



PSD-FL-112B
0112/20-NA-AC

WHEELABRATOR NORTH BROWARD
A WASTE MANAGEMENT COMPANY

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July 23, 2001

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Ms. Melissa L. Meeker
Florida Department of Environmental Protection
P.O. Box 15425
West Palm Beach, Fl 33416-5425

RECEIVED

JUL 30 2001

BUREAU OF AIR REGULATION

Re: Wheelabrator North Broward
F.A.C. 62-296.416 Quarterly Mercury Testing
Second Quarter of 2001

Dear Ms. Meeker:

As required by F.A.C. 62-296.416, please find enclosed the 2001 second quarter report on mercury stack testing which was conducted on Unit #1.

If there are any questions, or if additional information is required, please contact this office at (954) 971-8701.

Sincerely,

William B. Roberts
General Manager

cc: USEPA, Region IV, Air, Pesticides & Toxics Management Division, Air & EPCRA Enforcement Branch, Air Enforcement Section (with) CERTIFIED MAIL # 7099 3400 0000 6360 9950
FDEP, Tallahassee, Bureau of Air Regulation, New Source Review Section (with) CERTIFIED MAIL #7099 3400 0000 6360 9929
Broward County Department of Planning and Environmental Protection, Air Quality Division (with) CERTIFIED MAIL #7099 3400 0000 6360 9899
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Matt Killeen (without)
Scott Shannon - MPI (with)
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5.1.3.2 (without)

s:07230117



Clean Air Engineering

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Wheelabrator North Broward, Inc.
2600 NW 48th Street
Pompano Beach, Florida 33073

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JUL 30 2001

BUREAU OF AIR REGULATION

REPORT ON MERCURY TESTING

Performed for:
WHEELABRATOR NORTH BROWARD, INC.
UNIT 1 FF OUTLET
POMPANO BEACH, FLORIDA

Client Reference No:
CAE Project No: 8964-1
Revision 0: July 19, 2001

To the best of my knowledge, the data presented in this report are accurate and complete.

Submitted by,

Reviewed by,

Scott Brown
Project Manager
(847) 991-6200 ext. 2044

Peter Kaufmann
Manager, Midwest Source Group

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PROJECT OVERVIEW

1-1

Wheelabrator North Broward, Inc. operates a Refuse to Energy Facility located in Pompano Beach, Florida. The facility's emission levels are regulated by the Florida Department of Environmental Protection. Wheelabrator North Broward, Inc. contracted Clean Air Engineering to perform a compliance test program at their facility municipal waste combustor (MWC) facility in Pompano Beach, Florida. Testing was conducted in accordance with 40 CFR 60 Subpart Cb and applicable sections of PSD-FL-112(B) and PA86-22. The sampling was conducted at the Unit 1 Fabric Filter (FF) Outlet on June 19, 2001.

The testing included the determination of the following constituents:

- moisture (H₂O);
- oxygen (O₂);
- carbon dioxide (CO₂);
- total flow (dscfm);
- mercury (Hg).

Coordinating and observing the field portion of the program were:

- C. Faller - Wheelabrator North Broward, Inc.
- P. Tinkham - Clean Air Engineering

The schedule of activities is shown in Table 1-1. A summary of the results is presented in Table 1-2 on page 1-2.

**Table 1-1:
 Schedule of Activities**

<u>Date(2001)</u>	<u>Start Time</u>	<u>Stop Time</u>	<u>Unit</u>	<u>Location</u>	<u>Pollutant</u>	<u>Method</u>	<u>Run No.</u>
<u>June 19</u>	8:32	10:52	1	FF Outlet	Mercury	EPA 29	1
	11:07	13:22	1	FF Outlet	Mercury	EPA 29	2
	13:58	16:13	1	FF Outlet	Mercury	EPA 29	3

PROJECT OVERVIEW

1-2

**Table 1-2:
Summary of Test Results**

Source Constituent (Units)	Sampling Method	Average Emission	Permit Limit¹
<u>Unit 1 FF Outlet</u>			
Mercruy ($\mu\text{g}/\text{dscm}$ @ 7% O_2)	EPA M29	8.7	70

¹ Limits obtained from 40 Code of Federal Register part 60 Subpart Cb - Emission Guidelines and Compliance Times for Large Municipal Waste Combustors That Are Constructed on or Before September 20, 1994 published in Federal Register as 62 FR 45123 on December 19, 1995 as modified on August 25, 1997, Florida's Rule 62-296.416, F.A.C. and PSD-FL-105.

The test conditions and results of analysis are presented in Table 2-1 on page 2-1 and the Quality Control and Quality Assurance Results are shown in Table 2-2 on page 2-2.

RESULTS

2-1

**Table 2-1:
Unit 1 FF Outlet - Mercury**

Run No.		1	2	3	Average
Date (2001)		June 19	June 19	June 19	
Start Time (approx.)		08:32	11:07	13:58	
Stop Time (approx.)		10:52	13:22	16:13	
<u>Process Conditions¹</u>					
	Steam Flow (klb/hr)	183.7	185.1	184.6	184.5
	Fabric Filter Inlet Temperature (°F)	299.7	300.1	299.9	299.9
<u>Gas Conditions</u>					
O ₂	Oxygen (dry volume %)	10.2	10.2	10.3	10.2
CO ₂	Carbon Dioxide (dry volume %)	8.8	8.8	8.8	8.8
T _s	Temperature (°F)	290	287	290	289
Q _a	Volumetric flow rate, actual (acfm)	180,500	184,400	177,600	180,833
Q _{std}	Volumetric flow rate, standard (dscfm)	100,200	98,930	97,930	99,020
<u>Test Conditions</u>					
V _{mstd}	Volume metered, standard (ft ³)	80.56	78.65	64.86	74.69
%I	Isokinetic sampling (%)	99.8	98.7	99.5	99.3
<u>Mercury (Hg) Totals</u>					
m _n	Net weight (µg)	14.8	13.8	13.6	14.0
C	Concentration (µg/dscm)	6.5	6.2	7.4	6.7
C	Corrected to 7% O ₂ (µg/dscm)	8.4	8.0	9.7	8.7
C	Corrected to 12% CO ₂ (µg/dscm)	8.8	8.4	10.1	9.1
E	Emission rate (lb/hr)	2.43E-03	2.29E-03	2.72E-03	2.48E-03
E	Emission rate (lb/10 ⁶ Btu) ²	7.55E-06	7.21E-06	8.64E-06	7.80E-06

¹ Process conditions were provided by Wheelabrator personnel.

² Calculated based on an Fd of 9570 per EPA Method 19.

METALS PARAMETERS

Run No.	Blank	1	2	3
Date (2001)		June 19	June 19	June 19
Start Time (approx.)		08:32	11:07	13:58
Stop Time (approx.)		10:52	13:22	16:13
Gas Conditions				
O ₂	Oxygen (dry volume %)	10.2	10.2	10.3
CO ₂	Carbon Dioxide (dry volume %)	8.8	8.8	8.8
V _{std}	Volume metered, standard (ft ³)	80.56	78.65	64.86
Q _{std}	Volumetric flow rate, standard (dscfm)	100.200	98.930	97.930
F	Fuel factor (dscf/10 ⁶ Btu) ¹	9.570	9.570	9.570
Mercury (Hg) Fraction 1B - Filter, FH Probe Rinse				
m _g	Gross weight (µg)	ND	ND	ND
m _n	Net weight (µg)	0.030	(0.030)	(0.030)
C	Concentration, standard conditions (µg/dscm)		(0.030)	(0.030)
C	Corrected to 7% O ₂ (µg/dscm)		(0.017)	(0.017)
C	Corrected to 12% CO ₂ (µg/dscm)		(0.018)	(0.018)
C	Concentration (lb/dscf)		(8.21E-13)	(8.41E-13)
C	Corrected to 7% O ₂ (lb/dscf)		(1.07E-12)	(1.09E-12)
C	Corrected to 12% CO ₂ (lb/dscf)		(1.12E-12)	(1.15E-12)
E	Emission rate (g/sec)		(6.22E-07)	(6.29E-07)
E	Emission rate (lb/hr)		(4.94E-06)	(4.99E-06)
E	Emission rate (lb/10 ⁶ Btu) ¹		(1.53E-08)	(1.57E-08)
Mercury (Hg) Fraction 2B - Impingers 1,2 and 3				
m _g	Gross weight (µg)	ND	14.0	13.0
m _n	Net weight (µg)	0.390	14.0	13.0
C	Concentration, standard conditions (µg/dscm)		6.14	5.84
C	Corrected to 7% O ₂ (µg/dscm)		7.97	7.58
C	Corrected to 12% CO ₂ (µg/dscm)		8.37	7.96
C	Concentration (lb/dscf)		3.83E-10	3.64E-10
C	Corrected to 7% O ₂ (lb/dscf)		4.98E-10	4.73E-10
C	Corrected to 12% CO ₂ (lb/dscf)		5.22E-10	4.97E-10
E	Emission rate (g/sec)		2.90E-04	2.73E-04
E	Emission rate (lb/hr)		2.30E-03	2.16E-03
E	Emission rate (lb/10 ⁶ Btu) ¹		7.16E-06	6.81E-06
Mercury (Hg) Fraction 3A - Impinger 4				
m _g	Gross weight (µg)	ND	0.010	ND
m _n	Net weight (µg)		(0.010)	ND
C	Concentration, standard conditions (µg/dscm)		(0.004)	(0.004)
C	Corrected to 7% O ₂ (µg/dscm)		(0.006)	(0.006)
C	Corrected to 12% CO ₂ (µg/dscm)		(0.006)	(0.006)
C	Concentration (lb/dscf)		(2.74E-13)	(2.80E-13)
C	Corrected to 7% O ₂ (lb/dscf)		(3.56E-13)	(3.64E-13)
C	Corrected to 12% CO ₂ (lb/dscf)		(3.73E-13)	(3.82E-13)
E	Emission rate (g/sec)		(2.07E-07)	(2.10E-07)
E	Emission rate (lb/hr)		(1.65E-06)	(1.56E-06)
E	Emission rate (lb/10 ⁶ Btu) ¹		(5.12E-09)	(5.24E-09)
Mercury (Hg) Fraction 3B - Impingers 5 and 6				
m _g	Gross weight (µg)	ND	0.050	ND
m _n	Net weight (µg)		(0.050)	ND
C	Concentration, standard conditions (µg/dscm)		(0.022)	(0.022)
C	Corrected to 7% O ₂ (µg/dscm)		(0.028)	(0.029)
C	Corrected to 12% CO ₂ (µg/dscm)		(0.030)	(0.031)
C	Concentration (lb/dscf)		(1.37E-12)	(1.40E-12)
C	Corrected to 7% O ₂ (lb/dscf)		(1.78E-12)	(1.82E-12)
C	Corrected to 12% CO ₂ (lb/dscf)		(1.87E-12)	(1.91E-12)
E	Emission rate (g/sec)		(1.04E-06)	(1.05E-06)
E	Emission rate (lb/hr)		(8.23E-06)	(8.32E-06)
E	Emission rate (lb/10 ⁶ Btu) ¹		(2.56E-08)	(2.62E-08)
Mercury (Hg) Fraction 3C - Impingers 5 and 6 HCl Rinse				
m _g	Gross weight (µg)	ND	0.050	0.76
m _n	Net weight (µg)		0.76	0.76
C	Concentration, standard conditions (µg/dscm)		0.33	0.34
C	Corrected to 7% O ₂ (µg/dscm)		0.43	0.44
C	Corrected to 12% CO ₂ (µg/dscm)		0.45	0.47
C	Concentration (lb/dscf)		2.08E-11	2.13E-11
C	Corrected to 7% O ₂ (lb/dscf)		2.70E-11	2.77E-11
C	Corrected to 12% CO ₂ (lb/dscf)		2.84E-11	2.91E-11
E	Emission rate (g/sec)		1.58E-05	1.59E-05
E	Emission rate (lb/hr)		1.25E-04	1.26E-04
E	Emission rate (lb/10 ⁶ Btu) ¹		3.89E-07	3.98E-07
Mercury (Hg) Totals				
m _g	Gross weight (µg)		14.8	13.8
m _n	Net weight (µg)		14.8	13.8
C	Concentration, standard conditions (µg/dscm)		6.5	6.2
C	Corrected to 7% O ₂ (µg/dscm)		8.4	8.0
C	Corrected to 12% CO ₂ (µg/dscm)		8.8	8.4
C	Concentration (lb/dscf)		4.04E-10	3.86E-10
C	Corrected to 7% O ₂ (lb/dscf)		5.25E-10	5.01E-10
C	Corrected to 12% CO ₂ (lb/dscf)		5.51E-10	5.26E-10
E	Emission rate (g/sec)		3.06E-04	2.88E-04
E	Emission rate (lb/hr)		2.43E-03	2.29E-03
E	Emission rate (lb/10 ⁶ Btu) ¹		7.55E-06	7.21E-06

¹ Calculated based on Unit 1 average F-Factor @ 12% CO₂ from March 2000 compliance testing.
 ND - Indicates the constituent was not detected. The detection limit is shown in parentheses.

RESULTS

**Table 2-2:
Quality Assurance and Quality Control**

EPA Method 29

	Method Blank Results (µg)	Reagent Blank Results (µg)	Field Blank Results (µg)
Hg Front half filter and probe rinse (1B)	ND(0.030)	ND(0.030)	ND(0.030)
Hg (Impingers 1-3 Fraction 2B)	ND(0.010)	ND(0.39)	ND(0.29)
Hg (Impinger 4 Fraction 3A)	ND(0.010)	ND(0.010)	0.011
Hg (Impingers 5-6 Fraction 3B)	ND(0.050)	ND(0.050)	ND(0.050)
Hg (HCl rinse of impingers 5-6 Fraction 3C)	ND(0.050)	ND(0.050)	0.072

Sample ID: Unit 1 Outlet Run 1

Fraction	Results	Duplicate	M. Spike	MS % Rec.	MS Dup.	MSD %
Hg Front half filter and probe rinse (1B)	ND(0.030)	ND(0.030)	0.36	110	0.36	110
Hg (Impingers 1-3 Fraction 2B)	14	14	22	100	0.1	100
Hg (Impinger 4 Fraction 3A)	ND(0.010)	ND(0.010)	0.11	98	0.11	110
Hg (Impingers 5-6 Fraction 3B)	ND(0.050)	ND(0.050)	0.53	110	0.53	110
Hg (HCl rinse of impingers 5-6 Fraction 3C)	0.77	0.76	1.3	100	1.3	100

Sample ID: Blank Spike

Fraction	BS #1 (µg)	BS % Rec. # 1	BS #2 (µg)	BS % Rec. # 2
Hg Front half filter and probe rinse (1B)	0.31	104	0.32	106
Hg (Impingers 1-3 Fraction 2B)	0.10	100	0.10	100
Hg (Impinger 4 Fraction 3A)	0.10	100	0.10	100
Hg (Impingers 5-6 Fraction 3B)	0.53	110	0.51	100
Hg (HCl rinse of impingers 5-6 Fraction 3C)	0.52	100	0.53	110

RB - Reagent blank
 ND - Not detected. The detection limit is denoted in parentheses.
 BS - Blank spike
 BS % Rec. - Blank Spike Percent Recovery
 M. Spike - Matrix Spike
 MS % Rec. - Matrix Spike Percent Recovery
 MS Dup. - Matrix Spike Duplicate
 MSD % Rec. - Matrix Spike Duplicate Percent Recovery

DESCRIPTION OF INSTALLATION

3-1

The North Broward Resource Recovery Facility operates three 750 tons per day municipal refuse fired, water wall boiler trains. The trains were manufactured by Babcock and Wilcox to produce electricity for sale to a local utility company. Each boiler is equipped a spray dryer absorber (SDA) for acid gas removal, followed by a fabric filter (FF) baghouse for the control of particulate emissions. The control equipment is manufactured by Wheelabrator Air Pollution Control, Inc. Each fabric filter baghouse is followed by an induced draft fan, which directs the flue gas to a dedicated flue in a common stack.

Figure 2-1 shows a general schematic for the facility. The testing occurred at the Unit 1 FF Outlet as shown in Figure 3-2.

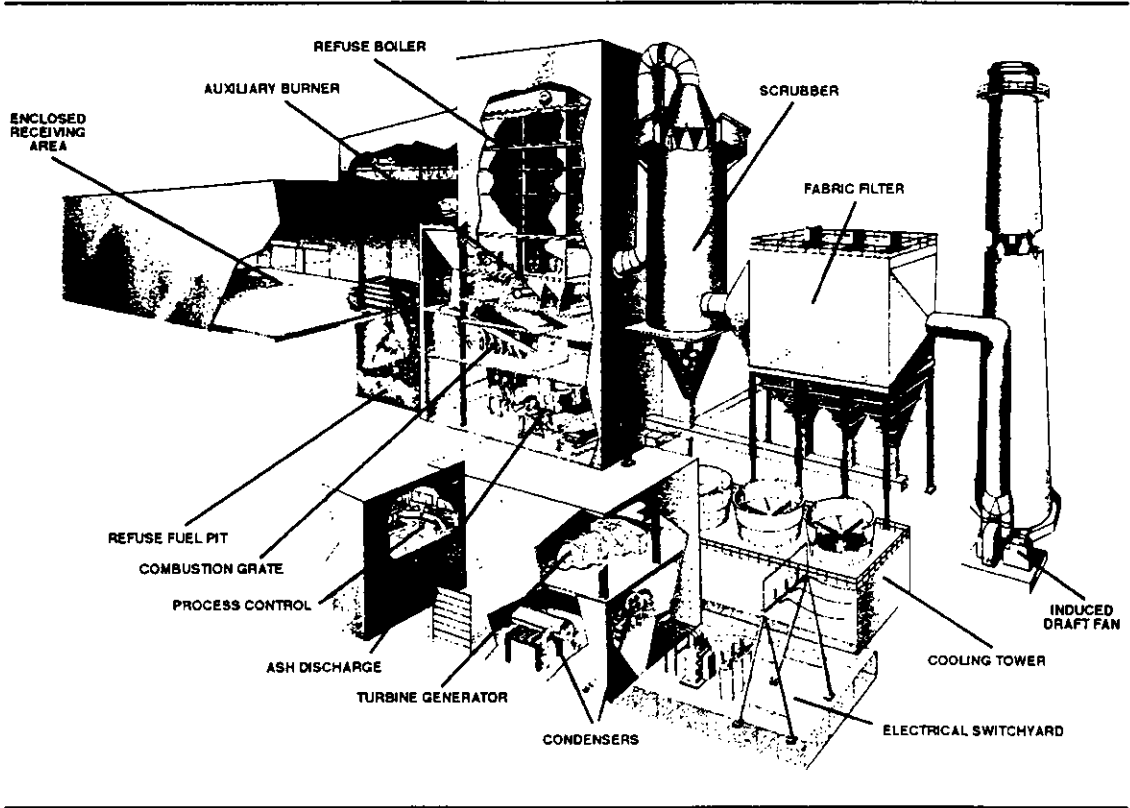


Figure 3-1: General Process Schematic

DESCRIPTION OF INSTALLATION

3-2

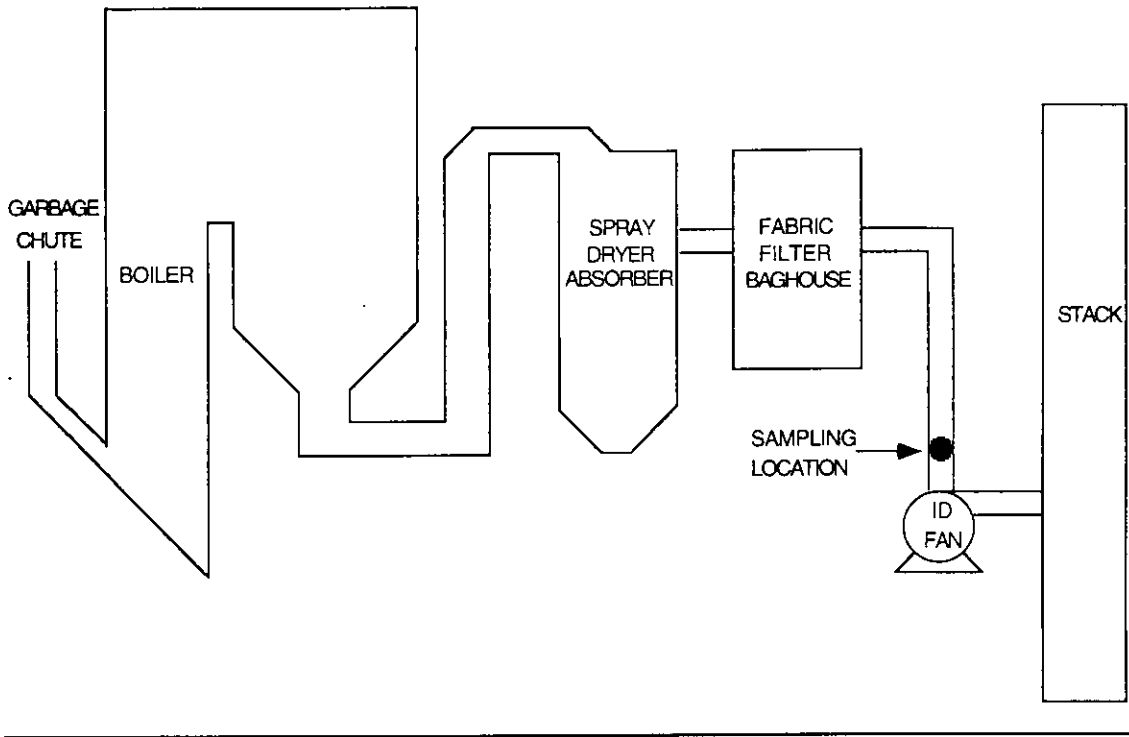


Figure 3-2: Process Schematic

METHODOLOGY

4-1

The sampling followed procedures as detailed in U.S. Environmental Protection Agency (EPA) Methods 1, 2, 3, 3B, 4 and 29. The following table summarizes the methods and their respective sources.

**Table 4-1:
 Summary of Sampling Procedures**

<u>Title 40 CFR Part 60 Appendix A</u>	
Method 1	"Sample and Velocity Traverses for Stationary Sources"
Method 2	"Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)"
Method 3	"Gas Analysis for the Determination of Dry Molecular Weight"
Method 3B	"Gas Analysis for the Determination of Emission Rate Correction Factor or Excess Air"
Method 4	"Determination of Moisture Content in Stack Gases"
Method 29	"Determination of Metals Emissions from Stationary Sources"

These methods appear in detail in Title 40 of the Code of Federal Regulations (CFR).

These sampling, recovery and analytical procedures are summarized on pages 4-1 through 4-7.

The sampling nozzles were calibrated on site. All other equipment was calibrated at the Clean Air Engineering laboratory prior to shipment to the job site. A post-test calibration was performed on the meter boxes at the conclusion of testing to verify that calibration was maintained throughout the test program. Calibration sheets can be found in Appendix Section C.

SAMPLING POINT DETERMINATION - EPA METHOD 1

Sampling point locations were determined according to EPA Method 1.

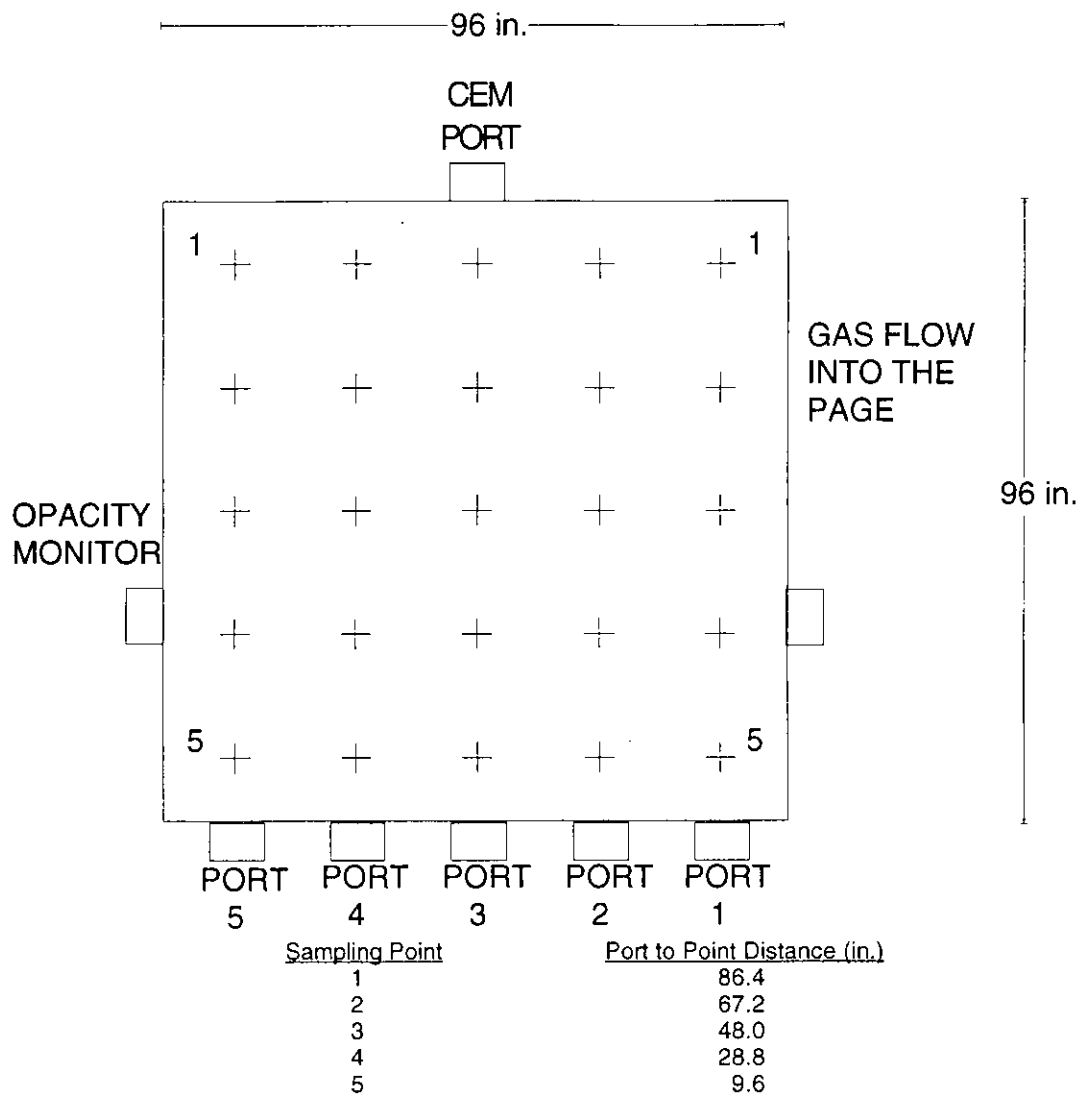
Table 4-2 outlines the sampling point configurations. Figure 4-1 illustrates the sampling points and orientation of sampling ports for the source tested in the program.

**Table 4-2:
 Sampling Points**

Location	Run	Points	Minutes	Total		
Constituent	Method	No. Ports	per Point	per Point	Minutes	Figure
<u>Unit 1 FF Outlet</u>						
Mercury	29	1-3	5	5	125	4-1

METHODOLOGY

SAMPLING POINT DETERMINATION (CONTINUED)



Diameters upstream from disturbance: 2 diameters Limit: 2
 Diameters downstream from disturbance: 0.5 diameters Limit: 0.5

Figure 4-1: Unit 1 FF Outlet - Sampling Point Determination (EPA Method 1)

METHODOLOGY

4-3

VELOCITY AND VOLUMETRIC FLOW RATE - EPA METHOD 2

EPA Method 2 was used, in conjunction with the wet method testing, to determine the gas velocity and flow rate at the FF Outlet test location.

Each set of velocity determinations included the measurement of gas velocity pressure and gas temperature at each of the EPA Method 1 traverse points. The velocity pressures were measured with a Type S pitot tube. Gas temperature measurements were made using a Type K thermocouple and digital pyrometer. Figure 4-2 includes the components of the EPA Method 2 sampling apparatus.

GAS COMPOSITION AND MOLECULAR WEIGHT - EPA METHOD 3B

In order to determine the oxygen (O₂) concentration, carbon dioxide (CO₂) concentration and gas molecular weight, a time-integrated sample of the gas was obtained for each sampling train and analyzed in accordance with EPA Method 3B. The gas sample was collected into a vinyl sample bag from isokinetic test methods. The contents of the bag were analyzed for O₂ and CO₂ concentrations using a Servomex O₂/CO₂ analyzer. The analyzer was calibrated and checked for linearity using EPA Protocol 1 certified gases. The gas certificates are presented in Appendix C.

MOISTURE CONTENT - EPA METHOD 4

The flue gas moisture content at each of the test locations was determined in accordance with EPA Method 4, in conjunction with the mercury testing. Figure 4-2 includes the components of the EPA Method 4 sampling apparatus. The gas moisture was determined by quantitatively condensing the moisture in chilled impingers. The amount of moisture condensed was determined gravimetrically. A dry gas meter was used to measure the volume of gas sampled. The amount of water condensed and the volume of gas sampled were used to calculate the gas moisture content in accordance with EPA Method 4.

METHODOLOGY

4-4

MERCURY EMISSIONS - EPA METHOD 29

EPA Method 29 was used to measure mercury emissions at the Unit 1 FF Outlet. This method defines metal emissions as particulate and gaseous material isokinetically withdrawn through a temperature controlled probe and collected on a high-efficiency filter and in acidified absorbing solutions.

Figure 4-2 illustrates the EPA Method 29 sampling train which was used. The sampling apparatus contained a glass-lined temperature-controlled probe equipped with a pitot tube (for measuring stack flow rate) and a sharp-edged glass button-hook nozzle. The exit of the probe was connected to a high efficiency quartz fiber filter (Pallflex 2500QAT-UP) supported in a glass filter holder inside an oven. The exit of the filter holder connected directly to a series of seven full size impingers.

The first impinger of the sampling train was left empty to accommodate collection of the flue gas moisture. The second and third impingers of the sampling apparatus each contained 100 milliliters of 5% nitric acid/10% hydrogen peroxide solution. The fourth impinger was left empty. The fifth and sixth impingers each contained 100 milliliters of 4% potassium permanganate/10% sulfuric acid solution. The seventh impinger contained 200 to 300 grams of silica gel. All of the impingers were maintained at a temperature below 68°F for the duration of each test.

Procedures for selecting sampling locations and for the operation of the apparatus was derived from EPA Method 29 and associated EPA Methods 1 through 5. The entire sampling apparatus was leak-checked before and after each test run. Sampling was performed at an average isokinetic rate greater than 90% and less than 110%.

At the conclusion of each test run, the probe and nozzle was rinsed and brushed with 0.1 Normal nitric acid to remove any particulate matter. These rinses were collected into polyethylene sample containers. The quartz fiber filter was recovered and placed into a polyethylene sample container. The volume of liquid collected in each of the impingers was quantified.

The liquid from the first three impingers was transferred to a leak-free polyethylene storage container. The back-half of the filter housing, the first three impingers and all connecting glassware were rinsed with 0.1 Normal nitric acid which was added to the storage container.

METHODOLOGY

4-5

MERCURY EMISSIONS (CONTINUED)

Any liquid collected in the fourth impinger was transferred to a separate polyethylene container, and the impinger was rinsed into the same container with 0.1 Normal nitric acid. The contents of impingers 5 and 6 were collected into an amber glass container. Both impingers 5 and 6 and the connecting glassware were then rinsed with acidified potassium permanganate followed by distilled water. These rinses were collected in the glass container. Any residual potassium permanganate retained by the impingers was removed using a rinse of 8 Normal hydrochloric acid, which was collected into a separate glass container. 200 milliliters of distilled water was used to rinse impingers 5 and 6 and added to the same container to also dilute the acid.

All containers were sealed, labeled and liquid levels marked prior to transport to the laboratory. The silica gel weight and the volume of condensate collected in the impingers were used to determine moisture content of the stack gas.

The nitric acid probe rinses and samples recovered from impingers 1 through 3 were each reduced to near dryness and digested with hydrofluoric acid and concentrated nitric acid. The filter was also digested with hydrofluoric and nitric acids. The samples obtained from impingers 4, 5 and 6 were digested separately with acidified potassium permanganate and subsequently analyzed for mercury. Blank correction was done as specified in EPA Method 29 if applicable. One complete train was set up, leak checked, heated to 248 °F left at the sample location for 2 hours and recovered as a standard train for a field blank. The digested samples were analyzed by atomic absorption and plasma emission spectroscopy for each of the target metals by Philip Analytical Services located in Burlington, Ontario. All analytes were analyzed in duplicate as specified in Method 29 section 7.2.1, 7.2.2 and 7.2.3.

METHODOLOGY

MERCURY EMISSIONS (CONTINUED)

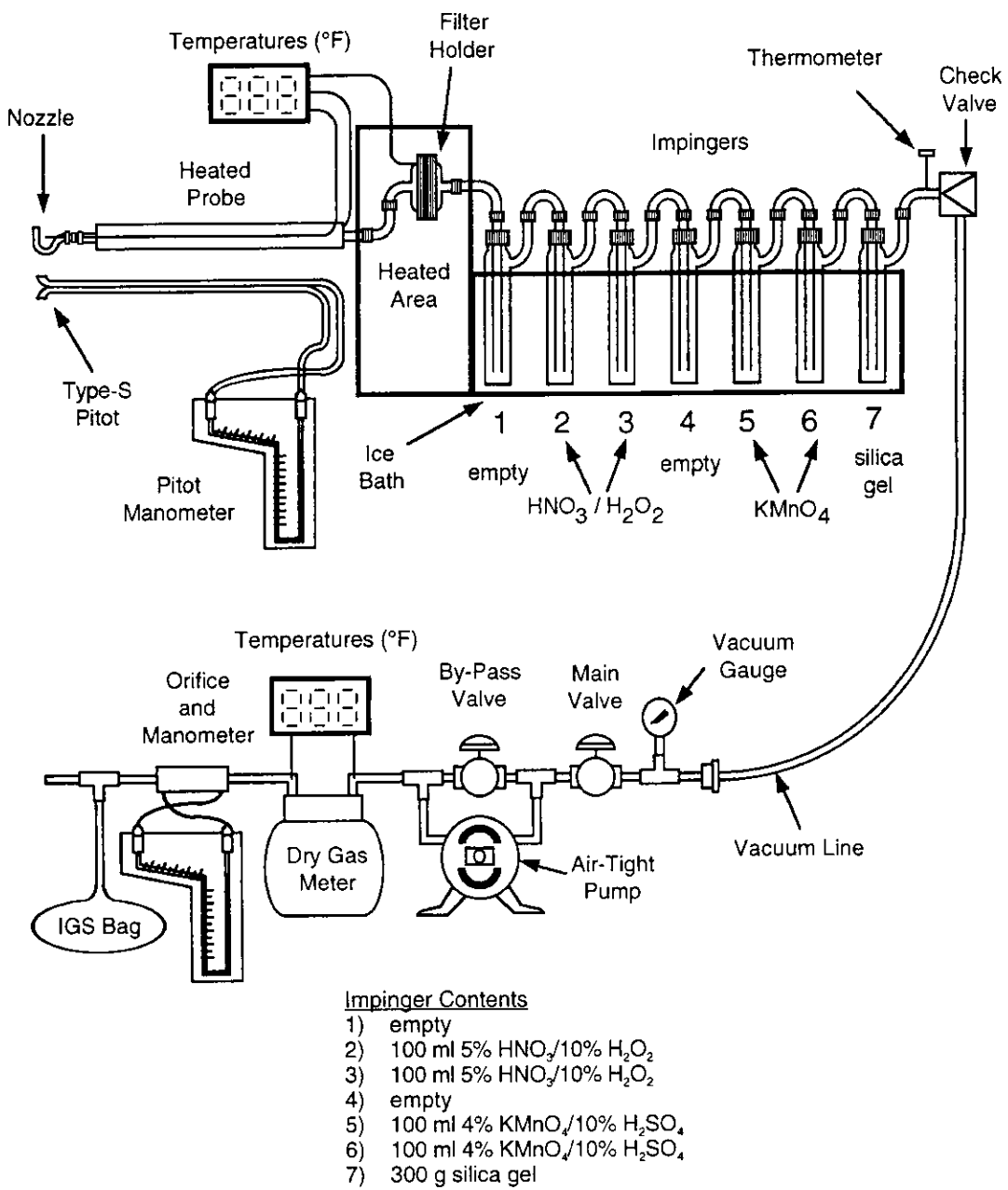


Figure 4-2: Metals Sampling Apparatus (EPA Method 29)

METHODOLOGY

4-7

QUALITY ASSURANCE AND QUALITY CONTROL

All testing followed the EPA quality assurance and quality control guidelines as outlined in the respective methods. Field blanks and matrix spikes for the mercury testing were done as shown in the following Table 4-3. The results of the analysis are shown in Table 2-2. There was some contamination observed in the 3C reagent blank fraction. The final results were corrected by the maximum allowable correction factor according to 40CFR Pt. 60 App. A, Method 29, Section 8.5.4.

**Table 4-3:
Method Field Blanks and Matrix Spikes**

<u>Method</u>	<u>Reagent Blank Sets</u>	<u>Field Blank</u>	<u>Duplicate Analysis</u>	<u>Matrix Spikes</u>
EPA M29	1	1	On all analysis	1 predigested filter blank and 1 postdigested sample

APPENDIX

Sample Calculations A
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WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FLORIDA

Client Reference No:
CAE Project No: 8964-1

SAMPLE CALCULATIONS

A

SAMPLE CALCULATIONS

1. Volume of water collected (wscf)

$$V_{wstd} = (0.04707)(V_{lc})$$

Where:

V_{lc} total volume of liquid collected in impingers and silica gel (ml)
 V_{wstd} volume of water collected at standard conditions (ft³)
0.04707 conversion factor (ft³/ml)

2. Volume of gas metered, standard conditions (dscf)

$$V_{mstd} = \frac{(17.64)(V_m) \left(P_{bar} + \frac{\Delta H}{13.6} \right) (Y_d)}{(460 + T_m)}$$

Where:

P_{bar} barometric pressure (in. Hg)
 T_m average dry gas meter temperature (°F)
 V_m volume of gas sample through the dry gas meter at meter conditions (ft³)
 V_{mstd} volume of gas sample through the dry gas meter at standard conditions (ft³)
 Y_d gas meter correction factor (dimensionless)
 ΔH average pressure drop across meter box orifice (in. H₂O)
17.64 conversion factor (°R/in. Hg)
13.6 conversion factor (in. H₂O/in. Hg)
460 °F to °R conversion constant

3. Sample gas pressure (in. Hg)

$$P_s = P_{bar} + \left(\frac{P_g}{13.6} \right)$$

Where:

P_{bar} barometric pressure (in. Hg)
 P_g sample gas static pressure (in. H₂O)
 P_s absolute sample gas pressure (in. Hg)
13.6 conversion factor (in. H₂O/in. Hg)

4. Actual vapor pressure (in. Hg)¹

$$P_v = P_s$$

Where:

P_v vapor pressure, actual (in. Hg)
 P_s absolute sample gas pressure (in. Hg)

¹ For effluent gas temperatures over 212°F, P_v is assumed to be equal to P_s .

SAMPLE CALCULATIONS (CONTINUED)

5. Moisture content (%)

$$B_{wo} = \frac{V_{wstd}}{V_{mstd} + V_{wstd}} \times 100\%$$

Where:

B_{wo} proportion of water vapor in the gas stream by volume (%)
 V_{mstd} volume of gas sample through the dry gas meter at standard conditions (ft³)
 V_{wstd} volume of water collected at standard conditions (ft³)

6. Saturated moisture content (%)

$$B_{ws} = \frac{(P_v)}{(P_s)} \times 100\%$$

Where:

B_{ws} proportion of water vapor in the gas stream by volume at saturated conditions (%)
 P_s absolute sample gas pressure (in. Hg)
 P_v vapor pressure, actual (in. Hg)

Whichever moisture value is smaller is used for B_{wo} in the following calculations.

7. Molecular weight of dry gas stream (lb/lb-mole)

$$M_d = M_{CO_2} \frac{(CO_2)}{(100)} + M_{O_2} \frac{(O_2)}{(100)} + M_{CO+N_2} \frac{(CO+N_2)}{(100)}$$

Where:

M_d dry molecular weight of sample gas (lb/lb-mole)
 M_{CO_2} molecular weight of carbon dioxide (lb/lb-mole)
 M_{O_2} molecular weight of oxygen (lb/lb-mole)
 M_{CO+N_2} molecular weight of carbon monoxide and nitrogen (lb/lb-mole)
 CO_2 proportion of carbon dioxide in the gas stream by volume (%)
 O_2 proportion of oxygen in the gas stream by volume (%)
 $CO+N_2$ proportion of carbon monoxide and nitrogen in the gas stream by volume (%)
 100 conversion factor (%)

8. Molecular weight of sample gas (lb/lb-mole)

$$M_s = (M_d)(1 - B_{wo}) + (M_{H_2O})(B_{wo})$$

Where:

B_{wo} proportion of water vapor in the gas stream by volume
 M_d dry molecular weight of sample gas (lb/lb-mole)
 M_{H_2O} molecular weight of water (lb/lb-mole)
 M_s molecular weight of sample gas, wet basis (lb/lb-mole)

SAMPLE CALCULATIONS (CONTINUED)

9. Velocity of sample gas (ft/sec)

$$V_s = (K_p)(C_p)(\sqrt{\Delta P}) \left(\sqrt{\frac{(\bar{T}_s + 460)}{(M_s)(P_s)}} \right)$$

Where:

- K_p velocity pressure constant $\left(\frac{\text{ft}}{\text{sec}} \left[\frac{(\text{lb/lb} \cdot \text{mole})(\text{in. Hg})}{(^{\circ}\text{R})(\text{in. H}_2\text{O})} \right] \right)$
- C_p pitot tube coefficient
- M_s molecular weight of sample gas, wet basis (lb/lb-mole)
- P_s absolute sample gas pressure (in. Hg)
- \bar{T}_s average sample gas temperature ($^{\circ}\text{F}$)
- V_s sample gas velocity (ft/sec)
- $\sqrt{\Delta P}$ average square roots of velocity heads of sample gas (in. H₂O)
- 460 $^{\circ}\text{F}$ to $^{\circ}\text{R}$ conversion constant

10. Total flow of sample gas (acfm)

$$Q_a = (60)(A_s)(V_s)$$

Where:

- A_s cross sectional area of sampling location (ft²)
- Q_a volumetric flow rate at actual conditions (acfm)
- V_s sample gas velocity (ft/sec)
- 60 conversion factor (sec/min)

11. Total flow of sample gas (dscfm)

$$Q_{std} = \frac{(Q_a)(P_s)(17.64)(1 - B_{wo})}{(\bar{T}_s + 460)}$$

Where:

- B_{wo} proportion of water vapor in the gas stream by volume
- P_s absolute sample gas pressure (in. Hg)
- Q_a volumetric flow rate at actual conditions (acfm)
- Q_{std} volumetric flow rate at standard conditions, dry basis (dscfm)
- \bar{T}_s average sample gas temperature ($^{\circ}\text{F}$)
- 17.64 conversion factor ($^{\circ}\text{R/in. Hg}$)
- 460 $^{\circ}\text{F}$ to $^{\circ}\text{R}$ conversion constant

SAMPLE CALCULATIONS (CONTINUED)

12. Percent isokinetic (%)

$$I = \frac{(0.09450)(\bar{T}_s + 460)(V_{mstd})}{(P_s)(V_s)\left(\frac{(D_n)^2(\pi)}{(144)(4)}\right)(\Theta)(1 - B_{wo})}$$

Where:

D_n	diameter of nozzle (in)
B_{wo}	proportion of water vapor in the gas stream by volume
I	percent of isokinetic sampling (%)
P_s	absolute sample gas pressure (in. Hg)
\bar{T}_s	average sample gas temperature (°F)
V_{mstd}	volume of gas sample through the dry gas meter at standard conditions (ft ³)
V_s	sample gas velocity (ft/sec)
Θ	total sampling time (min)
0.09450	constant
460	°F to °R conversion constant

13. Mercury concentration (µg/dscm)

$$C_{\mu g/dscm} = \frac{(m_n)}{(V_{mstd})}(35.31)(1,000)$$

Where:

$C_{\mu g/dscm}$	concentration (µg/dscm)
m_n	net mass of metal collected (mg)
V_{mstd}	volume of gas sample through the dry gas meter at standard conditions (ft ³)
35.31	conversion factor (ft ³ /m ³)
1,000	conversion factor (µg/mg)

14. Mercury concentration (lb/dscf)

$$C_{lb/dscf} = \frac{(m_n)}{(V_{mstd})(453,590)}(1,000)$$

Where:

$C_{lb/dscf}$	concentration (lb/dscf)
m_n	net mass of metal collected (mg)
V_{mstd}	volume of gas sample through the dry gas meter at standard conditions (ft ³)
453,590	conversion factor (mg/lb)
1,000	conversion factor (µg/mg)

15. Mercury concentration (µg/dscm corrected to 7% O₂)

$$C_{\mu g/dscm @ 7\% O_2} = \frac{(C_{\mu g/dscm})(20.9 - 7.0)}{(20.9 - O_2)}$$

Where:

$C_{\mu g/dscm}$	concentration (µg/dscm)
$C_{\mu g/dscm @ 7\% O_2}$	concentration (µg/dscm corrected to 7% O ₂)
O_2	proportion of oxygen in the gas stream by volume (%)
20.9	proportion of oxygen in ambient air by volume (%)

SAMPLE CALCULATIONS (CONTINUED)

16. Mercury concentration ($\mu\text{g}/\text{dscm}$ corrected to 12% CO_2)

$$C_{\mu\text{g}/\text{dscm} @ 12\% \text{CO}_2} = \left(C_{\mu\text{g}/\text{dscm}} \right) \frac{(12)}{(\text{CO}_2)}$$

Where:

$C_{\mu\text{g}/\text{dscm}}$	concentration ($\mu\text{g}/\text{dscm}$)
$C_{\mu\text{g}/\text{dscm} @ 12\% \text{CO}_2}$	concentration ($\mu\text{g}/\text{dscm}$ corrected to 12% CO_2)
CO_2	proportion of carbon dioxide in the gas stream by volume (%)

17. Mercury emission (g/sec)¹

$$E_{\text{g}/\text{sec}} = \frac{(m_n)(Q_{\text{std}})}{(V_{\text{mstd}})(10^6)(60)}$$

Where:

$E_{\text{g}/\text{sec}}$	emission rate (g/sec)
m_n	net mass of metal collected (μg)
Q_{std}	volumetric flow rate at standard conditions, dry basis (dscfm)
V_{mstd}	volume of gas sample through the dry gas meter at standard conditions (ft^3)
60	conversion factor (sec/min)
10^6	conversion factor ($\mu\text{g}/\text{g}$)

18. Mercury emission (lb/hr)

$$E_{\text{lb}/\text{hr}} = \frac{(C_{\mu\text{g}/\text{dscm}})(Q_{\text{std}})(60)}{(453,590)(1,000)(35.31)}$$

Where:

$C_{\mu\text{g}/\text{dscm}}$	concentration ($\mu\text{g}/\text{dscm}$)
Q_{std}	volumetric flow rate at standard conditions, dry basis (dscfm)
$E_{\text{lb}/\text{hr}}$	emission rate (lb/hr)
60	conversion factor (min/hr)
35.31	conversion factor (ft^3/m^3)
1,000	conversion factor ($\mu\text{g}/\text{mg}$)
453,590	conversion factor (mg/lb)

19. Heat input, (in lb/MBtu)

$$\text{HI} = \frac{(\text{SF})(h)(1,000)}{(e/100)(1,000,000)}$$

Where:

HI	heat input (MBtu/hr)
SF	measured steam flow (Klb/hr)
h	steam enthalpy (Btu/lb)
1,000	conversion factor (lb/Klb)
e	boiler efficiency (%)
1,000,000	conversion factor (BTU/ 10^6 BTU)

SAMPLE CALCULATIONS (CONTINUED)

20. Determination of F-factor using heat input (dscf/10⁶Btu @ 12% CO₂)

$$F - \text{factor @ 12\% CO}_2 = \frac{(Q_{\text{std}})(60)(\text{CO}_2)}{(\text{HI})(12)}$$

Where:

HI heat input (MBtu/hr)
F-factor average volume of combustion average component per unit of heat content
 (dscf/10⁶Btu @ 12% CO₂)
Q_{std} average volumetric flow rate at standard conditions, dry basis (dscfm)
60 conversion factor (min/hr)

21. Mercury emission rate , using average F_c factor (lb/10⁶Btu)

$$E_{\text{lb/10}^6 \text{ Btu}} = \frac{(C_{\text{mg/dscm @ 12\% CO}_2})(F - \text{factor @ 12\% CO}_2)}{(35.31)(10^6)(453.6)}$$

Where:

C_{μg/dscm @ 12% CO₂} measured concentration in the gas stream (μg/dscm @ 12% CO₂)
35.31 conversion factor (m³/ft³)
10⁶ conversion factor (μg/g)
453.6 conversion factor (g/lb)
F-factor average volume of combustion average component per unit of heat content
 (dscf/10⁶Btu @ 12% CO₂)

WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FLORIDA

Client Reference No:
CAE Project No: 8964-1

PARAMETERS

B

WHEELABRATOR NORTH BROWARD, INC.

CAE Project No: 8964-1

Unit 1 Outlet

**MERCURY
VELOCITY AND MOISTURE PARAMETERS**

Run No.	1	2	3
Date (2001)	June 19	June 19	June 19
Start Time (approx.)	08:32	11:07	13:58
Stop Time (approx.)	10:52	13:22	16:13

Sampling Conditions

Y_d	Dry gas meter correction factor	1.0005	1.0056	1.0005
C_p	Pitot tube coefficient	0.84	0.84	0.84
P_a	Static pressure (in. H ₂ O)	-11.0	-11.3	-10.8
A_s	Sample location area (ft ²)	64.00	64.00	64.00
P_{bar}	Barometric pressure (in. Hg)	30.06	30.06	30.06
D_n	Nozzle diameter (in.)	0.275	0.275	0.250
O_2	Oxygen (dry volume %)	10.2	10.2	10.3
CO_2	Carbon dioxide (dry volume %)	8.8	8.8	8.8
V_{lc}	Liquid collected (ml)	407.8	478.8	343.0
V_m	Volume metered, meter conditions (ft ³)	83.64	81.82	68.03
T_m	Dry gas meter temperature (°F)	93	97	98
T_s	Sample temperature (°F)	290	287	290
ΔH	Meter box orifice pressure drop (in. H ₂ O)	1.40	1.49	0.93
Θ	Total sampling time (min)	125	125	125

Flow Results

V_{wstd}	Volume of water collected (ft ³)	19.20	22.54	16.15
V_{mstd}	Volume metered, standard (ft ³)	80.56	78.65	64.86
P_s	Sample gas pressure, absolute (in. Hg)	29.25	29.23	29.27
P_v	Vapor pressure, actual (in. Hg)	29.25	29.23	29.27
B_{wo}	Moisture in sample (% by volume)	19.24	22.27	19.93
B_{ws}	Saturated moisture (% by volume)	100.00	100.00	100.00
$\sqrt{\Delta P}$	Velocity head ($\sqrt{\text{in. H}_2\text{O}}$)	0.678	0.690	0.667
M_d	MW of sample gas, dry (lb/lb-mole)	29.82	29.82	29.82
M_s	MW of sample gas, wet (lb/lb-mole)	27.54	27.18	27.46
V_s	Velocity of sample (ft/sec)	47.0	48.0	46.2
%I	Isokinetic sampling (%)	99.8	98.7	99.5
Q_a	Volumetric flow rate, actual (acfm)	180,500	184,400	177,600
Q_{std}	Volumetric flow rate, standard (dscfm)	100,200	98,930	97,930

METALS PARAMETERS

Run No.	Blank	1	2	3
Date (2001)		June 19	June 19	June 19
Start Time (approx.)		08:32	11:07	13:58
Stop Time (approx.)		10:52	13:22	16:13
Gas Conditions				
O ₂	Oxygen (dry volume %)	10.2	10.2	10.3
CO ₂	Carbon Dioxide (dry volume %)	8.8	8.8	8.8
V _{std}	Volume metered, standard (ft ³)	80.56	78.65	64.86
Q _{std}	Volumetric flow rate, standard (dscfm)	100.200	98,930	97,930
F	Fuel factor (dscf/10 ⁶ Btu) ¹	15,226	15,226	15,226
Mercury (Hg) Fraction 1B - Filter, FH Probe Rinse				
m _w	Gross weight (μg)	ND	(0.030)	(0.030)
m _n	Net weight (μg)	0.030	ND	(0.030)
C	Concentration, standard conditions (μg/dscm)		(0.013)	(0.013)
C	Corrected to 7% O ₂ (μg/dscm)		(0.017)	(0.017)
C	Corrected to 12% CO ₂ (μg/dscm)		(0.018)	(0.018)
C	Concentration (lb/dscf)		(8.21E-13)	(8.41E-13)
C	Corrected to 7% O ₂ (lb/dscf)		(1.07E-12)	(1.09E-12)
C	Corrected to 12% CO ₂ (lb/dscf)		(1.12E-12)	(1.15E-12)
E	Emission rate (g/sec)		(6.22E-07)	(6.29E-07)
E	Emission rate (lb/hr)		(4.94E-06)	(4.99E-06)
E	Emission rate (lb/10 ⁶ Btu) ¹		(1.70E-08)	(1.75E-08)
Mercury (Hg) Fraction 2B - Impingers 1,2 and 3				
m _w	Gross weight (μg)	ND	14.0	13.0
m _n	Net weight (μg)	0.390	14.0	13.0
C	Concentration, standard conditions (μg/dscm)		6.14	5.84
C	Corrected to 7% O ₂ (μg/dscm)		7.97	7.58
C	Corrected to 12% CO ₂ (μg/dscm)		8.37	7.96
C	Concentration (lb/dscf)		3.83E-10	3.64E-10
C	Corrected to 7% O ₂ (lb/dscf)		4.98E-10	4.73E-10
C	Corrected to 12% CO ₂ (lb/dscf)		5.22E-10	4.97E-10
E	Emission rate (g/sec)		2.90E-04	2.73E-04
E	Emission rate (lb/hr)		2.30E-03	2.16E-03
E	Emission rate (lb/10 ⁶ Btu) ¹		7.96E-06	7.57E-06
Mercury (Hg) Fraction 3A - Impinger 4				
m _w	Gross weight (μg)	ND	(0.010)	(0.010)
m _n	Net weight (μg)	0.010	ND	(0.010)
C	Concentration, standard conditions (μg/dscm)		(0.004)	(0.004)
C	Corrected to 7% O ₂ (μg/dscm)		(0.006)	(0.006)
C	Corrected to 12% CO ₂ (μg/dscm)		(0.006)	(0.006)
C	Concentration (lb/dscf)		(2.74E-13)	(2.80E-13)
C	Corrected to 7% O ₂ (lb/dscf)		(3.56E-13)	(3.64E-13)
C	Corrected to 12% CO ₂ (lb/dscf)		(3.73E-13)	(3.82E-13)
E	Emission rate (g/sec)		(2.07E-07)	(2.10E-07)
E	Emission rate (lb/hr)		(1.65E-06)	(1.66E-06)
E	Emission rate (lb/10 ⁶ Btu) ¹		(5.68E-09)	(5.82E-09)
Mercury (Hg) Fraction 3B - Impingers 5 and 6				
m _w	Gross weight (μg)	ND	(0.050)	(0.050)
m _n	Net weight (μg)	0.050	ND	(0.050)
C	Concentration, standard conditions (μg/dscm)		(0.022)	(0.022)
C	Corrected to 7% O ₂ (μg/dscm)		(0.028)	(0.029)
C	Corrected to 12% CO ₂ (μg/dscm)		(0.030)	(0.031)
C	Concentration (lb/dscf)		(1.37E-12)	(1.40E-12)
C	Corrected to 7% O ₂ (lb/dscf)		(1.78E-12)	(1.82E-12)
C	Corrected to 12% CO ₂ (lb/dscf)		(1.87E-12)	(1.91E-12)
E	Emission rate (g/sec)		(1.04E-06)	(1.05E-06)
E	Emission rate (lb/hr)		(8.23E-06)	(8.32E-06)
E	Emission rate (lb/10 ⁶ Btu) ¹		(2.84E-08)	(2.91E-08)
Mercury (Hg) Fraction 3C - Impingers 5 and 6 HCl Rinse				
m _w	Gross weight (μg)	ND	0.76	0.76
m _n	Net weight (μg)	0.050	0.76	0.76
C	Concentration, standard conditions (μg/dscm)		0.33	0.34
C	Corrected to 7% O ₂ (μg/dscm)		0.43	0.44
C	Corrected to 12% CO ₂ (μg/dscm)		0.45	0.47
C	Concentration (lb/dscf)		2.08E-11	2.13E-11
C	Corrected to 7% O ₂ (lb/dscf)		2.70E-11	2.77E-11
C	Corrected to 12% CO ₂ (lb/dscf)		2.84E-11	2.91E-11
E	Emission rate (g/sec)		1.58E-05	1.59E-05
E	Emission rate (lb/hr)		1.25E-04	1.26E-04
E	Emission rate (lb/10 ⁶ Btu) ¹		4.32E-07	4.42E-07
Mercury (Hg) Totals				
m _w	Gross weight (μg)		14.8	13.8
m _n	Net weight (μg)		14.8	13.8
C	Concentration, standard conditions (μg/dscm)		6.5	6.2
C	Corrected to 7% O ₂ (μg/dscm)		8.4	8.0
C	Corrected to 12% CO ₂ (μg/dscm)		8.8	8.4
C	Concentration (lb/dscf)		4.04E-10	3.86E-10
C	Corrected to 7% O ₂ (lb/dscf)		5.25E-10	5.01E-10
C	Corrected to 12% CO ₂ (lb/dscf)		5.51E-10	5.26E-10
E	Emission rate (g/sec)		3.06E-04	2.88E-04
E	Emission rate (lb/hr)		2.43E-03	2.29E-03
E	Emission rate (lb/10 ⁶ Btu) ¹		8.39E-06	8.01E-06

¹ Calculated based on Unit 1 average F-Factor @ 12% CO₂ from March 2000 compliance testing.
 ND - Indicates the constituent was not detected. The detection limit is shown in parentheses.

WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FLORIDA

Client Reference No:
CAE Project No: 8964-1

CALIBRATION DATA

C

Meter Box Full Test Calibration

DATE: 4/25/01

Operator: M. V.

Meter Box No: 66-4				Meter Box ΔH@: 1.9347			Meter Box Y _d : 1.0056			Barometric Pressure: 29.63								
				Standard Meter Gas Volume			Meter Box Gas Volume (ft ³)			Std. Meter Temperature (°F)			Meter Box Temperature (°F)					
Q	ΔH	ΔP	Y _{ds}	Initial	Final	V _{ds}	Initial	Final	V _d	Inlet	Outlet	T _{ds}	Inlet	T _o	T _d	Time	Y _d	H@
0.918	3.00	-2.00	1.0000	0.0	10.000	10.000	021.835	031.965	10.130	70.5	70.5	70.5	85.0	79.0	82.0	10.73	0.9961	1.9416
0.919	3.00	-2.00	1.0000	0.0	10.000	10.000	031.965	042.105	10.140	70.5	70.5	70.5	84.0	79.0	81.5	10.72	0.9942	1.9380
0.373	0.50	-1.30	1.0000	0.0	5.000	5.000	051.345	056.334	4.989	70.5	70.5	70.5	78.0	77.0	77.5	13.20	1.0109	1.9662
0.373	0.50	-1.30	1.0000	0.0	5.000	5.000	056.334	061.314	4.980	70.5	70.5	70.5	78.0	77.0	77.5	13.20	1.0127	1.9662
0.657	1.50	-1.50	1.0000	0.0	10.000	10.000	063.915	073.918	10.003	70.5	70.5	70.5	83.0	78.0	80.5	14.99	1.0110	1.8982
0.657	1.50	-1.50	1.0000	0.0	10.000	10.000	073.918	083.944	10.026	70.5	70.5	70.5	83.0	78.0	80.5	14.99	1.0087	1.8982
AVERAGE																1.0056	1.9347	

Nomenclature	
P _b	Barometric Pressure (in. Hg)
Q	Flow Rate (cfm)
ΔH	Orifice Pressure Differential (in. H ₂ O)
ΔP	Inlet Pressure Differential (in. H ₂ O)
V _d	Gas Meter Volume - Dry (ft ³)
V _{ds}	Standard Meter Volume - Dry (ft ³)
T _d	Average Meter Box Temperature (°F)
T _o	Outlet Meter Box Temperature (°F)
T _{ds}	Average Standard Meter Temperature (°F)
Y _d	Meter Correction Factor (unitless)
Y _{ds}	Standard Meter Correction Factor (unitless)
ΔH@	Orifice Pressure Differential giving 0.75 cfm of air at 68°F and 29.92 in. Hg (in. H ₂ O)

Vacuum Gauge

Standard (in. Hg)	Vacuum Gauge
4.9	5.0
9.8	10.0
14.8	15.0
19.9	20.0
23.8	24.0

Thermometers

Standard (°F)	Inlet	Outlet

Equations	
Y _d	$= (Y_{ds}) \left[\frac{V_{ds}}{V_d} \right] \left[\frac{T_d + 460}{T_{ds} + 460} \right] \left[\frac{P_b + \Delta P / 13.6}{P_b + \Delta H / 13.6} \right]$
ΔH@	$= \frac{0.0319(\Delta H)}{P_b(T_o + 460)} \left[\frac{(T_{ds} + 460)\Theta}{(V_{ds})(Y_{ds})} \right]^2$
Q	$= \frac{17.64 (V_{ds})(P_b)}{(T_{ds} + 460)(\Theta)}$



Clean Air Engineering

Meter Box Critical Orifice Post-Test Calibration Data

CAE Project No. 8963/8964
 Location Outlet
 Date 6/22/01
 Operator C. W. Zs
 Name

Meter No. 66-4
 Meter Y_d 16056
 Meter ΔH_o 1.9347
 Full-Test Cal. Date 4/25/01

Orifice I.D. N-2
 Orifice K' .385
 Orifice Cal. Date

Leak Checks
 Negative Pressure
 No Movement of Meter in 1 minute Pass Fail
 Positive Pressure
 No Movement of Manometer in 1 minute Pass Fail

Important: All leak checks must pass in order for calibration to be valid.

Barom. Press. (P_b) 30.04 in. Hg

Run	Elapsed Time (minutes)	Meter Volume (dcf)	Meter Temperature		Ambient Temp. (°F)	Orifice ΔH (in. W.C.)	Vacuum (in. Hg)	Net Run Time - θ (minutes)	Net Meter Volume for Run - V _m (dcf)	Avg Meter Temp. for Run - T _m	DGM Calibration Factor - Y _i	Percent Variation - ΔY _i
			Inlet (°F)	Outlet (°F)								
	0.0	919.30	87	81								%
1	5.0	921.84	85	80	85	.84	20.5					%
2	10.0	924.40	83	80	83	.86	20.5					%
3	15.0	926.95	82	80	81	.86	20.5					%

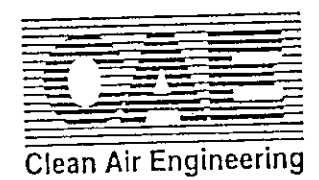
Average Y_i _____
 Cal. Error _____ %

Calculations and Specifications

$$Y_i = \frac{K' \times P_b \times (T_m + 460) \times \theta}{17.64 \times V_m \times (P_b + \frac{\Delta H}{13.6}) \times \sqrt{T_{umb} + 460}}$$

$$\Delta Y_i = \frac{Y_i - \bar{Y}_i}{\bar{Y}_i} \times 100 \quad \text{Spec.: } \Delta Y_i \leq \pm 2\%$$

$$\text{Cal. Error} = \frac{\bar{Y}_i - Y_d}{Y_d} \times 100 \quad \text{Spec.: } \text{Cal. Error} \leq \pm 5\%$$



Meter Box Critical Orifice Post-Test Calibration Data

CAE Project No. 8963/8964
 Location Stack
 Date 6/22/01
 Operator Name C. Wiza

Meter No. 66-4
 Meter Y_d 1.0056
 Meter ΔH_a 1.9347
 Full-Test Cal. Date 4/25/01

Orifice I.D. N-2
 Orifice K' 0.385
 Orifice Cal. Date _____

Leak Checks
 Negative Pressure
 No Movement of Meter in 1 minute Pass Fail
 Positive Pressure
 No Movement of Manometer in 1 minute Pass Fail

Barom. Press. (P_b) 30.04 in. Hg

Important: All leak checks must pass in order for calibration to be valid.

Run	Elapsed Time (minutes)	Meter Volume (dcf)	Meter Temperature		Ambient Temp. T_{amb} (°F)	Orifice ΔH	Vacuum (in. Hg)	Net Run Time θ (minutes)	Net Meter Volume for Run V_m (dcf)	Avg Meter Temp. T_m (°F)	DGM Calibration Factor Y_i	Percent Variation ΔY
			Inlet (°F)	Outlet (°F)								
	0.0	919.30	87	81								
1	5.0	921.84	85	80	85	0.84	20.5	5.0	2.54	83.3	0.9977	0.4%
2	10.0	924.40	83	80	83	0.86	20.5	5.0	2.56	82.0	0.9894	-0.4%
3	15.0	926.95	82	80	81	0.86	20.5	5.0	2.55	81.3	0.9938	0.0%

Calculations and Specifications

$$Y_i = \frac{K \times P_b \times (T_m + 460) \times \theta}{17.64 \times V_m \times \left(P_b + \frac{\Delta H}{13.6} \right) \times \sqrt{T_{amb} + 460}}$$

$$\Delta Y_i = \frac{Y_i - \bar{Y}_i}{\bar{Y}_i} \times 100 \quad \text{Spec.: } \Delta Y_i \leq \pm 2\%$$

$$\text{Cal. Error} = \frac{\bar{Y}_i - Y_d}{Y_d} \times 100 \quad \text{Spec.: } \text{Cal. Error} \leq \pm 5\%$$

Average Y_i	0.9936
Cal. Error	-1.2%

Clean Air Engineering

500 W. Wood Street
 Palatine, IL 60067

(847) 991-3300

Pyrometer Calibration Test Report

Pyrometer No.:	66-4	Office:	Palatine, IL
Calibrated By:	M. V.	Client:	
Date:	4/25/01	Job Number:	

Calibration Reference Settings for Fahrenheit Scale	Pyrometer Reading
50 °F	51 °F
100 °F	100 °F
150 °F	150 °F
200 °F	201 °F
250 °F	252 °F
300 °F	302 °F
350 °F	351 °F
400 °F	400 °F
450 °F	449 °F
500 °F	499 °F
550 °F	549 °F
600 °F	600 °F

Calibration Reference Information

Reference Used:	Omega CL23A	Serial No:	T-123216
Calibrated By:	J.H. Metrology Co.	Date:	9/11/00
Report No:	RO26517		



Clean Air Engineering

Meter Box Full Test Calibration

DATE: 11/30/00

Operator: M. V.

Meter Box No: 66-6				Meter Box ΔH@: 1.8489						Meter Box Y _d : 1.0005			Barometric Pressure: 29.65					
				Standard Meter Gas Volume			Meter Box Gas Volume (ft ³)			Std. Meter Temperature (°F)			Meter Box Temperature (°F)					
Q	ΔH	ΔP	Y _{ds}	Initial	Final	V _{ds}	Initial	Final	V _d	Inlet	Outlet	T _{ds}	Inlet	T _o	T _d	Time	Y _d	H@
0.934	3.00	-1.80	1.0000	0.0	10.000	10.000	166.318	176.396	10.078	68.0	68.0	68.0	81.0	72.0	76.5	10.61	0.9963	1.9040
0.931	3.00	-1.80	1.0000	0.0	10.000	10.000	176.396	186.486	10.090	68.0	68.0	68.0	82.0	73.0	77.5	10.64	0.9970	1.9112
0.396	0.50	-1.20	1.0000	0.0	5.000	5.000	201.652	206.696	5.044	68.0	68.0	68.0	77.0	73.0	75.0	12.51	1.0002	1.7614
0.396	0.50	-1.20	1.0000	0.0	5.000	5.000	211.756	216.798	5.042	68.0	68.0	68.0	77.0	73.0	75.0	12.52	1.0006	1.7642
0.661	1.50	-1.40	1.0000	0.0	10.000	10.000	221.310	231.439	10.129	68.0	68.0	68.0	85.0	78.0	81.5	14.98	1.0053	1.8766
0.661	1.50	-1.40	1.0000	0.0	10.500	10.500	231.439	242.094	10.655	68.0	68.0	68.0	84.0	79.0	81.5	15.74	1.0034	1.8757
AVERAGE																1.0005	1.8489	

Nomenclature

P _b	Barometric Pressure (in. Hg)
Q	Flow Rate (cfm)
ΔH	Orifice Pressure Differential (in. H ₂ O)
ΔP	Inlet Pressure Differential (in. H ₂ O)
V _d	Gas Meter Volume - Dry (ft ³)
V _{ds}	Standard Meter Volume - Dry (ft ³)
T _d	Average Meter Box Temperature (°F)
T _o	Outlet Meter Box Temperature (°F)
T _{ds}	Average Standard Meter Temperature (°F)
Y _d	Meter Correction Factor (unitless)
Y _{ds}	Standard Meter Correction Factor (unitless)
ΔH@	Orifice Pressure Differential giving 0.75 cfm of air at 68°F and 29.92 in. Hg (in. H ₂ O)

Vacuum Gauge

Standard (in. Hg)	Vacuum Gauge
4.9	5.0
10.3	10.0
15.1	15.0
20.1	20.0
24.5	24.5

Thermometers

Standard (°F)	Inlet	Outlet

Equations

$$Y_d = (Y_{ds}) \left[\frac{V_{ds}}{V_d} \right] \left[\frac{T_d + 460}{T_{ds} + 460} \right] \left[\frac{P_b + \Delta P / 13.6}{P_b + \Delta H / 13.6} \right]$$

$$\Delta H@ = \frac{0.0319(\Delta H)}{P_b(T_o + 460)} \left[\frac{(T_{ds} + 460)\Theta}{(V_{ds})(Y_{ds})} \right]^2$$

$$Q = \frac{17.64 (V_{ds}) (P_b)}{(T_{ds} + 460) (\Theta)}$$



Meter Box Critical Orifice Post-Test Calibration Data

CAE Project No. 8963/8964
 Location OUTLET
 Date 6/22/01
 Operator Name A. RISINGER

Meter No. 66-6
 Meter Y_o 1.0005
 Meter ΔH_o 1.0489
 Full-Test Cal. Date 11/30/00

Orifice I.D. N-2
 Orifice K' .385
 Orifice Cal. Date _____

Leak Checks
 Negative Pressure
 No Movement of Meter in 1 minute Pass Fail
 Positive Pressure
 No Movement of Manometer in 1 minute Pass Fail

Barom. Press. (P_b) 30.04 in. Hg

Important: All leak checks must pass in order for calibration to be valid.

Run	Elapsed Time (minutes)	Meter Volume (dcf)	Meter Temperature		Ambient Temp. T_{amb} (°F)	Orifice ΔH (in. W.C.)	Vacuum (in. Hg)	Net Run Time - θ (minutes)	Net Meter Volume for Run - V_m (dcf)	Avg. Meter Temp. for Run - T_m	DGM Calibration Factor - Y_i	Percent Variation - ΔY_i
			Inlet (°F)	Outlet (°F)								
	0.0	810.00	90	87								
1	5.0	812.62	89	87	85	.84	18					%
2	10.0	815.24	89	87	85	.85	18					%
3	15.0	817.83	89	87	86	.85	18					%

Calculations and Specifications

$$Y_i = \frac{K' \times P_b \times (T_m + 460) \times \theta}{17.64 \times V_m \times (P_b + \frac{\Delta H}{13.6}) \times \sqrt{T_{amb} + 460}}$$

$$\Delta Y_i = \frac{Y_i - \bar{Y}_i}{\bar{Y}_i} \times 100$$

Spec.: $\Delta Y_i \leq \pm 2\%$

$$Cal. Error = \frac{\bar{Y}_i - Y_d}{Y_d} \times 100$$

Spec.: $Cal. Error \leq \pm 5\%$

Average Y_i

Cal. Error



Clean Air Engineering

Meter Box Critical Orifice Post-Test Calibration Data

CAE Project No. 8963/8964
 Location Stack
 Date 6/22/01
 Operator A. Risinger
 Name _____

Meter No. 66-6
 Meter Y_d 1.0005
 Meter ΔH_a 1.8489
 Full-Test Cal. Date 11/30/01

Orifice I.D. N-2
 Orifice K' 0.385
 Orifice Cal. Date _____

Leak Checks
 Negative Pressure Pass
 No Movement of Meter in 1 minute Fail
 Positive Pressure Pass
 No Movement of Manometer in 1 minute Fail

Important: All leak checks must pass in order for calibration to be valid.

Barom. Press. (P_b) 30.04 in. Hg

Run	Elapsed Time (minutes)	Meter Volume (pcf)	Meter Temperature		Ambient Temp. (T_{amb}) (F)	Orifice ΔH	Vacuum (in. Hg)	Net Run Time - θ (minutes)	Net Meter Volume for Run: V_m (pcf)	Avg. Meter Temp. (T_m) (F)	DGM Calibration Factor: Y_i	Percent Variation ΔY_i
			Inlet (F)	Outlet (F)								
	0.0	810.00	90	87								
1	5.0	812.62	89	87	85	0.84	18.0	5.0	2.62	88.3	0.9762	-0.3%
2	10.0	815.24	89	87	85	0.85	18.0	5.0	2.62	88.0	0.9757	-0.4%
3	15.0	817.83	89	87	86	0.85	18.0	5.0	2.59	88.0	0.9861	0.7%
Average Y_i											0.9793	
Cal. Error											-2.1%	

Calculations and Specifications

$$Y_i = \frac{K' \times P_b \times (T_m + 460) \times \theta}{17.64 \times V_m \times (P_b + \Delta H / 13.6) \times \sqrt{T_{amb} + 460}}$$

$$\Delta Y_i = \frac{Y_i - \bar{Y}_i}{\bar{Y}_i} \times 100 \quad \text{Spec.: } \Delta Y_i \leq \pm 2\%$$

$$\text{Cal. Error} = \frac{\bar{Y}_i - Y_d}{Y_d} \times 100 \quad \text{Spec.: } \text{Cal. Error} \leq \pm 5\%$$

Clean Air Engineering

500 W. Wood Street
 Palatine, IL 60067
 (847) 991-3300

Pyrometer Calibration Test Report

Pyrometer No.:	<u>66-6</u>	Office:	<u>Palatine, IL</u>
Calibrated By:	<u>M. V.</u>	Client:	<u></u>
Date:	<u>11/30/00</u>	Job Number:	<u></u>

Calibration Reference Settings for Fahrenheit Scale	Pyrometer Reading
50 °F	51 °F
100 °F	101 °F
150 °F	151 °F
200 °F	202 °F
250 °F	252 °F
300 °F	302 °F
350 °F	352 °F
400 °F	401 °F
450 °F	450 °F
500 °F	500 °F
550 °F	550 °F
600 °F	601 °F

Calibration Reference Information

Reference Used:	<u>Omega CL23A</u>	Serial No:	<u>T-123216</u>
Calibrated By:	<u>J.H. Metrology Co.</u>	Date:	<u>9/11/00</u>
Report No:	<u>RO26517</u>		



Probe Type: 115 Probe

Sample Probe Calibration

I.D. Number: 67-8-13

Thermocouple Calibration

Reference Type: _____ Reference I.D. No: _____ Pyrometer I.D. No: _____ Degrees: _____

Point No.	Target Temp.	Reference Temp.	Indicated Temp.	Temp. Difference	% Difference*	Specification
1	Ice-32F					%Difference ≤ 1.5
2	Ambient-70F					
3	Hot Oil-150F					
4	Boiling H ₂ O-212F					
5	Hot Oil-320F					

* Based on Absolute Temperature (Rankine)

Does assembly meet specifications? _____

Geometric Pitot Calibration

<u>"S" Pitot</u>		Specification	<u>Standard Pitot</u>		Specification
Measurement			Measurement (inches)		
$\alpha_1(^{\circ}) = 2$	$\alpha_2(^{\circ}) = 1$	≤ 10°	Tube O.D.		(D)
$\beta_1(^{\circ}) = 1$	$\beta_2(^{\circ}) = 2$	≤ 0.5°	Static Hole I.D.		~ 0.1 x (D)
$\gamma(^{\circ}) = 2$	$\delta(^{\circ}) = 2$		Length:		
$P_a(^{\circ}) = .304$	$P_b(^{\circ}) = .365$	$P_a + P_b = A$	Tip to Static		≥ 6 x (D)
$A(^{\circ}) = .729$	$D(^{\circ}) = .25$		Static to Bend		≥ 8 x (D)
Calculations					
$Z(^{\circ}) = A \sin \gamma = .025446$		≤ 0.125°			
$W(^{\circ}) = A \sin \delta = .012723$		≤ 0.03125°			

Does assembly meet specifications? _____

YES

If "Yes", "S" pitot Cp=0.04; Std. Pitot=0.99. If "No", wind tunnel calibration is required.

Wind Tunnel Calibration

Reference Pitot I.D. No: _____ Reference Pitot Cp: _____

Pitot Side 'A':				Deviation from Average Cp*	Specification
Trial No.	Reference P	Probe P	Probe Cp*		
1					Cp Deviations ≤ 0.01
2					
3					
Side 'A' Average Probe Cp=					

Pitot Side 'B':				Deviation from Average Cp*	Specification
Trial No.	Reference P	Probe P	Probe Cp*		
1					Cp Deviations ≤ 0.01
2					
3					
Side 'B' Average Probe Cp=					

*Probe Cp = (Reference Cp) * (Reference ΔP / Probe ΔP); Cp Deviation = Trial Cp - Average Probe Cp

'A' Average Cp _____ 'B' Average Cp _____ Difference _____ (Difference) ≤ 0.01

Does assembly meet specifications? _____

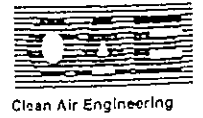
If "Yes", Cp = Average of Side 'A' and 'B' Cp values. If "No", Pitot must be replaced.

All specifications are from EPA-600/9-76-005, section 3.1

Probe Cp = 0.84

Calibrated by: Jerry Anthony

Date: 2-28-01



Probe Type: M5 Probe Sample Probe Calibration I.D. Number: 67-8-18

Thermocouple Calibration

Reference Type: _____ Reference I.D. No: _____ Pyrometer I.D. No: _____ Degrees: _____

Point No.	Target Temp.	Reference Temp.	Indicated Temp.	Temp. Difference	% Difference*	Specification
1	Ice-32F					%Difference ≤ 1.5
2	Ambient-70F					
3	Hot Oil-150F					
4	Boiling H ₂ O-212F					
5	Hot Oil-320F					

* Based on Absolute Temperature (Rankine)

Does assembly meet specifications? _____

Geometric Pitot Calibration

"S" Pitot Measurement			Specification	Standard Pitot Measurement (Inches)			Specification
r1(°) = <u>2</u>	r2(°) = <u>2</u>		≤ 10°	Tube O.D. _____		(D)	
A1(°) = <u>4</u>	A2(°) = <u>3</u>		≤ 05°	Static Hole I.D. _____		- 0.1 x (D)	
γ(°) = <u>2</u>	θ(°) = <u>2</u>			Length: Tip to Static _____		≥ 6 x (D)	
Pa(*) = <u>.377</u>	Pb(*) = <u>.377</u>	Pa + Pb = A		Static to Bend _____		≥ 8 x (D)	
A(*) = <u>.334</u>	Dt(*) = <u>0.25</u>						
Calculations							
Z(*) = A sin γ =	<u>.026318</u>	≤ 0.125"					
W(*) = A sin θ =	<u>.026318</u>	≤ 0.03125"					

Does assembly meet specifications? YES → If "Yes", "S" pitot Cp=0.84; Std. Pitot=0.99. If "No", wind tunnel calibration is required.

Wind Tunnel Calibration

Reference Pitot I.D. No: _____ Reference Pitot Cp: _____

Pitot Side 'A':				Deviation from Average Cp*	Specification
Trial No.	Reference P	Probe P	Probe Cp*		
1					Cp Deviations ≤ 0.01
2					
3					

Side 'A' Average Probe Cp = _____

Pitot Side 'B':				Deviation from Average Cp*	Specification
Trial No.	Reference P	Probe P	Probe Cp*		
1					Cp Deviations ≤ 0.01
2					
3					

Side 'B' Average Probe Cp = _____

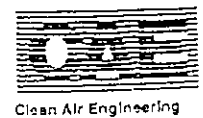
*Probe Cp = (Reference Cp) / (Reference ΔP / Probe ΔP); Cp Deviations = Trial Cp - Average Probe Cp

'A' Average Cp _____ 'B' Average Cp _____ Difference _____ | Difference | ≤ 0.01

Does assembly meet specifications? _____ → If "Yes", Cp = Average of Side 'A' and 'B' Cp values. If "No", Pitot must be replaced.

All specifications are from EPA-600/9-76-005, section 3.1

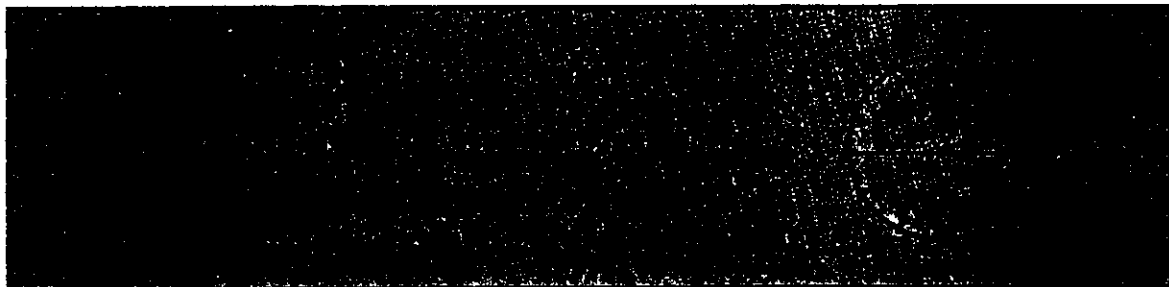
Probe Cp = 0.84 Calibrated by: [Signature] Date: 2-28-01



NOZZLE CALIBRATION SHEET

Wheelabrator P. Lukhan 6/19/01	8964 / 10000 1, 2, 3, 4, 5, 6
--------------------------------------	---

.275	.275	.275	.275	0.0	.275
.250	.250	.250	.250	0.0	.250
.270	.270	.270	.270	0.0	.270
.255	.255	.254	.255	0.001	.255



* (40 CFR 60, Appendix A, Method 5, Section 5.1)

WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FLORIDA

Client Reference No:
CAE Project No: 8964-1

FIELD DATA

D

TEST LOCATION: OUTLET

MERCURY TESTING
FIELD DATA SHEET

METHOD: 29 PAGE 1 OF 3

UNIT: 1 RUN: 1

Client: <u>WHEELABRATOR</u>	Project No: <u>8969</u>
Plant: <u>N. BROWARD</u>	Date: <u>6/19/01</u>
Meter Operator: <u>A. RISINGER</u>	
Probe Operator: <u>C. WIZA</u>	

Meter Box No: <u>66-6</u>	Sample Box No: <u>66-6</u>
Meter Yr: <u>1,0005</u>	Meter ΔH: <u>1.8489</u>
K Factor: <u>3.03</u>	Pitot Cp: <u>.84</u>
Leak Rate Before: <u>.007</u> (cfm) [Lpm] @ <u>15</u> (in. Hg)	
Leak Rate After: <u>.001</u> (cfm) [Lpm] @ <u>10</u> (in. Hg)	
Pitot Leak Check Before: <input checked="" type="checkbox"/> After: Good <input checked="" type="checkbox"/> Bad <input type="checkbox"/>	

Gross Section of Test Location

Static Press. (in. H₂O): 11.0

Port Len. (in.): 10

Gas Flow (In) [Out]: (In) [Out]

First point all the way: (In) [Out]

Duct Dimensions (in.): 96 x 96

Amb. Temp. (°F): <u>90</u>	Bar. Press. <u>30.06</u> (in. Hg) [mbar]
Probe ID No: <u>67-8-13</u>	
Liner Material: <u>GLASS</u>	

Filter No: <u>RUN 1</u>	
Thimble No: <u>---</u>	
Nozzle Diameter: <u>.275</u>	Nozzle ID: <u>---</u>

H ₂ O: <u>396.2</u> (m) [gm]	Silica Gel (gm): <u>11.6</u>
Total Vol: <u>977.9</u>	

Start Time: <u>08:32</u>	Stop Time: <u>10:52</u>
--------------------------	-------------------------

Traverse Point Number	Min/vt Elapsed Time	Velocity Head ΔP's (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Init Vol. (mL)	Stack Temp T _s (°F)	Probe T _p (°F)		Cond. Temp T _c (°F)	DGM Inlet T _{min} (°F)	DGM Outlet T _{max} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T _t (°F)	Notes
						Set Points	Set Points						
1-1	5.0	.48	1.45	430.98	291	246	244	66	87	87	6	NA	
2	10.0	.50	1.52	434.50	291	246	246	54	89	86	6	NA	
3	15.0	.44	1.33	437.75	285	248	247	53	92	87	6	NA	
4	20.0	.43	1.30	441.01	290	248	248	53	93	87	6	NA	
5	25.0	.67	2.03	444.94	291	248	248	54	94	88	7	NA	445.03 = .13
2-1	30.0	.51	1.55	448.50	289	249	248	61	92	89	6	NA	
2	35.0	.43	1.30	451.75	289	248	250	53	94	89	6	NA	
3	40.0	.41	1.24	454.95	290	248	250	53	96	90	5	NA	
4	45.0	.46	1.39	458.34	290	250	251	53	95	90	6	NA	
5	50.0	.51	1.55	461.82	290	248	249	53	95	90	6	NA	461.97 = .15
3-1	55.0	.37	1.12	464.96	290	248	250	55	94	91	6	NA	
2	60.0	.47	1.27	468.03	290	251	250	55	94	91	6	NA	
	Total	8.1465	17.05	5825.04	3476	249.039	248.5		115	1065			
	Average												

* Sum of square roots.

Circle correct bracketed units on data sheet.



TEST LOCATION: Wash Outlet

Mercury TESTING
FIELD DATA SHEET

METHOD: 29 PAGE 2 OF 3

UNIT: 1 RUN: 1

Client	Wheelabrator	Project	8964
Plant	N. Broward	Date	6/19/01
Meter Operator	C. Wiza		
Probe Operator	A. Rizinger		

Meter Box No.	Sample Box No.	
Meter No.	Probe No.	
K Factor	Probe No.	
Leak Rate Before	[cfm] [Lpm]	[In Hg]
Leak Rate After	[cfm] [Lpm]	[In Hg]
Pilot Leak Check Before	<input type="checkbox"/>	After: Good <input type="checkbox"/> Bad <input type="checkbox"/>

Cross Section of Test Location

↑

[N] [UP]

Probe No.	Port No.	Gas Flow	Flare No.
[In] [Out]	[In] [Out]	[In] [Out]	[In] [Out]

Barometric Pressure	[In. Hg] [mbar]
Probe No.	
Probe Material	
Probe Temp	
Probe ID	
Probe Dia	
Probe Vol	[ml] [gm]
Total Vol	
Start Time	Stop Time

Traverse Point Number	Mirror Reading	Valve Reading	Probe Sample Volume	Gas Sample Volume	Probe Temp	Flare Temp	Probe No.	Port No.	Gas Flow	Flare No.	Probe Vol	Total Vol
			[ft ³] [L]						[In] [Out]		[In] [Out]	
3-3	65.0	.45	1.56	471.31	291	249	250	55	95	91	6	NA
4	70.0	.53	1.61	474.94	291	252	250	57	96	91	7	NA
5	75.0	.58	1.76	478.74	292	251	251	58	97	92	7	NA 478.80 = .06
4-1	80.0	.42	1.27	482.02	289	249	249	62	94	92	6	NA
2	85.0	.38	1.15	485.12	290	249	251	55	94	92	6	NA
3	90.0	.41	1.24	488.24	291	249	250	55	95	92	6	NA
4	95.0	.54	1.55	491.78	292	251	251	57	98	93	6	NA
5	100.0	.52	1.58	495.29	291	250	250	58	98	93	6	NA 495.34 = .05
5-1	105.0	.36	1.09	498.62	291	248	250	66	95	93	5	NA
2	110.0	.33	1.00	501.45	290	249	250	56	97	93	5	NA
3	115.0	.43	1.30	504.63	290	250	251	56	96	93	6	NA
4	120.0	.48	1.45	508.03	291	250	250	56	97	93	6	NA
Average	9.042	1.62	5430.17	3489					1152	1109		

TEST LOCATION: Outlet

Mercer TESTING
FIELD DATA SHEET

METHOD: 29 PAGE 3 OF 3

UNIT: () RUN: 1

Client: <u>Medalabrador</u>	Project No: <u>8069</u>
Plant: <u>N. Brown</u>	Date: <u>8/14/01</u>
Meter Operator: <u>C. Wiza</u>	
Probe Operator: <u>A. R. Prince</u>	

Meter Box No:	Sample Box No:
Meter Yd:	Meter ΔH @:
K-Factor:	Pitot Cp:
Leak Rate Before: [cfm] [Lpm] @ (in. Hg)	
Leak Rate After: [cfm] [Lpm] @ (in. Hg)	
Pilot Leak Check Before <input type="checkbox"/> After Good <input type="checkbox"/> Bad <input type="checkbox"/>	

Cross Section of Test Location

↑

[N] [UP]

Duct Dimensions (in.):

Static Press: (in. H ₂ O)	Port Len: (in.)	Gas Flow: [In] [Out]	First point all the way of page [In] [Out]
--------------------------------------	-----------------	----------------------	--

Amb Temp (°F)	Bar Press [in. Hg] [mbar]
Probe ID No:	
Liner Material:	

Filter No:	
Thimble No:	
Nozzle Diameter:	Nozzle ID:

H ₂ O [ml] [gm]	Silica Gel (gm)
Total V _{ic} :	

Start Time:	Stop Time:
-------------	------------

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP's (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Inlet Vol. [ft ³] [L]	Stack Temp T _s (°F)	Probe T _p (°F)	Filter T _f (°F)	Cond Temp T _c (°F)	DGM Inlet T _{in} (°F)	DGM Outlet T _{out} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T ₁ (°F)	Notes
						Set Points							
5-5	125.0	.51	1.55	511.53	292	251	251	58	100	94	7	NA	
Total		7.141	1.55	83.6	292				100	95			
Average		0.782	0.3984		290.20								

Sum of square roots.

Circle correct bracketed units on data sheet.

90.9



TEST LOCATION: OUTLET
 UNIT: 1 RUN: 2

MERCURY TESTING FIELD DATA SHEET

METHOD: 29 PAGE 1 OF 3

Client: <u>WHEELABRATOR</u>	Project No.: <u>2962</u>
Plant: <u>N. BROWARD</u>	Date: <u>6/19/01</u>
Meter Operator: <u>A. RISINGER</u>	
Probe Operator: <u>C. WIZA</u>	

Meter Box No: <u>66-4</u>	Sample Box No: <u>67-98</u>
Meter Yd: <u>1.0056</u>	Meter ΔH: <u>1.9347</u>
K-Factor: <u>2.98</u>	Pitot Cp: <u>.84</u>
Leak Rate Before: <u>.002</u> (cfm) [Lpm] @ <u>15</u> (in. Hg)	
Leak Rate After: <u>.002</u> (cfm) [Lpm] @ <u>15</u> (in. Hg)	
Pitot Leak Check Before: <input checked="" type="checkbox"/> After: Good <input type="checkbox"/> Bad <input type="checkbox"/>	

Cross-Section of Test Location

[N] [UP]

Duct Dimensions (in): 96 x 96

Static Press: (in. H ₂ O) <u>-11.3</u>	Port Len: (in.) <u>10</u>	Gas Flow: (In) [Out] of page <u>(In) [Out]</u>	First point all the way <u>(In) [Out]</u>
---	---------------------------	--	---

Amb Temp (°F) <u>93</u>	Bar Press: <u>30.06</u> (in. Hg) [mbar]
Probe ID No: <u>67-8-18</u>	
Liner Material: <u>GLASS</u>	

Filter No: <u>RUN 2</u>	
Thimble No: <u></u>	
Nozzle Diameter: <u>.275</u>	Nozzle ID: <u></u>

H ₂ O: <u>462.3</u> (ml) [gm]	Silica Gel (gm) <u>16.5</u>
Total Vol: <u>478.3</u>	

Start Time: <u>11:07</u>	Stop Time: <u>13:22</u>
--------------------------	-------------------------

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP's (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Init Vol. (ft ³) [L]	Stack Temp. T _s (°F)	Probe T _p (°F)		Cond Temp T _c (°F)	DGM Inlet T _{min} (°F)	DGM Outlet T _{max} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T _t (°F)	Notes
						Set Points	Set Points						
1-1	5.0	.40	1.19	373.89	288	247	245	67	92	90	7	NA	
2	10.0	.39	1.16	379.40	287	255	248	60	91	90	7	NA	
3	15.0	.39	1.16	387.20	283	253	247	60	94	90	7	NA	
4	20.0	.47	1.40	385.33	289	245	247	62	97	91	9	NA	
5	25.0	.60	1.79	388.84	288	250	249	62	99	92	10	NA	388.95 = .11
2-1	30.0	.50	1.49	392.20	287	243	248	60	98	93	8	NA	
2	35.0	.44	1.31	395.31	287	251	250	55	99	93	8	NA	
3	40.0	.42	1.25	398.33	287	252	249	48	99	93	8	NA	
4	45.0	.51	1.52	401.63	287	249	250	47	99	94	9	NA	
5	50.0	.59	1.78	405.20	287	250	250	46	100	94	10	NA	K=3.01 405.30 = .10
3-1	55.0	.39	1.24	408.33	287	247	248	52	99	94	8	NA	K=3.18
2	60.0	.40	1.27	411.40	287	251	250	47	100	94	8	NA	
	Total	8.0993	16.56		3444				1167	1108	26625		
	Average												

* Sum of square roots.

Circle correct bracketed units on data sheet.



TEST LOCATION: OUTLET

MERC. TESTING
FIELD DATA SHEET

METHOD: 29 PAGE 2 OF 3

UNIT: 1 RUN: 2

Client: WHEELABRATOR	Project No: 8964
Plant: N. BROWARD	Date: 6/19/01
Meter Operator: A. RISJGER	
Probe Operator: C. WIZA	

Cross-Section of Test Location

↑

[N] [UP]

Duct Dimensions (In.)

Static Press. (in. H ₂ O)	Port Len. (in.)	Gas Flow (In) (Out)	First point all the way of page [In] [Out]
--------------------------------------	-----------------	---------------------	--

Amb Temp (°F)	Bar Press.	[in. Hg] [mbar]
Probe I.D. No.		
Filter Material		

Filter No.		
Thimble No.		
Nozzle Diameter		Nozzle I.D.

H ₂ O	[ml] [gm]	Silica Gel (gm)
Total V _g		

Start Time	Stop Time
------------	-----------

Meter Box No.	Sample Box No.
Meter Yd.	Meter ΔH ₀
K Factor	Pitot Cp
Leak Rate Before [cfm] [Lpm] @ (in. Hg)	
Leak Rate After [cfm] [Lpm] @ (in. Hg)	
Pitot Leak Check Before: <input type="checkbox"/> After: Good <input type="checkbox"/> Bad <input type="checkbox"/>	

Traverse Point Number	Min/vt. 5.0 Elapsed Time	Velocity Head ΔP _s (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume - V _m Init. Vol. [ft ³] [L]	Stack Temp T _s (°F)	Probe T _p (°F)		Cond Temp T _c (°F)	DGM Inlet T _{in} (°F)	DGM Outlet T _{out} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp T _t (°F)	Notes
						750	250						
3-3	65.0	.42	1.34	414.68	287	251	250	50	100	95	8	NA	
4	70.0	.56	1.78	418.27	288	246	280	51	101	95	10	NA	
5	75.0	.60	1.91	421.91	288	249	251	53	102	96	11	NA	421.99 = .08
4-1	80.0	.44	1.40	425.21	285	247	248	58	100	96	8	NA	
2	85.0	.40	1.27	428.30	288	250	250	49	101	96	8	NA	
3	90.0	.42	1.34	431.50	288	251	252	49	101	97	8	NA	
4	95.0	.58	1.84	435.20	288	247	251	49	102	97	11	NA	
5	100.0	.61	1.94	439.99	287	253	250	50	101	97	12	NA	440.30 = .31 Tot = .60
5-1	105.0	.41	1.30	442.41	287	245	250	55	99	97	8	NA	
2	110.0	.43	1.37	445.65	287	249	249	48	100	97	9	NA	
3	115.0	.50	1.59	449.08	287	252	251	49	101	96	10	NA	
4	120.0	.57	1.81	452.87	287	252	251	51	101	96	11	NA	
	Total	8.4156	18.89		3447				1209	1155			
	Average												

TEST LOCATION: OUTLET

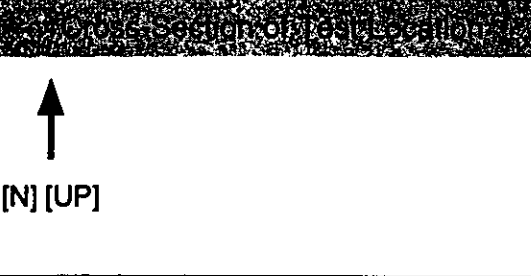
MERC. TESTING
FIELD DATA SHEET

METHOD: 29 PAGE 3 OF 3

UNIT: 1 RUN: 2

Client: WHEELABRATOR Project No: 8964
Plant: N. BOWARD Date: 6/19/01
Meter Location: _____
Probe Location: _____

Meter Port No: _____ Sample Port No: _____
Meter Type: _____ Meter Size: _____
K Factor: _____ Filter: _____
Leak Rate Before: _____ [cfm] [Lpm] _____ [in. Hg]
Leak Rate After: _____ [cfm] [Lpm] _____ [in. Hg]
Pitot Leak Check Before: After Good: Bad:

Section of Test Location:

[N] [UP]
Probe Dimensions (inches): _____
State Pres: _____ Port Len: _____ Gas Flow: _____ First Port: _____
(in. Hg) (in.) (In) [Out] All the way
to page (In) [Out]

_____ [in. Hg] [mbar]

_____ [ml] [gm] _____ [gm]

Start Time: _____ Stop Time: 13:22

Traverse Point Number	Miropt 5.0	Velocity	Orifice	Gas Sample Volume [ft³] [L]	Probe ID	Probe Length		Temp	Humidity	Wind Dir	Wind Spd	Notes
						in	ft					
5-5	125.0	.53	1.69	456.31	285	249	251	56	101	97	10	NA
		*.7280	1.69	<u>(8682)</u>	285							
		<u>(1.6897)</u>	<u>(1.4856)</u>	<u>(287.04)</u>								<u>(96.74)</u>

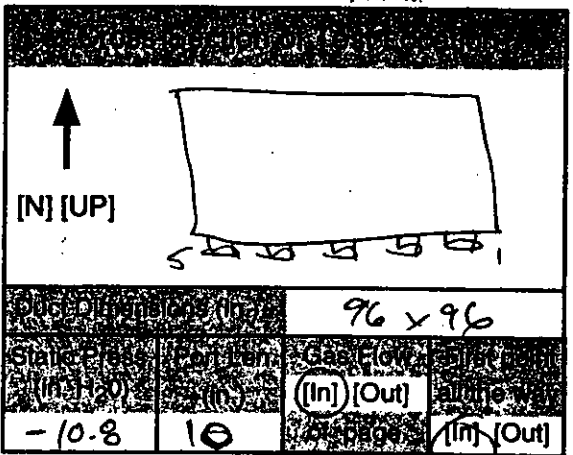
TEST LOCATION: Outlet

MERCURY TESTING
FIELD DATA SHEET

METHOD: 29 PAGE 1 OF 3

UNIT: 1 RUN: 3

WHEELABRATOR 8964
N. BLOWARD G/19/01
A. RISINGER
SAME



95 35.0% (In. Hg) (mbar)
67-8-13
glass

Wet Bulb 66.6
Wet Bulb 1.0005 1.8484
K-Factor 2.08 .84
Leak Rate Before .001 (cfm) (Lpm) 16 (In. Hg)
Leak Rate After .004 (cfm) (Lpm) 13 (In. Hg)
Pitot Leak Check Before Air Good Bad

NA
NA
.250

[ml] [gm]

Start Time 13:58 Stop Time 16:13

Traverse Point Number	Mirror	Velocity Head	Orifice	Gas Sample Velocity	Static Pressure	Pitot	Flow	Flow	Flow	Flow	Flow	Flow	Flow
	5.0			(ft/s) (L)									
				512.27		250	250						
1-1	5.0	.39	.81	514.83	291	245	245	67	97	96	4	NA	
2	10.0	.39	.81	517.40	285	248	247	62	96	96	4	NA	
3	15.0	.33	.69	519.79	286	247	249	65	96	96	4	NA	
4	20.0	.54	1.12	522.76	291	249	249	57	97	96	5	NA	
5	25.0	.60	1.25	525.92	292	247	248	53	100	96	5	NA	525.99 = .07
2-1	30.0	.49	1.02	528.90	289	245	249	59	98	96	5	NA	
2	35.0	.37	.77	531.42	290	249	250	54	99	96	4	NA	
3	40.0	.34	.71	533.86	290	250	249	54	100	97	4	NA	
4	45.0	.47	.98	536.69	291	248	249	66	101	97	5	NA	
5	50.0	.54	1.25	539.68	292	248	249	59	101	98	5	NA	539.77 = .09
3-1	55.0	.41	.85	542.36	290	246	250	62	99	97	5	NA	
2	60.0	.40	.83	544.94	288	248	250	60	100	98	4	NA	
		7.975	10.96		3475			1184	1159				

* Sum of square roots.

Circle correct bracketed units on data sheet.



TEST LOCATION: OUTLET

MERC. TESTING
FIELD DATA SHEET

METHOD: 29 PAGE 2 OF 3

UNIT: 1 RUN: 3

Client: <u>WHEELABRATOR</u>	Project No: <u>8964</u>
Plant: <u>A. BROWARD</u>	Date: <u>6/19/01</u>
Meter Operator: <u>A. RISIDGER</u>	
Probe Operator: <u>C. WITZ</u>	

Cross-Section of Test Location			
↑ [N] [UP]			
Duct Dimensions (in.):			
Static Press (in ² H ₂ O)	Port Len (in.)	Gas Flow (In) (Out)	First point all the way of page (In) (Out)

Amb Temp (°F)	Bar Press (in. Hg) (mbar)
Probe I.D. No.	
Liner Material	

Filter No.	
Thimble No.	
Nozzle Diameter	Nozzle I.D.

H ₂ O (ml) (gm)	Silica Gel (gm)
Total Vol	

Start Time	Stop Time
------------	-----------

Meter Box No.	Sample Box No.
Meter Yd.	Meter ΔH
K Factor	Pitot Cp
Leak Rate Before (cfm) (Lpm) (In:Hg)	
Leak Rate After (cfm) (Lpm) (In:Hg)	
Pitot Leak Check Before: <input type="checkbox"/> After: Good <input checked="" type="checkbox"/> Bad <input type="checkbox"/>	

Traverse Point Number	Min/pt → 50 Elapsed Time	Velocity Head AP'S (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Init. Vol (ft ³) (L)	Stack Temp T _s (°F)	Probe T _p (°F)		Cond Temp T _c (°F)	DGM Inlet T _{min} (°F)	DGM Outlet T _{max} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp (°F)	Notes
						250	250						
3-3	65.0	.40	.83	517.51	291	251	249	50	100	97	4	NA	
4	70.0	.53	1.10	550.42	289	249	250	51	99	97	5	NA	
5	75.0	.59	1.23	553.30	288	247	250	51	100	97	5	NA	553.40 = .10
4-1	80.0	.44	.92	556.12	288	249	250	61	97	97	5	NA	
2	85.0	.37	.77	558.65	290	250	250	56	96	96	4	NA	
3	90.0	.41	.85	561.28	290	251	250	57	99	97	5	NA	
4	95.0	.53	1.10	564.23	291	251	250	62	99	97	5	NA	
5	100.0	.55	1.14	567.25	290	252	251	54	100	97	5	NA	567.39 = .14
5-1	105.0	.40	.83	569.90	285	247	249	59	99	97	5	NA	
2	110.0	.35	.73	572.38	290	248	250	56	100	97	5	WA	
3	115.0	.42	.87	575.03	291	251	251	59	99	97	5	NA	
4	120.0	.47	.98	577.84	290	248	251	60	98	97	5	NA	
	Total	8.0628	11.35		3473				1186	1163	2549		
	Average												



TEST LOCATION: FF outlet

Mercury TESTING FIELD DATA SHEET

METHOD: 29 PAGE 3 OF 3

UNIT: 1 RUN: 3

Client	Project No.
Plant	Date
Meter Operator	
Probe Operator	

Meter Box No.	Sample Box No.
Meter Yd.	Meter ΔH ₀
K Factor	Pitot Co.
Leak Rate Before	[cfm] [Lpm] (In: Hg)
Leak Rate After	[cfm] [Lpm] (In: Hg)
Pitot Leak Check Before: <input type="checkbox"/> After: Good <input checked="" type="checkbox"/> Bad <input type="checkbox"/>	

Gross Section of Test Location

↑
[N] [UP]

Duct Dimensions (in.)

Static Press. (in. H ₂ O)	Port Len. (in.)	Gas Flow (In) [Out]	First point all the way of page [In] [Out]
--------------------------------------	-----------------	---------------------	--

Amb. Temp. (°F)	Bar. Press. (in. Hg) [mbar]
Probe ID No.	
Liner Material	

Filter No.	
Thimble No.	
Nozzle Diameter	Nozzle ID

H ₂ O [ml] [gm]	Silica Gel [gm]
Total Vlc	

Start Time	Stop Time
------------	-----------

Traverse Point Number	Mir/pt Elapsed Time	Velocity Head ΔP's (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume: V _m Init. Vol. [ft ³] [L]	Stack Temp. T _s (°F)	Probe T _p (°F)		Filter T _f (°F)	Cond. Temp. T _c (°F)	DGM Inlet T _{min} (°F)	DGM Outlet T _{max} (°F)	Pump Vacuum (in. Hg)	XAD Trap Temp. T _x (°F)	Notes
						Set	Points							
5-5	125.0	.47	.98	580.70	290	250	250	250	61	99	97	8	NA	
Total		68.96		68.03										
Average		1.668	0.9316		289.52					97.76				

DS 001 General CNVS/TRG.R3-4/6/94 * Sum of square roots.

Circle correct bracketed units on data sheet.



WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FLORIDA

Client Reference No:
CAE Project No: 8964-1

FIELD DATA PRINTOUTS

E

Field Data Printout

Location: Unit 1 Outlet	Method: M29	Bar. Press. (in. Hg): 30.06
Test Run: 1	Testing Type: Mercury	Actual Moisture (%): 19.2
Client: Wheelabrator North Broward, Inc.		
Project No: 8964-1		Nozzle Diameter (D _n): 0.275
Test Date: 6/19/01		O ₂ (dry volume %): 10.2
Meter ΔH@: 1.8489	Area (ft ²): 64.00	CO ₂ (dry volume %): 8.8
Meter Y _a : 1.0005		Start Time (approx.): 08:32
Pitot C _p : 0.84	Filter No: NA	Stop Time (approx.): 10:52
Static P: -11.0	Thimble No: NA	H ₂ O (condensate, ml): 396.2
Leak Rate Before: 0.007 cfm @ 15 *Hg	Beaker No: NA	H ₂ O (silica, g): 11.6
Leak Rate After: 0.001 cfm @ 10 *Hg		

Traverse Point	Run Time	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (ft ³)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m,in} (°F)	T _{m,out} (°F)			
	0.0			427.54						
1-01	5.0	0.48	1.45	430.98	291	87	87	0.69	3.44	101.5
1-02	10.0	0.50	1.52	434.50	291	89	86	0.71	3.52	101.7
1-03	15.0	0.44	1.33	437.75	285	92	87	0.66	3.25	99.3
1-04	20.0	0.43	1.30	441.01	290	93	87	0.66	3.26	101.0
1-05	25.0	0.67	2.03	444.94	291	94	88	0.82	3.93	97.6
LEAK CHECK	25.0			445.03						
2-01	30.0	0.51	1.55	448.50	289	92	89	0.71	3.47	98.6
2-02	35.0	0.43	1.30	451.75	289	94	89	0.66	3.25	100.4
2-03	40.0	0.41	1.24	454.95	290	96	90	0.64	3.20	101.0
2-04	45.0	0.46	1.39	458.34	290	95	90	0.68	3.39	101.1
2-05	50.0	0.51	1.55	461.82	290	95	90	0.71	3.48	98.6
LEAK CHECK	50.0			461.97						
3-01	55.0	0.37	1.12	464.96	290	94	91	0.61	2.99	99.4
3-02	60.0	0.42	1.27	468.03	290	94	91	0.65	3.07	95.8
3-03	65.0	0.45	1.36	471.31	291	95	91	0.67	3.28	98.9
3-04	70.0	0.53	1.61	474.94	291	96	91	0.73	3.63	100.8
3-05	75.0	0.58	1.76	478.74	292	97	92	0.76	3.80	100.8
LEAK CHECK	75.0			478.80						
4-01	80.0	0.42	1.27	482.02	289	94	92	0.65	3.22	100.3
4-02	85.0	0.38	1.15	485.12	290	94	92	0.62	3.10	101.6
4-03	90.0	0.41	1.24	488.24	291	95	92	0.64	3.12	98.4
4-04	95.0	0.54	1.55	491.78	292	98	93	0.73	3.54	97.1
4-05	100.0	0.52	1.58	495.29	291	98	93	0.72	3.51	98.0
LEAK CHECK	100.0			495.34						
5-01	105.0	0.36	1.09	498.62	291	95	93	0.60	3.28	110.3*
5-02	110.0	0.33	1.00	501.45	290	97	93	0.57	2.83	99.1
5-03	115.0	0.43	1.30	504.63	290	96	93	0.66	3.18	97.7
5-04	120.0	0.48	1.45	508.03	291	97	93	0.69	3.40	98.9
5-05	125.0	0.51	1.55	511.53	292	100	94	0.71	3.50	98.5
Final	125.0	0.68	1.40	83.64	290		93			

Field Data Printout

Location: Unit 1 Outlet	Method: M29	Bar. Press. (in. Hg): 30.06
Test Run: 2	Testing Type: Mercury	Actual Moisture (%): 22.3
Client: Wheelabrator North Broward, Inc.		
Project No: 8964-1		Nozzle Diameter (D _n): 0.275
Test Date: 6/19/01		O ₂ (dry volume %): 10.2
Meter ΔH@: 1.9347	Area (ft ²): 64.00	CO ₂ (dry volume %): 8.8
Meter Y _a : 1.0056		Start Time (approx.): 11:07
Pitot C _p : 0.84	Filter No: NA	Stop Time (approx.): 13:22
Static P: -11.3	Thimble No: NA	H ₂ O (condensate, ml): 462.3
Leak Rate Before: 0.002 cfm @ 15 "Hg	Beaker No: NA	H ₂ O (silica, g): 16.5
Leak Rate After: 0.002 cfm @ 15 "Hg		

Traverse Point	Run Time	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (ft ³)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m in} (°F)	T _{m out} (°F)			
	0.0			373.89						
1-01	5.0	0.40	1.19	376.59	288	92	90	0.63	2.70	89.7*
1-02	10.0	0.39	1.16	379.40	287	91	90	0.62	2.81	94.6
1-03	15.0	0.39	1.16	382.20	283	94	90	0.62	2.80	93.7
1-04	20.0	0.47	1.40	385.33	289	97	91	0.69	3.13	95.5
1-05	25.0	0.60	1.79	388.84	288	99	92	0.77	3.51	94.6
LEAK CHECK	25.0			388.95						
2-01	30.0	0.50	1.49	392.20	287	98	93	0.71	3.25	95.8
2-02	35.0	0.44	1.31	395.31	287	99	93	0.66	3.11	97.6
2-03	40.0	0.42	1.25	398.33	287	99	93	0.65	3.02	97.0
2-04	45.0	0.51	1.52	401.63	287	99	94	0.71	3.30	96.2
2-05	50.0	0.59	1.78	405.20	287	100	94	0.77	3.57	96.7
LEAK CHECK	50.0			405.30						
3-01	55.0	0.39	1.24	408.33	287	99	94	0.62	3.03	100.9
3-02	60.0	0.40	1.27	411.40	287	100	94	0.63	3.07	100.9
3-03	65.0	0.42	1.34	414.58	287	100	95	0.65	3.18	101.9
3-04	70.0	0.56	1.78	418.27	288	101	95	0.75	3.69	102.5
3-05	75.0	0.60	1.91	421.91	288	102	96	0.77	3.64	97.5
LEAK CHECK	75.0			421.99						
4-01	80.0	0.44	1.40	425.21	285	100	96	0.66	3.22	100.6
4-02	85.0	0.40	1.27	428.30	288	101	96	0.63	3.09	101.3
4-03	90.0	0.42	1.34	431.50	288	101	97	0.65	3.20	102.3
4-04	95.0	0.58	1.84	435.20	288	102	97	0.76	3.70	100.7
4-05	100.0	0.61	1.94	439.99	287	101	97	0.78	4.79	127.2*
LEAK CHECK	100.0			440.30						
5-01	105.0	0.41	1.30	442.41	287	99	97	0.64	2.11	68.4*
5-02	110.0	0.43	1.37	445.65	287	100	97	0.66	3.24	102.4
5-03	115.0	0.50	1.59	449.08	287	101	96	0.71	3.43	100.6
5-04	120.0	0.57	1.81	452.87	287	101	96	0.75	3.79	104.2
5-05	125.0	0.53	1.69	456.31	285	101	97	0.73	3.44	97.8
Final	125.0	0.69	1.49	81.82	287		97			

Field Data Printout

Location: Unit 1 Outlet	Method: M29	Bar. Press. (in. Hg): 30.06
Test Run: 3	Testing Type: Mercury	Actual Moisture (%): 19.9
Client: Wheelabrator North Broward, Inc.		
Project No: 8964-1		Nozzle Diameter (D _n): 0.250
Test Date: 6/19/01		O ₂ (dry volume %): 10.3
Meter ΔH@: 1.8489	Area (ft ²): 64.00	CO ₂ (dry volume %): 8.8
Meter Y _a : 1.0005		Start Time (approx.): 13:58
Pitot C _p : 0.84	Filter No: NA	Stop Time (approx.): 16:13
Static P: -10.8	Thimble No: NA	H ₂ O (condensate, ml): 330.7
Leak Rate Before: 0.001 cfm @ 16 *Hg	Beaker No: NA	H ₂ O (silica, g): 12.3
Leak Rate After: 0.004 cfm @ 13 *Hg		

Traverse Point	Run Time	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (ft ³)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m in} (°F)	T _{m out} (°F)			
	0.0			512.27						
1-01	5.0	0.39	0.81	514.83	291	97	96	0.62	2.56	100.2
1-02	10.0	0.39	0.81	517.40	285	96	96	0.62	2.57	100.2
1-03	15.0	0.33	0.69	519.79	286	96	96	0.57	2.39	101.4
1-04	20.0	0.54	1.12	522.76	291	97	96	0.73	2.97	98.8
1-05	25.0	0.60	1.25	525.92	292	100	96	0.77	3.16	99.6
LEAK CHECK	25.0			525.99						
2-01	30.0	0.49	1.02	528.90	289	98	96	0.70	2.91	101.4
2-02	35.0	0.37	0.77	531.42	290	99	96	0.61	2.52	101.0
2-03	40.0	0.34	0.71	533.86	290	100	97	0.58	2.44	101.8
2-04	45.0	0.47	0.98	536.69	291	101	97	0.69	2.83	100.4
2-05	50.0	0.54	1.12	539.68	292	101	98	0.73	2.99	99.0
LEAK CHECK	50.0			539.77						
3-01	55.0	0.41	0.85	542.36	290	99	97	0.64	2.59	98.5
3-02	60.0	0.40	0.83	544.94	288	100	98	0.63	2.58	99.0
3-03	65.0	0.40	0.83	547.51	291	100	97	0.63	2.57	98.9
3-04	70.0	0.53	1.10	550.42	289	99	97	0.73	2.91	97.3
3-05	75.0	0.59	1.23	553.30	288	100	97	0.77	2.88	91.2
LEAK CHECK	75.0			553.40						
4-01	80.0	0.44	0.92	556.12	288	97	97	0.66	2.72	99.9
4-02	85.0	0.37	0.77	558.65	290	96	96	0.61	2.53	101.6
4-03	90.0	0.41	0.85	561.28	290	99	97	0.64	2.63	100.0
4-04	95.0	0.53	1.10	564.23	291	99	97	0.73	2.95	98.8
4-05	100.0	0.55	1.14	567.25	290	100	97	0.74	3.02	99.1
LEAK CHECK	100.0			567.39						
5-01	105.0	0.40	0.83	569.90	285	99	97	0.63	2.51	96.3
5-02	110.0	0.35	0.73	572.38	290	100	97	0.59	2.48	102.0
5-03	115.0	0.42	0.87	575.03	291	99	97	0.65	2.65	99.6
5-04	120.0	0.47	0.98	577.84	290	98	97	0.69	2.81	99.9
5-05	125.0	0.47	0.98	580.70	290	99	97	0.69	2.86	101.6
Final	125.0	0.67	0.93	68.03	290		98			

WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FLORIDA

Client Reference No:
CAE Project No: 8964-1

LABORATORY DATA

F



**INORGANIC DATA PACKAGE
FOR
CLEAN AIR ENGINEERING**
Project # 8964

**Philip Analytical Services Corporation
5555 North Service Road
Burlington, ON L7L 5H7**

Submission #: 1F1135

Prepared by : Tara Latoski- CSR
Approved by : Ada Blythe, Project Manager

Initial : TL
Initial : AB



PROJECT NARRATIVE

PHILIP Analytical Services Inc (Burlington ON)

Philip Project: AN010794

Philip Submission #:1F1135

Client: Clean Air Engineering

Client Project: 8964

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Philip ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Run Date
<i>Mercury 1B via EPA Method 29</i>					
036284 01	Method Blank	01/06/20	01/06/28	01/07/10	01/07/11
036286 01	M29HG North-FB	01/06/19	01/06/28	01/07/10	01/07/11
036287 01	M29HG North-Out-R1	01/06/19	01/06/28	01/07/10	01/07/11
036288 01	M29HG North-Out-R2	01/06/19	01/06/28	01/07/10	01/07/11
036289 01	M29HG North-Out-R3	01/06/19	01/06/28	01/07/10	01/07/11
<i>Mercury 2B via EPA Method 29</i>					
036284 01	Method Blank	01/06/20	01/06/28	01/07/04	01/07/04
036286 01	M29HG North-FB	01/06/19	01/06/28	01/07/04	01/07/04
036287 01	M29HG North-Out-R1	01/06/19	01/06/28	01/07/04	01/07/04
036288 01	M29HG North-Out-R2	01/06/19	01/06/28	01/07/04	01/07/04
036289 01	M29HG North-Out-R3	01/06/19	01/06/28	01/07/04	01/07/04
<i>Mercury 3A via EPA Method 29</i>					
036284 01	Method Blank	01/06/20	01/06/28	01/07/04	01/07/04
036286 01	M29HG North-FB	01/06/19	01/06/28	01/07/04	01/07/04
036287 01	M29HG North-Out-R1	01/06/19	01/06/28	01/07/04	01/07/04
036288 01	M29HG North-Out-R2	01/06/19	01/06/28	01/07/04	01/07/04
036289 01	M29HG North-Out-R3	01/06/19	01/06/28	01/07/04	01/07/04
<i>Mercury 3B via EPA Method 29</i>					
036284 01	Method Blank	01/06/20	01/06/28	01/07/04	01/07/04
036286 01	M29HG North-FB	01/06/19	01/06/28	01/07/04	01/07/04
036287 01	M29HG North-Out-R1	01/06/19	01/06/28	01/07/04	01/07/04
036288 01	M29HG North-Out-R2	01/06/19	01/06/28	01/07/04	01/07/04
036289 01	M29HG North-Out-R3	01/06/19	01/06/28	01/07/04	01/07/04
<i>Mercury 3C via EPA Method 29</i>					
036284 01	Method Blank	01/06/20	01/06/28	01/07/09	01/07/09
036286 01	M29HG North-FB	01/06/19	01/06/28	01/07/09	01/07/09
036287 01	M29HG North-Out-R1	01/06/19	01/06/28	01/07/09	01/07/09
036288 01	M29HG North-Out-R2	01/06/19	01/06/28	01/07/09	01/07/09
036289 01	M29HG North-Out-R3	01/06/19	01/06/28	01/07/09	01/07/09

Run Date is defined as the date of injection of the last calibration standard (12 hour or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: none encountered

c) Documentation Problems: none encountered

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis.

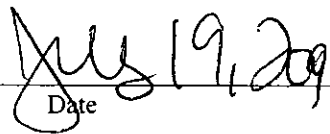
a) Hold Times: all within recommended hold times

b) Instrument Calibration: all within control limits

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.



Ada Blythe, Project Manager



Date

2. ANALYTICAL DATA REPORT



Certificate of Analysis

CLIENT INFORMATION

Attention: Scott Brown
Client Name: Clean Air Engineering
Project: 8964
Project Desc: Wheelabrator North Broward

Address: 500 W. Wood Street
Palatine, IL
IL 60067

Fax Number: 847-991-3385
Phone Number: 847-991-3300

LABORATORY INFORMATION

Contact: Ada Blythe, B.Sc., C.Chem.
Project: AN010794
Date Received: 28-Jun-2001
Date Reported: 11-Jul-2001

Submission No.: 1F1135
Sample No.: 036284


NOTES:

'-' = not analysed '<' = less than Method Detection Limit (MDL) 'NA' = no data available
LOQ can be determined for all analytes by multiplying the appropriate MDL X 3.33
Blank correction is only performed on oil and grease, BTEX, total purgeable hydrocarbons
and VOC analyses when Canadian methods are utilized.
Solids data is based on dry weight except for biota analyses.
Organic analyses are not corrected for extraction recovery standards except for isotope
dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)

Methods used by PSC Analytical Services are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', Nineteenth Edition. Other methods are based on the principles of MISA or EPA methodologies. New York State: ELAP Identification Number 10756.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at PSC Analytical Services for a period of three weeks from receipt of data or as per contract.

COMMENTS:

Certified by: 

PASC - Certificate of Analysis

Component	MDL	Units	Method	Blank	%	Blank	%	M29HG	M29HG	M29HG	M29HG
			Blank	Spike #1	Recoveries	Spike #2	Recoveries	North-FB	North-Out-R1	North-Out-R1	North-Out-R1
			036284 01	036284 01	036284 01	036284 01	036284 01	036286 01	036287 01	036287 01	036287 01
								01/06/19	01/06/19	01/06/19	01/06/19
										Duplicate	M. Spike
Filter weight	1.0	mg	-	-	-	-	-	440	450	-	-
Final volume measured	0	ml	300	-	-	-	-	300	300	-	-
Sample Volume - Container 5A		"	-	-	-	-	-	100	110	-	-
Sample Volume - Container 4		"	-	-	-	-	-	290	710	-	-
Mercury - 1B	0.030	ug	<	0.31	104	0.32	106	<	<	<	0.36
Mercury - 2B	0.010	"	<	0.10	100	0.10	100	<0.29	14	14	22
Mercury - 3A	0.010	"	<	0.10	100	0.10	100	0.011	<	<	0.11
Mercury - 3B	0.050	"	<	0.53	110	0.51	100	<	<	<	0.53
Mercury - 3C	0.050	"	<	0.52	100	0.53	110	0.072	0.77	0.76	1.3

PASC - Certificate of Analysis

			M29HG	M29HG	M29HG	M29HG	M29HG
	<i>Client ID:</i>		North-Out-R1	North-Out-R1	North-Out-R1	North-Out-R2	North-Out-R3
	<i>Lab No.:</i>		036287 01	036287 01	036287 01	036288 01	036289 01
	<i>Date Sampled:</i>		01/06/19	01/06/19	01/06/19	01/06/19	01/06/19
Component	MDL	Units	MS % Rec.	MS Dup	MSD % Rec.		
Filter weight	1.0	mg	-	-	-	450	450
Final volume measured	0	ml	-	-	-	300	300
Sample Volume - Container 5A		"	-	-	-	100	88
Sample Volume - Container 4		"	-	-	-	700	650
Mercury - 1B	0.030	ug	110	0.36	110	<	0.037
Mercury - 2B	0.010	"	110	0.10	100	13	13
Mercury - 3A	0.010	"	98	0.11	110	<	<
Mercury - 3B	0.050	"	110	0.53	110	<	<
Mercury - 3C	0.050	"	100	1.3	100	0.76	0.56

Batch Code: 07107M1B
Mercury - 1B
036284 01
036286 01
036287 01
036288 01
036289 01
Date Analysed: 01/07/11
Date Prepared: 01/07/10

Batch Code: 07046M2B
Mercury - 2B
036284 01
036286 01
036287 01
036288 01
036289 01
Date Analysed: 01/07/04
Date Prepared: 01/07/04

Batch Code: 07047M3A
Mercury - 3A
036284 01
036286 01
036287 01
036288 01
036289 01
Date Analysed: 01/07/04
Date Prepared: 01/07/04

Batch Code: 07042M3B
Mercury - 3B
036284 01
036286 01
036287 01
036288 01
036289 01
Date Analysed: 01/07/04
Date Prepared: 01/07/04

Batch Code: 07097M3C
Mercury - 3C
036284 01
036286 01
036287 01
036288 01
036289 01
Date Analysed: 01/07/09
Date Prepared: 01/07/09



North

Certificate of Analysis

CLIENT INFORMATION

Attention: Scott Brown
Client Name: Clean Air Engineering
Project: 8964
Project Desc: Wheelabrator North Broward

Address: 500 W. Wood Street
 Palatine, IL
 IL 60067
Fax Number: 847-991-3385
Phone Number: 847-991-3300

LABORATORY INFORMATION

Contact: Ada Blythe, B.Sc., C.Chem.
Project: AN010794
Date Received: 28-Jun-2001
Date Reported: 18-Jul-2001

Submission No.: 1F1135
Sample No.: 036285

NOTES:

"- " = not analysed ' < ' = less than Method Detection Limit (MDL) 'NA' = no data available
 LOQ can be determined for all analytes by multiplying the appropriate MDL X 3.33
 Blank correction is only performed on oil and grease, BTEX, total purgeable hydrocarbons
 and VOC analyses when Canadian methods are utilized.
 Solids data is based on dry weight except for hista analyses.
 Organic analyses are not corrected for extraction recovery standards except for isotope
 dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DDD/DBF analyses)

Methods used by PSC Analytical Services are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', Nineteenth Edition. Other methods are based on the principles of MISA or EPA methodologies. New York State: ELAP Identification Number 10756.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at PSC Analytical Services for a period of three weeks from receipt of data or as per contract.

COMMENTS:

(1) MDL was raised due to sample dilution.

Certified by:

7/18/2001

PASC - Certificate of Analysis

Page 1 of 1

Client ID:
Lab No.:
Date Sampled:

M29HG Reagent
 Blank
 036285 01
 20-Jun-2001

Component	MDL	Units	
Filter weight	1.0	mg	450
Final volume measured	0	ml	300
Sample Volume - Container 5A		"	100
Sample Volume - Container 4		"	300
			(1)
Mercury - 1B	0.030	ug	<
Mercury - 2B	0.010	"	<0.39
Mercury - 3A	0.010	"	<
Mercury - 3B	0.050	"	<
Mercury - 3C	0.050	"	<

Inorganic Analysis Action/Comment Form

* Please note any action or anomalies impacting this set of samples

Client ID: CLEANAIR

* For additional comments, please staple additional pages(s)

PSC sample ID range: 36284-89

Analysis: MERCURY

Submission #: 1F1135

Actions:

Impacted sample Ids

Additional digestion needed

#: NO

Re-analysis needed (alternate technique)

#: NO

Re-analysis needed (contract technique)

#: NO

Bottle discrepancies

#: NO

Interferences observed

#: NO

Dilutions needed

#: NO

Internal calculations modified

#: NO

Field/Trip blanks missing

#: NO

Other _____

#: _____

Explanation/comments:

Analyst: MGAS

Zenon Number	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
036284	CLEANAIR	MB R456	Mercury -	PV	-0.030	-99999.0	0.311	104.	0.318	106.	01/07/10	7M1B	01/07/11	MG02	20.	12.	
036286	CLEANAIR	M29HG North-FB	Mercury -	PV	-0.030						01/07/10	7M1B	01/07/11	MG02	21.	12.	
036287	CLEANAIR	M29HG North-Out-R1	Mercury -	PV	-0.030	-0.030	0.357	112.	0.357	112.	01/07/10	7M1B	01/07/11	MG02	21.	12.	
036288	CLEANAIR	M29HG North-Out-R2	Mercury -	PV	-0.030						01/07/10	7M1B	01/07/11	MG02	21.	12.	
036289	CLEANAIR	M29HG North-Out-R3	Mercury -	PV	0.037						01/07/10	7M1B	01/07/11	MG02	21.	12.	
BL0710	INTERNAL		Mercury -	PV	-0.030	-99999.0	0.311	104.	0.318	106.	01/07/10	7M1B	01/07/11	MG02	\$\$\$	\$\$\$	

11 Tests for 29HG-1B with an MDL of 0.030 ug

Validated By smb

Control Chart Updated N/A

IO Requirements met N/A

29HG-1B

Sample #	Conc. ug/L	Dilution x	Final Vol ml	Result T ug	Mdl ug	Dil Mdl ug	%	MDL FV
BL0710-3M1B	0.003	1	300	0.001	0.03	0.03		300
BL0710S	1.038	1	300	0.311	0.03	0.03	104	300
BL0710DS	1.059	1	300	0.318	0.03	0.03	106	300
36287	0.075	1	300	0.023	0.03	0.03		300
36287D	0.074	1	300	0.022	0.03	0.03		300
36287S	1.190	1	300	0.357	0.03	0.03	112	300
36287DS	1.191	1	300	0.357	0.03	0.03	112	300
36284	0.014	1	300	0.004	0.03	0.03		300
36286	0.021	1	300	0.006	0.03	0.03		300
36288	0.041	1	300	0.012	0.03	0.03		300
36289	0.124	1	300	0.037	0.03	0.03		300
36304	0.007	1	300	0.002	0.03	0.03		300
36306	0.014	1	300	0.004	0.03	0.03		300
36307	0.386	1	300	0.116	0.03	0.03		300
36308	0.283	1	300	0.085	0.03	0.03		300
36309	0.361	1	300	0.108	0.03	0.03		300

Sample Information File C:\FIMS\AAUSER\SAMPINFO\010711F2.SIF

Description : METHOD29
Batch ID : MG02
Volume Units :
Weight Units :
Analyst : MGAS
Sample Volume : 0.00

AS Sample ID Loc	Sample Sample Weight Units	User Dilution	Remarks
15 BL0710-3M1B <i>mk</i>			
16 BL0710S			
17 BL0710DS			
18 36287			
19 36287D			
20 36287S			
21 36287DS			
22 36284			
23 36286			
24 36288			
25 36289			
26 36304			
27 36306			
28 36307			
29 36308			
30 36309			
31 BL0710-5M3B			
32 BL0710S			
33 BL0710DS			
34 37069			
35 37069D			
36 37069S			
37 37069DS			
38 37067			
39 37068			
40 37070			
41 37071			
42 37072			
43 37073			
44 37074			
45 37075			
46 37076			
47 BL0710-6M3B			
48 BL0710S			
49 BL0710DS			
50 37078			
51 37078D			
52 37078S			
53 37078DS			
54 37077			
55 37079			
56 37080			
57 BL0710-7M3B			
-58 BL0710S			
59 BL0710DS			
60 37252			
61 37252D			
62 37252S			
63 37252DS			
64 37250			
65 37251			
66 37253			

37254

Method Name: EPA 7470
 Method Description: EPA 7470
 Element: Hg

Date: 07/11/2001
 Technique: FI-MHS
 Calibration Type:
 Hg, Zero Intercept: Linear
 Wavelength: 253.7 nm
 Sample Info Name: 010711F2.SIF

Results Data Set Name: 010711F2

Element: Hg Seq. No.: 1 AS Loc.: 1 Date: 07/11/2001
 Sample ID: Calib Blank

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.0001	0.0001	01:22:40	Yes
2			0.0001	0.0001	01:23:13	Yes
3			0.0001	0.0001	01:23:46	Yes
Mean:			0.0001			
SD :			0.0000			
%RSD:			2.7649			

Auto-zero performed.

Element: Hg Seq. No.: 2 AS Loc.: 2 Date: 07/11/2001
 Sample ID: STD1

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.0321	0.0323	01:24:35	Yes
2			0.0322	0.0323	01:25:09	Yes
3			0.0325	0.0326	01:25:42	Yes
Mean:			0.0323			
SD :			0.0002			
%RSD:			0.5166			

[Hg] Standard number 1 applied. [2.500]

Correlation Coefficient: 1.00000

Slope: 0.01291

Element: Hg Seq. No.: 3 AS Loc.: 3 Date: 07/11/2001
 Sample ID: STD2

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.0651	0.0652	01:26:31	Yes
2			0.0649	0.0650	01:27:04	Yes
3			0.0651	0.0652	01:27:37	Yes
Mean:			0.0650			
SD :			0.0001			
%RSD:			0.1710			

[Hg] Standard number 2 applied. [5.000]

Correlation Coefficient: 0.99996

Slope: 0.01299

Element: Hg Seq. No.: 4 AS Loc.: 4 Date: 07/11/2001
 Sample ID: STD3

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.0960	0.0961	01:28:51	Yes
2			0.0961	0.0962	01:29:24	Yes
3			0.0958	0.0959	01:29:57	Yes
Mean:			0.0960			

SD : 0.0002
 %RSD: 0.1691
 [Hg] Standard number 3 applied. [7.500]
 Correlation Coefficient: 0.99981 Slope: 0.01286

Element: Hg Seq. No.: 5 AS Loc.: 5 Date: 07/11/2001
 Sample ID: STD4

Repl #	SampleConc µg/L	StndConc µg/L	BlkCorr Signal	Peak Height	Time	Peak Stored
1			0.1261	0.1262	01:31:13	Yes
2			0.1265	0.1266	01:31:46	Yes
3			0.1267	0.1269	01:32:19	Yes
Mean:			0.1264			
SD :			0.0003			
%RSD:			0.2647			

[Hg] Standard number 4 applied. [10.00]
 Correlation Coefficient: 0.99970 Slope: 0.01275

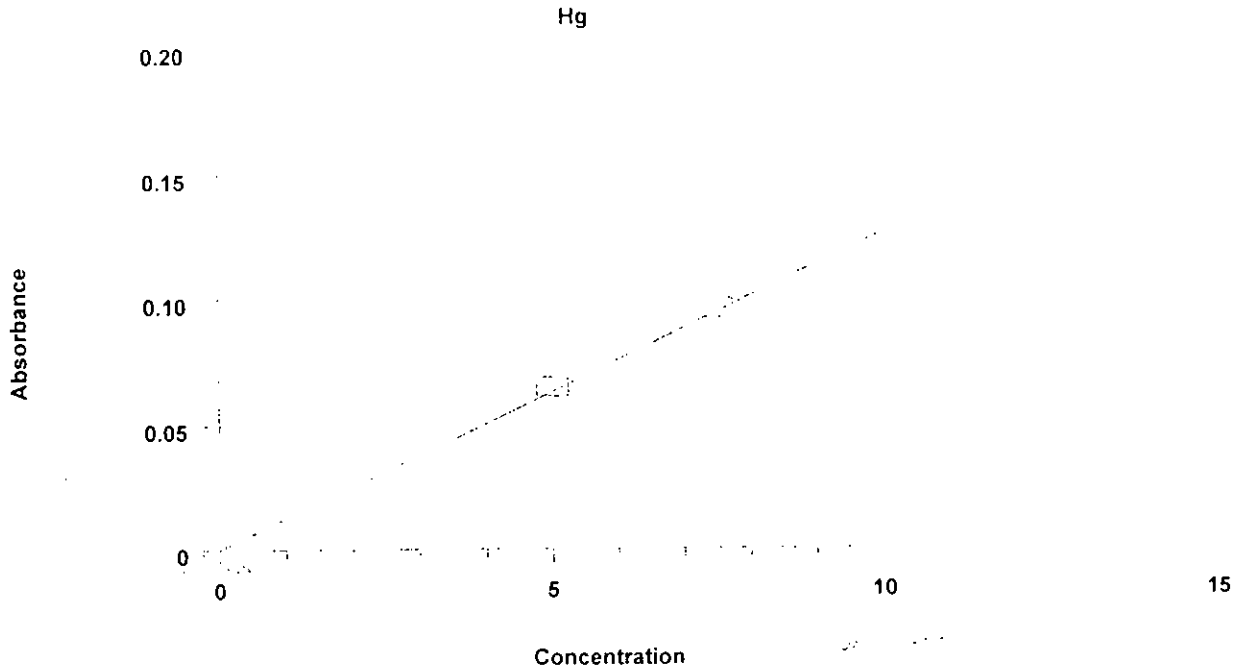
Element: Hg Seq. No.: 6 AS Loc.: 6 Date: 07/11/2001
 Sample ID: STD5

Repl #	SampleConc µg/L	StndConc µg/L	BlkCorr Signal	Peak Height	Time	Peak Stored
1			0.1554	0.1556	01:33:35	Yes
2			0.1553	0.1554	01:34:08	Yes
3			0.1552	0.1554	01:34:42	Yes
Mean:			0.1553			
SD :			0.0001			
%RSD:						

[Hg] Standard number 5 applied. [12.50]
 Correlation Coefficient: 0.99941 Slope: 0.01260

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0001	---	---	---	---
STD1	0.0323	2.500	2.561	0.0002	0.5
STD2	0.0650	5.000	5.159	0.0001	0.2
STD3	0.0960	7.500	7.614	0.0002	0.2
STD4	0.1264	10.000	10.03	0.0003	0.3
STD5	0.1553	12.500	12.32	0.0001	---
Correlation Coefficient: 0.99941		Slope: 0.01260		----	



=====
 Element: Hg Seq. No.: 7 AS Loc.: 9 Date: 07/11/2001
 Sample ID: ICV
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.539	1.539	0.0194	0.0195	01:36:01	Yes
2	1.532	1.532	0.0193	0.0194	01:36:34	Yes
3	1.525	1.525	0.0192	0.0193	01:37:07	Yes
Mean:	1.532	1.532	0.0193			
SD :	0.0069	0.0069	0.0001			
%RSD:	0.5	0.5	0.4505			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 8 AS Loc.: 10 Date: 07/11/2001
 Sample ID: ICB
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	-0.006	-0.006	-0.0001	0.0000	01:37:56	Yes
2	-0.004	-0.004	-0.0001	0.0001	01:38:29	Yes
3	-0.006	-0.006	-0.0001	0.0000	01:39:02	Yes
Mean:	-0.006	-0.006	-0.0001			
SD :	0.0010	0.0010	0.0000			
%RSD:	17.8	17.8	17.8048			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 9 AS Loc.: 11 Date: 07/11/2001
 Sample ID: NYS 3311
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.711	0.711	0.0090	0.0091	01:39:51	Yes
2	0.707	0.707	0.0089	0.0090	01:40:24	Yes
3	0.707	0.707	0.0089	0.0090	01:40:57	Yes

Mean: 0.708 0.708 0.0089
 SD : 0.0024 0.0024 0.0000
 %RSD: 0.3 0.3 0.3435
 QC value within specified limits.

=====
 Element: Hg Seq. No.: 10 AS Loc.: 12 Date: 07/11/2001
 Sample ID: ORG REF

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	2.083	2.083	0.0262	0.0264	01:41:46	Yes
2	2.081	2.081	0.0262	0.0263	01:42:19	Yes
3	2.056	2.056	0.0259	0.0260	01:42:52	Yes
Mean:	2.073	2.073	0.0261			
SD :	0.0148	0.0148	0.0002			
%RSD:	0.7	0.7	0.7141			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 11 AS Loc.: 13 Date: 07/11/2001
 Sample ID: LLC

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.251	0.251	0.0032	0.0033	01:43:41	Yes
2	0.253	0.253	0.0032	0.0033	01:44:14	Yes
3	0.252	0.252	0.0032	0.0033	01:44:47	Yes
Mean:	0.252	0.252	0.0032			
SD :	0.0010	0.0010	0.0000			
%RSD:	0.4	0.4	0.4058			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 12 AS Loc.: 14 Date: 07/11/2001
 Sample ID: DIL. CHECK

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.002	0.002	0.0000	0.0001	01:45:37	Yes
2	0.002	0.002	0.0000	0.0001	01:46:10	Yes
3	0.003	0.003	0.0000	0.0002	01:46:43	Yes
Mean:	0.003	0.003	0.0000			
SD :	0.0006	0.0006	0.0000			
%RSD:	22.1	22.1	22.1206			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 13 AS Loc.: 15 Date: 07/11/2001
 Sample ID: BL0710-8M1B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.000	0.000	0.0000	0.0001	01:47:32	Yes
2	0.003	0.003	0.0000	0.0002	01:48:05	Yes
3	0.003	0.003	0.0000	0.0002	01:48:38	Yes
Mean:	0.002	0.002	0.0000			
SD :	0.0017	0.0017	0.0000			
%RSD:	82.1	82.1	82.0517			

=====
 Element: Hg Seq. No.: 14 AS Loc.: 16 Date: 07/11/2001
 Sample ID: BL0710S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
--------	--------------------	------------------	--------------------	----------------	------	----------------

1	1.045	1.045	0.0132	0.0133	01:49:26	Yes
2	1.039	1.039	0.0131	0.0132	01:49:59	Yes
3	1.028	1.028	0.0130	0.0131	01:50:32	Yes
Mean:	1.038	1.038	0.0131			
SD :	0.0085	0.0085	0.0001			
%RSD:	0.8	0.8	0.8152			

=====
 Element: Hg Seq. No.: 15 AS Loc.: 17 Date: 07/11/2001
 Sample ID: BL0710DS

Repl #	SampleConc µg/L	StndConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	1.067	1.067	0.0134	0.0136	01:51:21	Yes
2	1.045	1.045	0.0132	0.0133	01:51:54	Yes
3	1.067	1.067	0.0134	0.0136	01:52:27	Yes
Mean:	1.059	1.059	0.0134			
SD :	0.0126	0.0126	0.0002			
%RSD:	1.2	1.2	1.1891			

=====
 Element: Hg Seq. No.: 16 AS Loc.: 18 Date: 07/11/2001
 Sample ID: 36287

Repl #	SampleConc µg/L	StndConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	0.077	0.077	0.0010	0.0011	01:53:16	Yes
2	0.074	0.074	0.0009	0.0011	01:53:49	Yes
3	0.075	0.075	0.0009	0.0011	01:54:22	Yes
Mean:	0.075	0.075	0.0009			
SD :	0.0012	0.0012	0.0000			
%RSD:	1.5	1.5	1.5449			

=====
 Element: Hg Seq. No.: 17 AS Loc.: 19 Date: 07/11/2001
 Sample ID: 36287D

Repl #	SampleConc µg/L	StndConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	0.073	0.073	0.0009	0.0010	01:55:11	Yes
2	0.072	0.072	0.0009	0.0010	01:55:44	Yes
3	0.077	0.077	0.0010	0.0011	01:56:17	Yes
Mean:	0.074	0.074	0.0009			
SD :	0.0023	0.0023	0.0000			
%RSD:	3.1	3.1	3.0554			

=====
 Element: Hg Seq. No.: 18 AS Loc.: 20 Date: 07/11/2001
 Sample ID: 36287S

Repl #	SampleConc µg/L	StndConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	1.194	1.194	0.0150	0.0152	01:57:06	Yes
2	1.192	1.192	0.0150	0.0151	01:57:39	Yes
3	1.185	1.185	0.0149	0.0151	01:58:12	Yes
Mean:	1.190	1.190	0.0150			
SD :	0.0045	0.0045	0.0001			
%RSD:	0.4	0.4	0.3818			

=====
 Element: Hg Seq. No.: 19 AS Loc.: 21 Date: 07/11/2001
 Sample ID: 36287DS

Repl #	SampleConc µg/L	StndConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	1.192	1.192	0.0150	0.0151	01:59:02	Yes

2	1.193	1.193	0.0150	0.0152	01:59:35	Yes
3	1.187	1.187	0.0150	0.0151	02:00:08	Yes
Mean:	1.191	1.191	0.0150			
SD :	0.0031	0.0031	0.0000			
%RSD:	0.3	0.3	0.2574			

=====
 Element: Hg Seq. No.: 20 AS Loc.: 22 Date: 07/11/2001
 Sample ID: 36284

Repl #	SampleConc µg/L	StdConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	0.013	0.013	0.0002	0.0003	02:00:56	Yes
2	0.017	0.017	0.0002	0.0003	02:01:29	Yes
3	0.013	0.013	0.0002	0.0003	02:02:02	Yes
Mean:	0.014	0.014	0.0002			
SD :	0.0020	0.0020	0.0000			
%RSD:	13.7	13.7	13.6645			

=====
 Element: Hg Seq. No.: 21 AS Loc.: 23 Date: 07/11/2001
 Sample ID: 36286

Repl #	SampleConc µg/L	StdConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	0.021	0.021	0.0003	0.0004	02:02:50	Yes
2	0.022	0.022	0.0003	0.0004	02:03:23	Yes
3	0.020	0.020	0.0003	0.0004	02:03:56	Yes
Mean:	0.021	0.021	0.0003			
SD :	0.0009	0.0009	0.0000			
%RSD:	4.2	4.2	4.1543			

=====
 Element: Hg Seq. No.: 22 AS Loc.: 24 Date: 07/11/2001
 Sample ID: 36288

Repl #	SampleConc µg/L	StdConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	0.043	0.043	0.0005	0.0007	02:04:48	Yes
2	0.042	0.042	0.0005	0.0006	02:05:21	Yes
3	0.040	0.040	0.0005	0.0006	02:05:54	Yes
Mean:	0.041	0.041	0.0005			
SD :	0.0016	0.0016	0.0000			
%RSD:	3.9	3.9	3.8963			

=====
 Element: Hg Seq. No.: 23 AS Loc.: 7 Date: 07/11/2001
 Sample ID: CCV

Repl #	SampleConc µg/L	StdConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	1.046	1.046	0.0132	0.0133	02:06:46	Yes
2	1.038	1.038	0.0131	0.0132	02:07:19	Yes
3	1.049	1.049	0.0132	0.0133	02:07:52	Yes
Mean:	1.044	1.044	0.0132			
SD :	0.0056	0.0056	0.0001			
%RSD:	0.5	0.5	0.5370			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 24 AS Loc.: 8 Date: 07/11/2001
 Sample ID: CCB

Repl #	SampleConc µg/L	StdConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	0.003	0.003	0.0000	0.0002	02:08:41	Yes

2	0.003	0.003	0.0000	0.0002	02:09:15	Yes
3	0.002	0.002	0.0000	0.0001	02:09:47	Yes
Mean:	0.003	0.003	0.0000			
SD :	0.0005	0.0005	0.0000			
%RSD:	19.1	19.1	19.0888			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 25 AS Loc.: 25 Date: 07/11/2001
 Sample ID: 36289

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.125	0.125	0.0016	0.0017	02:10:40	Yes
2	0.124	0.124	0.0016	0.0017	02:11:13	Yes
3	0.122	0.122	0.0015	0.0017	02:11:46	Yes
Mean:	0.124	0.124	0.0016			
SD :	0.0012	0.0012	0.0000			
%RSD:	1.0	1.0	1.0088			

=====
 Element: Hg Seq. No.: 26 AS Loc.: 26 Date: 07/11/2001
 Sample ID: 36304

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.007	0.007	0.0001	0.0002	02:12:35	Yes
2	0.005	0.005	0.0001	0.0002	02:13:08	Yes
3	0.008	0.008	0.0001	0.0002	02:13:41	Yes
Mean:	0.007	0.007	0.0001			
SD :	0.0011	0.0011	0.0000			
%RSD:	16.8	16.8	16.7505			

=====
 Element: Hg Seq. No.: 27 AS Loc.: 27 Date: 07/11/2001
 Sample ID: 36306

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.013	0.013	0.0002	0.0003	02:14:29	Yes
2	0.014	0.014	0.0002	0.0003	02:15:02	Yes
3	0.015	0.015	0.0002	0.0003	02:15:35	Yes
Mean:	0.014	0.014	0.0002			
SD :	0.0011	0.0011	0.0000			
%RSD:	8.3	8.3	8.2793			

=====
 Element: Hg Seq. No.: 28 AS Loc.: 28 Date: 07/11/2001
 Sample ID: 36307

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.387	0.387	0.0049	0.0050	02:16:24	Yes
2	0.388	0.388	0.0049	0.0050	02:16:57	Yes
3	0.384	0.384	0.0048	0.0050	02:17:30	Yes
Mean:	0.386	0.386	0.0049			
SD :	0.0024	0.0024	0.0000			
%RSD:	0.6	0.6	0.6244			

=====
 Element: Hg Seq. No.: 29 AS Loc.: 29 Date: 07/11/2001
 Sample ID: 36308

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.283	0.283	0.0036	0.0037	02:18:19	Yes

2	0.282	0.282	0.0036	0.0037	02:18:52	Yes
3	0.284	0.284	0.0036	0.0037	02:19:25	Yes
Mean:	0.283	0.283	0.0036			
SD :	0.0011	0.0011	0.0000			
%RSD:	0.4	0.4	0.3736			

=====
 Element: Hg Seq. No.: 30 AS Loc.: 30 Date: 07/11/2001
 Sample ID: 36309

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.362	0.362	0.0046	0.0047	02:20:14	Yes
2	0.360	0.360	0.0045	0.0047	02:20:47	Yes
3	0.360	0.360	0.0045	0.0047	02:21:20	Yes
Mean:	0.361	0.361	0.0045			
SD :	0.0015	0.0015	0.0000			
%RSD:	0.4	0.4	0.4107			

=====
 Element: Hg Seq. No.: 31 AS Loc.: 31 Date: 07/11/2001
 Sample ID: BL0710-5M3B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.006	0.006	0.0001	0.0002	02:22:09	Yes
2	0.005	0.005	0.0001	0.0002	02:22:42	Yes
3	0.006	0.006	0.0001	0.0002	02:23:15	Yes
Mean:	0.006	0.006	0.0001			
SD :	0.0005	0.0005	0.0000			
%RSD:	8.7	8.7	8.7426			

=====
 Element: Hg Seq. No.: 32 AS Loc.: 32 Date: 07/11/2001
 Sample ID: BL0710S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.026	1.026	0.0129	0.0130	02:24:03	Yes
2	1.032	1.032	0.0130	0.0131	02:24:36	Yes
3	1.034	1.034	0.0130	0.0132	02:25:09	Yes
Mean:	1.031	1.031	0.0130			
SD :	0.0043	0.0043	0.0001			
%RSD:	0.4	0.4	0.4212			

=====
 Element: Hg Seq. No.: 33 AS Loc.: 33 Date: 07/11/2001
 Sample ID: BL0710DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.037	1.037	0.0131	0.0132	02:25:57	Yes
2	1.033	1.033	0.0130	0.0131	02:26:30	Yes
3	1.028	1.028	0.0130	0.0131	02:27:03	Yes
Mean:	1.033	1.033	0.0130			
SD :	0.0043	0.0043	0.0001			
%RSD:	0.4	0.4	0.4152			

=====
 Element: Hg Seq. No.: 34 AS Loc.: 34 Date: 07/11/2001
 Sample ID: 37069

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.020	0.020	0.0002	0.0004	02:27:51	Yes
2	0.020	0.020	0.0003	0.0004	02:28:24	Yes

3	0.021	0.021	0.0003	0.0004	02:28:58	Yes
Mean:	0.020	0.020	0.0003			
SD :	0.0005	0.0005	0.0000			
%RSD:	2.4	2.4	2.4258			

=====
 Element: Hg Seq. No.: 35 AS Loc.: 7 Date: 07/11/2001
 Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.031	1.031	0.0130	0.0131	02:29:47	Yes
2	1.040	1.040	0.0131	0.0132	02:30:21	Yes
3	1.042	1.042	0.0131	0.0133	02:30:54	Yes
Mean:	1.038	1.038	0.0131			
SD :	0.0062	0.0062	0.0001			
%RSD:	0.6	0.6	0.5994			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 36 AS Loc.: 8 Date: 07/11/2001
 Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.002	0.002	0.0000	0.0002	02:31:43	Yes
2	0.004	0.004	0.0001	0.0002	02:32:16	Yes
3	0.006	0.006	0.0001	0.0002	02:32:49	Yes
Mean:	0.004	0.004	0.0001			
SD :	0.0016	0.0016	0.0000			
%RSD:	38.5	38.5	38.5140			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 37 AS Loc.: 4 Date: 07/11/2001
 Sample ID: Reslope

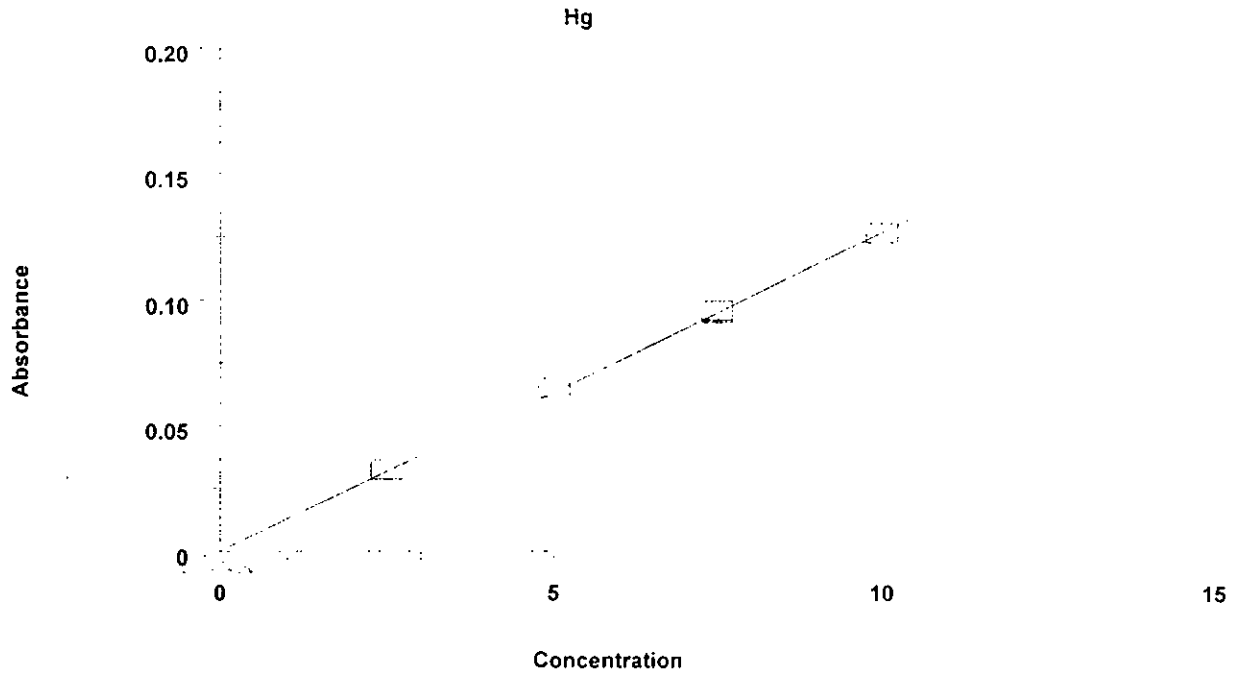
Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.0952	0.0953	02:33:39	Yes
2			0.0948	0.0949	02:34:12	Yes
3			0.0950	0.0951	02:34:45	Yes
Mean:			0.0950			
SD :			0.0002			
%RSD:			0.1961			

[Hg] Reslope standard applied. [7.500]

Correlation Coefficient: 0.99941 Slope: 0.01254

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0001	---	0.009	0.0000	2.8
STD1	0.0323	2.500	2.549	0.0002	0.5
STD2	0.0650	5.000	5.135	0.0001	0.2
STD3	0.0960	7.500	7.578	0.0002	0.2
STD4	0.1264	10.000	9.985	0.0003	0.3
STD5	0.1553	12.500	12.26	0.0001	----
Reslope	0.0950	7.500	7.500	0.0002	0.2
Correlation Coefficient: 0.99941		Slope: 0.01254		----	



=====
 Element: Hg Seq. No.: 38 AS Loc.: 35 Date: 07/11/2001
 Sample ID: 37069D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.018	0.018	0.0002	0.0004	02:36:05	Yes
2	0.018	0.018	0.0002	0.0003	02:36:38	Yes
3	0.019	0.019	0.0002	0.0004	02:37:11	Yes
Mean:	0.018	0.018	0.0002			
SD :	0.0004	0.0004	0.0000			
%RSD:	2.1	2.1	2.0818			

=====
 Element: Hg Seq. No.: 39 AS Loc.: 36 Date: 07/11/2001
 Sample ID: 37069S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.039	1.039	0.0132	0.0133	02:38:00	Yes
2	1.041	1.041	0.0132	0.0133	02:38:33	Yes
3	1.040	1.040	0.0132	0.0133	02:39:06	Yes
Mean:	1.040	1.040	0.0132			
SD :	0.0008	0.0008	0.0000			
%RSD:						

=====
 Element: Hg Seq. No.: 40 AS Loc.: 37 Date: 07/11/2001
 Sample ID: 37069DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.022	1.022	0.0129	0.0131	02:39:54	Yes
2	1.038	1.038	0.0131	0.0133	02:40:28	Yes
3	1.040	1.040	0.0132	0.0133	02:41:00	Yes
Mean:	1.033	1.033	0.0131			
SD :	0.0098	0.0098	0.0001			

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

Calibration Solutions:

#	I.D.	**Conc.	Spike	***Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	1.67	500 ul of 0.1 ppm working cal standard	2.5
4	Standard 3	3.33	1000 ul of 0.1 ppm working cal standard	5.0
5	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
6	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
7	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
8	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
9	Standard 5	6.67	2000 ul of 0.1 ppm working cal standard	10.0
10	Standard 6	8.33	2500 ul of 0.1 ppm working cal standard	12.5

Check List

- Digest Code/labels
- Samples poured out
- Acids added
- Reagents added
- Samples spiked
- Bath at 95 degrees C
- Samples digested
- Hydroxylamine HCl added
- Samples shaken and bulked
- Rack order checked

#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
11	ICV (Int. Calib. Verif.)	2H3B	20 ml	30 ml	1 X	1.5 ppb = 600 ul of 0.05ppm Working Reference QC Std.
12	LLC (low level check)	"	"	"	"	0.25ppb = 50ul of 0.1 ppm Working Cal Std.
13	BL 0710	"	"	"	"	(Processed Blank)
14	BL 0710 S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
15	BL 0710 DS	"	"	"	"	(Duplicate Blank Spike)
1	16 037252	"	"	"	"	
1	17 D	"	"	"	"	(Duplicate sample)
1	18 S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
1	19 DS	"	"	"	"	(Duplicate Spiked sample)
2	20 50	"	"	"	"	
3	21 51	"	"	"	"	
4	22 53	"	"	"	"	
5	23 54	"	"	"	"	
6	24	"	"	"	"	
7	25	"	"	"	"	
8	26	"	"	"	"	
9	27	"	"	"	"	
10	28	"	"	"	"	
29	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
30	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
31	BL 0710 MS	2H1B	20 ml	30 ml	"	(Processed Blank)
32	BL 0710 MS S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
33	BL 0710 MS DS	"	"	"	"	(Duplicate Blank Spike)
1	34 0320257	"	"	"	"	
1	35 D	"	"	"	"	(Duplicate sample)
1	36 S	"	"	"	"	1 ppb = 200 ul of 0.1 ppm Working Cal Std.
1	37 DS	"	"	"	"	(Duplicate Spiked sample)
2	38 284	"	"	"	"	
3	39 286	"	"	"	"	
4	40 288	"	"	"	"	
5	41 289	"	"	"	"	
6	42 036304	"	"	"	"	
7	43 306	"	"	"	"	
8	44 302	"	"	"	"	
9	45 305	"	"	"	"	
10	46 309	"	"	"	"	
47	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
48	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.

Comments:** concentration based on 30 ml final volume, *** concentration based on 20 ml final volume

Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C

DG29HG1, DG29HGF, DG101AA1, DG101AA2

#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
49	BL		"	"	"	(Processed Blank)
50	BL	S	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
51	BL	DS	"	"	"	(Duplicate Blank Spike)
1	52		"	"	"	
1	53	D	"	"	"	(Duplicate sample)
1	54	S	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std
1	55	DS	"	"	"	(Duplicate Spiked sample)
2	56		"	"	"	
3	57		"	"	"	
4	58		"	"	"	
5	59		"	"	"	
6	60		"	"	"	
7	61		"	"	"	
8	62		"	"	"	
9	63		"	"	"	
10	64		"	"	"	
65	CCV (Cont. Calib. Verif.)		20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
66	CCV (Cont. Calib. Verif.)		20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std

Procedure/Methodology:

- 1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul. of 1000 ppm Stock to 25 ml final volume of 2% HNO₃
- 2 Prepare 0.1 ppm Working calibration standard daily by pipetting 400 ul. of 25 ppm Intermediate to 100 ml final volume of 2% HNO₃
- 3 Prepare a 0.05 ppm Working Reference QC Standard daily by pipetting 50 ul of Stock Reference Standard to 100 ml final vol of 2% HNO₃
- 4 Using the LIMS Screen "SCNDIG" enter the required samples into LIMS
- 5 Using the labeling program, "DIGLBL", retrieve the "SCNDIG" list and create labels for the required samples.
- 6 Label the falcon tubes appropriately
- 7 Include one External Reference Material sample per run
- 8 Include one Organic Mercury Control Standard per run
- 9 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
- 10 Spike the tubes as indicated in the comment sector of the digestion sheet
- 11 Add 0.5 ml. of conc. Nitric Acid (HNO₃), and 1 ml. of conc. Sulphuric acid, (H₂SO₄), to each tube
- 12 Add 3 ml. Of 6% KMnO₄, purple colour must remain for the duration of digest.
- 13 Add 1.5 ml. of 5% potassium persulphate, (K₂S₂O₈), to each tube
- 14 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
- 15 Remove tubes and allow to cool to room temperature
- 16 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
- 17 Recap tubes and shake until KMnO₄ is destroyed and sample becomes colourless
Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	A9J25032	OCT 02
Intermediate Cal Standard	Internal	01106129	01106130
Stock Reference Standard	High Purity	033536	JAN 02
External Reference Material	SPEX NJS	3311	01125105
Organic Mercury Control Standard	Aldrich	2054112	01101101
6% potassium permanganate	Internal	01107104	01109104
5% potassium persulphate	Internal	01107104	01109104
20% hydroxylamine hydrochloride	Internal	01107104	01109104
HNO ₃	Anachemia	1100110	01109110
H ₂ SO ₄	Anachemia	2100110	01106119
Bath Temps: 19.1 C	Time ON: 10.01	Time OFF: 12.01	
Prepared By: H.P.	Date: 11/02/10	Checked by: G.B.	

Zenon Number	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
036284	CLEANAIR	MB R456	Mercury - PV		-0.050	-99999.0	0.531	106.	0.514	103.	01/07/04	2M3B	01/07/04	MG02	14.	6.	
036286	CLEANAIR	M29HG North-FB	Mercury - PV		-0.050						01/07/04	2M3B	01/07/04	MG02	15.	6.	
036287	CLEANAIR	M29HG North-Out-R1	Mercury - PV		-0.050	-0.050	0.534	106.	0.530	105.	01/07/04	2M3B	01/07/04	MG02	15.	6.	
036288	CLEANAIR	M29HG North-Out-R2	Mercury - PV		-0.050						01/07/04	2M3B	01/07/04	MG02	15.	6.	
036289	CLEANAIR	M29HG North-Out-R3	Mercury - PV		-0.050						01/07/04	2M3B	01/07/04	MG02	15.	6.	
BL0704	INTERNAL		Mercury - PV		-0.050	-99999.0	0.531	106.	0.514	103.	01/07/04	2M3B	01/07/04	MG02	\$\$\$	\$\$\$	

11 Tests for 29HG-3B with an MDL of 0.050 ug

Validated By cmf

Control Chart Updated NA

10 Requirements met N/A

Zenon Number	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
036284	CLEANAIR MB	R456	Mercury - PV		-0.010	-99999.0	0.102	102.	0.102	102.	01/07/04	6M2B	01/07/04	MG02	14.	6.	
036286	CLEANAIR M29HG	North-FB	Mercury - PV		-0.290						01/07/04	6M2B	01/07/04	MG02	15.	6.	*DDL*
036287	CLEANAIR M29HG	North-Out-R1	Mercury - PV		14.101	14.307	21.648	105.	0.102	102.	01/07/04	6M2B	01/07/04	MG02	15.	6.	
036288	CLEANAIR M29HG	North-Out-R2	Mercury - PV		13.083						01/07/04	6M2B	01/07/04	MG02	15.	6.	
036289	CLEANAIR M29HG	North-Out-R3	Mercury - PV		12.558						01/07/04	6M2B	01/07/04	MG02	15.	6.	
BL0704	INTERNAL		Mercury - PV		-0.010	-99999.0	0.102	102.	0.102	102.	01/07/04	6M2B	01/07/04	MG02	\$\$\$	\$\$\$	

11 Tests for 29HG-2B with an MDL of 0.010 ug Validated By CMP Control Chart Updated N/A IO Requirements met N/A

Zenon Number	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
036284	CLEANAIR	MB R456	Mercury -	PV	-0.010	-99999.0	0.103	103.	0.103	103.	01/07/04	7M3A	01/07/04	MG02	14.	6.	
036286	CLEANAIR	M29HG North-FB	Mercury -	PV	0.011						01/07/04	7M3A	01/07/04	MG02	15.	6.	
036287	CLEANAIR	M29HG North-Out-R1	Mercury -	PV	-0.010	-0.010	0.107	98.	0.108	108.	01/07/04	7M3A	01/07/04	MG02	15.	6.	
036288	CLEANAIR	M29HG North-Out-R2	Mercury -	PV	-0.010						01/07/04	7M3A	01/07/04	MG02	15.	6.	
036289	CLEANAIR	M29HG North-Out-R3	Mercury -	PV	-0.010						01/07/04	7M3A	01/07/04	MG02	15.	6.	
BL0704	INTERNAL		Mercury -	PV	-0.010	-99999.0	0.103	103.	0.103	103.	01/07/04	7M3A	01/07/04	MG02	\$\$\$	\$\$\$	

11 Tests for 29HG-3A with an MDL of 0.010 ug

Validated By imb

Control Chart Updated N/A

10 Requirements met N/A

29HG-3A

Sample #	Conc. ug/L	Dilution x	Final Vol ml	Result T ug	Mdl ug	Dil Mdl ug	%	MDL FV
BL0704-7M3A	0.006	1	100	0.001	0.01	0.01		100
BL0704S	1.031	1	100	0.103	0.01	0.01	103	100
BL0704DS	1.032	1	100	0.103	0.01	0.01	103	100
36287	0.029	1	106	0.003	0.01	0.01		100
36287D	0.036	1	106	0.004	0.01	0.01		100
36287S	1.009	1	106	0.107	0.01	0.01	98	100
36287DS	1.020	1	106	0.108	0.01	0.01	99	100
36286	0.110	1	102	0.011	0.01	0.01		100
36288	0.024	1	104	0.002	0.01	0.01		100
36289	0.013	1	88	0.001	0.01	0.01		100
36306	1.000	1	102	0.102	0.01	0.01		100
36307	0.006	1	106	0.001	0.01	0.01		100
36308	1.257	1	100	0.126	0.01	0.01		100
36309	0.040	1	108	0.004	0.01	0.01		100

29HG-2B

Sample #	Conc. ug/L	Dilution x	Final Vol ml	Result T ug	Mdl ug	Dil Mdl ug	%	MDL FV
BL0704-6M2B	0.003	1	100	0.000	0.01	0.01		100
BL0704S	1.024	1	100	0.102	0.01	0.01	102	100
BL0704DS	1.018	1	100	0.102	0.01	0.01	102	100
36287	1.986	10	710	14.101	0.01	0.71		100
36287D	2.015	10	710	14.307	0.01	0.71		100
36287S	3.049	10	710	21.648	0.01	0.71	105	100
36287DS	3.030	10	710	21.513	0.01	0.71	103	100
36286	0.022	10	290	0.064	0.01	0.29		100
36288	1.869	10	700	13.083	0.01	0.70		100
36289	1.932	10	650	12.558	0.01	0.65		100
36306	0.022	10	295	0.065	0.01	0.30		100
36307	2.644	10	690	18.244	0.01	0.69		100
36308	2.442	10	700	17.094	0.01	0.70		100
36309	2.487	10	630	15.668	0.01	0.63		100

29HG-3B

Sample #	Conc. ug/L	Dilution x	Final Vol ml	Result T ug	Mdl ug	Dil Mdl ug	%	MDL FV
BL0704-2M3B	0.008	1	500	0.004	0.05	0.05		500
BL0704S	1.061	1	500	0.531	0.05	0.05	106	500
BL0704DS	1.027	1	500	0.514	0.05	0.05	103	500
36287	0.007	1	500	0.004	0.05	0.05		500
36287D	0.010	1	500	0.005	0.05	0.05		500
36287S	1.068	1	500	0.534	0.05	0.05	106	500
36287DS	1.060	1	500	0.530	0.05	0.05	105	500
36284	0.012	1	500	0.006	0.05	0.05		500
36286	0.010	1	500	0.005	0.05	0.05		500
36288	0.006	1	500	0.003	0.05	0.05		500
36289	0.011	1	500	0.006	0.05	0.05		500
36304	0.008	1	500	0.004	0.05	0.05		500
36306	0.007	1	500	0.004	0.05	0.05		500
36307	0.004	1	500	0.002	0.05	0.05		500
36308	0.008	1	500	0.004	0.05	0.05		500
36309	0.006	1	500	0.003	0.05	0.05		500

Sample Information File C:\FIMS\AAUSER\SAMPINFO\010704F2.SIF

Description : METHOD29
Batch ID : MG02
Volume Units :
Weight Units :
Analyst : MGAS
Sample Volume : 0.00

AS Sample ID Loc	Sample Sample Weight Units	User Dilution	Remarks
15 BL0704-3MGI			
16 BL0704S			
17 BL0704DS			
18 31972		100.0000	
19 31972D		100.0000	
20 31972S		100.0000	
21 31972DS		100.0000	
22 31971		100.0000	
23 31973		100.0000	
24 31974		100.0000	
25 BL0704-4M1B			
26 BL0704S			
27 BL0704DS			
28 34454			
29 34454D			
30 34454S			
31 34454DS			
32 34452			
33 34453			
34 34455			
35 34456		5.0000	
36 34488			
37 34489			
38 34490		5.0000	
39 34491		5.0000	
40 34492		5.0000	
41 BL0704-1M3B			
42 BL0704S			
43 BL0704DS			
44 36163			
45 36163D			
46 36163S			
47 36163DS			
48 36161			
49 36162			
50 36164			
51 36165			
52 BL0704-2M3B			
53 BL0704S			
54 BL0704DS			
55 36287			
56 36287D			
57 36287S			
58 36287DS			
59 36284			
60 36286			
61 36288			
62 36289			
63 36304			
64 36306			
65 36307			
66 36308			

67	36309	
68	BL0704-6M2B	
69	BL0704S	
70	BL0704DS	
71	36287	10.0000
72	36287D	10.0000
73	36287S	10.0000
74	36287DS	10.0000
75	36286	10.0000
76	36288	10.0000
77	36289	10.0000
78	36306	10.0000
79	36307	10.0000
80	36308	10.0000
81	36309 <i>mb</i>	10.0000
82	BL0704-7M3A	
83	BL0704S	
84	BL0704DS	
85	36287	
86	36287D	
87	36287S	
88	36287DS	
89	36286	
90	36288	
91	36289	
92	36306	
93	36307	
94	36308	
95	36309	

Method Name: EPA 7470
 Method Description: EPA 7470
 Element: Hg

Date: 07/04/2001
 Technique: FI-MHS
 Calibration Type:
 Hg, Zero Intercept: Linear
 Wavelength: 253.7 nm
 Sample Info Name: 010704F2.SIF

Results Data Set Name: 010704F2

Element: Hg Seq. No.: 1 AS Loc.: 1 Date: 07/04/2001
 Sample ID: Calib Blank

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.0001	0.0001	01:44:24	Yes
2			0.0001	0.0001	01:44:57	Yes
3			0.0001	0.0001	01:45:31	Yes
Mean:			0.0001			
SD :			0.0000			
%RSD:			6.1383			

Auto-zero performed.

Element: Hg Seq. No.: 2 AS Loc.: 2 Date: 07/04/2001
 Sample ID: STD1

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.0346	0.0347	01:46:19	Yes
2			0.0341	0.0342	01:46:52	Yes
3			0.0344	0.0345	01:47:26	Yes
Mean:			0.0343			
SD :			0.0003			
%RSD:			0.8089			

[Hg] Standard number 1 applied. [2.500]

Correlation Coefficient: 1.00000

Slope: 0.01374

Element: Hg Seq. No.: 3 AS Loc.: 3 Date: 07/04/2001
 Sample ID: STD2

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.0700	0.0701	01:48:16	Yes
2			0.0696	0.0698	01:48:49	Yes
3			0.0699	0.0701	01:49:22	Yes
Mean:			0.0698			
SD :			0.0002			
%RSD:			0.2702			

[Hg] Standard number 2 applied. [5.000]

Correlation Coefficient: 0.99977

Slope: 0.01392

Element: Hg Seq. No.: 4 AS Loc.: 4 Date: 07/04/2001
 Sample ID: STD3

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.1035	0.1037	01:50:36	Yes
2			0.1035	0.1036	01:51:09	Yes
3			0.1026	0.1027	01:51:42	Yes
Mean:			0.1032			

SD : 0.0005
 %RSD: 0.5068
 [Hg] Standard number 3 applied. [7.500]
 Correlation Coefficient: 0.99983 Slope: 0.01382

Element: Hg Seq. No.: 5 AS Loc.: 5 Date: 07/04/2001
 Sample ID: STD4

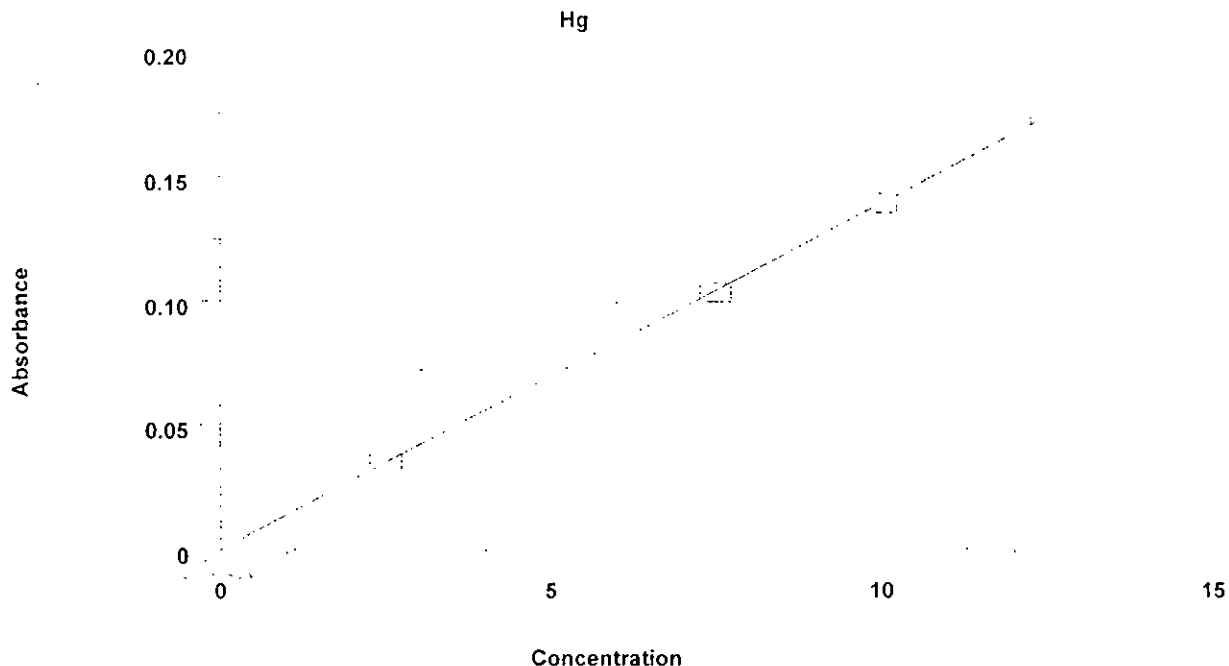
Repl #	SampleConc µg/L	StndConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1			0.1392	0.1393	01:52:58	Yes
2			0.1389	0.1391	01:53:31	Yes
3			0.1385	0.1386	01:54:04	Yes
Mean:			0.1389			
SD :			0.0004			
%RSD:			0.2522			
[Hg] Standard number 4 applied. [10.00]						
Correlation Coefficient:			0.99992	Slope: 0.01385		

Element: Hg Seq. No.: 6 AS Loc.: 6 Date: 07/04/2001
 Sample ID: STD5

Repl #	SampleConc µg/L	StndConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1			0.1733	0.1734	01:55:20	Yes
2			0.1725	0.1727	01:55:53	Yes
3			0.1744	0.1745	01:56:26	Yes
Mean:			0.1734			
SD :			0.0009			
%RSD:			0.5407			
[Hg] Standard number 5 applied. [12.50]						
Correlation Coefficient:			0.99996	Slope: 0.01386		

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0001	---	---	---	---
STD1	0.0343	2.500	2.477	0.0003	0.8
STD2	0.0698	5.000	5.038	0.0002	0.3
STD3	0.1032	7.500	7.445	0.0005	0.5
STD4	0.1389	10.000	10.02	0.0003	0.3
STD5	0.1734	12.500	12.51	0.0009	0.5
Correlation Coefficient:		0.99996	Slope: 0.01386	----	



=====
 Element: Hg Seq. No.: 7 AS Loc.: 9 Date: 07/04/2001
 Sample ID: ICV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.511	1.511	0.0209	0.0211	01:57:46	Yes
2	1.508	1.508	0.0209	0.0210	01:58:18	Yes
3	1.511	1.511	0.0209	0.0211	01:58:52	Yes
Mean:	1.510	1.510	0.0209			
SD :	0.0014	0.0014	0.0000			

‡RSD:
 QC value within specified limits.

=====
 Element: Hg Seq. No.: 8 AS Loc.: 10 Date: 07/04/2001
 Sample ID: ICB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	-0.007	-0.007	-0.0001	0.0000	01:59:41	Yes
2	-0.005	-0.005	-0.0001	0.0001	02:00:14	Yes
3	-0.006	-0.006	-0.0001	0.0000	02:00:47	Yes
Mean:	-0.006	-0.006	-0.0001			
SD :	0.0007	0.0007	0.0000			
%RSD:	11.5	11.5	11.4975			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 9 AS Loc.: 11 Date: 07/04/2001
 Sample ID: NYS 3311

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.486	0.486	0.0067	0.0069	02:01:36	Yes
2	0.488	0.488	0.0068	0.0069	02:02:09	Yes
3	0.485	0.485	0.0067	0.0069	02:02:42	Yes

Mean: 0.486 0.486 0.0067
 SD : 0.0012 0.0012 0.0000
 %RSD: 0.2 0.2 0.2483

QC failed, value less than lower limit for Hg.

=====
 Element: Hg Seq. No.: 10 AS Loc.: 11 Date: 07/04/2001
 Sample ID: NYS 3311
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.590	0.590	0.0082	0.0083	02:03:30	Yes
2	0.609	0.609	0.0084	0.0086	02:04:03	Yes
3	0.605	0.605	0.0084	0.0085	02:04:36	Yes
Mean:	0.601	0.601	0.0083			
SD :	0.0102	0.0102	0.0001			
%RSD:	1.7	1.7	1.6996			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 11 AS Loc.: 12 Date: 07/04/2001
 Sample ID: ORG REF
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	2.258	2.258	0.0313	0.0314	02:05:25	Yes
2	2.244	2.244	0.0311	0.0312	02:05:58	Yes
3	2.265	2.265	0.0314	0.0315	02:06:31	Yes
Mean:	2.256	2.256	0.0313			
SD :	0.0106	0.0106	0.0001			
%RSD:	0.5	0.5	0.4698			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 12 AS Loc.: 13 Date: 07/04/2001
 Sample ID: LLC
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.251	0.251	0.0035	0.0036	02:07:20	Yes
2	0.255	0.255	0.0035	0.0037	02:07:53	Yes
3	0.252	0.252	0.0035	0.0036	02:08:26	Yes
Mean:	0.253	0.253	0.0035			
SD :	0.0020	0.0020	0.0000			
%RSD:	0.8	0.8	0.7794			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 13 AS Loc.: 14 Date: 07/04/2001
 Sample ID: DIL. CHECK
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.011	0.011	0.0001	0.0003	02:09:14	Yes
2	0.010	0.010	0.0001	0.0003	02:09:47	Yes
3	0.007	0.007	0.0001	0.0002	02:10:21	Yes
Mean:	0.009	0.009	0.0001			
SD :	0.0018	0.0018	0.0000			
%RSD:	19.5	19.5	19.5485			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 14 AS Loc.: 15 Date: 07/04/2001
 Sample ID: BL0704-3MGI
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
--------	--------------------	------------------	--------------------	----------------	------	----------------

1	86.12	0.861	0.0119	0.0121	02:20:42	Yes
2	86.10	0.861	0.0119	0.0121	02:21:15	Yes
3	86.61	0.866	0.0120	0.0121	02:21:49	Yes
Mean:	86.28	0.863	0.0120			
SD :	0.2913	0.0029	0.0000			
%RSD:	0.3	0.3	0.3376			

Element: Hg Seq. No.: 20 AS Loc.: 21 Date: 07/04/2001
 Sample ID: 31972DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	81.53	0.815	0.0113	0.0114	02:22:38	Yes
2	82.82	0.828	0.0115	0.0116	02:23:11	Yes
3	78.53	0.785	0.0109	0.0110	02:23:44	Yes
Mean:	80.96	0.810	0.0112			
SD :	2.206	0.0221	0.0003			
%RSD:	2.7	2.7	2.7245			

Element: Hg Seq. No.: 21 AS Loc.: 22 Date: 07/04/2001
 Sample ID: 31971

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	5.065	0.051	0.0007	0.0008	02:24:33	Yes
2	4.725	0.047	0.0007	0.0008	02:25:06	Yes
3	4.812	0.048	0.0007	0.0008	02:25:39	Yes
Mean:	4.867	0.049	0.0007			
SD :	0.1766	0.0018	0.0000			
%RSD:	3.6	3.6	3.6282			

Element: Hg Seq. No.: 22 AS Loc.: 23 Date: 07/04/2001
 Sample ID: 31973

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	15.71	0.157	0.0022	0.0023	02:26:28	Yes
2	15.53	0.155	0.0022	0.0023	02:27:01	Yes
3	15.36	0.154	0.0021	0.0023	02:27:34	Yes
Mean:	15.53	0.155	0.0022			
SD :	0.1785	0.0018	0.0000			
%RSD:	1.1	1.1	1.1492			

Element: Hg Seq. No.: 23 AS Loc.: 24 Date: 07/04/2001
 Sample ID: 31974

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	14.75	0.148	0.0020	0.0022	02:28:26	Yes
2	14.42	0.144	0.0020	0.0021	02:28:59	Yes
3	14.50	0.145	0.0020	0.0021	02:29:32	Yes
Mean:	14.56	0.146	0.0020			
SD :	0.1735	0.0017	0.0000			
%RSD:	1.2	1.2	1.1918			

Element: Hg Seq. No.: 24 AS Loc.: 7 Date: 07/04/2001
 Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.994	0.994	0.0138	0.0139	02:30:24	Yes

2 1.002 1.002 0.0139 0.0140 02:30:57 Yes
 3 1.001 1.001 0.0139 0.0140 02:31:31 Yes
 Mean: 0.999 0.999 0.0138
 SD : 0.0046 0.0046 0.0001
 %RSD: 0.5 0.5 0.4588
 QC value within specified limits.

Element: Hg Seq. No.: 25 AS Loc.: 8 Date: 07/04/2001
 Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	-0.001	-0.001	0.0000	0.0001	02:32:19	Yes
2	-0.001	-0.001	0.0000	0.0001	02:32:52	Yes
3	0.000	0.000	0.0000	0.0001	02:33:26	Yes
Mean:	-0.001	-0.001	0.0000			
SD :	0.0010	0.0010	0.0000			
%RSD:	110.9	110.9	110.9491			

QC value within specified limits.

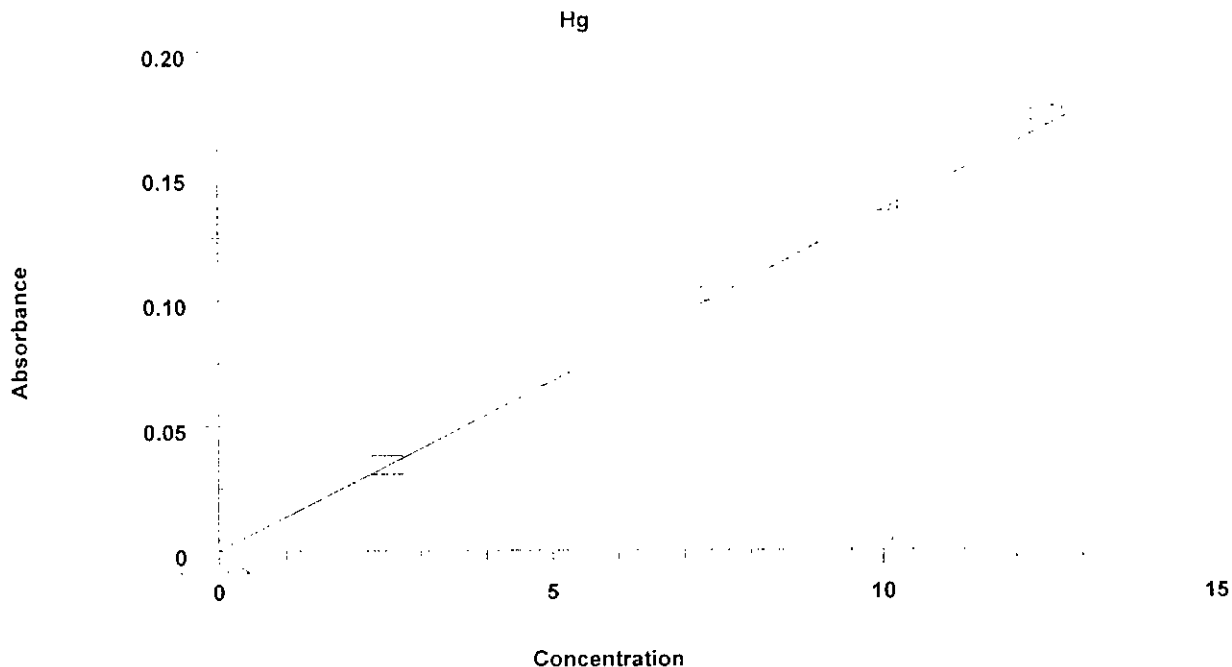
Element: Hg Seq. No.: 26 AS Loc.: 4 Date: 07/04/2001
 Sample ID: Reslope

Repl #	SampleConc µg/L	StndConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1			0.1018	0.1019	02:34:16	Yes
2			0.1017	0.1019	02:34:49	Yes
3			0.1015	0.1016	02:35:22	Yes
Mean:			0.1016			
SD :			0.0002			
%RSD:			0.1596			

[Hg] Reslope standard applied. [7.500]
 Correlation Coefficient: 0.99996 Slope: 0.01418

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0001	---	0.010	0.0000	6.1
STD1	0.0343	2.500	2.534	0.0003	0.8
STD2	0.0698	5.000	5.154	0.0002	0.3
STD3	0.1032	7.500	7.615	0.0005	0.5
STD4	0.1389	10.000	10.25	0.0003	0.3
STD5	0.1734	12.500	12.79	0.0009	0.5
Reslope	0.1016	7.500	7.500	0.0002	0.2
Correlation Coefficient: 0.99996		Slope:	0.01418	----	



=====
 Element: Hg Seq. No.: 27 AS Loc.: 25 Date: 07/04/2001
 Sample ID: BL0704-4M1B

Repl #	SampleConc µg/L	StdConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	0.001	0.001	0.0000	0.0002	02:36:40	Yes
2	0.002	0.002	0.0000	0.0002	02:37:13	Yes
3	0.003	0.003	0.0000	0.0002	02:37:46	Yes
Mean:	0.002	0.002	0.0000			
SD :	0.0009	0.0009	0.0000			
%RSD:	42.5	42.5	42.4950			

=====
 Element: Hg Seq. No.: 28 AS Loc.: 26 Date: 07/04/2001
 Sample ID: BL0704S

Repl #	SampleConc µg/L	StdConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	1.025	1.025	0.0139	0.0140	02:38:34	Yes
2	1.026	1.026	0.0139	0.0140	02:39:07	Yes
3	1.031	1.031	0.0140	0.0141	02:39:40	Yes
Mean:	1.027	1.027	0.0139			
SD :	0.0030	0.0030	0.0000			
%RSD:	0.3	0.3	0.2902			

=====
 Element: Hg Seq. No.: 29 AS Loc.: 27 Date: 07/04/2001
 Sample ID: BL0704DS

Repl #	SampleConc µg/L	StdConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1	1.046	1.046	0.0142	0.0143	02:40:29	Yes
2	1.033	1.033	0.0140	0.0141	02:41:02	Yes
3	1.040	1.040	0.0141	0.0142	02:41:35	Yes
Mean:	1.040	1.040	0.0141			
SD :	0.0063	0.0063	0.0001			

SD : 0.0009 0.0009 0.0000
 %RSD: 16.4 16.4 16.4436

=====
 Element: Hg Seq. No.: 47 AS Loc.: 42 Date: 07/04/2001
 Sample ID: BL0704S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.062	1.062	0.0144	0.0146	03:17:12	Yes
2	1.062	1.062	0.0144	0.0146	03:17:46	Yes
3	1.057	1.057	0.0144	0.0145	03:18:19	Yes
Mean:	1.060	1.060	0.0144			
SD :	0.0027	0.0027	0.0000			
%RSD:	0.3	0.3	0.2513			

=====
 Element: Hg Seq. No.: 48 AS Loc.: 43 Date: 07/04/2001
 Sample ID: BL0704DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.056	1.056	0.0143	0.0145	03:19:08	Yes
2	1.055	1.055	0.0143	0.0145	03:19:41	Yes
3	1.055	1.055	0.0143	0.0145	03:20:14	Yes
Mean:	1.056	1.056	0.0143			
SD :	0.0004	0.0004	0.0000			
%RSD:						

=====
 Element: Hg Seq. No.: 49 AS Loc.: 44 Date: 07/04/2001
 Sample ID: 36163

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.012	0.012	0.0002	0.0003	03:21:03	Yes
2	0.014	0.014	0.0002	0.0003	03:21:36	Yes
3	0.013	0.013	0.0002	0.0003	03:22:09	Yes
Mean:	0.013	0.013	0.0002			
SD :	0.0007	0.0007	0.0000			
%RSD:	5.3	5.3	5.2503			

=====
 Element: Hg Seq. No.: 50 AS Loc.: 7 Date: 07/04/2001
 Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.033	1.033	0.0140	0.0142	03:23:00	Yes
2	1.021	1.021	0.0139	0.0140	03:23:33	Yes
3	1.034	1.034	0.0140	0.0142	03:24:06	Yes
Mean:	1.029	1.029	0.0140			
SD :	0.0070	0.0070	0.0001			
%RSD:	0.7	0.7	0.6812			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 51 AS Loc.: 8 Date: 07/04/2001
 Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	-0.001	-0.001	0.0000	0.0001	03:24:55	Yes
2	0.002	0.002	0.0000	0.0002	03:25:28	Yes
3	-0.001	-0.001	0.0000	0.0001	03:26:01	Yes
Mean:	0.000	0.000	0.0000			

SD : 0.0014 0.0014 0.0000
 %RSD: 670.8 670.8 670.8152
 QC value within specified limits.

=====
 Element: Hg Seq. No.: 52 AS Loc.: 4 Date: 07/04/2001
 Sample ID: Reslope

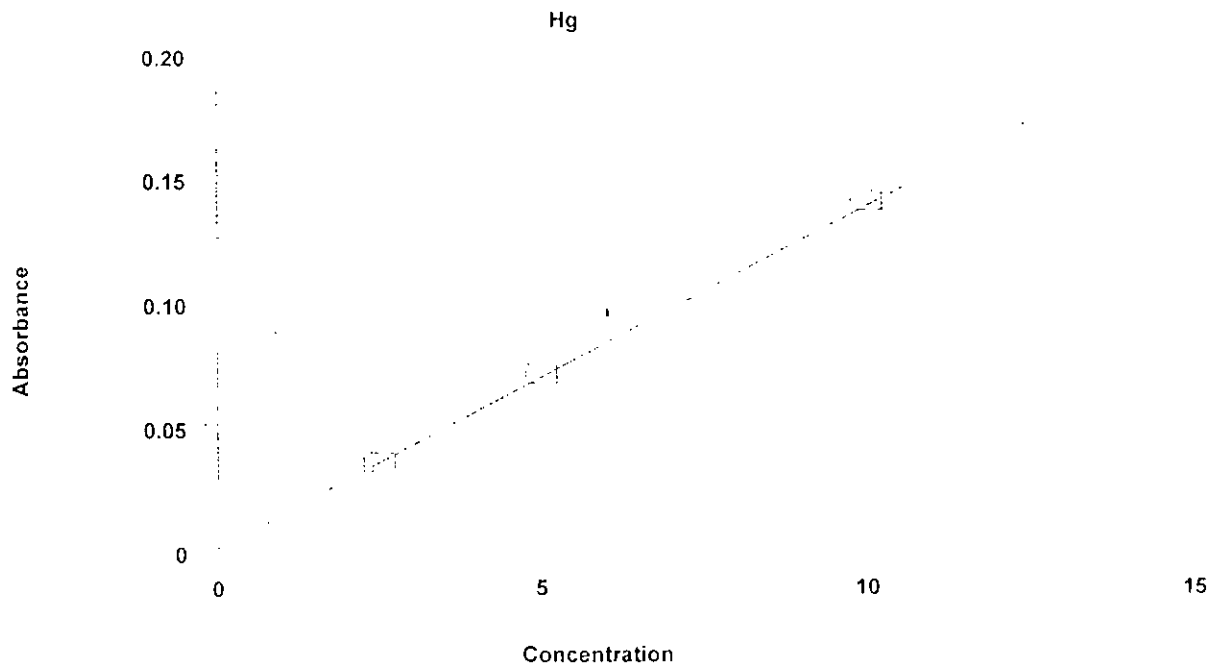
Repl #	SampleConc µg/L	StndConc µg/L	BlncCorr Signal	Peak Height	Time	Peak Stored
1			0.1025	0.1027	03:26:52	Yes
2			0.1018	0.1019	03:27:25	Yes
3			0.1031	0.1032	03:27:58	Yes
Mean:			0.1025			
SD :			0.0007			
%RSD:			0.6496			

[Hg] Reslope standard applied. [7.500]
 Correlation Coefficient: 0.99996 Slope: 0.01407

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0001	---	0.010	0.0000	6.1
STD1	0.0343	2.500	2.514	0.0003	0.8
STD2	0.0698	5.000	5.113	0.0002	0.3
STD3	0.1032	7.500	7.555	0.0005	0.5
STD4	0.1389	10.000	10.16	0.0003	0.3
STD5	0.1734	12.500	12.69	0.0009	0.5
Reslope	0.1025	7.500	7.500	0.0007	0.6

Correlation Coefficient: 0.99996 Slope: 0.01407



=====
 Element: Hg Seq. No.: 53 AS Loc.: 45 Date: 07/04/2001
 Sample ID: 36163D

#	µg/L	µg/L	Signal	Height		Stored
1	0.024	0.024	0.0003	0.0005	03:38:51	Yes
2	0.023	0.023	0.0003	0.0004	03:39:24	Yes
3	0.025	0.025	0.0003	0.0005	03:39:57	Yes
Mean:	0.024	0.024	0.0003			
SD :	0.0009	0.0009	0.0000			
%RSD:	4.0	4.0	3.9661			

=====
 Element: Hg Seq. No.: 59 AS Loc.: 51 Date: 07/04/2001
 Sample ID: 36165

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.013	0.013	0.0002	0.0003	03:40:46	Yes
2	0.013	0.013	0.0002	0.0003	03:41:19	Yes
3	0.016	0.016	0.0002	0.0004	03:41:51	Yes
Mean:	0.014	0.014	0.0002			
SD :	0.0013	0.0013	0.0000			
%RSD:	9.5	9.5	9.5152			

=====
 Element: Hg Seq. No.: 60 AS Loc.: 52 Date: 07/04/2001
 Sample ID: BL0704-2M3B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.009	0.009	0.0001	0.0003	03:42:40	Yes
2	0.006	0.006	0.0001	0.0002	03:43:13	Yes
3	0.008	0.008	0.0001	0.0002	03:43:46	Yes
Mean:	0.008	0.008	0.0001			
SD :	0.0017	0.0017	0.0000			
%RSD:	22.3	22.3	22.3127			

=====
 Element: Hg Seq. No.: 61 AS Loc.: 53 Date: 07/04/2001
 Sample ID: BL0704S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.061	1.061	0.0145	0.0146	03:44:35	Yes
2	1.063	1.063	0.0145	0.0147	03:45:08	Yes
3	1.059	1.059	0.0145	0.0146	03:45:41	Yes
Mean:	1.061	1.061	0.0145			
SD :	0.0018	0.0018	0.0000			
%RSD:	0.2	0.2	0.1658			

=====
 Element: Hg Seq. No.: 62 AS Loc.: 54 Date: 07/04/2001
 Sample ID: BL0704DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.029	1.029	0.0141	0.0142	03:46:30	Yes
2	1.022	1.022	0.0140	0.0141	03:47:03	Yes
3	1.032	1.032	0.0141	0.0142	03:47:36	Yes
Mean:	1.027	1.027	0.0140			
SD :	0.0051	0.0051	0.0001			
%RSD:	0.5	0.5	0.4921			

=====
 Element: Hg Seq. No.: 63 AS Loc.: 7 Date: 07/04/2001
 Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored

1	1.022	1.022	0.0140	0.0141	03:48:25	Yes
2	1.014	1.014	0.0139	0.0140	03:48:58	Yes
3	1.007	1.007	0.0138	0.0139	03:49:31	Yes
Mean:	1.015	1.015	0.0139			
SD :	0.0075	0.0075	0.0001			
%RSD:	0.7	0.7	0.7393			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 64 AS Loc.: 8 Date: 07/04/2001
 Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlncCorr Signal	Peak Height	Time	Peak Stored
1	0.000	0.000	0.0000	0.0001	03:50:20	Yes
2	0.001	0.001	0.0000	0.0001	03:50:53	Yes
3	0.001	0.001	0.0000	0.0001	03:51:26	Yes
Mean:	0.000	0.000	0.0000			
SD :	0.0005	0.0005	0.0000			
%RSD:	128.0	128.0	127.9520			

QC value within specified limits.

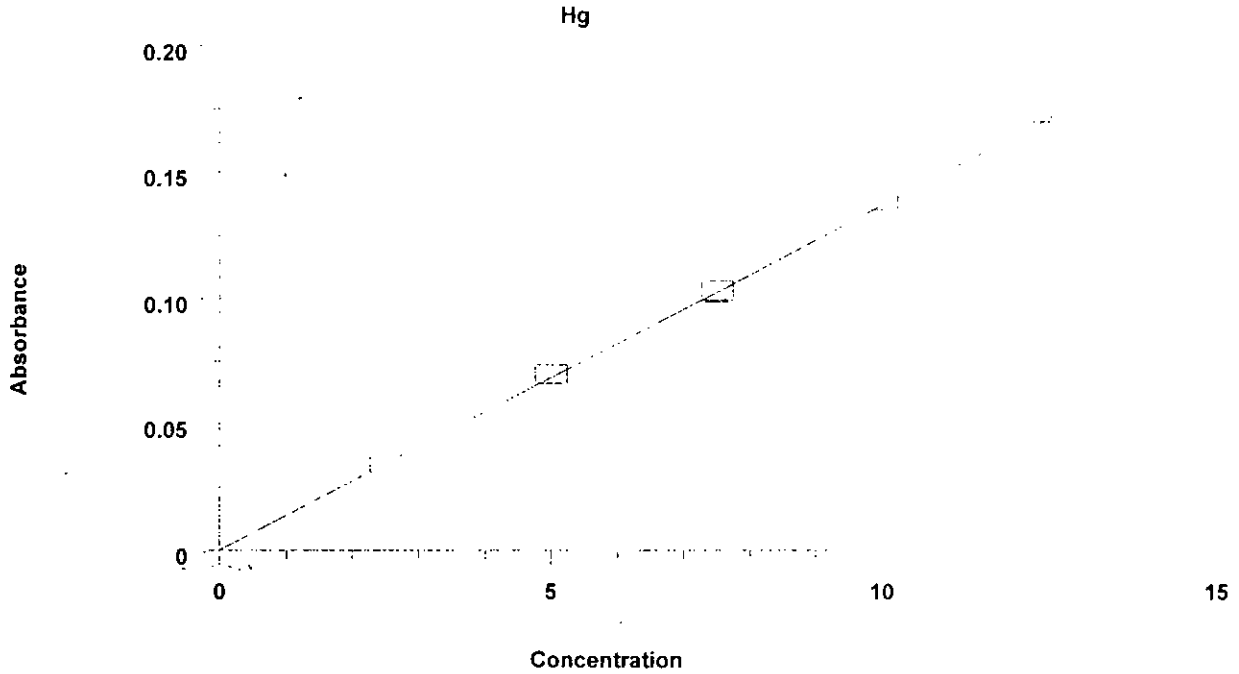
=====
 Element: Hg Seq. No.: 65 AS Loc.: 4 Date: 07/04/2001
 Sample ID: Reslope

Repl #	SampleConc µg/L	StndConc µg/L	BlncCorr Signal	Peak Height	Time	Peak Stored
1			0.1025	0.1026	03:52:16	Yes
2			0.1024	0.1026	03:52:50	Yes
3			0.1028	0.1029	03:53:23	Yes
Mean:			0.1026			
SD :			0.0002			
%RSD:			0.1676			

[Hg] Reslope standard applied. [7.500]
 Correlation Coefficient: 0.99996 Slope: 0.01405

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0001	---	0.010	0.0000	6.1
STD1	0.0343	2.500	2.511	0.0003	0.8
STD2	0.0698	5.000	5.108	0.0002	0.3
STD3	0.1032	7.500	7.547	0.0005	0.5
STD4	0.1389	10.000	10.15	0.0003	0.3
STD5	0.1734	12.500	12.68	0.0009	0.5
Reslope	0.1026	7.500	7.500	0.0002	0.2
Correlation Coefficient: 0.99996		Slope: 0.01405		----	



=====
 Element: Hg Seq. No.: 66 AS Loc.: 55 Date: 07/04/2001
 Sample ID: 36287
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.008	0.008	0.0001	0.0002	03:54:40	Yes
2	0.005	0.005	0.0001	0.0002	03:55:13	Yes
3	0.008	0.008	0.0001	0.0002	03:55:46	Yes
Mean:	0.007	0.007	0.0001			
SD :	0.0015	0.0015	0.0000			
%RSD:	21.4	21.4	21.3819			

=====
 Element: Hg Seq. No.: 67 AS Loc.: 56 Date: 07/04/2001
 Sample ID: 36287D
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.012	0.012	0.0002	0.0003	03:56:35	Yes
2	0.012	0.012	0.0002	0.0003	03:57:08	Yes
3	0.012	0.012	0.0002	0.0003	03:57:41	Yes
Mean:	0.012	0.012	0.0002			
SD :	0.0003	0.0003	0.0000			
%RSD:	2.5	2.5	2.5384			

=====
 Element: Hg Seq. No.: 68 AS Loc.: 57 Date: 07/04/2001
 Sample ID: 36287S
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.074	1.074	0.0147	0.0148	03:58:30	Yes
2	1.064	1.064	0.0145	0.0147	03:59:03	Yes
3	1.067	1.067	0.0146	0.0147	03:59:36	Yes
Mean:	1.068	1.068	0.0146			
SD :	0.0051	0.0051	0.0001			

%RSD: 0.5 0.5 0.4736

=====
 Element: Hg Seq. No.: 69 AS Loc.: 58 Date: 07/04/2001
 Sample ID: 36287DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.050	1.050	0.0144	0.0145	04:00:25	Yes
2	1.064	1.064	0.0146	0.0147	04:00:58	Yes
3	1.064	1.064	0.0146	0.0147	04:01:31	Yes
Mean:	1.060	1.060	0.0145			
SD :	0.0084	0.0084	0.0001			
%RSD:	0.8	0.8	0.7928			

=====
 Element: Hg Seq. No.: 70 AS Loc.: 59 Date: 07/04/2001
 Sample ID: 36284

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.012	0.012	0.0002	0.0003	04:02:20	Yes
2	0.011	0.011	0.0001	0.0003	04:02:53	Yes
3	0.013	0.013	0.0002	0.0003	04:03:26	Yes
Mean:	0.012	0.012	0.0002			
SD :	0.0013	0.0013	0.0000			
%RSD:	11.2	11.2	11.1814			

=====
 Element: Hg Seq. No.: 71 AS Loc.: 60 Date: 07/04/2001
 Sample ID: 36286

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.010	0.010	0.0001	0.0003	04:04:16	Yes
2	0.009	0.009	0.0001	0.0003	04:04:49	Yes
3	0.010	0.010	0.0001	0.0003	04:05:22	Yes
Mean:	0.010	0.010	0.0001			
SD :	0.0010	0.0010	0.0000			
%RSD:	9.7	9.7	9.7312			

=====
 Element: Hg Seq. No.: 72 AS Loc.: 61 Date: 07/04/2001
 Sample ID: 36288

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.006	0.006	0.0001	0.0002	04:06:10	Yes
2	0.007	0.007	0.0001	0.0002	04:06:43	Yes
3	0.006	0.006	0.0001	0.0002	04:07:16	Yes
Mean:	0.006	0.006	0.0001			
SD :	0.0002	0.0002	0.0000			
%RSD:	3.2	3.2	3.1641			

=====
 Element: Hg Seq. No.: 73 AS Loc.: 62 Date: 07/04/2001
 Sample ID: 36289

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.011	0.011	0.0001	0.0003	04:08:05	Yes
2	0.013	0.013	0.0002	0.0003	04:08:38	Yes
3	0.010	0.010	0.0001	0.0003	04:09:11	Yes
Mean:	0.011	0.011	0.0002			
SD :	0.0014	0.0014	0.0000			
%RSD:	12.3	12.3	12.3317			

=====
Element: Hg Seq. No.: 74 AS Loc.: 63 Date: 07/04/2001
Sample ID: 36304
=====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.007	0.007	0.0001	0.0002	04:10:00	Yes
2	0.008	0.008	0.0001	0.0002	04:10:33	Yes
3	0.009	0.009	0.0001	0.0003	04:11:06	Yes
Mean:	0.008	0.008	0.0001			
SD :	0.0013	0.0013	0.0000			
%RSD:	16.0	16.0	15.9801			

=====
Element: Hg Seq. No.: 75 AS Loc.: 64 Date: 07/04/2001
Sample ID: 36306
=====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.006	0.006	0.0001	0.0002	04:11:55	Yes
2	0.008	0.008	0.0001	0.0002	04:12:28	Yes
3	0.008	0.008	0.0001	0.0002	04:13:01	Yes
Mean:	0.007	0.007	0.0001			
SD :	0.0006	0.0006	0.0000			
%RSD:	8.7	8.7	8.6997			

=====
Element: Hg Seq. No.: 76 AS Loc.: 7 Date: 07/04/2001
Sample ID: CCV
=====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.010	1.010	0.0138	0.0140	04:13:52	Yes
2	1.012	1.012	0.0138	0.0140	04:14:25	Yes
3	1.012	1.012	0.0138	0.0140	04:14:58	Yes
Mean:	1.011	1.011	0.0138			
SD :	0.0011	0.0011	0.0000			
%RSD:	0.1	0.1	0.1052			

QC value within specified limits.

=====
Element: Hg Seq. No.: 77 AS Loc.: 8 Date: 07/04/2001
Sample ID: CCB
=====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.003	0.003	0.0000	0.0002	04:15:47	Yes
2	0.002	0.002	0.0000	0.0002	04:16:20	Yes
3	0.003	0.003	0.0000	0.0002	04:16:53	Yes
Mean:	0.002	0.002	0.0000			
SD :	0.0002	0.0002	0.0000			
%RSD:	8.2	8.2	8.2493			

QC value within specified limits.

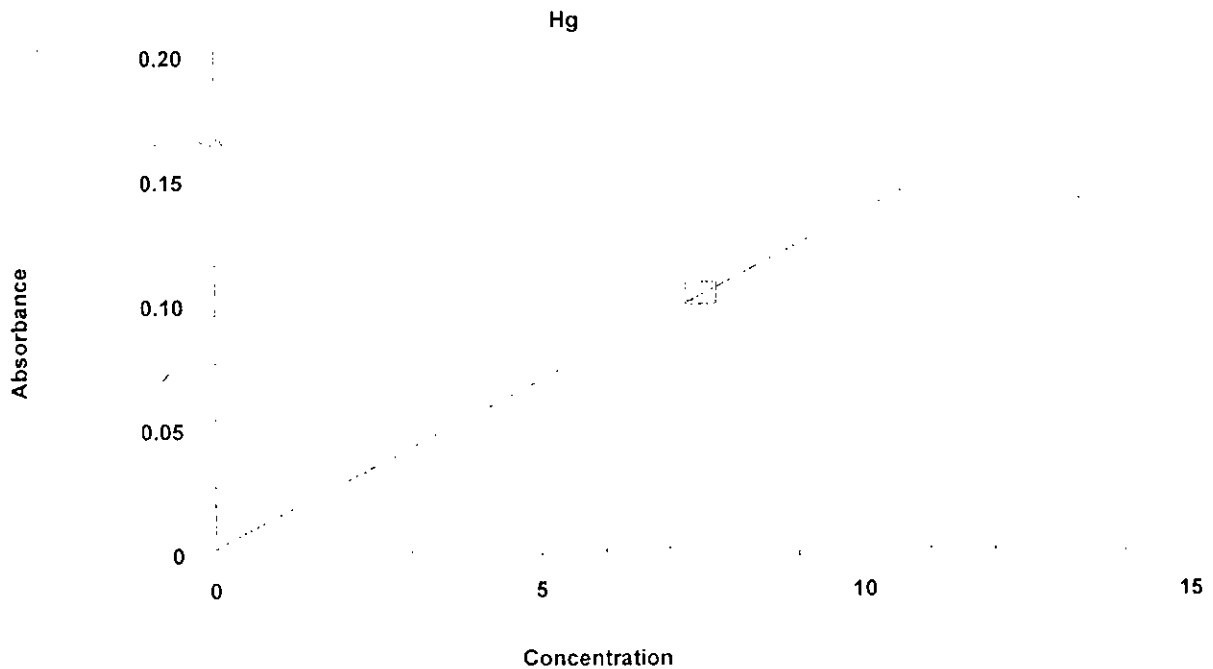
=====
Element: Hg Seq. No.: 78 AS Loc.: 4 Date: 07/04/2001
Sample ID: Reslope
=====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.1026	0.1027	04:17:43	Yes
2			0.1005	0.1007	04:18:16	Yes
3			0.1022	0.1024	04:18:49	Yes
Mean:			0.1018			
SD :			0.0011			
%RSD:			1.0810			

[Hg] Reslope standard applied. [7.500]
Correlation Coefficient: 0.99996 Slope: 0.01416

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0001	---	0.010	0.0000	6.1
STD1	0.0343	2.500	2.530	0.0003	0.8
STD2	0.0698	5.000	5.146	0.0002	0.3
STD3	0.1032	7.500	7.604	0.0005	0.5
STD4	0.1389	10.000	10.23	0.0003	0.3
STD5	0.1734	12.500	12.78	0.0009	0.5
Reslope	0.1018	7.500	7.500	0.0011	1.1
Correlation Coefficient: 0.99996		Slope: 0.01416		----	



Element: Hg Seq. No.: 79 AS Loc.: 65 Date: 07/04/2001
 Sample ID: 36307

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.004	0.004	0.0001	0.0002	04:20:09	Yes
2	0.005	0.005	0.0001	0.0002	04:20:42	Yes
3	0.003	0.003	0.0000	0.0002	04:21:15	Yes
Mean:	0.004	0.004	0.0001			
SD :	0.0008	0.0008	0.0000			
%RSD:	20.5	20.5	20.5483			

Element: Hg Seq. No.: 80 AS Loc.: 66 Date: 07/04/2001
 Sample ID: 36308

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.007	0.007	0.0001	0.0002	04:22:03	Yes
2	0.008	0.008	0.0001	0.0002	04:22:36	Yes
3	0.009	0.009	0.0001	0.0003	04:23:09	Yes

Mean: 0.008 0.008 0.0001
 SD : 0.0010 0.0010 0.0000
 %RSD: 12.8 12.8 12.7603

=====
 Element: Hg Seq. No.: 81 AS Loc.: 67 Date: 07/04/2001
 Sample ID: 36309

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.006	0.006	0.0001	0.0002	04:23:58	Yes
2	0.006	0.006	0.0001	0.0002	04:24:32	Yes
3	0.007	0.007	0.0001	0.0002	04:25:05	Yes
Mean:	0.006	0.006	0.0001			
SD :	0.0010	0.0010	0.0000			
%RSD:	16.2	16.2	16.2449			

=====
 Element: Hg Seq. No.: 82 AS Loc.: 68 Date: 07/04/2001
 Sample ID: BL0704-6M2B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.003	0.003	0.0000	0.0002	04:25:54	Yes
2	0.003	0.003	0.0000	0.0002	04:26:27	Yes
3	0.004	0.004	0.0000	0.0002	04:27:00	Yes
Mean:	0.003	0.003	0.0000			
SD :	0.0002	0.0002	0.0000			
%RSD:	4.6	4.6	4.6092			

=====
 Element: Hg Seq. No.: 83 AS Loc.: 69 Date: 07/04/2001
 Sample ID: BL0704S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.026	1.026	0.0139	0.0141	04:27:49	Yes
2	1.026	1.026	0.0139	0.0141	04:28:22	Yes
3	1.020	1.020	0.0138	0.0140	04:28:55	Yes
Mean:	1.024	1.024	0.0139			
SD :	0.0035	0.0035	0.0000			
%RSD:	0.3	0.3	0.3397			

=====
 Element: Hg Seq. No.: 84 AS Loc.: 70 Date: 07/04/2001
 Sample ID: BL0704DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.023	1.023	0.0139	0.0140	04:29:44	Yes
2	1.021	1.021	0.0139	0.0140	04:30:17	Yes
3	1.010	1.010	0.0137	0.0139	04:30:50	Yes
Mean:	1.018	1.018	0.0138			
SD :	0.0070	0.0070	0.0001			
%RSD:	0.7	0.7	0.6840			

=====
 Element: Hg Seq. No.: 85 AS Loc.: 71 Date: 07/04/2001
 Sample ID: 36287

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	19.95	1.995	0.0271	0.0272	04:31:42	Yes
2	19.76	1.976	0.0268	0.0270	04:32:15	Yes
3	19.86	1.986	0.0270	0.0271	04:32:48	Yes
Mean:	19.86	1.986	0.0270			

SD : 0.0992 0.0099 0.0001
 %RSD: 0.5 0.5 0.4997

=====
 Element: Hg Seq. No.: 86 AS Loc.: 72 Date: 07/04/2001
 Sample ID: 36287D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	20.19	2.019	0.0274	0.0275	04:33:37	Yes
2	19.97	1.997	0.0271	0.0272	04:34:10	Yes
3	20.30	2.030	0.0276	0.0277	04:34:43	Yes
Mean:	20.15	2.015	0.0274			
SD :	0.1703	0.0170	0.0002			
%RSD:	0.8	0.8	0.8452			

=====
 Element: Hg Seq. No.: 87 AS Loc.: 73 Date: 07/04/2001
 Sample ID: 36287S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	30.47	3.047	0.0414	0.0415	04:35:33	Yes
2	30.48	3.048	0.0414	0.0415	04:36:05	Yes
3	30.51	3.051	0.0414	0.0416	04:36:39	Yes
Mean:	30.49	3.049	0.0414			
SD :	0.0232	0.0023	0.0000			
%RSD:						

=====
 Element: Hg Seq. No.: 88 AS Loc.: 74 Date: 07/04/2001
 Sample ID: 36287DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	30.17	3.017	0.0409	0.0411	04:37:27	Yes
2	30.34	3.034	0.0412	0.0413	04:38:01	Yes
3	30.38	3.038	0.0412	0.0414	04:38:34	Yes
Mean:	30.30	3.030	0.0411			
SD :	0.1124	0.0112	0.0002			
%RSD:	0.4	0.4	0.3711			

=====
 Element: Hg Seq. No.: 89 AS Loc.: 7 Date: 07/04/2001
 Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.030	1.030	0.0140	0.0141	04:39:26	Yes
2	1.026	1.026	0.0139	0.0141	04:39:59	Yes
3	1.019	1.019	0.0138	0.0140	04:40:32	Yes
Mean:	1.025	1.025	0.0139			
SD :	0.0055	0.0055	0.0001			
%RSD:	0.5	0.5	0.5344			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 90 AS Loc.: 8 Date: 07/04/2001
 Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.002	0.002	0.0000	0.0002	04:41:20	Yes
2	0.004	0.004	0.0001	0.0002	04:41:53	Yes
3	0.001	0.001	0.0000	0.0001	04:42:26	Yes
Mean:	0.002	0.002	0.0000			

SD : 0.0017 0.0017 0.0000
 %RSD: 71.4 71.4 71.4450
 QC value within specified limits.

=====
 Element: Hg Seq. No.: 91 AS Loc.: 4 Date: 07/04/2001
 Sample ID: Reslope

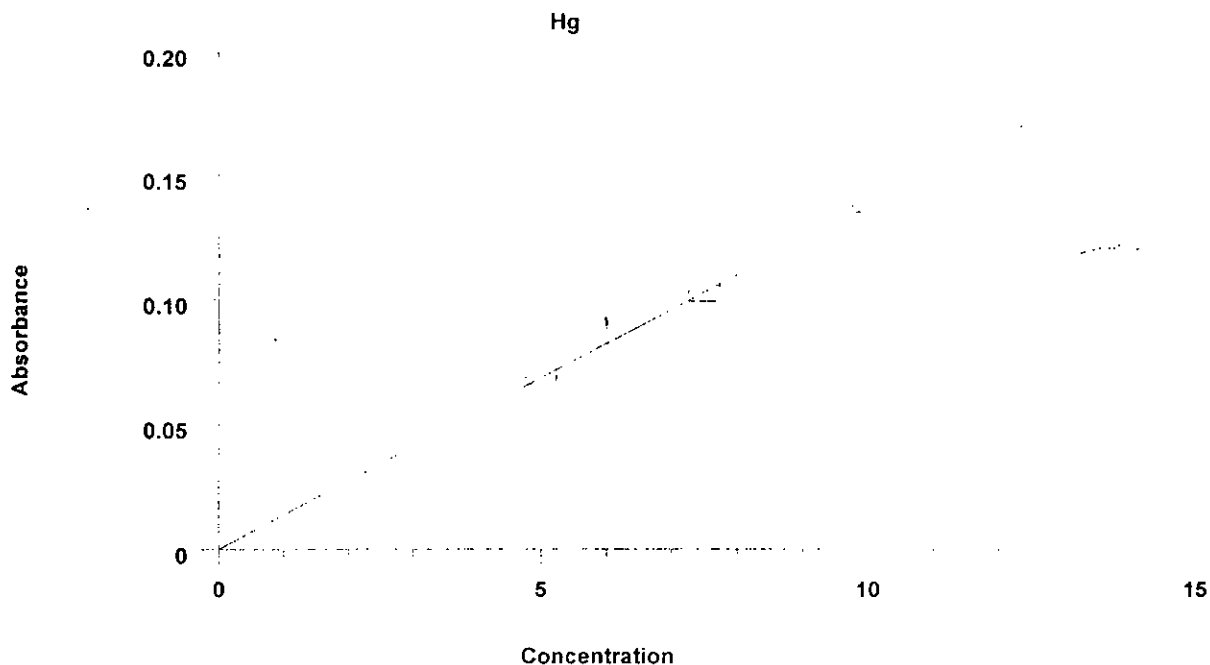
Repl #	SampleConc µg/L	StndConc µg/L	BlkCorr Signal	Peak Height	Time	Peak Stored
1			0.1022	0.1023	04:43:16	Yes
2			0.1031	0.1032	04:43:49	Yes
3			0.1032	0.1034	04:44:22	Yes
Mean:			0.1028			
SD :			0.0006			
%RSD:			0.5617			

[Hg] Reslope standard applied. [7.500]
 Correlation Coefficient: 0.99996 Slope: 0.01402

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0001	---	0.010	0.0000	6.1
STD1	0.0343	2.500	2.504	0.0003	0.8
STD2	0.0698	5.000	5.094	0.0002	0.3
STD3	0.1032	7.500	7.527	0.0005	0.5
STD4	0.1389	10.000	10.13	0.0003	0.3
STD5	0.1734	12.500	12.65	0.0009	0.5
Reslope	0.1028	7.500	7.500	0.0006	0.6

Correlation Coefficient: 0.99996 Slope: 0.01402



=====
 Element: Hg Seq. No.: 92 AS Loc.: 75 Date: 07/04/2001
 Sample ID: 36286

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.207	0.021	0.0003	0.0004	04:45:40	Yes
2	0.229	0.023	0.0003	0.0005	04:46:13	Yes
3	0.213	0.021	0.0003	0.0004	04:46:46	Yes
Mean:	0.216	0.022	0.0003			
SD :	0.0112	0.0011	0.0000			
%RSD:	5.2	5.2	5.1750			

=====
 Element: Hg Seq. No.: 93 AS Loc.: 76 Date: 07/04/2001
 Sample ID: 36288

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	18.67	1.867	0.0256	0.0257	04:47:35	Yes
2	18.70	1.870	0.0256	0.0258	04:48:09	Yes
3	18.71	1.871	0.0257	0.0258	04:48:42	Yes
Mean:	18.69	1.869	0.0256			
SD :	0.0190	0.0019	0.0000			
%RSD:	0.1	0.1	0.1016			

=====
 Element: Hg Seq. No.: 94 AS Loc.: 77 Date: 07/04/2001
 Sample ID: 36289

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	19.48	1.948	0.0267	0.0269	04:49:31	Yes
2	19.11	1.911	0.0262	0.0263	04:50:04	Yes
3	19.36	1.936	0.0265	0.0267	04:50:37	Yes
Mean:	19.32	1.932	0.0265			
SD :	0.1906	0.0191	0.0003			
%RSD:	1.0	1.0	0.9865			

=====
 Element: Hg Seq. No.: 95 AS Loc.: 78 Date: 07/04/2001
 Sample ID: 36306

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.214	0.021	0.0003	0.0004	04:51:26	Yes
2	0.222	0.022	0.0003	0.0004	04:51:59	Yes
3	0.233	0.023	0.0003	0.0005	04:52:32	Yes
Mean:	0.223	0.022	0.0003			
SD :	0.0097	0.0010	0.0000			
%RSD:	4.4	4.4	4.3529			

=====
 Element: Hg Seq. No.: 96 AS Loc.: 79 Date: 07/04/2001
 Sample ID: 36307

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	26.42	2.642	0.0362	0.0364	04:53:20	Yes
2	26.29	2.629	0.0360	0.0362	04:53:53	Yes
3	26.62	2.662	0.0365	0.0366	04:54:26	Yes
Mean:	26.44	2.644	0.0363			
SD :	0.1704	0.0170	0.0002			
%RSD:	0.6	0.6	0.6444			

=====
 Element: Hg Seq. No.: 97 AS Loc.: 80 Date: 07/04/2001
 Sample ID: 36308

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
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#	µg/L	µg/L	Signal	Height		Stored
1	24.42	2.442	0.0335	0.0336	04:55:15	Yes
2	24.43	2.443	0.0335	0.0336	04:55:48	Yes
3	24.40	2.440	0.0334	0.0336	04:56:21	Yes
Mean:	24.42	2.442	0.0335			
SD :	0.0186	0.0019	0.0000			
%RSD:						

=====
 Element: Hg Seq. No.: 98 AS Loc.: 81 Date: 07/04/2001
 Sample ID: 36308
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	24.98	2.498	0.0343	0.0344	04:57:10	Yes
2	24.88	2.488	0.0341	0.0342	04:57:43	Yes
3	24.76	2.476	0.0339	0.0341	04:58:16	Yes
Mean:	24.87	2.487	0.0341			
SD :	0.1134	0.0113	0.0002			
%RSD:	0.5	0.5	0.4558			

=====
 Element: Hg Seq. No.: 99 AS Loc.: 82 Date: 07/04/2001
 Sample ID: BL0704-7M3A
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.004	0.004	0.0001	0.0002	04:59:06	Yes
2	0.006	0.006	0.0001	0.0002	04:59:38	Yes
3	0.008	0.008	0.0001	0.0002	05:00:12	Yes
Mean:	0.006	0.006	0.0001			
SD :	0.0018	0.0018	0.0000			
%RSD:	30.8	30.8	30.8426			

=====
 Element: Hg Seq. No.: 100 AS Loc.: 83 Date: 07/04/2001
 Sample ID: BL0704S
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.035	1.035	0.0142	0.0143	05:01:01	Yes
2	1.022	1.022	0.0140	0.0142	05:01:34	Yes
3	1.035	1.035	0.0142	0.0143	05:02:07	Yes
Mean:	1.031	1.031	0.0141			
SD :	0.0073	0.0073	0.0001			
%RSD:	0.7	0.7	0.7108			

=====
 Element: Hg Seq. No.: 101 AS Loc.: 84 Date: 07/04/2001
 Sample ID: BL0704DS
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.036	1.036	0.0142	0.0143	05:02:56	Yes
2	1.032	1.032	0.0141	0.0143	05:03:29	Yes
3	1.028	1.028	0.0141	0.0142	05:04:02	Yes
Mean:	1.032	1.032	0.0142			
SD :	0.0041	0.0041	0.0001			
%RSD:	0.4	0.4	0.3991			

=====
 Element: Hg Seq. No.: 102 AS Loc.: 7 Date: 07/04/2001
 Sample ID: CCV
 =====

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
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1	1.022	1.022	0.0140	0.0141	05:04:51	Yes
2	1.019	1.019	0.0140	0.0141	05:05:24	Yes
3	1.018	1.018	0.0140	0.0141	05:05:57	Yes
Mean:	1.020	1.020	0.0140			
SD :	0.0019	0.0019	0.0000			
%RSD:	0.2	0.2	0.1890			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 103 AS Loc.: 8 Date: 07/04/2001
 Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.005	0.005	0.0001	0.0002	05:06:46	Yes
2	0.005	0.005	0.0001	0.0002	05:07:19	Yes
3	0.011	0.011	0.0002	0.0003	05:07:52	Yes
Mean:	0.007	0.007	0.0001			
SD :	0.0036	0.0036	0.0001			
%RSD:	52.5	52.5	52.5104			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 104 AS Loc.: 4 Date: 07/04/2001
 Sample ID: Reslope

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.1038	0.1039	05:08:42	Yes
2			0.1031	0.1032	05:09:16	Yes
3			0.1034	0.1035	05:09:49	Yes
Mean:			0.1034			
SD :			0.0004			
%RSD:			0.3403			

=====
 Element: Hg Seq. No.: 105 AS Loc.: 85 Date: 07/04/2001
 Sample ID: 36287

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.025	0.025	0.0003	0.0005	05:12:04	Yes
2	0.030	0.030	0.0004	0.0005	05:12:37	Yes
3	0.033	0.033	0.0005	0.0006	05:13:10	Yes
Mean:	0.029	0.029	0.0004			
SD :	0.0041	0.0041	0.0001			
%RSD:	14.1	14.1	14.1485			

=====
 Element: Hg Seq. No.: 106 AS Loc.: 86 Date: 07/04/2001
 Sample ID: 36287D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.035	0.035	0.0005	0.0006	05:14:02	Yes
2	0.037	0.037	0.0005	0.0006	05:14:35	Yes
3	0.035	0.035	0.0005	0.0006	05:15:08	Yes
Mean:	0.036	0.036	0.0005			
SD :	0.0013	0.0013	0.0000			
%RSD:	3.7	3.7	3.6681			

=====
 Element: Hg Seq. No.: 107 AS Loc.: 87 Date: 07/04/2001
 Sample ID: 36287S

Repl #	SampleConc	StndConc	BlnkCorr	Peak	Time	Peak
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#	µg/L	µg/L	Signal	Height		Stored
1	1.015	1.015	0.0139	0.0141	05:15:57	Yes
2	1.012	1.012	0.0139	0.0140	05:16:30	Yes
3	1.000	1.000	0.0137	0.0138	05:17:03	Yes
Mean:	1.009	1.009	0.0138			
SD :	0.0081	0.0081	0.0001			
%RSD:	0.8	0.8	0.8049			

=====
 Element: Hg Seq. No.: 108 AS Loc.: 88 Date: 07/04/2001
 Sample ID: 36287DS

Repl #	SampleConc µg/L	StdConc µg/L	BlkCorr Signal	Peak Height	Time	Peak Stored
1	1.032	1.032	0.0141	0.0143	05:17:52	Yes
2	1.014	1.014	0.0139	0.0140	05:18:25	Yes
3	1.014	1.014	0.0139	0.0140	05:18:58	Yes
Mean:	1.020	1.020	0.0140			
SD :	0.0102	0.0102	0.0001			
%RSD:	1.0	1.0	0.9956			

=====
 Element: Hg Seq. No.: 109 AS Loc.: 89 Date: 07/04/2001
 Sample ID: 36286

Repl #	SampleConc µg/L	StdConc µg/L	BlkCorr Signal	Peak Height	Time	Peak Stored
1	0.111	0.111	0.0015	0.0017	05:19:46	Yes
2	0.110	0.110	0.0015	0.0016	05:20:20	Yes
3	0.108	0.108	0.0015	0.0016	05:20:52	Yes
Mean:	0.110	0.110	0.0015			
SD :	0.0016	0.0016	0.0000			
%RSD:	1.4	1.4	1.4275			

=====
 Element: Hg Seq. No.: 110 AS Loc.: 90 Date: 07/04/2001
 Sample ID: 36288

Repl #	SampleConc µg/L	StdConc µg/L	BlkCorr Signal	Peak Height	Time	Peak Stored
1	0.025	0.025	0.0003	0.0005	05:21:40	Yes
2	0.028	0.028	0.0004	0.0005	05:22:14	Yes
3	0.018	0.018	0.0002	0.0004	05:22:47	Yes
Mean:	0.024	0.024	0.0003			
SD :	0.0052	0.0052	0.0001			
%RSD:	21.5	21.5	21.5312			

=====
 Element: Hg Seq. No.: 111 AS Loc.: 91 Date: 07/04/2001
 Sample ID: 36289

Repl #	SampleConc µg/L	StdConc µg/L	BlkCorr Signal	Peak Height	Time	Peak Stored
1	0.013	0.013	0.0002	0.0003	05:23:36	Yes
2	0.013	0.013	0.0002	0.0003	05:24:09	Yes
3	0.012	0.012	0.0002	0.0003	05:24:42	Yes
Mean:	0.013	0.013	0.0002			
SD :	0.0004	0.0004	0.0000			
%RSD:	3.4	3.4	3.3531			

=====
 Element: Hg Seq. No.: 112 AS Loc.: 92 Date: 07/04/2001
 Sample ID: 36306

Repl #	SampleConc µg/L	StdConc µg/L	BlkCorr Signal	Peak Height	Time	Peak Stored
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1	0.005	0.005	0.0001	0.0002	05:25:31	Yes
2	0.006	0.006	0.0001	0.0002	05:26:04	Yes
3	0.005	0.005	0.0001	0.0002	05:26:37	Yes
Mean:	0.006	0.006	0.0001			
SD :	0.0007	0.0007	0.0000			
%RSD:	12.5	12.5	12.5220			

=====
 Element: Hg Seq. No.: 113 AS Loc.: 93 Date: 07/04/2001
 Sample ID: 36307

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.261	1.261	0.0173	0.0174	05:27:26	Yes
2	1.257	1.257	0.0172	0.0174	05:27:59	Yes
3	1.253	1.253	0.0172	0.0173	05:28:32	Yes
Mean:	1.257	1.257	0.0172			
SD :	0.0041	0.0041	0.0001			
%RSD:	0.3	0.3	0.3250			

=====
 Element: Hg Seq. No.: 114 AS Loc.: 94 Date: 07/04/2001
 Sample ID: 36308

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.040	0.040	0.0006	0.0007	05:29:21	Yes
2	0.040	0.040	0.0005	0.0007	05:29:54	Yes
3	0.040	0.040	0.0006	0.0007	05:30:27	Yes
Mean:	0.040	0.040	0.0006			
SD :	0.0004	0.0004	0.0000			
%RSD:	0.9	0.9	0.8928			

=====
 Element: Hg Seq. No.: 115 AS Loc.: 95 Date: 07/04/2001
 Sample ID: 36309

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.265	0.265	0.0036	0.0038	05:31:16	Yes
2	0.265	0.265	0.0036	0.0038	05:31:49	Yes
3	0.264	0.264	0.0036	0.0038	05:32:23	Yes
Mean:	0.264	0.264	0.0036			
SD :	0.0007	0.0007	0.0000			
%RSD:	0.3	0.3	0.2774			

=====
 Element: Hg Seq. No.: 116 AS Loc.: 7 Date: 07/04/2001
 Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.018	1.018	0.0140	0.0141	05:33:13	Yes
2	1.015	1.015	0.0139	0.0141	05:33:47	Yes
3	1.017	1.017	0.0139	0.0141	05:34:20	Yes
Mean:	1.017	1.017	0.0139			
SD :	0.0014	0.0014	0.0000			
%RSD:	0.1	0.1	0.1333			

=====
 Element: Hg Seq. No.: 117 AS Loc.: 8 Date: 07/04/2001
 Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.001	0.001	0.0000	0.0001	05:35:09	Yes

2	0.001	0.001	0.0000	0.0001	05:35:42	Yes
3	0.000	0.000	0.0000	0.0001	05:36:15	Yes
Mean:	0.001	0.001	0.0000			
SD :	0.0004	0.0004	0.0000			
%RSD:	70.0	70.0	69.9501			

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

Calibration Solutions:

#	I.D.	**Conc.	Spike	***Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	1.67	500 ul of 0.1 ppm working cal standard	2.5
4	Standard 3	3.33	1000 ul of 0.1 ppm working cal standard	5.0
5	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
6	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
7	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
8	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
9	Standard 5	6.67	2000 ul of 0.1 ppm working cal standard	10.0
10	Standard 6	8.33	2500 ul of 0.1 ppm working cal standard	12.5

- Check List
- Digest Code/labels
 - Samples poured out
 - Acids added
 - Reagents added
 - Samples spiked
 - Bath at 95 degrees C
 - Samples digested
 - Hydroxylamine HCl added
 - Samples shaken and bulked
 - Rack order checked

#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
11	ICV (Int. Calib. Verif.)	7434	20 ml	30 ml	1 X	1.5 ppb = 600 ul of 0.05ppm Working Reference QC Std.
12	LLC (low level check)	"	"	"	"	0.25ppb = 50ul of 0.1 ppm Working Cal Std.
13	BL 0704	"	"	"	"	(Processed Blank) 032284, 036504
14	BL 0704 S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
15	BL 0704 DS	"	"	"	"	(Duplicate Blank Spike)
16	036287	"	"	"	"	
17	D	"	"	"	"	(Duplicate sample)
18	S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
19	DS	"	"	"	"	(Duplicate Spiked sample)
20	286	"	"	"	"	
21	288	"	"	"	"	
22	289	"	"	"	"	
23	036306	"	"	"	"	
24	307	"	"	"	"	
25	308	"	"	"	"	
26	309	"	"	"	"	
27		"	"	"	"	
28		"	"	"	"	
29	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
30	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
31	BL	"	20 ml	30 ml	"	(Processed Blank)
32	BL S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
33	BL DS	"	"	"	"	(Duplicate Blank Spike)
34		"	"	"	"	
35	D	"	"	"	"	(Duplicate sample)
36	S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
37	DS	"	"	"	"	(Duplicate Spiked sample)
38		"	"	"	"	
39		"	"	"	"	
40		"	"	"	"	
41		"	"	"	"	
42		"	"	"	"	
43		"	"	"	"	
44		"	"	"	"	
45		"	"	"	"	
46		"	"	"	"	
47	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
48	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.

Comments: ** concentration based on 30 ml final volume, *** concentration based on 20 ml final volume

Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C

DG29HGI, DG29HGF, DG101AA1, DG101AA2

#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
49	BL		"	"	"	(Processed Blank)
50	BL S		"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std
51	BL DS		"	"	"	(Duplicate Blank Spike)
1	52		"	"	"	
1	53	D	"	"	"	(Duplicate sample)
1	54	S	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
1	55	DS	"	"	"	(Duplicate Spiked sample)
2	56		"	"	"	
3	57		"	"	"	
4	58		"	"	"	
5	59		"	"	"	
6	60		"	"	"	
7	61		"	"	"	
8	62		"	"	"	
9	63		"	"	"	
10	64		"	"	"	
65	CCV (Cont. Calib. Verif.)		20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
66	CCV (Cont. Calib. Verif.)		20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.

Procedure/Methodology:

- 1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul. of 1000 ppm Stock to 25 ml final volume of 2% HNO₃
- 2 Prepare 0.1 ppm Working calibration standard daily by pipetting 400 ul. of 25 ppm Intermediate to 100 ml final volume of 2% HNO₃
- 3 Prepare a 0.05 ppm Working Reference QC Standard daily by pipetting 50 ul of Stock Reference Standard to 100 ml final vol of 2% HNO₃
- 4 Using the LIMS Screen "SCNDIG" enter the required samples into LIMS
- 5 Using the labeling program, "DIGLBL", retrieve the "SCNDIG" list and create labels for the required samples.
- 6 Label the falcon tubes appropriately
- 7 Include one External Reference Material sample per run
- 8 Include one Organic Mercury Control Standard per run
- 9 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
- 10 Spike the tubes as indicated in the comment sector of the digestion sheet
- 11 Add 0.5 ml. of conc. Nitric Acid (HNO₃), and 1 ml. of conc. Sulphuric acid, (H₂SO₄), to each tube
- 12 Add 3 ml. Of 6% KMnO₄, purple colour must remain for the duration of digest.
- 13 Add 1.5 ml. of 5% potassium persulphate, (K₂S₂O₈), to each tube
- 14 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
- 15 Remove tubes and allow to cool to room temperature
- 16 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
- 17 Recap tubes and shake until KMnO₄ is destroyed and sample becomes colourless
Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	A9121P37	Oct. 02
Intermediate Cal Standard	Internal	01106129	21/02/29
Stock Reference Standard	High Purity	033536	JFH-02
External Reference Material	SPEX HFS	3311	01/07/14
Organic Mercury Control Standard	Aldrich	060111A	01/02/02
6% potassium permanganate	Internal	01106129	01/08/29
5% potassium persulphate	Internal	01106120	01/08/20
20% hydroxylamine hydrochloride	Internal	01106121	01/08/21
HNO ₃	Anachemia	1100110	01/04/03
H ₂ SO ₄	Anachemia	3100091	01/08/19
Bath Temps: 197.1 C	Time ON: 10:15	Time OFF: 12:15	
Prepared By: PLS	Date: 01/07/04	Checked by: U.B.	

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

Calibration Solutions:

#	I.D.	**Conc.	Spike	***Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	1.67	500 ul of 0.1 ppm working cal standard	2.5
4	Standard 3	3.33	1000 ul of 0.1 ppm working cal standard	5.0
5	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
6	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
7	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
8	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
9	Standard 5	6.67	2000 ul of 0.1 ppm working cal standard	10.0
10	Standard 6	8.33	2500 ul of 0.1 ppm working cal standard	12.5

Check List

- Digest Code/labels
- Samples poured out
- Acids added
- Reagents added
- Samples spiked
- Bath at 95 degrees C
- Samples digested
- Hydroxylamine HCl added
- Samples shaken and bulked
- Rack order checked

#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
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11	ICV (Init. Calib. Verif.)	MSB	20 ml	30 ml	1 X	1.5 ppb = 600 ul of 0.05ppm Working Reference QC Std.
12	LLC (Low Level Check)	"	"	"	"	0.25ppb = 50ul of 0.1 ppm Working Cal Std.
13	BL 07-04	"	"	"	"	(Processed Blank)
14	BL 07-04 S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
15	BL 07-04 DS	"	"	"	"	(Duplicate Blank Spike)
1	16 030163	"	"	"	"	
1	17 D	"	"	"	"	(Duplicate sample)
1	18 S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
1	19 DS	"	"	"	"	(Duplicate Spiked sample)
2	20 161	"	"	"	"	
3	21 162	"	"	"	"	
4	22 164	"	"	"	"	
5	23 165	"	"	"	"	
6	24 021 882	"	"	"	"	
7	25	"	"	"	"	
8	26	"	"	"	"	
9	27	"	"	"	"	
10	28	"	"	"	"	
29	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std
30	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std
31	BL 07-04	MSB	20 ml	30 ml	"	(Processed Blank)
32	BL 07-04 S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
33	BL 07-04 DS	"	"	"	"	(Duplicate Blank Spike)
1	34 036287	"	"	"	"	
1	35 D	"	"	"	"	(Duplicate sample)
1	36 S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
1	37 DS	"	"	"	"	(Duplicate Spiked sample)
2	38 289	"	"	"	"	
3	39 286	"	"	"	"	
4	40 288	"	"	"	"	
5	41 289	"	"	"	"	
6	42 036304	"	"	"	"	
7	43 306	"	"	"	"	
8	44 307	"	"	"	"	
9	45 308	"	"	"	"	
10	46 309	"	"	"	"	
47	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
48	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.

Comments: ** concentration based on 30 ml final volume, *** concentration based on 20 ml final volume

Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C

DG29HGI, DG29HGF, DG101AA1, DG101AA2

#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
49	BL 07 04	3MG1	"	"	"	(Processed Blank) 051930
50	BL 07 04 S	"	"	"	"	1 ppb = 200 ul of 0.1 ppm Working Cal Std
51	BL 07 04 DS	"	"	"	"	(Duplicate Blank Spike)
1	52 031942	"	"	"	"	
1	53	D	"	"	"	(Duplicate sample)
1	54	S	"	"	"	1 ppb = 200 ul of 0.1 ppm Working Cal Std
1	55	DS	"	"	"	(Duplicate Spiked sample)
2	56 21	"	"	"	"	
3	57 23	"	"	"	"	
4	58 24	"	"	"	"	
5	59	"	"	"	"	
6	60	"	"	"	"	
7	61	"	"	"	"	
8	62	"	"	"	"	
9	63	"	"	"	"	
10	64	"	"	"	"	
65	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std
66	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std

Procedure/Methodology:

- 1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul. of 1000 ppm Stock to 25 ml final volume of 2% HNO₃
- 2 Prepare 0.1 ppm Working calibration standard daily by pipetting 400 ul. of 25 ppm Intermediate to 100 ml final volume of 2% HNO₃
- 3 Prepare a 0.05 ppm Working Reference QC Standard daily by pipetting 50 ul of Stock Reference Standard to 100 ml final vol of 2% HNO₃
- 4 Using the LIMS Screen "SCNDIG" enter the required samples into LIMS
- 5 Using the labeling program, "DIGLBL", retrieve the "SCNDIG" list and create labels for the required samples.
- 6 Label the falcon tubes appropriately
- 7 Include one External Reference Material sample per run
- 8 Include one Organic Mercury Control Standard per run
- 9 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
- 10 Spike the tubes as indicated in the comment sector of the digestion sheet
- 11 Add 0.5 ml. of conc. Nitric Acid (HNO₃), and 1 ml of conc. Sulphuric acid, (H₂SO₄), to each tube
- 12 Add 3 ml. Of 6% KMnO₄, purple colour must remain for the duration of digest.
- 13 Add 1.5 ml. of 5% potassium persulphate, (K₂S₂O₈), to each tube
- 14 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
- 15 Remove tubes and allow to cool to room temperature
- 16 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
- 17 Recap tubes and shake until KMnO₄ is destroyed and sample becomes colourless
Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	A 91250 32	Oct. 02
Intermediate Cal Standard	Internal	01106129	011 07/29
Stock Reference Standard	High Purity	033 536	34 N-01
External Reference Material	SPEX NYS	HJS 3311	011 07/14
Organic Mercury Control Standard	Aldrich	008 4442	011 02/02
6% potassium permanganate	Internal	011 06/29	011 05/29
5% potassium persulphate	Internal	011 06/20	011 08/20
20% hydroxylamine hydrochloride	Internal	011 06/21	011 06/21
HNO ₃	Anachemia	11 00110	011 05/18
H ₂ SO ₄	Anachemia	31 00091	011 05/17
Bath Temps: 19.5 C	Time ON: 10:15	Time OFF: 12:15	
Prepared By: MB	Date: 01 07 04	Checked by: MB	

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

Calibration Solutions:

#	I.D.	**Conc.	Spike	***Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	1.67	500 ul of 0.1 ppm working cal standard	2.5
4	Standard 3	3.33	1000 ul of 0.1 ppm working cal standard	5.0
5	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
6	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
7	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
8	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
9	Standard 5	6.67	2000 ul of 0.1 ppm working cal standard	10.0
10	Standard 6	8.33	2500 ul of 0.1 ppm working cal standard	12.5

Check List

- Digest Code/labels
- Samples poured out
- Acids added
- Reagents added
- Samples spiked
- Bath at 95 degrees C
- Samples digested
- Hydroxylamine HCl added
- Samples shaken and bulked
- Rack order checked

#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
11	ICV (Int. Calib. Verif.)	441B	20 ml	30 ml	1 X	1.5 ppb = 600 ul of 0.05ppm Working Reference QC Std.
12	LLC (low level check)	"	"	"	"	0.25ppb = 50ul of 0.1 ppm Working Cal Std.
13	BL 0704	"	"	"	"	(Processed Blank)
14	BL 0704 S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
15	BL 0704 DS	"	"	"	"	(Duplicate Blank Spike)
1	16 039454	"	"	"	"	
1	17	D	"	"	"	(Duplicate sample)
1	18	S	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std
1	19	DS	"	"	"	(Duplicate Spiked sample)
2	20 52	"	"	"	"	
3	21 53	"	"	"	"	
4	22 55	"	"	"	"	
5	23 56	"	"	"	"	
6	24 88	"	"	"	"	
7	25 89	"	"	"	"	
8	26 90	"	"	"	"	
9	27 91	"	"	"	"	
10	28 92	"	"	"	"	
29	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
30	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
31	BL 0704	542B	20 ml	30 ml	"	(Processed Blank) 036161
32	BL 0704 S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
33	BL 0704 DS	"	"	"	"	(Duplicate Blank Spike)
1	34 036163	"	2.00ml	"	104	
1	35	D	"	"	"	(Duplicate sample)
1	36	S	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
1	37	DS	"	"	"	(Duplicate Spiked sample)
2	38 162	"	"	"	"	
3	39 164	"	"	"	"	
4	40 165	"	"	"	"	
5	41	"	"	"	"	
6	42	"	"	"	"	
7	43	"	"	"	"	
8	44	"	"	"	"	
9	45	"	"	"	"	
10	46	"	"	"	"	
47	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
48	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.

Comments: ** concentration based on 30 ml final volume, *** concentration based on 20 ml final volume

Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C

DG29HGI, DG29HGF, DG101AA1, DG101AA2

#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
49	BL 0704	GN 2B	"	"	"	(Processed Blank) 036286, 036304
50	BL 0704 S	"	"	"	"	1 ppb = 200 ul of 0.1 ppm Working Cal Std
51	BL 0704 DS	"	"	"	"	(Duplicate Blank Spike)
1 52	036287	"	2.50ul	"	10x	
1 53		D	"	"	"	(Duplicate sample)
1 54		S	"	"	"	1 ppb = 200 ul of 0.1 ppm Working Cal Std
1 55		DS	"	"	"	(Duplicate Spiked sample)
2 56	286	"	"	"	"	
3 57	288	"	"	"	"	
4 58	289	"	"	"	"	
5 59	036306	"	"	"	"	
6 60	307	"	"	"	"	
7 61	308	"	"	"	"	
8 62	309	"	"	"	"	
9 63		"	"	"	"	
10 64		"	"	"	"	
65	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std
66	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.

Procedure/Methodology:

- 1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm Stock to 25 ml final volume of 2% HNO₃
- 2 Prepare 0.1 ppm Working calibration standard daily by pipetting 400 ul., of 25 ppm Intermediate to 100 ml final volume of 2% HNO₃
- 3 Prepare a 0.05 ppm Working Reference QC Standard daily by pipetting 50 ul of Stock Reference Standard to 100 ml final vol of 2% HNO₃
- 4 Using the LIMS Screen "SCNDIG" enter the required samples into LIMS
- 5 Using the labeling program, "DIGLBL", retrieve the "SCNDIG" list and create labels for the required samples.
- 6 Label the falcon tubes appropriately
- 7 Include one External Reference Material sample per run
- 8 Include one Organic Mercury Control Standard per run
- 9 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
- 10 Spike the tubes as indicated in the comment sector of the digestion sheet
- 11 Add 0.5 ml. of conc. Nitric Acid (HNO₃), and 1 ml. of conc. Sulphuric acid, (H₂SO₄), to each tube
- 12 Add 3 ml. Of 6% KMnO₄, purple colour must remain for the duration of digest.
- 13 Add 1.5 ml. of 5% potassium persulphate, (K₂S₂O₈), to each tube
- 14 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
- 15 Remove tubes and allow to cool to room temperature
- 16 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
- 17 Recap tubes and shake until KMnO₄ is destroyed and sample becomes colourless
Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	A-9115032	007-02
Intermediate Cal Standard	Internal	01106129	01107129
Stock Reference Standard	High Purity	653136	24-0-02
External Reference Material	SPEX HJS	3311	01107114
Organic Mercury Control Standard	Aldrich	0681162	01107102
6% potassium permanganate	Internal	01106126	01108129
5% potassium persulphate	Internal	01106120	01108120
20% hydroxylamine hydrochloride	Internal	01106127	01108121
HNO ₃	Anachemia	1100110	01109103
H ₂ SO ₄	Anachemia	3100091	01108119
Bath Temps: 105 C	Time ON: 10:15	Time OFF: 12:11	
Prepared By: MB	Date: 01108104	Checked by: MB	

Zenon Number	Client	Client ID	Parameter	TS	Result	Dup.	Spike	% Rec.	Dup. Spk	% Rec.	Batch Date	Batch Code	Run Date	Run Code	Day Old	Day In	Analyst's Comments
036284	CLEANAIR	MB R456	Mercury -	PV	-0.050	-99999.0	0.521	104.	0.533	107.	01/07/09	7M3C	01/07/09	MG02	19.	11.	
036286	CLEANAIR	M29HG North-FB	Mercury -	PV	0.072						01/07/09	7M3C	01/07/09	MG02	20.	11.	
036287	CLEANAIR	M29HG North-Out-R1	Mercury -	PV	0.765	0.761	1.269	101.	1.272	102.	01/07/09	7M3C	01/07/09	MG02	20.	11.	
036288	CLEANAIR	M29HG North-Out-R2	Mercury -	PV	0.759						01/07/09	7M3C	01/07/09	MG02	20.	11.	
036289	CLEANAIR	M29HG North-Out-R3	Mercury -	PV	0.562						01/07/09	7M3C	01/07/09	MG02	20.	11.	
BL0709	INTERNAL		Mercury -	PV	-0.050	-99999.0	0.521	104.	0.533	107.	01/07/09	7M3C	01/07/09	MG02	\$\$\$	\$\$\$	

11 Tests for 29HG-3C with an MDL of 0.050 ug

Validated By CMB

Control Chart Updated N/A

IO Requirements met N/A

29HG-3C

Sample #	Conc. ug/L	Dilution x	Final Vol ml	Result T ug	Mdi ug	Dil Mdl ug	%	MDL FV
BL0709-7M3C	0.004	1	500	0.002	0.05	0.05		500
BL0709S	1.042	1	500	0.521	0.05	0.05	104	500
BL0709DS	1.065	1	500	0.533	0.05	0.05	107	500
36287	1.530	1	500	0.765	0.05	0.05		500
36287D	1.522	1	500	0.761	0.05	0.05		500
36287S	2.538	1	500	1.269	0.05	0.05	101	500
36287DS	2.544	1	500	1.272	0.05	0.05	102	500
36284	0.003	1	500	0.002	0.05	0.05		500
36286	0.143	1	500	0.072	0.05	0.05		500
36288	1.518	1	500	0.759	0.05	0.05		500
36289	1.124	1	500	0.562	0.05	0.05		500
36304	0.004	1	500	0.002	0.05	0.05		500
36306	0.031	1	500	0.016	0.05	0.05		500
36307	0.896	1	500	0.448	0.05	0.05		500
36308	0.742	1	500	0.371	0.05	0.05		500
36309	0.735	1	500	0.368	0.05	0.05		500

Sample Information File C:\FIMS\AAUSER\SAMPINFO\010709F2.SIF

Description : METHOD29
Batch ID : MG02
Volume Units :
Weight Units :
Analyst : MGAS
Sample Volume : 0.00

AS Sample ID Loc	Sample Sample Weight Units	User Dilution	Remarks
15	BL0709-7M3C		
16	BL0709S		
17	BL0709DS		
18	36287		
19	36287D		
20	36287S		
21	36287DS		
22	36284		
23	36286		
24	36288		
25	36289		
26	36304		
27	36306		
28	36307		
29	36308		
30	36309		
31	BL0709-8M3C		
32	BL0709S		
33	BL0709DS		
34	36621		
35	36621D		
36	36621S		
37	36621DS		
38	36619		
39	36620		
40	36622		
41	36623		
42	BL0709-6M3C		
43	BL0709S		
44	BL0709DS		
45	36163		
46	36163D		
47	36163S		
48	36163DS		
49	36161		
50	36162		
51	36164		
52	36165		

Method Name: EPA 7470
 Method Description: EPA 7470
 Element: Hg

Date: 07/09/2001
 Technique: FI-MHS
 Calibration Type:
 Hg, Zero Intercept: Linear
 Wavelength: 253.7 nm
 Sample Info Name: 010709F2.SIF

Results Data Set Name: 010709F2

Element: Hg Seq. No.: 1 AS Loc.: 1 Date: 07/09/2001
 Sample ID: Calib Blank

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.0002	0.0002	01:01:42	Yes
2			0.0001	0.0001	01:02:15	Yes
3			0.0001	0.0001	01:02:48	Yes
Mean:			0.0001			
SD :			0.0000			
%RSD:			24.5207			

Auto-zero performed.

Element: Hg Seq. No.: 2 AS Loc.: 2 Date: 07/09/2001
 Sample ID: STD1

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.0334	0.0335	01:03:37	Yes
2			0.0336	0.0337	01:04:10	Yes
3			0.0335	0.0336	01:04:43	Yes
Mean:			0.0335			
SD :			0.0001			
%RSD:			0.3273			

[Hg] Standard number 1 applied. [2.500]
 Correlation Coefficient: 1.00000 Slope: 0.01339

Element: Hg Seq. No.: 3 AS Loc.: 3 Date: 07/09/2001
 Sample ID: STD2

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.0677	0.0678	01:05:33	Yes
2			0.0665	0.0667	01:06:06	Yes
3			0.0672	0.0674	01:06:39	Yes
Mean:			0.0672			
SD :			0.0006			
%RSD:			0.8853			

[Hg] Standard number 2 applied. [5.000]
 Correlation Coefficient: 0.99999 Slope: 0.01342

Element: Hg Seq. No.: 4 AS Loc.: 4 Date: 07/09/2001
 Sample ID: STD3

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.1018	0.1019	01:07:52	Yes
2			0.1042	0.1044	01:08:25	Yes
3			0.1010	0.1012	01:08:58	Yes
Mean:			0.1024			

SD : 0.0017
 %RSD: 1.6234
 [Hg] Standard number 3 applied. [7.500]
 Correlation Coefficient: 0.99978 Slope: 0.01357

Element: Hg Seq. No.: 5 AS Loc.: 5 Date: 07/09/2001
 Sample ID: STD4

Repl #	SampleConc µg/L	StndConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1			0.1353	0.1354	01:10:14	Yes
2			0.1353	0.1355	01:10:48	Yes
3			0.1343	0.1344	01:11:21	Yes
Mean:			0.1350			
SD :			0.0006			
%RSD:			0.4330			

[Hg] Standard number 4 applied. [10.00]
 Correlation Coefficient: 0.99989 Slope: 0.01353

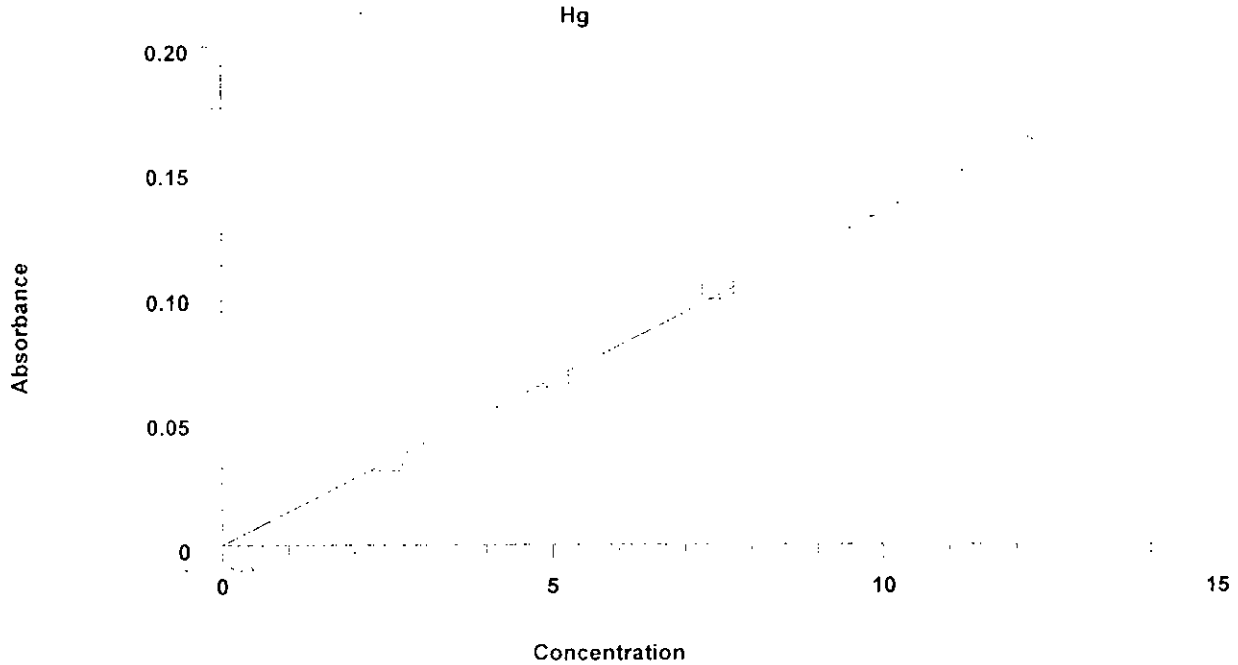
Element: Hg Seq. No.: 6 AS Loc.: 6 Date: 07/09/2001
 Sample ID: STD5

Repl #	SampleConc µg/L	StndConc µg/L	Blncorr Signal	Peak Height	Time	Peak Stored
1			0.1635	0.1636	01:12:37	Yes
2			0.1634	0.1635	01:13:09	Yes
3			0.1633	0.1634	01:13:43	Yes
Mean:			0.1634			
SD :			0.0001			
%RSD:						

[Hg] Standard number 5 applied. [12.50]
 Correlation Coefficient: 0.99914 Slope: 0.01332

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0001	---	---	---	---
STD1	0.0335	2.500	2.512	0.0001	0.3
STD2	0.0672	5.000	5.040	0.0006	0.9
STD3	0.1024	7.500	7.681	0.0017	1.6
STD4	0.1350	10.000	10.13	0.0006	0.4
STD5	0.1634	12.500	12.26	0.0001	---
Correlation Coefficient: 0.99914		Slope:	0.01332	---	---



=====
 Element: Hg Seq. No.: 7 AS Loc.: 9 Date: 07/09/2001
 Sample ID: ICV

Repl #	SampleConc µg/L	StdConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.535	1.535	0.0205	0.0206	01:15:02	Yes
2	1.533	1.533	0.0204	0.0206	01:15:35	Yes
3	1.497	1.497	0.0200	0.0201	01:16:08	Yes
Mean:	1.522	1.522	0.0203			
SD :	0.0212	0.0212	0.0003			
%RSD:	1.4	1.4	1.3919			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 8 AS Loc.: 10 Date: 07/09/2001
 Sample ID: ICB

Repl #	SampleConc µg/L	StdConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	-0.008	-0.008	-0.0001	0.0000	01:16:57	Yes
2	-0.006	-0.006	-0.0001	0.0000	01:17:30	Yes
3	-0.006	-0.006	-0.0001	0.0001	01:18:03	Yes
Mean:	-0.007	-0.007	-0.0001			
SD :	0.0012	0.0012	0.0000			
%RSD:	17.7	17.7	17.6627			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 9 AS Loc.: 11 Date: 07/09/2001
 Sample ID: NYS 3311

Repl #	SampleConc µg/L	StdConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.696	0.696	0.0093	0.0094	01:18:52	Yes
2	0.687	0.687	0.0092	0.0093	01:19:25	Yes
3	0.682	0.682	0.0091	0.0092	01:19:58	Yes

Mean: 0.688 0.688 0.0092
 SD : 0.0072 0.0072 0.0001
 %RSD: 1.0 1.0 1.0479
 QC value within specified limits.

=====
 Element: Hg Seq. No.: 10 AS Loc.: 12 Date: 07/09/2001
 Sample ID: ORG REF

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	2.262	2.262	0.0301	0.0303	01:20:47	Yes
2	2.277	2.277	0.0303	0.0305	01:21:20	Yes
3	2.217	2.217	0.0295	0.0297	01:21:53	Yes
Mean:	2.252	2.252	0.0300			
SD :	0.0314	0.0314	0.0004			
%RSD:	1.4	1.4	1.3930			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 11 AS Loc.: 13 Date: 07/09/2001
 Sample ID: LLC

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.249	0.249	0.0033	0.0035	01:22:42	Yes
2	0.251	0.251	0.0033	0.0035	01:23:16	Yes
3	0.252	0.252	0.0034	0.0035	01:23:49	Yes
Mean:	0.251	0.251	0.0033			
SD :	0.0016	0.0016	0.0000			
%RSD:	0.6	0.6	0.6232			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 12 AS Loc.: 14 Date: 07/09/2001
 Sample ID: DIL. CHECK

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.001	0.001	0.0000	0.0002	01:24:38	Yes
2	0.000	0.000	0.0000	0.0001	01:25:11	Yes
3	0.002	0.002	0.0000	0.0002	01:25:44	Yes
Mean:	0.001	0.001	0.0000			
SD :	0.0012	0.0012	0.0000			
%RSD:	102.3	102.3	102.3018			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 13 AS Loc.: 15 Date: 07/09/2001
 Sample ID: BL0709-7M3C

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.004	0.004	0.0001	0.0002	01:26:32	Yes
2	0.004	0.004	0.0001	0.0002	01:27:05	Yes
3	0.005	0.005	0.0001	0.0002	01:27:38	Yes
Mean:	0.004	0.004	0.0001			
SD :	0.0005	0.0005	0.0000			
%RSD:	10.8	10.8	10.8427			

=====
 Element: Hg Seq. No.: 14 AS Loc.: 16 Date: 07/09/2001
 Sample ID: BL0709S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored

1	1.048	1.048	0.0140	0.0141	01:28:27	Yes
2	1.049	1.049	0.0140	0.0141	01:29:00	Yes
3	1.028	1.028	0.0137	0.0138	01:29:33	Yes
Mean:	1.042	1.042	0.0139			
SD :	0.0116	0.0116	0.0002			
%RSD:	1.1	1.1	1.1162			

Element: Hg Seq. No.: 15 AS Loc.: 17 Date: 07/09/2001
 Sample ID: BL0709DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.068	1.068	0.0142	0.0144	01:30:21	Yes
2	1.061	1.061	0.0141	0.0143	01:30:54	Yes
3	1.066	1.066	0.0142	0.0143	01:31:27	Yes
Mean:	1.065	1.065	0.0142			
SD :	0.0038	0.0038	0.0001			
%RSD:	0.4	0.4	0.3605			

Element: Hg Seq. No.: 16 AS Loc.: 18 Date: 07/09/2001
 Sample ID: 36287

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.532	1.532	0.0204	0.0205	01:32:16	Yes
2	1.529	1.529	0.0204	0.0205	01:32:49	Yes
3	1.529	1.529	0.0204	0.0205	01:33:21	Yes
Mean:	1.530	1.530	0.0204			
SD :	0.0014	0.0014	0.0000			
%RSD:						

Element: Hg Seq. No.: 17 AS Loc.: 19 Date: 07/09/2001
 Sample ID: 36287D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.529	1.529	0.0204	0.0205	01:34:10	Yes
2	1.529	1.529	0.0204	0.0205	01:34:43	Yes
3	1.509	1.509	0.0201	0.0202	01:35:16	Yes
Mean:	1.522	1.522	0.0203			
SD :	0.0117	0.0117	0.0002			
%RSD:	0.8	0.8	0.7654			

Element: Hg Seq. No.: 18 AS Loc.: 20 Date: 07/09/2001
 Sample ID: 36287S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	2.549	2.549	0.0340	0.0341	01:36:05	Yes
2	2.539	2.539	0.0338	0.0340	01:36:38	Yes
3	2.527	2.527	0.0337	0.0338	01:37:11	Yes
Mean:	2.538	2.538	0.0338			
SD :	0.0112	0.0112	0.0001			
%RSD:	0.4	0.4	0.4426			

Element: Hg Seq. No.: 19 AS Loc.: 21 Date: 07/09/2001
 Sample ID: 36287DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	2.554	2.554	0.0340	0.0342	01:38:00	Yes

2	2.535	2.535	0.0338	0.0339	01:38:33	Yes
3	2.542	2.542	0.0339	0.0340	01:39:06	Yes
Mean:	2.544	2.544	0.0339			
SD :	0.0093	0.0093	0.0001			
%RSD:	0.4	0.4	0.3660			

=====
 Element: Hg Seq. No.: 20 AS Loc.: 22 Date: 07/09/2001
 Sample ID: 36284

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.001	0.001	0.0000	0.0001	01:39:55	Yes
2	0.003	0.003	0.0000	0.0002	01:40:28	Yes
3	0.004	0.004	0.0001	0.0002	01:41:01	Yes
Mean:	0.003	0.003	0.0000			
SD :	0.0017	0.0017	0.0000			
%RSD:	66.9	66.9	66.9177			

=====
 Element: Hg Seq. No.: 21 AS Loc.: 23 Date: 07/09/2001
 Sample ID: 36286

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.141	0.141	0.0019	0.0020	01:41:50	Yes
2	0.146	0.146	0.0019	0.0021	01:42:23	Yes
3	0.142	0.142	0.0019	0.0020	01:42:56	Yes
Mean:	0.143	0.143	0.0019			
SD :	0.0028	0.0028	0.0000			
%RSD:	1.9	1.9	1.9242			

=====
 Element: Hg Seq. No.: 22 AS Loc.: 24 Date: 07/09/2001
 Sample ID: 36288

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.520	1.520	0.0203	0.0204	01:43:48	Yes
2	1.521	1.521	0.0203	0.0204	01:44:22	Yes
3	1.512	1.512	0.0201	0.0203	01:44:55	Yes
Mean:	1.518	1.518	0.0202			
SD :	0.0050	0.0050	0.0001			
%RSD:	0.3	0.3	0.3309			

=====
 Element: Hg Seq. No.: 23 AS Loc.: 7 Date: 07/09/2001
 Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.027	1.027	0.0137	0.0138	01:45:47	Yes
2	1.022	1.022	0.0136	0.0138	01:46:20	Yes
3	1.022	1.022	0.0136	0.0138	01:46:53	Yes
Mean:	1.024	1.024	0.0136			
SD :	0.0030	0.0030	0.0000			
%RSD:	0.3	0.3	0.2944			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 24 AS Loc.: 8 Date: 07/09/2001
 Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	-0.001	-0.001	0.0000	0.0001	01:47:42	Yes

2	0.000	0.000	0.0000	0.0001	01:48:15	Yes
3	0.000	0.000	0.0000	0.0001	01:48:48	Yes
Mean:	0.000	0.000	0.0000			
SD :	0.0008	0.0008	0.0000			
%RSD:	225.9	225.9	225.9265			

QC value within specified limits.

=====
 Element: Hg Seq. No.: 25 AS Loc.: 25 Date: 07/09/2001
 Sample ID: 36289

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.132	1.132	0.0151	0.0152	01:49:40	Yes
2	1.114	1.114	0.0148	0.0150	01:50:13	Yes
3	1.125	1.125	0.0150	0.0151	01:50:46	Yes
Mean:	1.124	1.124	0.0150			
SD :	0.0093	0.0093	0.0001			
%RSD:	0.8	0.8	0.8249			

=====
 Element: Hg Seq. No.: 26 AS Loc.: 26 Date: 07/09/2001
 Sample ID: 36304

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.004	0.004	0.0001	0.0002	01:51:35	Yes
2	0.003	0.003	0.0000	0.0002	01:52:08	Yes
3	0.003	0.003	0.0000	0.0002	01:52:41	Yes
Mean:	0.004	0.004	0.0000			
SD :	0.0009	0.0009	0.0000			
%RSD:	24.2	24.2	24.2071			

=====
 Element: Hg Seq. No.: 27 AS Loc.: 27 Date: 07/09/2001
 Sample ID: 36306

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.031	0.031	0.0004	0.0006	01:53:30	Yes
2	0.031	0.031	0.0004	0.0005	01:54:03	Yes
3	0.031	0.031	0.0004	0.0005	01:54:36	Yes
Mean:	0.031	0.031	0.0004			
SD :	0.0002	0.0002	0.0000			
%RSD:	0.6	0.6	0.6259			

=====
 Element: Hg Seq. No.: 28 AS Loc.: 28 Date: 07/09/2001
 Sample ID: 36307

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.899	0.899	0.0120	0.0121	01:55:26	Yes
2	0.893	0.893	0.0119	0.0120	01:55:59	Yes
3	0.897	0.897	0.0119	0.0121	01:56:32	Yes
Mean:	0.896	0.896	0.0119			
SD :	0.0029	0.0029	0.0000			
%RSD:	0.3	0.3	0.3291			

=====
 Element: Hg Seq. No.: 29 AS Loc.: 29 Date: 07/09/2001
 Sample ID: 36308

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.744	0.744	0.0099	0.0101	01:57:21	Yes

2	0.738	0.738	0.0098	0.0100	01:57:54	Yes
3	0.743	0.743	0.0099	0.0100	01:58:27	Yes
Mean:	0.742	0.742	0.0099			
SD :	0.0035	0.0035	0.0000			
%RSD:	0.5	0.5	0.4781			

=====
 Element: Hg Seq. No.: 30 AS Loc.: 30 Date: 07/09/2001
 Sample ID: 36309

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.739	0.739	0.0098	0.0100	01:59:15	Yes
2	0.737	0.737	0.0098	0.0099	01:59:48	Yes
3	0.730	0.730	0.0097	0.0099	02:00:21	Yes
Mean:	0.735	0.735	0.0098			
SD :	0.0043	0.0043	0.0001			
%RSD:	0.6	0.6	0.5815			

=====
 Element: Hg Seq. No.: 31 AS Loc.: 31 Date: 07/09/2001
 Sample ID: BL0709-8M3C

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.003	0.003	0.0000	0.0002	02:01:10	Yes
2	0.002	0.002	0.0000	0.0002	02:01:43	Yes
3	0.005	0.005	0.0001	0.0002	02:02:16	Yes
Mean:	0.003	0.003	0.0000			
SD :	0.0014	0.0014	0.0000			
%RSD:	43.0	43.0	43.0487			

=====
 Element: Hg Seq. No.: 32 AS Loc.: 32 Date: 07/09/2001
 Sample ID: BL0709S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.062	1.062	0.0142	0.0143	02:03:05	Yes
2	1.057	1.057	0.0141	0.0142	02:03:38	Yes
3	1.047	1.047	0.0140	0.0141	02:04:11	Yes
Mean:	1.056	1.056	0.0141			
SD :	0.0075	0.0075	0.0001			
%RSD:	0.7	0.7	0.7113			

=====
 Element: Hg Seq. No.: 33 AS Loc.: 33 Date: 07/09/2001
 Sample ID: BL0709DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.061	1.061	0.0141	0.0143	02:05:00	Yes
2	1.053	1.053	0.0140	0.0142	02:05:33	Yes
3	1.062	1.062	0.0141	0.0143	02:06:06	Yes
Mean:	1.058	1.058	0.0141			
SD :	0.0051	0.0051	0.0001			
%RSD:	0.5	0.5	0.4778			

=====
 Element: Hg Seq. No.: 34 AS Loc.: 34 Date: 07/09/2001
 Sample ID: 36621

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	5.198	5.198	0.0693	0.0694	02:06:56	Yes
2	5.171	5.171	0.0689	0.0690	02:07:29	Yes

3 5.157 5.157 0.0687 0.0688 02:08:02 Yes
 Mean: 5.175 5.175 0.0690
 SD : 0.0212 0.0212 0.0003
 %RSD: 0.4 0.4 0.4092

Element: Hg Seq. No.: 35 AS Loc.: 7 Date: 07/09/2001
 Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	1.025	1.025	0.0137	0.0138	02:09:18	Yes
2	1.019	1.019	0.0136	0.0137	02:09:51	Yes
3	1.025	1.025	0.0137	0.0138	02:10:24	Yes
Mean:	1.023	1.023	0.0136			
SD :	0.0032	0.0032	0.0000			
%RSD:	0.3	0.3	0.3160			

QC value within specified limits.

Element: Hg Seq. No.: 36 AS Loc.: 8 Date: 07/09/2001
 Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	0.000	0.000	0.0000	0.0001	02:11:13	Yes
2	-0.001	-0.001	0.0000	0.0001	02:11:46	Yes
3	0.002	0.002	0.0000	0.0002	02:12:19	Yes
Mean:	0.000	0.000	0.0000			
SD :	0.0015	0.0015	0.0000			
%RSD:	347.3	347.3	347.3449			

QC value within specified limits.

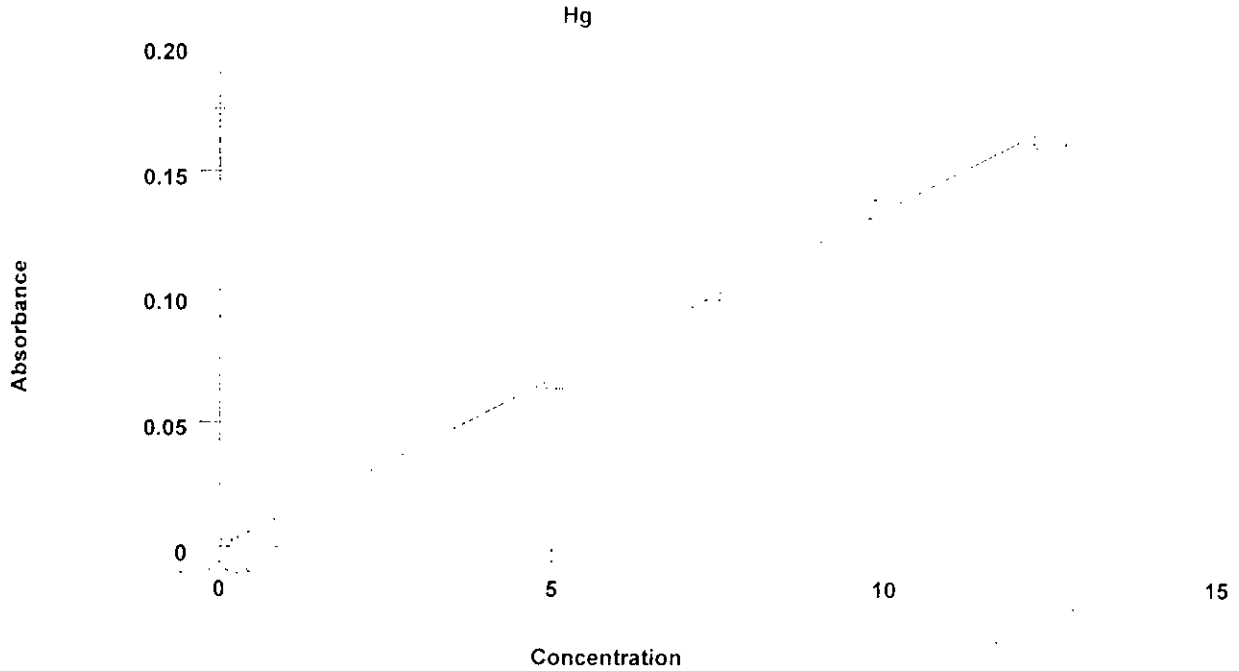
Element: Hg Seq. No.: 37 AS Loc.: 4 Date: 07/09/2001
 Sample ID: Reslope

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1			0.1012	0.1014	02:13:09	Yes
2			0.1007	0.1009	02:13:42	Yes
3			0.1007	0.1008	02:14:15	Yes
Mean:			0.1009			
SD :			0.0003			
%RSD:			0.3065			

[Hg] Reslope standard applied. [7.500]
 Correlation Coefficient: 0.99914 Slope: 0.01320

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0001	---	0.010	0.0000	24.5
STD1	0.0335	2.500	2.489	0.0001	0.3
STD2	0.0672	5.000	4.993	0.0006	0.9
STD3	0.1024	7.500	7.610	0.0017	1.6
STD4	0.1350	10.000	10.03	0.0006	0.4
STD5	0.1634	12.500	12.15	0.0001	---
Reslope	0.1009	7.500	7.500	0.0003	0.3
Correlation Coefficient: 0.99914		Slope: 0.01320		----	



=====
 Element: Hg Seq. No.: 38 AS Loc.: 35 Date: 07/09/2001
 Sample ID: 36621D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	5.288	5.288	0.0711	0.0713	02:15:36	Yes
2	5.278	5.278	0.0710	0.0711	02:16:09	Yes
3	5.284	5.284	0.0711	0.0712	02:16:43	Yes
Mean:	5.284	5.284	0.0711			
SD :	0.0050	0.0050	0.0001			
%RSD:						

=====
 Element: Hg Seq. No.: 39 AS Loc.: 36 Date: 07/09/2001
 Sample ID: 36621S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	6.242	6.242	0.0840	0.0841	02:17:57	Yes
2	6.238	6.238	0.0839	0.0840	02:18:30	Yes
3	6.260	6.260	0.0842	0.0843	02:19:04	Yes
Mean:	6.247	6.247	0.0840			
SD :	0.0116	0.0116	0.0002			
%RSD:	0.2	0.2	0.1863			

=====
 Element: Hg Seq. No.: 40 AS Loc.: 37 Date: 07/09/2001
 Sample ID: 36621DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Height	Time	Peak Stored
1	6.323	6.323	0.0850	0.0852	02:20:21	Yes
2	6.297	6.297	0.0847	0.0848	02:20:54	Yes
3	6.293	6.293	0.0846	0.0848	02:21:27	Yes
Mean:	6.304	6.304	0.0848			
SD :	0.0163	0.0163	0.0002			

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DGHGLEACH, DG29*

Calibration Solutions:

#	I.D.	**Conc.	Spike	***Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	1.67	500 ul of 0.1 ppm working cal standard	2.5
4	Standard 3	3.33	1000 ul of 0.1 ppm working cal standard	5.0
5	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
6	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
7	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
8	Standard 4	5.0	1500 ul of 0.1 ppm working cal standard	7.5
9	Standard 5	6.67	2000 ul of 0.1 ppm working cal standard	10.0
10	Standard 6	8.33	2500 ul of 0.1 ppm working cal standard	12.5

Check List

- Digest Code/labels
- Samples poured out
- Acids added
- Reagents added
- Samples spiked
- Bath at 95 degrees C
- Samples digested
- Hydroxylamine HCl added
- Samples shaken and bulked
- Rack order checked

#	Sample I.D.	B.Code	Init. Vol.	F. Vol.	Dil	Comment
11	ICV (Int. Calib. Verif.)	243C	20 ml	30 ml	1 X	1.5 ppb = 600 ul of 0.05ppm Working Reference QC Std.
12	LLC (low level check)	"	"	"	"	0.25ppb = 50ul of 0.1 ppm Working Cal Std.
13	BL 209	"	"	"	"	(Processed Blank)
14	BL S	"	"	"	"	1 ppb = 200 ul of 0.1 ppm Working Cal Std.
15	BL DS	"	"	"	"	(Duplicate Blank Spike)
1	16 036287	"	"	"	"	
1	17 D	"	"	"	"	(Duplicate sample)
1	18 S	"	"	"	"	1 ppb = 200 ul of 0.1 ppm Working Cal Std.
1	19 DS	"	"	"	"	(Duplicate Spiked sample)
2	20 036284	"	"	"	"	
3	21 86	"	"	"	"	
4	22 88	"	"	"	"	
5	23 89	"	"	"	"	
6	24 036304	"	"	"	"	
7	25 306	"	"	"	"	
8	26 307	"	"	"	"	
9	27 308	"	"	"	"	
10	28 309	"	"	"	"	
29	CCV (Cont. Calib. Verif.)	-	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
30	CCV (Cont. Calib. Verif.)	-	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
31	BL 0709	843C	20 ml	30 ml	"	(Processed Blank)
32	BL S	"	"	"	"	1 ppb = 200 ul of 0.1 ppm Working Cal Std.
33	BL DS	"	"	"	"	(Duplicate Blank Spike)
1	34 056621	"	"	"	"	
1	35 D	"	"	"	"	(Duplicate sample)
1	36 S	"	"	"	"	1 ppb = 200 ul of 0.1 ppm Working Cal Std.
1	37 DS	"	"	"	"	(Duplicate Spiked sample)
2	38 19	"	"	"	"	
3	39 20	"	"	"	"	
4	40 22	"	"	"	"	
5	41 23	"	"	"	"	
6	42	"	"	"	"	
7	43	"	"	"	"	
8	44	"	"	"	"	
9	45	"	"	"	"	
10	46	"	"	"	"	
47	CCV (Cont. Calib. Verif.)	-	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
48	CCV (Cont. Calib. Verif.)	-	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.

Comments: ** concentration based on 30 ml final volume, *** concentration based on 20 ml final volume

Other Applicable Test Codes: DG29HG-1B, DG29HG-2B, DG29HG-3A, DG29HG-3B, DG29HG-3C

DG29HGI, DG29HGF, DG101AA1, DG101AA2

#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
49	BL		"	"	"	(Processed Blank)
50	BL	S	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std.
51	BL	DS	"	"	"	(Duplicate Blank Spike)
1	52		"	"	"	
1	53	D	"	"	"	(Duplicate sample)
1	54	S	"	"	"	1 ppb = 200 ul. of 0.1 ppm Working Cal Std
1	55	DS	"	"	"	(Duplicate Spiked sample)
2	56		"	"	"	
3	57		"	"	"	
4	58		"	"	"	
5	59		"	"	"	
6	60		"	"	"	
7	61		"	"	"	
8	62		"	"	"	
9	63		"	"	"	
10	64		"	"	"	
65	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.
66	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05ppm Working Reference QC Std.

Procedure/Methodology:

- 1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul. of 1000 ppm Stock to 25 ml final volume of 2% HNO₃
- 2 Prepare 0.1 ppm Working calibration standard daily by pipetting 400 ul. of 25 ppm Intermediate to 100 ml final volume of 2% HNO₃
- 3 Prepare a 0.05 ppm Working Reference QC Standard daily by pipetting 50 ul of Stock Reference Standard to 100 ml final vol of 2% HNO₃
- 4 Using the LIMS Screen "SCNDIG" enter the required samples into LIMS
- 5 Using the labeling program, "DIGLBL", retrieve the "SCNDIG" list and create labels for the required samples.
- 6 Label the falcon tubes appropriately
- 7 Include one External Reference Material sample per run
- 8 Include one Organic Mercury Control Standard per run
- 9 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube
- 10 Spike the tubes as indicated in the comment sector of the digestion sheet
- 11 Add 0.5 ml. of conc. Nitric Acid (HNO₃), and 1 ml. of conc. Sulphuric acid, (H₂SO₄), to each tube
- 12 Add 3 ml. Of 6% KMnO₄, purple colour must remain for the duration of digest.
- 13 Add 1.5 ml. of 5% potassium persulphate, (K₂S₂O₈), to each tube
- 14 Mix samples, cap loosely and place in a water bath @ 95 degrees C for 2 hours
- 15 Remove tubes and allow to cool to room temperature
- 16 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
- 17 Recap tubes and shake until KMnO₄ is destroyed and sample becomes colourless
Dilute the sample to a final volume of 30 ml.

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	Inorganic Ventures	A9125252	06-02
Intermediate Cal Standard	Internal	01106129	01/07/29
Stock Reference Standard	High Purity	233526	34H.02
External Reference Material	SPEX NYS	5211	01/08/05
Organic Mercury Control Standard	Aldrich	20811412	01/02/02
6% potassium permanganate	Internal	01107104	01/09/04
5% potassium persulphate	Internal	01107104	01/09/04
20% hydroxylamine hydrochloride	Internal	01107104	01/09/04
HNO ₃	Anachemia	100110	01/09/09
H ₂ SO ₄	Anachemia	4100091	01/08/19
Bath Temps: 19.1 C	Time ON: 10:05	Time OFF: 12:05	
Prepared By: NJ	Date: 01/07/09	Checked by: NJ	

4. SHIPPING/RECEIVING DOCUMENTS

Airbills
Chain-of-Custody Records
Sample Login Sheet
Miscellaneous Shipping/Receiving Records (describe or list)



FedEx USA Airbill

FedEx Tracking Number

804010363137

Form I.D. No.

0200

SPG11 Recipient's Copy

From 6/28/01

to Scott Brown Phone (847) 991-3300

company CLEAN AIR ENGINEERING @ Wheelabrator

address 500 W WOOD ST 4400 South State Rd. 7

city PALATINE Ft. Lauderdale State FL ZIP 33067 33314

Internal Billing Reference Information

To Aida Blythe / Sheri Typer Phone (905) 332-8788

company PSC Analytical

address 299 Cayuga Rd. (FedEx Depot)

city Cheektowaga State NY ZIP 14225

For HOLD at FedEx Location check here

Hold Weekday (Not available with FedEx First Overnight) Hold Saturday (Not available at all locations) (Available for FedEx Priority Overnight and FedEx 2Day only)

For Saturday Delivery check here (Extra Charge Not available to all locations) (Available for FedEx Priority Overnight and FedEx 2Day only)



4a Express Package Service Packages under 150 lbs. Delivery commitment may be later in some areas

4b Express Freight Service Packages over 150 lbs. Delivery commitment may be later in some areas

5 Packaging

6 Special Handling

7 Payment



Total Packages 1 Total Weight 20.26 Total Declared Value \$ NDV Total Charges \$

8 Release Signature

Your signature authorizes Federal Express to deliver this shipment without obtaining a signature and agrees to indemnify and hold harmless Federal Express from any resulting claims.

Questions? Call 1-800-Go-FedEx (800)463-3339

288

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CHAIN OF CUSTODY FORM

CLIENT <u>Wheelabrator</u>	PROJECT NO. <u>8964</u>	NO. OF CONTAINERS	ORIGINAL VOLUME	ANALYSIS REQUESTED				PAGE ____ OF ____
PLANT <u>North Branch</u>	DEPT. <u>66</u>			H ₂ Only				REVISION NO. ____
PROJECT MANAGER <u>Scott Brown</u>	RECOVERY PERSON: <u>P. Tinkham</u>							ADDITIONAL INFORMATION
JOB LEADER <u>Pete Tinkham</u>								<u>MB-36284</u> <u>36287</u>

CAE LAB NO.	RUN NO.	TEST LOCATION	DATE	SAMPLE MATRIX	NO. OF CONTAINERS	ORIGINAL VOLUME	ANALYSIS REQUESTED	ADDITIONAL INFORMATION
		FF Outlet Unit	B2 6/19/01	Filter	1	NA	X	
			B2	Front 1/2 IN HNO ₃	1	103	X	
			B5	Imp. 1,2,3 HNO ₃ Rinse	1	710	X	
			B2	Imp 4 IN HNO ₃ Rinse	1	103	X	
			B4	Imp. 5,6 KMnO ₄ /H ₂ O Rinse	1	396	X	
			B2	Imp 5,6 HCl Rinse	1	241	X	
	2	FF Outlet Unit	B4 6/19/01	Filter	1	NA	X	36288
	2		B2	Front 1/2 IN HNO ₃	1	106	X	
	2		B5	Imp. 1,2,3 IN HNO ₃ Rinse	1	699	X	
	2		B6	Imp 4 IN HNO ₃ Rinse	1	103	X	
	2		B4	Imp 5,6 KMnO ₄ /H ₂ O	1	426	X	
	2		B2	Imp. 5,6 HCl Rinse	1	226	X	

Relinquished by: (Signature) <u>P. Tinkham</u>	Date/Time <u>6/22/01 6:30P</u>	Received by: (Signature) <u>M. K. Scott</u>	Date/Time <u>01/06/29/2000</u>	Relinquished by: (Signature)	Date/Time
Courier:	Date/Time	Relinquished by: (Signature)	Date/Time	Rec'd for Analysis by:	Date/Time


Special Handling Instructions	This form was completed by: <u>P. Tinkham</u>	 Clean Air Engineering 500 West Wood Street Palatine, IL 60067 (847) 991-3300 phone (847) 991-3385 fax <small>DS COC Palatine EXCL.R0-6/7/96</small>
Forwarding Lab: _____	Signature <u>P. Tinkham</u> Date _____	

CHAIN OF CUSTODY FORM

CLIENT <u>Wheelabrator</u>	PROJECT NO. <u>7964</u>	NO. OF CONTAINERS	ORIGINAL VOLUME	ANALYSIS REQUESTED				PAGE ____ OF ____
PLANT <u>North Broward</u>	DEPT. <u>66</u>			H ₂ Only				REVISION NO. ____
PROJECT MANAGER <u>Scott Brown</u>	RECOVERY PERSON: <u>Pete Trukhan</u>							ADDITIONAL INFORMATION
JOB LEADER <u>Pete Trukhan</u>								

CAE LAB NO.	RUN NO.	TEST LOCATION	DATE	SAMPLE MATRIX	NO. OF CONTAINERS	ORIGINAL VOLUME				
	3	FF Outlet Unit	6/19/01	Filter	1	NA	X			
	3		B2	Fast 1/2 1N HNO ₃	1	107	X			
	3		B5	Imp 1,2,3 1N HNO ₃ Rinse	1	650	X			
	3		B5	Imp 4 1N HNO ₃ Rinse	1	85	X			
	3		B4	Imp 5,6 KMnO ₄ /H ₂ O Rinse	1	443	X			
	3		B2	Imp 5,6 HCl Rinse	1	126	X			
		Blank Field Blank	6/19/01	Filter	1	NA	X			
			B2	Fast 1/2 1N HNO ₃	1	108	X			
			B5	Imp 1,2,3 1N HNO ₃ Rinse	1	291	X			
			B2	Imp 4 1N HNO ₃ Rinse	1	100	X			
			B4	Imp 5,6 KMnO ₄ /H ₂ O Rinse	1	396	X			
			B2	Imp 5,6 HCl Rinse	1	249	X			

Relinquished by: (Signature) <u>Pete Trukhan</u>	Date/Time 6/20/01 6:30P	Received by: (Signature) <u>M. K. Licht</u>	Date/Time 01/06/29 12:30P	Relinquished by: (Signature)	Date/Time
Courier:	Date/Time	Relinquished by: (Signature)	Date/Time	Rec'd for Analysis by:	Date/Time


Special Handling Instructions	This form was completed by: <u>P. Trukhan</u>	 Clean Air Engineering <small>DS COC Palatine EXCL.R0-6/7/96</small>
Forwarding Lab: _____	Signature <u>Pete Trukhan</u> Date <u>6/20/01</u>	
PO Number: _____	500 West Wood Street Palatine, IL 60067 (847) 991-3300 phone (847) 991-3385 fax	

CHAIN OF CUSTODY FORM

CLIENT <u>Wheelabrator</u>	PROJECT NO. <u>8964</u>	NO. OF CONTAINERS	ORIGINAL VOLUME	ANALYSIS REQUESTED				PAGE ___ OF ___
PLANT <u>North Broward</u>	DEPT. <u>66</u>			Archive				REVISION NO. ___
PROJECT MANAGER <u>Scott Brown</u>	RECOVERY PERSON: <u>P. Tinkham</u>							ADDITIONAL INFORMATION
JOB LEADER <u>Pete Tinkham</u>								

CAE LAB NO.	RUN NO.	TEST LOCATION	DATE	SAMPLE MATRIX	NO. OF CONTAINERS	ORIGINAL VOLUME	ANALYSIS REQUESTED	ADDITIONAL INFORMATION
	4	FF Outlet Unit 104	6/20/01	Filter	1	NA	X	36290
	4	↓	B5	Front 1/2 .1N HNO ₃	1	101	X	
	4		B6	Imp. 1,2,3 HNO ₃ Rinse	1	663	X	
	4		B5	Imp. 4 .1N HNO ₃ Rinse	1	65	X	
	4		B4	Imp. 5,6 KMnO ₄ /H ₂ O Rinse	1	399	X	
	4		B2	Imp. 5,6 HCl Rinse	1	230	X	
	5		FF Outlet Unit 104	6/20/01	Filter		NA	X
	5	↓	B4	Front 1/2 .1N HNO ₃	1	NA 107g	X	
	5		B6	Imp. 1,2,3 HNO ₃ Rinse	1	614	X	
	5		B5	Imp. 4 .1N HNO ₃ Rinse	1	100	X	
	5		B4	Imp. 5,6 KMnO ₄ /H ₂ O Rinse	1	401	X	
	5		B2	Imp. 5,6 HCl Rinse	1	237	X	

Relinquished by: (Signature) <u>Pete Tinkham</u>	Date/Time 6/20/01 6:30P	Received by: (Signature) <u>M. K. Smith</u>	Date/Time 01/06/09 12:30	Relinquished by: (Signature)	Date/Time
Courier:	Date/Time	Relinquished by: (Signature)	Date/Time	Rec'd for Analysis by:	Date/Time


Special Handling Instructions	This form was completed by: <u>Caleb Wiza</u>	 Clean Air Engineering 500 West Wood Street Palatine, IL 60067 (847) 991-3300 phone (847) 991-3385 fax
Forwarding Lab:	Signature: <u>Caleb Wiza</u> Date: <u>6/20/01</u>	

CHAIN OF CUSTODY FORM

CLIENT <u>Whealabrator</u>	PROJECT NO. <u>8964</u>	NO. OF CONTAINERS	ORIGINAL VOLUME	ANALYSIS REQUESTED				PAGE ___ OF ___
PLANT <u>North Broward</u>	DEPT. <u>66</u>			Archive	Hg Only			REVISION NO. ___
PROJECT MANAGER <u>Scott Brown</u>	RECOVERY PERSON: <u>P. Tinkham</u>							ADDITIONAL INFORMATION
JOB LEADER <u>Pete Tinkham</u>								

CAE LAB NO.	RUN NO.	TEST LOCATION	DATE	SAMPLE MATRIX	NO. OF CONTAINERS	ORIGINAL VOLUME	ANALYSIS REQUESTED	ADDITIONAL INFORMATION
	6	FF Outlet Unit	6/20/01	Filter	1	NA	X	30292
	6		B3	Front 1/1N HNO ₃	1	99	X	
	6		B6	Imp. 1,2,3 HNO ₃ Rinse	1	672	X	
	6		B4	Imp. 4 1/1N HNO ₃ Rinse	1	112	X	
	6		B4	Imp. 5,6 KMnO ₄ /H ₂ O Rinse	1	403	X	
	6		B2	Imp. 5,6 HCl Rinse	1	225	X	
	NA	Reagent Blank	6/20/01	Filter	1	NA	X	30285
			B6	1/1N HNO ₃	1	202	X	
			B5	5% 10% HNO ₃ H ₂ O	1	302	X	
			B4	4% KMnO ₄ 10% H ₂ SO ₄	1	300	X	
			B2	5/1N HCl DE H ₂ O	1	225	X	
			B6	DE H ₂ O	1	202	X	

Relinquished by: (Signature) <u>Pete Tinkham</u>	Date/Time 6/22/01 6:30	Received by: (Signature) <u>M. G. Wiza</u>	Date/Time 6/20/01	Relinquished by: (Signature) <u>Pete Tinkham</u>	Date/Time 6/20/01
Courier:	Date/Time	Relinquished by: (Signature)	Date/Time	Rec'd for Analysis by:	Date/Time

Special Handling Instructions	This form was completed by: <u>Caleb Wiza</u>	 Clean Air Engineering 500 West Wood Street Palatine, IL 60067 (847) 991-3300 phone (847) 991-3385 fax <small>DS COC Palatine EXCL.R0-6/7/96</small>
Forwarding Lab: _____	Signature _____ Date _____	
PO Number: _____	<u>Caleb Wiza 6/20/01</u>	

METHOD 20 SUBMISSION STATUS

Client ID: clean air

36285 36287
80 85

PASC Sample #:

M29 Container #	Receipt Confirmation (P/A)	Volume Mark (P/A)	Volume as Marked*** (Y/N)	Comments	M29 Container #	Receipt Confirmation (P/A)	Volume Mark (P/A)	Volume as Marked*** (Y/N)	Comments
Reagent Blank <u>North Broward</u> Portions for all Metals 12 Filters (3 min.): # of filters = <u>1</u> P/A <u>250p</u> 7 Acetone (Req. 100 ml) P/A P/A Y/N 8A 0.1 N Nitric Acid (Req. 300 ml**) P/A P/A Y/N <u>250p</u> 9 Nitric/Peroxide (Req. 200 ml) P/A P/A Y/N <u>1LP</u> Portions for Mercury only 10 KMnO4/H2SO4 (Req. 100 ml) P/A P/A Y/N <u>1Lag</u> 8B Water (Req. 100 ml) P/A P/A Y/N <u>250p</u> 11 HCl (Req. 200 ml water + 25 ml 8N HCl) P/A P/A Y/N <u>250ag</u>					Run # 1 U1 Outlet Portions for all Metals 1 Filter P/A <u>250p</u> 2 Acetone Rinse P/A P/A Y/N 3 Nitric Probe Rinse P/A P/A Y/N <u>250p</u> 4 Nitric/Peroxide and Rinses P/A P/A Y/N <u>1LP</u> Portions for Mercury only 5A Impinger 4 and Rinses P/A P/A Y/N <u>250p</u> 5B Permanganate and Rinses P/A P/A Y/N <u>1Lag</u> 5C HCl Rinse P/A P/A Y/N <u>250ag</u>				
Run # Field Blank Portions for all Metals 1 Filter P/A <u>250p</u> 2 Acetone Rinse P/A P/A Y/N 3 Nitric Probe Rinse P/A P/A Y/N <u>250p</u> 4 Nitric/Peroxide and Rinses P/A P/A Y/N <u>1LP</u> Portions for Mercury only 5A Impinger 4 and Rinses P/A P/A Y/N <u>250p</u> 5B Permanganate and Rinses P/A P/A Y/N <u>1Lag</u> 5C HCl Rinse P/A P/A Y/N <u>250ag</u>					Run # 2 U1 Outlet Portions for all Metals 1 Filter P/A <u>250p</u> 2 Acetone Rinse P/A P/A Y/N 3 Nitric Probe Rinse P/A P/A Y/N <u>250p</u> 4 Nitric/Peroxide and Rinses P/A P/A Y/N <u>1LP</u> Portions for Mercury only 5A Impinger 4 and Rinses P/A P/A Y/N <u>250p</u> 5B Permanganate and Rinses P/A P/A Y/N <u>1Lag</u> 5C HCl Rinse P/A P/A Y/N <u>250ag</u>				

* 8 filters requested; 2 for laboratory method blanks, 2 for ICAP blank spikes & 2 for low level (ICP-MS/GFAA) blank spikes

** 200 ml required if Hg is not requested: 100 ml for FH rinse, 100 ml for peroxide rinses and 100 ml for Imp 4 rinses.

*** Estimated to be within 5% of the marked volume.

P = Present, A = Absent, Y = Yes, N = No.

Inspected By: _____

METHOD 29 SUBMISSION STATUS

36290

Client ID: Cleanair

PASC Sample #: 36289 36291

M29 Container #	Receipt Confirmation (P/A)	Volume Mark (P/A)	Volume as Marked*** (Y/N)	Comments	M29 Container #	Receipt Confirmation (P/A)	Volume Mark (P/A)	Volume as Marked*** (Y/N)	Comments
Reagent Blank Portions for all Metals 12 Filters (3 min.*): # of filters = _____ P/A 7 Acetone (Req. 100 ml) P/A P/A Y/N 8A 0.1 N Nitric Acid (Req. 300 ml**) P/A P/A Y/N 9 Nitric/Peroxide (Req. 200 ml) P/A P/A Y/N Portions for Mercury only 10 KMnO4/H2SO4 (Req. 100 ml) P/A P/A Y/N 8B Water (Req. 100 ml) P/A P/A Y/N 11 HCl (Req. 200 ml water + 25 ml 8N HCl) P/A P/A Y/N					Run # 4 U1 Outlet Portions for all Metals 1 Filter P/A 2 Acetone Rinse P/A P/A Y/N 3 Nitric Probe Rinse P/A P/A Y/N 4 Nitric/Peroxide and Rinses P/A P/A Y/N Portions for Mercury only 5A Impinger 4 and Rinses P/A P/A Y/N 5B Permanganate and Rinses P/A P/A Y/N 5C HCl Rinse P/A P/A Y/N				
Run # 3 U1 Outlet Portions for all Metals 1 Filter P/A 250P 2 Acetone Rinse P/A P/A Y/N 3 Nitric Probe Rinse P/A P/A Y/N 250P 4 Nitric/Peroxide and Rinses P/A P/A Y/N 1LP Portions for Mercury only 5A Impinger 4 and Rinses P/A P/A Y/N 250P 5B Permanganate and Rinses P/A P/A Y/N 1Lag 5C HCl Rinse P/A P/A Y/N 250ag					Run # 5 U1 Outlet Portions for all Metals 1 Filter P/A 250P 2 Acetone Rinse P/A P/A Y/N 3 Nitric Probe Rinse P/A P/A Y/N 250P 4 Nitric/Peroxide and Rinses P/A P/A Y/N 1LP Portions for Mercury only 5A Impinger 4 and Rinses P/A P/A Y/N 250P 5B Permanganate and Rinses P/A P/A Y/N 1Lag 5C HCl Rinse P/A P/A Y/N 250ag				

Same

* 6 filters requested; 2 for laboratory method blanks, 2 for ICAP blank spikes & 2 for low level (ICP-MS/GFAA) blank spikes
 ** 200 ml required if Hg is not requested; 100 ml for FH rinse, 100 ml for peroxide rinses and 100 ml for Imp 4 rinses.
 *** Estimated to be within 5% of the marked volume.
 P = Present, A = Absent, Y = Yes, N = No.

Inspected By: _____

METHOD 20 SUBMISSION STATUS

Client ID: Cleanair

PASC Sample #: 34292

M29 Container #	Receipt Confirmation (P/A)	Volume Mark (P/A)	Volume as Marked*** (Y/N)	Comments	M29 Container #	Receipt Confirmation (P/A)	Volume Mark (P/A)	Volume as Marked*** (Y/N)	Comments
Reagent Blank					Run # _____				
Portions for all Metals					Portions for all Metals				
12	Filters (3 min.)*: # of filters = _____	P/A			1	Filter	P/A		
7	Acetone (Req. 100 ml)	P/A	P/A	Y/N	2	Acetone Rinse	P/A	P/A	Y/N
8A	0.1 N Nitric Acid (Req. 300 ml)**	P/A	P/A	Y/N	3	Nitric Probe Rinse	P/A	P/A	Y/N
9	Nitric/Peroxide (Req. 200 ml)	P/A	P/A	Y/N	4	Nitric/Peroxide and Rinses	P/A	P/A	Y/N
Portions for Mercury only					Portions for Mercury only				
10	KMnO4/H2SO4 (Req. 100 ml)	P/A	P/A	Y/N	5A	Impinger 4 and Rinses	P/A	P/A	Y/N
8B	Water (Req. 100 ml)	P/A	P/A	Y/N	5B	Permanganate and Rinses	P/A	P/A	Y/N
11	HCl (Req. 200 ml water + 25 ml 8N HCl)	P/A	P/A	Y/N	5C	HCl Rinse	P/A	P/A	Y/N
Run # 6 U1 Outlet.					Run # _____				
Portions for all Metals					Portions for all Metals				
1	Filter	P/A		250P	1	Filter	P/A		
2	Acetone Rinse	P/A	P/A	Y/N	2	Acetone Rinse	P/A	P/A	Y/N
3	Nitric Probe Rinse	P/A	P/A	Y/N	3	Nitric Probe Rinse	P/A	P/A	Y/N
4	Nitric/Peroxide and Rinses	P/A	P/A	Y/N	4	Nitric/Peroxide and Rinses	P/A	P/A	Y/N
Portions for Mercury only					Portions for Mercury only				
5A	Impinger 4 and Rinses	P/A	P/A	Y/N	5A	Impinger 4 and Rinses	P/A	P/A	Y/N
5B	Permanganate and Rinses	P/A	P/A	Y/N	5B	Permanganate and Rinses	P/A	P/A	Y/N
5C	HCl Rinse	P/A	P/A	Y/N	5C	HCl Rinse	P/A	P/A	Y/N

* 6 filters requested; 2 for laboratory method blanks, 2 for ICAP blank spikes & 2 for low level (ICP-MS/GFAA) blank spikes
 ** 200 ml required if Hg is not requested; 100 ml for FH rinse, 100 ml for peroxide rinses and 100 ml for Imp 4 rinses.
 *** Estimated to be within 5% of the marked volume.
 P = Present, A = Absent, Y = Yes, N = No.

Inspected By: _____

METHOD 20 SUBMISSION STATUS

Client ID: Clean Air

PASC Sample #: 36285 36287
86 88

M29 Container #	Receipt Confirmation (P/A)	Volume Mark (P/A)	Volume as Marked*** (Y/N)	Comments	M29 Container #	Receipt Confirmation (P/A)	Volume Mark (P/A)	Volume as Marked*** (Y/N)	Comments
Reagent Blank <u>North Boulevard</u> Portions for all Metals 12 Filters (3 min.*): # of filters = <u>1</u> P/A <u>250p</u> 7 Acetone (Req. 100 ml) P/A P/A Y/N 8A 0.1 N Nitric Acid (Req. 300 ml**) P/A P/A Y/N <u>250p</u> 9 Nitric/Peroxide (Req. 200 ml) P/A P/A Y/N <u>1LP</u> Portions for Mercury only 10 KMnO4/H2SO4 (Req. 100 ml) P/A P/A Y/N <u>1Lag</u> 8B Water (Req. 100 ml) P/A P/A Y/N <u>250p</u> 11 HCl (Req. 200 ml water + 25 ml 8N HCl) P/A P/A Y/N <u>250ag</u>					Run # 1 U1 Outlet Portions for all Metals 1 Filter P/A <u>250p</u> 2 Acetone Rinse P/A P/A Y/N 3 Nitric Probe Rinse P/A P/A Y/N <u>250p</u> 4 Nitric/Peroxide and Rinses P/A P/A Y/N <u>1LP</u> Portions for Mercury only 5A Impinger 4 and Rinses P/A P/A Y/N <u>250p</u> 5B Permanganate and Rinses P/A P/A Y/N <u>1Lag</u> 5C HCl Rinse P/A P/A Y/N <u>250ag</u>				
Run # Field Blank Portions for all Metals 1 Filter P/A <u>250p</u> 2 Acetone Rinse P/A P/A Y/N 3 Nitric Probe Rinse P/A P/A Y/N <u>250p</u> 4 Nitric/Peroxide and Rinses P/A P/A Y/N <u>1LP</u> Portions for Mercury only 5A Impinger 4 and Rinses P/A P/A Y/N <u>250p</u> 5B Permanganate and Rinses P/A P/A Y/N <u>1Lag</u> 5C HCl Rinse P/A P/A Y/N <u>250ag</u>					Run # 2 U1 Outlet Portions for all Metals 1 Filter P/A <u>250p</u> 2 Acetone Rinse P/A P/A Y/N 3 Nitric Probe Rinse P/A P/A Y/N <u>250p</u> 4 Nitric/Peroxide and Rinses P/A P/A Y/N <u>1LP</u> Portions for Mercury only 5A Impinger 4 and Rinses P/A P/A Y/N <u>250p</u> 5B Permanganate and Rinses P/A P/A Y/N <u>1Lag</u> 5C HCl Rinse P/A P/A Y/N <u>250ag</u>				

* 8 filters requested; 2 for laboratory method blanks, 2 for ICAP blank spikes & 2 for low level (ICP-MS/GFAA) blank spikes
 ** 200 ml required if Hg is not requested; 100 ml for FH rinse, 100 ml for peroxide rinses and 100 ml for imp 4 rinses.
 *** Estimated to be within 5% of the marked volume.
 P = Present, A = Absent, Y = Yes, N = No

Inspected By: _____

METHOD 20 SUBMISSION STATUS

36290

Client ID: Cleanair

PASC Sample #: 36289 36291

M29 Container #	Receipt Confirmation (P/A)	Volume Mark (P/A)	Volume as Marked*** (Y/N)	Comments	M29 Container #	Receipt Confirmation (P/A)	Volume Mark (P/A)	Volume as Marked*** (Y/N)	Comments
Reagent Blank Portions for all Metals 12 Filters (3 min.*): # of filters = _____ P/A 7 Acetone (Req. 100 ml) P/A P/A Y/N 8A 0.1 N Nitric Acid (Req. 300 ml**) P/A P/A Y/N 9 Nitric/Peroxide (Req. 200 ml) P/A P/A Y/N Portions for Mercury only 10 KMnO4/H2SO4 (Req. 100 ml) P/A P/A Y/N 8B Water (Req. 100 ml) P/A P/A Y/N 11 HCl (Req. 200 ml water + 25 ml 8N HCl) P/A P/A Y/N					Run # 4 U1 Outlet Portions for all Metals 1 Filter P/A 2 Acetone Rinse P/A P/A Y/N 3 Nitric Probe Rinse P/A P/A Y/N 4 Nitric/Peroxide and Rinses P/A P/A Y/N Portions for Mercury only 5A Impinger 4 and Rinses P/A P/A Y/N 5B Permanganate and Rinses P/A P/A Y/N 5C HCl Rinse P/A P/A Y/N				
Run # 3 U1 Outlet Portions for all Metals 1 Filter P/A 250P 2 Acetone Rinse P/A P/A Y/N 3 Nitric Probe Rinse P/A P/A Y/N 250P 4 Nitric/Peroxide and Rinses P/A P/A Y/N 1LP Portions for Mercury only 5A Impinger 4 and Rinses P/A P/A Y/N 250P 5B Permanganate and Rinses P/A P/A Y/N 1LP 5C HCl Rinse P/A P/A Y/N 250ag					Run # 5 U1 Outlet Portions for all Metals 1 Filter P/A 250P 2 Acetone Rinse P/A P/A Y/N 3 Nitric Probe Rinse P/A P/A Y/N 250P 4 Nitric/Peroxide and Rinses P/A P/A Y/N 1LP Portions for Mercury only 5A Impinger 4 and Rinses P/A P/A Y/N 250P 5B Permanganate and Rinses P/A P/A Y/N 1LP 5C HCl Rinse P/A P/A Y/N 250ag				

* 8 filters requested; 2 for laboratory method blanks, 2 for ICAP blank spikes & 2 for low level (ICP-MS/GFAA) blank spikes
 ** 200 ml required if Hg is not requested; 100 ml for FH rinse, 100 ml for peroxide rinses and 100 ml for Imp 4 rinses.
 *** Estimated to be within 5% of the marked volume.
 P = Present, A = Absent, Y = Yes, N = No.

Inspected By: _____

METHOD 29 SUBMISSION STATUS

Client ID: Cleanair

PASC Sample #: 30292

M29 Container #	Receipt Confirmation (P/A)	Volume Mark (P/A)	Volume as Marked*** (Y/N)	Comments	M29 Container #	Receipt Confirmation (P/A)	Volume Mark (P/A)	Volume as Marked*** (Y/N)	Comments
Reagent Blank					Run #				
Portions for all Metals					Portions for all Metals				
12	Filters (3 min.*): # of filters =	P/A			1	Filter	P/A		
7	Acetone (Req. 100 ml)	P/A	P/A	Y/N	2	Acetone Rinse	P/A	P/A	Y/N
8A	0.1 N Nitric Acid (Req. 300 ml**)	P/A	P/A	Y/N	3	Nitric Probe Rinse	P/A	P/A	Y/N
9	Nitric/Peroxide (Req. 200 ml)	P/A	P/A	Y/N	4	Nitric/Peroxide and Rinses	P/A	P/A	Y/N
Portions for Mercury only					Portions for Mercury only				
10	KMnO4/H2SO4 (Req. 100 ml)	P/A	P/A	Y/N	5A	Impinger 4 and Rinses	P/A	P/A	Y/N
8B	Water (Req. 100 ml)	P/A	P/A	Y/N	5B	Permanganate and Rinses	P/A	P/A	Y/N
11	HCl (Req. 200 ml water + 25 ml 8N HCl)	P/A	P/A	Y/N	5C	HCl Rinse	P/A	P/A	Y/N
Run # 6 WI Outlet					Run #				
Portions for all Metals					Portions for all Metals				
1	Filter	P/A		250P	1	Filter	P/A		
2	Acetone Rinse	P/A	P/A	Y/N	2	Acetone Rinse	P/A	P/A	Y/N
3	Nitric Probe Rinse	P/A	P/A	Y/N	3	Nitric Probe Rinse	P/A	P/A	Y/N
4	Nitric/Peroxide and Rinses	P/A	P/A	Y/N	4	Nitric/Peroxide and Rinses	P/A	P/A	Y/N
Portions for Mercury only					Portions for Mercury only				
5A	Impinger 4 and Rinses	P/A	P/A	Y/N	5A	Impinger 4 and Rinses	P/A	P/A	Y/N
5B	Permanganate and Rinses	P/A	P/A	Y/N	5B	Permanganate and Rinses	P/A	P/A	Y/N
5C	HCl Rinse	P/A	P/A	Y/N	5C	HCl Rinse	P/A	P/A	Y/N

* 6 filters requested; 2 for laboratory method blanks, 2 for ICAP blank spikes & 2 for low level (ICP-MS/GFAA) blank spikes

** 200 ml required if Hg is not requested: 100 ml for FH rinse, 100 ml for peroxide rinses and 100 ml for Imp 4 rinses.

*** Estimated to be within 5% of the marked volume.

P = Present, A = Absent, Y = Yes, N = No.

Inspected By: _____

US SAMPLE LOG IN SHEET

CLEAN AIR

Lab Name: Philip Analytical Services Corporation, Burlington Laboratory

Received By (Print Name): Michael Ficht

~~PH~~ FH

Received By (Signature): *[Signature]*

Client Project ID:

REMARKS:

Condition of Samples/Sample Shipment:

Custody Seal(s)

Present Absent

All intact

Chain of Custody Records

Present Absent

Air?

Present Absent

Air No

804010363137

Box 6

Does information on Custody Records and Samples Agree?

Yes No

Date Received at Lab

6-29-11

Time Received

12:30

Temperature of Coolers

Cooler ID:

Temperature

Relinquished By:

[Signature]

Logbook No:

Date:

6-29-11

Logbook Page No.

NOTICE OF SAMPLE RECEIPT-PHILIP ANALYTICAL SERVICES

Attention: Scott Brown
Client: Clean Air Engineering
Re Client Project: 8964
FAX #: 847-991-3385
Phone #: 847-991-3300

Samples for: HOLD
were received in good condition unless
indicated below.

SAMPLE LISTING

Philip ID #	Sample ID	Date Sampled	Date Received
-----	-----	-----	-----
036285	M29HG Reagent Blank	01/06/20	01/06/28
036290	M29HG North-Out-R4	01/06/20	01/06/28
036291	M29HG North-Out-R5	01/06/20	01/06/28
036292	M29HG North-Out-R6	01/06/20	01/06/28

Comments: _____

Date 01/07/04

NOTICE OF SAMPLE RECEIPT-PHILIP ANALYTICAL SERVICES

Attention: Scott Brown
Client: Clean Air Engineering
Re Client Project: 8964
FAX #: 847-991-3385
Phone #: 847-991-3300

Samples for: Mercury.
were received in good condition unless
indicated below.

SAMPLE LISTING

Philip ID #	Sample ID	Date Sampled	Date Received
036286	M29HG North-FB	01/06/19	01/06/28
036287	M29HG North-Out-R1	01/06/19	01/06/28
036288	M29HG North-Out-R2	01/06/19	01/06/28
036289	M29HG North-Out-R3	01/06/19	01/06/28

Comments: _____

Date 01/07/04

WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FLORIDA

Client Reference No:
CAE Project No: 8964-1

OPERATING DATA

G

**Wheelabrator
NORTH BROWARD
Emission Test Log**

Date: 6/19/01
Start Time: 8:32:00
End Time: 10:52:00

SDA INLET TEMP	SDA OUTLET TEMP	TOTAL SLURRY FL	DIL WATER FLOW	LIME CONC	FF:OUT TEMP	FF :DP	ID INLET PRESS	STEAM FLOW
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	DEG F	DEG F	GPM	GPM	%	DEG F	" H2O	" H2O	KLBS/hr
Unit 1	492.11	299.68	42.94	27.99	37.14	298.54	6.05	-10.14	183.71
Unit 2	488.20	309.95	33.87	22.38	33.91	301.51	8.96	-11.97	174.84
Unit 3	498.20	310.29	43.08	28.31	34.14	295.04	8.92	-11.89	172.01

FEED H2O FLOW	SH OUT STM PRESS	FINAL STM TEMP	TOT AIR FLOW	FURNACE DRAFT	ECONO OUT TEMP	SH ROLL AVG	SNCR CHEM FLOW
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	KLBS/hr	DEG F	DEG F	KSCFM	" H2O	DEG F	DEG F	GPH
Unit 1	182.03	875.95	779.55	77.46	-0.10	269.33	980.52	9.12
Unit 2	189.50	848.72	830.21	75.98	-0.03	269.03	1132.52	9.51
Unit 3	183.96	868.79	822.06	81.59	-0.05	272.18	1167.93	9.01

**Wheelabrator
NORTH BROWARD
Emission Test Log**

Date: 6/19/01
Start Time: 11:07:00
End Time: 13:22:00

SDA INLET TEMP	SDA OUTLET TEMP	TOTAL SLURRY FL	DIL WATER FLOW	LIME CONC	FF OUT TEMP	FF DP	ID INLET PRESS	STEAM FLOW
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	DEG F	DEG F	GPM	GPM	%	DEG F	" H2O	" H2O	KLBS/hr
Unit 1	492.17	300.06	42.21	29.94	29.10	299.11	6.15	-10.13	185.10
Unit 2	492.02	310.01	34.04	24.09	29.44	304.95	10.10	-13.13	172.31
Unit 3	506.95	310.08	46.04	33.17	28.02	295.37	9.61	-12.68	177.09

FEED H2O FLOW	SH OUT STM PRESS	FINAL STM TEMP	TOT AIR FLOW	FURNACE DRAFT	ECONO OUT TEMP	SH ROLL AVG	SNCR CHEM FLOW
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	KLBS/hr	DEG F	DEG F	KSCFM	" H2O	DEG F	DEG F	GPH
Unit 1	183.33	876.61	779.05	75.55	-0.10	270.13	983.31	8.73
Unit 2	187.31	848.04	829.82	77.20	-0.04	269.94	1129.58	8.39
Unit 3	188.58	869.62	817.92	85.07	-0.04	273.04	1164.34	9.29

**Wheelabrator
NORTH BROWARD
Emission Test Log**

Date: 6/19/01
Start Time: 13:58:00
End Time: 16:13:00

SDA INLET TEMP	SDA OUTLET TEMP	TOTAL SLURRY FL	DIL WATER FLOW	LIME CONC	FF OUT TEMP	FF DP	ID INLET PRESS	STEAM FLOW
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	DEG F	DEG F	GPM	GPM	%	DEG F	" H2O	" H2O	KLBs/hr
Unit 1	488.53	299.90	39.61	28.59	28.04	301.00	5.95	-9.68	184.61
Unit 2	474.63	309.90	28.30	12.47	54.96	415.35	9.99	-12.56	170.65
Unit 3	489.65	309.90	37.81	25.98	31.24	295.51	8.51	-10.89	163.81

FEED H2O FLOW	SH OUT STM PRESS	FINAL STM TEMP	TOT AIR FLOW	FURNACE DRAFT	ECONO OUT TEMP	SHI ROLL AVG	SNGR CHEM FLOW
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	KLBs/hr	DEG F	DEG F	KSCFM	" H2O	DEG F	DEG F	GPH
Unit 1	183.11	875.58	780.60	75.24	-0.10	268.29	991.77	7.84
Unit 2	185.87	845.50	830.46	67.74	-0.04	268.09	1139.49	7.26
Unit 3	174.11	863.94	807.36	74.18	-0.04	271.19	1151.65	7.85

Clean Air Engineering Trademark Case Summary

Clean Air Engineering is currently involved in litigation over its "CAE" service mark. Clean Air Engineering applied for the use of 'CAE' as a service mark in November of 1991. During the opposition period, CAE, Inc. of Canada filed an opposition to our use of "CAE" in our "CAE Clean Air Engineering" logo. CAE, Inc. (the Canadian firm) lost its claim in the initial trademark judicial hearing. In 1997 CAE, Inc. filed suit in the US District Court for the Northeastern District of Illinois.

In January 2000, Judge Warren K. Urbom overturned the decision of the trademark board and awarded the mark to CAE, Inc. This decision would require Clean Air Engineering to alter or destroy of all marketing materials, products, signs, etc. displaying Clean Air Engineering's "CAE Clean Air Engineering" logo.

Clean Air Engineering filed a Motion with the trial Judge requesting reconsideration of his original decision. On August 4, 2000 Judge Urbom, though denying the Motion to Reconsider, agreed to stay a portion of his original decision which would allow Clean Air Engineering to continue using the "CAE Clean Air Engineering Logo" if our use of same is accompanied by the following statement: "CAE Clean Air Engineering, Inc. (or the appropriate division) is not affiliated with CAE, Inc." in conjunction with the distribution of all products, services and marketing materials which contain the current CAE Logo.

Clean Air Engineering has taken an appeal of Judge Urbom's rulings to the U.S. Court of Appeals for the Seventh Circuit. Clean Air Engineering is seeking to reverse the ruling of the Trial Court, and reinstatement of the original decision of the Trademark Board. Clean Air Engineering will ask the U.S. Court of Appeals for the Seventh Circuit to stay the use of any disclaimer as otherwise required by Judge Urbom's last order. It is possible that the Court of Appeals will not yet have acted on our request by the deadline date set by Judge Urbom, being October 11, 2000. If this is the case, all Clean Air Engineering products, services and marketing materials will be accompanied by the above disclaimer.

We ask for your patience and understanding during our ongoing litigation. Any questions or comments please contact Bill Walker or Frank Kilvinger.

Clean Air Engineering, Inc. has served the air quality management industry since 1972 - providing consulting, monitoring and testing services, instrumentation rental and equipment sales. Clean Air Engineering has a staff of over 80 environmental engineers, equipment specialists, manufacturing/electronics technicians, and regulatory analysts and support personnel. <http://www.cleanair.com>

**CAE Clean Air Engineering, Inc. is not
affiliated with CAE, Inc.**

October 2000