ALLIANT ENERGY

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February 23, 2000

Mr. William Grimley
Emission Measurement Center (MD-19)
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

Re: Mercury Test Report for Columbia Generating Station

Dear Mr. Grimley:

Enclosed is the report on the Speciated Mercury Emissions Testing conducted at the Columbia Energy Center. The testing was conducted on October 19, 1999 by Mostardi Platt. The enclosed report describes the methods used for sampling and analysis, as well as includes a discussion of the test results and the QA/QC activities followed to ensure data quality. The report also includes data from operations, calibrations, and lab analyses.

It is important to note that the fuel data submitted as part of this report varies considerably from the data collected during the Information Collection Request (ICR) process for the Columbia Energy Center and other Alliant Energy facilities. In addition, mercury contamination was observed in many of the quality assurance samples for the speciated mercury emissions testing program.

If you have questions regarding the enclosed report, please contact me at (608) 252-0592.

Sincerely,

Linda Lynch

Linda Lynch, CHMM

Cc: Steve Jackson - Alliant Energy
Kevin Joachim (no enclosure) - Alliant Energy
Alan Arnold (no enclosure) - Alliant Energy
Marty Burkholder - Department of Natural Resources
Mike Sloat - Department of Natural Resources

SPECIATED MERCURY EMISSIONS TESTING

Performed For
ALLIANT ENERGY

At The
Columbia Generating Station
Unit 1
Precipitator Inlet and Stack
Portage, Wisconsin

October 19, 1999

Mostardi Platt

Mostardi-Platt Associates, Inc.
A Full-Service
Environmental Consulting
Company

945 Oaklawn Avenue
Elmhurst, Illinois 60126-1012
Phone 630-993-9000
Facsimile 630-993-9017

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October 19, 1999

MOSTARDI PLATT PROJECT 93006
DATE SUBMITTED: JANUARY 31, 2000

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CERTIFICATION SHEET

Having supervised and worked on the test program described in this report, and having written this report, I hereby certify the data, information, and results in this report to be accurate and true according to the methods and procedures used.

Data collected under the supervision of others is included in this report and has been gathered in accordance with the procedures outlined in the Quality Assurance Project Plan.

MOSTARDI-PLATT ASSOCIATES, INC.

James R. Platt
Vice President, Emissions Services

Reviewed by:

Frank H. Jarke
Manager, Analytical and Quality Assurance

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1.0 INTRODUCTION

1.1 Summary of Test Program

The United States Environmental Protection Agency (USEPA), is using its authority under section 114 of the Clean Air Act, as amended, to require that selected coal-fired utility steam generating units provide mercury emission information to the USEPA.

The USEPA selected the Columbia Generating Station of Alliant Energy in Portage, Wisconsin to be one of seventy-eight coal-fired utility steam generating units to conduct mercury emissions measurements. Testing was performed by MOSTARDI-PLATT ASSOCIATES, INC. (Mostardi Platt) on Unit 1 on October 19, 1999. Simultaneous measurements were conducted at the precipitator inlet and stack. Mercury emissions were speciated into elemental, oxidized and particle-bound mercury using the Ontario-Hydro test method. Fuel samples were also collected concurrently with Ontario-Hydro samples in order to determine fuel mercury content.

1.2 Key Personnel

The key personnel who coordinated the test program and their telephone numbers are:

- Mostardi Platt Vice President, James Platt 630-993-9000
- Linda Lynch, Alliant Energy 608-252-0592
- Steve Jackson, Alliant Energy 608-742-0761

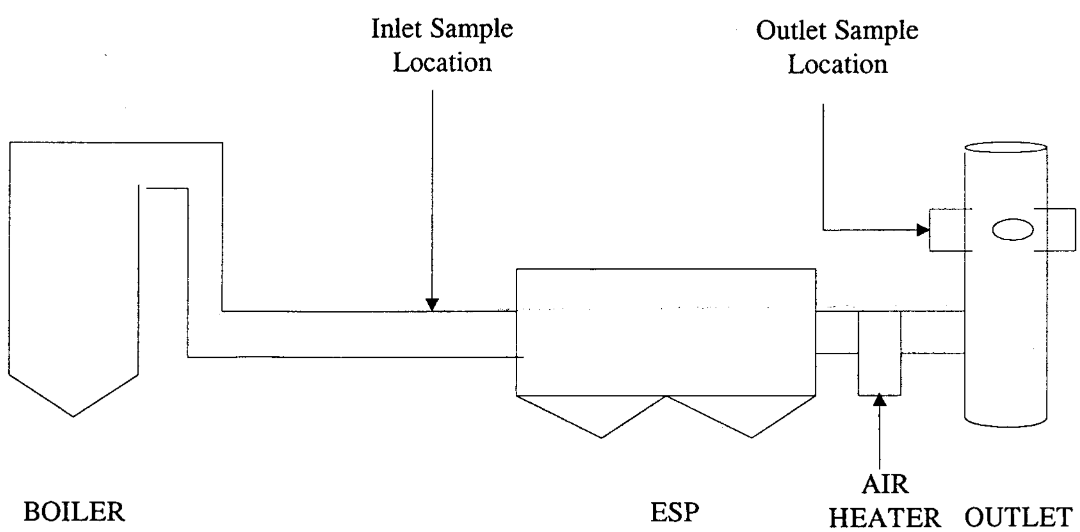
2.0 PLANT AND SAMPLING LOCATION DESCRIPTIONS

2.1 Process Description

Columbia Unit 1 is a pulverized coal, tangential-fired, dry bottom boiler with a name plate rating of 527 MW (gross). Figure 2-1 shows a schematic of the boiler and pollution control equipment, including sample points.

Unit 1 is a coal firing steam boiler. The steam is converted into mechanical energy by flowing through a turbine (generator) which produces electrical power. The unit was operating at or near full load during the tests. Fuel type, boiler operation and control device operation were all maintained at normal operating conditions.

Figure 2-1 Schematic of the Boiler and Pollution Control Equipment.



The following is a list of operating components for this unit:

- Combustion Engineering, pulverized coal-fired, dry bottom boiler
- 527 MW gross capacity (Name plate rating)
- Fuel: Powder River Basin, subbituminous coal, 0.49% sulfur
- No SO_2 control
- No NO_X control

- Research Cottrell hot-side electrostatic precipitator with an average collection efficiency of 99.1%

2.2 Control Equipment Description

Particulate emissions from the boiler are controlled by a Research Cottrell hot-side electrostatic precipitator with collection efficiency of 99.1%. The hot flue gas exits the precipitator and enters the air heater. It is then discharged into the atmosphere through a 500 foot exhaust stack.

The flue gas at the inlet is approximately 775 °F. At the outlet (stack), the gas temperature is approximately 310 °F and contains approximately ten percent (10%) moisture.

2.3 Flue Gas Sampling Locations

2.3.1 Inlet Location

Inlet samples were collected at the precipitator inlet. A schematic and cross section of the inlet location are shown in Figure 2-2. This location does not meet the requirements of USEPA Method 1.

Due to the large duct configuration (72 feet wide by 13.5 feet deep), only the four (4) center ports were traversed for the mercury sampling. A 4 by 4 matrix was utilized. The mass emission rates were calculated utilizing the outlet volumetric flow rate.

2.3.2 Outlet Location

Outlet samples were collected at the stack sample ports. A schematic and cross section of the stack location are shown in Figure 2-3. This location meets the requirements of USEPA Method 1.

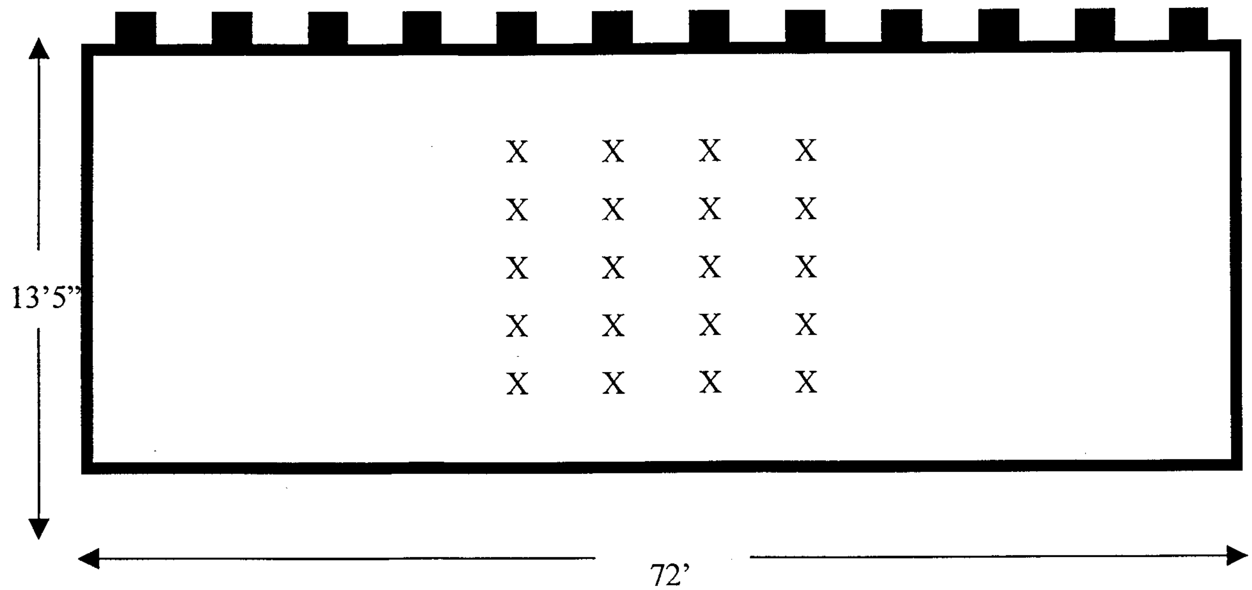
The flue gas at the outlet was above the method specification of a minimum filtration temperature of 120°C. Therefore, in stack filtration per Method 17 was used.

2.4 Fuel Sampling Location

Fuel samples were collected at the fuel feeders to each individual pulverizing mill. One sample was collected from each feeder during each test run, and the feeder samples collected during a test run were composited prior to analysis. The Mostardi-Platt Associates, Inc. test crew supervisor assisted plant personnel with the collection of fuel samples.

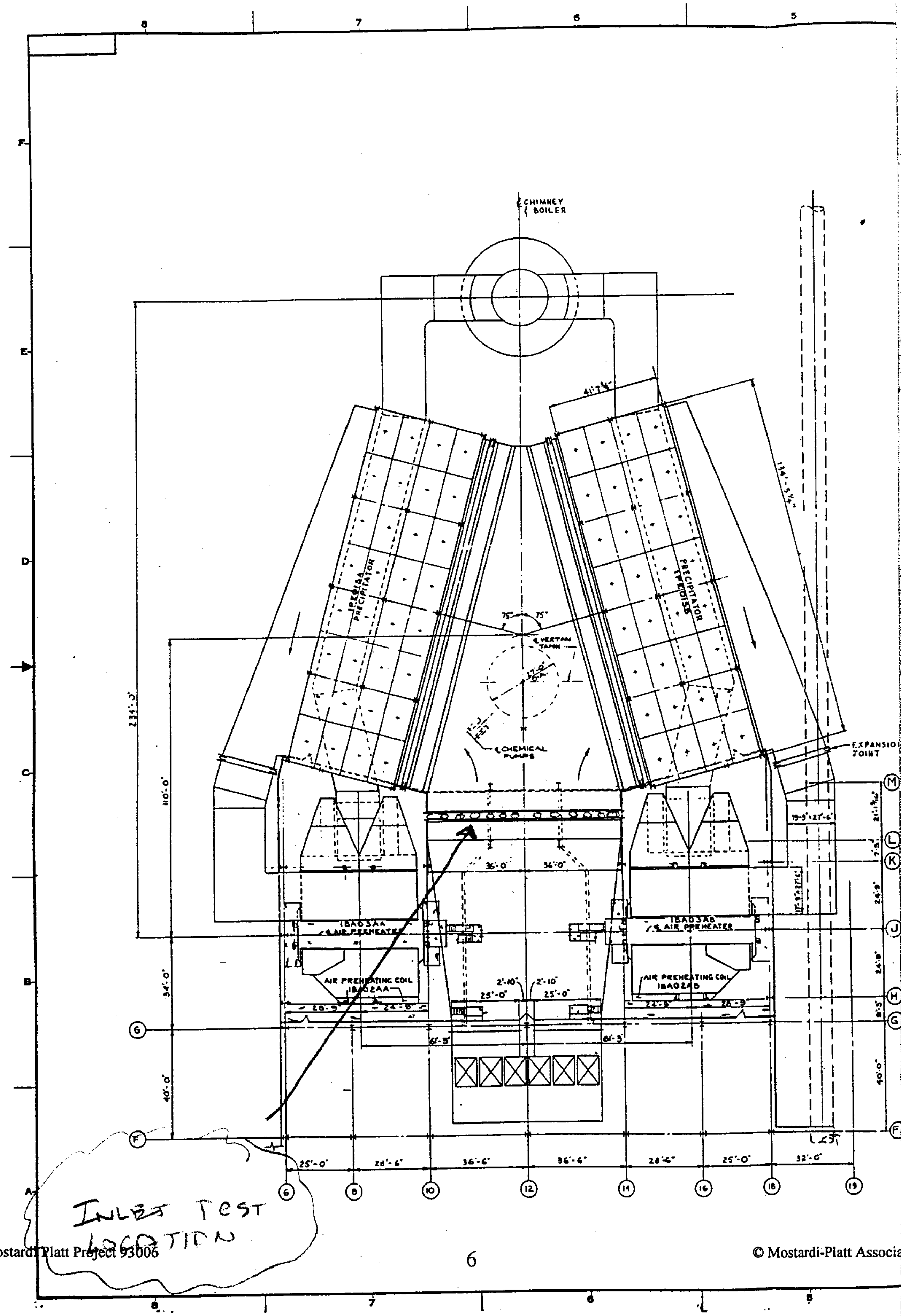
Figure 2-2 Schematic of the Precipitator Inlet Sampling Location

EQUAL AREA TRAVERSE FOR RECTANGULAR DUCTS
(Inlet)



Job:	Alliant Energy Columbia Generating Station		
Date:	October 19, 1999	Area:	972.00 ft^2
Unit No:	1	No. Test Ports:	4 (of 12)*
Length:	13'5"	Tests Points per Port:	5
Width:	72'	Distance Between Ports:	6'
Duct No:	Inlet	Distance Between Points:	3.38'

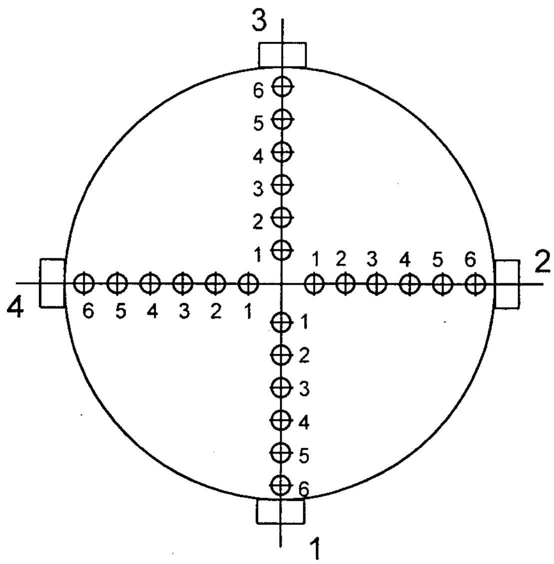
* Only the four (4) center ports were traversed for mercury concentration.

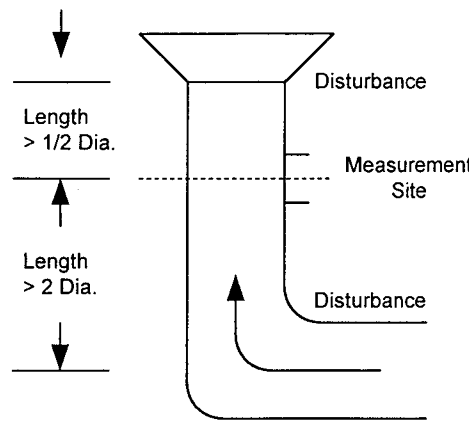


CHIMNEY
BOILER
PRECIPITATOR
PRECIPITATOR
75°
75°
VERTAN TANK
CHEMICAL PUMPS
EXPANSION JOINT
1BA03AA AIR PREHEATER
1BA03AB AIR PREHEATER
AIR PREHEATING COIL 1BA02AA
AIR PREHEATING COIL 1BA02AB
234'-0"
110'-0"
34'-0"
40'-0"
36'-0"
36'-0"
2'-10"
2'-10"
25'-0"
25'-0"
61'-3"
61'-3"
25'-0"
28'-6"
36'-6"
36'-6"
28'-6"
25'-0"
32'-0"
INLET TEST LOCATION

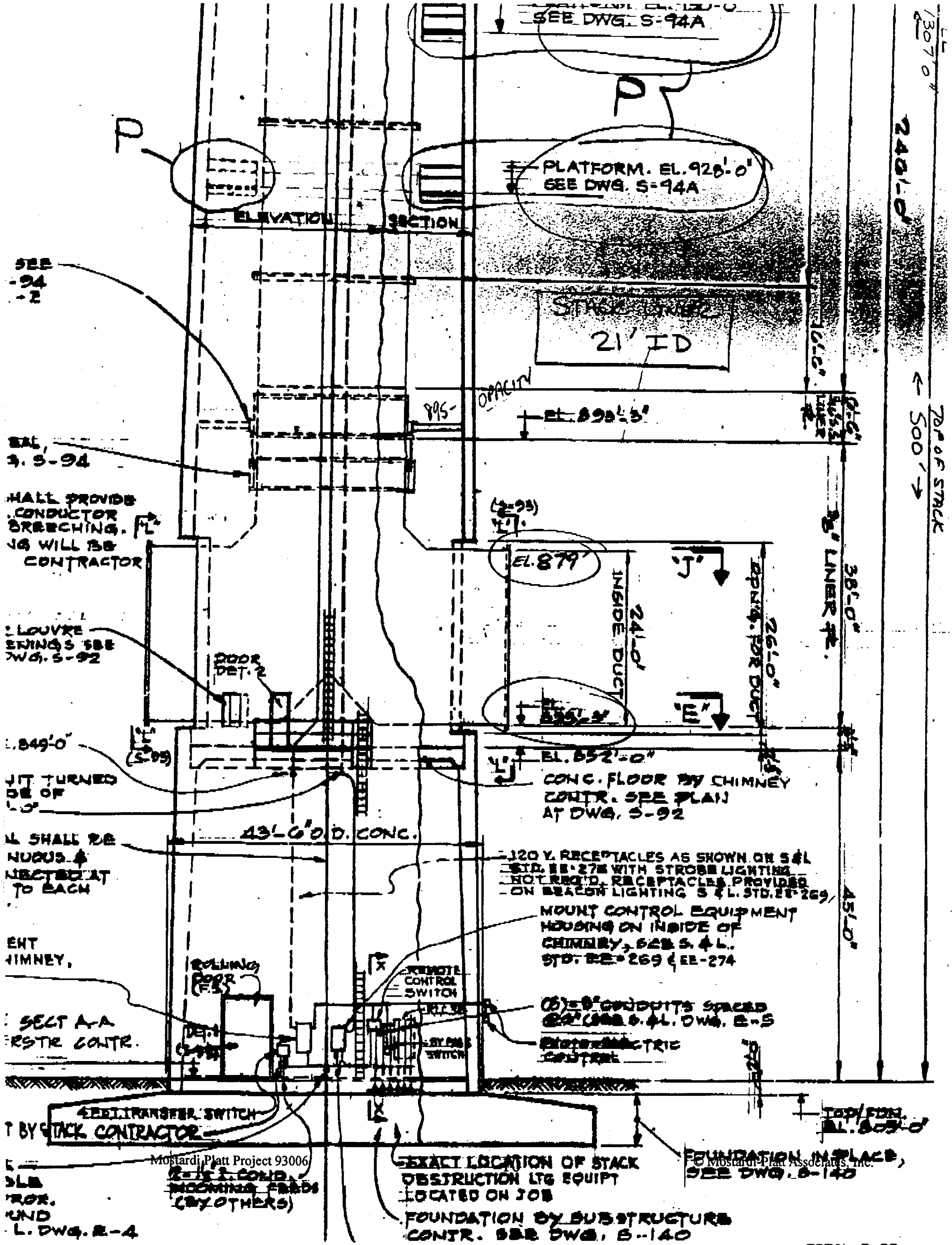
Figure 2-3 Schematic of the Stack Sampling Location

EQUAL AREA TRAVERSE FOR ROUND DUCTS





Job:	Alliant Energy Columbia Generating Station
Date:	October 19, 1999
Unit No:	1
Duct Diameter:	21 Feet
Duct Area:	Stack
No. Points Across Diameter:	12
No. of Ports:	4


SEE DWG. S-94A
P
PLATFORM. EL. 928'-0"
SEE DWG. S-94A
ELEVATION
SECTION
STACK LINER
21' ID
OPACITY
895'
EL. 893'-3"
240'-0"
TOP OF STACK
500'
EL. 879'
INSIDE DUCT
24'-0"
26'-0"
"J"
"E"
38'-0"
LINER
DOOR DET. 2
EL. 852'-0"
CONC. FLOOR BY CHIMNEY CONTR. SEE PLAN AT DWG. S-92
43'-6" O.D. CONC.
120 V. RECEPTACLES AS SHOWN ON S&L STD. EE-272 WITH STROBE LIGHTING NOT REQ'D. RECEPTACLES PROVIDED ON BEACON LIGHTING S & L. STD. EE-269
MOUNT CONTROL EQUIPMENT HOUSING ON INSIDE OF CHIMNEY, SEE S. & L. STD. EE-269 & EE-274
45'-0"
ROLLING DOOR
REMOTE CONTROL SWITCH
PHOTO ELECTRIC CONTROL
SECT A-A
TRANSFER SWITCH
T BY STACK CONTRACTOR
EXACT LOCATION OF STACK OBSTRUCTION LTG EQUIPT LOCATED ON JOB
FOUNDATION BY SUBSTRUCTURE CONTR. SEE DWG. S-140
FOUNDATION IN PLACE, SEE DWG. S-140
TOP/FDN. EL. 805'-0"
(BY OTHERS)

3.0 SUMMARY AND DISCUSSION OF TEST RESULTS

3.1 Objectives and Test Matrix

The purpose of the test program was to quantify mercury emissions from this unit. The specific objectives, in order of priority were:

- Measure speciated mercury emissions at the outlet.
- Measure speciated mercury concentrations at the inlet of the last air pollution control device.
- Measure mercury and chlorine content from the fuel being used during the testing.
- Measure the oxygen and carbon dioxide concentrations at the inlet and the outlet.
- Measure the volumetric gas flow at the inlet and the outlet.
- Measure the moisture content of the flue gas at the inlet and the outlet.
- Provide the above information to the USEPA for use in establishing mercury emission factors for this type of unit.

The test matrix is presented in Table 3-1. The table shows the testing performed at each location, methodologies employed and responsible organization.

Table 3-1
TEST MATRIX FOR THE COLUMBIA GENERATING STATION

Sampling Location	No. of Runs	Parameters	Sampling Method	Sample Run Time (min)	Analytical Method	Analytical Laboratory
Outlet	3	Speciated Hg	Ontario Hydro	120	EPA SW846 7470	TEI
Outlet	3	Moisture	EPA 4	120	Gravimetric	Mostardi Platt
Outlet	3	Flow	EPA 1 & 2	120	Pitot Traverse	Mostardi Platt
Outlet	3	O_2/CO_2	EPA 3	120	Orsat	Mostardi Platt
Inlet	3	Speciated Hg	Ontario Hydro	120	EPA SW846 7470	TEI
Inlet	3	Moisture	EPA 4	120	Gravimetric	Mostardi Platt
Inlet	3	Flow	EPA 1 & 2	120	Pitot Traverse	Mostardi Platt
Inlet	3	O_2/CO_2	EPA 3	120	Orsat	Mostardi Platt
Fuel Feeders	3	Hg, Cl in Fuel	Grab	1 Sample Per Feeder Per Run	ASTM D3684 (Hg) ASTM D4208 (Cl)	CTE

3.2 Field Test Changes and Problems

At the beginning of the test program, a blockage occurred in one of the test ports at the inlet. For the remainder of the test program, one of the other three test ports was used to collect samples. This field change would not have effected the resultant data because stratification of mercury species is not expected and the measured flow rates at the stack were being used to calculate the inlet emission rates. There were no other field test changes or problems encountered during this test program.

3.3 Presentation of Results

3.3.1 Mercury Mass Flow Rates

The mass flow rates of mercury determined at each sample location are presented in Table 3-2.

Table 3-2
SUMMARY OF RESULTS

Sample Location	Elemental Mercury (lb/hr)	Oxidized Mercury (lb/hr)	Particle-Bound Mercury (lb/hr)	Total Mercury (lb/hr)
Fuel				
Run 1				0.04541
Run 2				0.04631
Run 3				0.04599
Average				**0.04590**
Precipitator Inlet				
Run 1	0.06583	0.00430	0.00003	0.07016
Run 2	0.06025	0.02616	0.00003	0.08644
Run 3	0.06505	0.00206	0.00005	0.06717
Average	**0.06371**	**0.01084***	**0.00004**	**0.07459**
Stack				
Run 1	0.04709	0.01101**	0.00001	0.05812
Run 2	0.04750	0.00865	0.00001	0.05616
Run 3	0.05032	0.01054**	0.00001	0.06087
Average	**0.04830**	**0.01007**	**0.00001**	**0.05838**

* The variability of the three tests from the average is greater than 30% and therefore this data must be qualified. The cause of this difference is not known.

** Qualified data; See Section 5.1

3.3.2 Comparison of Volumetric Flow Rate

Volumetric flow rate is a critical factor in calculating mass flow rates. Ideally, the volumetric flow rate (corrected to standard pressure and temperature) measured at the inlet to the control device should be the same as that measured at the stack, which should be the same as that measured by the CEMS. A comparison of the flow rates at the two test locations can be seen in Table 3-3.

Table 3-3
COMPARISON OF VOLUMETRIC FLOW RATE DATA

Run No.	Inlet			Stack		
	KACFM[1]	KSCFM[2]	KDSCFM[3]	KACFM	KSCFM	KDSCFM
Run 1	3158.2	1312.6	1135.7	2151.6	1459.1	1288.4
Run 2	3212.7	1340.2	1153.8	2162.9	1441.8	1271.0
Run 3	3186.1	1317.2	1161.7	2167.1	1442.0	1270.7
Average	3185.7	1323.6	1150.3	2160.5	1447.6	1276.7

(1) Thousands of Actual Cubic Feet per Minute
(2) Thousands of Standard Cubic Feet per Minute (68° F and 29.92 inches Hg)
(3) Thousands of Dry Standard Cubic Feet per Minute

The measured volumetric flow rate (KSCFM) at the inlet was approximately 9% lower than that measured at the outlet. The inlet sampling location did not meet the criteria of Method 1. Per the "Electric Utility Steam Generating Unit Mercury Emissions" web page, no modifications to the sampling procedure will be made, since "...(a) mercury is primarily in the gaseous phase and is not impacted by uncertainties in the gas flow and isokinetic sampling rate, and (b) stratification of mercury species is not expected."

Because the inlet location did not meet the requirements of USEPA Method 1, the outlet volumetric flow rates were used to determine the emission rate at the inlet.

3.3.3 Individual Run Results

A detailed summary of results for each sample run at the inlet and main stack are presented in Tables 3-4 and 3-5, respectively.

3.3.4 Process Operating Data

The process operating data collected during the tests is included in Appendix A. A summary of the coal usage and mass emission rate of mercury available from coal are presented in Table 3-6.

Table 3-4
PRECIPITATOR INLET INDIVIDUAL RUN RESULTS

Test Run Number:	1	2	3	Average
Source Condition		Normal		
Fuel Factor, dscf/10^6 Btu	9834	9837	9700	
Date	10/19/99	10/19/99	10/19/99	
Start Time	8:45	12:15	15:30	
End Time	11:00	14:27	17:36	
Elemental Mercury:				
ug detected	17.446	16.054	17.380	16.960
ug/dscm	13.64	12.66	13.67	13.32
lb/hr	0.05800	0.05470	0.05948	0.05739
lb/hr (based on outlet dscfm)	0.06583	0.06025	0.06505	0.06371
lb/10^{12} Btu	10.23	9.61	10.36	10.07
Oxidized Mercury:				
ug detected	1.14	6.97	0.55	2.89
ug/dscm	0.89	5.50	0.43	2.27
lb/hr	0.00379	0.02375	0.00188	0.00981
lb/hr (based on outlet dscfm)	0.00430	0.02616	0.00206	0.01084
lb/10^{12} Btu	0.67	4.17	0.33	1.72
Particle-bound Mercury:				
ug detected	< 0.010	<0.010	0.014	<0.011
ug/dscm	0.01	0.01	0.01	0.01
lb/hr	0.00003	0.00003	0.00005	0.00003
lb/hr (based on outlet dscfm)	0.00003	0.00003	0.00005	0.00004
lb/10^{12} Btu	0.00	0.00	0.01	0.01
Total Inlet Speciated Mercury:				
ug/dscm	14.54	18.16	14.11	15.60
lb/hr	0.06182	0.07847	0.06141	0.06723
lb/hr (based on outlet dscfm)	0.07016	0.08644	0.06717	0.07459
lb/10^{12} Btu	10.91	13.79	10.69	11.80
Average Gas Volumetric Flow Rate:				
@ Flue Conditions, acfm	3,158,217	3,212,669	3,186,111	3,185,666
@ Standard Conditions, dscfm	1,135,253	1,153,821	1,161,747	1,150,274
Average Gas Temperature, °F	762.7	757.8	768.2	762.9
Average Gas Velocity, ft/sec	54.15	55.09	54.63	54.62
Flue Gas Moisture, percent by volume	13.48	13.91	11.85	13.08
Average Flue Pressure, in. Hg	28.79	28.79	28.79	
Barometric Pressure, in. Hg	29.36	29.36	29.36	
Average %CO_2 by volume, dry basis	15.2	15.3	15.0	15.2
Average %O_2 by volume, dry basis	3.8	4.0	4.2	4.0
% Excess Air	21.61	23.11	24.52	23.08
Dry Molecular Wt. of Gas, lb/lb-mole	30.584	30.608	30.568	
Gas Sample Volume, dscf	45.161	44.789	44.900	
Isokinetic Variance	106.1	103.6	103.1	

Laboratory Analysis can be found in Appendix F.

Table 3-5
STACK INDIVIDUAL RUN RESULTS

Test Run Number:	1	2	3	Average
Source Condition		Normal		
Fuel Factor, dscf/10^6 Btu	9834	9837	9700	
Date	10/19/99	10/19/99	10/19/99	
Start Time	8:45	12:15	15:30	
End Time	10:54	14:23	17:39	
Elemental Mercury:				
ug detected	22.196	22.626	22.601	22.474
ug/dscm	9.76	9.98	10.57	10.10
lb/hr	0.04709	0.04750	0.05032	0.04830
lb/10^{12} Btu	8.38	8.46	8.98	8.61
Oxidized Mercury:				
ug detected	5.19	4.12	5.01	4.77
ug/dscm	2.28	1.82	2.21	2.10
lb/hr	0.01101	0.00865	0.01054	0.01007
lb/10^{12} Btu	1.96	1.54	1.88	1.79
Particle-bound Mercury:				
ug detected	<0.008	<0.009	<0.010	<0.009
ug/dscm	0.00	0.00	0.00	0.00
lb/hr	0.00001	0.00001	0.00001	0.00001
lb/10^{12} Btu	0.00	0.00	0.00	0.00
Total Outlet Speciated Mercury:				
ug/dscm	12.04	11.80	12.79	12.21
lb/hr	0.05812	0.05616	0.06087	0.05838
lb/10^{12} Btu	10.35	10.00	10.86	10.40
Average Gas Volumetric Flow Rate:				
@ Flue Conditions, acfm	2,151,559	2,162,924	2,167,108	2,160,530
@ Standard Conditions, dscfm	1,288,402	1,270,977	1,270,721	1,276,700
Average Gas Temperature, °F	299.4	312.5	314.0	308.6
Average Gas Velocity, ft/sec	103.53	104.08	104.28	103.96
Flue Gas Moisture, percent by volume	11.70	11.85	11.88	11.81
Average Flue Pressure, in. Hg	29.18	29.18	29.18	
Barometric Pressure, in. Hg	29.36	29.36	29.36	
Average %CO_2 by volume, dry basis	12.5	12.9	12.5	12.6
Average %O_2 by volume, dry basis	6.0	5.8	6.0	5.9
% Excess Air	38.33	36.74	38.65	37.91
Dry Molecular Wt. of Gas, lb/lb-mole	30.233	30.300	30.235	
Gas Sample Volume, dscf	80.312	80.074	79.906	
Isokinetic Variance	101.9	103.0	102.8	

Laboratory Analysis can be found in Appendix F.

Table 3-6
COAL USAGE RESULTS

Test Run Number:	1	2	3	Average
Source Condition	Normal			
Date	10/19/99	10/19/99	10/19/99	
Start Time	8:45	12:15	15:30	
End Time	11:00	14:27	17:36	
Coal Properties:				
Carbon, % dry	71.18	70.66	70.20	70.68
Hydrogen, % dry	5.09	5.05	5.11	5.08
Nitrogen, % dry	1.05	1.01	1.01	1.02
Sulfur, % dry	0.43	0.43	0.42	0.43
Ash, % dry	6.49	6.20	5.38	6.02
Oxygen, % dry (by difference)	15.76	16.65	17.88	16.76
Volatile, % dry	43.62	43.44	43.64	43.57
Moisture, %	30.43	29.09	29.77	29.76
Heat Content, Btu/lb dry basis	12261	12120	12182	12188
F_d Factor O_2 basis, dscf/10^6 Btu	9834	9837	9700	9790
F_c Factor CO_2 basis, scf/10^6 Btu	1864	1871	1850	1862
Chloride, ug/g dry	292.00	347.00	303.00	314.00
Mercury, ug/g dry	0.13	0.13	0.13	0.13
Coal Consumption:				
Total Raw Coal Input, Klbs/hr	652.70	653.09	654.86	653.55
Total Coal Input, lbs/hr dry	454083	463106	459908	459033
Total Mercury Available in Coal:				
Mercury, lbs/hr	0.05903	0.06020	0.05979	0.05967

Laboratory Analysis can be found in Appendix F.

4.0 SAMPLING AND ANALYTICAL PROCEDURES

4.1 Test Methods

4.1.1 Speciated mercury emissions

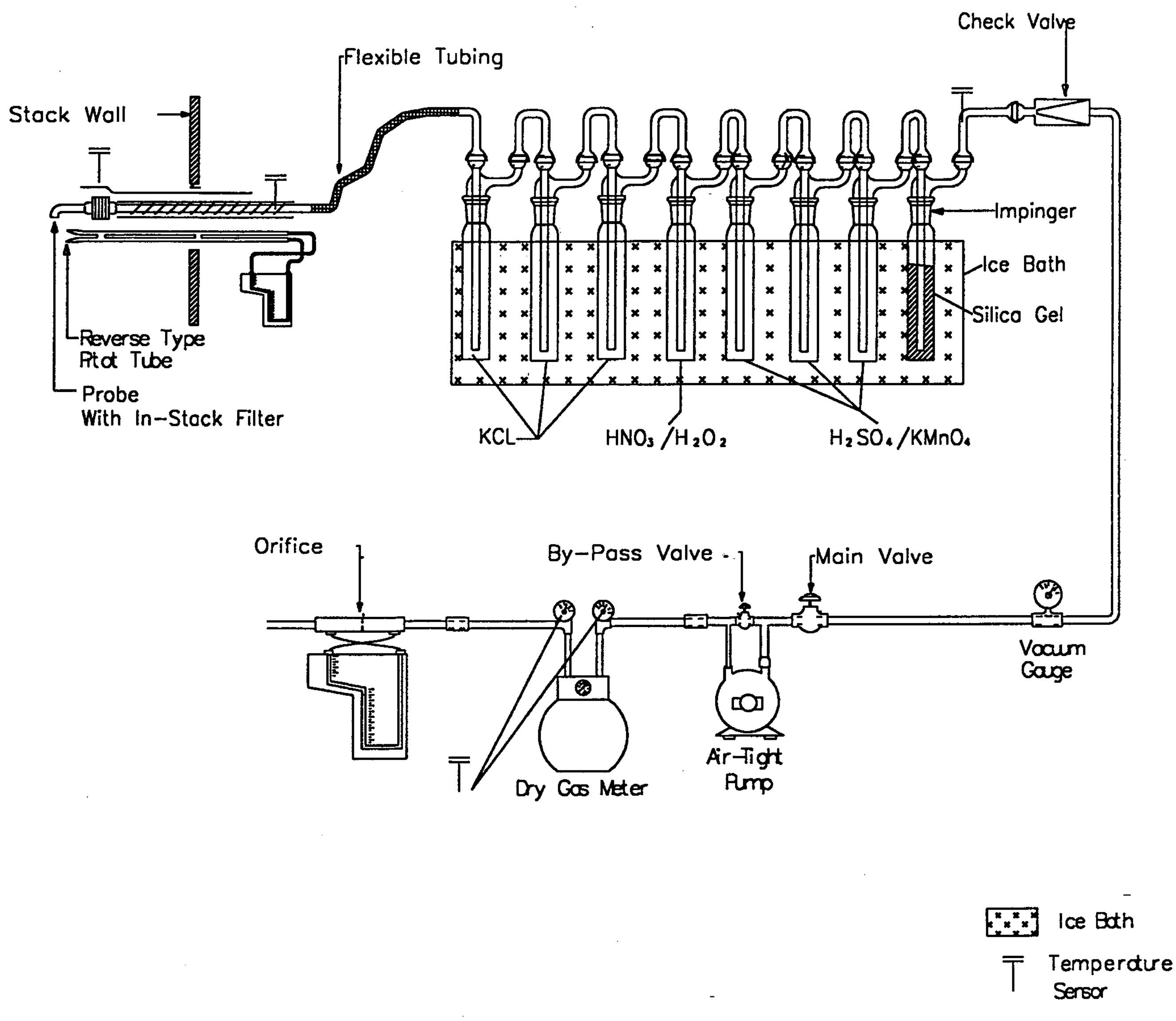
Speciated mercury emissions were determined via the draft "Standard Test Method for Elemental, Particle-Bound, and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario-Hydro Method)", dated April 8, 1999. Any revisions to this test method issued after April 8, 1999, but before July 1, 1999, were incorporated.

The in-stack filtration (Method 17) configuration was utilized at the precipitator inlet and stack test locations. Figure 4-1 is a schematic of the Ontario-Hydro sampling train.

Figure 4-2 illustrates the sample recovery procedure. The analytical scheme was per Section 13.3 of the Ontario-Hydro Method.

Speciated Mercury Sampling Train Equipped with In-Stack Filter

Ontario Hydro Method



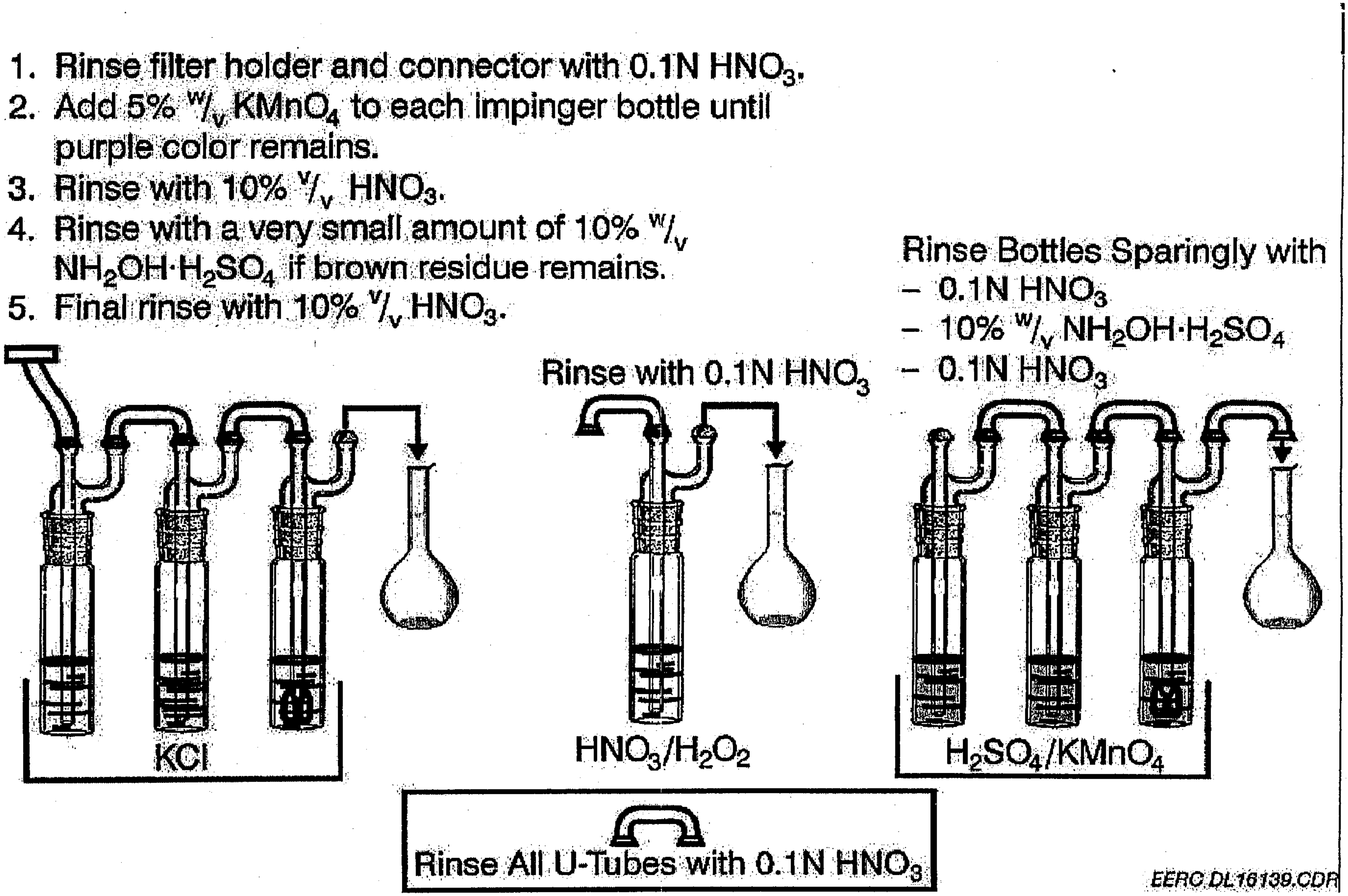


Figure 4-2: Sample Recovery Scheme for Ontario-Hydro Method Samples

4.1.2 Fuel samples

Fuel samples were collected by composite sampling. Three samples were collected at equally spaced intervals during each speciated mercury sampling run. Each set of three samples was composited into a single sample for each sample run. Sample analysis was conducted according to the procedures of ASTM D3694 and ASTM D4208.

4.2 Procedures for Obtaining Process Data

Plant personnel were responsible for obtaining process-operating data. The process data, which can be found in Appendix A, was continuously monitored by the facility.

4.3 Sample Identification and Custody

The chain-of-custody for all samples obtained for analysis can be found in Appendix E.

5.0 INTERNAL QA/QC ACTIVITIES

All sampling, recovery and analytical procedures conform to those described in the site specific test plan. The precision and accuracy related to the speciated fractions are given in Appendix F. The accuracy of the results is given as CPI (recovery of an independent standard obtained from CPI) and the precision of the results is given as %RSD (relative standard deviation). All resultant data was reviewed by the laboratory and Mostardi Platt per the requirements listed in the QAPP and were determined to be valid except where noted below.

5.1 QA/QC Problems

Reagent blanks are required to be less than ten times the detection limit or ten percent of the sample values found.

The reagent blank, Sample ID #037, for $KMNO_4/H_2SO_4$ was found to be 0.036 μg which is more than ten times the detection limit of 0.003 μg. This value was however, less than ten percent of the results for the $KMNO_4/H_2SO_4$ impingers and therefore the data does not need to be qualified.

The train blank value for the KC1 impinger at the inlet, Sample ID #025, was more than 30% of the sample values obtained for sample ID #004 and #006 for the inlet KC1 fractions. The test results for these for these samples have been qualified per the QAPP.

5.2 QA Audits

5.2.1 Reagent Blanks

As required by the method, blanks were collected for all reagents utilized. The results of reagent blank analysis are presented in Table 5-1. All detected reagent blank values were subtracted from each test run in the calculation of actual emissions.

Table 5-1
REAGENT BLANK ANALYSIS

Sample ID #	Sample Fraction	Contents	Mercury (μg)	Detection Limit (μg)
034	Front-half	0.1N HNO_3/Filter	< 0.002	0.002
035	1 N KCl	1 N KCl	< 0.003	0.003
036	HNO_3/H_2O_2	HNO_3/H_2O_2	0.018	0.008
037	$KMnO_4/H_2SO_4$	$KMnO_4/H_2SO_4$	0.036	0.003

5.2.2 Blank Trains

As required by the method, blank trains were collected at both the inlet and stack sampling locations. These trains were collected on October 19, 1999. The results of blank train analysis are presented in Table 5-2. Blank trains analytical results are reported but not used in the determination of actual emissions.

Table 5-2
BLANK TRAIN ANALYSIS

Sample ID #	Sample Fraction	Contents	Mercury (μg)	Detection Limit (μg)
031, 032, 033	Front-half	Filter	0.005	0.002
025	KCl impingers	Impingers/rinse	0.746	0.03
028	KCl impingers	Impingers/rinse	0.579	0.03
026	HNO_3-H_2O_2 impingers	Impingers/rinse	0.108	0.04
029	HNO_3-H_2O_2 impingers	Impingers/rinse	0.170	0.04
027	$KMnO_4/H_2SO_4$ impingers	Impingers/rinse	0.429	0.03
030	$KMnO_4/H_2SO_4$ impingers	Impingers/rinse	0.291	0.03

5.2.3 Field Dry Test Meter Audit

The field dry test meter audit described in Section 4.4.1 of Method 5 was completed prior to the test. The results of the audit are presented in Appendix C.

