	.0937	1.277	.5143	.4106	.0064
%RSD	367.1	7.185	57.05	50.7	7.511	8.005

Elem	Ti3349	Ti1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	.1165	1.602	.6484	-.5018	36110.
SDev	.1587	5.179	.1899	.5172	4800
%RSD	136.2	323.4	29.29	103.1	13.29

Reanalyzed DKH 8/16/96

Method: TRIANGL2 Sample Name: IC8/CC8 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

Elms	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-2.2901	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

Elms	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-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

Elms	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elms	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	-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	273.3

Elms	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	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

Elms	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avg	-.045	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: ICSA8 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

Elms	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	1.888	1.622
%RSD	.1535	.6646	.2618	9.639	.357	.3164

Elms	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

Elms	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	174600.	21.93	621.1	505500.	533.8	508.4
SDev	395.2	.0144	.7118	492.5	1.925	1.391
%RSD	.2264	.0657	.1146	.0974	.3607	.2736

Elms	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	8.31
%RSD	2.97	.3093	3.357	1.385	1.83	1.741

Elms	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

Elms	Ti3349	Ti1908	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

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	2-105-2	
8	ICB		
9	CHECK LO		
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	2-105-2	
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	2-105-2	
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	2-105-2	
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		

Hg

38139 partial

x

8/6/96

2-105-1

x
8/6/96

x

8/6/96

x

8/6/96

x

8/6/96

x

8/6/96

Loc.	Sample ID	Weight	Dilution
54	131-59-6A		
55	131-59-6A D		
56	CCV4=6.0 ug/L 2-105-2		
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 2-105-2		
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 2-105-2		
83	CCB6		

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 Dups: No

Locations:

% Recovery for Spike: No

Locations:

Conc:

Element File: HG_ME
Date: 08/06/96
Data File: AB575.DAT
Technique: MHS
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2

Element: Hg2
Time: 08:12
ID/Wt File: AB575.IDW
Calib. Type: Linear

wavelength: 253.7
Slit: 0.7 L
Lamp Current: 0
Energy: 75

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

Correlation Coefficient: 0.99876 Slope: 0.0348

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

Date: 08/06/96

Data File: AB575.DAT

Technique: MHS

Remark 1: STANDARDS= 2-105-1

Remark 2: QC= 2-105-2

Element: Hg2

Time: 08:21

ID/Wt File: AB575.IDW

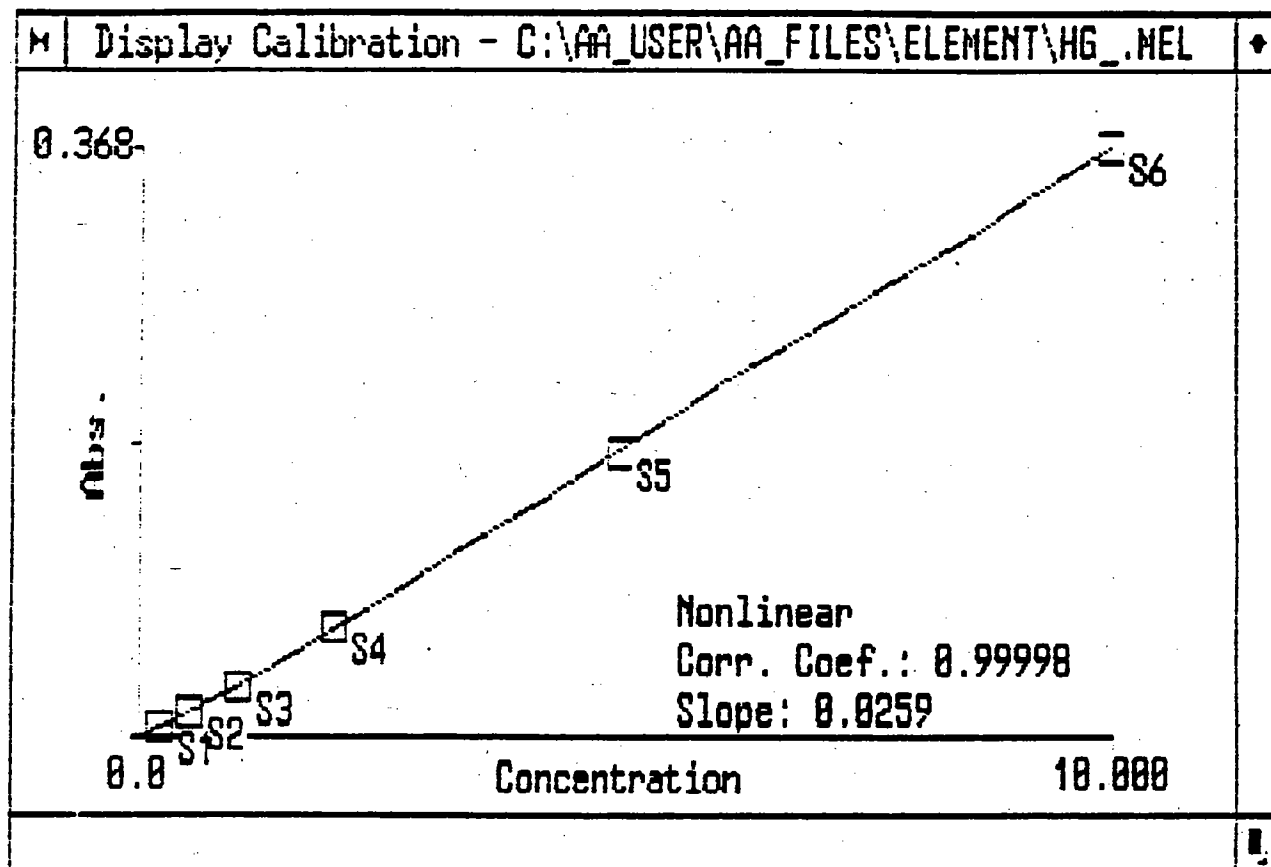
Calib. Type: Linear

Wavelength: 253.7

Slit: 0.7 L

Lamp Current: 0

Energy: 75



Date: 08/06/96 Time: 09:22 wavelength: 253.7
Data File: AB575.DAT ID/Wt File: AB575.IDW Slit: 0.7 L
Technique: MHS Calib. Type: Nonlinear Lamp Current: 0
Remark 1: STANDARDS= 2-105-1 Energy: 75
Remark 2: QC= 2-105-2

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

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

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

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

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

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

Hg2 ID: 38139 LCS1 D Seq. No.: 00016 A/S Pos.: -- Date: 08/06/96

Date: 08/06/96
Data File: AB575.DAT
Technique: MHS
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2

Time: 09:22
ID/wt File: AB575.IDW
Calib. Type: Nonlinear

wavelength: 253.7
Slit: 0.7 L
Lamp Current: 0
Energy: 75

Hg2 ID: ICV=4.0 ug/L Seq. No.: 00010 A/S Pos.: -- Date: 08/06/96

Replicate 1
Peak Area (A-s): 3.264
Blank Corrected Pk Height (A): 0.147
Concentration (ug/L): 4.194
Time: 08:23
Peak Height (A): 0.147

Hg2 ID: ICB Seq. No.: 00011 A/S Pos.: -- Date: 08/06/96

Replicate 1
Peak Area (A-s): -0.014
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.019
Time: 08:24
Peak Height (A): -0.001

Hg2 ID: CHECK LO Seq. No.: 00012 A/S Pos.: -- Date: 08/06/96

Replicate 1
Peak Area (A-s): 0.127
Blank Corrected Pk Height (A): 0.006
Concentration (ug/L): 0.207
Time: 08:26
Peak Height (A): 0.006

Hg2 ID: 38139 MB1 Seq. No.: 00013 A/S Pos.: -- Date: 08/06/96

Replicate 1
Peak Area (A-s): -0.019
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.023
Time: 08:27
Peak Height (A): -0.001

Hg2 ID: 38139 MB1 D Seq. No.: 00014 A/S Pos.: -- Date: 08/06/96

Replicate 1
Peak Area (A-s): -0.020
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L): -0.031
Time: 08:28
Peak Height (A): -0.001

Hg2 ID: 38139 LCS1 Seq. No.: 00015 A/S Pos.: -- Date: 08/06/96

Replicate 1
Peak Area (A-s): 3.944
Blank Corrected Pk Height (A): 0.170
Concentration (ug/L): 4.808
Time: 08:29
Peak Height (A): 0.170

Hg2 ID: 38139 LCS1 D Seq. No.: 00016 A/S Pos.: -- Date: 08/06/96

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

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): 5.009

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

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

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

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

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

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

Hg2 ID: 131-59-5B Seq. No.: 00053 A/S Pos.: -- Date: 08/06/96

Replicate 1
Peak Area (A-s): -0.020 Time: 09:22
Blank Corrected Pk Height (A): -0.001 Peak 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
Peak Area (A-s): -0.018 Time: 09:24
Blank Corrected Pk Height (A): -0.001 Peak 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
Peak Area (A-s): 0.024 Time: 09:25
Blank Corrected Pk Height (A): 0.001 Peak 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
Peak Area (A-s): 0.022 Time: 09:26
Blank Corrected Pk Height (A): 0.001 Peak 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
Peak Area (A-s): -0.009 Time: 09:28
Blank Corrected Pk Height (A): -0.000 Peak 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
Peak Area (A-s): -0.019 Time: 09:29
Blank Corrected Pk Height (A): -0.001 Peak 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
Peak Area (A-s): 4.360 Time: 09:33
Blank Corrected Pk Height (A): 0.198 Peak 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 ^{MSD} ~~SMD~~ ^{E.S.} Seq. No.: 00064 A/S Pos.: -- Date: 08/06/96
_{-5/19/96}

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

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

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	2-105-1	
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		

Hg
38139 partial
x
8/7/96

54 131-59-12D
55 131-59-12D D
56 CCV4=6.0 ug/L 2-105-2
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
64 131-59-14C
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
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 CCV6=6.0 ug/L 2-105-2
84 CCB6

Must reanalyze x
8/7/96

x
8/7/96

x
8/7/96

x
8/7/96

Element: Hg2
Print Data: Main+Suppl.
Print: Calib. Curve
Remarks:

Analyst: CROKER
Peak Storage: None

STANDARDS= 2-105-1
GC= 2-105-2

INSTRUMENT: 510C
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

% Recovery for Spike: No

Locations:

Locations:

Conc:

Element File: HG_MEL

Date: 08/07/96

Data File: AB576.DAT

Technique: MHS

Remark 1: STANDARDS= 2-105-1

Remark 2: QC= 2-105-2

Element: Hg2

Time: 11:42

ID/Wt File: AB576.IDW

Calib. Type: Linear

Wavelength: 253.7

Slit: 0.7 L

Lamp Current: 0

Energy: 75

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): 2.086

Standard number 4 applied. [2.000]
Correlation coefficient: 0.99947 Slope: 0.0339

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

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

Date: 08/07/96

Data File: AB576.DAT

Technique: MHS

Remark 1: STANDARDS= 2-105-1

Remark 2: QC= 2-105-2

Element: Hg2

Time: 11:51

ID/Wt File: AB576.IDW

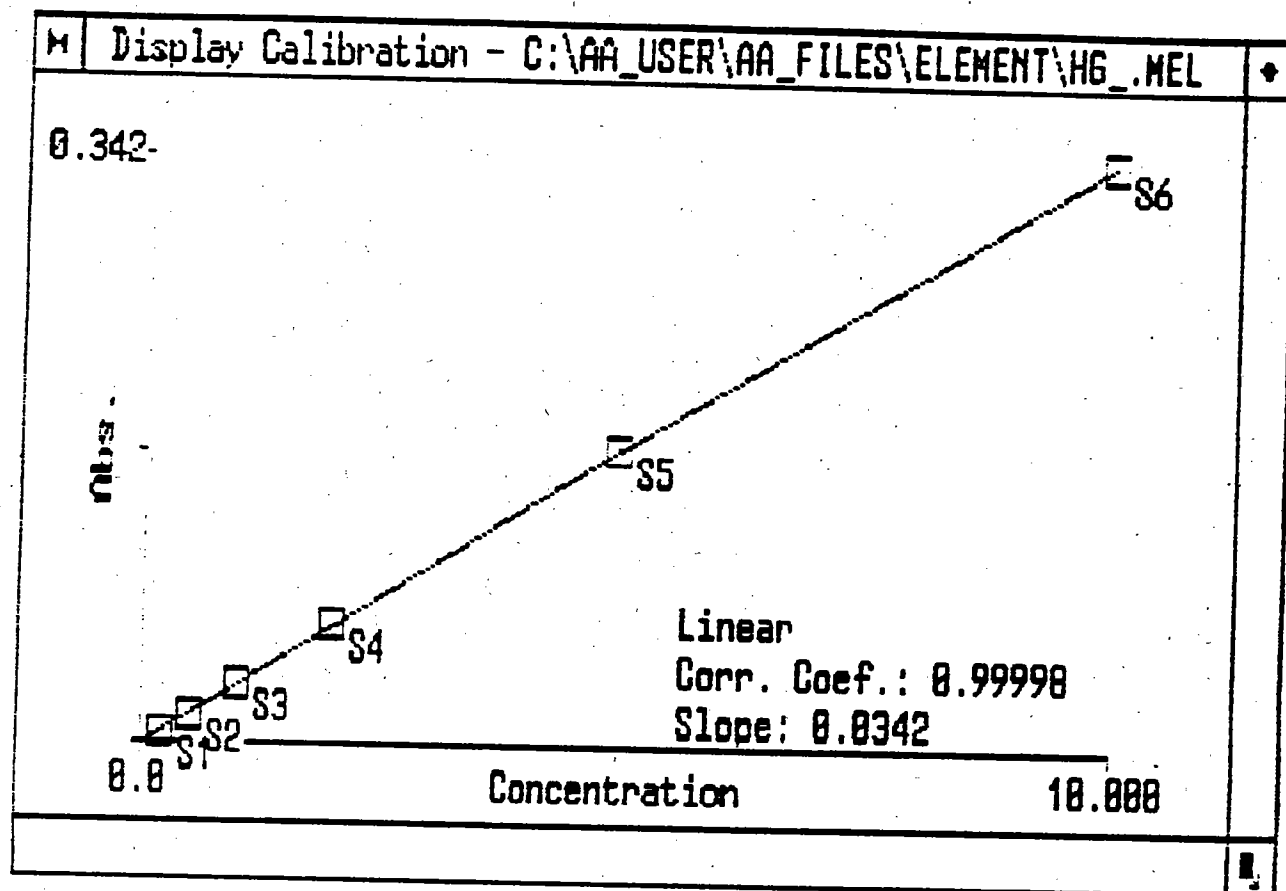
Calib. Type: Linear

Wavelength: 253.7

Slit: 0.7 L

Lamp Current: 0

Energy: 75



Element File: HG_MEL

Date: 08/07/96

Data File: AB576.DAT

Technique: MHS

Remark 1: STANDARDS= 2-105-1

Remark 2: QC= 2-105-2

Element: Hg2

Time: 11:54

ID/Wt File: AB576.IDW

Calib. Type: Linear

Wavelength: 253.7

Slit: 0.7 L

Lamp Current: 0

Energy: 75

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~~ ICB=4.0 ug/L

Seq. No.: 00011

A/S Pos.: --

Date: 08/07/96

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

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): 0.068 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: 131-59-9C Seq. No.: 00038 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 0.055
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.064

Time: 12:29

Peak Height (A): 0.002

Hg2 ID: 131-59-8C D Seq. No.: 00039 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 0.044
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.047

Time: 12:30

Peak Height (A): 0.002

Hg2 ID: 131-59-8C MS Seq. No.: 00040 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 4.166
Blank Corrected Pk Height (A): 0.190
Concentration (ug/L): 5.552

Time: 12:31

Peak Height (A): 0.190

Hg2 ID: 131-59-8C MSD Seq. No.: 00041 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 3.319
Blank Corrected Pk Height (A): 0.147
Concentration (ug/L): 4.301

Time: 12:32

Peak Height (A): 0.147

Hg2 ID: 131-59-11A Seq. No.: 00042 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 0.025
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.012

Time: 12:33

Peak Height (A): 0.000

Hg2 ID: 131-59-11A D Seq. No.: 00043 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 0.013
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.003

Time: 12:35

Peak Height (A): 0.000

Hg2 ID: 131-59-11BC Seq. No.: 00044 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 0.011
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.012

Time: 12:35

Peak Height (A): 0.000

Hg2 ID: 131-59-11BC D Seq. No.: 00045 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 0.008
Blank Corrected Pk Height (A): -0.000

Time: 12:37

Peak Height (A): -0.000

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
Peak Area (A-s): 0.036
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.023
Time: 13:04
Peak Height (A): 0.001

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
Peak Area (A-s): 33.260
Blank Corrected Pk Height (A): 1.432
Concentration (ug/L): 41.816
Time: 13:05
Peak Height (A): 1.432

Hg2 ID: 131-59-14D DX10 Seq. No.: 00069 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 4.493
Blank Corrected Pk Height (A): 0.193
Concentration (ug/L): 5.631
Time: 13:12
Peak Height (A): 0.193

Hg2 ID: 131-59-14DDX10D Seq. No.: 00070 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 3.613
Blank Corrected Pk Height (A): 0.156
Concentration (ug/L): 4.547
Time: 13:14
Peak Height (A): 0.156

Hg2 ID: 131-59-14D DX10 Seq. No.: 00071 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 3.508
Blank Corrected Pk Height (A): 0.149
Concentration (ug/L): 4.342
Time: 13:19
Peak Height (A): 0.149

Hg2 ID: 131-59-14DDX10D Seq. No.: 00072 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 3.460
Blank Corrected Pk Height (A): 0.143
Concentration (ug/L): 4.190
Time: 13:20
Peak Height (A): 0.143

Hg2 ID: 131-59-14DE Seq. No.: 00073 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 5.378
Blank Corrected Pk Height (A): 0.228
Concentration (ug/L): 6.648
Time: 13:21
Peak Height (A): 0.228

Hg2 ID: 131-59-14DE D Seq. No.: 00074 A/S Pos.: -- Date: 08/07/96

Replicate 1
Peak Area (A-s): 5.800
Peak Height (A): 0.247
Time: 13:22

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

Peak Area (A-s): 4.687

Peak Height (A): 0.213

Blank Corrected Pk Height (A): 0.213

Concentration (ug/L): 6.232

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: A85/9.10W
• Sample Volume: 100 mL

Analyst: CROKER
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/L		

2-105-1
X
8/8/96

Hg
38/39 partial
X
8/8/96

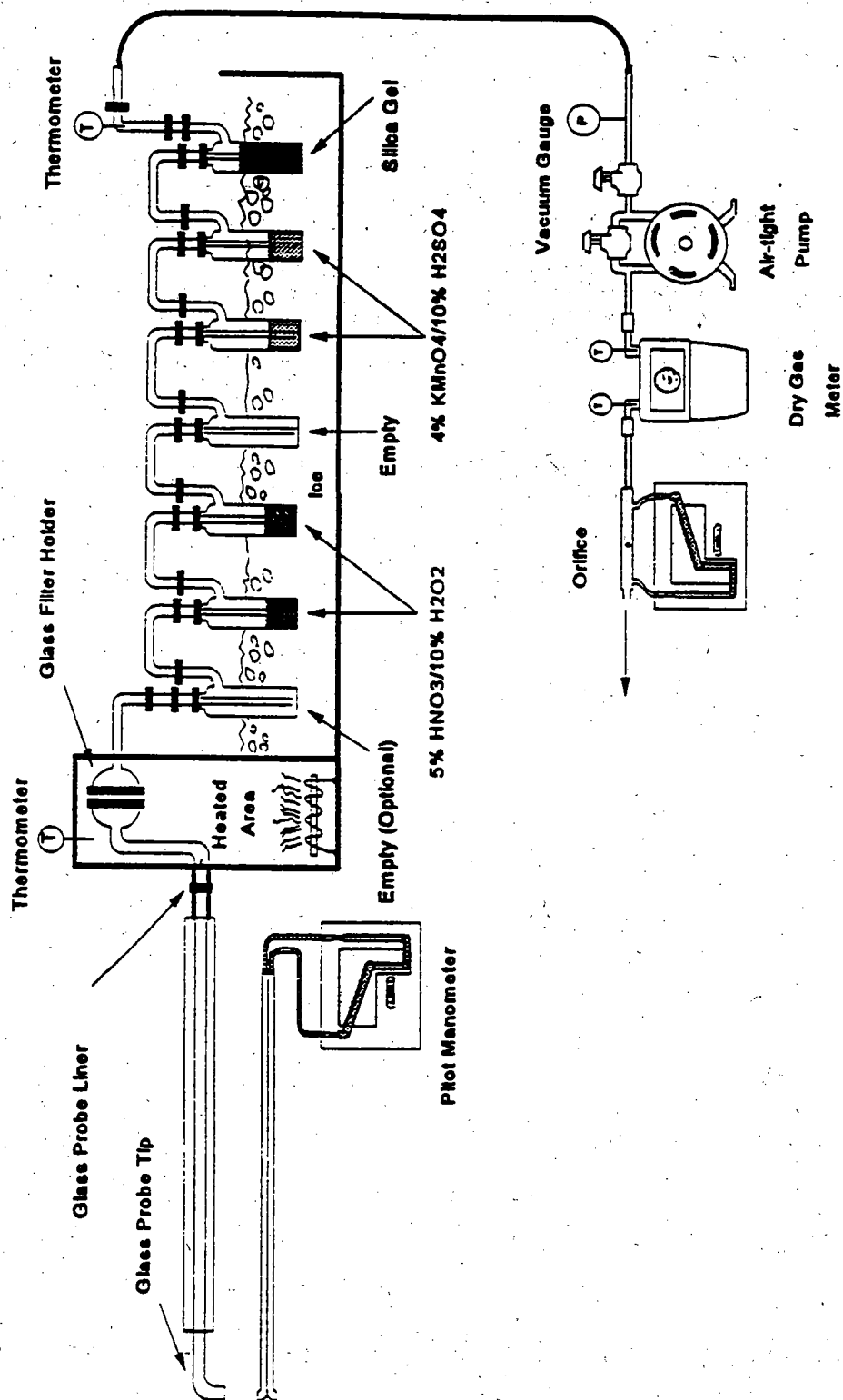


Figure 29-1. Sampling train.

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.

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 m³. If the sampling time is increased to four hours and 5 m³ 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,

TABLE 29-1. IN-STACK METHOD DETECTION LIMITS ($\mu\text{g}/\text{m}^3$)
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 ²	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

¹Mercury analysis only.

¹Detection limit when analyzed by GFAAS.

²Detection 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

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 m³. 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.

$$A \times \frac{B}{C} = D$$

Eq. 29-1

where:

- A = Analytical detection limit, $\mu\text{g/ml}$.
- B = Liquid volume of digested sample prior to aliquotting for analysis, ml.
- C = Stack sample gas volume, dsm^3 .
- D = In-stack detection limit, $\mu\text{g/m}^3$.

**EMISSION MEASUREMENT TECHNICAL INFORMATION CENTER
NSPS TEST METHOD**

**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 ($\mu\text{g/ml}$) range in the final analytical solution can be analyzed using this method. Samples containing greater than approximately 50 $\mu\text{g/ml}$ As, Cr, or Pb should be diluted to that level or lower for final analysis. Samples containing greater than approximately 20 $\mu\text{g/ml}$ of Cd should be diluted to that level before analysis.

2.2 Analytical Detection Limits.

Appendix C

EPA Method 29

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
Static Press	0	% H2O	-0.28
Yd	0.985	Md	1.003
H2O Collected	78	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 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
 Static Press. 0
 Yd 0.985
 H2O Collected 83.6
 O2 0
 CO2 0
 Stack Area 0
 Nozzle Dia 0

Vmstd 60.614
 % H2O -0.27
 Md 1.003
 MWd 28.00
 MW 28.03
 velocity ERR
 Qstd ERR
 % 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
Static Press	0	% H2O	24.79
Yd	0.983	Md	0.752
H2O 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

cf

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	93.88

Bar. Press 30.01
 Static Press 0
 Yd 0.994
 H2O Collected 93.6
 O2 0
 CO2 0
 Stack Area 0
 Nozzle Dia 0

Vmstd
 % H2O
 Md
 MWd
 MW
 velocity
 Qstd
 % Isokenetic

61.568 cf
 -0.27
 1.003
 28.00
 28.03
 ERR
 ERR
 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
 Static Press 0
 Yd 0.994
 H2O Collected 130.9
 O2 0
 CO2 0
 Stack Area 0
 Nozzle Dia 0

Vmstd 63.819
 % H2O -0.26
 Md 1.003
 MWd 28.00
 MW 28.03
 velocity ERR
 Qstd ERR
 % Isokenetic ERR

cf

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		
		468.98			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

Static Press 0

Yd 0.994

H2O Collected 114.7

O2 0

CO2 0

Stack Area 0

Nozzle Dia 0

Vmstd

% H2O

Md

MWd

MW

velocity

Qstd

% Isokenetic

67.685 cf

-0.24

1.002

28.00

28.02

ERR

ERR

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
 Static Press 0
 Yd 0.983
 H2O Collected 4.4
 O2 0
 CO2 0
 Stack Area 0
 Nozzle Dia 0

Vmstd 179.779
 % H2O -0.09
 Md 1.001
 MWd 28.00
 MW 28.01
 velocity ERR
 Qstd ERR
 % Isokenetic ERR

cf

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	
H2O 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 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

Bar. Press	30.01	Vmstd	177.300
Static Press	0	% H2O	-0.09
Yd	0.983	Md	1.001
H2O 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

cf

**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 H ₂ O)	29.69
Stack Static Pressure (in H ₂ O)	-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 H ₂ O)	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

**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 H ₂ O)	29.99
Stack Static Pressure (in H ₂ O)	-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 H ₂ O)	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:	07/18/96
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 H ₂ O)	30.08
Stack Static Pressure (in H ₂ O)	-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 H ₂ O)	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

Appendix B

Field Data

B-6 Header and Sales Gas Flow Rates

Appendix B

Field Data

B-6 Header and Sales Gas Flow Rates

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) 119			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
$\Delta H@$ (pressure differential of orifice in meterbox, H_2O)			1.761
P_s (stack pressure, in. Hg) = $P_b \pm$ (stack static pressure (in. H_2O) / 13.6) 1.5" H_2O			30.21
T_s (average stack temperature, $^{\circ}R$) = ____ $^{\circ}F + 460 =$ ____ $^{\circ}R$ 1036 460			1496
T_m (average meter temperature, $^{\circ}R$) = $T_{ambient} + 27^{\circ}F + 460 =$ ____ $^{\circ}R$			560 $^{\circ}R$
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) = [$M_d \times (1 - B_w)$] + [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: _____

Traverse Point Location Form

Plant	AIR PRODUCTS	Sample Ports	Number	I.D. (in)
Date	JULY 17, 1996			
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)**

[illegible]

Appendix B

Field Data

B-5

Traverse Point Location and K Factor Calculation

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)	Elapsed Time (min)	DRY GAS METER READING				GAS Temperature		CALIBRATION METER READINGS			CALIBRATION METER Temperature	
		Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)		Inlet (deg F)	Outlet (deg F)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	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 Variation
(number) (number)

0.989 -0.002
0.992 0.001
0.992 0.001

Average 0.991

DRY GAS METER
ORIFICE CALIBRATION FACTOR
dH
Value Variation
(in H2O) (in H2O)

1.639 0.000
1.637 -0.002
1.641 0.002

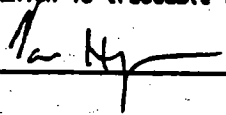
Average 1.639

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 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



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\DMH_POST.3PVA-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)

dH (in. H2O)	Elapsed Time (min)	DRY GAS METER READING			Initial-> Final---	GAS Temperature		CALIBRATION METER READINGS			CALIBRATION METER	
		Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)		Inlet (deg F)	Outlet (deg F)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Inlet (deg F)	Outlet (deg F)
0.27	16.50	731.934	737.031	5.097	Initial-> Final---	81.0 88.0	79.0 80.0	542.335	547.283	4.948	77.0	77.0
0.27	18.50	737.031	742.655	5.624	Initial-> Final---	86.0 90.0	79.0 80.0	547.283	552.734	5.451	77.0	77.0
0.27	17.50	742.655	748.093	5.438	Initial-> Final---	89.0 92.0	80.0 84.0	552.734	558.005	5.271	77.0	77.0

DRY GAS METER
METER CALIBRATION FACTOR
Y
Value Variation
(number) (number)

0.981 -0.003
0.983 -0.001
0.988 0.004

Average 0.984

DRY GAS METER
ORIFICE CALIBRATION FACTOR
dH₀
Value Variation
(in H2O) (in H2O)

1.705 -0.013
1.766 0.048
1.682 -0.036

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 dH₀, 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

[Handwritten 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\QGM_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				GAS Temperature		CALIBRATION METER READINGS			CALIBRATION METER Temperature	
		Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)		Inlet (deg F)	Outlet (deg F)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	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 Variation
(number) (number)

0.985 -0.004
0.989 0.000
0.991 0.003

Average 0.988

DRY GAS METER
ORIFICE CALIBRATION FACTOR
dH
Value Variation
(in H2O) (in H2O)

1.688 0.003
1.673 -0.012
1.693 0.008

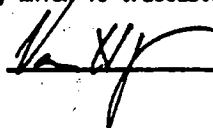
Average 1.685

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 H2O that equates to 0.75 cfm of s 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

7-24-96

Meter Box Calibration

Post Calibration Form

Job:

Date:

Box #

Cal Meter #

Cal Meter Yd:

Pbar

Vaccum

" Hg

Claibration Temp.(F)	Readout Temp.(F)
0	
50	
100	
250	
500	

Orifice Setting	Cal. Meter Pressure	Gas Volume		Gas Volume Meter Box	Cal. Temp		Meter Temp		Time	Yd	Delta H@
		Cal. Meter			In	Out	In	Out			
		Final								.983	1.839
		Init.									
		Total			Avg.						
		Final									
		Init.									
		Total			Avg.						
		Final									
		Init.									
		Total			Avg.						
		Final									
		Init.									
		Total			Avg.						
		Final									
		Init.									
		Total			Avg.						
		Final									
		Init.									
		Total			Avg.						

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\DHM_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				GAS Temperature		CALIBRATION METER READINGS			CALIBRATION METER Temperature	
		Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)		Inlet (deg F)	Outlet (deg F)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	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 Variation
(number) (number)

1.017 -0.002
 1.019 0.000
 1.020 0.001

Average 1.019

DRY GAS METER
ORIFICE CALIBRATION FACTOR
dH
Value Variation
(in H2O) (in H2O)

1.653 0.005
 1.640 -0.008
 1.650 0.003

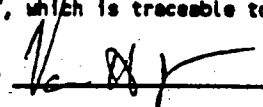
Average 1.648

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 dH, the orifice differential pressure in inches of H2O 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 # P107, which is traceable to the National Bureau of Standards (N.I.S.T.).

Signature



Date

7-23-96

Meter Box Post-Test Calibration
English Meter Box and English Calibration Meter Units

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)

dH (in H2O)	Elapsed Time (min)	DRY GAS METER READING				GAS Temperature		CALIBRATION METER READINGS			CALIBRATION METER Temperature	
		Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)		Inlet (deg F)	Outlet (deg F)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Inlet (deg F)	Outlet (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
Value Variation
(number) (number)

1.006 -0.002
1.008 0.000
1.009 0.001

Average 1.007

DRY GAS METER
ORIFICE CALIBRATION FACTOR

dH
Value Variation
(in H2O) (in H2O)

1.528 -0.002
1.528 -0.002
1.535 0.005

Average 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 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 V. H. J.

Date 7-23-96

Appendix B

Field Data

B-4

Meter Calibration Data sheet



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	
Recovery Person	Ambient JL Swift
Recovery Rinses	3 x 0.1N HNO ₃
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)	Initial (g)	Weight Gain (g)
1	MT	xxx	KO	NA	NA	NA
2	5% HNO ₃ / 10% H ₂ O ₂	~ 100 g	MGS	553.2	575.4	-22.2
3	5% HNO ₃ / 10% H ₂ O ₂	~ 100 g	GS	584.5	591.4	-6.9
4	MT	xxx	KO	505.2	499.4	5.8
5	4% KMnO ₄ / 10% H ₂ SO ₄	~ 100 g	MGS	599.0	609.4	-10.4
6	4% KMnO ₄ / 10% H ₂ SO ₄	~ 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



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	JL Swift
Recovery Rinses	3 x 0.1N HNO ₃
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)	Initial (g)	Weight Gain (g)
1	MT	xxx	KO	520.3	491.1	29.2
2	5% HNO ₃ / 10% H ₂ O ₂	~ 100 g	MGS	628.9	626.4	2.5
3	5% HNO ₃ / 10% H ₂ O ₂	~ 100 g	GS	592.2	590.0	2.2
4	MT	xxx	KO	510.9	506.1	4.8
5	4% KMnO ₄ / 10% H ₂ SO ₄	~ 100 g	MGS	583.6	585.5	-1.9
6	4% KMnO ₄ / 10% H ₂ SO ₄	~ 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	7-16-96
Sampling Location	South
Sample Type	Method 29
Run Number	2
Impinger Box Number	South
Recovery Person	JLSwift
Recovery Rinses	3 x 0.1N HNO ₃
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)	Initial (g)	Weight Gain (g)
1	MT	xxx	KO	517.5	491.0	26.5
2	5% HNO ₃ / 10% H ₂ O ₂	~ 100 g	MGS	642.2	630.0	12.2
3	5% HNO ₃ / 10% H ₂ O ₂	~ 100 g	GS	589.9	587.0	2.9
4	MT	xxx	KO	508.9	505.9	3.0
5	4% KMnO ₄ / 10% H ₂ SO ₄	~ 100 g	MGS	586.3	585.0	1.3
6	4% KMnO ₄ / 10% H ₂ SO ₄	~ 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



Eastern Research Group, Inc.

MOISTURE RECOVERY FORM FOR METHOD 4

Plant	Fresh Kills Landfill
Date	7-16-96
Sampling Location	South Header
Sample Type	Method 29
Run Number	21
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)	Initial (g)	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	7-17-96
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 -02 to 06
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	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 78	9.7
5	4% KMnO4/ 10% H2SO4	~ 100 g	MGS	572.9	~~585.6~~ ~~601.0~~ ~~576.1~~ 576	-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



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 HNO ₃
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)	Initial (g)	Weight Gain (g)
1	MT	xxx	KO	483.2	427.5	55.7
2	5% HNO ₃ / 10% H ₂ O ₂	~ 100 g	MGS	590.4	580.8	9.6
3	5% HNO ₃ / 10% H ₂ O ₂	~ 100 g	GS	566.5	572.6 + JLS 7-16-96	- 6.1
4	MT	xxx	KO	508.9	502.4 497.0 JLS 7-16-96	6.5
5	4% KMnO ₄ / 10% H ₂ SO ₄	~ 100 g	MGS	585.7	565.1	20.6
6	4% KMnO ₄ / 10% H ₂ SO ₄	~ 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



Eastern Research Group, Inc.

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)	Initial (g)	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

1 761.3
2 838.2



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)	Initial (g)	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



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)	Initial (g)	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

Appendix B

Field Data

B-3 Moisture Recovery Sheets



Plant	Location	Run Number
Date	Sample Type	Operator

[illegible]**Comments:**

FIELD DATA

Plant	Probe Length and Type	Height of Location (ft)
Date	Nozzle ID (in.)	Duct Dimensions (in.)
Sampling Location	Meter Box Number	Filter Number
Sample Type	Meter ΔH@	Assumed Moisture (%)
Run Number	Yd	O ₂ (%)
Operator	K Factor	CO ₂ (%)
Ambient Temperature (°F)	Probe Heater Setting (°F)	O ₂ /CO ₂ Method
Barometric Pressure (in)	Heater Box Setting (°F)	Moisture Collected (g)
Static Pressure (in H ₂ O)	Initial Leak Check	Final Leak Check

Diagram of Duct

[illegible]**Comments:**



4

Comments:



Cullen Research Group, Inc.

FIELD DATA

Page 1 of 1

Plant	Leach Hills	Probe Length and Type		Height of Location (ft)	
Date	7-17-96	Nozzle ID (in.)		Duct Dimensions (in)	
Sampling Location	Hendrys	Meter Box Number	39	Filter Number	
Sample Type	Metal	Meter ΔH@		Assumed Moisture (%)	
Run Number	3	Yd		O2 (%)	
Operator	MFC	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	Final Leak Check	0.018 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		Influegas Exit (°F)	Pump Vacuum (in. Hg)
									Inlet (°F)	Outlet (°F)		
SPR	5	1115	310.48		16				87	84	68	25
	10	1120	313.46		16				87	84	68	25
	15	1125	314.55		16				87	84	68	25
	20	1130	316.68		16				87	84	68	25
	25	1135	318.02		16				87	84	68	25
	30	1140	319.53		16				87	84	68	25
	35	1145	321.07		16				87	84	68	25
	40	1150	322.64		16				87	84	68	25
	45	1155	324.13		16				87	84	68	25
	50	1200	325.89		16				87	84	68	25
	55	1205	327.45		16				87	84	68	25
	60	1210	328.95		16				87	84	68	25
	65	1215	329.84		16				87	84	68	25
	70	1220	331.81		16				87	84	68	25
	75	1225	333.34		16				87	84	68	25
	80	1230	335.02		16				87	84	68	25
	85	1235	336.55		16				87	84	68	25
	90	1240	338.05		16				87	84	68	25
	95	1245	339.25		16				87	84	68	25
	100	1250	340.54		16				87	84	68	25
	105	1255	341.52		16				87	84	68	25
	110	1300	341.52		16				87	84	68	25
	115	1305	345.89		16				87	84	68	25
	120	1310	347.35		16				87	84	68	25
	125	1315	349.15		16				87	84	68	25
	130	1320	350.65		16				87	84	68	25

Comments:



Ward
Masters

75.20

* Plant lost during 1840 sent back 1860

Comments:

1835
Faint < 15

21303

FIELD DATA

Page 1 of 1

San Research Group, Inc.

Plant	Frank K/15	Probe Length and Type		Height of Location (ft)	
Date	7-16-96	Nozzle ID (in.)		Duct Dimensions (in)	
Sampling Location	Header	Meter Box Number		Filter Number	
Sample Type	Metal	Meter A/H @ 1.761	439 5	Assumed Moisture (%)	
Run Number	2	Yd	988	O2 (%)	05 < 02
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	Final Leak Check	0.011 of 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		Impinger Exit (°F)	Pump Vacuum (in. Hg)
									Inlet	Outlet		
5A	0	1530	238.58									
10	10	1535	240.26									
15	15	1540	243.35									
20	20	1545	244.95									
25	25	1550	246.52									
30	30	1555	248.16									
35	35	1600	250.23									
40	40	1605	251.15									
45	45	1610	252.66									
50	50	1615	254.38									
55	55	1620	255.25									
60	60	1625	257.30									
65	65	1630	258.90									
70	70	1635	251.16									
75	75	1640	260.53									
80	80	1645	262.75									
85	85	1650	264.65									
90	90	1655	266.37									
95	95	1700	268.13									
100	100	1705	267.85									
105	105	1710	271.72									
110	110	1715	272.73									
115	115	1720	274.33									
120	120	1725	275.85									
125	125	1730	277.35									
130	130	1735	278.85									

Comments:



5
4288
1990
753.42

Comments: 1205 kgste Oz ~~and~~ less than .05%



Eastern Research Group, Inc.

FIELD DATA

Page 1 of 1

Plant	FEEL 11/15	Probe Length and Type		Height of Location (ft)	
Date	7-16-96	Nozzle ID (in.)		Duct Dimensions (in)	
Sampling Location	Hackens	Meter Box Number		Filter Number	
Sample Type	1106/5	Meter ΔH@	1.839	Assumed Moisture (%)	
Run Number	1	Yd	.983	O2 (%)	10.17
Operator	M.K.O	K Factor		CO2 (%)	4.05
Ambient Temperature (°F)	74°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	.0160287	Final Leak Check	0.01907

South

North

Read and Record All Data Every 5 Minutes

Diagram of Duct

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading	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		Impinger Exit (°F)	Pump Vacuum (in. Hg)
									Inlet	Outlet		
5.17	5	0958	255.05	N/A	1.30	N/A	N/A	N/A	80	80	68	28.11
10	10	0955	256.61	N/A	1.30	N/A	N/A	N/A	81	81	68	28.11
15	15	1000	258.35	N/A	1.30	N/A	N/A	N/A	81	81	68	28.11
20	20	1005	259.85	N/A	1.30	N/A	N/A	N/A	82	82	68	28.11
25	25	1010	261.55	N/A	1.30	N/A	N/A	N/A	83	83	68	28.11
30	30	1015	263.15	N/A	1.30	N/A	N/A	N/A	83	83	68	28.11
35	35	1020	264.85	N/A	1.30	N/A	N/A	N/A	84	84	68	28.11
40	40	1025	266.44	N/A	1.30	N/A	N/A	N/A	84	84	68	28.11
45	45	1030	268.01	N/A	1.30	N/A	N/A	N/A	84	84	68	28.11
50	50	1035	269.43	N/A	1.30	N/A	N/A	N/A	84	84	68	28.11
55	55	1040	270.48	N/A	1.26	N/A	N/A	N/A	84	84	68	28.11
60	60	1045	272.57	N/A	1.26	N/A	N/A	N/A	85	85	68	28.11
65	65	1050	274.02	N/A	1.26	N/A	N/A	N/A	85	85	68	28.11
70	70	1053	275.60	N/A	1.26	N/A	N/A	N/A	85	85	68	28.11
75	75	1100	277.32	N/A	1.26	N/A	N/A	N/A	86	86	68	28.11
80	80	1105	278.88	N/A	1.26	N/A	N/A	N/A	86	86	68	28.11
85	85	1110	280.03	N/A	1.26	N/A	N/A	N/A	86	86	68	28.11
90	90	1115	281.88	N/A	1.26	N/A	N/A	N/A	86	86	68	28.11
95	95	1120	283.55	N/A	1.26	N/A	N/A	N/A	86	86	68	28.11
100	100	1125	285.13	N/A	1.26	N/A	N/A	N/A	87	87	68	28.11
105	105	1130	286.66	N/A	1.27	N/A	N/A	N/A	87	87	68	28.11
110	110	1135	288.15	N/A	1.27	N/A	N/A	N/A	87	87	68	28.11
115	115	1140	289.71	N/A	1.27	N/A	N/A	N/A	87	87	68	28.11
120	120	1145	291.44	N/A	1.29	N/A	N/A	N/A	87	87	68	28.11
125	125	1150	292.43	N/A	1.29	N/A	N/A	N/A	87	87	68	28.11
130	130	1155	294.57	N/A	1.29	N/A	N/A	N/A	87	87	68	28.11

Comments:

2.

64.86

Comments:

Lyrite $\angle 105^{\circ} 02'$



Field Research Group, Inc.

FIELD DATA

Plant	Field #115	Probe Length and Type		Height of Location (ft)		North
Date	7-17-96	Nozzle ID (in.)		Duct Dimensions (in)		
Sampling Location	Head	Meter Box Number		Filter Number		
Sample Type	Metal	Meter Alt@		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	0.011	Final Leak Check	0.014	
					25.1	

Read and Record All Data Every 5 Minutes

Diagram of Duct

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft³)	Velocity Head ΔP (in H2O)	Office Pressure Differential ΔH (in H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter		Impinger Exit (°F)	Pump Vacuum (in. Hg)
									Inlet (°F)	Outlet (°F)		
5	0	11:10	577.77						91	90	68	25
10	10	11:20	581.12						91	90	68	25
15	20	11:25	585.65						91	90	68	25
20	30	11:30	584.18						91	90	68	25
25	40	11:35	585.83						91	90	68	25
30	50	11:40	587.32						91	90	68	25
35	60	11:45	588.85						91	90	68	25
40	70	11:50	590.32						91	90	68	25
45	80	11:55	592.03						91	90	68	25
50	90	12:00	593.16						91	90	68	25
55	100	12:05	594.95						91	90	68	25
60	110	12:10	596.82						91	90	68	25
65	120	12:15	597.95						91	90	68	25
70	130	12:20	600.00						91	90	68	25
75	140	12:25	601.56						91	90	68	25
80	150	12:30	603.13						91	90	68	25
85	160	12:35	604.85						91	90	68	25
90	170	12:40	606.24						91	90	68	25
95	180	12:45	608.15						91	90	68	25
100	190	12:50	609.84						91	90	68	25
105	200	12:55	611.37						91	90	68	25
110	210	1:00	612.75						91	90	68	25
115	220	1:05	614.32						91	90	68	25
120	230	1:10	616.07						91	90	68	25
125	240	1:15	617.76						91	90	68	25
130	250	1:20	619.08						91	90	68	25

Comments:



Plant	Feed #15	Location	Reactor	Run Number	2
Date	7-16-76	Sample Type	Mutids	Operator	AKO

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (ft ³)	Velocity Head ΔP (in H ₂ O)	Orifice Pressure Differential ΔH (in H ₂ O)	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)		
507	130	1740	530.65	1.27	1.27				106	101	56	25
	133	1748	532.46	1.27	1.27				106	101	56	25
	140	1745	533.93	1.27	1.27				107	100	57	25
	145	1750	535.74	1.27	1.27				107	100	57	25
	150	1755	537.71	1.27	1.27				107	100	58	25
	153	1800	538.88	1.27	1.27				107	101	58	25
	160	1805	540.37	1.29	1.29				107	101	57	25
	165	1810	542.16	1.29	1.29				107	101	57	25
	170	1815	543.55	1.29	1.29				107	101	57	25
	175	1820	545.63	1.28	1.28				105	101	57	25
	180	1825	546.87	1.28	1.28				104	100	60	25
	185	1830	548.72	1.27	1.27				104	100	60	25
	190	1835	570.34	1.27	1.27				104	100	61	25
	195	1840	571.18	1.29	1.29				107	100	54	25
	200	1845	573.37	1.29	1.29				107	97	54	25
	205	1850	575.14	1.29	1.29				94	91	53	25
	210	1855	576.56	1.29	1.29				94	91	52	25
	215	1858										
	220	1900										
	225	1905										
	230	1938										

Plant was closed at 1840 Start Back 1900

所欠收

$$u < 15$$

1837 Time



Eastern Research Group, Inc.

FIELD DATA

Page 1 of 2

Plant	Freeport	Probe Length and Type		Height of Location (ft)	
Date	9-16-92	Nozzle ID (in.)		Duct Dimensions (in)	
Sampling Location	N. 1st St.	Meter Box Number	438-0	Filter Number	
Sample Type	Metals	Meter ΔH@	1.850	Assumed Moisture (%)	
Run Number	2	Yd	1.994	O2 (%)	
Operator	MLO	K Factor		CO2 (%)	
Ambient Temperature (°F)	29.98	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	0.069 at 28"

Read and Record All Data Every 5 Minutes

Diagram of Duct

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		Impinger Exit (°F)	Pump Vacuum (in. Hg)
									Inlet (°F)	Outlet (°F)		
5	0	1330	308.33						106	101	68	25
10	5	1335	311.85						106	101	68	25
15	10	1340	313.57						106	101	68	25
20	15	1345	315.15						107	101	68	25
25	20	1350	316.76						107	101	68	25
30	25	1355	318.58						107	101	68	25
35	30	1400	320.15						107	102	65	25
40	35	1405	321.63						107	106	61	25
45	40	1410	323.15						107	106	61	25
50	45	1415	325.07						107	104	60	25
55	50	1420	327.00						108	104	61	25
60	55	1425	328.14						108	104	61	25
65	60	1430	329.87						108	105	62	25
70	65	1435	331.51						108	105	60	25
75	70	1440	333.06						108	105	60	25
80	75	1445	334.63						108	106	60	25
85	80	1450	336.23						108	106	60	25
90	85	1455	337.86						108	105	60	25
95	90	1500	339.53						108	105	60	25
100	95	1505	341.24						108	105	60	25
105	100	1510	343.23						108	105	60	25
110	105	1515	344.32						108	105	60	25
115	110	1520	345.95						108	105	60	25
120	115	1525	347.72						108	105	60	25
125	120	1530	349.15						108	105	60	25
130	125	1535	350.65						108	105	60	25

Comments:



1069

12.05 Fe/NH_4 O_2 10.35 H_2O_2 1.05 %

Comments:



FIELD DATA

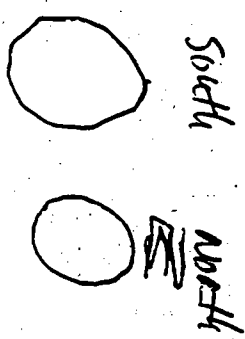
Job: South Group, Inc.

North

Traverse Point Number	5	Probe Length and Type	7-16-96	Height of Location (ft)	
Sampling Time (min)	0945	Nozzle ID (in.)	464085	Duct Dimensions (in)	
Clock Time (24-hr)	0936	Meter Box Number	M04215	Filter Number	
Gas Meter Reading Vm (ft)	433.75	Meter DH@	Yd	Assumed Moisture (%)	
Velocity Head A.P. (m H2O)	11.4	K Factor	24.0	O2 (%)	10.16
Office Pressure Differential DH (m H2O)	2.8	Probe Heater Setting (°F)		CO2 (%)	2.05
Flue Gas Temperature (°F)	114	Heater Box Setting (°F)		O2/CO2 Method	
Probe Temperature (°F)	114	Moisture Collected (g)		Final Leak Check	
Filter Temperature (°F)	114				
Dry Gas Meter Inlet Temperature (°F)	85				
Dry Gas Meter Outlet Temperature (°F)	85				
Impinger Exit (°F)	61				
Pump Vacuum (in. Hg)	28.1				

Read and Record All Data Every Minutes

Diagram of Duct



Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading Vm (ft)	Velocity Head A.P. (m H2O)	Office Pressure Differential DH (m H2O)	Flue Gas Temperature (°F)	Probe Temperature (°F)	Filter Temperature (°F)	Dry Gas Meter Inlet Temperature (°F)	Dry Gas Meter Outlet Temperature (°F)	Impinger Exit (°F)	Pump Vacuum (in. Hg)
5	0945	0936	433.75	11.4	2.8	114	114	114	85	85	61	28.1
10	0955	0945	439.18		2.8	128			85	85	61	28.1
15	1000	0955	440.86		2.8	128			85	85	61	28.1
20	1005	1000	442.37		2.8	128			85	85	61	28.1
25	1010	1005	443.89		2.8	128			85	85	61	28.1
30	1015	1010	445.41		2.8	128			85	85	61	28.1
35	1020	1015	447.00		2.8	128			85	85	61	28.1
40	1025	1020	450.16		2.8	128			85	85	61	28.1
45	1030	1025	451.82		2.8	128			85	85	61	28.1
50	1035	1030	452.15		2.8	128			85	85	61	28.1
55	1040	1035	453.35		2.8	128			85	85	61	28.1
60	1045	1040	454.95		2.8	128			85	85	61	28.1
65	1050	1045	456.3		2.8	128			85	85	61	28.1
70	1055	1050	458.02		2.8	128			85	85	61	28.1
75	1100	1055	459.63		2.8	128			85	85	61	28.1
80	1105	1100	461.17		2.8	128			85	85	61	28.1
85	1110	1105	462.75		2.8	128			85	85	61	28.1
90	1115	1110	464.1		2.8	128			85	85	61	28.1
95	1120	1115	465.41		2.8	128			85	85	61	28.1
100	1125	1120	467.45		2.8	128			85	85	61	28.1
105	1130	1125	468.48		2.8	128			85	85	61	28.1
110	1135	1130	470.43		2.8	128			85	85	61	28.1
115	1140	1135	471.95		2.8	128			85	85	61	28.1
120	1145	1140	473.63		2.8	128			85	85	61	28.1
125	1150	1145	475.16		2.8	128			85	85	61	28.1
130	1155	1150	476.63		2.8	128			85	85	61	28.1

Comments:

**Comments:**



Run 7

Page 1 of 1

Diagram of Duct

[illegible][illegible]**Comments:**



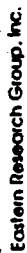
Page 7 of 10

2

Diagram of Duct

Read and Record All Data Every	Minutes
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
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80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Comments:



Plant		Location		Run Number	
Date		Sample Type		Operator	

[illegible]**Comments:**



Eastman Research Group, Inc.

FIELD DATA

Page 1 of 2

Plant	Fresh Kill	Probe Length and Type	Height of Location (ft)
Date	7-19-96	Nozzle ID (in.)	
Sampling Location	Sales gas	Meter Box Number	A-37
Sample Type	Metals	Meter ΔH@	
Run Number	3	Yd	
Operator	D.A.	K Factor	
Ambient Temperature (°F)	78	Probe Heater Setting (°F)	
Barometric Pressure (in)	30.01	Heater Box Setting (°F)	
Static Pressure (in H ₂ O)		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 (ft ³)	Velocity Head ΔP (in H ₂ O)	Orifice Pressure Differential ΔH (in H ₂ O)	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)
51P	0	9:30	698.91		1.8				77	77	50	20"
	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	51	20"
	20	9:50	720.17		1.8				77	77	52	20"
	25	9:55	725.19		1.8				77	77	54	20"
	30	10:00	730.54		1.8				78	78	54	20"
	35	10:05	735.20		1.8				78	78	55	20"
	40	10:10	740.31		1.8				78	78	55	20"
	45	10:15	745.42		1.8				79	79	54	20"
	50	10:20	750.57		1.8				79	79	55	20"
	55	10:25	755.67		1.8				79	79	55	20"
	60	10:30	760.79		1.8				79	79	56	20"
	65	10:35	765.88		1.8				80	80	57	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:

Bag Start
9:30
Bag end
12:30

[illegible]

Comments:

Thursday 17:18

1/2 N R 3

0,000

1/2

0,000

~~S R 3~~

cel ✓

.170

R/K -

0,000

S R 3 -

0,000

S R 2 =

0,012

BK =

0,000

N R 1 -

.011

~~S R 3~~

✓ cel

.177

Big hdd ton problem

7/18/96 Today

DH + Juli arrived at 07:15 o'clock at 07:45

Sub Lp #3 started at $\approx 09:30$
Preliminary stack traverse performed jointly by TRG + ERG

Traverse	Legs
	BK = 0.000
	Cal V = 0.140 at 19°C
inj 1	Sub L #3 BK = 0.000
2	" 3 0.000
3	" 3 0.000
	BK = 0.000
	Cal V = 0.214 at 24°C
	BK = 0.000

with redundant
scrubber

7/17/96

Arrived at plat 07:55

Leak check for Heeder Run 3 completed at 09:15 + leaky while
 Sals go is set up for Run 1 - Sals go for 1 & 2 &
 Heeder Run 3 + Heeder FBK completed, H.F.BK taken to Lantz
 Leak check - allow to set for 3:30 min - lab check - recovered
 left plat at 07:30
 Setup incubator for today
 prepared pins etc. done part

Nr S Heeder Tels has received by plat + received with 100 & 0.1 N HAT

BK = 0.000
 Run 1 SH = Over Range

Regm

per EPA - replaced internal c/s Heeder scatter

Regm

BK = 0.000

Calv = 0.167 at 21°C

BK = 0.000

inj #1 Sals Run #1 = 0.000

inj #2 " = 0.000

inj #3 " = 0.000

inj 1 Sals Run #2 = 0.000

2 " 0.000

3 " 0.000

Calv

0.186

@ 23°C

7/16/96

13:55 Plat's 1 & 2 engines tripped out - Heads sample stopped

Plat backup in 5 min.
left plat at 8:30 pm

2 Heads runs completed
Analyzed R. 2 N+S bags in Room
completed at 12:30 AM on 7/17/96

Run 2

7/16/96

Regen

Blk = 0.00

Cal = 0.187

@ 24°C

Blk = 0.000

N.H = 0.898

50-75% Set

Blk = 0.00

S.H = .338

75% - 100 Set

Regen

Blk = 0.000

S.H = 0.859

50-75% Set

Regen

Blk = 0.000

S.H = over range

Regen

Blk = 0.000

N.H = over range

10:50 PM

Regen

Regen

Regen

Cal = 0.187 @ 13°C

7/17/96

~~CONFIDENTIAL~~

- 184 2nd Ed.

N. 7.

283
214
168
158
144
139

instant Satard Raga pafand

Adj. R_{adj} zero adj. to 0.000

Sold, from air. 9 w seller = 0,000

$Cal_{\text{clerk}} = 0.181 \text{ at } 24^{\circ}\text{C}$

$$S_{\text{system}}; S_{\text{sync}} = 0.000 \quad 0.259$$

N. Hale = 425

Serial BK says to get to 0.000 75-50?

$$S.H. = 0.258$$

B/K = 6,000 Nov 50-75% set

S.H. 5 U. 204

Refr $\rightarrow$ $\alpha_v = 0.180$

$$B_k = 0.00$$

N.E. = 0854

S.H. = 0.25 50-75% sat

S.F. = 0.225

7/16/96

Kim

Appendix B

Field Data

B-1 Jerome Analyzer Field Data

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**

Replicate 1
Peak Area (A-s): 4.733
Blank Corrected Pk Height (A): 0.212
Concentration (ug/L): 6.018
Time: 14:09
Peak Height (A): 0.212

Hg2 ID: CCB1 Seq. No.: 00038 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.015
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.017
Time: 14:10
Peak Height (A): 0.001

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): 0.021 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=6.0 ug/L Seq. No.: 00037 A/S Pos.: -- Date: 08/13/96

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

Peak Area (A-s): 3.959
Blank Corrected Pk Height (A): 0.165
Concentration (ug/L): 4.681

Time: 13:39

Peak Height (A): 0.165

Hg2 ID: 131-59-17A Seq. No.: 00016 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.113
Blank Corrected Pk Height (A): 0.005
Concentration (ug/L): 0.134

Time: 13:41

Peak Height (A): 0.005

Hg2 ID: 131-59-17A D Seq. No.: 00017 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.097
Blank Corrected Pk Height (A): 0.004
Concentration (ug/L): 0.119

Time: 13:42

Peak Height (A): 0.004

Hg2 ID: 131-59-17B Seq. No.: 00018 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.025
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.034

Time: 13:43

Peak Height (A): 0.001

Hg2 ID: 131-59-17B D Seq. No.: 00019 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.022
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.023

Time: 13:44

Peak Height (A): 0.001

Hg2 ID: 131-59-17D Seq. No.: 00020 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 6.515
Blank Corrected Pk Height (A): 0.282
Concentration (ug/L): 8.006

Time: 13:45

Peak Height (A): 0.282

Hg2 ID: 131-59-17D D Seq. No.: 00021 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 6.543
Blank Corrected Pk Height (A): 0.287
Concentration (ug/L): 8.137

Time: 13:46

Peak Height (A): 0.287

Hg2 ID: 131-59-15C Seq. No.: 00022 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.074
Blank Corrected Pk Height (A): 0.003

Time: 13:47

Peak Height (A): 0.003

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: QC= 2-105-6

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

Element File: HG_MEL

Date: 08/13/96

Data File: AB592.DAT

Technique: MHS

Remark 1: STANDARDS= 2-105-5

Remark 2: QC= 2-105-6

Element: Hg2

Time: 13:31

ID/Wt File: AB592.IDW

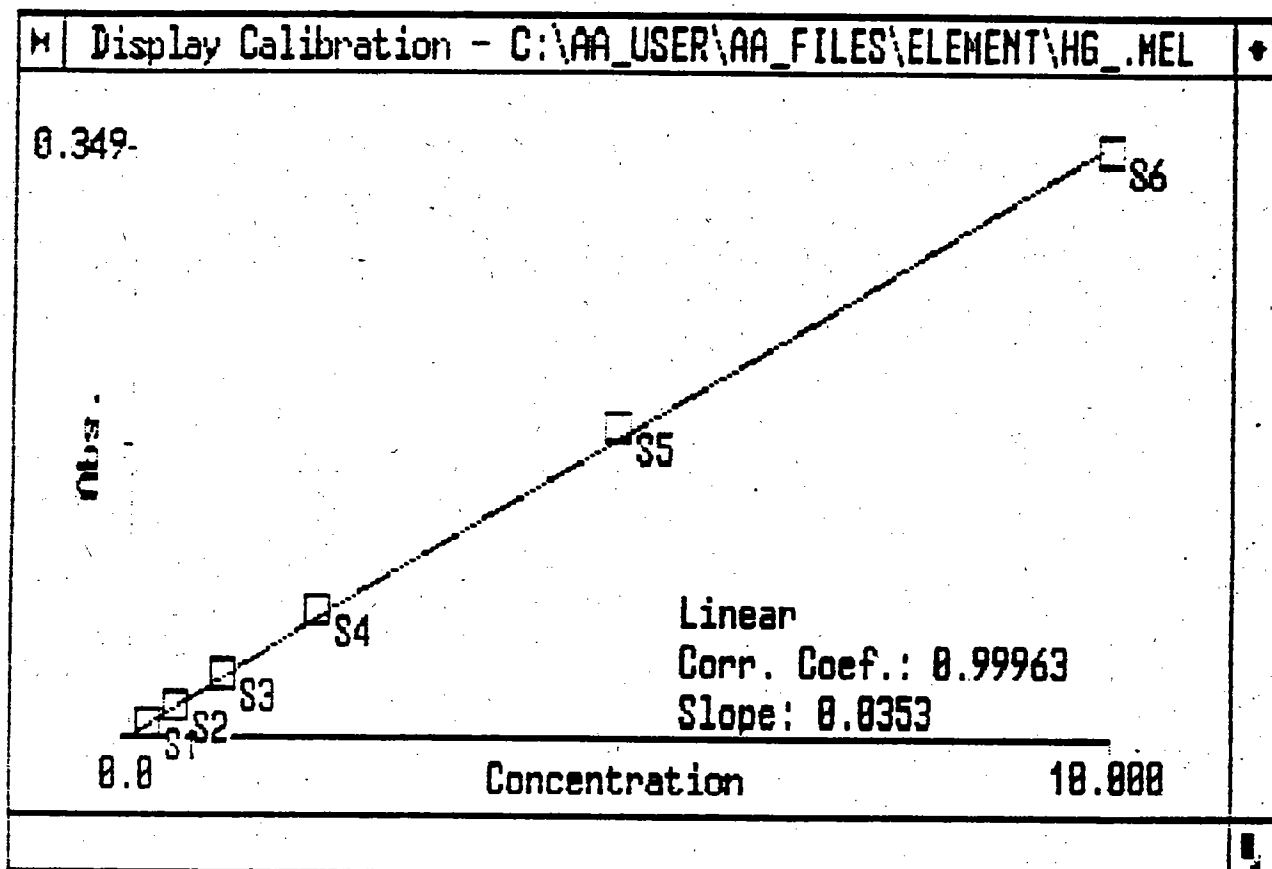
Calib. Type: Linear

Wavelength: 253.7

Slit: 0.7 L

Lamp Current: 0

Energy: 75



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

Date: 08/13/96

Data File: AB592.DAT

Technique: MHS

Remark 1: STANDARDS= 2-105-5

Remark 2: QC= 2-105-6

Element: Hg2

Time: 13:22

ID/Wt File: AB592.IDW

Calib. Type: Linear

Wavelength: 253.7

Slit: 0.7 L

Lamp Current: 0

Energy: 75

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

Seq. 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): 2.048

ID Weight File: AB592.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 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		

2-105-5

X

8/13/96

2-105-6

X

8/13/96

2-105-6

X

8/13/96

Hox

Curve 2

38139 partial

X

8/13/96

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

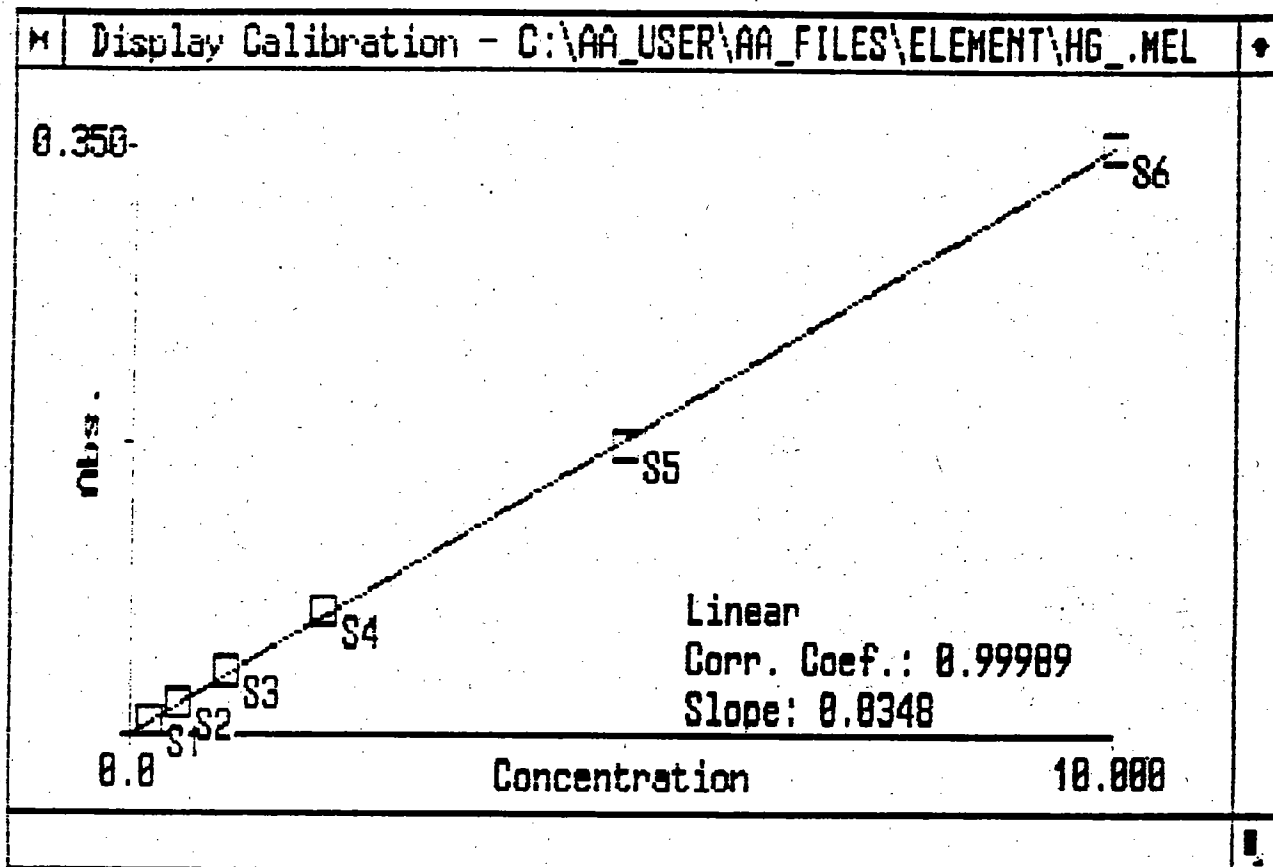
Technique: MHS

Calib. Type: Linear

Energy: 75

Remark 1: STANDARDS= 2-105-5

Remark 2: QC= 2-105-6



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

Date: 08/13/96
Data File: AB591.DAT
Technique: MHS
Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6

Time: 13:07
ID/Wt File: AB591.IDW
Calib. Type: Linear

wavelength: 253.7
Slit: 0.7 L
Lamp Current: 0
Energy: 75

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

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		

2-105-5 α
8/13/96

Hy
Curve 1
38139 partial
 α
8/13/96

Retention

Time: 13.00

Peak Area (A-s): 0.018

Peak Height (A): 0.001

Blank Corrected Peak Height (A): 0.001

Concentration (ug/L): 0.018

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

Concentration (ug/L): 4.551

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

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

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

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

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

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

Replicate 1
Peak Area (A-s): 2.801
Blank Corrected Pk Height (A): 0.126
Concentration (ug/L): 3.821
Time: 12:24
Peak Height (A): 0.126

Hg2 ID: 131-59-15A Seq. No.: 00016 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.049
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.064
Time: 12:25
Peak Height (A): 0.002

Hg2 ID: 131-59-15A D Seq. No.: 00017 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.045
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.064
Time: 12:26
Peak Height (A): 0.002

Hg2 ID: 131-59-15B Seq. No.: 00018 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.012
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.015
Time: 12:27
Peak Height (A): 0.001

Hg2 ID: 131-59-15B D Seq. No.: 00019 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.015
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.018
Time: 12:28
Peak Height (A): 0.001

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
Peak Area (A-s): 13.249
Blank Corrected Pk Height (A): 0.576
Concentration (ug/L): 17.455
Time: 12:29
Peak Height (A): 0.576

Hg2 ID: 131-59-15D DX4 Seq. No.: 00021 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 3.243
Blank Corrected Pk Height (A): 0.138
Concentration (ug/L): 4.168
Time: 12:36
Peak Height (A): 0.138

Hg2 ID: 131-59-15D DX4D Seq. No.: 00022 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 3.468
Time: 12:37
Peak Height (A): 0.150

Element File: HG_MEL
Date: 08/13/96
Data File: AB590.DAT
Technique: MHS
Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6

Element: Hg2
Time: 12:16
ID/Wt File: AB590.IDW
Calib. Type: Linear

Wavelength: 253.7
Slit: 0.7 L
Lamp Current: 0
Energy: 75

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 LO 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

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

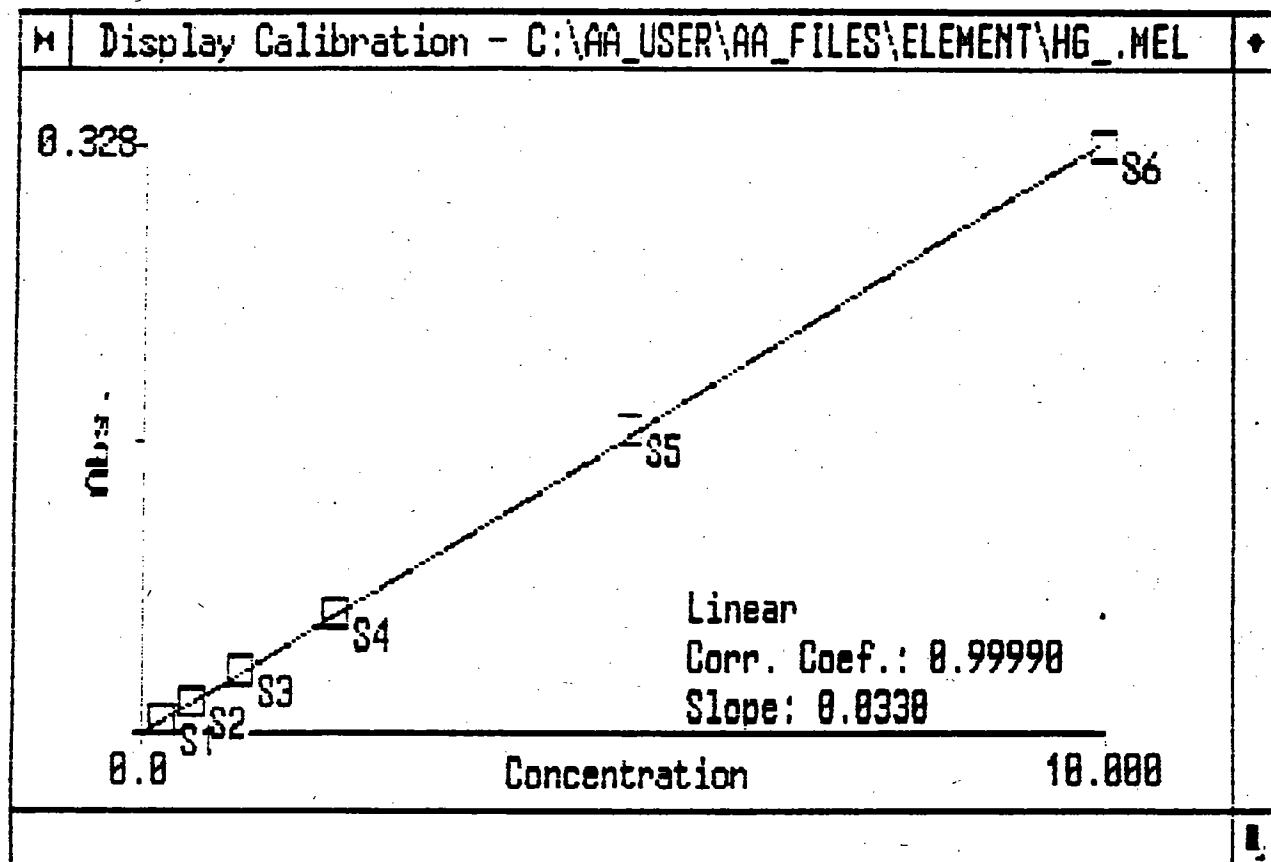
Technique: MHS

Calib. Type: Linear

Energy: 75

Remark 1: STANDARDS= 2-105-5

Remark 2: QC= 2-105-6



Correlation coefficient: 0.99980

Slope: 0.0330

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

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: 12:05 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: 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

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		
8	ICB		
9	CHECK LO		
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		
35	CCB1		

2-105-5 x
8/13/962-105-6 x
8/13/96Hg
Curve 2

38/39 partial

x
8/13/96x
8/13/96

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

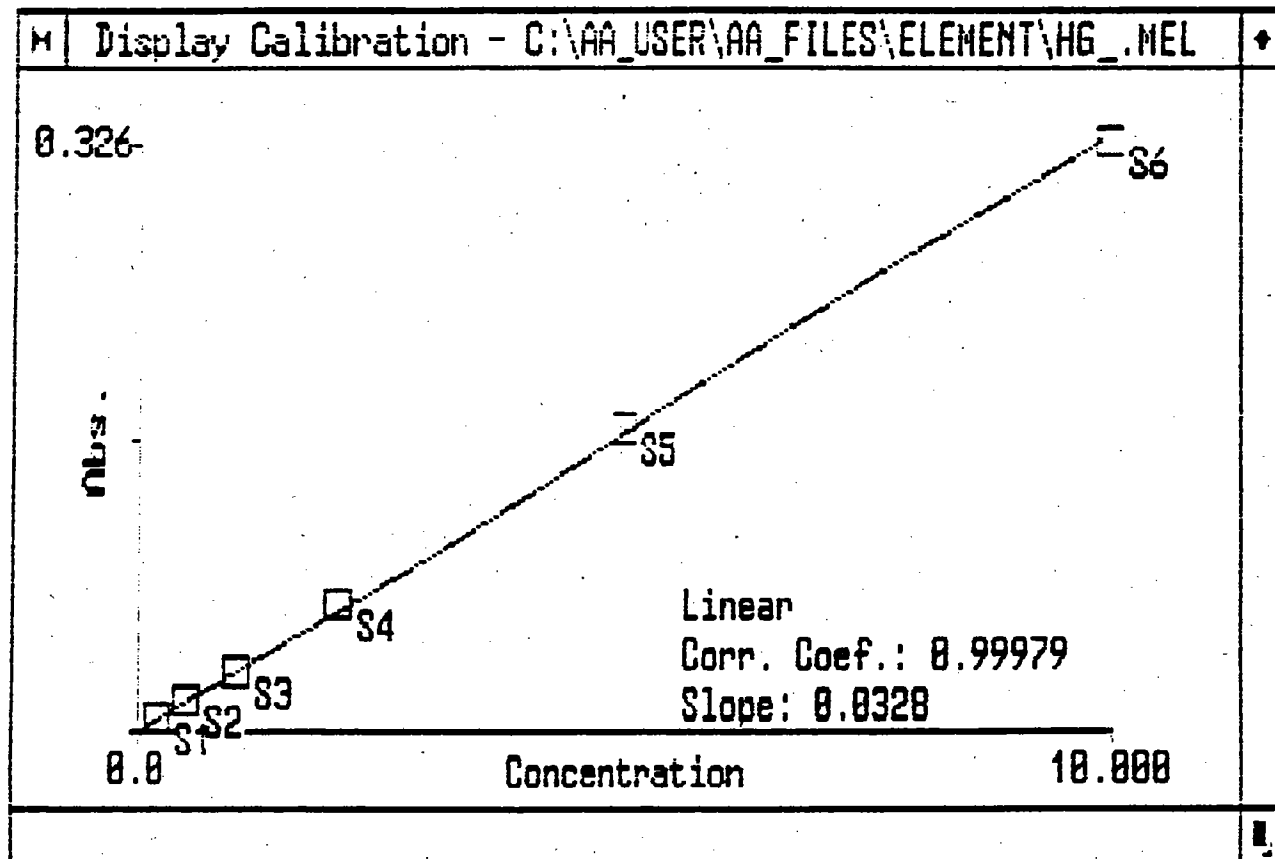
Technique: MHS

Calib. Type: Linear

Energy: 75

Remark 1: STANDARDS= 2-105-5

Remark 2: QC= 2-105-6



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): 9.681

Standard number 6 applied. [10.000]

Correlation coefficient: 0.99979

Slope: 0.0328

Element File: HG_ME_

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

Sample Volume: 100 mL

ANALYST: CRONER
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		

> 2-105-5
2
8/13/96

Hz
Curve 1
38139 partial

2
8/13/96

Hg2 ID: CCB1

Sec. No.: 00037

A/S Pcs.: --

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

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

Concentration (ug/L): 0.062

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

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

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

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 ^{EZ} Seq. No.: 00029 A/S Pos.: -- Date: 08/13/96

Replicate 1 Time: 10:42
Peak Area (A-s): 1.966 Peak Height (A): 0.080
Blank Corrected Pk Height (A): 0.080
Concentration (ug/L): 2.226

Peak Area (A-s): 3.831
Blank Corrected Pk Height (A): 0.167
Concentration (ug/L): 4.665

Time: 10:19

Peak Height (A): 0.167

Hg2 ID: 131-59-12C Seq. No.: 00016 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.043
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.045

Time: 10:20

Peak Height (A): 0.002

Hg2 ID: 131-59-12C D Seq. No.: 00017 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.036
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.036

Time: 10:22

Peak Height (A): 0.001

Hg2 ID: 131-59-12C MS Seq. No.: 00018 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 2.175
Blank Corrected Pk Height (A): 0.095
Concentration (ug/L): 2.651

Time: 10:23

Peak Height (A): 0.095

Hg2 ID: 131-59-12C MSD Seq. No.: 00019 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 1.883
Blank Corrected Pk Height (A): 0.081
Concentration (ug/L): 2.271

Time: 10:25

Peak Height (A): 0.081

Hg2 ID: 131-59-12DE Seq. No.: 00020 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 4.466
Blank Corrected Pk Height (A): 0.204
Concentration (ug/L): 5.678

Time: 10:26

Peak Height (A): 0.204

Hg2 ID: 131-59-12DE D Seq. No.: 00021 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 5.324
Blank Corrected Pk Height (A): 0.233
Concentration (ug/L): 6.486

Time: 10:27

Peak Height (A): 0.233

Hg2 ID: 131-59-13A Seq. No.: 00022 A/S Pos.: -- Date: 08/13/96

Replicate 1
Peak Area (A-s): 0.060
Blank Corrected Pk Height (A): 0.002

Time: 10:29

Peak Height (A): 0.002

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

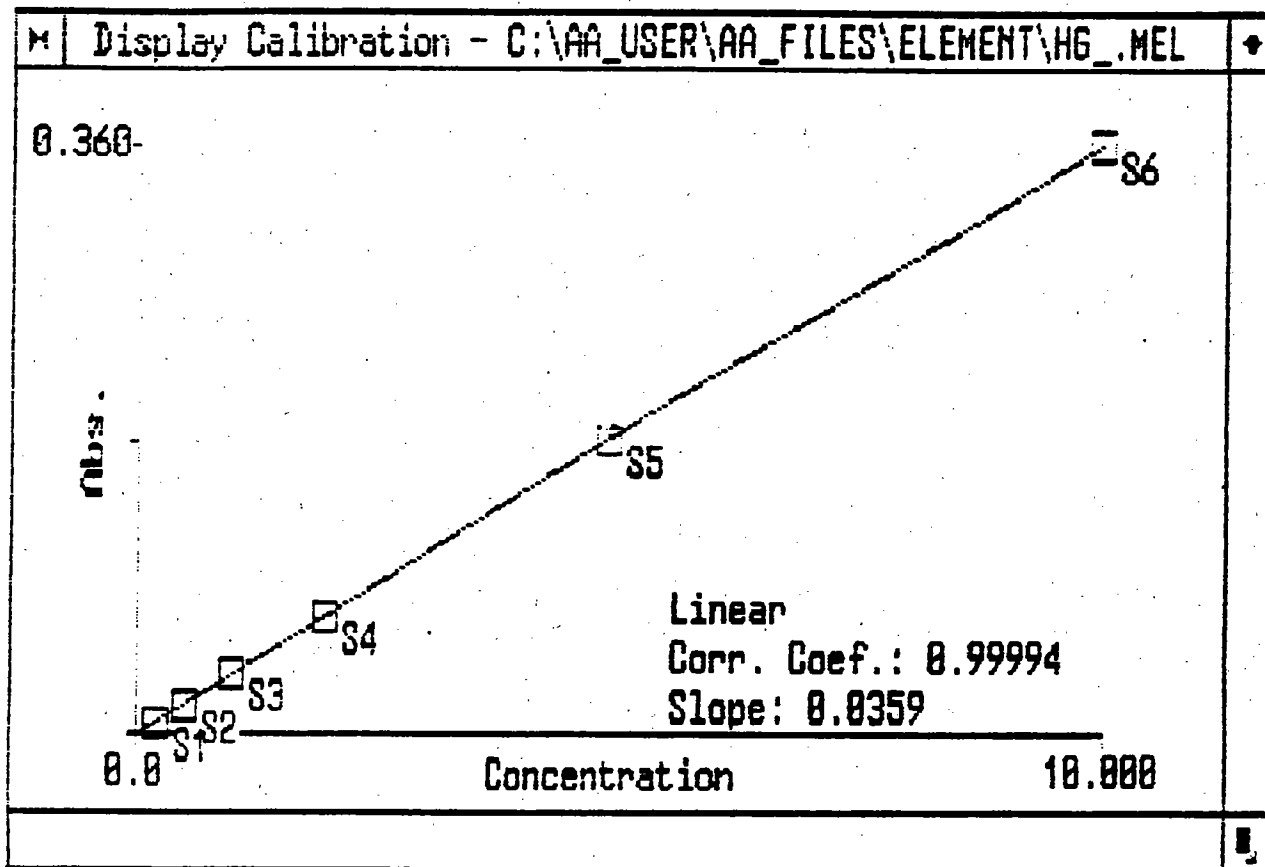
A/S Pos.: --

Date: 08/13/96

Element File: HG_.MEL
Date: 08/13/96
Data File: AB588.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: C
Energy: 75



Standard number 4 applied. [2.000]
Correlation coefficient: 0.99962 Slope: 0.0352

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

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: 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 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

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.

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

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

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

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

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	2-105-5	x
8	ICB		8/13/96
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 DX10		
26	131-59-13DDX100		
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 DX10		
33	131-59-12DDX100		
34	CCV1=6.0 ug/L	2-105-6	x
35	CCB1		8/13/96

Hg

Curve 2

38139 partial

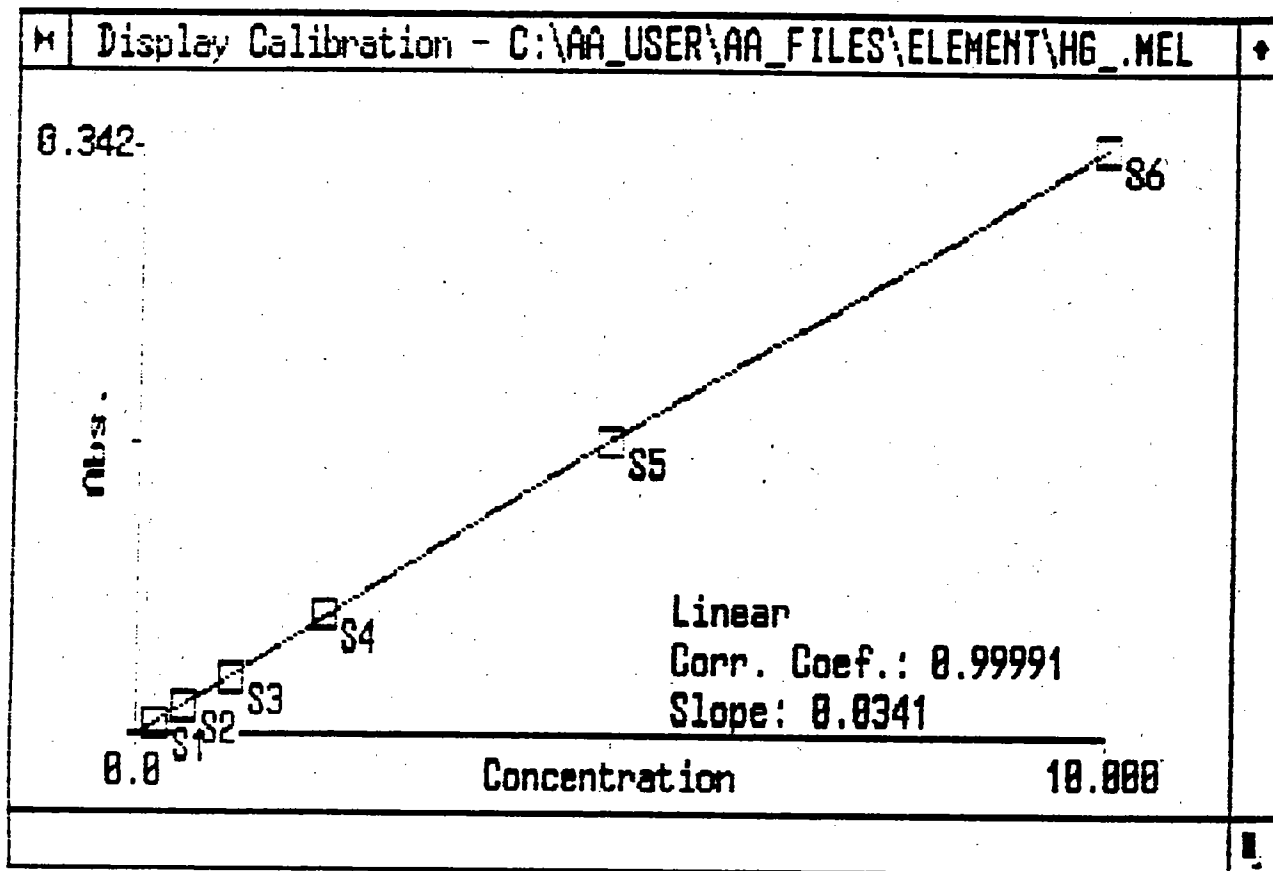
x

8/13/96

Element: Hg2
Date: 08/13/96
Data File: AB587.DAT
Technique: MHS
Remark 1: STANDARDS= 2-105-5
Remark 2: QC= 2-105-6

Time: 09:50
ID/Wt File: AB587.IDW
Calib. Type: Linear

Wavelength: 253.7
Slit: 0.7 L
Lamp Current: 0
Energy: 75



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: H3.MEL

Date: 08/13/96

Data File: AB587.DAT

Technique: MHS

Remark 1: STANDARDS= 2-105-5

Remark 2: QC= 2-105-6

Element: Hg2

Time: 09:41

ID/Wt File: AB587.IDW

Calib. Type: Linear

Wavelength: 253.7

Slit: 0.7 L

Lamp Current: 0

Energy: 75

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

Element File: HG_MEL
Element: Hg2
Print Data: Main+Suppl.
Print: Calib. Curve
Remarks:

Analyst: CROKER
Peak Storage: None

STANDARDS= 2-105-5
QC= 2-105-6

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

% Recovery for Spike: No

Locations:

Locations:

Conc:

Sample Volume: 100 mL

Analyst: CRUKER
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		

2-105.5
x
8/13/96

Hg
Curve 1
38139 partial
x
8/13/96

Concentration (ug/L): 0.114

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

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

Peak Area (A-s): 0.013
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.022

Peak Height (A): 0.001

Hg2 ID: 131-59-4F10C Seq. No.: 00016 A/S Pos.: -- Date: 08/08/96

Replicate 1
Peak Area (A-s): 0.051
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.062
Time: 16:23
Peak Height (A): 0.002

Hg2 ID: 131-59-4F10C D Seq. No.: 00017 A/S Pos.: -- Date: 08/08/96

Replicate 1
Peak Area (A-s): 0.045
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.052
Time: 16:24
Peak Height (A): 0.002

Hg2 ID: 131-59-4FG10CD Seq. No.: 00018 A/S Pos.: -- Date: 08/08/96

Replicate 1
Peak Area (A-s): 0.089
Blank Corrected Pk Height (A): 0.004
Concentration (ug/L): 0.117
Time: 16:25
Peak Height (A): 0.004

Hg2 ID: 131-59-4FG10CDD Seq. No.: 00019 A/S Pos.: -- Date: 08/08/96

Replicate 1
Peak Area (A-s): 0.097
Blank Corrected Pk Height (A): 0.004
Concentration (ug/L): 0.126
Time: 16:26
Peak Height (A): 0.004

Hg2 ID: 131-59-17C Seq. No.: 00020 A/S Pos.: -- Date: 08/08/96

Replicate 1
Peak Area (A-s): 0.040
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.065
Time: 16:27
Peak Height (A): 0.002

Hg2 ID: 131-59-17C D Seq. No.: 00021 A/S Pos.: -- Date: 08/08/96

Replicate 1
Peak Area (A-s): 0.047
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.065
Time: 16:28
Peak Height (A): 0.002

Hg2 ID: 131-59-19C Seq. No.: 00022 A/S Pos.: -- Date: 08/08/96

Replicate 1
Peak Area (A-s): 0.086
Blank Corrected Pk Height (A): 0.004
Time: 16:29
Peak Height (A): 0.004

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

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

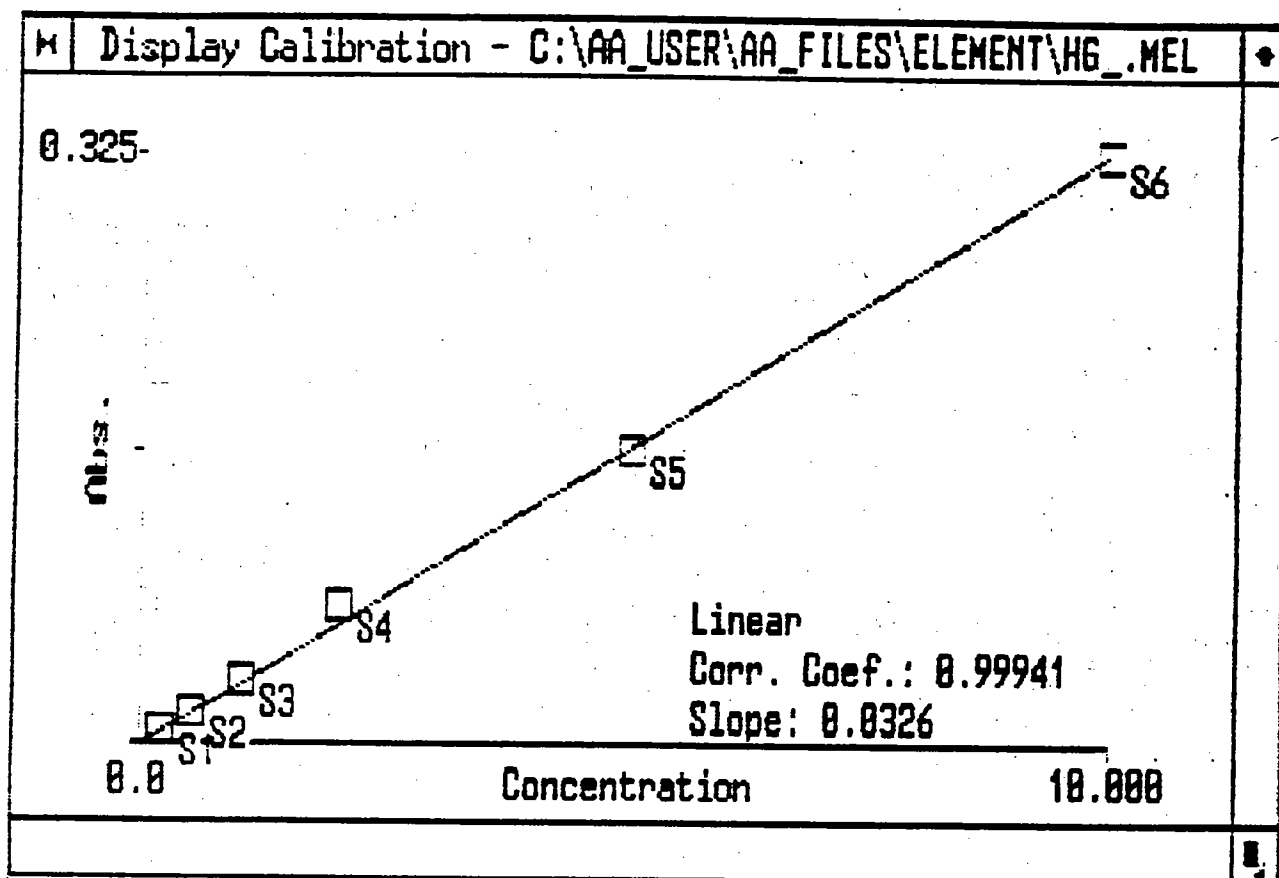
Calib. Type: Linear

Wavelength: 253.7

Slit: 0.7 L

Lamp Current: 0

Energy: 75



Element: Hg2
Print Data: Main+Suppl.
Print: Calib. Curve
Remarks:
STANDARDS= 2-105-1
QC= 2-105-2

INSTRUMENT: 5100
Wavelength: 253.7 Peak
Signal Type: AA
Read Time: 30.0
Sample Replicates: 1
Standard Replicates: 1
Technique: MHS
Silt: 0.7 Low
Signal Measurement: Peak Height (5)
Read Delay: 1.0
BOC Time: 2
Version: 7.01

FLAME:
Flame Type: Air
Flame Sensor: On
Oxidant Flow: 10.0 L/min
Fuel Flow: 2.0 L/min

CALIBRATION:

Solutions		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 Dups: No
% Recovery for Spike: No

Locations:
Locations:
Conc:

Element file: Hg_MEL
Date: 08/02/96
Data file: AB579.DAT
ID/Wt file: AB579.IDW
Calib. Type: Linear
WaveLength: 253.7
Slit: 0.7 L
Lamp Current: 0
Energy: 75

Hg2 ID: STD BLANK-CAL 1 Seq. No.: 00004 A/S Pos.: -- Date: 08/08/96
Replicate 1
Peak Area (A-S): -0.005
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
Peak Area (A-S): 0.112
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
Peak Area (A-S): 0.313
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
Peak Area (A-S): 0.649
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
Peak Area (A-S): 1.384
Blank Corrected PK Height (A): 0.062
Concentration (ug/L): 2.257

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
Peak Area (A-S): 3.610
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

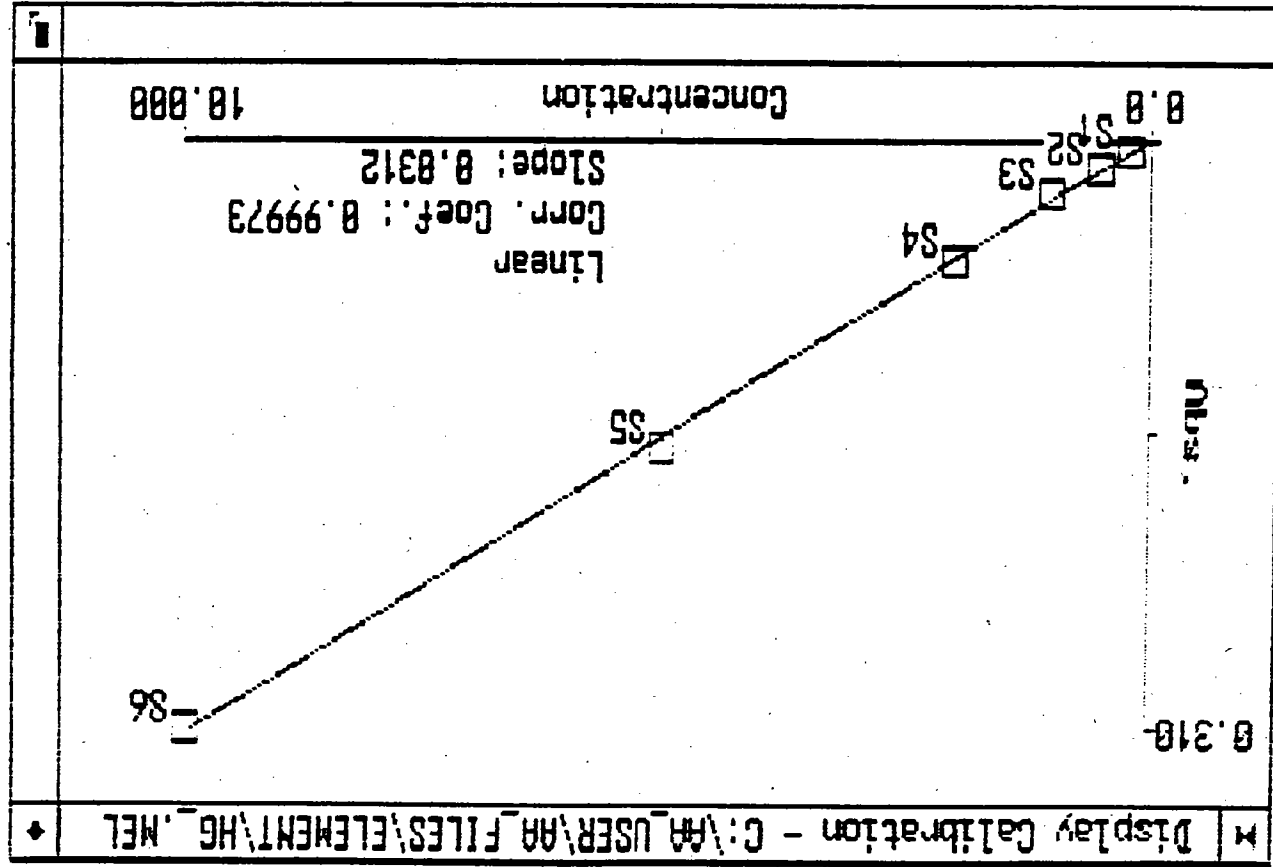
Hg2 ID: STD6=10.0 ug/L Seq. No.: 00010 A/S Pos.: -- Date: 08/08/96

Sample abs. is greater than that of the largest standard.
Replicate 1
Peak Area (A-S): 7.291
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
 Date: 08/08/96
 Time: 14:43
 ID/Wt File: AB579.IDW
 Calibration Type: Linear
 Wave Length: 253.7
 Slit: 0.7 L
 Lamp Current: 0
 Energy: 75

Remark 1: STANDARDS= 2-105-1
 Remark 2: QC= 2-105-2



Loc. Sample ID Weight Dilution

0	STD BLANK-CAL 2		
1	STD1=0.2 ug/L		
2	STD2=0.6 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 MB3		
11	38139 MB3 D		
12	38139 LCS3		
13	38139 LCS3 D		
14	131-59-20A		
15	131-59-20A D		
16	131-59-16B		
17	131-59-16B D		
18	131-59-16B MS		
19	131-59-16B MSD		
20	131-59-4ACE10A		
21	131-59-4ACE10AD		
22	CCV1=6.0 ug/L		
23	CCB1		

8/8/96
2

8/8/96
2

2-105-1
8/8/96
2

Hy
38139 particle
8/8/96
2

Element File: HG.MEL
Date: 08/08/96
Data File: AB580.DAT
Technique: MHS
ID/Wt File: AB580.IDW
Calib. Type: Linear
WaveLength: 253.7
Silt: 0.7 L
Lamp Current: 0
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
Peak Area (A-S): -0.001
Blank Corrected PK Height (A): -0.000
Time: 14:53
Auto-zero performed.

Hg2 ID: STD1=0.2 ug/L Seq. No.: 00003 A/S Pos.: -- Date: 08/08/96
Replicate 1
Peak Area (A-S): 0.132
Blank Corrected PK Height (A): 0.006
Time: 14:55
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
Peak Area (A-S): 0.336
Blank Corrected PK Height (A): 0.014
Time: 14:56
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
Peak Area (A-S): 0.707
Blank Corrected PK Height (A): 0.032
Time: 14:58
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
Peak Area (A-S): 1.428
Blank Corrected PK Height (A): 0.063
Time: 15:00
Concentration (ug/L): 2.026

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

Peak Area (A-S): 3.582

Peak Height (A): 0.161

Time: 15:01

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

Peak Area (A-S): 7.102

Peak Height (A): 0.319

Time: 15:02

Blank Corrected PK Height (A): 0.319

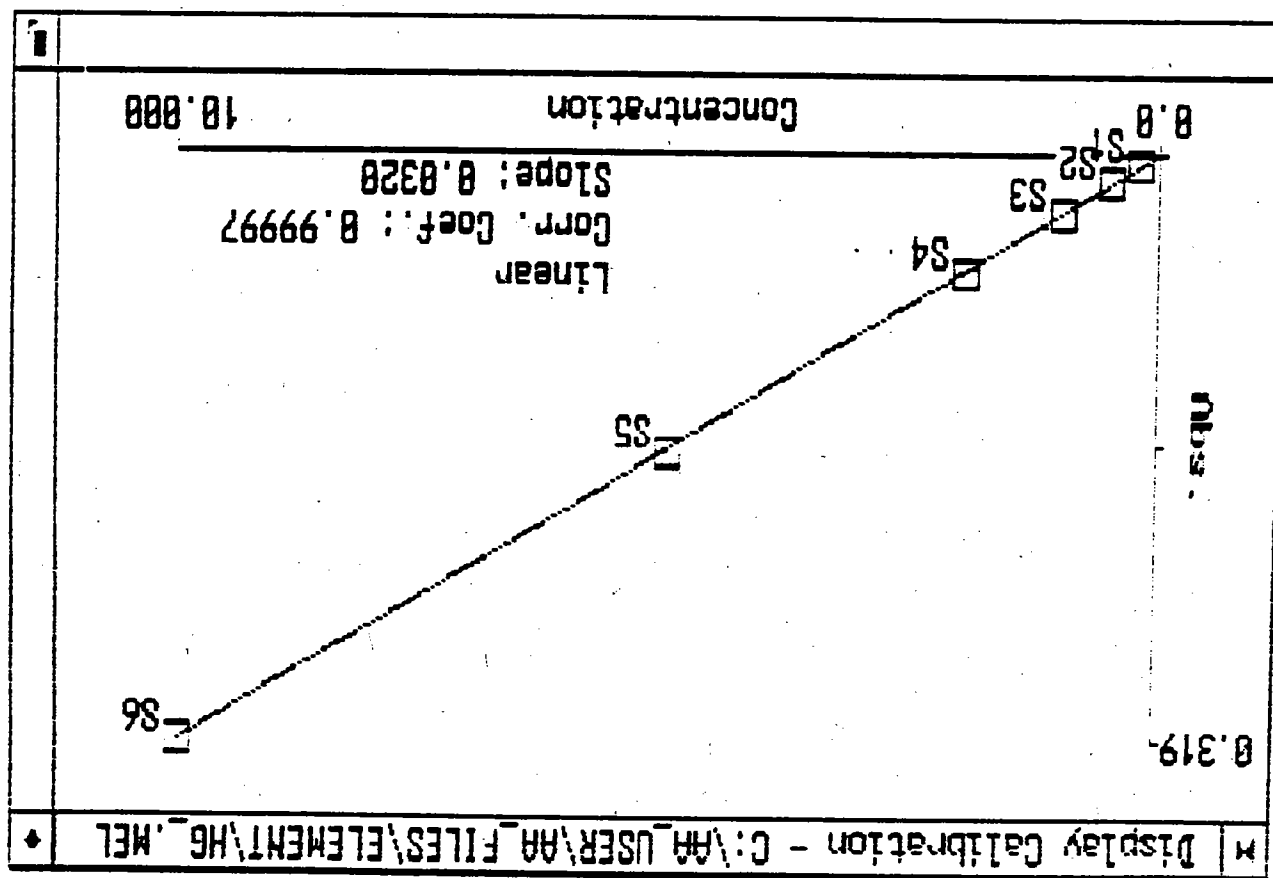
Concentration (ug/L): 9.960

Standard number 6 applied. [10.000]

Correlation coefficient: 0.99997

Slope: 0.0320

Element File: HG.MEL
 Date: 08/08/96
 Data File: AB580.DAT
 Technique: MHS
 Remark 1: STANDARDS=2-105-1
 Remark 2: QC=2-105-2
 Element: Hg2
 Time: 15:03
 ID/Wt File: AB580.IDW
 Calib. Type: Linear
 WaveLength: 253.7
 Slit: 0.7 L
 Lamp Current: 0
 Energy: 75



Element File: HG.ME
Date: 08/08/96
Data File: AB580.DAT
Technique: MHS
ID/Wt File: AB580.IDW
Calib. Type: Linear
WaveLength: 253.7
Slit: 0.7 L
Lamp Current: 0
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
Peak Area (A-S): 2.988
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
Peak Area (A-S): 0.015
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
Peak Area (A-S): 0.154
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
Peak Area (A-S): 0.023
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
Peak Area (A-S): 0.024
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
Peak Area (A-S): 3.770
Blank Corrected PK Height (A): 0.164
Concentration (ug/L): 5.143

Hg2 ID: 38139 LCS3 C Seq. No.: 00015 A/S Pos.: -- Date: 08/08/96

Replicate 1
Peak Area (A-S): 3.753
Blank Corrected PK Height (A): 0.166
Concentration (ug/L): 5.193

Hg2 ID: 131-59-20A Seq. No.: 00016 A/S Pos.: -- Date: 08/08/96
Time: 15:14
Peak Area (A-S): 0.060
Blank Corrected PK Height (A): 0.002
Concentration (ug/L): 0.069

Hg2 ID: 131-59-20A D Seq. No.: 00017 A/S Pos.: -- Date: 08/08/96
Time: 15:16
Peak Area (A-S): 0.050
Blank Corrected PK Height (A): 0.002
Concentration (ug/L): 0.060

Hg2 ID: 131-59-16B Seq. No.: 00018 A/S Pos.: -- Date: 08/08/96
Time: 15:17
Peak Area (A-S): 0.023
Blank Corrected PK Height (A): 0.001
Concentration (ug/L): 0.025

Hg2 ID: 131-59-16B D Seq. No.: 00019 A/S Pos.: -- Date: 08/08/96
Time: 15:18
Peak Area (A-S): 0.026
Blank Corrected PK Height (A): 0.001
Concentration (ug/L): 0.038

Hg2 ID: 131-59-16B MS Seq. No.: 00020 A/S Pos.: -- Date: 08/08/96
Time: 15:19
Peak Area (A-S): 1.612
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
Time: 15:21
Peak Area (A-S): 1.559
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
Time: 15:22
Peak Area (A-S): 0.029
Blank Corrected PK Height (A): 0.001

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: 15:48
ID/Wt File: AB581.IDW
Calib. Type: Linear
Lamp Current: 0
Slit: 0.7 L
Wavelength: 253.7
Energy: 75

Hg2 ID: STD BLANK-CAL 1 Seq. No.: 00002 A/S Pos.: -- Date: 08/08/96
Replicate 1
Peak Area (A-S): 0.001
Blank Corrected PK Height (A): -0.000
Time: 15:49
Peak 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
Peak Area (A-S): 0.135
Blank Corrected PK Height (A): 0.006
Time: 15:50
Peak 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
Peak Area (A-S): 0.328
Blank Corrected PK Height (A): 0.015
Concentration (ug/L): 0.483
Time: 15:52
Peak Height (A): 0.015
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
Peak Area (A-S): 0.669
Blank Corrected PK Height (A): 0.031
Concentration (ug/L): 1.047
Time: 15:54
Peak Height (A): 0.031
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
Peak Area (A-S): 1.358
Blank Corrected PK Height (A): 0.064
Concentration (ug/L): 2.119
Time: 15:55
Peak Height (A): 0.064

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99804
Slope: 0.0364

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
Peak Area (A-S): 3.408
Time: 16:11

Blank corrected PK Height (A): 0.160
Peak Height (A): 0.160

Concentration (ug/L): 4.410

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99730
Slope: 0.0329

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
Peak Area (A-S): 7.005
Time: 16:12

Blank corrected PK Height (A): 0.325
Peak Height (A): 0.325

Concentration (ug/L): 9.879

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99941
Slope: 0.0326

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/L		

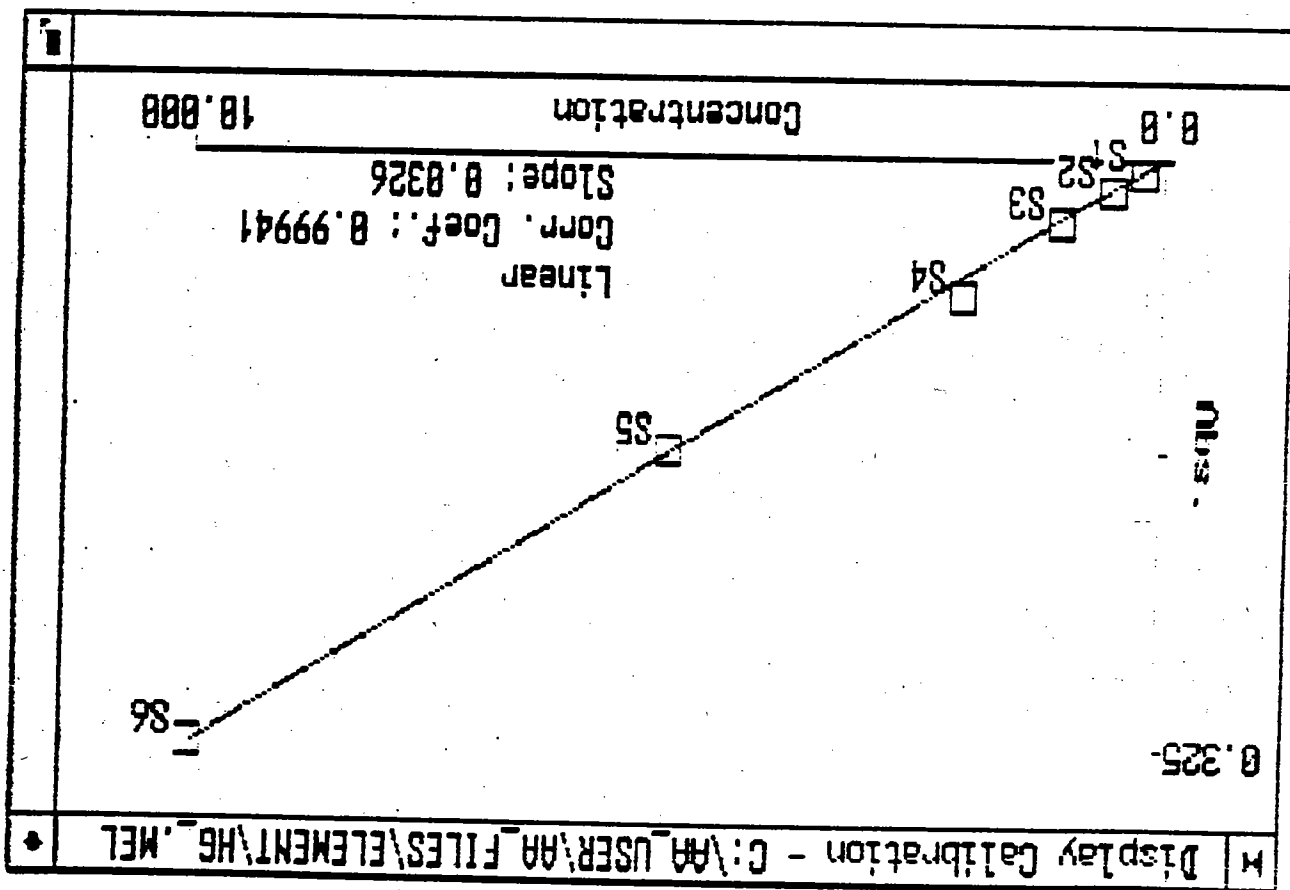
2-105-1
 8/3/96
 2

4g
 38/39 partial
 8/3/96
 2

Hg2 ID: 131-59-4ACE10AD Seq. No.: 00023 A/S Pos.: -- Date: 08/08/96
Replicate 1
Peak Area (A-s): 0.026
Blank Corrected PK Height (A): 0.001
Concentration (ug/L): 0.028
Time: 15:23

Hg2 ID: CCV1=6.0 ug/L Seq. No.: 00024 A/S Pos.: -- Date: 08/08/96
Replicate 1
Peak Area (A-s): 3.816
Blank Corrected PK Height (A): 0.172
Concentration (ug/L): 5.397
Time: 15:24

Hg2 ID: CCB1 Seq. No.: 00025 A/S Pos.: -- Date: 08/08/96
Replicate 1
Peak Area (A-s): 0.021
Blank Corrected PK Height (A): 0.001
Concentration (ug/L): 0.022
Time: 15:25



Element: Hg2
 Date: 08/08/96
 Data File: AB582.DAT
 Technique: MHS
 Remark 1: STANDARDS=2-105-1
 Remark 2: QC=2-105-2
 ID/Wt File: AB582.IDW
 Calib. Type: Linear
 WaveLength: 253.7
 Slit: 0.7 L
 Lamp Current: 0
 Energy: 75

Element File: HG.MEL
Date: 08/08/96
Time: 16:15
WaveLength: 253.7
Silt: 0.7 L
Lamp Current: 0
Energy: 75
ID/Wt File: AB582.IDW
Calib. Type: Linear
Technique: MHS
Data File: AB582.DAT
Remark 1: STANDARDS= 2-105-1
Remark 2: QC= 2-105-2

Hg2 ID: ICB Seq. No.: 00010 A/S Pos.: -- Date: 08/08/96
ICV=4.0 ug/L
Replicate 1
Peak Area (A-S): 2.913
Blank Corrected PK Height (A): 0.133
Concentration (ug/L): 4.076

Hg2 ID: CHECK LO Seq. No.: 00011 A/S Pos.: -- Date: 08/08/96
Replicate 1
Peak Area (A-S): 0.003
Blank Corrected PK Height (A): 0.000
Concentration (ug/L): 0.000

Hg2 ID: 131-59-4DE10AB Seq. No.: 00012 A/S Pos.: -- Date: 08/08/96
Replicate 1
Peak Area (A-S): 0.137
Blank Corrected PK Height (A): 0.006
Concentration (ug/L): 0.185

Hg2 ID: 131-59-4DE10ABD Seq. No.: 00013 A/S Pos.: -- Date: 08/08/96
Replicate 1
Peak Area (A-S): 0.015
Blank Corrected PK Height (A): 0.000
Concentration (ug/L): 0.012

Hg2 ID: 131-59-4E10A Seq. No.: 00014 A/S Pos.: -- Date: 08/08/96
Replicate 1
Peak Area (A-S): 0.013
Blank Corrected PK Height (A): 0.001
Concentration (ug/L): 0.015

Hg2 ID: 131-59-4E10A D Seq. No.: 00015 A/S Pos.: -- Date: 08/08/96
Replicate 1
Peak Area (A-S): 0.012
Blank Corrected PK Height (A): 0.000
Concentration (ug/L): 0.009

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 $\text{HNO}_3/\text{H}_2\text{O}_2$ impinger) shall be identical to the first impinger in Method 5. The third impinger (which is the second $\text{HNO}_3/\text{H}_2\text{O}_2$ 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 Funnel. 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 Bibliography.

- 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 $\mu\text{g}/\text{in}^2$ 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 D193-77, 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 Insta-analyzed or equivalent.

4.2.4 Hydrochloric Acid (HCl). Concentrated. Baker Insta-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 $\text{HNO}_3/\text{H}_2\text{O}_2$ Absorbing Solution, 5 Percent $\text{HNO}_3/10$ 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 HNO₃, concentrated. Fisher ACS grade or equivalent.

4.4.2 Water. To conform to ASTM Specifications D1193-77, Type II.

4.4.3 HNO₃, 10 Percent (V/V). Add with stirring 500 ml of concentrated HNO₃ 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 HNO₃, concentrated. Baker Instra-analyzed or equivalent.

4.5.4 HNO₃, 50 Percent (V/V). Add with stirring 125 ml of concentrated HNO₃ 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 HNO₃, 5 Percent (V/V). Add with stirring 50 ml of concentrated HNO₃ 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 KMnO₄, 5 Percent (W/V). See citation 2 of the Bibliography for preparation.

4.5.10 H₂SO₄, concentrated.

4.5.11 Potassium Persulfate, 5 Percent (W/V). See citation 2 of the Bibliography for preparation.

4.5.12 Nickel Nitrate, Ni(NO₃)₂·6H₂O.

4.5.13 Lanthanum Oxide, La₂O₃.

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 Standard	(AAS grade), 1000 µg/ml.

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 HNO₃ 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 KMnO₄, 5 ml of 15 percent HNO₃, 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 ICP Standards and Quality Control Samples. Calibration standards for ICP analysis can be combined into four different mixed standard solutions as follows:

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 HNO₃. 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 HNO₃. 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 $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ 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 $\text{HNO}_3/\text{H}_2\text{O}_2$ 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 analogous 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 following 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.

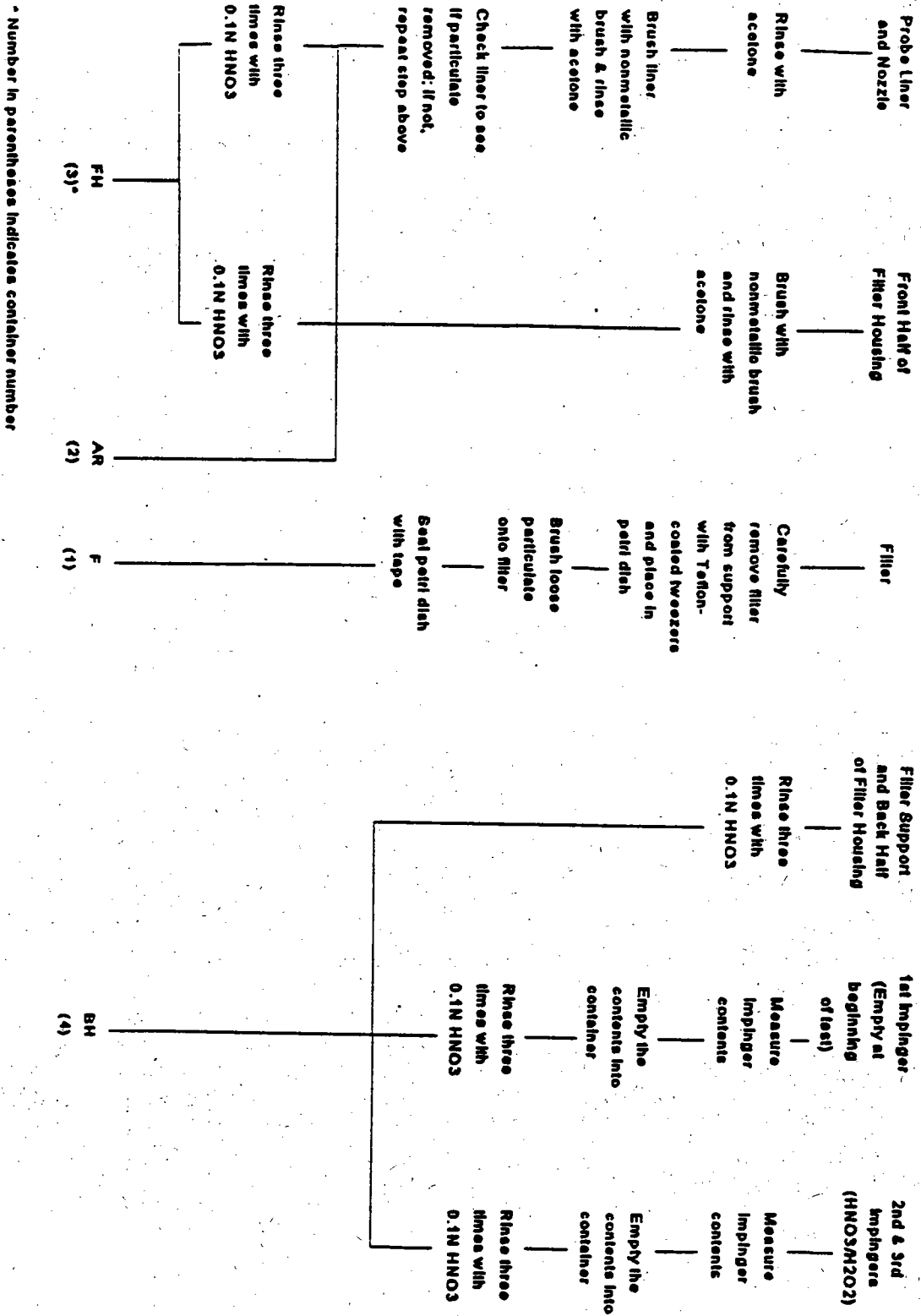
5.2.4 Transfer the probe and filter-impinger assembly to a cleanup area that is clean and protected from the wind and other potential causes of contamination or loss of sample. Inspect the train before and during disassembly and note any abnormal conditions. Take special precautions to assure that all 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 surfaces 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; 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.

Figure 29-2a. Sample recovery scheme.



* Number in parentheses indicates container number

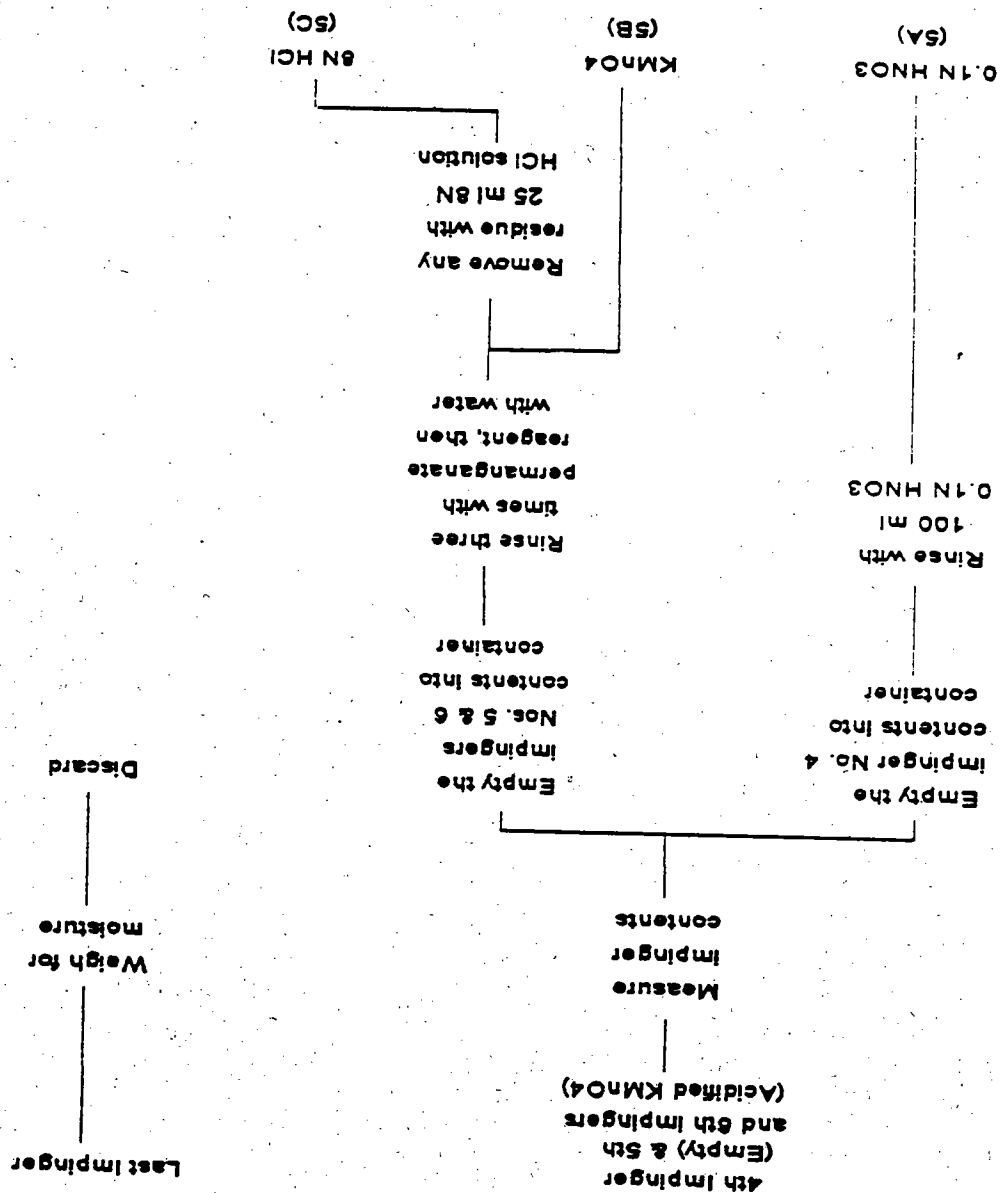


Figure 29-2b. Sample recovery scheme.

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 HNO₃, 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, HNO₃/H₂O₂ 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 HNO₃ using the procedure as applicable in Method 12, Section 5.2.4.

NOTE: The use of exactly 100 ml of 0.1 N HNO₃ 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 HNO₃), 5B (KMnO₄/H₂SO₄ 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

100 ml of 0.1 N HNO₃ and place this rinse in container No. 5A. Rinse the impinger with exactly the liquid in container No. 5A. Rinse the impinger with exactly

100 ml of fresh acidified KMnO₄ 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 KMnO₄ 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 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 HNO₃ Blank). At least once during each field test, place 300 ml of the 0.1 N HNO₃ 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 HNO₃/10 Percent H₂O₂ Blank). At least once during each field test, place 200 ml of the 5 Percent HNO₃/10 Percent H₂O₂ solution used as the nitric acid impinger reagent into a container labeled No. 9. Seal the container.

5.2.15 Container No. 10 (Acidified KMnO₄ Blank). At least once during each field test, place 100 ml of the acidified KMnO₄ 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.

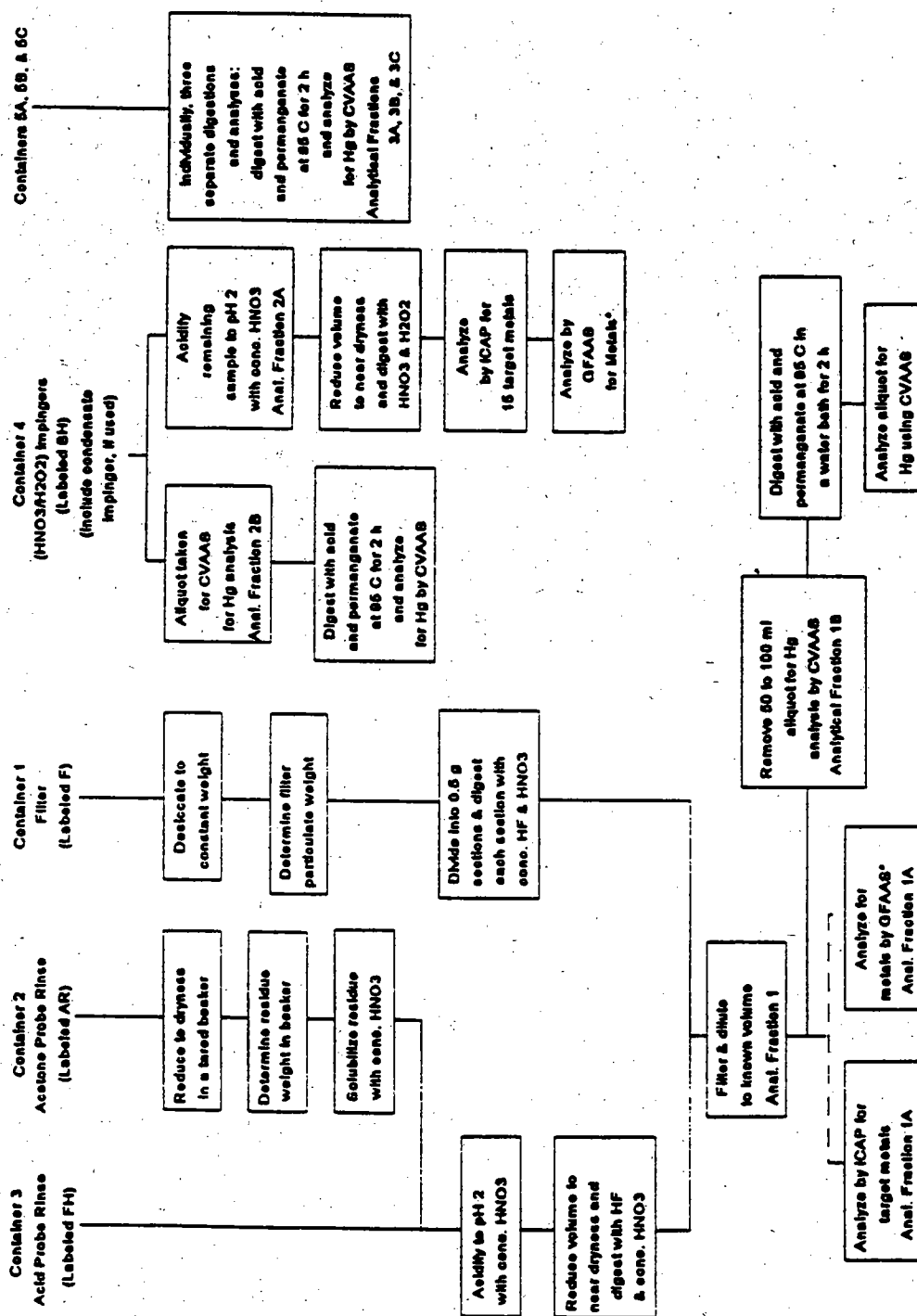
5.3 Sample Preparation. Note the level of the liquid in each of the containers and determine if any sample was lost during shipment. If a noticeable amount of leakage has occurred, either void the sample or use methods, subject to the approval of the Administrator, to correct the final results. A diagram

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^R Bombs. Add 6 ml of concentrated HNO₃ 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 bound at less than 2 µg/ml in digestate solution, if desired. Or analyze for each metal by AAS, if desired.

Figure 29-3. Sample preparation and analysis scheme.

For conventional heating, heat the Parr³ 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 HNO₃. 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 HNO₃ 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[®] 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

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 $\text{HNO}_3/\text{H}_2\text{O}_2$ 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 $\text{H}_2\text{SO}_4/\text{KMnO}_4$ 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.

NOTE: 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.

Metal	Technique	SW-846 Method No.	Wavelength (nm)	Interferences	
				Cause	Minimization
Fe	Aspiration	7380	248.3	Contamination	Great care taken to avoid contamination
Pb	Aspiration	7420	283.3	217.0 nm alternate	Background correction required
Pb	Furnace	7421	283.3	Poor recoveries	Matrix modifier, add 10 ul of phosphorus acid to 1 ml of prepared sample in sampler cup
Mn	Aspiration	7480	279.5	403.1 nm alternate	Background correction required
Ni	Aspiration	7520	232.0	352.4 nm alternate Fe, Co, and Cr	Background correction required Matrix matching or nitrous-oxide/ acetylene flame
Se	Furnace	7740	196.0	Nonlinear response Volatility	Sample dilution or use 352.3 nm line Spike samples and reference materials and add nickel nitrate to minimize volatilization
Ag	Aspiration	7760	328.1	Adsorption & scatter AgCl insoluble	Background correction is required and Zeeman background correction can be useful Background correction is required Avoid hydrochloric acid unless silver is in solution as a chloride complex Sample and standards monitored for aspiration rate
Tl	Aspiration	7840	276.8		Background correction is required Hydrochloric acid should not be used
Tl	Furnace	7841	276.8	Hydrochloric acid or chloride	Background correction is required Verify that losses are not occurring for volatilization by spiked samples or standard addition; Palladium is a suitable matrix modifier
Zn	Aspiration	7950	213.9	High Si, Cu, & P Contamination	Strontium removes Cu and phosphate 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 wavelengths of 231.1 nm; match sample & standards' acid concentra- tion 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	Spiked samples and add nickel nitrate so- lution to
				Aluminum	digestates prior to analysis
					Use Zeeman background correction
Ba	Aspiration	7080	553.6	Calcium	High hollow cathode current and narrow band set
				Barium ionization	2 ml of KCl per 100 ml of sample
Be	Aspiration	7090	234.9	500 ppm Al	Add 0.1% fluoride
				High Mg and Si	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	As above
				Excess chloride	Ammonium phosphate used as a matrix modifier
				Pipet tips	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_w 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:

$$M_{fh} = C_{a1} F_d V_{soln,1}$$

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, $\mu\text{g/ml}$.

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.

$$M_{bh} = C_{a2} F_a V_a \quad \text{Eq. 29-2}$$

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, ($\mu\text{g}/\text{ml}$).
- 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:

$$M_t = (M_{fh} - M_{f_{hb}}) + (M_{bh} - M_{b_{hb}}) \quad \text{Eq. 29-3}$$

where:

- M_t = Total mass of each metal (separately stated for each metal) collected in the sampling train, μg .
- $M_{f_{hb}}$ = Blank correction value for mass of metal detected in front-half field reagent blank, μg .
- $M_{b_{hb}}$ = 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 ($M_{f_{hb}}$) is in the range 0.0 to "A" μg [where "A" μg equals the value determined by multiplying 1.4 $\mu\text{g}/\text{in.}^2$ times the actual area in in.^2 of the sample filter], use $M_{f_{hb}}$ to correct the emission sample value (M_{fh}); if $M_{f_{hb}}$ exceeds "A" μg , use the greater of I or II:

I. "A" μg .

II. the lesser of (a) $M_{f_{hb}}$, or (b) 5 percent of M_{fh} .

If the measured blank value for the back-half ($M_{b_{hb}}$) is in the range 0.0 to 1 μg , use $M_{b_{hb}}$ to correct the emission sample value (M_{bh}); if $M_{b_{hb}}$ exceeds 1 μg , use the greater of I or II:

I. 1 μg .

II. the lesser of (a) $M_{b_{hb}}$, 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:

$$Hg_{fh} = \frac{Q_{fh}}{V_{f1B}} (V_{soln,1}) \quad \text{Eq. 29-4}$$

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:

$$Hg_{bh2} = \frac{Q_{bh2}}{V_{f2B}} (V_{soln,2}) \quad \text{Eq. 29-5}$$

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} .

$V_{\text{soln},2}$ = 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:

$$\text{Hg}_{\text{bh3(A,B,C)}} = \frac{Q_{\text{bh3(A,B,C)}}}{V_{f3(A,B,C)}} (V_{\text{soln},3(A,B,C)}) \quad \text{Eq. 29-6}$$

where:

$\text{Hg}_{\text{bh3(A,B,C)}}$ = Total mass of Hg collected separately in Fraction 3A, 3B, or 3C, μg .
 $Q_{\text{bh3(A,B,C)}}$ = 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).
 $V_{\text{soln},3(A,B,C)}$ = 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:

$$\text{Hg}_{\text{bh}} = \text{Hg}_{\text{bh2}} + \text{Hg}_{\text{bh3A}} + \text{Hg}_{\text{bh3B}} + \text{Hg}_{\text{bh3C}} \quad \text{Eq. 29-7}$$

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:

$$\text{Hg}_t = (\text{Hg}_{\text{fh}} - \text{Hg}_{\text{f2B}}) + (\text{Hg}_{\text{bh}} - \text{Hg}_{\text{bh2}}) \quad \text{Eq. 29-8}$$

where:

Hg_t = Total mass of Hg collected in the sampling train, μg .

Hg_{fbb} = Blank correction value for mass of Hg detected in front-half field reagent blank, μg .
 Hg_{bbb} = Blank correction value for mass of Hg detected in back-half field reagent blanks, μg .

NOTE: If the total of the measured blank values ($Hg_{fbb} + Hg_{bbb}$) is in the range of 0.0 to 0.6 μg , then use the total to correct the sample value ($Hg_{fb} + Hg_{bb}$); if it exceeds 0.6 μg , use the greater of I. or II:

- I. 0.6 μg .
- II. the lesser of (a) ($Hg_{fbb} + Hg_{bbb}$), or (b) 5 percent of the sample value ($Hg_{fb} + Hg_{bb}$).

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:

$$C_s = \frac{K_4 M_t}{V_{m(std)}} \quad \text{Eq. 29-9}$$

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 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

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