Report on the
Air Emissions Test Program

Conducted for Big Rivers Electric Corporation
At the Wilson Station Facility located in Centertown, Kentucky

Report No. 3648 Wilson-Reduced Load
November 9, 2011

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Project Overview

General

Airtech Environmental Services Inc. (Airtech) was contracted by Big Rivers Electric Corporation (Big Rivers) to perform an air emission test program at the Wilson Station facility located in Centertown, Kentucky. Testing was conducted to gather stack test data for an evaluation of any corrective action that may be needed to comply with the Transport Rule and Utility MACT emission limits.

Testing was conducted at the Unit 1 exhaust stack. All testing was conducted while the Unit was operating at a reduced load. Testing was conducted to meet the requirements of Big Rivers and Sargent & Lundy, LLC.

The specific objectives of the test program were:

- Determine the emissions of non-sulfuric acid filterable particulate matter (FPM) and condensible particulate matter (CPM) at the test location.
- Determine the emissions of hydrogen chloride (HCl) and hydrogen fluoride (HF) from the test location.
- Determine the emissions of metallic hazardous air pollutants (HAP)[1] from the test location.
- Determine the emissions of oxidized and elemental mercury (Hg) at the test location.

Testing was performed on September 29 and September 30, 2011. Coordinating the field portion of the test program were:

Mike Galbraith – Big Rivers Electric Corporation
Michael Hess – Airtech Environmental Services Inc.

Methodology

All methods employed during the test program were performed in strict adherence with the latest published version(s). Recovery of all sample trains was performed in an on-site mobile laboratory. All sample trains were sealed with Teflon tape when not in use. All test components were sealed when transported between the laboratory and the test location. All field technicians wore polyethylene or plastic gloves while recovering field samples.

EPA Methods 5B and 202 were used in a combined sampling train to determine the concentrations of non-sulfuric acid filterable particulate matter (FPM), condensable

[1] Metallic HAPs are defined as: antimony (Sb), arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), cobalt (Co), lead (Pb), manganese (Mn), nickel (Ni) and Selenium (Se).

particulate matter (CPM) and total PM at the test location. For the EPA Methods 5B/202, a sample of the gas stream was withdrawn isokinetically from the source. Non-sulfuric acid FPM was collected in a heated probe and on a heated glass fiber filter. CPM passed through the probe and filter and was collected in a dry, glass impinger system. The amount of particulate matter collected with each sample fraction was compared to the volume of dry gas sampled to calculate a particulate concentration. Results for FPM, CPM and total PM are expressed in units of grains per dry standard cubic foot (gr/dscf), in units of pounds per hour (lb/hr) and in units of pounds per million Btu (lb/mmBtu). Three (3), ninety-minute test runs were performed at the stack outlet test location.

EPA Method 26A was used to determine the concentration of HCl and HF at the Stack Outlet test location. For the EPA Method 26A, a sample of the stack gas was withdrawn isokinetically from the source through a glass nozzle, a heated, Teflon lined probe and a heated Teflon filter. HCl and HF in the sample stream passed through the probe and filter and were collected in a series of impingers containing a dilute sulfuric acid (H_2SO_4) solution.

HCl and HF results are expressed in pounds per dry standard cubic foot (lb/dscf), parts per million dry volume (ppmdv), pounds per million Btu (lb/mmBtu) and pounds per hour (lb/hr). Three (3) 120 minute test runs were performed at the test location.

EPA Method 29 was used to determine the metallic HAPs concentrations at the test location. For this project, metallic HAPs were defined as antimony (Sb), arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), cobalt (Co), lead (Pb), manganese (Mn), nickel (Ni) and selenium (Se). With the Method 29 approach, a sample of the gas stream was withdrawn isokinetically from the source and the metallic HAPs in the sample gas were collected in a heated sample probe, on a heated quartz fiber filter, and in a series of chilled, glass impingers charged with metals absorbing solutions. Analysis of the samples was performed by ElementOne Laboratories located in Wilmington, North Carolina. Metallic HAPs results are expressed in units of micrograms per dry standard cubic meter (ug/dscm), pounds per million Btu (lb/mmBtu) and pounds per hour (lb/hr). Three (3) 120 minute test runs were performed at the test location.

EPA Method 30B was used to determine the concentrations of oxidized, elemental and total vapor-phase Hg at the test location. For the EPA Method 30B, a sample of the effluent was withdrawn from the source at a constant rate through paired, in-situ, sorbent media traps. One trap was spiked and the other was packed with multiple stages of media designed to separately collect total gaseous oxidized mercury (Hg^{+2}) and total gaseous elemental mercury (Hg^0). Probe heaters were in operation to ensure that the tubes were maintained above the dew point of the sample gas. The masses of the mercury species collected with the traps was compared to the volume of dry gas sampled to calculate the mercury concentrations. Analysis for the two mercury species was performed by Airtech Environmental Services Inc. at its laboratory located in Denver, Colorado. Results for Hg are expressed in units of micro grams per dry standard cubic meter (ug/dscm), pounds

per million Btu (lb/mmBtu) and pounds per hour (lb/hr). Three (3), ninety-minute test runs were performed at the test location.

Parameters

The following specific parameters were determined at the stack test location:

- gas temperature
- volumetric flow rate
- carbon dioxide content
- oxygen content
- moisture content
- filterable particulate matter
- condensable particulate matter concentration
- hydrogen chloride concentration
- hydrogen fluoride concentration
- metallic hazardous air pollutant concentration
- oxidized mercury concentration
- elemental mercury concentration

Results

A summary of test results is presented in Tables 1 through 4 on Pages 6 through 10.

The F_d factors listed in the tables were calculated from coal samples collected during the testing. The F_d factor worksheets can be found in the Parameters section of the Appendix. All coal analysis can be found in the Laboratory section of the Appendix.

For the metals results, if a metal was not detected in one fraction of the sample train but detected in another fraction of the sample train, the reporting limit was used in the calculation of the total amount collected by the sample train for the non-detect fraction. These metals results are noted with a "*".

The volumetric flow rate determined by the Method 5/202 sampling trains was used to calculate the mass emission rates for mercury at the stack test location.

Each Method 30B test run consisted of a spiked sample and an un-spiked sample. Method 30B QA requirements are for the average spike recovery (R) to be 85%<R<115%. Additionally, the relative deviation (RD) for each set of paired train results should be less than 10%. The tables below summarize the Method 30B QA for this test program.

Stack	Spike Recovery (%)	Relative Deviation (%)
Run1	86.4	5.30
Run 2	77.9	6.86
Run 3	123	7.57
Average	**95.7**	**NA**

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Summary of Results

Table 1 – Summary of the Stack Outlet FPM and CPM Results

Test Parameters	**Run 1**	**Run 2**	**Run 3**	**Average**
Date	9/28/2011	9/29/2011	9/29/2011	
Start Time	21:54	1:13	4:04	
Stop Time	23:43	3:24	5:54	
Fd (dscf/mmBtu)	9,942	9,835	9,856	
Gas Conditions				
Temperature (^{o}F)	124	122	122	**123**
Volumetric Flow Rate (acfm)	1,171,000	1,182,200	1,195,100	**1,182,800**
Volumetric Flow Rate (scfm)	1,038,300	1,050,700	1,062,700	**1,050,600**
Volumetric Flow Rate (dscfm)	926,800	929,500	935,500	**930,600**
Carbon Dioxide (% dry)	10.2	10.8	10.8	**10.6**
Oxygen (% dry)	9.0	7.9	8.0	**8.3**
Moisture (%)	10.8	11.6	12.0	**11.4**
Filterable PM Results				
Concentration (grains/dscf)	0.00723	0.0106	0.0101	**0.00931**
Emission Rate (lb/mmBtu)	0.0180	0.0240	0.0231	**0.0217**
Emission Rate (lb/hr)	57.4	84.4	81.1	**74.3**
Condensible PM Results				
Concentration (grains/dscf)	0.00227	0.00245	0.00222	**0.00231**
Emission Rate (lb/mmBtu)	0.00566	0.00554	0.00506	**0.00542**
Emission Rate (lb/hr)	18.0	19.5	17.8	**18.4**
Total PM Results				
Concentration (grains/dscf)	0.00950	0.0130	0.0123	**0.0116**
Emission Rate (lb/mmBtu)	0.0237	0.0295	0.0281	**0.0271**
Emission Rate (lb/hr)	75.5	104	98.9	**92.8**

Table 2 – Summary of the Stack Outlet HCl and HF Results

Test Parameters	**Run 1**	**Run 2**	**Run 3**	**Average**
Date	9/28-9/29/2011	9/29/11	9/29/11	
Start Time	21:54	1:41	4:23	
Stop Time	0:43	3:53	6:31	
Fuel Conditions				
Fd (dscf/mmBtu)	9,942	9,835	9,856	
Chlorine (mg/kg dry)	429	402	358	
Fluoride (mg/kg dry)	55	56	55	
Gas Conditions				
Temperature (^{o}F)	125	125	125	**125**
Volumetric Flow Rate (acfm)	1,232,000	1,163,000	1,142,000	**1,179,000**
Volumetric Flow Rate (scfm)	1,090,000	1,029,000	1,010,000	**1,043,000**
Volumetric Flow Rate (dscfm)	950,000	922,000	887,000	**920,000**
Carbon Dioxide (% dry)	10.2	10.8	10.8	**10.6**
Oxygen (% dry)	9.0	7.9	8.0	**8.3**
Moisture (%)	12.9	10.4	12.2	**11.8**
Hydrogen Chloride Results				
Concentration (lb/dscf)	8.30E-09	5.94E-09	6.59E-09	**6.94E-09**
Concentration (ppmdv)	0.0877	0.0628	0.0696	**0.0733**
Emission Rate (lb/mmBtu)	1.45E-04	9.42E-05	1.05E-04	**1.15E-04**
Emission Rate (lb/hr)	0.473	0.329	0.351	**0.384**
Hydrogen Fluoride Results				
Concentration (lb/dscf)	3.84E-09	3.52E-09	3.78E-09	**3.71E-09**
Concentration (ppmdv)	0.0739	0.0679	0.0728	**0.0715**
Emission Rate (lb/mmBtu)	6.70E-05	5.58E-05	6.04E-05	**6.11E-05**
Emission Rate (lb/hr)	0.219	0.195	0.201	**0.205**

Table 3 – Summary of the Stack Outlet Metallic HAP Results

Test Parameters	**Run 1**	**Run 2**	**Run 3**	**Average**
Date	9/28-9/29/2011	9/29/11	9/29/11	
Start Time	21:54	1:41	4:19	
Stop Time	0:31	3:53	6:31	
Fuel Conditions				
Fd (dscf/mmBtu)	9,942	9,835	9,856	
Antimony (mg/kg dry)	0.01	0.02	0.01	
Arsenic (mg/kg dry)	1.54	1.35	1.65	
Beryllium (mg/kg dry)	0.66	0.28	0.08	
Cadmium (mg/kg dry)	0.05	0.02	0.04	
Chromium (mg/kg dry)	2.89	1.78	2.69	
Cobalt (mg/kg dry)	1.14	0.82	1.69	
Lead (mg/kg dry)	5.03	4.46	6.37	
Manganese (mg/kg dry)	13.45	4.39	6.78	
Nickel (mg/kg dry)	35.79	25.03	41.11	
Selenium (mg/kg dry)	0.40	0.15	0.18	
Gas Conditions				
Temperature (^{o}F)	125	124	125	**124**
Volumetric Flow Rate (acfm)	1,220,000	1,200,000	1,220,000	**1,220,000**
Volumetric Flow Rate (scfm)	1,080,000	1,070,000	1,080,000	**1,080,000**
Volumetric Flow Rate (dscfm)	940,000	940,000	950,000	**940,000**
Carbon Dioxide (% dry)	10.2	10.8	10.8	**10.6**
Oxygen (% dry)	9.0	7.9	8.0	**8.3**
Moisture (%)	13.3	12.3	12.2	**12.6**
Antimony - Sb				
Concentration (ug/dscm)	0.281	0.835	0.163	**0.426**
Emission Rate (lb/mmBtu)	3.06E-07	8.27E-07	1.62E-07	**4.32E-07**
Emission Rate (lb/hr)	0.000989	0.00293	0.000580	**0.00150**
Arsenic - As				
Concentration (ug/dscm)	2.01	1.46	1.44	**1.64**
Emission Rate (lb/mmBtu)	2.19E-06	1.45E-06	1.44E-06	**1.69E-06**
Emission Rate (lb/hr)	0.00709	0.00512	0.00514	**0.00578**
Berylium - Be				
Concentration (ug/dscm)	<0.0264	<0.0269	<0.0267	<0.0267
Emission Rate (lb/mmBtu)	<2.88E-08	<2.66E-08	<2.66E-08	<2.73E-08
Emission Rate (lb/hr)	<0.0000930	<0.0000943	<0.0000950	<0.0000941

<Indicates that both fractions were below the detection limit.

Table 3 – Summary of the Stack Outlet Metallic HAP Results (continued)

Test Parameters	**Run 1**	**Run 2**	**Run 3**	**Average**
Date	9/28-9/29/2011	9/29/11	9/29/11	
Start Time	21:54	1:41	4:19	
Stop Time	0:31	3:53	6:31	
Cadmium - Cd				
Concentration (ug/dscm)	0.173*	1.28	<0.107	**0.519**
Emission Rate (lb/mmBtu)	1.89E-07*	1.26E-06	<1.06E-07	**5.19E-07**
Emission Rate (lb/hr)	0.000610*	0.00447	<0.000380	**0.00182**
Chromium - Cr				
Concentration (ug/dscm)	18.5	5.65	3.16	**9.12**
Emission Rate (lb/mmBtu)	2.02E-05	5.59E-06	3.15E-06	**9.65E-06**
Emission Rate (lb/hr)	0.0653	0.0198	0.0113	**0.0321**
Cobalt- Co				
Concentration (ug/dscm)	0.680	0.386	0.204	**0.423**
Emission Rate (lb/mmBtu)	7.42E-07	3.82E-07	2.04E-07	**4.42E-07**
Emission Rate (lb/hr)	0.00240	0.00135	0.000728	**0.00149**
Lead - Pb				
Concentration (ug/dscm)	1.32	3.56	0.734	**1.87**
Emission Rate (lb/mmBtu)	1.44E-06	3.52E-06	7.32E-07	**1.90E-06**
Emission Rate (lb/hr)	0.00467	0.0125	0.00262	**0.00658**
Manganese - Mn				
Concentration (ug/dscm)	6.82	4.59	2.65	**4.68**
Emission Rate (lb/mmBtu)	7.43E-06	4.54E-06	2.64E-06	**4.87E-06**
Emission Rate (lb/hr)	0.0240	0.0161	0.00943	**0.0165**
Nickel - Ni				
Concentration (ug/dscm)	66.8	38.7	14.5	**40.0**
Emission Rate (lb/mmBtu)	7.28E-05	3.83E-05	1.44E-05	**4.19E-05**
Emission Rate (lb/hr)	0.235	0.136	0.0516	**0.141**
Selenium - Se				
Concentration (ug/dscm)	40.2	25.4	28.4	**31.4**
Emission Rate (lb/mmBtu)	4.38E-05	2.52E-05	2.83E-05	**3.24E-05**
Emission Rate (lb/hr)	0.142	0.0891	0.101	**0.111**

* Indicates that one fraction was below the detection limit.
<Indicates that both fractions were below the detection limit.

Table 4 – Summary of the Stack Outlet Hg Results

Test Parameters	**Run 1**	**Run 2**	**Run 3**	**Average**
Date	9/28-9/29/2011	9/29/11	9/29/11	
Start Time	22:59	2:18	5:09	
Stop Time	0:29	3:48	6:39	
Fuel Conditions				
Fuel Factor (Fd)	9,942	9,835	9,856	
Mercury (mg/kg dry)	0.088	0.080	0.078	
Gas Conditions				
M5/202 Volumetric Flow, (dscfm)	926,800	929,500	935,500	**930,600**
M5/202 Oxygen (% dry)	9.0	7.9	8.0	**8.3**
M5/202 Moisture (%)	10.8	11.6	12.0	**11.4**
Oxidized Mercury Results				
Concentration Train A (µg/dscm)	0.204	0.290	0.174	**0.223**
Emission Rate (lb/mmBtu)	2.22E-07	2.87E-07	1.74E-07	**2.28E-07**
Emission Rate (lb/hr)	0.000708	0.00101	0.000611	**0.000776**
Elemental Mercury Results				
Concentration Train A (µg/dscm)	0.856	1.07	0.917	**0.949**
Emission Rate (lb/mmBtu)	9.33E-07	1.06E-06	9.14E-07	**9.70E-07**
Emission Rate (lb/hr)	0.00297	0.00374	0.00321	**0.00331**
Total Mercury Results				
Concentration Train A (µg/dscm)	1.06	1.36	1.10	**1.17**
Concentration Train B (µg/dscm)	0.955	1.19	1.27	**1.14**
Average Concentration (µg/dscm)	1.01	1.27	1.18	**1.16**
Emission Rate (lb/mmBtu)	1.10E-06	1.26E-06	1.18E-06	**1.18E-06**
Emission Rate (lb/hr)	0.00350	0.00444	0.00415	**0.00403**

Test Procedures

Method Listing

The test methods found in 40 CFR Part 60, Appendix A and 40 CFR Part 51, Appendix Mwere referenced during the test program. The following individual methods were used:

EPA Method 1	Sample and Velocity Traverse for Stationary Sources
EPA Method 2	Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S pitot tube)
EPA Method 3B	Analysis for the Determination of Emission Rate Correction Factor or Excess Air
EPA Method 4	Determination of Moisture Content in Stack Gases
EPA Method 5B	Determination of Non-Sulfuric Acid Particulate Matter Emissions from Stationary Sources
EPA Method 19	Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates
EPA Method 26A	Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources - Isokinetic Method
EPA Method 29	Determination of Metals Emissions from Stationary Sources
EPA Method 30B	Determination of Total Vapor Phase Mercury Emissions from Coal-Fired Combustion Sources Using Carbon Sorbent Traps
EPA Method 202	Dry Impinger Method for Determining Condensable Particulate Emissions from Stationary Sources

Method Descriptions

Method 1

Method 1 was used to determine the suitability of the Stack test location and to determine the sample points used for the isokinetic pollutant concentration determinations. The Stack Outlet test location conformed to the minimum requirements of being located at least 2.0 diameters downstream and at least 0.5 diameters upstream from the nearest flow disturbance.

The Stack Outlet test location was a round, vertical stack with a diameter of 408 inches. Three points were sampled for each of the four test ports. The test location was located approximately 7.4 duct diameters downstream and approximately 2.9 duct diameters

upstream from the nearest flow disturbance. A cross section of the sampling location, showing the sample points, can be found in Figure 1 of the Appendix

Method 2

Method 2 was used to determine the gas velocity through the test location using a Type-S pitot tube and an incline plane oil manometer. The values measured in Method 2, along with the measurements made in Methods 3B and 4, were used to calculate the volumetric flow rate through the test location. A diagram of the Method 2 apparatus is shown as part of the Methods 5B/202, 26A and 29 sampling trains in Figure 2, 3 and 4 of the Appendix.

The manometer was leveled and "zeroed" prior to each test run. The sample train was leak checked before and after each run by pressurizing the positive side, or "high" side, of the pitot tube and creating a deflection on the manometer of at least three inches H_2O. The leak check was considered valid if the manometer remained stable for 15 seconds. This procedure was repeated on the negative side by generating a vacuum of at least three inches H_2O. The velocity head pressure and gas temperature were then determined at each point specified in Method 1. The static pressure of the stack was measured using a water filled U-tube manometer. In addition, the barometric pressure was measured and recorded.

Method 3B

The carbon dioxide and oxygen content of the sample gas was determined at the test location using Method 3B. A gas sample was collected into a Tedlar bag from the dry gas meter exhaust of the Method 5B sampling train for the duration of each test run. Analysis was performed using an Orsat gas analyzer.

The gas analyzer was leak checked prior to analysis by raising the liquid levels in each pipette to a reference mark on the capillary tubes and then closing the pipette valves. The burette solution was then raised to bring the meniscus onto the graduated portion of the burette and the manifold valve was closed. After four minutes, the pipette meniscus did not fall below the reference mark and the burette meniscus did not fall by more than 0.2 percent, so the leak check was considered valid. The average of three gas analyses determined the carbon dioxide and oxygen contents.

The carbon dioxide content and oxygen content were used, along with the moisture content determined in Method 4, to calculate the gas stream molecular weight. The molecular weight was then used for the volumetric flow rate calculation. For these calculations, the balance of the gas stream was assumed to consist of nitrogen since other gas stream components are insignificant for the purposes of calculating molecular weight.

Method 4

The moisture content at the test location was determined using EPA Method 4 in conjunction with the Methods 5B/202, 26A and 29 test runs. A known volume of sample gas was withdrawn from each source and the moisture was condensed and measured. The

dry standard volume of the sample gas was then compared to the volume of moisture collected to determine the moisture content of the sample gas. A diagram of the Method 4 apparatus is shown as part of the Methods 5B/202, 26A and 29 sampling trains in Figure 2, 3B and 4 of the Appendix.

To condense the water vapor the gas sample passed through a series of impingers. The impingers were charged as outlined in each individual method. In all trains, the last impinger contained a known weight of silica gel to absorb any residual water vapor.

After the test run the sample train was leak checked at the highest vacuum encountered during the test run. The amount of water collected in the condenser system and the silica gel weight gain was determined gravimetrically. The net weight gain of water was converted to a volume of wet gas and then compared to the amount of dry gas sampled to determine the moisture content. The moisture content was used, along with the oxygen and carbon dioxide content determined by EPA Method 3B, for the calculation of the volumetric flow rate.

Method 5B/202

The PM concentrations were determined using EPA Methods 5B/202 in a combined sample train. In EPA Methods 5B/202, a sample of the gas stream was withdrawn isokinetically from the test location. Non-sulfuric FPM was collected in the nozzle, probe, connecting glassware and filter. CPM in the sample gas passed through the filter and collected in a gas condenser system. The weight of non-sulfuric FPM and CPM collected with the sample train combined with the volume of dry gas withdrawn from the stack was then used to calculate PM concentrations. A diagram of the Method 5B/202 sampling train is shown in Figure 2 of the Appendix.

To prevent contamination, all components of the sample trains were constructed of glass or Teflon with no metal connections. Prior to testing all the components of the Method 5B sampling train were cleaned using detergent and then rinsed with tap water, deionized water and lastly with acetone. For the Method 202 sampling train all the components were cleaned using detergent and then rinsed with tap water, deionized water, acetone and lastly with hexane. After drying, all components were sealed with parafilm or Teflon tape.

The Method 5B portion of the sampling train consisted of a glass nozzle, a Teflon lined sample probe and a glass fiber filter. The probe and filter were maintained at a temperature of 320^{o}F (+/- 25^{o}F). After exiting the Method 5B portion of the sampling system, the sample gas passed through an EPA Method 23 type glass coil condenser and then through a series of four (4) glass impingers. The condenser was cooled with a water recirculation pump that was placed in a water bath. The recirculation pump and coiled condenser are used to maintain the gas temperature between 65^{o}F and 85^{o}F at the exit of the CPM filter. Impingers 1 and 2 were initially empty. A Teflon fiber CPM filter followed impinger 2. Impinger 3 contained 100ml of water. The fourth impinger contained a known mass of silica gel to absorb any remaining water vapor. The dry gas

exiting the moisture condenser system then passed through a sample pump and a dry gas meter to measure the gas volume. After leaving the dry gas meter the sample stream passed through an orifice which was used to meter the flow rate through the sample train. The pressure drop across the orifice was measured with an incline plane oil manometer.

Whatman 934-AH glass fiber filters were used as the substrate for the non-sulfuric PM sampling. The filter was loaded into a glass filter holder with a Teflon support screen that was cleaned and prepared in the same manner as the other components of the Method 5B sample train. Prior to the test run, the filter was baked at 320^{o}F (+/- 25^{o}F) for a minimum of two (2) hours then desiccated for at least 24 hours and then weighed to the nearest 0.0001gram (g) until a constant weight was achieved. The weight of the filter was considered to be constant when two consecutive weights taken at least six hours apart were within 0.0005g of each other.

The probe liner was thoroughly pre-cleaned with acetone and the probe wash was saved as a quality assurance check. The sample train was leak checked prior to the test run by capping the probe tip and pulling a vacuum of at least 15 inches Hg. A leak test was considered valid if the leak rate was below 0.02 cfm. When not in operation or inside the stack, the nozzle was sealed with Teflon tape.

The probe tip was placed at the first of the sample points determined in Method 1. The velocity at the sample point was determined using Method 2 by reading the velocity pressure from the oil manometer. Sample was withdrawn from the source at a rate such that the velocity at the opening of the nozzle matches the velocity of the stack gas at the sample point (isokinetically). During the test run the train was moved to each of the Method 1 sample points. The sample time at each point was calculated based on the number of sample points and the run time. The gas velocity pressure, gas meter reading, gas meter inlet and outlet temperatures, gas meter orifice pressure and pump vacuum were recorded for each sample point.

After the test run the sample train was leak checked at the highest vacuum encountered during the test run. The sampling train was moved to the on-site lab and purged with zero grade nitrogen at a nominal flow rate of at least 14 liters per minute for a period of 60 minutes. The nozzle, probe and front half of the filter holder were washed with acetone and the rinse saved in a 250ml glass jar equipped with a Teflon lid. The glass fiber filter was removed from the filter holder, transferred to a Petri dish and sealed.

Upon completion of the purge, the contents of impingers one and two were transferred to a pre-cleaned 950 ml sample jar equipped with a Teflon lid. The condenser coil and all connecting glassware up to and including the front half of the CPM filter were rinsed twice with deionized ultra filtered (DUIF) water and added to the sample jar. An acetone rinse of the above glassware was performed and saved in a separate pre-cleaned 500ml sample jar equipped with a Teflon lid. Finally, two (2) rinses of the above components were performed with hexane and added to the acetone container. The CPM filter was removed from the filter holder and placed in a 20ml glass sample jar.

Analysis of all sample fractions was performed at the Airtech laboratory located in Bensenville, Illinois. The acetone rinses from the Method 5B portion of the sampling train were transferred to tared beakers, evaporated to dryness under ambient temperature and pressure conditions, baked for six (6) hours, desiccated for 24 hours and weighed to a constant weight. A weight was considered constant when the difference between two consecutive weights, taken a minimum of six hours apart, was less than or equal to 0.0005 grams. The weight gain of the probe rinses and glass fiber filter yield the total weight of filterable non-sulfuric acid particulate collected during sampling.

Inorganic extraction of the CPM filter was performed by placing the filter into an extraction tube with DIUF water and placing it into a sonication bath for a minimum of 2 minutes. This extraction was done a total of 3 times and the DIUF water used each time was added to the impinger water container. After inorganic extraction of the CPM filter, an organic extraction of the impinger water was performed. The entire contents of the impinger water sample fraction were placed in a separatory funnel. A 30 ml aliquot of Hexane was added to the funnel and the funnel contents were thoroughly mixed. The organic layer was then allowed to separate from the water and was decanted from the funnel into the acetone and hexane sample jar. This procedure was conducted three (3) times to complete the extraction.

The inorganic contents of the separatory funnel were then transferred into a beaker and evaporated down to not less than 10 ml final volume at an elevated temperature. The remaining liquid was evaporated to dryness at ambient temperature. The beaker was desiccated for 24 hours and then weighed to a constant weight.

Organic CPM extraction of the filter was performed by placing the inorganic extracted filter into an extraction tube with hexane and placing it into a sonication bath for a minimum of 2 minutes. This extraction was done a total of 3 times and the hexane used was added to the acetone/hexane container. The contents of this container was transferred into a beaker and evaporated to not less than 10 ml. The remaining fraction was then evaporated to dryness at ambient temperature and pressure. The beaker was desiccated for 24 hours and then weighed to a constant weight.

The weight differences for the organic and inorganic fractions were combined to determine the total condensible particulate collected. All fractions of the CPM analysis were adjusted for the appropriate blank values.

Method 19

The equations in EPA Method 19 were used to calculate the emission rates of various pollutants from the test location in units of pounds per million British thermal units (lb/mmBtu). The calculation was based on the oxygen content of the sample gas and an appropriate F factor, which is the ratio of combustion gas volumes to heat inputs.

Method 26A

EPA Method 26A was used to determine the concentrations of HCl and HF at the Stack Outlet test location. A sample of the gas stream was withdrawn isokinetically from the stack through a teflon lined probe, a Teflon mat filter and a series of glass impingers charged with an H_2SO_4 solution. After each test run, the solution was recovered and analyzed using ion chromatography (IC). The total mass of each target constituent collected, combined with the volume of dry gas withdrawn from the test location was then used to calculate the in-stack concentration of each target constituent. A diagram of the sampling system may be found in Figure 3 of the Appendix.

To prevent contamination, all components of the sample train were constructed of glass or Teflon with no metal connections. Prior to testing the components were cleaned using detergent and then rinsed with tap water, deionized water and lastly with acetone. After drying, all components will be sealed with parafilm or Teflon tape.

The sample probe consisted of a heated Teflon liner and glass nozzle. Sample gas passed through the nozzle and probe assembly and then through a heated Teflon fiber filter. All heated components of the sampling train were maintained at a temperature of at least 248^{o}F. After exiting the filter, the sample gas passed through a series of four glass impingers. The first impinge contained 50ml of a dilute sulfuric acid (H_2SO_4) solution. The second and third impingers each contained 100ml of a dilute sulfuric acid (H_2SO_4) solution. The fourth impinger contained a mass of silica gel to absorb any residual water vapor. After exiting the impinger system, the gas stream passed through a sample pump and into a dry gas meter, where the gas volume was measured. After leaving the dry gas meter, the sample stream passed through an orifice that was used to meter the flow rate through the sample train. The pressure drop across the orifice was measured with an incline oil manometer.

The sampling train was assembled and leak checked prior to the test run. The leak check was performed by capping the probe nozzle and pulling a vacuum greater than the highest vacuum expected during the test run. A leak check was considered valid if the leak rate was below 0.02 cubic feet per minute.

The probe tip was then placed at the first of the sample points determined in Method 1. The velocity at the sample point was determined using Method 2 by reading the velocity pressure from the oil manometer. Sample was withdrawn from the source at a rate such that the velocity in the nozzle matched the velocity of the stack gas at the sample point (isokinetically). During the test run the train was moved to each of the Method 1 sample points. The sample time at each point was calculated based on the number of sample points and the run time. Each test run was 120 minutes in duration such that a minimum sample volume of 2.5 dscm was collected. The gas velocity pressure, gas meter reading, gas meter inlet and outlet temperatures, gas meter orifice pressure and pump vacuum were recorded for each sample point.

After the test run the train was leak checked at the highest vacuum encountered during the test run. The impinger contents were recovered and stored in a 500ml high density, poly-ethylene sample jar. The impingers were rinsed three (3) times each with 0.1N H_2SO_4 with the rinses added to the sample jar. The resulting samples (including all rinses) were analyzed for HCl and HF using ion chromatography. Analysis for HCl and HF was performed at the Airtech laboratory located in Denver, Colorado.

Method 29

EPA Method 29 was used to determine the concentration of metallic hazardous air pollutants (HAP) at the test location. Metallic HAPs include antimony (Sb), arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), cobalt (Co), lead (Pb), manganese (Mn), nickel (Ni) and selenium (Se). In EPA Method 29, sample gas was withdrawn isokinetically from the test location and the Metallic HAPs in the sample gas was collected in a glass lined probe, on a quartz fiber filter and in a series of chilled impingers charged with a metals absorbing solution. The mass of Metallic HAPs collected with the sample train, combined with the volume of dry gas withdrawn from the test location was then used to calculate the concentration of each Metallic HAPs. A diagram of the sampling system may be found in Figure 4 of the Appendix.

To prevent contamination, all components of the sample train were glass or Teflon with no metal connections. Prior to testing, the components were washed using detergent and then rinsed with tap water and rinsed again with deionized water. All glassware was soaked for a minimum of four (4) hours in a ten percent (10%) nitric acid (HNO_3) solution. After soaking, the glassware was rinsed with de-ionized, ultra filtered (DIUF) water and finally with acetone. After drying, all components were sealed with parafilm.

The sample probe consisted of a heated Teflon liner and glass nozzle. Sample gas passed through the nozzle, the probe assembly, and then through a heated quartz fiber filter. The probe and filter were maintained at 248^{o}F (+/- 25^{o}F). After exiting the filter, the sample gas passed through a series of five glass impingers. The first impinge was initially empty. The second and third impingers were each loaded with 100ml of a 5 percent HNO_3/10 percent H_2O_2 solution. The fourth impinger was initially empty. The fifth impinger contained a known quantity of silica gel to absorb any residual water vapor. After exiting the impingers, the gas stream passed through a sample pump and into a dry gas meter, where the gas volume was measured. After leaving the dry gas meter, the sample stream passed through an orifice that was used to meter the flow rate through the sample train. The pressure drop across the orifice was measured with an incline oil manometer.

Prior to the test run, the probe was thoroughly cleaned with acetone and a 0.1 N nitric acid solution and the probe washes saved as a quality assurance check. The sampling train was then assembled and leak checked by capping the probe nozzle and pulling a vacuum greater than the highest vacuum expected during the test run. A leak check was considered valid if the leak rate was below 0.02 cubic feet per minute.

The probe tip was then placed at the first of the sample points determined in Method 1. The velocity at the sample point was determined using Method 2 by reading the velocity pressure from the oil manometer. Sample was withdrawn from the source at a rate such that the velocity in the nozzle matched the velocity of the stack gas at the sample point (isokinetically). During the test run the train was moved to each of the Method 1 sample points. The sample time at each point was calculated based on the number of sample points and the run time. Each test run was 120 minutes in duration. The gas velocity pressure, gas meter reading, gas meter inlet and outlet temperatures, gas meter orifice pressure and pump vacuum were recorded for each sample point.

After sampling, the sample train was transferred to the on-site laboratory for recovery. The filter was removed from the holder and placed in a glass petri dish. The front half of the sample train consisting of the nozzle, probe liner and filter holder inlet half was brushed with a non-metallic brush and rinsed with 0.1 N HNO_3. These rinses were saved in separate 250ml trace clean amber glass sample jars. The contents of the first four impingers were recovered and saved in a 500ml Nalgene sample jar. The impingers and the filter outlet half were then rinsed with 0.1N HNO_3, and the rinses added to the impinger sample jar. The contents of the fifth (silica gel) impinger was weighed for moisture weight gain and discarded.

The 0.1N HNO_3 front half rinse and filter were digested with HNO_3. This fraction and the sample fraction acquired from the first three impingers were analyzed separately for all the metals listed using ICP and GFAA. Analysis of the samples was conducted by ElementOne located in Wilmington, North Carolina.

Method 30B

EPA Method 30B was used to determine the concentration of mercury at the test location. In EPA Method 30B, a sample of the effluent was withdrawn from the test location at a constant rate through an in-situ, glass 10 ml trap. The trap contained at least two stages of sorbent media designed to adsorb both Hg^2 and Hg^0 forms of vapor-phase mercury. The masses of mercury species collected with the traps was compared to the volume of dry gas sampled to calculate the mercury concentrations. A diagram of the sampling system may be found in Figure 5 of the Appendix.

The sample traps for the Method 30B apparatus were quartz in construction. Traps were fitted to the end of the probe and contained in a steel heater block assembly designed to both prevent moisture condensation in the trap as well as provide for a constant temperature during sample collection. Sample gas passed through the trap and probe assembly, then through a condenser system comprised of a series of glass impingers. After exiting the condenser system, the sample gas passed through a metering system to determine the dry volume of gas sampled.

The volume of dry gas exiting the gas condenser system was measured with a dry gas meter. After leaving the dry gas meter the sample stream passed through an orifice, which was used to meter the flow rate through the sample train. The pressure drop across

the orifice was measured with an incline plane oil manometer. The gas meter reading, gas meter inlet and outlet temperatures, gas meter static pressure and pump vacuum were recorded every five minutes during each test run.

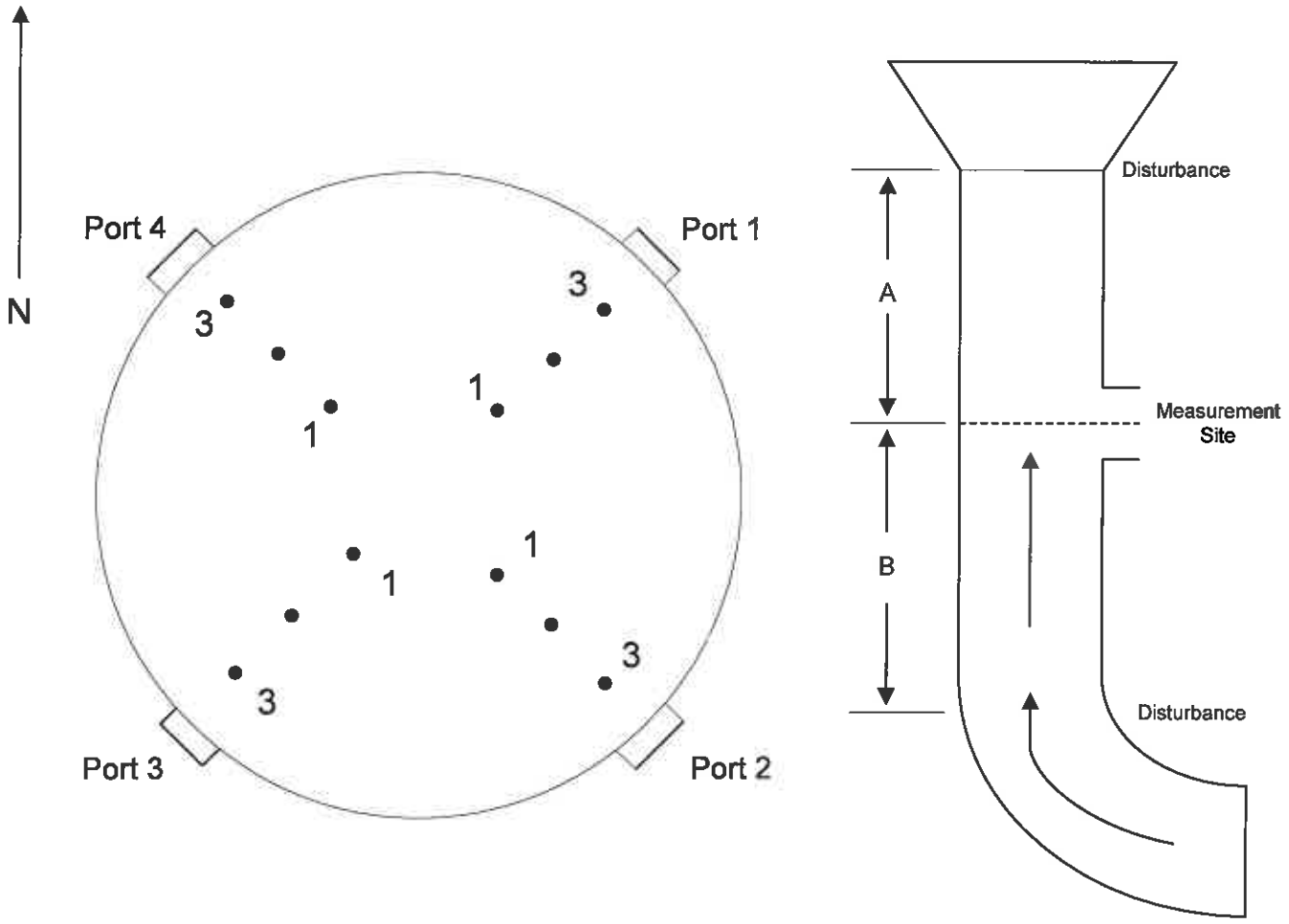
The sample train was leak checked prior to the test run by capping the trap tip and pulling a vacuum greater than the highest vacuum expected during the test run. A leak check was considered valid if the leak rate was less than four (4) percent of the average sampling rate. Sample gas was then withdrawn from the source at a constant rate such that the predetermined sample volume was collected. After the test run the probe was removed from the stack and the sample train was leak checked at the highest vacuum encountered during the test run.

Each test run consisted of a paired set of adsorbent tubes, one spiked with a known mass of Hg and the other unspiked. The spiked tube was a standard Method 30B sampling tube packed with carbon. The unspiked tube contained proprietary sections of adsorbent media designed to collect the different species of mercury separately. The unspiked tube contained two sections of adsorbent media designed to catch oxidized, vapor phase mercury. These sections were followed by two additional sections of adsorbent media designed to catch elemental, vapor phase mercury. All tube sections were analyzed separately using an Ohio Lumex, Model RA-915+ mercury analyzer. Quality assurance for the sample trains included spike recoveries, breakthrough checks and duplicate sample agreement. It should be noted that both spike recoveries and duplicate agreement QA is based on total mercury only.

Analysis of samples was performed at the Airtech Laboratory located in Denver, Colorado. Results for mercury are expressed in units of pounds per million British thermal units (lbs/mmBtu) and pounds per hour (lb/hr).

Appendix

Figures



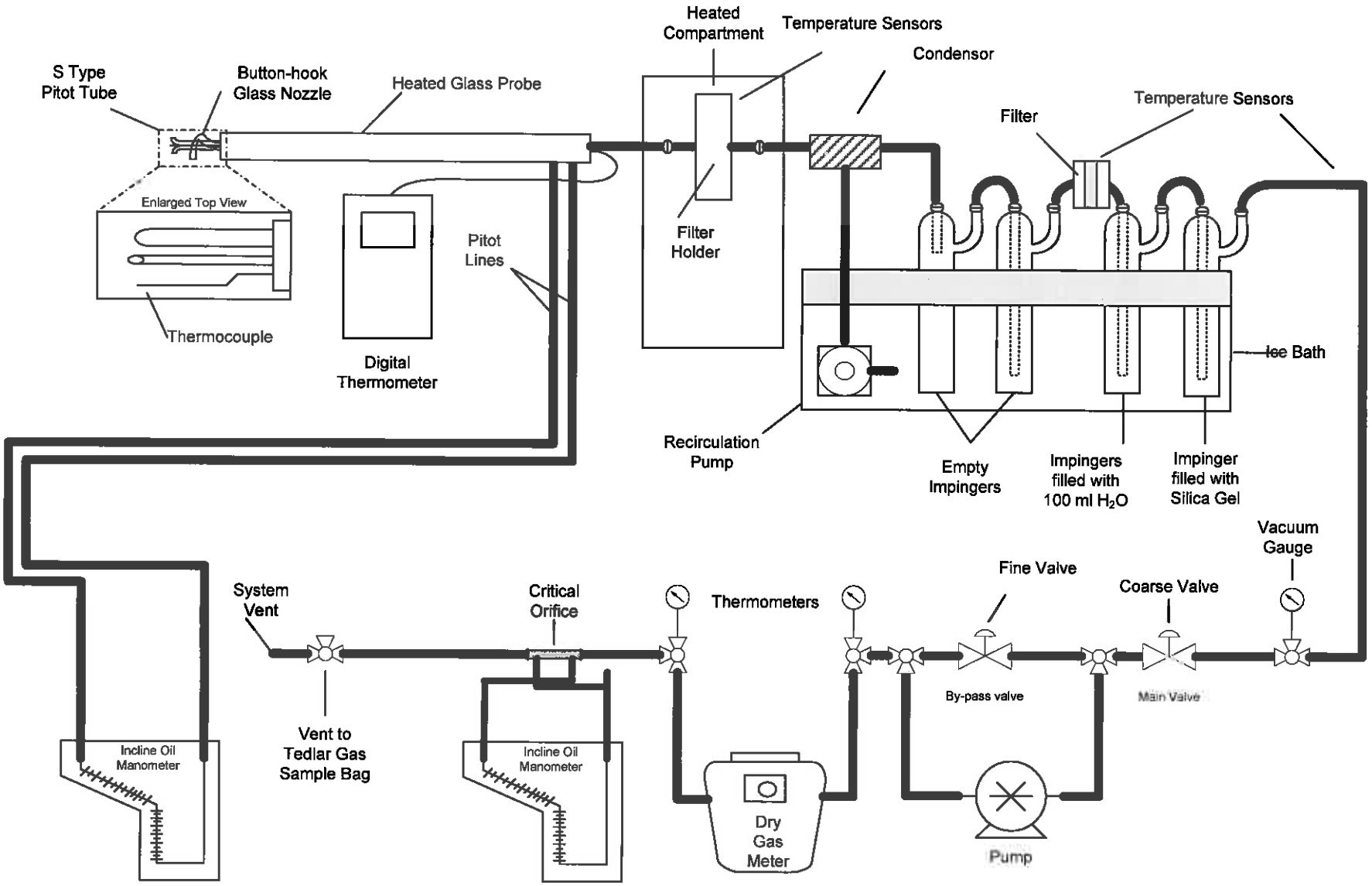
Diameter (in.)	408
Port Length (in.)	17.3
Distance A (Duct Diameters)	~2.9
Distance B (Duct Diameters)	~7.4

Point	Distance From Wall (in.)
1	120.8
2	59.6
3	18.0

Cross Section of the Wilson Station Stack Test Location
Big Rivers Electric Corporation

Figure 1

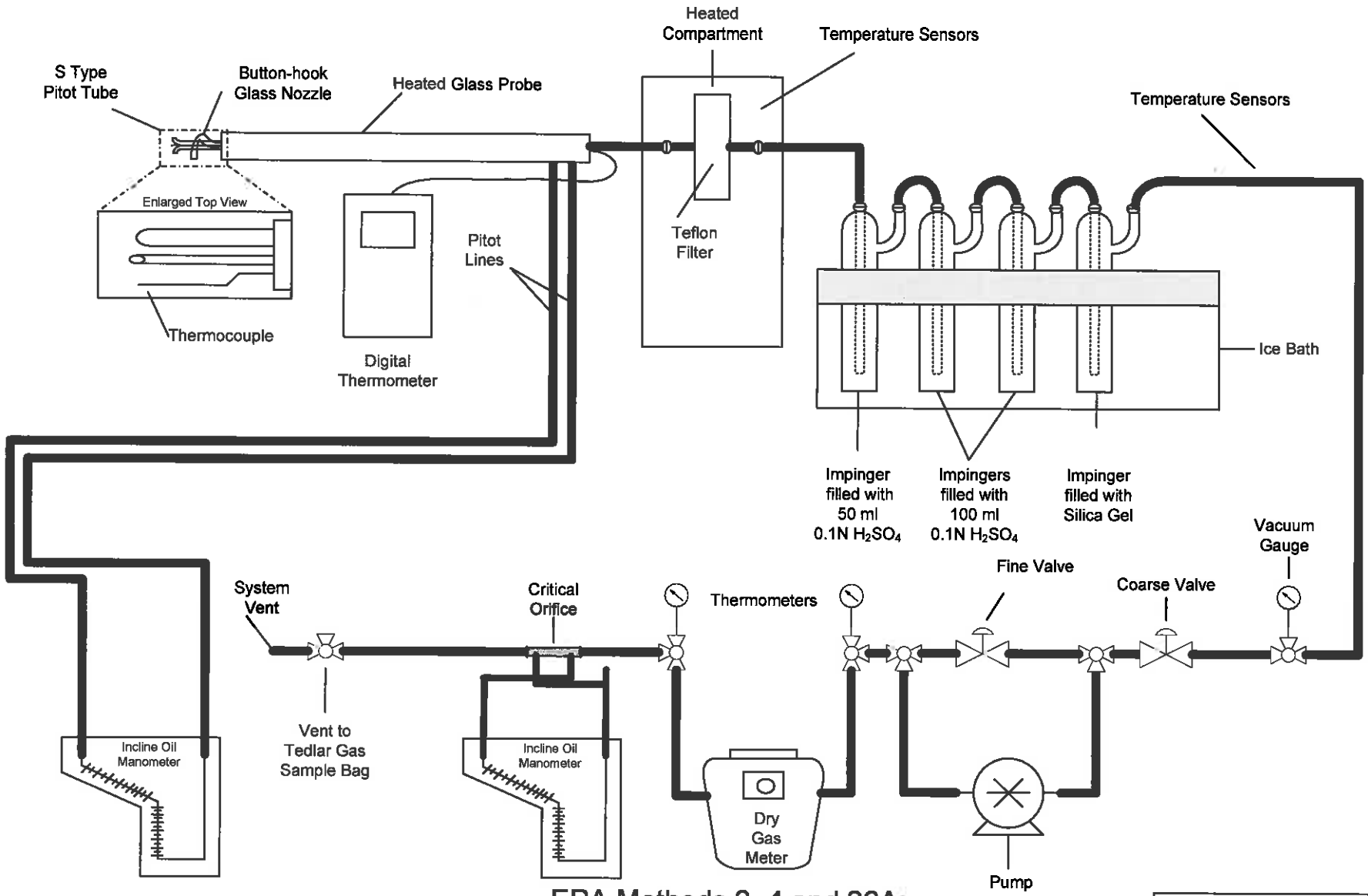
AIRTECH
Environmental
Services Inc.



EPA Methods 2, 3B, 4, 5B and 202:
Total Particulate Sampling Train

Figure 2

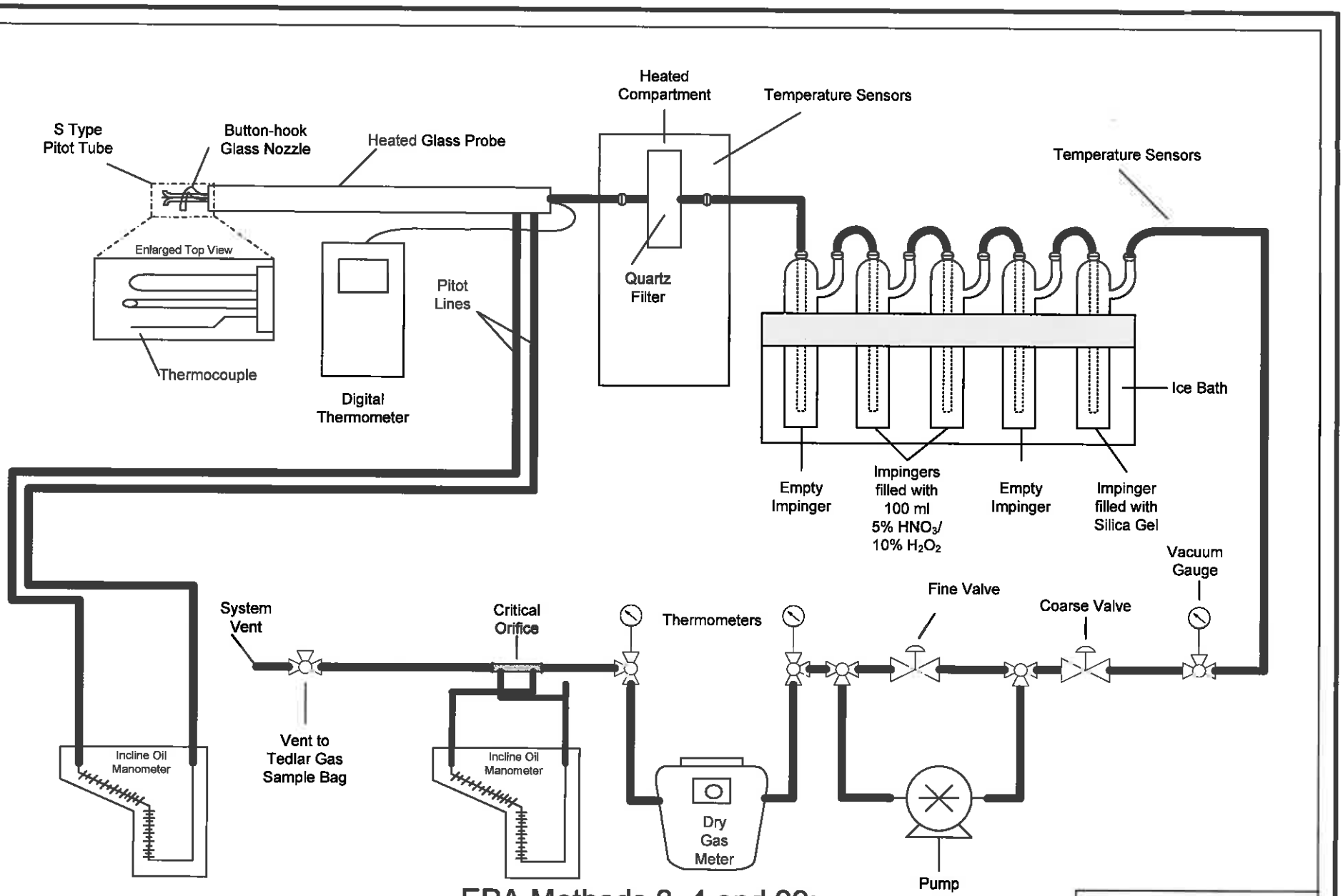
AIRTECH
Environmental
Services Inc.



EPA Methods 2, 4 and 26A:
Hydrogen Chloride and Hydrogen Fluoride Sampling Train

Figure 3

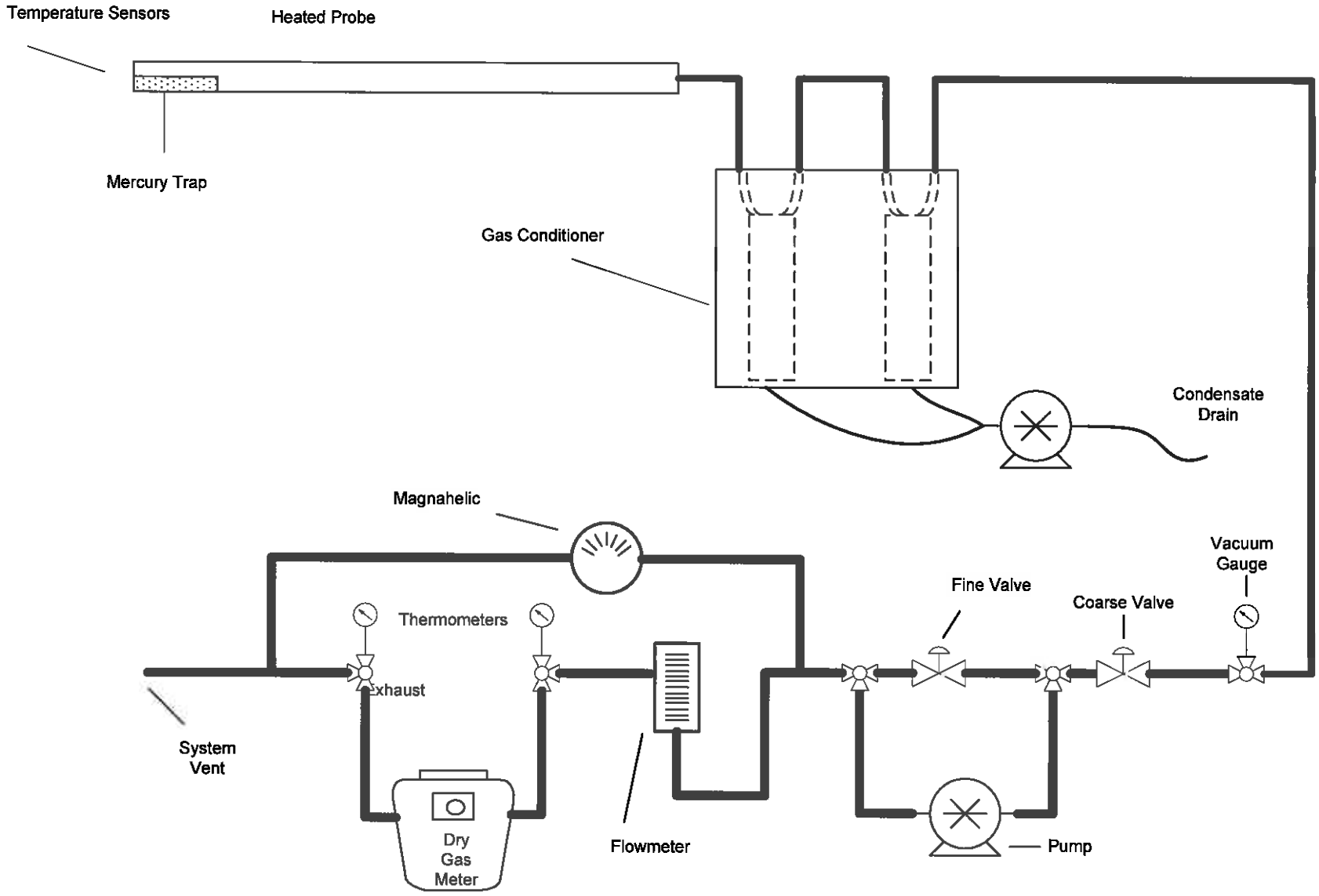
AIRTECH Environmental Services Inc.



EPA Methods 2, 4 and 29: Multi-Metals Sampling Train

Figure 4

AIRTECH Environmental Services Inc.



EPA Method 30B:
Total Vapor Phase Mercury Sampling Train

Figure 5

AIRTECH Environmental Services Inc.

Sample Calculations

Sample Calculations, Stack Outlet, Method 5B/202, Run 1

Area of Sample Location

$$A_s = \pi \times \left(\frac{d_s}{2 \times 12} \right)^2$$

$$A_s = \pi \times \left(\frac{408}{2 \times 12} \right)^2$$

$$A_s = 908 ft^2$$

where:

A_s	= area of sample location (ft^2)
d_s	= diameter of sample location (in)
12	= conversion factor (in/ft)
2	= conversion factor (diameter to radius)

Stack Pressure Absolute

$$P_a = P_b + \frac{P_s}{13.6}$$

$$P_a = 29.36 + \frac{-0.2}{13.6}$$

$$P_a = 29.35 in.Hg$$

where:

P_a	= stack pressure absolute (in. Hg)
P_b	= barometric pressure (in. Hg)
P_s	= static pressure (in. H_2O)
13.6	= conversion factor (in. H_2O/in. Hg)

Volume of Dry Gas Collected Corrected to Standard Temperature and Pressure

$$V_{m(std)} = \frac{17.64(V_m)(Y_d)\left(P_b + \frac{\Delta H}{13.6}\right)}{(T_m + 460)}$$

$$V_{m(std)} = \frac{17.64(65.94)(1.0052)\left(29.36 + \frac{1.78}{13.6}\right)}{(88.5 + 460)}$$

$$V_{m(std)} = 62.87 scf$$

where:

$V_{m(std)}$	= volume of gas collected at standard temperature and pressure (scf)
V_m	= volume of gas sampled at meter conditions (ft^3)
Y_d	= gas meter correction factor (dimensionless)
P_b	= barometric pressure (in. Hg)
ΔH	= average sample pressure (in. H_2O)
T_m	= average gas meter temperature (^oF)
13.6	= conversion factor (in. H_2O/in. Hg)
17.64	= ratio of standard temperature over standard pressure (^oR/in.Hg)
460	= conversion (^oF to ^oR)

Volume of Water Vapor Collected Corrected to Standard Temperature and Pressure

$$V_{w(std)} = 0.04715 \times (V_{wc} + V_{wsg})$$

$$V_{w(std)} = 0.04715 \times (141.0 + 20.0)$$

$$V_{w(std)} = 7.59 scf$$

where:

$V_{w(std)}$	= volume of water vapor at standard conditions (scf)
V_{wc}	= weight of liquid collected (g)
V_{wsg}	= weight gain of silica gel (g)
0.04715	= volume occupied by one gram of water at standard temperature and pressure (ft^3/g)

Percent Moisture[2]

$$B_{ws} = 100 \times \left[\frac{V_{w(std)}}{\left(V_{m(std)} + V_{w(std)}\right)} \right]$$

$$B_{ws} = 100 \times \left[\frac{7.59}{(62.87 + 7.59)} \right]$$

$$B_{ws} = 10.8\%$$

where:

B_{ws}	= moisture content of the gas stream (%)
$V_{m(std)}$	= volume of gas collected at standard temperature and pressure (scf)
$V_{w(std)}$	= volume of water vapor at standard conditions (scf)
100	= conversion factor

Molecular Weight of Dry Gas Stream[3]

$$M_d = \left(44 \times \frac{\%CO_2}{100}\right) + \left(32 \times \frac{\%O_2}{100}\right) + \left(28 \times \frac{(\%N_2)}{100}\right)$$

$$M_d = \left(44 \times \frac{10.2}{100}\right) + \left(32 \times \frac{9.0}{100}\right) + \left(28 \times \frac{(80.8)}{100}\right)$$

$$M_d = 29.99 lb / lbmole$$

where:

M_d	= molecular weight of the dry gas stream (lb/lb-mole)
$\%CO_2$	= carbon dioxide content of the dry gas stream (%)
44	= molecular weight of carbon dioxide (lb/lb-mole)
$\%O_2$	= oxygen content of the dry gas stream (%)
32	= molecular weight of oxygen (lb/lb-mole)
$\%N_2$	= nitrogen content of the dry gas stream (%)
28	= molecular weight of nitrogen and carbon monoxide (lb/lb-mole)
100	= conversion factor

[2] The moisture saturation point is used for all calculations if it is exceeded by the actual moisture content.
[3] The remainder of the gas stream after subtracting carbon dioxide and oxygen is assumed to be nitrogen.

Molecular Weight of Wet Gas Stream

$$M_s = \left(M_d \times \left(1 - \frac{B_{ws}}{100}\right)\right) + \left(18 \times \frac{B_{ws}}{100}\right)$$

$$M_s = \left(29.99 \times \left(1 - \frac{10.8}{100}\right)\right) + \left(18 \times \frac{10.8}{100}\right)$$

$$M_s = 28.70 b / lbmole$$

where:

M_s	= molecular weight of the wet gas stream (lb/lb-mole)
M_d	= molecular weight of the dry gas stream (lb/lb-mole)
B_{ws}	= moisture content of the gas stream (%)
18	= molecular weight of water (lb/lb-mole)
100	= conversion factor

Velocity of Gas Stream

$$V_s = 85.49(C_p)\left(\sqrt{\overline{\Delta P}}\right)\sqrt{\frac{(T_s + 460)}{(M_s)\left(P_b + \frac{P_s}{13.6}\right)}}$$

$$V_s = 85.49(0.84)(0.360)\sqrt{\frac{(124 + 460)}{(28.70)\left(29.36 + \frac{-0.2}{13.6}\right)}}$$

$$V_s = 21.5 ft / \sec$$

where:

V_s	= average velocity of the gas stream (ft/sec)
C_p	= pitot tube coefficient dimensionless
$\sqrt{\Delta P}$	= average square root of velocity pressures (in. H_2O)$^{1/2}$
T_s	= average stack temperature ($^{\circ}$F)
M_s	= molecular weight of the wet gas stream (lb/lb-mole)
P_b	= barometric pressure (in. Hg)
P_s	= static pressure of gas stream (in. H_2O)
85.49	= pitot tube constant (ft/sec)([(lb/lb-mole)(in. Hg)]/[(^{0}R)(in. H_2O)])$^{1/2}$
460	= conversion ($^{\circ}$F to $^{\circ}$R)
13.6	= conversion factor (in. H_2O/in. Hg)

Volumetric Flow of Gas Stream - Actual Conditions

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

$$Q_a = 60(21.5)(908)$$

$$Q_a = 1{,}171{,}044 acfm$$

where:

Q_a	= volumetric flow rate of the gas stream at actual conditions (acfm)
V_s	= average velocity of the gas stream (ft/sec)
A_s	= area of duct or stack (ft^2)
60	= conversion factor (min/hr)

Volumetric Flow of Gas Stream - Standard Conditions

$$Q_{std} = \frac{17.64(Q_a)\left(P_b + \frac{P_s}{13.6}\right)}{(T_s + 460)}$$

$$Q_{std} = \frac{17.64(1{,}171{,}044)\left(29.36 + \frac{-0.2}{13.6}\right)}{(124 + 460)}$$

$$Q_{std} = 1{,}038{,}296 scfm$$

where:

Q_{std}	= volumetric flow rate of the gas stream at standard conditions (scfm)
Q_a	= volumetric flow rate of the gas stream at actual conditions (acfm)
T_s	= average stack temperature (°F)
P_b	= barometric pressure (in. Hg)
P_s	= static pressure of gas stream (in. H_2O)
13.6	= conversion factor (in. H_2O/in. Hg)
17.64	= ratio of standard temperature over standard pressure (°R/in. Hg)
460	= conversion (°F to °R)

Volumetric Flow of Gas Stream - Standard Conditions - Dry Basis

$$Q_{dstd} = Q_{std}\left(1 - \frac{B_{ws}}{100}\right)$$

$$Q_{dstd} = 1{,}038{,}296\left(1 - \frac{10.8}{100}\right)$$

$$Q_{dstd} = 926{,}805 dscfm$$

where:

Q_{dstd}	= volumetric flow rate of the gas stream at standard conditions, on a dry basis (dscfm)
Q_{std}	= volumetric flow rate of the gas stream at standard conditions (scfm)
B_{ws}	= moisture content of the gas stream (%)
100	= conversion factor

Area of Nozzle

$$A_n = \pi \times \left(\frac{d_n}{2 \times 12}\right)^2$$

$$A_n = \pi \times \left(\frac{0.355}{2 \times 12}\right)^2$$

$$A_n = 0.000687 ft^2$$

where:

A_n	= area of nozzle (ft^2)
d_n	= diameter of nozzle (in)
12	= conversion factor (in/ft)
2	= conversion factor (diameter to radius)

Percent Isokinetic

$$I = \frac{0.0945(T_s + 460)(V_{m(std)})}{\left(P_b + \frac{P_s}{13.6}\right)(v_s)(A_n)(\Theta)\left(1 - \frac{B_{ws}}{100}\right)}$$

$$I = \frac{0.0945(124 + 460)(62.87)}{\left(29.36 + \frac{-0.2}{13.6}\right)(21.5)(6.87 \times 10^{-4})(90)\left(1 - \frac{10.8}{100}\right)}$$

$$I = 99.6\%$$

where:

I	= percent isokinetic (%)
T_s	= average stack temperature (^oF)
$V_{m(std)}$	= volume of gas collected at standard temperature and pressure (scf)
P_b	= barometric pressure (in. Hg)
P_s	= static pressure of gas stream (in. H_2O)
V_s	= average velocity of the gas stream (ft/sec)
A_n	= cross sectional area of nozzle (ft^2)
Θ	= sample time (min)
B_{ws}	= moisture content of the gas stream (%)
0.0945	= constant (^0R/in. Hg)
460	= conversion (^oF to ^oR)
13.6	= conversion factor (in. H_2O/in Hg)
100	= conversion factor

Acetone Wash Blank-Particulate

$$W_a = \frac{(m_{ab})(v_{aw})}{v_{awb}}$$

$$W_a = \frac{(0.0002)(190)}{200}$$

$$W_a = 0.0002g$$

where:

W_a	= particulate mass in acetone wash, blank corrected (g)
m_{ab}	= mass collected, acetone wash blank (g)
v_{aw}	= volume of acetone wash (ml)
v_{awb}	= volume of acetone wash blank (ml)

Mass in Front Half, Acetone Blank Corrected

$$m_f = m_{fil} + (m_a - W_a)$$

$$m_f = 0.0046 + (0.0250 - 0.0002)$$

$$m_f = 0.0295g$$

where:

m_f	= mass in front half filter, and acetone wash, blank corrected (g)
m_{fil}	= mass in front half filter (g)
m_a	= mass in acetone wash (g)
W_a	= particulate mass in acetone wash blank **(g)**

Total Particulate Catch

$$M_n = m_f + m_b$$

$$M_n = 0.0295 + 0.0093$$

$$M_n = 0.0387g$$

where:

M_n	= total mass catch (g)
m_f	= mass in front half filter, and acetone wash, blank corrected (g)
m_b	= mass in back half organic fraction, and inorganic fraction, blank corrected (g)

Total Particulate Concentration, grains/dscf

$$C_{gr/dscf} = \frac{(M_n)(15.43)}{V_{m,std}}$$

$$C_{gr/dscf} = \frac{(0.0387)(15.43)}{62.87}$$

$$C_{gr/dscf} = 0.00950 grains/dscf$$

where:

$C_{gr/dscf}$	= particulate concentration (grains/dscf)
M_n	= total particulate catch (g)
$V_{m(std)}$	= volume of gas collected at standard conditions (scf)
15.43	= conversion factor (grains/g)

Calculated F_d Factor, dscf/mmBtu

$$Fd = K((K_{hd} \times H) + (K_c \times C) + (K_s \times S) + (K_n \times N) - (K_o \times O_2)) / GCV_w$$

$$Fd = 10^6((3.64 \times 4.53) + (1.53 \times 75.53) + (0.57 \times 4.11) + (0.14 \times 1.43) - (0.46 \times 5.15)) / 13{,}300$$

$$Fd = 9{,}942$$

where:

F_d	= calculated fuel factor (dscf/mmBtu)
K	= conversion factor (Btu/million Btu)
K_{hd}	= constant (scf/lb)
H	= weight percent hydrogen in coal (%)
K_c	= constant (scf/lb)
C	= weight percent carbon in coal (%)
K_s	= constant (scf/lb)
S	= weight percent sulfur in coal (%)
K_n	= constant (scf/lb)
N	= weight percent nitrogen in coal (%)
K_o	= constant (scf/lb)
O_2	= weight percent oxygen in coal (%)
GCV_w	= gross calorific value of fuel, wet (Btu/lb)

Total Particulate Emission Rate, lb/mmBtu [4]

$$E_{PM} = \frac{(M_n)(F_d)(20.9)}{(V_{m(std)})(453.6)(20.9 - O_2)}$$

$$E_{PM} = \frac{(0.0387)(9{,}942)(20.9)}{(62.87)(453.6)(20.9 - 9.0)}$$

$$E_{PM} = 0.0237 lb / mmBtu$$

where:

E_{PM}	= total particulate matter emission rate, (lb/mmBtu)
M_n	= total particulate catch (g)
F_d	=fuel factor (dcsf/mmBtu)
20.9	= oxygen content of ambient air (%)
$V_{m(std)}$	= volume of gas collected at standard temperature and pressure (scf)
453.6	= conversion factor (g/lb)
$\%O_2$	= oxygen content of the dry gas stream (%)

Total Particulate Emission Rate, lb/hr

$$E_{lb/hr} = \frac{(M_n)(Q_{dstd})(60)}{(V_{m,std})(453.6)}$$

$$E_{lb/hr} = \frac{(0.0387)(926{,}805)(60)}{(62.87)(453.6)}$$

$$E_{lb/hr} = 75.5 lb / hr$$

where:

$E_{lb/hr}$	= particulate emission rate (lb/hr)
M_n	= total particulate catch (g)
$V_{m(std)}$	= volume of gas collected at standard conditions (scf)
Q_{dstd}	= volumetric flow rate of the dry gas stream at standard conditions (dscfm)
60	= conversion factor (min/hr)
453.6	= conversion factor (g/lb)

[4] All particulate emission rates are calculated in a similar manner.

Sample Calculations, Method 26A, Run 1

Concentration of Hydrogen Chloride in Flue Gas (lb/dscf)[5]

$$C_{HCL} = \frac{(M_{HCl})}{(V_{m(std)})(10^3)(453.6)}$$

$$C_{HCl} = \frac{(0.335)}{(89.03)(10^3)(453.6)}$$

$$C_{HCl} = 8.30 \times 10^{-9}\ lb/dscf$$

where:

C_{HCl}	= concentration of hydrogen chloride in flue gas (lb/dscf)
M_{HCl}	= mass of hydrogen chloride collected in sample (mg)
$V_{m(std)}$	= volume of gas collected at standard temperature and pressure (scf)
10^3	= conversion factor (mg/g)
453.6	= conversion factor (g/lb)

Concentration of Hydrogen Chloride in Flue Gas (ppmdv)[5]

$$C_{ppmv} = \frac{(M_{HCl})(385.3)(10^6)}{(MW_{HCl})(V_{m(std)})(10^3)(453.6)}$$

$$C_{ppmv} = \frac{(0.335)(385.3)(10^6)}{(36.458)(89.03)(10^3)(453.6)}$$

$$C_{ppmv} = 0.0877\ ppmdv$$

where:

C_{ppmv}	= concentration of hydrogen chloride in flue gas (ppmv)
M_{HCl}	= mass of hydrogen chloride collected in sample (mg)
385.3	= = volume occupied by one pound gas at standard conditions (dscf/lbmole)
10^6	= conversion factor (fraction to ppm)
MW_{HCl}	= molecular weight of hydrogen chloride (lb/lb-mole)
$V_{m(std)}$	= volume of gas collected at standard temperature and pressure (scf)
10^3	= conversion factor (mg/g)
453.6	= conversion factor (g/lb)

[5] The HF concentrations were calculated in a similar manner.

Hydrogen Chloride Emission Rate, lb/mmBtu[6]

$$E_{HCl} = \frac{(C_{HCl})(F_d)(20.9)}{(20.9 - O_2)}$$

$$E_{HCl} = \frac{(8.30 \times 10^{-9})(9{,}942)(20.9)}{(20.9 - 9.00)}$$

$$E_{HCl} = 1.45 \times 10^{-4}\, lb / mmBtu$$

where:

E_{HCl}	= hydrogen chloride emission rate, (lb/mmBtu)
C_{HCl}	= hydrogen chloride concentration, (lb/dscf)
F_d	=fuel factor (dcsf/mmBtu)
20.9	= oxygen content of ambient air (%)
$\%O_2$	= oxygen content of the dry gas stream (%)

Hydrogen Chloride Emission Rate[6]

$$E_{HCl} = C_{HCl} \times Q_{dstd} \times 60$$

$$E_{HCl} = 8.30 \times 10^{-9} \times 949{,}661 \times 60$$

$$E_{HCl} = 0.473 lb / hr$$

where:

E_{HCl}	= hydrogen chloride emission rate, (lb/hr)
C_{ppmdv}	= hydrogen chloride concentration, dry basis, (ppmdv)
Q_{dstd}	= volumetric flow rate of the dry gas stream at standard conditions (dscfm)
MW	= molecular weight of hydrogen chloride (lb/lbmole)
60	= conversion factor (min/hr)
385.3	= volume occupied by one pound gas at standard conditions (dscf/lbmole)
10^6	= conversion factor (fraction to ppm)

[6] The HF emission rates were calculated in a similar manner.

Sample Calculations, Method 29, Run 1

Concentration of Lead in Flue Gas, ug/dscm[7]

$$C_{ug/dscm} = \frac{(M_C)}{(V_{m(std)})}(35.31)$$

$$C_{ug/dscm} = \frac{(2.51)}{(66.89)}(35.31)$$

$$C_{ug/dscm} = 1.32 ug/dscm$$

where:

$C_{ug/dscm}$	= concentration of lead in flue gas (ug/dscm)
M_C	= mass of lead in sample (ug)
$V_{m(std)}$	= volume of gas collected at standard temperature and pressure(scf)
35.31	= conversion factor (ft^3/m^3)

Emission Rate of Lead in Flue Gas, lb/mmBtu[8]

$$E = \frac{(C_{ug/dscm})(F_d)(20.9)}{(35.31)(20.9 - \%O_2)(453.6)(10^6)}$$

$$E = \frac{(1.32)(9{,}942)(20.9)}{(35.31)(20.9 - 9.00)(453.6)(10^6)}$$

$$E = 1.44 \times 10^{-6} mg/dscm@7\%O_2$$

where:

E	= lead emission rate (lb/mmBtu)
$C_{ug/dscm}$	= lead concentration (ug/dscm)
F_d	=fuel factor (dcsf/mmBtu)
35.31	=conversion factor (ft^3/m^3)
20.9	= oxygen content of ambient air (%)
$\%O_2$	= oxygen content of the dry gas stream (%)
453.6	= conversion factor (g/lb)
10^6	= conversion factor (ug/g)

[7] The concentrations of all MHs and mercury are calculated in a similar manner.

[8] The emission rates of all MHs and mercury are calculated in a similar manner.

Lead Emission Rate, lb/hr

$$E_{lb/hr} = \frac{(C_{ug/dscm})(Q_{dstd})(60)}{(35.31)(10^6)(453.6)}$$

$$E_{lb/hr} = \frac{(1.32)(940{,}465)(60)}{(35.31)(10^6)(453.6)}$$

$$E_{lb/hr} = 0.00467 lb/hr$$

where:

$E_{lb/hr}$	= lead emission rate (lb/hr)
$C_{ug/dscm}$	= lead concentration (ug/dscm)
Q_{dstd}	= volumetric flow rate of dry gas stream at standard conditions (dscfm)
10^6	= conversion factor (ug/g)
35.31	= conversion factor (ft^3/m^3)
60.0	= conversion factor (min/hr)
453.6	= conversion factor (g/lb)

Parameters

Big Rivers Electric | **Method 5B/202 Parameters** | **Project No. 3648**

Wilson Stack

EPA Methods 1-5B/202 Parameters	Run 1	Run 2	Run 3
Date	9/28/2011	9/29/2011	9/29/2011
Start Time	21:54	1:13	4:04
Stop Time	23:43	3:24	5:54
Dimensions of Sample Location, D_s (in)	408	408	408
Velocity Pressure, $\Delta P^{1/2}$ avg (in. $H_2O^{1/2}$)	0.360	0.363	0.367
Barometric Pressure, P_b (Inches Hg)	29.36	29.36	29.36
Static Pressure, P_s (Inches H_2O)	-0.2	-0.2	-0.2
Pitot Coefficient, C_p	0.84	0.84	0.84
Sample Location Temperature, T_s (°F)	124	122	122
Volume Metered, V_m (ft^3)	65.94	66.01	67.26
Meter Temperature, T_m (°F)	88.5	87.2	92.8
Average Sample Pressure, ΔH_{avg} (in. H_2O)	1.78	1.78	1.82
Gas Meter Correction Factor, Y_d	1.0052	1.0052	1.0052
Carbon Dioxide (% dry)	10.2	10.8	10.8
Oxygen (% dry)	9.0	7.9	8.0
Weight of Water Collected, V_{wc} (g)	141.0	155.0	164.0
Silica Gel Net Weight, V_{wsg} (g)	20.0	20.0	20.0
Diameter of Nozzle, D_n (in)	0.355	0.355	0.355
Run Time, θ (minutes)	90	90	90
EPA METHODS 1-5B/202 RESULTS			
Area of Sample Location, A_s (ft^2)	908	908	908
Stack Pressure Absolute (inches Hg)	29.35	29.35	29.35
Volume Metered Standard, $V_{m(std)}$ (ft^3)	62.87	63.08	63.63
Volume of Water Vapor, $V_{w(std)}$ (ft^3)	7.59	8.25	8.68
Percent Moisture, B_{ws} (%)	10.8	11.6	12.0
Moisture Saturation Point, B_{wsat} (%)	13.0	12.5	12.5
Dry Molecular Weight, M_d (lbs/lb mole)	29.99	30.05	30.05
Wet Molecular Weight, M_s (lbs/lb mole)	28.70	28.65	28.60
Gas Velocity, V_s (ft/sec)	21.5	21.7	21.9
Average Flowrate, Q_a (acfm)	1,171,044	1,182,162	1,195,132
Standard Flowrate, Q_{std} (scfm)	1,038,296	1,050,704	1,062,688
Dry Standard Flowrate, Q_{dstd} (dscfm)	926,805	929,537	935,550
Area of Nozzle, A_n (ft^2)	0.000687	0.000687	0.000687
Isokinetics (%)	99.6	99.7	99.9
Front-Half Particulate (g)	0.0295	0.0433	0.0417
Concentration (grains/dscf)	0.00723	0.0106	0.0101
Emission Rate, Fd (lb/mmBtu)	0.0180	0.0240	0.0231
Emission Rate (lb/hr)	57.4	84.4	81.1
Condensible Particulate (g)	0.0093	0.0100	0.0091
Concentration (grains/dscf)	0.00227	0.00245	0.00222
Emission Rate, Fd (lb/mmBtu)	0.00566	0.00554	0.00506
Emission Rate (lb/hr)	18.0	19.5	17.8

Big Rivers Electric | **Method 26A Parameters** | **Project No. 3648**

Wilson Stack

EPA Methods 1-4 Parameters	Run 1	Run 2	Run 3
Date	9/28-9/29/2011	9/29/2011	9/29/2011
Start Time	21:54	1:41	4:23
Stop Time	0:43	3:53	6:31
Dimensions of Sample Location, D_s (in)	408	408	408
Velocity Pressure, $\Delta P^{1/2}$ avg (in. $H_2O^{1/2}$)	0.376	0.357	0.349
Barometric Pressure, P_b (Inches Hg)	29.36	29.36	29.36
Static Pressure, P_s (Inches H_2O)	-0.2	-0.2	-0.2
Pitot Coefficient, C_p	0.84	0.84	0.84
Sample Location Temperature, T_s (°F)	125	125	125
Volume Metered, V_m (ft^3)	92.29	89.56	87.02
Meter Temperature, T_m (°F)	85.2	89.0	88.5
Average Sample Pressure, ΔH_{avg} (in. H_2O)	2.16	1.85	1.75
Gas Meter Correction Factor, Y_d	1.0101	1.0101	1.0101
Carbon Dioxide (% dry)	10.2	10.8	10.8
Oxygen (% dry)	9.0	7.9	8.0
Weight of Water Collected, V_{wc} (g)	256.0	182.0	223.0
Silica Gel Net Weight, V_{wsg} (g)	24.0	29.0	23.0
Diameter of Nozzle, D_n (in)	0.365	0.365	0.365
Run Time, θ (minutes)	120	120	120
EPA METHODS 1-4 RESULTS			
Area of Sample Location, A_s (ft^2)	908	908	908
Stack Pressure Absolute (inches Hg)	29.35	29.35	29.35
Volume Metered Standard, $V_{m(std)}$ (ft^3)	89.03	85.73	83.36
Volume of Water Vapor, $V_{w(std)}$ (ft^3)	13.20	9.95	11.60
Percent Moisture, B_{ws} (%)	12.9	10.4	12.2
Moisture Saturation Point, B_{wsat} (%)	13.4	13.6	13.5
Dry Molecular Weight, M_d (lbs/lb mole)	29.99	30.05	30.05
Wet Molecular Weight, M_s (lbs/lb mole)	28.44	28.79	28.58
Gas Velocity, V_s (ft/sec)	22.6	21.4	21.0
Average Flowrate, Q_a (acfm)	1,231,688	1,163,132	1,141,685
Standard Flowrate, Q_{std} (scfm)	1,090,043	1,028,785	1,010,247
Dry Standard Flowrate, Q_{dstd} (dscfm)	949,661	922,181	887,205
Area of Nozzle, A_n (ft^2)	0.000727	0.000727	0.000727
Isokinetics (%)	97.7	96.9	97.9
Hydrogen Chloride (mg)	0.335	0.231	0.249
Concentration (lb/dscf)	8.30E-09	5.94E-09	6.59E-09
Concentration (ppmdv)	0.0877	0.0628	0.0696
Emission Rate (lb/mmBtu)	1.45E-04	9.42E-05	1.05E-04
Emission Rate (lb/hr)	0.473	0.329	0.351
Hydrogen Fluoride (mg)	0.155	0.137	0.143
Concentration (lb/dscf)	3.84E-09	3.52E-09	3.78E-09
Concentration (ppmdv)	0.0739	0.0679	0.0728
Emission Rate (lb/mmBtu)	6.70E-05	5.58E-05	6.04E-05
Emission Rate (lb/hr)	0.219	0.195	0.201

Big Rivers Electric | **Method 29 Parameters Wilson Stack** | **Project No. 3648**

EPA Methods 1-4 Parameters	Run 1	Run 2	Run 3
Date	9/28-9/29/2011	9/29/2011	9/29/2011
Start Time	21:54	1:41	4:19
Stop Time	0:31	3:53	6:31
Dimensions of Sample Location, D_s (in)	408	408	408
Velocity Pressure, $\Delta P^{1/2}$ avg (in. $H_2O^{1/2}$)	0.374	0.369	0.374
Barometric Pressure, P_b (Inches Hg)	29.36	29.36	29.36
Static Pressure, P_s (Inches H_2O)	-0.2	-0.2	-0.2
Pitot Coefficient, C_p	0.84	0.84	0.84
Sample Location Temperature, T_s (^oF)	125	124	125
Volume Metered, V_m (ft^3)	71.37	69.90	70.59
Meter Temperature, T_m (^oF)	92.8	91.8	92.3
Average Sample Pressure, ΔH_{avg} (in. H_2O)	1.12	1.07	1.10
Gas Meter Correction Factor, Y_d	0.9976	0.9976	0.9976
Carbon Dioxide (% dry)	10.2	10.8	10.8
Oxygen (% dry)	9.0	7.9	8.0
Weight of Water Collected, V_{wc} (g)	203.0	182.0	187.0
Silica Gel Net Weight, V_{wsg} (g)	14.0	14.0	8.0
Diameter of Nozzle, D_n (in)	0.312	0.312	0.312
Run Time, θ (minutes)	120	120	120

EPA METHODS 1-4 RESULTS			
Area of Sample Location, A_s (ft^2)	908	908	908
Stack Pressure Absolute (inches Hg)	29.35	29.35	29.35
Volume Metered Standard, $V_{m(std)}$ (ft^3)	66.89	65.62	66.21
Volume of Water Vapor, $V_{w(std)}$ (ft^3)	10.23	9.24	9.19
Percent Moisture, B_{ws} (%)	13.3	12.3	12.2
Moisture Saturation Point, B_{wsat} (%)	13.3	13.2	13.3
Dry Molecular Weight, M_d (lbs/lb mole)	29.99	30.05	30.05
Wet Molecular Weight, M_s (lbs/lb mole)	28.40	28.56	28.58
Gas Velocity, V_s (ft/sec)	22.5	22.1	22.4
Average Flowrate, Q_a (acfm)	1,223,850	1,204,343	1,222,926
Standard Flowrate, Q_{std} (scfm)	1,083,879	1,066,907	1,082,906
Dry Standard Flowrate, Q_{dstd} (dscfm)	940,465	935,578	951,251
Area of Nozzle, A_n (ft^2)	0.000531	0.000531	0.000531
Isokinetics (%)	101.4	100.0	99.3

Big Rivers Electric | **Method 29 Parameters Wilson Stack** | **Project No. 3648**

Metals Lab Data Entry (µg)	Blank	Run 1	Run 2	Run 3
Front Half (ug)		0.262	1.42	0.202
Back Half (ug)		0.270	0.138	0.103
Antimony - Sb		0.532	1.55	0.305
Concentration (ug/dscm)		0.281	0.835	0.163
Emission Rate (lb/mmBtu)		3.06E-07	8.27E-07	1.62E-07
Emission Rate (lb/hr)		0.000989	0.00293	0.000580
Front Half (ug)		2.43	2.13	2.40
Back Half (ug)		1.38	0.592	0.305
Arsenic - As		3.81	2.72	2.71
Concentration (ug/dscm)		2.01	1.46	1.44
Emission Rate (lb/mmBtu)		2.19E-06	1.45E-06	1.44E-06
Emission Rate (lb/hr)		0.00709	0.00512	0.00514
Front Half (ug)		<0.025	<0.025	<0.025
Back Half (ug)		<0.025	<0.025	<0.025
Berylium - Be		<0.0500	<0.0500	<0.0500
Concentration (ug/dscm)		<0.0264	<0.0269	<0.0267
Emission Rate (lb/mmBtu)		<2.88E-08	<2.66E-08	<2.66E-08
Emission Rate (lb/hr)		<0.0000930	<0.0000943	<0.0000950
Front Half (ug)		0.228	0.112	<0.1
Back Half (ug)		<0.1	2.26	<0.1
Cadmium - Cd		0.328	2.37	<0.200
Concentration (ug/dscm)		0.173	1.28	<0.107
Emission Rate (lb/mmBtu)		1.89E-07	1.26E-06	<1.06E-07
Emission Rate (lb/hr)		0.000610	0.00447	<0.000380
Front Half (ug)		32.9	8.72	4.99
Back Half (ug)		2.22	1.79	0.943
Chromium - Cr		35.1	10.5	5.93
Concentration (ug/dscm)		18.5	5.65	3.16
Emission Rate (lb/mmBtu)		2.02E-05	5.59E-06	3.15E-06
Emission Rate (lb/hr)		0.0653	0.0198	0.0113
Front Half (ug)		0.692	0.320	0.190
Back Half (ug)		0.597	0.398	<0.2
Cobalt - Co		1.29	0.717	0.383
Concentration (ug/dscm)		0.680	0.386	0.204
Emission Rate (lb/mmBtu)		7.42E-07	3.82E-07	2.04E-07
Emission Rate (lb/hr)		0.00240	0.00135	0.000728

Big Rivers Electric | **Method 29 Parameters Wilson Stack** | **Project No. 3648**

Metals Lab Data Entry (µg)	Blank	Run 1	Run 2	Run 3
Front Half (ug)		1.36	0.927	0.825
Back Half (ug)		1.15	5.68	0.552
Lead - Pb		2.51	6.61	1.38
Concentration (ug/dscm)		1.32	3.56	0.734
Emission Rate (lb/mmBtu)		1.44E-06	3.52E-06	7.32E-07
Emission Rate (lb/hr)		0.00467	0.0125	0.00262
Front Half (ug)		10.3	4.21	2.81
Back Half (ug)		2.62	4.32	2.15
Manganese - Mn		12.9	8.53	4.96
Concentration (ug/dscm)		6.82	4.59	2.65
Emission Rate (lb/mmBtu)		7.43E-06	4.54E-06	2.64E-06
Emission Rate (lb/hr)		0.0240	0.0161	0.00943
Front Half (ug)		123	69.5	25.4
Back Half (ug)		3.61	2.44	1.75
Nickel - Ni		127	71.9	27.2
Concentration (ug/dscm)		66.8	38.7	14.5
Emission Rate (lb/mmBtu)		7.28E-05	3.83E-05	1.44E-05
Emission Rate (lb/hr)		0.235	0.136	0.0516
Front Half (ug)		38.5	30.7	44.3
Back Half (ug)		37.7	16.6	9.00
Selenium - Se		76.2	47.3	53.3
Concentration (ug/dscm)		40.2	25.4	28.4
Emission Rate (lb/mmBtu)		4.38E-05	2.52E-05	2.83E-05
Emission Rate (lb/hr)		0.142	0.0891	0.101

Big Rivers Electric | **Method 30B Data Entry** | **Project No. 3648**

Wilson Stack

Parameters	**Run 1**	**Run 2**	**Run 3**
Date	9/28-9/29/2011	9/29/11	9/29/11
Start Time	22:59	2:18	5:09
Stop Time	0:29	3:48	6:39
Barometric Pressure, P_b (Inches Hg)	29.36	29.36	29.36
Un-Spiked			
Volume Metered, V_m (L)	27.39	27.69	27.29
Meter Temperature, T_m (°F)	99.4	97.6	98.4
Gas Meter Correction Factor, Y_d	0.9994	0.9994	0.9994
Run Time, θ (minutes)	90	90	90
Spiked/Paired			
Volume Metered, V_m (L)	27.56	27.17	27.28
Meter Temperature, T_m (°F)	99.4	97.6	98.4
Gas Meter Correction Factor, Y_d	1.0017	1.0017	1.0017
Run Time, θ (minutes)	90	90	90
Oxidized Mercury Collected Un-Spiked, m (ng)	5.17	7.45	4.41
Elemental Mercury Collected Un-Spiked, m (ng)	21.7	27.6	23.2
Total Mercury Collected Un-Spiked, m (ng)	26.9	35.0	27.7
Total Mercury Collected Spiked/Paired, m (ng)	44.4	50.0	52.3
Mass of Mercury Spiked, S (ng)	20.0	20.0	20.0
RESULTS			
Volume Metered Un-Spiked, $V_{m(std)}$ (L)	25.34	25.71	25.29
Oxidized Mercury Concentration Un-spiked Train, (µg/dscm)	0.204	0.290	0.174
Elemental Mercury Concentration Un-spiked Train, (µg/dscm)	0.856	1.07	0.917
Total Mercury Concentration Un-spiked Train, (µg/dscm)	1.06	1.36	1.10
Volume Metered Spiked/Paired, $V_{m(std)}$ (L)	25.56	25.28	25.34
Concentration Spiked/Paired Train, (µg/dscm)	1.74	1.98	2.06
Concentration Spiked Train Less Spike, (µg/dscm)	0.955	1.19	1.27
Concentration Recovered Spike, (µg/dscm)	0.676	0.616	0.969
Recovery, R (%)	86.4	77.9	123
Relative Deviation, RD (%)	5.30	6.86	7.57
Difference (µg/dscm)	0.107	0.175	0.179
Average Result (ug/dscm)	1.01	1.27	1.18
Average Recovery (%)	95.7		

Fd Parameters	Sample 1	Sample 2	Sample 3
Hydrogen (%)	4.53	4.66	4.47
Carbon (%)	75.53	75.52	76.28
Sulfur (%)	4.11	4.10	4.05
Nitrogen (%)	1.43	1.53	1.53
Oxygen (%)	5.15	5.65	5.85
Heating Value (Btu/lb)	13,300	13,468	13,475

Result	Sample 1	Sample 2	Sample 3
Fd (dscf/mmBtu)	9,942	9,835	9,856

Field Data Printouts

Project Number	3648
Client	Big Rivers
Plant	Wilson
Location	Stack
Date	9/28/2011
Meter ID	M14
Y_d	1.0052
Pitot C_p	0.84

Nozzle Diameter (in)	0.355
Filter ID	12223
Train Type	Impinger
Train ID	IBA
P_b (Inches Hg)	29.36
P_g (Inches H_2O)	-0.2
Start Time	21:54
Stop Time	23:43

Place an "x" in the appropriate Box

Circular?	x
Rectangular?	
Diameter	408
Length	
Width	

Moisture	Final Wt (g)	Tare Wt (g)	Net Wt (g)
Impinger 1	714.0	574.0	140.0
Impinger 2	536.0	533.0	3.0
Impinger 3	730.0	732.0	-2.0
Silica Gel	881.0	861.0	20.0
Weight of Water Collected, V_{wc} (g)			141.0
Silica Gel Net Weight, V_{sg} (g)			20.0

Orsat	$\%CO_2$	$\%CO_2+\%O_2$	$\%O_2$
Trial 1	10.2	19.2	9.0
Trial 2	10.2	19.2	9.0
Trial 3	10.2	19.2	9.0
Average	10.2	NA	9.0

Run 1

Traverse Point	Min/Pt 7.5 Elapsed Time	Velocity Pressure ΔP (in H_2O)	Orifice Setting ΔH (in H_2O)	Gas Sample Volume Initial (ft^3) 335.51	Stack Temp (°F)	DGM Inlet (°F)	DGM Outlet (°F)	Square Root ΔP	Stack Gas Velocity V_s (ft/sec)	Volume Metered $V_m(std)$ (ft^3)	Isokinetics (%)
2-1	7.5	0.14	2.30	340.24	123	83	83	0.374	22.4	4.561	83.3
2-2	15.0	0.14	1.90	347.30	130	84	83	0.374	22.5	6.795	124.8
2-3	22.5	0.10	1.30	352.04	128	86	83	0.316	19.0	4.547	98.8
1-1	30.0	0.16	2.10	358.14	122	88	84	0.400	25.9	5.947	99.8
1-2	37.5	0.14	1.90	363.83	123	92	86	0.374	22.8	5.421	98.0
1-3	45.0	0.11	1.50	368.85	123	94	87	0.332	19.8	4.765	98.2
4-1	52.5	0.15	2.00	375.56	122	91	87	0.387	23.1	6.395	112.7
4-2	60.0	0.14	1.90	380.41	125	95	88	0.378	22.8	4.600	84.1
4-3	67.5	0.10	1.30	385.13	123	96	88	0.316	18.9	4.460	96.5
3-1	75.0	0.14	1.90	390.88	123	91	87	0.378	22.8	5.479	100.0
3-2	82.5	0.13	1.70	395.31	122	95	88	0.361	21.6	4.200	79.5
3-3	90.0	0.11	1.50	401.45	122	96	88	0.332	19.9	5.913	119.6

Totals and Averages

90		1.78	65.94	124	88.5	0.360	21.5	62.87	99.6

Project Number	3648
Client	Big Rivers
Plant	Wilson
Location	Stack
Date	9/29/2011
Meter ID	M14
Y_d	1.0052
Pitot C_p	0.84

Nozzle Diameter (in)	0.355
Filter ID	12222
Train Type	Impinger
Train ID	IB4
P_b (Inches Hg)	29.36
P_g (Inches H_2O)	-0.2
Start Time	1:13
Stop Time	3:24

Place an "x" in the appropriate Box

Circular?	x
Rectangular?	
Diameter	408
Length	
Width	

Moisture	Final Wt (g)	Tare Wt (g)	Net Wt (g)
Impinger 1	708.0	557.0	151.0
Impinger 2	478.0	475.0	3.0
Impinger 3	737.0	736.0	1.0
Silica Gel	905.0	885.0	20.0
Weight of Water Collected V_{wc} (g)			155.0
Silica Gel Net Weight V_{sg} (g)			20.0

Orsat	$\%CO_2$	$\%CO_2+\%O_2$	$\%O_2$
Trial 1	10.8	18.6	7.8
Trial 2	10.8	18.8	8.0
Trial 3	10.8	18.8	8.0
Average	10.8	NA	7.9

Run 2

Traverse Point	Min/Pt 7.5 / Elapsed Time	Velocity Pressure ΔP (in H_2O)	Orifice Setting ΔH (in H_2O)	Gas Sample Volume Initial (ft^3) 401.87	Stack Temp (°F)	DGM Inlet (°F)	DGM Outlet (°F)	Square Root ΔP	Stack Gas Velocity Vs (ft/sec)	Volume Metered Vmstd (ft^3)	Isokinetics (%)
3-1	7.5	0.15	2.00	408.21	122	83	83	0.387	23.1	5.109	108.5
3-2	15.0	0.14	1.90	413.90	124	84	83	0.374	22.4	5.476	100.8
3-3	22.5	0.10	1.30	418.83	123	85	83	0.316	18.9	4.753	103.1
4-1	30.0	0.15	2.00	424.43	122	86	83	0.387	23.1	5.371	95.4
4-2	37.5	0.14	1.90	430.17	123	90	85	0.374	22.4	5.484	100.9
4-3	45.0	0.11	1.50	435.18	122	90	85	0.332	19.8	4.792	99.2
1-1	52.5	0.15	2.00	441.00	122	89	85	0.387	23.1	5.567	98.9
1-2	60.0	0.14	1.90	446.74	123	91	86	0.374	22.4	5.474	100.8
1-3	67.5	0.11	1.50	451.87	122	92	87	0.332	19.9	4.878	101.2
2-1	75.0	0.15	2.00	456.89	122	90	88	0.387	23.1	4.784	85.0
2-2	82.5	0.14	1.90	462.68	122	92	88	0.374	22.4	5.507	101.3
2-3	90.0	0.11	1.50	467.88	122	94	89	0.332	19.9	4.927	102.2

Totals and Averages

90	1.78	66.01	122	87.2	0.363	21.7	63.08	99.7

Project Number	3648
Client	Big Rivers
Plant	Wilson
Location	Stack
Date	9/29/2011
Meter ID	M14
Y_d	1.0052
Pitot C_p	0.84

Nozzle Diameter (in)	0.355
Filter ID	12224
Train Type	Impinger
Train ID	IBA
P_b (Inches Hg)	29.36
P_g (Inches H_2O)	-0.2
Start Time	4:04
Stop Time	5:54

Place an "x" in the appropriate Box

Circular?	x
Rectangular?	
Diameter	408
Length	
Width	

Moisture	Final Wt (g)	Tare Wt (g)	Net Wt (g)
Impinger 1	738.0	575.0	163.0
Impinger 2	534.0	535.0	-1.0
Impinger 3	732.0	730.0	2.0
Silica Gel	901.0	881.0	20.0
Weight of Water Collected, V_{wc} (g)			184.0
Silica Gel Net Weight, V_{wsg} (g)			20.0

Orsat	%CO_2	%CO_2+%O_2	%O_2
Trial 1	10.8	18.8	8.0
Trial 2	10.8	18.8	8.0
Trial 3	10.8	18.8	8.0
Average	10.8	NA	8.0

Run 3

Traverse Point	Min/Pt 7.5 Elapsed Time	Velocity Pressure ΔP (in H_2O)	Orifice Setting ΔH (in H_2O)	Gas Sample Volume Initial (ft^3) 469.14	Stack Temp (°F)	DGM Inlet (°F)	DGM Outlet (°F)	Square Root Δ P	Stack Gas Velocity V_s (ft/sec)	Volume Metered Vmstd (ft^3)	Isokinetics (%)
2-1	7.5	0.15	2.00	474.97	122	89	88	0.387	23.2	5.561	99.2
2-2	15.0	0.14	1.90	480.76	122	92	89	0.374	22.4	5.502	101.6
2-3	22.5	0.11	1.50	485.69	122	96	89	0.332	19.8	4.663	97.1
1-1	30.0	0.15	2.00	491.55	122	97	89	0.387	23.2	5.554	98.9
1-2	37.5	0.14	1.90	497.34	122	98	90	0.374	22.4	5.467	100.9
1-3	45.0	0.12	1.60	502.66	122	99	91	0.346	20.7	5.010	99.9
4-1	52.5	0.15	2.00	508.51	122	95	90	0.387	23.2	5.540	98.8
4-2	60.0	0.14	1.90	514.37	122	98	91	0.374	22.4	5.528	102.1
4-3	67.5	0.12	1.60	519.65	122	98	91	0.346	20.7	4.977	99.3
3-1	75.0	0.15	2.00	525.50	123	94	89	0.387	23.2	5.550	99.1
3-2	82.5	0.14	1.90	531.27	123	96	90	0.374	22.4	5.458	100.9
3-3	90.0	0.11	1.50	536.40	122	98	91	0.332	19.8	4.834	100.7

Totals and Averages

90	1.82	67.26	122	92.8	0.367	21.9	63.63	99.9

Project Number	3648
Client	Big Rivers
Plant	Wilson
Location	Stack
Date	9/28-9/29/2011
Meter ID	M19
Y_d	1.0101
Pitot C_p	0.84

Nozzle Diameter (in)	0.365
Filter ID	NA
Train Type	Impinger
Train ID	IB15
P_b (Inches Hg)	29.36
P_g (Inches H_2O)	-0.2
Start Time	21:54
Stop Time	0:43

Place an "x" in the appropriate Box

Circular?	x
Rectangular?	
Diameter	408
Length	
Width	

Moisture	Final Wt (g)	Tare Wt (g)	Net Wt (g)
Impinger 1	895.0	703.0	192.0
Impinger 2	764.0	715.0	49.0
Impinger 3	727.0	712.0	15.0
Silica Gel	822.0	798.0	24.0
Weight of Water Collected, V_{wc} (g)			256.0
Silica Gel Net Weight, V_{sg} (g)			24.0

Orsat	$\%CO_2$	$\%CO_2+\%O_2$	$\%O_2$
Trial 1	10.2	19.2	9.0
Trial 2	10.2	19.2	9.0
Trial 3	10.2	19.2	9.0
Average	10.2	NA	9.0

Run 1

Traverse Point	Min/Pt 10 Elapsed Time	Velocity Pressure ΔP (in H_2O)	Orifice Setting ΔH (in H_2O)	Gas Sample Volume Initial (ft^3) 774.98	Stack Temp (°F)	DGM Inlet (°F)	DGM Outlet (°F)	Square Root ΔP	Stack Gas Velocity Vs (ft/sec)	Volume Metered Vmstd (ft^3)	Isokinetics (%)
3-1	10	0.14	2.31	781.42	125	82	80	0.374	22.5	6.263	82.9
3-2	20	0.13	2.14	788.12	125	86	80	0.361	21.7	6.490	89.1
3-3	30	0.12	1.77	795.83	125	89	80	0.346	20.8	7.440	106.4
2-1	40	0.14	2.10	804.12	124	87	82	0.374	22.5	9.007	105.9
2-2	50	0.15	2.20	811.91	125	93	85	0.387	23.2	7.464	95.4
2-3	60	0.14	2.10	819.82	125	91	83	0.374	22.5	7.805	100.8
1-1	70	0.15	2.20	827.78	126	88	83	0.387	23.2	7.678	98.2
1-2	80	0.16	2.40	835.89	124	89	83	0.400	24.0	7.817	96.7
1-3	90	0.15	2.20	843.87	125	91	83	0.387	23.3	7.674	98.1
4-1	100	0.15	2.20	851.98	125	87	83	0.387	23.2	7.828	100.1
4-2	110	0.13	2.14	857.49	125	88	82	0.361	21.7	5.317	73.0
4-3	120	0.14	2.10	867.27	125	88	82	0.374	22.5	9.437	124.9

Totals and Averages

120		2.16	92.29	125	85.2	0.376	22.6	89.03	97.7

Project Number	3648
Client	Big Rivers
Plant	Wilson
Location	Stack
Date	9/29/2011
Meter ID	M19
Y_d	1.0101
Pitot C_p	0.84

Nozzle Diameter (in)	0.365
Filter ID	NA
Train Type	Impinger
Train ID	IB15
P_h (Inches Hg)	29.36
P_s (Inches H_2O)	-0.2
Start Time	1:41
Stop Time	3:53

Place an "x" in the appropriate Box

Circular?	x
Rectangular?	
Diameter	408
Length	
Width	

Moisture	Final Wt (g)	Tare Wt (g)	Net Wt (g)
Impinger 1	744.0	584.0	160.0
Impinger 2	748.0	730.0	18.0
Impinger 3	669.0	665.0	4.0
Silica Gel	913.0	884.0	29.0
Weight of Water Collected V_{wc} (g)			182.0
Silica Gel Net Weight, V_{wsg} (g)			29.0

Orsat	$\%CO_2$	$\%CO_2+\%O_2$	$\%O_2$
Trial 1	10.8	18.6	7.8
Trial 2	10.8	18.8	8.0
Trial 3	10.8	18.8	8.0
Average	10.8	NA	7.9

Run 2

Traverse Point	Min/Pt 10 Elapsed Time	Velocity Pressure ΔP (in H_2O)	Orifice Setting ΔH (in H_2O)	Gas Sample Volume Initial (ft³) 867.97	Stack Temp (°F)	DGM Inlet (°F)	DGM Outlet (°F)	Square Root ΔP	Stack Gas Velocity Vs (ft/sec)	Volume Metered Vmstd (ft³)	Isokinetics (%)
2-1	10	0.15	2.20	877.13	125	81	81	0.387	23.1	8.906	111.4
2-2	20	0.15	2.20	884.47	126	87	80	0.387	23.2	7.104	88.9
2-3	30	0.13	1.90	892.18	125	94	82	0.361	21.6	7.395	99.3
3-1	40	0.12	1.70	899.89	125	94	84	0.346	20.7	7.378	103.1
3-2	50	0.16	2.30	907.53	126	94	84	0.400	23.9	7.322	88.7
3-3	60	0.10	1.40	914.39	125	96	86	0.316	18.9	6.536	100.1
4-1	70	0.13	1.90	922.18	125	96	86	0.361	21.6	7.451	99.8
4-2	80	0.11	1.60	928.97	125	96	86	0.332	19.9	6.773	94.5
4-3	90	0.11	1.60	935.95	125	97	87	0.332	19.8	6.642	97.0
1-1	100	0.11	1.60	942.82	126	94	87	0.332	19.8	6.555	95.5
1-2	110	0.15	2.10	950.89	125	95	87	0.387	23.1	7.702	96.3
1-3	120	0.12	1.70	957.96	125	96	87	0.346	20.7	6.735	94.1
	Less Volume			0.43							
Totals and Averages											
	120		1.85	89.56	125		89.0	0.357	21.4	85.73	96.9

Project Number	3648
Client	Big Rivers
Plant	Wilson
Location	Stack
Date	9/29/2011
Meter ID	M19
Y_d	1.0101
Pitot C_p	0.84

Nozzle Diameter (in)	0.365
Filter ID	NA
Train Type	Impinger
Train ID	IB15
P_b (Inches Hg)	29.36
P_g (Inches H_2O)	-0.2
Start Time	4:23
Stop Time	6:31

Place an "x" in the appropriate Box

Circular?	x
Rectangular?	
Diameter	408
Length	
Width	

Moisture	Final Wt (g)	Tare Wt (g)	Net Wt (g)
Impinger 1	888.0	703.0	185.0
Impinger 2	743.0	718.0	25.0
Impinger 3	730.0	717.0	13.0
Silica Gel	845.0	822.0	23.0
Weight of Water Collected V_{lc} (g)			223.0
Silica Gel Net Weight V_{sg} (g)			23.0

Orsat	%CO_2	%CO_2+%O_2	%O_2
Trial 1	10.8	18.8	8.0
Trial 2	10.8	18.8	8.0
Trial 3	10.8	18.8	8.0
Average	10.8	NA	8.0

Run 3

Traverse Point	Min/Pt 10 Elapsed Time	Velocity Pressure ΔP (in H_2O)	Orifice Setting ΔH (in H_2O)	Gas Sample Volume Initial (ft³) 960.20	Stack Temp (°F)	DGM Inlet (°F)	DGM Outlet (°F)	Square Root ΔP	Stack Gas Velocity V_s (ft/sec)	Volume Metered V_{mstd} (ft^3)	Isokinetics (%)
4-1	10	0.12	1.70	967.14	124	86	85	0.346	20.8	6.884	94.9
4-2	20	0.12	1.70	974.26	125	90	84	0.346	20.8	6.838	97.2
4-3	30	0.12	1.70	971.33	125	93	85	0.346	20.8	-2.604	-36.9
1-1	40	0.11	1.60	988.45	125	95	86	0.332	19.9	16.334	242.5
1-2	50	0.15	2.10	996.57	125	96	86	0.387	23.2	7.750	98.5
1-3	60	0.14	2.00	1004.14	125	95	86	0.374	22.4	7.230	95.1
3-1	70	0.14	2.00	1011.81	125	94	85	0.374	22.4	7.339	96.6
3-2	80	0.12	1.70	1018.98	125	89	85	0.346	20.5	6.886	97.9
3-3	90	0.11	1.60	1026.01	126	91	85	0.332	19.9	6.756	100.1
2-1	100	0.10	1.40	1032.69	125	92	83	0.316	19.0	6.405	99.7
2-2	110	0.13	1.90	1040.21	125	92	85	0.361	21.6	7.206	98.4
2-3	120	0.11	1.60	1047.22	125	91	85	0.332	19.9	6.719	99.7

Totals and Averages

120		1.75	87.02	125	88.5	0.349	21.0	83.36	97.9

Project Number	3648
Client	Big Rivers
Plant	Wilson
Location	Stack
Date	9/28-9/29/2011
Meter ID	M28
Y_d	0.9976
Pitot C_p	0.84

Nozzle Diameter (in)	0.312
Filter ID	NA
Train Type	Impinger
Train ID	IB25
P_b (Inches Hg)	29.36
P_g (Inches H_2O)	-0.2
Start Time	21:54
Stop Time	0:31

Place an "x" in the appropriate Box

Circular	x
Rectangular	
Diameter	408
Length	
Width	

Moisture	Final Wt (g)	Tare Wt (g)	Net Wt (g)
Impinger 1	780.0	590.0	190.0
Impinger 2	744.0	734.0	10.0
Impinger 3	667.0	665.0	2.0
Impinger 4	554.0	553.0	1.0
Silica Gel	873.0	859.0	14.0
Weight of Water Collected, V_{wc} (g)			203.0
Silica Gel Net Weight V_{wsg} (g)			14.0

Orsat	$\%CO_2$	$\%CO+\%O_2$	$\%O_2$
Trial 1	10.2	19.2	9.0
Trial 2	10.2	19.2	9.0
Trial 3	10.2	19.2	9.0
Average	10.2	NA	9.0

Run 1

Traverse Point	Min/Pt: 10 Elapsed Time	Velocity Pressure ΔP (in H_2O)	Orifice Setting ΔH (in H_2O)	Gas Sample Volume Initial (ft^3) 25.60	Stack Temp (°F)	DGM Inlet (°F)	DGM Outlet (°F)	Square Root ΔP	Stack Gas Velocity Vs (ft/sec)	Volume Metered Vmstd (ft^3)	Isokinetics (%)
4-1	10	0.15	1.20	32.13	125	87	88	0.387	23.3	6.181	108.5
4-2	20	0.14	1.12	38.08	125	94	87	0.374	22.5	5.600	101.8
4-3	30	0.11	0.88	43.23	124	97	89	0.332	19.9	4.822	98.6
3-1	40	0.15	1.20	49.38	125	91	91	0.387	23.3	5.784	101.6
3-2	50	0.14	1.12	55.21	124	97	92	0.374	22.5	5.447	98.9
3-3	60	0.11	0.88	60.55	125	96	91	0.332	20.0	4.996	102.4
2-1	70	0.16	1.28	66.82	124	93	92	0.400	24.0	5.982	99.9
2-2	80	0.14	1.12	72.80	124	97	92	0.374	22.5	5.586	101.5
2-3	90	0.14	1.12	78.62	124	98	93	0.374	22.5	5.428	98.6
1-1	100	0.16	1.28	85.11	124	92	92	0.400	24.0	6.094	105.5
1-2	110	0.14	1.12	90.92	125	97	92	0.374	22.5	5.436	98.7
1-3	120	0.14	1.12	96.97	125	97	92	0.374	22.5	5.653	102.7

Totals and Averages

120		1.12	71.37	125	92.8	0.374	22.5	66.89	101.4

Project Number	3648
Client	Big Rivers
Plant	Wilson
Location	Stack
Date	9/29/2011
Meter ID	M28
Y_d	0.9976
Pitot C_p	0.84

Nozzle Diameter (in)	0.312
Filter ID	NA
Train Type	Impinger
Train ID	IB
P_s (Inches Hg)	29.36
P_g (Inches H_2O)	-0.2
Start Time	1:41
Stop Time	3:53

Place an "x" in the appropriate Box

Circular?	x
Rectangular?	
Diameter	408
Length	
Width	

Moisture	Final Wt (g)	Tare Wt (g)	Net Wt (g)
Impinger 1	800.0	644.0	156.0
Impinger 2	654.0	641.0	13.0
Impinger 3	622.0	612.0	10.0
Impinger 4	553.0	550.0	3.0
Silica Gel	905.0	891.0	14.0
Weight of Water Collected, V_{lc} (g)			182.0
Silica Gel Net Weight, V_{sg} (g)			14.0

Orsat	$\%CO_2$	$\%CO_2+\%O_2$	$\%O_2$
Trial 1	10.8	18.6	7.8
Trial 2	10.8	18.8	8.0
Trial 3	10.8	18.8	8.0
Average	10.8	NA	7.9

Run 2

Traverse Point	Min/Pt 10 Elapsed Time	Velocity Pressure ΔP (in H_2O)	Orifice Setting ΔH (in H_2O)	Gas Sample Volume Initial (ft^3) 98.10	Stack Temp (°F)	DGM Inlet (°F)	DGM Outlet (°F)	Square Root ΔP	Stack Gas Velocity Vs (ft/sec)	Volume Metered Vmstd (ft^3)	Isokinetics (%)
1-1	10	0.16	1.29	104.56	124	88	87	0.400	24.0	6.116	103.1
1-1	20	0.16	1.29	110.97	125	91	87	0.400	24.0	6.052	102.1
1-2	30	0.14	1.10	116.88	124	95	88	0.374	22.4	5.552	100.0
2-1	40	0.15	1.17	123.04	125	92	89	0.387	23.2	5.798	101.0
2-2	50	0.15	1.17	129.21	125	96	89	0.387	23.2	5.787	100.6
2-3	60	0.12	0.94	134.75	124	97	92	0.346	20.8	5.174	100.7
3-1	70	0.14	1.09	140.56	124	91	90	0.374	22.4	5.468	98.5
3-2	80	0.14	1.09	146.42	124	96	91	0.374	22.4	5.485	98.8
3-3	90	0.10	0.78	151.47	124	96	91	0.316	19.0	4.723	100.7
4-1	100	0.14	1.09	157.27	124	94	91	0.374	22.4	5.439	98.0
4-2	110	0.14	1.09	163.08	124	94	93	0.374	22.4	5.438	98.0
4-3	120	0.10	0.78	168.00	125	95	91	0.316	19.0	4.606	96.2

Totals and Averages

120	1.07	69.90	124	91.8	0.369	22.1	65.62	100.0

Project Number	3648
Client	Big Rivers
Plant	Wilson
Location	Stack
Date	9/29/2011
Meter ID	M28
Y_d	0.9976
Pitot C_p	0.84

Nozzle Diameter (in)	0.312
Filter ID	NA
Train Type	Impinger
Train ID	IB25
P_b (Inches Hg)	29.36
P_g (Inches H_2O)	-0.2
Start Time	4:19
Stop Time	6:31

Place an "x" in the appropriate Box

Circular?	x
Rectangular?	
Diameter	408
Length	
Width	

Moisture	Final Wt (g)	Tare Wt (g)	Net Wt (g)
Impinger 1	773.0	594.0	179.0
Impinger 2	739.0	733.0	6.0
Impinger 3	665.0	664.0	1.0
Impinger 4	557.0	556.0	1.0
Silica Gel	881.0	873.0	8.0
Weight of Water Collected, V_{wc} (g)			187.0
Silica Gel Net Weight, V_{wsg} (g)			8.0

Orsat	%CO_2	%CO_2+%O_2	%O_2
Trial 1	10.8	18.8	8.0
Trial 2	10.8	18.8	8.0
Trial 3	10.8	18.8	8.0
Average	10.8	NA	8.0

Run 3

Traverse Point	Min/Pt 10 Elapsed Time	Velocity Pressure Δ P (in H_2O)	Orifice Setting Δ H (in H_2O)	Gas Sample Volume Initial (ft^3) 168.50	Stack Temp (°F)	DGM Inlet (°F)	DGM Outlet (°F)	Square Root Δ P	Stack Gas Velocity Vs (ft/sec)	Volume Metered Vmstd (ft^3)	Isokinetics (%)
3-1	10	0.14	1.09	174.36	124	91	91	0.374	22.4	5.510	99.1
3-2	20	0.14	1.09	180.15	124	92	89	0.374	22.4	5.449	98.0
3-3	30	0.11	0.86	185.69	124	94	89	0.332	19.9	5.201	105.6
2-1	40	0.16	1.25	191.54	124	95	89	0.400	24.0	5.493	92.8
2-2	50	0.16	1.25	197.88	124	95	90	0.400	24.0	5.847	100.1
2-3	60	0.12	0.94	203.38	125	96	91	0.346	20.8	5.146	100.1
1-1	70	0.16	1.25	209.66	125	91	90	0.400	24.0	5.912	93.8
1-2	80	0.15	1.17	215.75	125	96	91	0.387	23.2	5.701	99.2
1-3	90	0.13	1.02	221.48	125	96	91	0.361	21.6	5.362	100.2
4-1	100	0.15	1.17	227.66	125	95	91	0.387	23.2	5.791	100.7
4-2	110	0.16	1.25	233.85	125	96	90	0.400	24.0	5.801	97.7
4-3	120	0.11	0.86	239.09	125	96	91	0.332	19.9	4.902	99.6

Totals and Averages

120	1.10	70.59	125	92.3	0.374	22.4	66.21	99.3

Project Number	3648
Client	Big Rivers
Plant	Wilson
Location	Stack
Date	9/28-9/29/2011
P_b (Inches Hg)	29.36

Meter ID	M25A
Y_d	0.9994

Start Time	22:59
Stop Time	0:29

Meter ID	M25A
Y_d	1.0017

Run 1

Min/Pt 10 Elapsed Time	Gas Sample Volume Initial (L) 0.00	DGM Temp (°F)	Volume Metered Vmstd (L)
10.0	3.16	80	3.029
20.0	6.39	84	3.073
30.0	9.35	87	2.801
40.0	12.46	100	2.875
50.0	15.30	105	2.602
60.0	18.26	107	2.702
70.0	21.24	109	2.711
80.0	24.19	111	2.674
90.0	27.39	112	2.896

Totals and Averages

90	27.39	99.4	25.34

Run 1 Spiked

Min/Pt 10 Elapsed Time	Gas Sample Volume Initial (L) 0.00	DGM Temp (°F)	Volume Metered Vmstd (L)
10.0	3.50	80	3.363
20.0	6.48	84	2.842
30.0	9.52	87	2.883
40.0	12.46	100	2.724
50.0	15.40	105	2.700
60.0	18.33	107	2.681
70.0	21.16	109	2.580
80.0	24.26	111	2.817
90.0	27.56	112	2.993

Totals and Averages

90	27.56	99.4	25.56

Project Number	3648
Client	Big Rivers
Plant	Wilson
Location	Stack
Date	9/29/11
P_b (Inches Hg)	29.36

Meter ID	M25A
Y_d	0.9994

Meter ID	M25A
Y_d	1.0017

Start Time	2:18
Stop Time	3:48

Run 2

Min/Pt 10 Elapsed Time	Gas Sample Volume Initial (L) 0.00	DGM Temp (°F)	Volume Metered Vmstd (L)
10.0	3.16	83	3.012
20.0	6.25	85	2.935
30.0	9.36	88	2.937
40.0	12.35	98	2.774
50.0	15.42	100	2.838
60.0	18.50	103	2.832
70.0	21.55	105	2.794
80.0	24.56	107	2.748
90.0	27.69	109	2.847

Totals and Averages

90	27.69	97.6	25.71

Run 2 Spiked

Min/Pt 10 Elapsed Time	Gas Sample Volume Initial (L) 0.00	DGM Temp (°F)	Volume Metered Vmstd (L)
10.0	2.98	83	2.847
20.0	6.05	85	2.922
30.0	9.16	88	2.944
40.0	12.19	98	2.817
50.0	15.22	100	2.807
60.0	18.20	103	2.746
70.0	21.17	105	2.727
80.0	24.18	107	2.754
90.0	27.17	109	2.726

Totals and Averages

90	27.17	97.6	25.28

Project Number	3648
Client	Big Rivers
Plant	Wilson
Location	Stack
Date	9/29/11
P_b (Inches Hg)	29.36

Meter ID	M25A
Y_d	0.9994

Start Time	5:09
Stop Time	6:39

Meter ID	M25A
Y_d	1.0017

Run 3

Min/Pt 10 Elapsed Time	Gas Sample Volume Initial (L) 0.00	DGM Temp (°F)	Volume Metered Vmstd (L)
10.0	3.19	83	3.041
20.0	6.25	86	2.901
30.0	9.32	93	2.873
40.0	12.38	97	2.844
50.0	15.42	101	2.805
60.0	18.40	103	2.740
70.0	21.35	106	2.698
80.0	24.27	108	2.661
90.0	27.29	109	2.747

Totals and Averages

90	27.29	98.4	25.29

Run 3 Spiked

Min/Pt 10 Elapsed Time	Gas Sample Volume Initial (L) 0.00	DGM Temp (°F)	Volume Metered Vmstd (L)
10.0	3.06	83	2.924
20.0	6.08	86	2.870
30.0	9.11	93	2.843
40.0	12.16	97	2.841
50.0	15.19	101	2.802
60.0	18.24	103	2.811
70.0	21.27	106	2.777
80.0	24.32	108	2.786
90.0	27.28	109	2.699

Totals and Averages

90	27.28	98.4	25.34

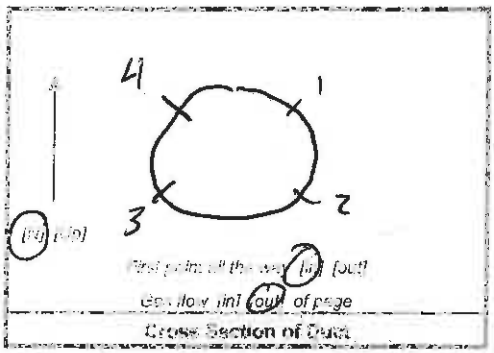
Field Data

Airtech Environmental Services, Inc.

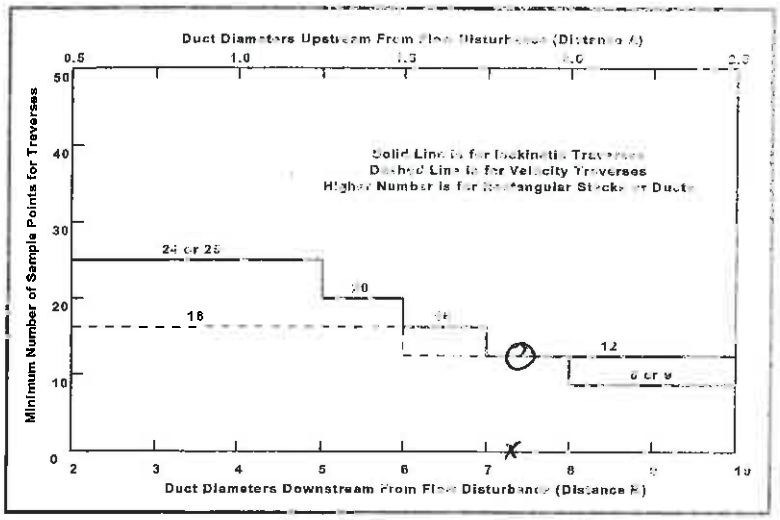
Method 1 Data Sheet

LOCATION Stack

Client	Big Rivers
Project No.	3640
Plant	Centertown, KY
Date	9/28/11
Technician	AI
Duct Diameter (in.)	408
Port Diameter (in.)	7
Port Length (in.)	~20
Port Type	flange
Distance A (ft)	~100
Distance B (ft)	~~200~~ ~250
Distance A (Duct Diameters)	~~5.88~~ 2.94
Distance B (Duct Diameters)	~~5.88~~ 7.35



For rectangular ducts $ID = \frac{2LW}{(L+W)}$



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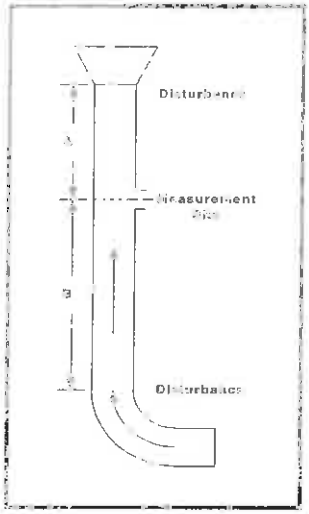
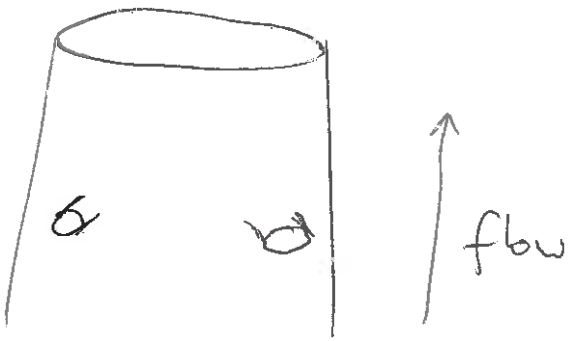


Location Schematic and Notes

Area = 907.9203



Indicate sample ports, height from grade, types of disturbances, access, unistrut configuration, etc.
Distance to point must include length of port

Traverse Point	Distance (in.)
1	37.77
2	79.75
3	140.72
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

AIRTECH ENVIRONMENTAL SERVICES INC.

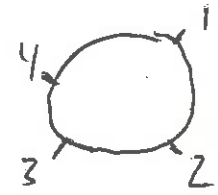
General Testing Data Sheet

TESTING TYPE: PARTICULATE

RUN NO. 1 METHOD NO. 5B/202 Page 1 of 1

Client	BIG RIVERS						
Plant	D.B. WILSON						
Location	STACK						
Date	09-28/29-11	Project No.	36.48				
Meter Operator	JD						
Probe Operator	AT						
Meter ID	M-14	Yd	1.0052	Pitot Cp	.84 ✓		
ΔH@	1.801	Kf	16.47	Leak check	✓		
Pre Leak Check	0.000	cfm/ [lpm] @		18	(inHg)		
Post Leak Check	0.000	cfm/ [lpm] @		13	(inHg)		

[N] (Up)



First point all the way (in) [out]

Gas flow: [in] [(out)] of page

Cross Section of Duct

Barometric (inHg)	29.36	Water [(ml)] [g]	
Ambient Temp (°F)	80°	Silica gel (g)	
Static (inH_2O)	-0.2	Total Vlc	
Probe ID	AES-12-4	Liner Type	TFE
Nozzle ID	.355	Nozzle Dia (in)	.355
Filter ID	12223	—	—
Train ID	IB-A	Train Type	IMP
Duct Dim. (in)	408	Port Length (in)	20
			24:42 JD
Start Time	22:54	Stop Time	~~24:38~~
		CEMS TIME: 21:54	23:43

Traverse Point	Min/Point 7.50 Elapsed Time	Velocity Pressure ΔP (inH_2O)	Orifice Setting ΔH (inH_2O)	Gas Sample Volume Initial (dcf) [l] 335.51	Stack Temp (°F)	Probe Temp (°F) 320	Filter Temp (°F) 320	Impinger Outlet Temp (°F)	DGM Inlet Temp (°F)	DGM Outlet Temp (°F)	Pump Vacuum (inHg)	Auxiliary Temp (°F)		Notes
2-1	7:30	.14	2.3	340.24	123	320	321	45	83	83	9	51		
2	15:00	.14	1.9	347.30	130	320	320	46	84	83	11	52		PAUSE - 23:06 (CLOGGED)
3	22:30	.10	1.3	352.04	128	320	319	46	86	83	9	53		RESTART - 23:17 ~~VOL: 3.3~~
1-1	30:00	.16	2.1	358.14	122	320	321	47	88	84	12	53		NEW KF = 13.23
2	37:30	.14	1.9	363.83	123	319	322	48	92	86	11	53		
3	45:00	.11	1.5	368.85	123	320	322	48	94	87	10	54		
4-1	52:30	.15	2.0	375.56	122	321	321	47	91	87	11	55		
2	60:00	.14	1.9	380.41	125	320	320	46	95	88	11	56		
3	67:30	.10	1.3	385.13	123	319	320	46	96	88	9	57		
3-1	75:00	.14	1.9	390.88	123	320	320	47	91	87	11	58		
2	82.30	.13	1.7	395.31	122	320	319	48	95	88	10	59		
3	90:00	.11	1.5	401.45	122	321	320	49	96	88	9	60		
Total	90.00	4.3145	21.30	65.94	1486.00				1091.00	1032.00				
Average	7.50	.3595	1.775		123.833				88.458					

Circle correct bracketed [ ] units

Train Type denotes impingers, knockouts, etc.

AIRTECH ENVIRONMENTAL SERVICES INC.

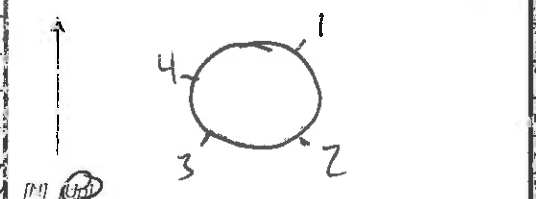
General Testing Data Sheet

TESTING TYPE: PARTICULATE

RUN NO. 2 METHOD NO. 5B/202 Page 1 of 1

Client	BIG RIVERS				
Plant	DBWILSON				
Location	STACK				
Date	09/29/11	Project No	364B		
Meter Operator	JD				
Probe Operator	AI				

Meter ID	M-14	Yd	1.0052	Pitot Cp	.84
ΔH@	1.801	Kf	13.23	Leak check	✓
Pre Leak Check	0.000	[cfm] [lpm] @	20	(inHg)	
Post Leak Check	0.000	[cfm] [lpm] @	14	(inHg)	



Barometric (inHg)	29.36	Water [ml] [g]	
Ambient Temp (°F)	80°	Silica gel (g)	
Static [inH_2O]	-0.2	Total Vlc	
Probe ID	AES-12-4	Liner Type	TFE
Nozzle ID	.355	Nozzle Dia (in)	.355
Filter ID	12222	—	—
Train ID	IR-4	Train Type	IMP
Duct Dim (in)	408	Port Length (in)	20
Start Time	02:18	Stop Time	04:29

CEMS TIMES: 1:13 3:24

Traverse Point	Min/Point 7.5 Elapsed Time	Velocity Pressure ΔP (inH_2O)	Orifice Setting ΔH (inH_2O)	Gas Sample Volume Initial (ft³) [l] 401.87	Stack Temp (°F)	Probe Temp (°F)	Filter Temp (°F)	Impinger Outlet Temp (°F)	DGM Inlet Temp (°F)	DGM Outlet Temp (°F)	Pump Vacuum (inHg)	Auxiliary Temp (°F)		Notes JD
3-1	7:30	.15	2.0	408.81	122	320	322	42	83	83	11	48		~~SUBTRACT VOC~~ 1.42
2	15:00	.14	1.9	413.90	124	320	320	43	84	83	10	48		~~STOPAUSE~~ 2:30
3	22:30	.10	1.3	418.83	123	320	319	43	85	83	9	49		RESTART - 02:36
4-1	30:00	.15	2.0	424.43	122	320	320	44	88	83	11	49		
2	37:30	.14	1.9	430.17	123	321	320	45	90	85	10	50		
3	45:00	.11	1.5	435.18	122	320	319	46	90	85	10	50		
1-1	52:30	.15	2.0	441.00	122	321	320	47	89	85	12	51		
2	60:00	.14	1.9	446.74	123	322	320	48	91	86	11	52		
3	67:30	.11	1.5	451.87	122	321	319	49	92	87	10	53		
2-1	75:00	.15	2.0	456.89	122	320	320	49	90	88	12	54		
2	82:30	.14	1.9	462.68	122	321	321	50	92	88	11	54		
3	90:00	.11	1.5	467.88	122	320	320	51	94	89	10	55		
Total	90:00	4.3571	21.400	66.01	1469.00				1068.00	1025.00				
Average	7.50	.3631	1.783		122.417				87.2083					

Circle correct bracketed [ ] units
Train Type denotes impingers, knockouts, etc.

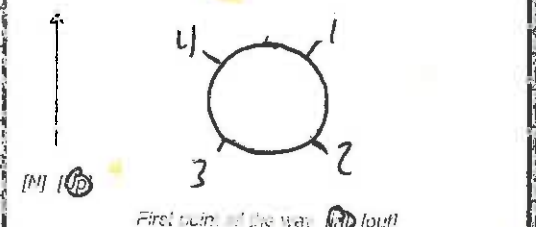
AIRTECH ENVIRONMENTAL SERVICES INC.

General Testing Data Sheet

TESTING TYPE: PARTICULATE

RUN NO. 3 METHOD NO. SB/202 Page 1 of 1

Client	BIG RIVERS				
Plant	D.B. WILSON				
Location	STACK				
Date	09-29-11	Project No	3648		
Meter Operator	JD				
Probe Operator	AE				
Meter ID	M-14	Yd	1.0052	Pitot Cp	.84 ✓
ΔH@	1.802	Kf	13.23	Leak check	✓
Pre Leak Check	0.000	(cfm) [lpm] @	20	(inHg)	
Post Leak Check	0.000	(cfm) [lpm] @	13	(inHg)	



Cross Section of Duct

Barometric (inHg)	29.36	Water (ml) [g]	
Ambient Temp (°F)	80°	Silica gel (g)	
Static (-/+) (in)	-0.2	Total Vic	
Probe ID	AE5-12-4	Liner Type	TFE
Nozzle ID	.355	Nozzle Dia (in)	.355
Filter ID	~~H5~~ 12224	—	—
Train ID	IB-A	Train Type	IMP
Duct Dim. (in)	402	Port Length (in)	20
Start Time	05:09	Stop Time	06:59

CEMS Times 4:04 5:54

Traverse Point	Min/Point 7.50 Elapsed Time	Velocity Pressure ΔP (inH_2O)	Orifice Setting ΔH (inH_2O)	Gas Sample Volume Initial (ft³) [l] 469.14	Stack Temp (°F)	Probe Temp (°F)	Filter Temp (°F)	Impinger Outlet Temp (°F)	DGM Inlet Temp (°F)	DGM Outlet Temp (°F)	Pump Vacuum (inHg)	Auxiliary Temp (°F)	Notes
2-1	7:30	.15	2.0	474.97	122	320	320	44	89	88	12	48	
2	15:00	.14	1.9	480.76	122	321	319	45	92	89	11	49	
3	22:30	.11	1.5	485.69	122	321	320	46	96	89	9	49	
1-1	30:00	.15	2.0	491.55	122	322	321	47	97	89	12	50	
2	37:30	.14	1.9	497.34	122	322	320	47	98	90	11	50	
3	45:00	.12	1.6	502.66	122	321	321	48	99	91	10	51	
4-1	52:30	.15	2.0	508.51	122	322	322	49	95	90	12	51	
2	60:00	.14	1.9	514.32	122	321	321	50	98	91	11	52	
3	67:30	.12	1.6	519.65	122	320	321	51	98	91	11	52	
3-1	75:00	.15	2.0	525.50	123	321	322	52	99	89	12	53	
2	82:30	.14	1.9	531.27	123	322	322	53	96	90	11	54	
3	90:00	.11	1.5	536.40	122	321	321	54	98	91	10	54	
Total	90:00	4.4020	24.800	67.26	1465.00				1150.00	1078.60			
Average	7.5	.3668	1.8167		122.083				92.8333				

Circle correct bracketed [ ] units
Train Type denotes impingers, knockouts, etc.

AIRTECH ENVIRONMENTAL SERVICES INC.
Impinger Weights Data Sheet

PROJECT NO. 3648

Page 1 of 1

Client	Big Rivers
Plant	Owensboro, KY Coal Fired
Location	Stack Out Lot
Date	9-27-11
Operator	MH

Run No.	1				
Method No.	M5/202	Train ID		Filter No.	122225

	Contents	Tare Weight (g)	Final (g)	Total (g)	Notes
Impinger No. 1	Empty	574	714	140	
Impinger No. 2	Empty	533	536	3	
Impinger No. 3	100mL H_2O	732	930	-2	
Impinger No. 4	Silica Gel	861	881	20	
Impinger No. 5					
Impinger No. 6					
Impinger No. 7					
Additional Rinse					
			Net Weight (g)		

Run No.	2				
Method No.	M5/202	Train ID		Filter No.	122232

	Contents	Tare Weight (g)	Final (g)	Total (g)	Notes
Impinger No. 1	Empty	557	708	151	
Impinger No. 2	Empty	475	478	3	
Impinger No. 3	100mL H_2O	736	737	1	
Impinger No. 4	Silica Gel	885	905	20	
Impinger No. 5					
Impinger No. 6					
Impinger No. 7					
Additional Rinse					
			Net Weight (g)	175	

Run No.	3				
Method No.	M5/202	Train ID		Filter No.	122241

	Contents	Tare Weight (g)	Final (g)	Total (g)	Notes
Impinger No. 1	Empty	575	738		
Impinger No. 2	Empty	535	537		
Impinger No. 3	100mL H_2O	730	~~737~~ 732		
Impinger No. 4	Silica Gel	881	~~905~~ 901		
Impinger No. 5					
Impinger No. 6					
Impinger No. 7					
Additional Rinse					
			Net Weight (g)		

AIRTECH ENVIRONMENTAL SERVICES INC.

General Testing Data Sheet

TESTING TYPE: HCl

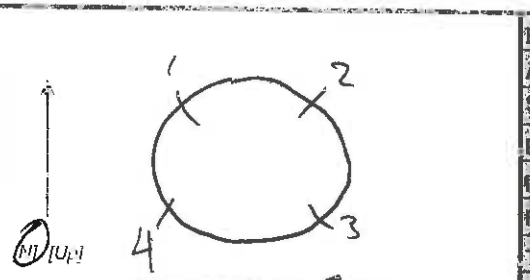
RUN NO. 1

METHOD NO. 26A

Page 1 of

Client	Big Rivers				
Plant	Centertown, KY				
Location	Stack				
Date	9/28/11	Project No.	3640		
Meter Operator	AI				
Probe Operator	AI				

Meter ID	M19	Yd	1.0101	Pitot Cp	.84
ΔH@	1.901	Kf	~~16.434~~	Leak check	✓
Pre Leak Check	0.000	[cfm] [lpm] @	16	[inHg]	
Post Leak Check	0.000	[cfm] [lpm] @	13	[inHg]	



Barometric (inHg)	29.36	Water [ml] [g]	
Ambient Temp (°F)	80.0	Silica gel (g)	
Static (inH2O)	-.2	Total Vic	
Probe ID	13-1	Liner Type	Teflon
Nozzle ID	.365	Nozzle Dia (in)	.365
Filter ID			
Train ID	IB	Train Type	IM
Duct Dim. (in)	400	Port Length (in)	20
Start Time	~~0933~~ 2259	Stop Time	135

CEMS Times 20:54 79:43

Traverse Point	Min/Point 10 Elapsed Time	Velocity Pressure ΔP (inH2O)	Orifice Setting ΔH (inH2O)	Gas Sample Volume Initial [ft3] [l] 774.98	Stack Temp (°F)	Probe Temp (°F) 250	Filter Temp (°F) 250	Impinger Outlet Temp (°F)	DGM Inlet Temp (°F)	DGM Outlet Temp (°F)	Pump Vacuum (inHg)	Auxiliary Temp (°F)		Notes
3-1	10	~~.14~~	2.31	781.42	125	250	249	54	82	80	16	NA		Kf 14.78
3-2	20	.13	2.14	788.12	125	250	250	53	86	80	14			
3-3	30	.12	1.77	795.83	125	251	251	52	89	80	14			
2-1	40	.14	2.1	804.12	124	250	251	51	87	82	15			
2-2	50	.15	2.2	811.91	125	251	251	56	93	85	16			
2-3	60	.14	2.1	819.82	125	250	250	52	91	83	15			
1-1	70	.15	2.2	827.78	126	251	250	54	88	83	15			
1-2	80	.16	2.4	835.89	124	251	250	55	89	83	17			
1-3	90	.15	2.2	843.87	125	250	251	52	91	~~83~~ 83	18			
4-1	100	.15	2.2	851.98	125	249	250	53	87	83	17			
4-2	110	.13	2.14	859.49	125	250	251	54	88	82	18			
4-3	120	.14	2.1	867.27	125	250	251	55	88	82	18			
Total	12	4.5134	25.8	92.900	1499.00				1059.0	986.0				
Average		(.3761)	(2.1500)		(124.9167)				(85.2083)					

Circle correct bracketed [ ] units
Train Type denotes impingers, knockouts, etc.

AIRTECH ENVIRONMENTAL SERVICES INC.

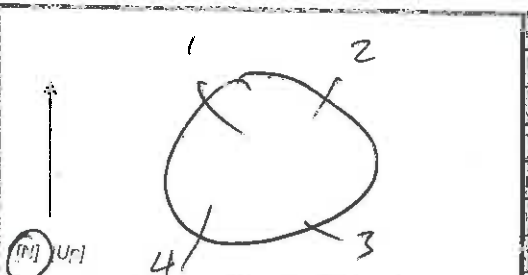
General Testing Data Sheet

TESTING TYPE: HCl

RUN NO. 2 METHOD NO. 26A

Page 1 of

Client	Big Rivers						
Plant	Centertown, KY						
Location	Stack						
Date	9/29/11	Project No.	3640				
Meter Operator	AI						
Probe Operator	AI						
Meter ID	MA	Yd	1.0101	Pitot Cp	.84		
ΔH@	1.801	Kf	14.78	Leak check	✓		
Pre Leak Check	0.000	[cfm] [lpm] @	20	(inHg)			
Post Leak Check	0.00	[cfm] [lpm] @	17	(inHg)			



Barometric (inHg)	29.36	Water (ml) [g]	
Ambient Temp (°F)	80.0	Silica gel (g)	
Static (inH2O)	-.2	Total Vic	
Probe ID	13-1	Liner Type	Teflon
Nozzle ID	.365	Nozzle Dia (in)	.365
Filter ID			
Train ID	IB	Train Type	Imp
Duct Dim. (in)	408	Port Length (in)	20

Start Time	2458	Stop Time	468
CEM Time	1:41		3:53

Traverse Point	Min/Point 10 Elapsed Time	Velocity Pressure ΔP (inH2O)	Orifice Setting ΔH (inH2O)	Gas Sample Volume Initial [ft³] [l] 867.97	Stack Temp (°F)	Probe Temp (°F)	Filter Temp (°F)	Impinger Outlet Temp (°F)	DGM Inlet Temp (°F)	DGM Outlet Temp (°F)	Pump Vacuum (inHg)	Auxiliary Temp (°F)		Notes
2-1	10	.15	2.2	877.13	125	250	250	50	81	81	12	NA		Stop Vol 868.32
2-2	20	.15	2.2	884.47	126	251	251	51	87	80	12			Start Vol 861.75
2-3	30	.13	1.9	892.18	125	251	251	52	94	82	10			ΔK = 14.30
3-1	40	.12	1.7	899.81	125	250	251	53	94	84	7			
3-2	50	.16	2.3	907.53	126	250	249	53	94	84	10			
3-3	60	.10	1.4	914.39	125	251	250	52	96	86	7			
4-1	70	.13	1.9	922.18	125	250	252	54	96	86	6			
4-2	80	.11	1.6	928.97	125	251	251	53	96	86	7			
4-3	90	.11	1.6	935.95	125	249	250	53	97	87	7			
1-1	100	.11	1.6	942.82	126	250	249	56	94	87	7			
1-2	110	.15	2.1	950.89	125	251	249	53	95	89				
1-3	120	.12	1.7	957.96	125	250	250	52	96	87				
Total	120	4.2580	22.2	88.5600	1503				1120	1017				
Average		(.3548)	(1.85)		(125.25)					(89.0417)				

Circle correct bracketed [ ] units
Train Type denotes impingers, knockouts, etc.

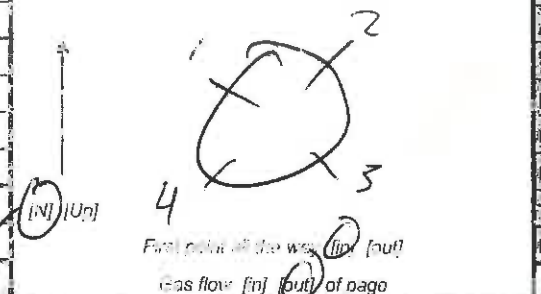
AIRTECH ENVIRONMENTAL SERVICES INC.

General Testing Data Sheet

TESTING TYPE: HCl

RUN NO. 3 METHOD NO. 26A Page 1 of

Client	Big Rivers			Barometric (in Hg)	28.36	Water (ml) [g]	
Plant	Centertown, KY			Ambient Temp (°F)	86.0	Silica gel (g)	
Location	Stack			Static (in H2O)	-.2	Total Vic	
Date	9/29/11	Project No	3640	Probe ID	13-1	Liner Type	
Meter Operator	AI			Nozzle ID	.365	Nozzle Dia (in)	.365
Probe Operator	AI			Filter ID			
Meter ID	M9	Yd	1.0101	Pitot Cp	.84	Train ID	IB
ΔH@	1.801	Kf	14.30	Leak check	✓	Train Type	IM
Pre Leak Check	0.080	[cfm] [lpm] @	18	(inHg)		Duct Dim (in)	40 8
Post Leak Check	0.000	[cfm] [lpm] @	16	(inHg)		Port Length (in)	20



Cross Section of Duct

Start Time 525 Stop Time 7:36

CEM Time 4:23 6:31

Traverse Point	Min/Point 10 Elapsed Time	Velocity Pressure ΔP (inH2O)	Orifice Setting ΔH (inH2O)	Gas Sample Volume Initial [ft3] [l] 960.20	Stack Temp (°F)	Probe Temp (°F) 250	Filter Temp (°F) 250	Impinger Outlet Temp (°F)	DGM Inlet Temp (°F)	DGM Outlet Temp (°F)	Pump Vacuum (inHg)	Auxiliary Temp (°F)		Notes
4-1	10	.12	1.7	962.14	124	251	251	52	86	85	8	NA		
4-2	20	.12	1.7	974.20	125	250	250	55	90	84	9			
4-3	30	.12	1.7	991.33	125	251	250	54	93	85	9			
1-1	40	.11	1.6	998.45	125	251	251	55	95	86	10			
1-2	50	.15	2.1	996.57	125	250	250	56	96	86	14			
1-3	60	.14	2.0	1004.14	125	251	249	54	95	86	9			
3-1	70	.14	2.0	1011.81	125	250	250	53	94	85	13			
3-2	80	.12	1.7	1018.98	125	251	249	52	89	85	13			
3-3	90	.11	1.6	1026.01	126	251	250	51	91	85	12			
2-1	100	.10	1.4	1032.69	125	250	249	51	92	85	11			
2-2	110	.13	1.9	1040.21	125	251	250	52	92	85	10			
2-3	120	.11	1.6	1047.22	125	251	250	53	91	85				
Total	120	4.1930	2.000	87.02	1500.00				1162	1022				
Average		.3494	1.7500		125.00				82.5 (100%)					

Circle correct bracketed [ ] units
Train Type denotes impingers, knockouts, etc.

AIRTECH ENVIRONMENTAL SERVICES INC.
Impinger Weights Data Sheet

PROJECT NO. 3648

Page 1 of 2

Client	Big Rivers
Plant	Owensboro, Ky / Reid Farm
Location	Stack Outlet
Date	9-27-11
Operator	MH

Run No.	1				
Method No.	26A	Train ID	IB15	Filter No.	NA
	Contents	Tare with Contents (g)	Final (g)	Gain (g)	Notes
Impinger No. 1	50mL H_2SO_4	582			
Impinger No. 2	100mL H_2SO_4	624			
Impinger No. 3	100mL H_2SO_4	715			665
Impinger No. 4	Silica	884			
Impinger No. 5					
Impinger No. 6					
Impinger No. 7					
Additional Rinse			VOID Train - Not Used		
			Net Weight (g)		

Run No.	2 1				
Method No.	26 A	Train ID	IB15	Filter No.	NA
	Contents	Tare with Contents (g)	Final (g)	Gain (g)	Notes
Impinger No. 1	50 ML H_2SO_4	703	895	192	
Impinger No. 2	100ML H_2SO_4	715	764	49	
Impinger No. 3	100ML H_2SO_4	712	727	15	
Impinger No. 4	Silica Gel	798	822	24	
Impinger No. 5					
Impinger No. 6					
Impinger No. 7					
Additional Rinse					
			Net Weight (g)	280	

Run No.	2				
Method No.	26A	Train ID	IB15	Filter No.	NA
	Contents	Tare with Contents (g)	Final (g)	Gain (g)	Notes
Impinger No. 1	50mL H_2SO_4	584	744	160	
Impinger No. 2	100mL H_2SO_4	730	748	18	
Impinger No. 3	100mL H_2SO_4	665	669	4	
Impinger No. 4	Silica Gel	884	913	29	
Impinger No. 5					
Impinger No. 6					
Impinger No. 7					
Additional Rinse					
			Net Weight (g)	211	

AIRTECH ENVIRONMENTAL SERVICES INC.
Impinger Weights Data Sheet

PROJECT NO. 3648

Page 2 of 2

Client	Big Rivers
Plant	Owensboro
Location	Stack Outlet
Date	9-29-2011 Init
Operator	KE

Run No.	3				
Method No.	26A	Train ID	IB 15	Filter No.	
	Contents	Tare with Contents (g)	Final (g)	Total (g)	Notes
Impinger No. 1	50mL H_2SO_4	703	888	185	
Impinger No. 2	100mL H_2SO_4	718	743	26	
Impinger No. 3	100mL H_2SO_4	717	730	13	
Impinger No. 4	Silica Gel	822	845	26	
Impinger No. 5					
Impinger No. 6					
Impinger No. 7					
Additional Rinse					
			Net Weight (g)	250	

Run No.					
Method No.		Train ID		Filter No.	
	Contents	Tare with Contents (g)	Final (g)	Total (g)	Notes
Impinger No. 1					
Impinger No. 2					
Impinger No. 3					
Impinger No. 4					
Impinger No. 5					
Impinger No. 6					
Impinger No. 7					
Additional Rinse					
			Net Weight (g)		

Run No.					
Method No.		Train ID		Filter No.	
	Contents	Tare with Contents (g)	Final (g)	Total (g)	Notes
Impinger No. 1					
Impinger No. 2					
Impinger No. 3					
Impinger No. 4					
Impinger No. 5					
Impinger No. 6					
Impinger No. 7					
Additional Rinse					
			Net Weight (g)		

AIRTECH ENVIRONMENTAL SERVICES INC.

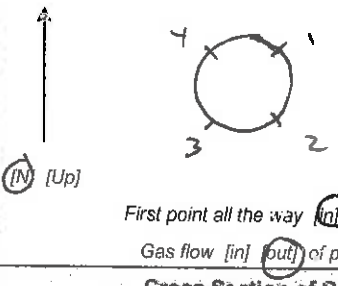
General Testing Data Sheet

TESTING TYPE: metals

RUN NO. 1 (R) METHOD NO. 29

Page 1 of 1

Client	Big Rivers						
Plant	D.B Wilson Centerstown Ky						
Location	Stack						
Date	9/28/11	Project No.	3648				
Meter Operator	RG						
Probe Operator	RG						
Meter ID	M-28	Yd	.9976	Pitot Cp	.84		
ΔH@	1.8295	Kf	8.02	Leak check	✓		
Pre Leak Check	.003	(cfm) [lpm] @		19	(inHg)		
Post Leak Check	.002	(cfm) [lpm] @		7	(inHg)		



Barometric (inHg)	29.36	Water [ml] [g]	
Ambient Temp (°F)	80	Silica gel (g)	
Static (inH_2O)	-.2	Total Vlc	
Probe ID	AE 5-12-2	Liner Type	Teflon
Nozzle ID	.312	Nozzle Dia (in)	.312
Filter ID	N/A	—	—
Train ID	IB 25	Train Type	IMP
Duct Dim. (in)	408	Port Length (in)	20
Start Time	22:59	Stop Time	1:35
LEM Tille	21:51		23:31

Traverse Point	Min/Point 10 Elapsed Time	Velocity Pressure ΔP (inH_2O)	Orifice Setting ΔH (inH_2O)	Gas Sample Volume Initial (ft³) [l]	Stack Temp (°F)	Probe Temp (°F)	Filter Temp (°F)	Impinger Outlet Temp (°F)	DGM Inlet Temp (°F)	DGM Outlet Temp (°F)	Pump Vacuum (inHg)	Auxiliary Temp (°F)		Notes
				25.60		250	250							
4-1	10	.15	1.2	32.12	125	250	250	60	87	88	4	N/A		
2	20	.14	1.12	38.08	125	250	251	57	94	87	4			
3	30	.11	.88	43.23	124	250	250	56	97	89	3			
3-1	40	.15	1.2	49.38	125	251	258	59	91	91	3 4			
2	50	.14	1.12	55.21	124	250	246	58	97	92	4			
3	60	.11	.88	60.55	125	250	249	57	96	91	3			
2-1	70	.16	1.28	66.82	124	252	255	55	93	92	4			
2	80	.14	1.12	72.80	124	250	248	56	97	92	4			
3	90	.14	1.12	78.62	124	250	259	58	98	93	4			
1-1	100	.16	1.28	85.11	124	251	262	59	92	92	4			
2	110	.14	1.12	90.92	125	250	250	58	97	92	4			
3	120	.14	1.12	96.97	125	250	250	60	97	92	4			
Total	120		13.44		1494				1136	1091				
Average		.3736	1.12	71.37	124.5				92.8					

Circle correct bracketed [ ] units
Train Type denotes impingers, knockouts, etc.

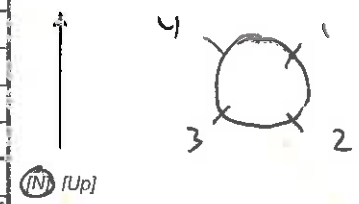
AIRTECH ENVIRONMENTAL SERVICES INC.

General Testing Data Sheet

TESTING TYPE: Metals

RUN NO. 2 METHOD NO. 29 Page 1 of)

Client	Big Rivers Electric			Barometric (inHg)	29.36	Water (ml) (g)	
Plant	DB Wilson Centertown Ky			Ambient Temp (°F)	80	Silica gel (g)	
Location	Stack			Static (inH_2O)	-.2	Total Vic	
Date	9/29/11	Project No.	3648	Probe ID	AES-12-2	Liner Type	Teflon
Meter Operator	RG			Nozzle ID	.312	Nozzle Dia (in)	.312
Probe Operator	RG			Filter ID	N14	—	—
Meter ID	M-28	Yd	.9976	Pitot Cp	.84	Train ID	IB
ΔH@	1.8295	Kf	8.08	Leak check	✓	Train Type	Imp
Pre Leak Check	.003	(cfm) [lpm] @	18	(inHg)		Duct Dim. (in)	408
Post Leak Check	.020	(cfm) [lpm] @	10	(inHg)		Port Length (in)	20



Cross Section of Duct

Start Time 2:45 Stop Time 4:58

CEM Time 1:41 3:53

Traverse Point	Min/Point 10 Elapsed Time	Velocity Pressure ΔP (inH_2O)	Orifice Setting ΔH (inH_2O)	Gas Sample Volume Initial [ft^3] [l]	Stack Temp (°F)	Probe Temp (°F)	Filter Temp (°F)	Impinger Outlet Temp (°F)	DGM Inlet Temp (°F)	DGM Outlet Temp (°F)	Pump Vacuum (inHg)	Auxiliary Temp (°F)		Notes
				98.10		250	250							
1-1	10	.116	1.29	104.56	124	249	250	55	88	87	4	N/A		
2	20	.16	1.29	110.97	125	249	249	56	91	87	4			
3	30	.14	1.1	116.88	124	251	250	57	95	88	3			↓change K = 7.81
2-1	40	.15	1.17	123.04	125	253	257	55	92	89	3			
2	50	.15	1.17	129.21	125	251	244	58	96	89	3			
3	60	.12	.94	134.75	124	249	248	59	97	92	3			
3-1	70	.14	1.09	140.56	124	250	255	59	91	90	3			
2	80	.14	1.09	146.42	124	251	248	59	96	91	3			
3	90	.10	.78	151.47	124	252	247	60	96	91	3			
4-1	100 (14)	.14	1.09	157.27	124	250	252	57	94	91	3			
2	110	.14	1.09	163.08	124	249	248	58	94	93	3			
3	120	.10	.78	168.00	125	252	243	61	95	91	3			
Total	120		12.88		1492				1125	1079				
Average		.3687	1.07	69.90	124.3				91.8					

Circle correct bracketed [ ] units
Train Type denotes impingers, knockouts, etc.

AIRTECH ENVIRONMENTAL SERVICES INC.

General Testing Data Sheet

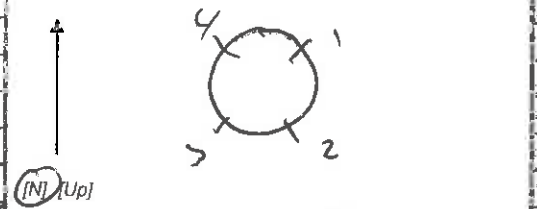
TESTING TYPE: Metals

RUN NO. 3 METHOD NO. 29

Page 1 of 1

Client	Big Rivers Electric			Barometric (inHg)	29.63	Water (ml) [g]	
Plant	D B Wilson Centertown Ky			Ambient Temp (°F)	80	Silica gel (g)	
Location	Stack			Static (inH_2O)	-.2	Total Vic	
Date	9/29/11	Project No.	3648	Probe ID	AES-12-2	Liner Type	Teflon
Meter Operator	RL			Nozzle ID	.312	Nozzle Dia (in)	.312
Probe Operator	RL			Filter ID	N/A	—	—
Meter ID	M-28	Yd	.9976	Train ID	TB 25	Train Type	Imp
ΔH@	1.8295	Kf	7.81	Duct Dim. (in)	408	Port Length (in)	20
Pre Leak Check	.002	(cfm) [lpm] @	21 (inHg)				
Post Leak Check	.001	(cfm) [lpm] @	8 (inHg)				

Pitot Cp .84 Leak check ✓



Cross Section of Duct

Start Time 5:24 Stop Time 07:36

4:19 6:31

Traverse Point	Min/Point 10 Elapsed Time	Velocity Pressure ΔP (inH_2O)	Orifice Setting ΔH (inH_2O)	Gas Sample Volume Initial [ft^3] [l] 168.50	Stack Temp (°F)	Probe Temp (°F) 250	Filter Temp (°F) 250	Impinger Outlet Temp (°F)	DGM Inlet Temp (°F)	DGM Outlet Temp (°F)	Pump Vacuum (inHg)	Auxiliary Temp (°F)		Notes
3-1	10	.14	1.09	174.36	124	251	249	53	91	91	3	N/A		
2	20	.14	1.09	180.15	124	247	253	53	92	89	3			
3	30	.11	.86	185.69	124	247	241	54	94	~~90~~ 88	3			
2-1	40	.16	1.25	191.54	124	250	258	53	95	89	3			
2	50	.16	1.25	197.86	124	247	251	54	95	90	3			
3	60	.12	.94	203.38	125	255	254	55	96	91	3			
1-1	70	.16	1.25	209.66	125	246	260	54	91	90	3			
2	80	.15	1.17	215.75	125	255	253	56	96	91	3			
3	90	.13	1.02	221.48	125	259	257	57	96	91	3			
4-1	100	.15	1.17	227.66	125	251	257	57	95	91	3			
2	110	.16	1.25	233.85	125	247	249	59	96	90	3			
3	120	.11	.86	239.09	125	250	253	62	96	91	3			
Total			13.2		1495				1133	1083				
Average		.3744	1.10	70.59	124.6				92.5					

Circle correct bracketed [ ] units
Train Type denotes impingers, knockouts, etc.

AIRTECH ENVIRONMENTAL SERVICES INC.
Impinger Weights Data Sheet

PROJECT NO. 3648

Page 1 of 1

Client	Big Rivers
Plant	Owensboro, Ky / Centertown
Location	Stack outlet
Date	9-27-2011
Operator	KE

Run No.	1				
Method No.	M 29	Train ID	IB 25	Filter No.	NA
	Contents	Tare with Contents (g)	Final (g)	Total (g)	Notes
Impinger No. 1	Empty	590	780	190	
Impinger No. 2	100mL 5% 10%	734	744	10	643 HNO_3/H_2O_2
Impinger No. 3	100mL 5% 10%	6665	6667	2	H_2NO_3/H_2O_2
Impinger No. 4	Empty	553	554	1	
Impinger No. 5	Silica	859	873	14	
Impinger No. 6					
Impinger No. 7					
Additional Rinse					
			Net Weight (g)	217	

Run No.	2				
Method No.	M29	Train ID	NA	Filter No.	NA
	Contents	Tare with Contents (g)	Final (g)	Total (g)	Notes
Impinger No. 1	Empty	644	800	156	
Impinger No. 2	100 mL 5% 10%	641	654	13	HNO_3/H_2O_2
Impinger No. 3	100mL 5% 10%	612	622	10	HNO_3/H_2O_2
Impinger No. 4	Empty	550	553	3	
Impinger No. 5	Silica	~~834~~ 891	905	14	
Impinger No. 6					
Impinger No. 7					
Additional Rinse					
			Net Weight (g)	196	

Run No.	3				
Method No.	M29	Train ID	IB 25	Filter No.	NA
	Contents	Tare with Contents (g)	Final (g)	Total (g)	Notes
Impinger No. 1	Empty	594	773	179	
Impinger No. 2	100 mL 5% 10%	733	739	6	
Impinger No. 3	100mL 5% 10%	664	665	1	
Impinger No. 4	Empty	556	557	1	
Impinger No. 5	Silica	873	881	8	
Impinger No. 6					
Impinger No. 7					
Additional Rinse					
			Net Weight (g)	191	

AIRTECH ENVIRONMENTAL SERVICES INC.

Oxygen and Carbon Dioxide Data Sheet

PROJECT NO. 3648

Client	Big Rivers		
Plant	Owensboro, KY		
Location	Stack	Date	9/30
Analyzer Type	ORSAT	Leak Check	✓

Page		of	

$F_O = \frac{(20.9 - O_2\%)}{CO2\%}$

Run No.	Trial No.	%CO_2	%CO_2+%O_2	%O_2	F_O	Analyst	Date	Time
Ambient Air	Check							
Run No.	Trial No.	%CO_2	%CO_2+%O_2	%O_2	F_O	Analyst	Date	Time
1	1	10.2	19.2	9		MH		
	2	10.2	19.2	9				
	3	10.2	19.2	9				
	Average	10.2	19.2	9				
2	1	10.8	18.6	7.8		MH		
	2	10.8	18.8	8				
	3	10.8	18.8	8				
	Average	10.8						
3	1	10.8	18.8	8		MH		
	2	10.8	18.8	8				
	3	10.8	18.8	8				
	Average	10.8	18.8	8				
	1							
	2							
	3							
	Average							
	1							
	2							
	3							
	Average							
	1							
	2							
	3							
	Average							
	1							
	2							
	3							
	Average							
	1							
	2							
	3							
	Average							
	1							
	2							
	3							
	Average							

Notes:

Run an ambient air check to verify Oxsorb.

Measurements must be made to the nearest 0.2%.

Three different trails should be performed for each sample.

The differences between the trials must not be greater than 0.2% overall.

Expected F_o Ranges

Anthracite/Lignite	1.015-1.130	Nat. Gas	1.600-1.836
Bituminous	1.083-1.230	Wood Bark	1.000-1.120
Distillate Oil	1.260-1.413	Municiple	
Residual Oil	1.210-1.370	Garbage	1.043-1.177

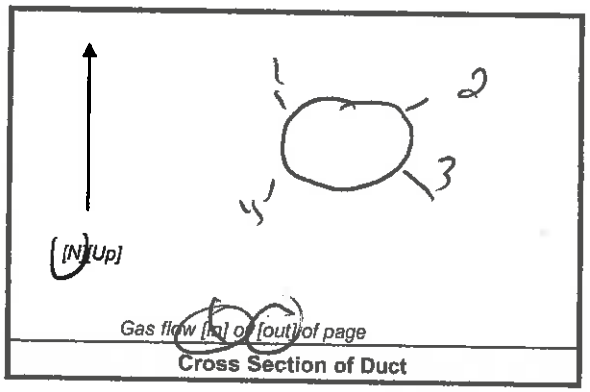
AIRTECH ENVIRONMENTAL SERVICES INC.

Method 30B Data Sheet

Run No. 1

Page	1	of	1

Client	Big Rivers
Plant	Centertown Ky
Location	Stack
Date	9-28-11
Project No.	3648
Meter Reader	CS



Cross Section of Duct

Barometric (in. Hg)	29.36
Static (inH_2O)	-.8
Ambient Temp. (°F)	80
Start Time	10:59 pm
Stop Time	12:29 Am

Sample Train A Unspiked

Trap ID	95038	Meter ID	MJ5A	Yd	.9994
Pre Leak Check	.000	lpm @	15		(in. Hg)
Post Leak Check	.000	lpm @	10		(in. Hg)

Min/Point	Flow Meter Setting	Gas Sample Initial [l]	Stack Temp (°F)	DGM Temp (°F)	Pump Vaccum (in Hg)	Notes
Elapsed Time		0.00				
10	.3	3.16	124	80	4	Probe
20	.3	6.39	122	84	4	at 250
30	.3	9.35	123	87	4	
40	.3	12.46	122	100	4	
50	.3	15.30	120	105	4	
60	.3	18.26	120	107	4	
70	.3	21.24	123	109	4	
80	.3	24.19	123	111	4	
90	.3	27.39	123	110	4	
	.3					
	.3					
	.3					
Total		27.39	1107	895		
Average			122.66	99.44		

Sample Train B 1.0017

Trap ID	82431	Meter ID	253	Yd	1.0017
Pre Leak Check	.000	lpm @	16		(in. Hg)
Post Leak Check	.000	lpm @	16		(in. Hg)

Min/Point	Flow Meter Setting	Gas Sample Initial [l]	Stack Temp (°F)	DGM Temp (°F)	Pump Vaccum (in Hg)	Notes
Elapsed Time		0.00				
10	.3	3.50	124	80	3	Probe at
20	.3	6.48	122	84	3	250
30	.3	9.52	123	87	3	
40	.3	12.46	122	100	3	
50	.3	15.40	120	105	3	
60	.3	18.33	120	107	4	
70	.3	21.16	123	109	4	
80	.3	24.26	123	111	4	
90	.3	27.36	123	110	4	
Total		27.36	1107	895		
Average			122.60	99.44		

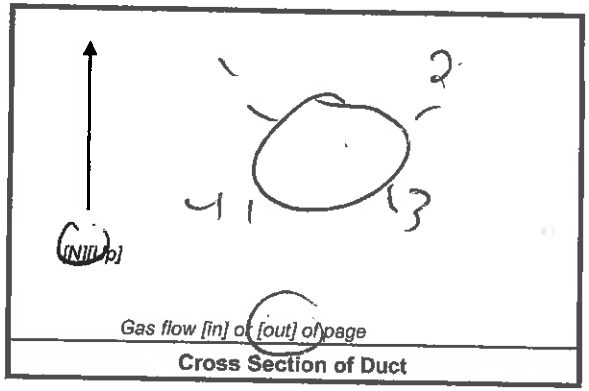
AIRTECH ENVIRONMENTAL SERVICES INC.

Method 30B Data Sheet

Run No. 2

Page 1 of 1

Client	Big Rivers
Plant	Cetterlan Ky
Location	Stack
Date	9-29-11
Project No.	3648
Meter Reader	C.S



Cross Section of Duct

Barometric (in. Hg)	29.36
Static (InH_2O)	-.5
Ambient Temp. (°F)	80
Start Time	2:18 am
Stop Time	3:48 am

Sample Train A

Trap ID	99020	Meter ID	M3SA	Yd	.9994
Pre Leak Check	.000		lpm @	16	(In. Hg)
Post Leak Check	.000		lpm @	10	(in. Hg)

Min/Point 10 Elapsed Time	Flow Meter Setting	Gas Sample Initial [l] 0.00	Stack Temp (°F)	DGM Temp (°F)	Pump Vaccum (in Hg)	Notes
10	.3	3.16	121	83	4	
20	.3	6.35	121	85	4	
30	.3	9.36	121	88	4	
40	.3	12.35	121	98	4	
50	.3	15.42	121	100	4	
60	.3	18.50	121	103	4	
70	.3	21.55	122	105	4	
80	.3	24.56	122	107	4	
90	.3	27.69	122	109	4	
Total		27.69	~~1092~~	~~870~~		
Average			121.33	97.55		

Sample Train B

Trap ID	82434	Meter ID	25B	Yd	1.0017
Pre Leak Check	.000		lpm @	15	(In. Hg)
Post Leak Check	.000		lpm @	10	(in. Hg)

Min/Point 10 Elapsed Time	Flow Meter Setting	Gas Sample Initial [l] 0.00	Stack Temp (°F)	DGM Temp (°F)	Pump Vaccum (in Hg)	Notes
10	.3	2.98	121	83	3	
20	.3	6.05	121	85	3	
30	.3	9.16	121	88	3	
40	.3	12.19	121	98	3	
50	.3	15.20	121	100	3	
60	.3	18.20	121	103	3	
70	.3	21.17	122	105	3	
80	.3	24.18	122	107	3	
90	.3	27.17	122	109	3	10 @ 27.17
Total		27.17	~~1092~~	878		
Average			121.33	97.55		

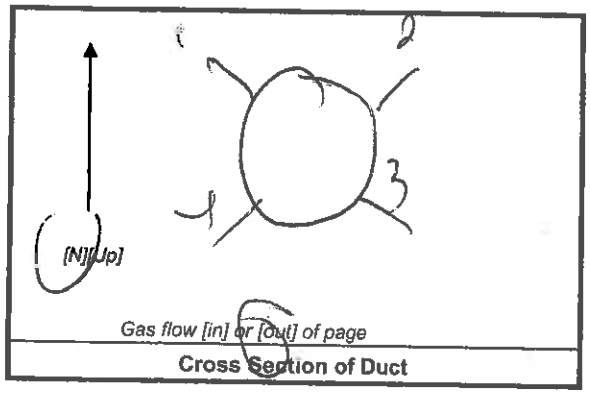
AIRTECH ENVIRONMENTAL SERVICES INC.

Method 30B Data Sheet

Run No. 3

Page 1 of 1

Client	Big Rivers
Plant	Centertown KY
Location	Stack
Date	9-29-11
Project No.	3648
Meter Reader	CS



Gas flow [in] or [out] of page

Cross Section of Duct

Barometric (in. Hg)	29.36
Static (inH_2O)	-.2
Ambient Temp. (°F)	80
Start Time	5:09
Stop Time	6:39

Sample Train A

Trap ID	99107	Meter ID	2SA	Yd	.9994
Pre Leak Check	.000	lpm @	15		(in. Hg)
Post Leak Check	.000	lpm @	0		(In. Hg)

Min/Point 10 Elapsed Time	Flow Meter Setting	Gas Sample Initial [l] 0.00	Stack Temp (°F)	DGM Temp (°F)	Pump Vaccum (in Hg)	Notes
10	.3	3.19	121	83	4	
20	.3	6.27	121	86	4	
30	.3	9.32	121	93	4	
40	.3	12.38	122	97	4	
50	.3	15.42	122	101	4	
60	.3	18.40	122	103	4	
70	.3	21.35	120	106	4	
80	.3	24.37	122	108	4	
90	.3	27.29	120	109	4	
Total		27.29	1095	886		
Average			121.66	98.44		

Sample Train B

Trap ID	82446	Meter ID	2SB	Yd	1.007
Pre Leak Check	.000	lpm @	16		(in. Hg)
Post Leak Check	.000	lpm @	0		(In. Hg)

Min/Point 10 Elapsed Time	Flow Meter Setting	Gas Sample Initial [l] 0.00	Stack Temp (°F)	DGM Temp (°F)	Pump Vaccum (In Hg)	Notes
10	.3	3.06	121	83	4	
20	.3	6.08	121	86	4	
30	.3	9.11	121	93	4	
40	.3	12.16	122	97	4	
50	.3	15.19	122	101	4	
60	.3	18.24	122	103	4	
70	.3	21.27	122	106	4	
80	.3	24.32	122	108	4	
90	.3	27.28	120	109	4	
Total		27.28	1095	886		
Average			121.66	98.44		

Laboratory Data

AIRTECH
Environmental
Services Inc.

Gravimetric
Analytical Report

Performed for
Big Rivers
Wilson Station-
Petcoke
Project No. 3648B
October 12, 2011

Analyst: James Christ

The following data has been reviewed for completeness, accuracy, adherence to method protocol and compliance with quality assurance guidelines.

Reviewer: Kyle L. Gant Date: 10-13-2011

601 COUNTRY CLUB DRIVE, SUITE A, BENSENVILLE, ILLINOIS - TEL: 630-860-4740
FAX: 630-860-4745

Table of Contents

Project Summary

General

Project Information	
Date Received	October 1, 2011
Analytical Protocol	EPA Methods 5B/202
Number of Samples Received	12

Analytical Equipment

Equipment Information	Manufacturer	Model	Serial No.
Analytical Balance	Ohaus	AV114C	8028031056

Sample Remarks

All samples were analyzed according to the EPA Method 5B Section 11 and EPA Method 202 Section 11. A summary of the analytical results is presented in Table 1.

QA/QC

All sample weights were taken until two consecutive weights were within 0.0005g. The Ohaus balance was calibrated daily in addition to the yearly full scale calibration that was performed by Automated Scale Corporation on April 12, 2011.

Condition of Samples When Received

Samples were received in good condition.

Table 1. Summary of EPA Methods 5B/202 Results

Stack

Filterable PM	Run 1	Run 2	Run 3
Front-Half Particulate (g)	0.0295	0.0433	0.0417

Condensible Particulate	Run 1	Run 2	Run 3
Condensible Particulate (g)	0.0093	0.0100	0.0091

Total Particulate	Run 1	Run 2	Run 3
Total Particulate (g)	0.0387	0.0533	0.0509

Appendix

Includes the following:

- *Data Entry*
- *Raw Data*
- *Calibration Logs*

Data Entry

Includes the following:

- *Filter Data Entry*
- *Front-Half-Rinse Data Entry*
- *Organic Fraction Data Entry*
- *Inorganic Fraction Data Entry*

Method 5B/202 Parameters		**Run 1**	**Run 2**	**Run 3**	**Blank**
Filter		12223	12222	12224	
Filter tare weight (g)	Trial 1	0.3407	0.3406	0.3422	
	Trial 2	0.3403	0.3405	0.3422	
	Average	0.3405	0.3406	0.3422	
Filter final weight (g)	Trial 1	0.3454	0.3453	0.3471	
	Trial 2	0.3449	0.3458	0.3476	
	Average	0.3452	0.3456	0.3474	
Filter net weight, m_f (g)		**0.0046**	**0.0050**	**0.0052**	
PM Front Half Wash	*Beaker ID*	*H6*	*H7*	*H8*	*H5*
Beaker tare weight (g)	Trial 1	3.5970	3.5790	3.5530	3.5588
	Trial 2	3.5978	3.5795	3.5534	3.5587
	Average	3.5974	3.5793	3.5532	3.5588
Beaker final weight (g)	Trial 1	3.6226	3.6175	3.5902	3.5587
	Trial 2	3.6222	3.6180	3.5897	3.5592
	Average	3.6224	3.6178	3.5900	3.5590
Volume of Wash, V_{aw} (ml)		190	190	195	200
Beaker weight, m_a (g)		**0.0250**	**0.0385**	**0.0368**	**0.0002**
Organic Fraction					
	Weighing tin ID	*H1*	*H2*	*H3*	*H4*
Weighing tin tare weight (g)	Trial 1	3.5833	3.5805	3.5793	3.6046
	Trial 2	3.5831	3.5805	3.5791	3.6048
	Average	3.5832	3.5805	3.5792	3.6047
Weighing tin final weight (g)	Trial 1	3.5864	3.5856	3.5826	3.6046
	Trial 2	3.5861	3.5851	3.5821	3.6048
	Average	3.5863	3.5854	3.5824	3.6047
Volume of Wash, Vaw (ml)		230	245	230	210
Weighing tin net weight, ma (g)		**0.0031**	**0.0049**	**0.0031**	**0.0000**
	Beaker ID	*416*	*106*	*304*	*315*
Beaker tare weight (g)	Trial 1	101.6381	81.2743	83.3557	81.6597
	Trial 2	101.6376	81.2739	83.3555	81.6596
	Average	101.6379	81.2741	83.3556	81.6597
Beaker final weight (g)	Trial 1	101.6444	81.2794	83.3622	81.6599
	Trial 2	101.6444	81.2798	83.3617	81.6601
	Average	101.6444	81.2796	83.3620	81.6600
Volume of Wash, Vaw (ml)		550	450	530	225
Beaker net weight, ma (g)		**0.0066**	**0.0055**	**0.0063**	**0.0003**

Raw Data

Includes the following:

- *Filter Gravimetric Data Sheets*
- *Beaker Gravimetric Data Sheets*
- *Tin Gravimetric Data Sheets*

AIRTECH ENVIRONMENTAL SERVICES INC.

Filter Gravimetric Data Sheet

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
1	3675 SCRUBBER OUTLET	WHITE	Tare	0.3417	7/15 1109	0.3418	7/15 1758			✓
			Tech		DD		DD		19 C	
Filter ID			Final	0.4323	9/28 1056	0.4293	9/29 9:56	0.4299	9/29 16:09	✓
12214			Tech		TG		/			
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
2A	3675 SCRUBBER OUTLET	WHITE	Tare	0.3430	7/15 1110	0.3428	7/15 1759			✓
			Tech		DD		DD			
Filter ID			Final	0.4217	9/28 1037	0.4210	9/29 9:55	0.4211	9/29 16:10	✓
12215			Tech		TG		/		/	
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
2B	3675 SCRUBBER OUTLET	WHITE	Tare	0.3430	7/15 1112	0.3427	7/15 1759			✓
			Tech		DD		DD			
Filter ID			Final	0.3823	9/28 1038	0.3815	9/29 9:55	0.3819	9/29 16:10	✓
12216			Tech		TG		/		/	
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
3	3675 SCRUBBER OUTLET	WHITE	Tare	0.3397	7/15 1114	0.3397	7/15 1800			✓
			Tech		DD		DD			
Filter ID			Final	0.4091	9/28 1038	0.4085	9/29 9:54	0.4086	9/29 16:11	✓
12217			Tech		TG		/		/	
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
			Tare	0.3411	7/15 1150	0.3410	7/15 1801			✓
			Tech		DD		DD			
Filter ID			Final							
13218			Tech							
			Notes							

Run No.	Proj No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
1	3453 U/31/32 5/202	Brown Dots	Tare	0.3437	7/15 1116	0.3437	7/15 1801			✓
			Tech		DD		DD			
Filter ID			Final	0.3988	9/20 7:12	0.3990	9/21 6:47			✓
12219			Tech		/		/			
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
2	U31/32 5/202 3453	Brown Dots	Tare	0.3400	7/15 1116	0.3409	7/15 1802			✓
			Tech		DD		DD			
Filter ID			Final	0.4160	9/20 7:11	0.4171	9/21 6:48			✓
12220			Tech		/		/			
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
[illegible]	3753 5/202 U32	Brown Dots	Tare	0.3427	7/15 1117	0.3429	7/15 1805			✓
			Tech		DD		DD			
Filter ID			Final	0.4400	9/20 7:11	0.4357	9/21 6:48	0.4384	9/21 17:03	
12222			Tech		/		/			
			Notes	0.4524 9/22 10:14 EA / 0.4365 9/23 10:50 / 0.4384 9/23 17:45						

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
2	3648 Wilson	Brown Dots	Tare	0.3406	7/15 1119	0.3405	7/15 1804			✓
			Tech		DD		DD			
Filter ID			Final	0.3462	10/7 1225	0.3453	10/10 6:26	0.3458	10/11 0938	✓
12223			Tech		KE Filter Grav		/		KE	
			Notes							

AIRTECH ENVIRONMENTAL SERVICES INC.

Filter Gravimetric Data Sheet

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
1	3648 Wilson	Brown Dots	Tare	0.3407	7/15 1129	~~0.3407~~ 0.3405	7/15 1805			✓
			Tech		DD		DD			
Filter ID			Final	0.3454	10/7 1227	0.3449	10/10 6:23			✓
12235			Tech		KE		/			
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
3	3648 Wilson	Brown Dots	Tare	0.3422	7/15 1125	0.3422	7/15 1806			✓
			Tech		DD		DD			
Filter ID			Final	0.3479	10/7 1228	0.3471	10/10 6:24	0.3476	10/11 0940	
12224			Tech		KE		/		KE	
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
6	3644 Miller	White	Tare	0.3411	7/15 1128	0.3412	7/15 1807			✓
			Tech		DD		DD			
Filter ID			Final	0.3412	8/30 14:10	0.3412	8/31 11:52			✓
12225			Tech		/		TG			
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
5	3644 Miller	White	Tare	0.3399	7/15 1128	0.3399	7/15 1808			✓
			Tech		DD		DD			
Filter ID			Final	0.3400	8/30 14:10	0.3402	8/31 11:51			✓
12226			Tech		/		TG			
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
4	3644 Miller Orn	W	Tare	0.3416	7/15 1130	0.3413	7/15 1808			✓
			Tech		DD		DD			
Filter ID			Final	0.3416	8/30 14:11	0.3404	8/31 11:47	0.3409	9/2 10:03	✓
12227			Tech		/		TG		/	
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
1	3644 Miller OFF	Brown Dots	Tare	0.3398	7/15 1133	0.3400	7/15 1809			✓
			Tech		DD		DD			
Filter ID			Final	0.3399	8/30 14:12	0.3403	8/31 11:41			✓
12228			Tech		/		TG			
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
2	3644 Miller OFF	B Dots	Tare	0.3412	7/15 1148	0.3413	7/15 1810			✓
			Tech		DD		DD			
Filter ID			Final	0.3415	8/30 14:13	0.3404	8/31 11:58	0.3408	9/2 10:03	✓
12229			Tech		/		TG		/	
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
3	3644 Miller OFF	B Dots	Tare	0.3394	7/15 1149	0.3394	7/15 1817			✓
			Tech		DD		DD			
Filter ID			Final	0.3395	8/30 14:14	0.3391	8/31 11:30			✓
12230			Tech		/		TG			
			Notes							

Run No.	Proj. No./Location	Appearance		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
6	3681	Black	Tare	0.3431	9/5 1151	0.3420	7/15 1816	0.3413	8/1 15:20	✓
			Tech		DD		DD		/	
Filter ID			Final	0.3490	9/2 1205	0.3491	8/8 9:50			✓
12231			Tech		/		MH			
			Notes							

0.3410 8/13 7:07 JC

Filter Grav

AIRTECH ENVIRONMENTAL SERVICES INC.

Beaker Gravimetric Data Sheet

PROJECT NO. 36480

Page 1 **of**

Client	Big R	**Date Received**	10/1/11
Plant	Wilson Stack		

Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
1	Stack		Tare	101.6381	9/23 10:53	101.6376	9/26 9:22			✓
		202	Tech				AI			
Beaker ID	200+200+100+50		Final	101.1444	10/7 12:10	101.1444	10/10 6:28			✓
416		DI	Tech		KE					
	550 mls		Notes							

Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
2	Stack	202	Tare	81.2743	9/23 10:54	81.2739	9/26 9:22			✓
			Tech				AI			
Beaker ID	200+200+50		Final	81.2794	10/7 12:12	81.2798	10/10 6:27			✓
106		DI	Tech		KE					
	450 mls		Notes							

Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
3	Stack	202	Tare	83.3557	9/23 10:54	83.3555	9/26 9:22			✓
			Tech				AI			
Beaker ID	200+250+50		Final	83.3622	10/7 12:11	83.3617	10/10 6:27			✓
304		DI	Tech		KE					
	450 mls		Notes							

Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
FB	Stack	202	Tare	81.6597	9/23 10:55	81.6596	9/26 9:23			✓
			Tech				AI			
Beaker ID			Final	81.65[illegible]	10/7 12:14	81.6599	10/10 6:26	81.6601	10/11 10:43	✓
315		DI	Tech	6610	KE				KE	
	225 mls		Notes							

Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
			Tare							
			Tech							
Beaker ID			Final							
			Tech							
	mls		Notes							

Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
			Tare							
			Tech							
Beaker ID			Final							
			Tech							
	mls		Notes							

Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
			Tare							
			Tech							
Beaker ID			Final							
			Tech							
	mls		Notes							

Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
			Tare							
			Tech							
Beaker ID			Final							
			Tech							
	mls		Notes							

AIRTECH ENVIRONMENTAL SERVICES INC.

Beaker Gravimetric Data Sheet

PROJECT NO. 364813

Page	2	of	

Client	Big Rivers	Date Received	10/1/11
Plant	Wilson		

Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
1	Stack	202 Hex	Tare	3.5833	9/16 1352	3.5831	9/21 6:54			✓
			Tech		AI					
Beaker ID	200+30		Final	3.5850	10/7 1159	3.5864	10/10 6:44	3.5861	10/11 0915	✓
H1	230 mls		Tech		KE		/		KE	
			Notes							
Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
2		202 Hex	Tare	3.5805	9/16 1352	3.5805	9/21 6:53			✓
			Tech		AI		/			
Beaker ID	200+45		Final	3.5848	10/7 1157	3.5856	10/10 6:44	3.5851	10/11 0919	✓
H2	245 mls		Tech		KE		/		KE	
			Notes							
Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
3		202 Hex	Tare	3.5793	9/16 1353	3.5791	9/21 6:52			✓
			Tech		AI					
Beaker ID	200+30		Final	3.5811	10/7 1152	3.5826	10/10 6:45	3.5821	10/11 0921	✓
H3	230 mls		Tech		KE		/		KE	
			Notes							
Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
FB		202 Hex	Tare	3.6046	9/16 1353	3.6048	9/21 6:52			✓
			Tech		AI					
Beaker ID			Final	3.6046	10/7 1153	3.6048	10/10 6:44			✓
H4	210 mls		Tech		KE		/			
			Notes							
Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
FB		5 Acp	Tare	3.5578	9/16 1355	3.5588	9/21 6:51	3.5587	9/22 7:59	
			Tech		AI		/		EA	
Beaker ID			Final	3.5581	10/7 1156	3.5596	10/10 6:44	3.5587	10/11 0929	✓
H5	200 mls		Tech		KE		/		KE	
			Notes							
Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
1		5 Acp	Tare	3.5970	9/16 1355	3.5978	9/21 651			✓
			Tech		AI		/			
Beaker ID			Final	3.6226	10/7 1148	3.6222	10/10 6:46			✓
H6	190 mls		Tech		KE		/			
			Notes							
Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
2		5 Acp	Tare	3.5790	9/16 1356	3.5795	9/21 6:50			✓
			Tech		AI		/			
Beaker ID			Final	3.6185	10/7 1149	3.6180	10/10 6:47			✓
H7	190 mls		Tech		KE		/			
			Notes							
Run No.	Location/Volume	Method/ Reagent		Weight	Date / Time	Weight	Date / Time	Weight	Date / Time	Good
3		5 Acp	Tare	3.5530	9/16 1356	3.5534	9/21 6:50			✓
			Tech		AI		/			
Beaker ID			Final	3.5896	10/7 1150	3.5902	10/10 6:48	3.5897	10/11 0927	✓
H8	195 mls		Tech		KE		/		KE	
			Notes							

3.5592 10/11 17:28 7°

Chain of Custody

Includes the following:

- *Sample Chain of Custody*

AIRTECH ENVIRONMENTAL SERVICES INC.
Chain of Custody

№ 1808

Project Number	3648	Location	Stack
Client	Big Rivers	Date	9-30-11
Plant	Owens Boro, KY	Completed By	MH

Comments:

Analysis Requested: 26A

Page 1 of 1

ID No.	Run No.	Date	Sample Description	26A	Notes
Run 1A	1	9/30	Imp Catch + .1N H_2SO_4 Solution"	X	
Run 1B	1	9/30	" "	X	
Run 2	2	9/30	" "	X	
Run 3A	3	9/30	" "	X	
Run 3B	3	9/30	" "	X	
Blank	Blank	9/30	200 mL H_2SO_4	X	

Relinquished By (signature)		Relinquished By (signature)		Carrier	FedEx
(printed)	Michael Hess	(printed)	Jim Christ	Laboratory	Airtech
Date/Time	10-1-11	Date/Time	9/30/11	Contact	MO
Accepted By (signature)		Accepted By (signature)		Address	Denver, CO
(printed)	Jim Christ	(printed)		Phone	
Date/Time	9/30/11	Date/Time		Fax	
				Date/Time	

AIRTECH Environmental Services Inc.

Airtech Environmental Services Inc.
601A Country Club Drive
Bensenville, IL 60106
Phone: (630) 860-4740, Fax: (630) 860 4745

AIRTECH ENVIRONMENTAL SERVICES INC.

Chain of Custody

№ 1807

Project Number	3648	Location	Stock
Client	Big Rivers	Date	9-30-11
Plant	Owensboro, KY	Completed By	MH

Comments:

Analysis Requested

Page 2 of 2

ID No.	Run No.	Date	Sample Description	Notes
Blank			Acetone	
Blank			Hexane	
Blank			DI H_2O	

Relinquished By (signature)		Relinquished By (signature)		Carrier	Airtech
(printed)	Michael He	(printed)		Laboratory	Bensenville Lab
Date/Time	10-1-11	Date/Time		Contact	
Accepted By (signature)		Accepted By (signature)		Address	
(printed)	Tim Christ	(printed)		Phone	
Date/Time	10-3-11	Date/Time		Fax	
				Date/Time	

AIRTECH Environmental Services Inc.

Airtech Environmental Services Inc.
601A Country Club Drive
Bensenville, IL 60106
Phone: (630) 860-4740, Fax: (630) 860 4745

AIRTECH ENVIRONMENTAL SERVICES INC.
Chain of Custody

№ 1567

Project Number	3648	Location	Stack
Client	Big Rivers	Date	9-30-11
Plant	Owensboro, KY	Completed By	MH
Comments:			

Analysis Requested: 202M, M 5

Page 1 of 2

ID No.	Run No.	Date	Sample Description	202M	M 5	Notes
Run 1	1	9/30	Impinger Catch + H_2O Rinse	X		
Run 2	2		" " "	X		
Run 3	3		" " "	X		
Run 1	1		Acetone + Hexane Rinse	X		
Run 2	2		" " "	X		
Run 3	3		" " "	X		
Run 1	1		F 1/2 Acetone Rinse		X	
Run 2	2		" " "		X	
Run 3	3		" " "		X	
Run 1	1		CPM Filter	X		
Run 2	2		" "	X		
Run 3	3		" "	X		
12223 Run 1	1		Method 5 Fiber Filter		X	
12222	2		" "		X	
12224	3		" "		X	

Relinquished By (signature)		Relinquished By (signature)		Carrier	Airtech
(printed)	Michael Hess	(printed)		Laboratory	Bensenville Lab
Date/Time	10-1-11	Date/Time		Contact	
Accepted By (signature)		Accepted By (signature)		Address	
(printed)	10-3-11 Jim Long	(printed)		Phone	
Date/Time		Date/Time		Fax	
				Date/Time	

AIRTECH Environmental Services Inc.

Airtech Environmental Services Inc.
601A Country Club Drive
Bensenville, IL 60106
Phone: (630) 860-4740, Fax: (630) 860 4745

Calibration Data

Includes the following:

- *Daily Analytical Balance Calibration Log*
- *Yearly Analytical Balance Test and Calibration Certificate*

AIRTECH ENVIRONMENTAL SERVICES INC.
Analytical Balance Daily Calibration

Scale ID	Ohaus AV114C
Units of Measure	grams

Full Cal Test Date	4/13/10

Date	Tech Initials	100.0000g	0.1000g	5.0000g	Barometric Pressure (In. Hg)	Relative Humidity (%)	Ambient Temp (^{0}F)	Notes
9/29/11	TC	99.9999	~~5.0000~~	5.0000	29.1	46	68	0.0999
9/30/11	TC	100.0000	~~4.9999~~ TC	4.9999	29.4	47	72	0.0999
10/4/11	TC	100.0000	0.1000	5.0001	29.6	47	70	
10/6/11	KV	100.0000	0.1000	5.0000	29.56	48	72	
10/7/11	KV	100.0001	0.1001	5.0000	29.61	50	72	
10/10/11	TC	100.0001	0.0999	4.9999	29.6	43	70	
10/11/11	KE	99.9999	0.0999	5.0000	29.49	46	70	
10/12/11	TC	100.0001	0.1000	5.0000	29.3	47	70	

AIRTECH ENVIRONMENTAL SERVICES INC.
Analytical Balance Daily Calibration

Scale ID	Ohaus AV114C
Units of Measure	grams

Full Cal Test Date	4/13/10

Date	Tech Initials	100.0000g	0.1000g	5.0000g	Barometric Pressure (in. Hg)	Relative Humidity (%)	Ambient Temp (°F)	Notes
7/26/11	MH	100.0001	0.1000	5.0000	29.27	71	65	
7/27/11	MH	100.0000	0.1001	5.0001	29.31	70	66	
7/28/11	MH	100.0000	0.1000	5.0001	29.34	70	64	
7/29/11	MH	100.0000	0.1001	5.0000	29.41	69	65	
8/1/11	MH	100.0000	0.1000	5.0000	29.58	70	62	
8/2/11	MH	100.0000	0.1000	5.0000	29.34	70	60	
8/3/11	TC	99.9999	0.1001	4.9999	29.4	61	68	
8/4/11	TC	99.9999	0.0999	5.0000	29.5	60	68	
8/5/11	TC	100.0000	0.1000	5.0000	29.4	46	68	
8/8/11	MH	100.0000	0.1000	5.0001	29.28	60	70	
8/9/11	TC	100.0000	0.1000	5.0001	29.1	50	68	
8/11/11	MC	99.9999	0.1000	4.9999	29.4	50	74	
8/12/11	MH				29.44	50	74	
8/15/11	TC	100.0000	0.1000	5.0001	29.4	46	70	
8/17/11	CB	99.9999	0.1000	5.0001	29.3	55	72	
8/22/11	TC	99.9999	0.1000	5.0000	29.4	51	72	
8/23/11	TC	100.0000	0.0999	5.0001	29.4	44	68	
8/24/11	TC	100.0001	0.1000	5.0000	29.1	52	70	
8/25/11	TC	100.0000	0.0999	4.9999	29.4	51	72	
8/26/11	AE	100.0001	0.1001	5.0001	29.4	50	70	
8/27/11	TC	100.0000	0.0999	4.9999	29.4	53	70	
8/28/11	TC	100.0001	0.1001	5.0000	29.3	46	68	
8/29/11	TC	100.0001	0.1001	5.0001	29.3	44	70	
8/30/11	TC	100.0001	0.1001	5.0001	29.2	41	68	
8/31/11	TG	100.0000	0.0998	4.9999	29.4	48	72	
9/1/11	TG	100.0000	0.1000	5.0000	29.4	48	70	
9/2/11	TC	100.0000	0.1000	5.0001	29.3	48	68	
9/6/11	TG	100.0000	0.1000	5.0000	29.5	46	72	
9/8/11	MH	100.0000	0.0999	5.0000	29.51	45	72	
9/12/11	KW	100.0000	0.1000	5.0001	29.30	65	70	
9/13/11	TC	100.0000	0.1001	5.0001	29.2	47	70	
9/14/11	TC	100.0001	0.1002	5.0001	29.1	44	70	
9/15/11	KW	99.9998	.0999	5.0000	29.7	46	71	
9/16/11	TC	99.9999	0.0999	5.0000	29.7	42	68	
9/20/11	TC	100.0000	0.1000	5.0001	29.4	45	68	
9/21/11	TC	100.0000	0.0999	4.9999	29.3	46	68	
9/22/11	FA	99.9997	0.1002	5.0002	29.5	50	68	
9/23/11	TC	99.9999	0.1001	5.0001	29.5	47	69	
9/26/11	AE	100.0001	0.1000	4.9999	29.0	51	71	
9/28/11	TG	99.9992	0.0998	4.999	29.2	50	69	

AUTOMATED SCALE CORPORATION
202 W. Fay Ave. Addison, IL 60101 800/498-6650

Page 1 of 1 Page

TEST & CALIBRATION CERTIFICATE

L-A-B Accredited: Certificate #L1053-1

Tests and/or calibrations shall stop when environmental conditions will jeopardize the results. (rain, wind, vibration, temperature, and etc.)

Standards Used: Traceable through NIST to the SI units
Test equipment and weight (s) certificates available on request

Client Name & Address	Location (Plant and / or Dept.)	Procedure used: 5.4-02 Process Control
Air Tech	Lab	Uncertainty of measurement (UM) Yes [ ] No ☒
601 A Country Club	NA	Temperature Yes [X] No [ ]
Bensenville	Contact: Jim L	Identified metrological reference: NIST Handbook 44

Manufacturer	Model #	Serial #	Capacity X Grad.
Indicator: Ohaus	AV114C	8028031056	110g x .0001
Platform: NA	NA	NA	NA

Inspection Cycle: 365 day

Equipment ID: NA

Scale Platform Corner Test

Parallelogram Side/Front Test

Indicator

1	C	2
A	See Shift Test Below	B
3	D	4

Cert# Client Tolerance (, /)%		As Found/Left Shift Test					As Found		As Left		Pass/Fail		Temp.		Traceable
Date	☒	A	B	C	D	Zero	AMT 1	AMT 2	AMT 2	AMT 1	P/F	UM	F°	Tech	Cert. #/ Wt. ID
4-13-10	F	50.0000	50.0000	50.0000	50.0000	3	50.0000	100.0000	100.0000	50.0000	P	NA	74	[illegible]	# 1538014
	L	50.0000	50.0000	50.0000	50.0000	0									ID ASTM01
4-12-11	F	50.0000	50.0000	50.0000	50.0000	8	50.0000	100.0001	100.0000	50.0000	P	NA	74	GR	# 1538014
	L	50.0000	60.0000	50.0000	50.0000	8									ID ASTMOM
	F														#
	L														ID
	F														#
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Comments:

Pass/Fail compliance statements are the opinions of Automated Scale Corp. based on data from measurements made, procedure utilized, professional experience, and the uncertainty associated with this calibration. It is the responsibility of the user of this equipment to determine if the results identified meet specific requirements for its intended application. Associated uncertainty (as applicable) is expressed at a confidence level of approximately 95% with a coverage factor of K=2.

Form: 5.4.02 L-A-B Accredited Process Control Certificate 3/2/10

AIRTECH
Environmental
Services Inc.

Ion Chromatography
Analytical Report

Performed for
Big Rivers Energy
Owensboro Station
Project No. 3648
October 25, 2011

Analyst: _____
Michael Ogletree

Reviewer: _____
Patrick Clark P.E.

702 WEST 48TH AVENUE, UNIT J - DENVER, COLORADO - TEL: 303.670.0530 - FAX: 303.670.4130

Table of Contents

Project Summary

General

Project Information	
Date Received	10/4/2011
Analytical Protocol	EPA Method 26A
Total Number of Samples Received	5
Total Number of Blanks Received	1

Analytical Equipment

Equipment Information	Manufacturer	Model	Serial No.
Ion Chromatograph	Dionex	ICS-90	02070247
Analytical Column	Dionex	AS14A	007967
Guard Column	Dionex	AG14A	009807
Anion Suppressor	Dionex	AMMS III 4 mm	1934

Parameters	Conditions
Eluent	8.0 mM Sodium Carbonate/1.0 mM Sodium Bicarbonate
Regenerant	0.075 N Sulfuric Acid
Sample Volume	10 µl
Flow Rate	1.0 ml/m
Back Pressure	2,700 PSI

Condition of Samples When Received

Samples were received for analysis in good condition. The samples are summarized in the table below:

Sample ID	Solution	Volume (ml)
Run 1A	0.1 N H_2SO_4	541
Run 1B	0.1 N H_2SO_4	93
Run 2	0.1 N H_2SO_4	506
Run 3A	0.1 N H_2SO_4	528
Run 3B	0.1 N H_2SO_4	126
Reagent Blank	0.1 N H_2SO_4	125

Methodology

All samples were analyzed according to the EPA Method 26A procedures found in 40 CFR Part 60 Appendix A.

Detection Limit

The detection limits for HCl and HF were determined using the procedures found in 40 CFR Part 236, Appendix B, entitled "Definition and Procedure for the Determination of the Method Detection Limit". Seven injections of the 0.5 µg/ml standard were analyzed. The detection limit was determined to be <0.0441 µg/ml for Cl^- and <0.0647 µg/ml for F^-.

QA/QC

All sample analysis was performed in duplicate with a percent difference within five percent (5%) of the mean.

The chloride and fluoride calibration curves were generated using four calibration standards. The standards were prepared by diluting NIST traceable chloride and fluoride standards with 0.2 N H_2SO_4.

The chloride standard used for this project was a 1000 µg/ml chloride solution, lot number 030523, manufactured by Dionex Corporation of Sunnyvale, California.

The fluoride standard used for this project was a 1000 µg/ml fluoride solution, lot number 092209, manufactured by Dionex Corporation of Sunnyvale, California.

Results that were determined to be below the lowest calibration standard and above the minimum detection limit were calculated using the corresponding average response factor.

Samples "Run 1A" and "Run 1B" were combined and analyzed as one sample. Samples "Run 3A" and "Run 3B" were also combined and analyzed as one sample.

Appendix

Includes the following:

- **Results**
- **Calibration Data**
- **Raw Data**
- **Chain of Custody**

Results

Includes the following:

- **Hydrogen Fluoride Results**
- **Hydrogen Chloride Results**

HYDROGEN FLUORIDE ANALYSIS

Sample Parameters	Reagent Blank	Run 1 (A & B Combined)	Run 2	Run 3 (A & B Combined)
Volume (ml)	125	634	506	654
Dilution factor	1	1	1	1
Peak Area # 1	0.0150	0.0330	0.0360	0.0300
Peak Area # 2	0.0110	0.0330	0.0370	0.0290
Average	0.0130	0.0330	0.0365	0.0295
Injections % of mean	15.4%	0.0%	1.4%	1.7%

RESULTS

Average Response Factor	x	x	x	x
Linear Regression				
Fluoride (µg/ml)	0.0913	0.232	0.256	0.207
Hydrogen Fluoride (µg/ml)	0.0962	0.244	0.270	0.218
Hydrogen Fluoride (mg)	0.0120	0.155	0.137	0.143

HYDROGEN CHLORIDE ANALYSIS

Sample Parameters	Reagent Blank	Run 1 (A & B Combined)	Run 2	Run 3 (A & B Combined)
Volume (ml)	125	634	506	654
Dilution factor	1	1	1	1
Peak Area # 1	0.0110	0.0610	0.0520	0.0410
Peak Area # 2	0.0120	0.0570	0.0500	0.0440
Average	0.0115	0.0590	0.0510	0.0425
Injections % of mean	4.3%	3.4%	2.0%	3.5%

RESULTS

Average Response Factor	x	x	x	x
Linear Regression				
Chloride (µg/ml)	< 0.0441	0.514	0.445	0.371
Hydrogen Chloride (µg/ml)	< 0.0454	0.529	0.457	0.381
Hydrogen Chloride (mg)	< 0.00567	0.335	0.231	0.249

Calibration Data

Includes the following:

- Hydrogen Fluoride Standards
- Hydrogen Chloride Standards
- Detection Limits
- Hydrogen Fluoride Calibration Curve
- Hydrogen Chloride Calibration Curve

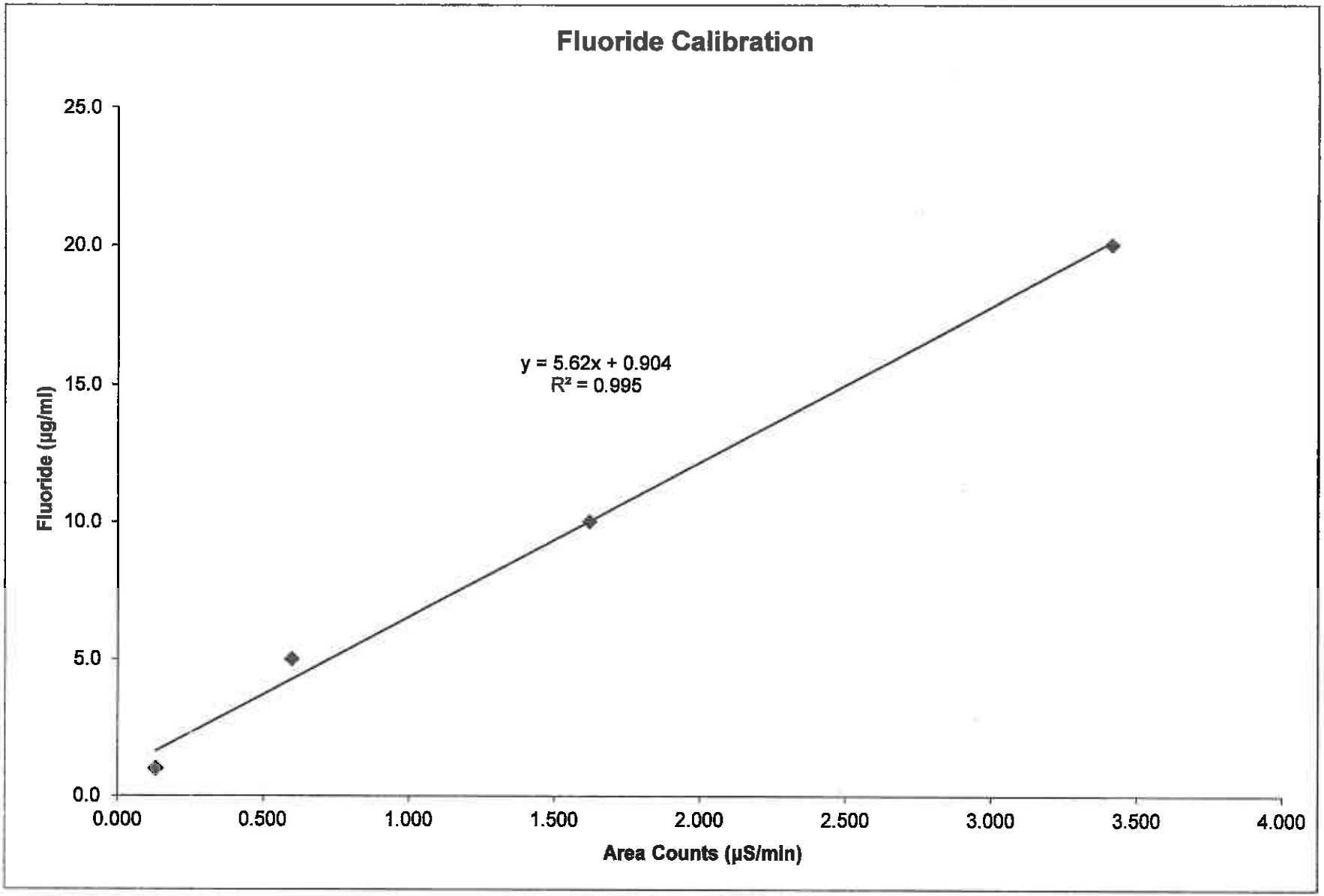
IC Operating Conditions	
Ion Chromatograph	Dionex ICS-90
Data Acquisition	Dionex PeakNet 6.4
Carrier Gas	Nitrogen
Injection Type	Manual
Injection Volume (µl)	10.0
Column Type	AS-14A
Detector Type	Suppressed Conductivity ECD-1

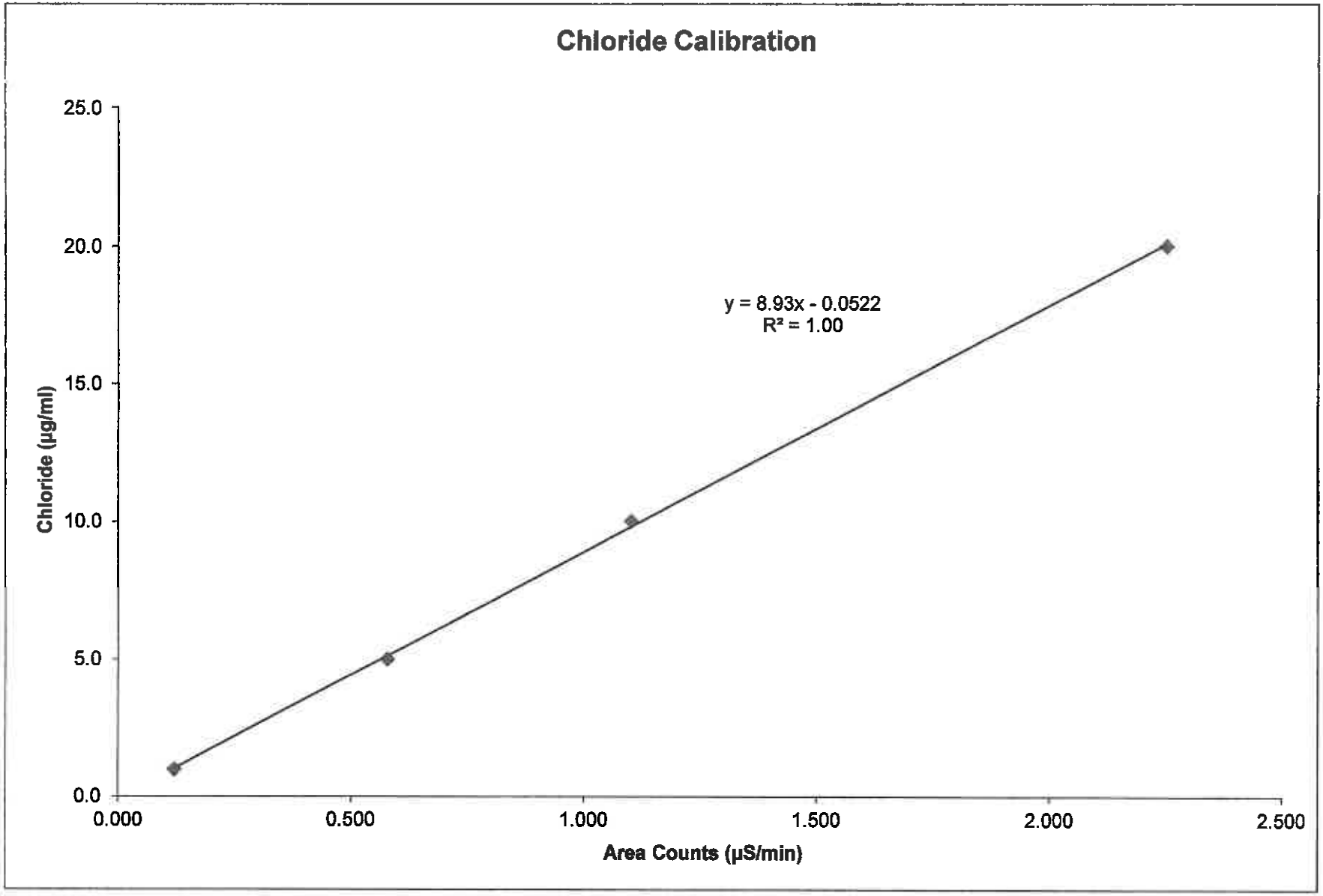
Calibration Summary	Standard 1	Standard 2	Standard 3	Standard 4
Fluoride (µg/ml)	1.0	5.0	10.0	20.0
Pre Analysis Injection # 1	0.1250	0.6050	1.6210	3.3990
Pre Analysis Injection # 2	0.1270	0.6050	1.6100	3.4180
Average	**0.126**	**0.605**	**1.62**	**3.41**
% difference of injections	1.6%	0.0%	0.7%	0.6%
Post Analysis Injection # 1	0.1340	0.5900	1.6180	3.4350
Post Analysis Injection # 2	0.1350	0.5850	1.6220	3.4060
Average	**0.135**	**0.588**	**1.62**	**3.42**
% difference of injections	0.7%	0.9%	0.2%	0.9%
Overall Average	**0.130**	**0.596**	**1.62**	**3.41**
Pre/Post Analysis, % of mean	3.3%	1.5%	0.1%	0.2%
RESULTS				
Response Factor	7.68	8.39	6.18	5.86
Average Response Factor	7.03			
Slope	5.62			
Intercept	0.904			

Calibration Summary	Standard 1	Standard 2	Standard 3	Standard 4
Chloride (µg/ml)	1.0	5.0	10.0	20.0
Pre Analysis Injection # 1	0.1230	0.5800	1.1040	2.2610
Pre Analysis Injection # 2	0.1200	0.5810	1.1200	2.2870
Average	**0.122**	**0.581**	**1.11**	**2.27**
% difference of injections	2.5%	0.2%	1.4%	1.1%
Post Analysis Injection # 1	0.1210	0.5760	1.0880	2.2150
Post Analysis Injection # 2	0.1200	0.5730	1.0940	2.2470
Average	**0.121**	**0.575**	**1.09**	**2.23**
% difference of injections	0.8%	0.5%	0.5%	1.4%
Overall Average	**0.121**	**0.578**	**1.10**	**2.25**
Pre/Post Analysis, % of mean	0.4%	0.5%	1.0%	1.0%
RESULTS				
Response Factor	8.26	8.66	9.08	8.88
Average Response Factor	8.72			
Slope	8.93			
Intercept	-0.0522			

Detection Limit Parameters	Chloride	Fluoride
Standard (µg/ml)	0.5	0.5
Injection 1	0.0640	0.0730
Injection 2	0.0590	0.0670
Injection 3	0.0590	0.0650
Injection 4	0.0600	0.0650
Injection 5	0.0590	0.0650
Injection 6	0.0590	0.0620
Injection 7	0.0570	0.0640
Average	0.0596	0.0659

RESULTS		
Response Factor	8.39	7.59
Standard Deviation	0.00215	0.00348
No of Samples (n)	7	7
Student t value ($t_{(0.975)}$)	2.447	2.447
Calculated limit of detection (µg/ml)	0.0441	0.0647


Fluoride Calibration
25.0
20.0
15.0
10.0
5.0
0.0
Fluoride (µg/ml)
y = 5.62x + 0.904
R² = 0.995
0.000
0.500
1.000
1.500
2.000
2.500
3.000
3.500
4.000
Area Counts (µS/min)


Chloride Calibration
y = 8.93x - 0.0522
R² = 1.00
Chloride (µg/ml)
25.0
20.0
15.0
10.0
5.0
0.0
0.000
0.500
1.000
1.500
2.000
2.500
Area Counts (µS/min)

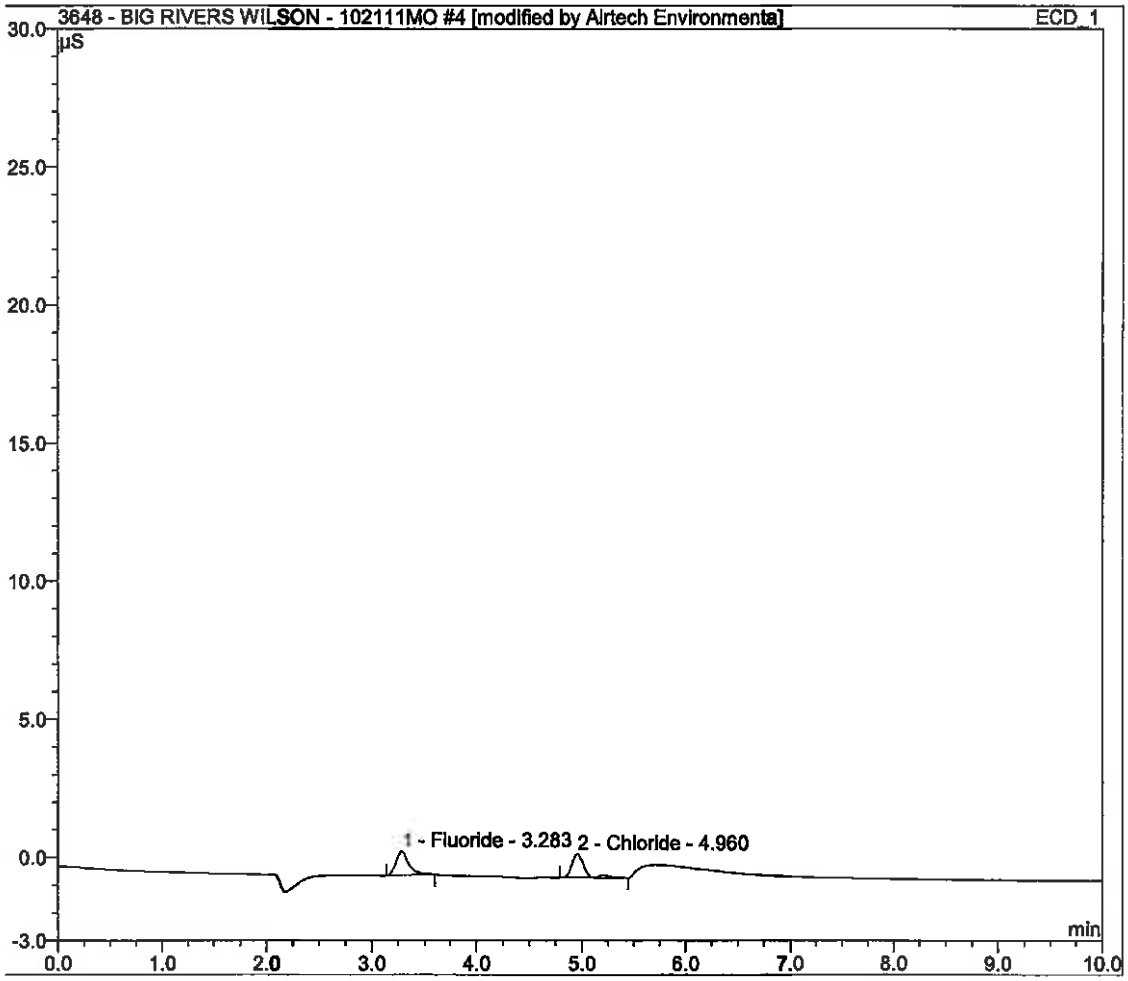
Raw Data

Includes the following:

- **Pre Analysis Chromatograms**
- **Sample Chromatograms**
- **Drift Check Chromatograms**
- **Post Analysis Chromatograms**
- **Lab Book Data Entry**

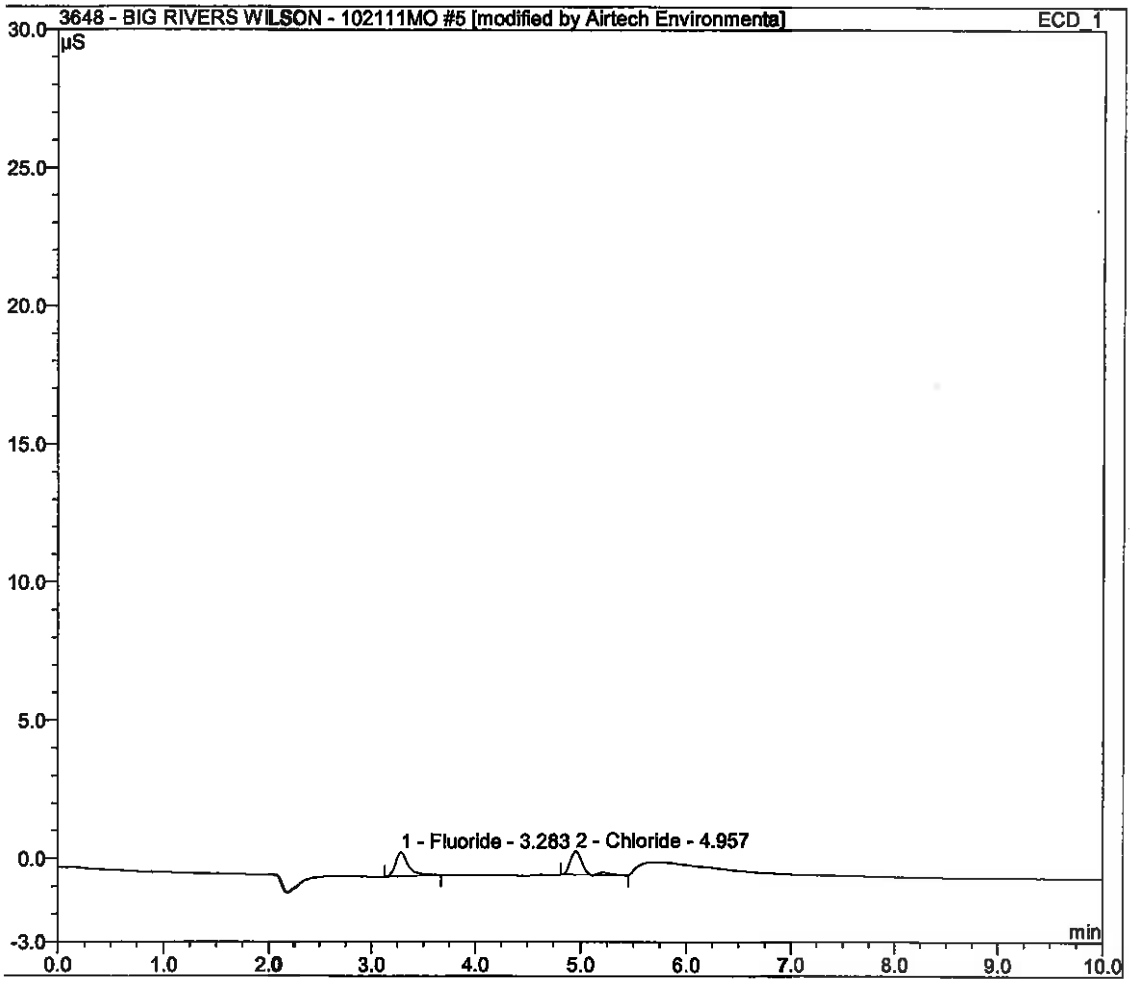
Sample Name:	**cal std 1**	*Inj. Vol:*	**10.0**
Sample Type:	**standard**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**21.10.11 11:31**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.28	Fluoride	BMB*	0.125	0.873	0.1081
2	4.96	Chloride	BMB*	0.123	0.864	0.0049
		TOTAL:		0.25	1.74	0.11



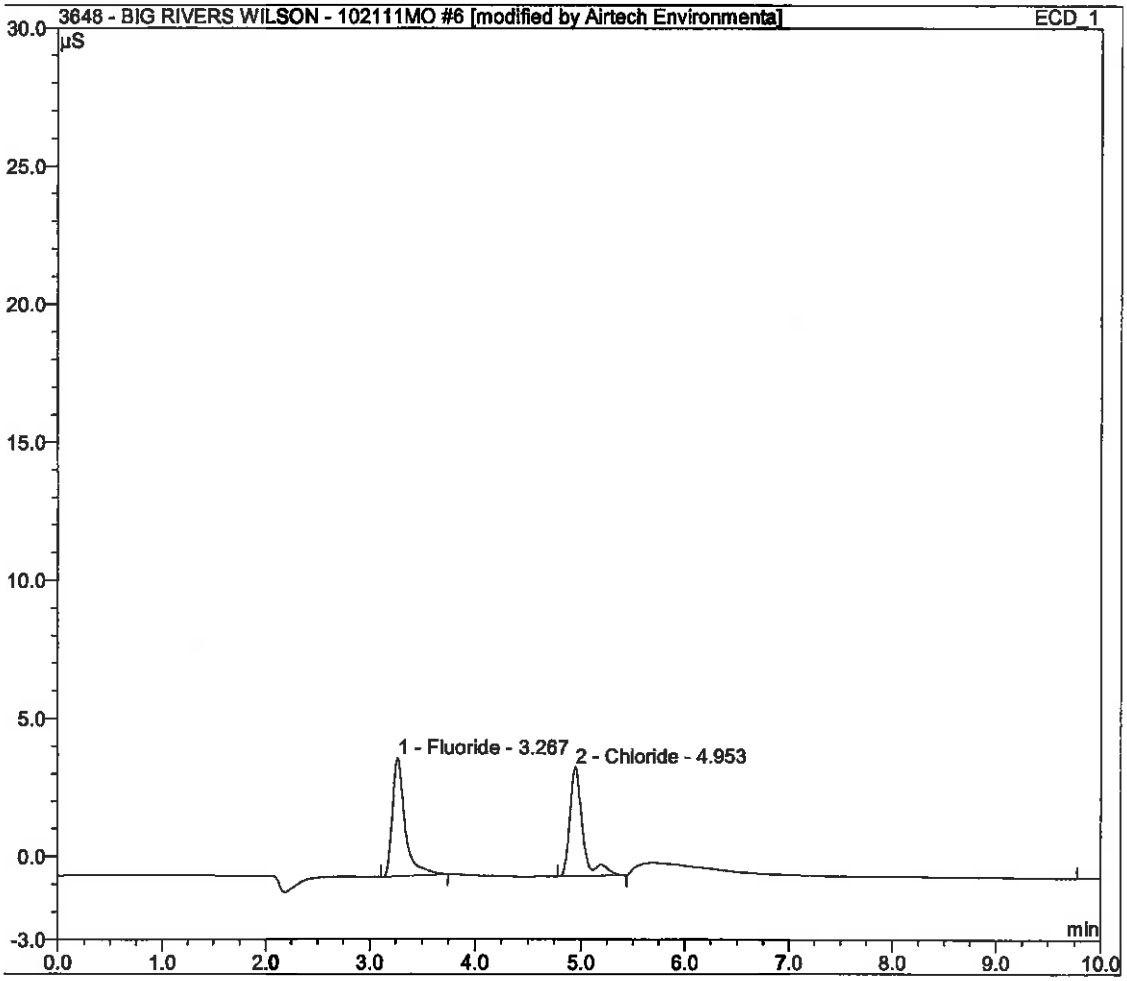
Sample Name:	**cal std 1**	*Inj Vol:*	**10.0**
Sample Type:	**standard**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**21.10.11 11:47**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.28	Fluoride	BMB*	0.127	0.877	0.1104
2	4.96	Chloride	BMB*	0.120	0.855	0.0048
		TOTAL:		0.25	1.73	0.12



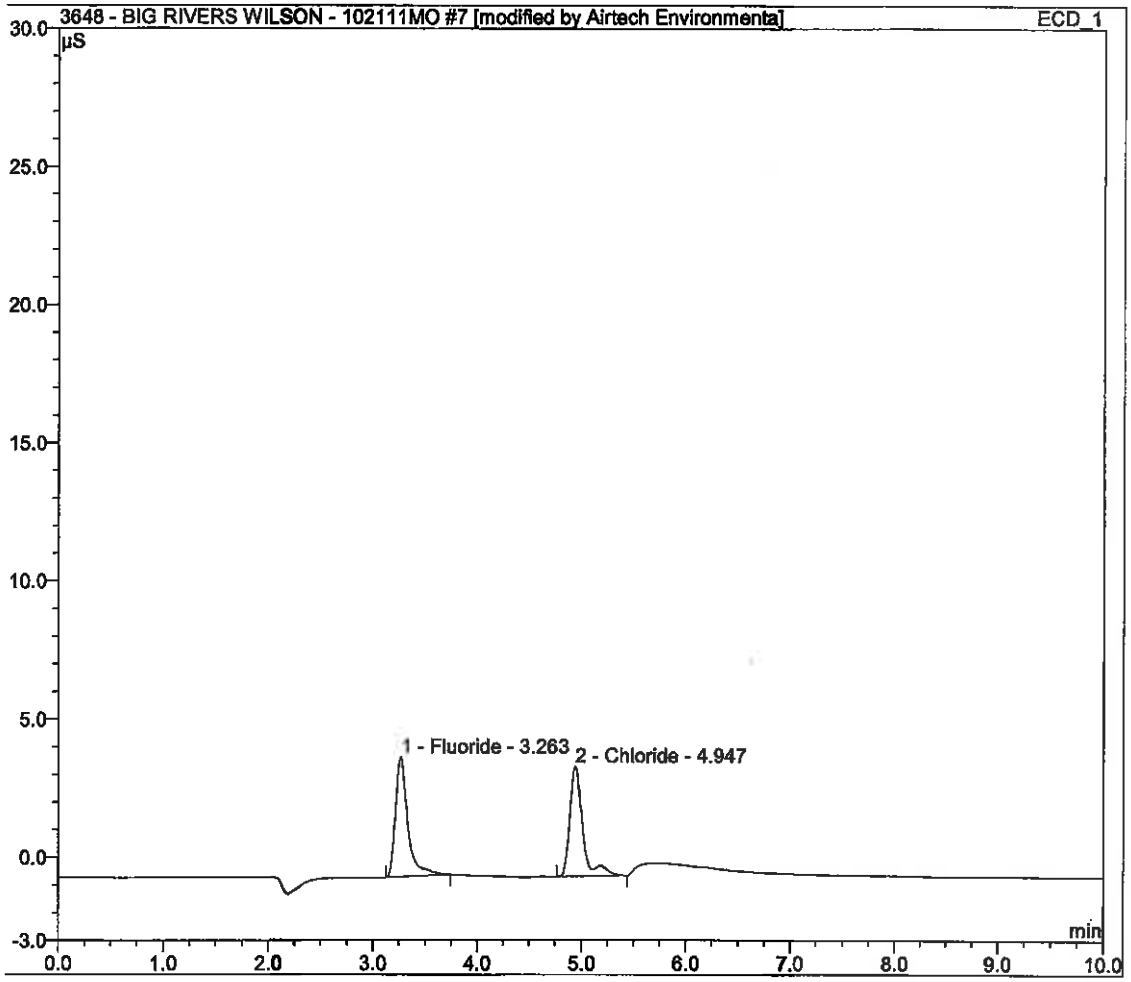
Sample Name:	cal std 2	*Inj. Vol.:*	10.0
Sample Type:	standard	*Dilution Factor:*	1.0000
Program:	ChlorideCal	*Operator:*	n.a.
Inj. Date/Time:	21.10.11 12:03	*Run Time:*	15.00

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.27	Fluoride	BMB*	0.605	4.287	0.5236
2	4.95	Chloride	BMB*	0.580	3.955	0.0230
		TOTAL:		1.18	8.24	0.55



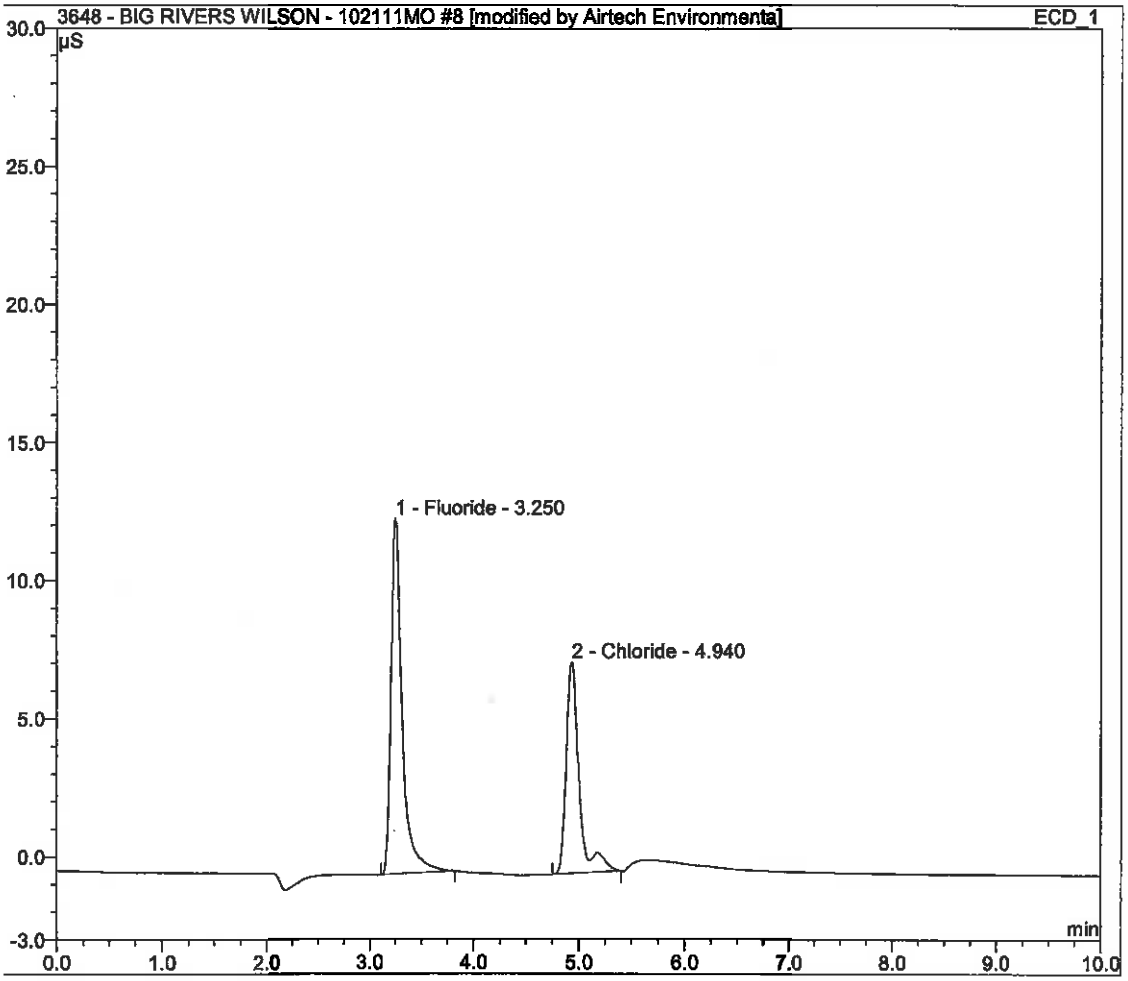
Sample Name:	cal std 2	*Inj. Vol:*	10.0
Sample Type:	standard	*Dilution Factor:*	1.0000
Program:	ChlorideCal	*Operator:*	n.a.
Inj. Date/Time:	21.10.11 12:23	*Run Time:*	15.00

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.26	Fluoride	BMB*	0.605	4.353	0.5235
2	4.95	Chloride	BMB*	0.581	3.995	0.0231
		TOTAL:		1.19	8.35	0.55



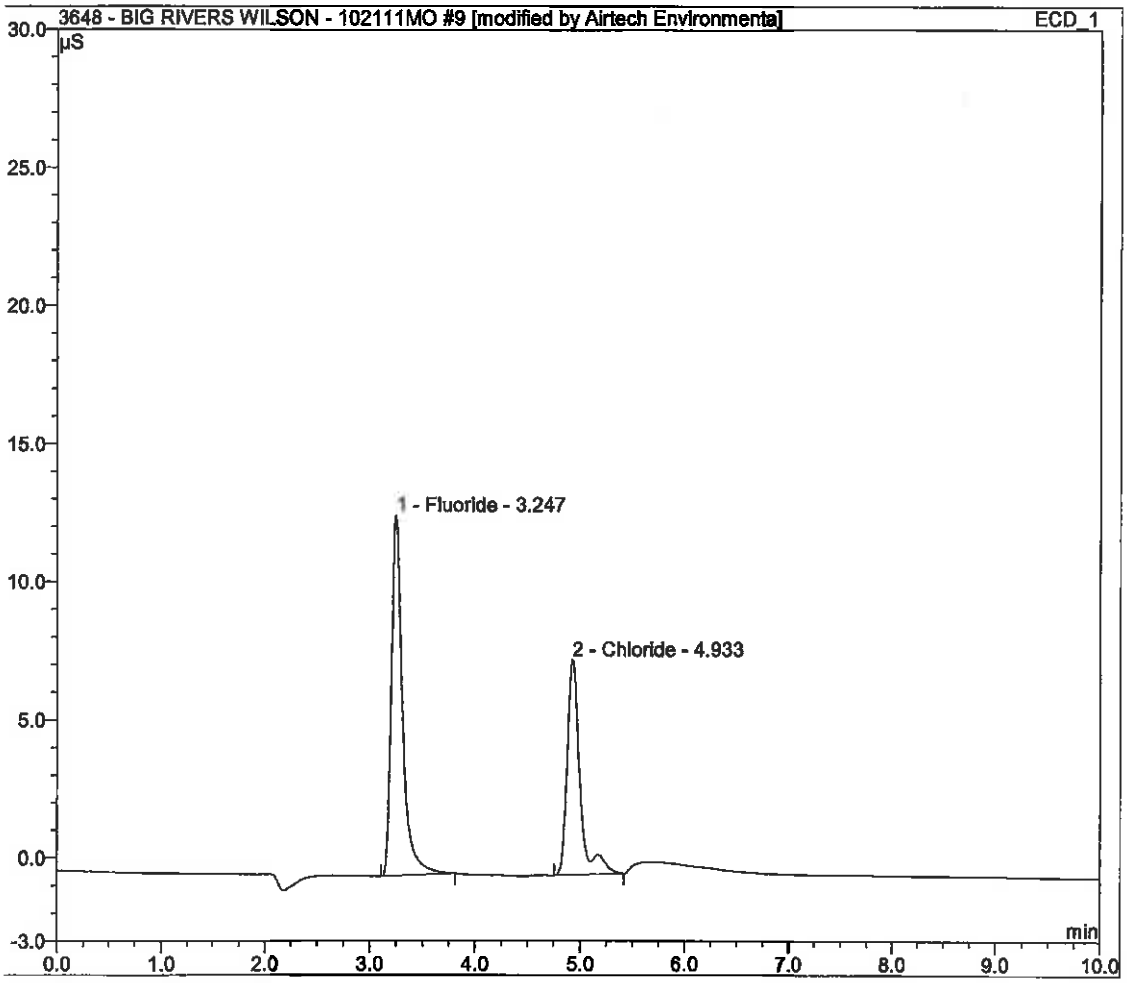
Sample Name	**cal std 3**	*Inj. Vol.*	**10.0**
Sample Type	**standard**	*Dilution Factor*	**1.0000**
Program	**ChlorideCal**	*Operator*	**n.a.**
Inj. Date/Time	**21.10.11 12:50**	*Run Time*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.25	Fluoride	BMB*	1.621	12.871	1.4035
2	4.94	Chloride	BMB*	1.104	7.663	0.0439
		TOTAL:		2.73	20.53	1.45



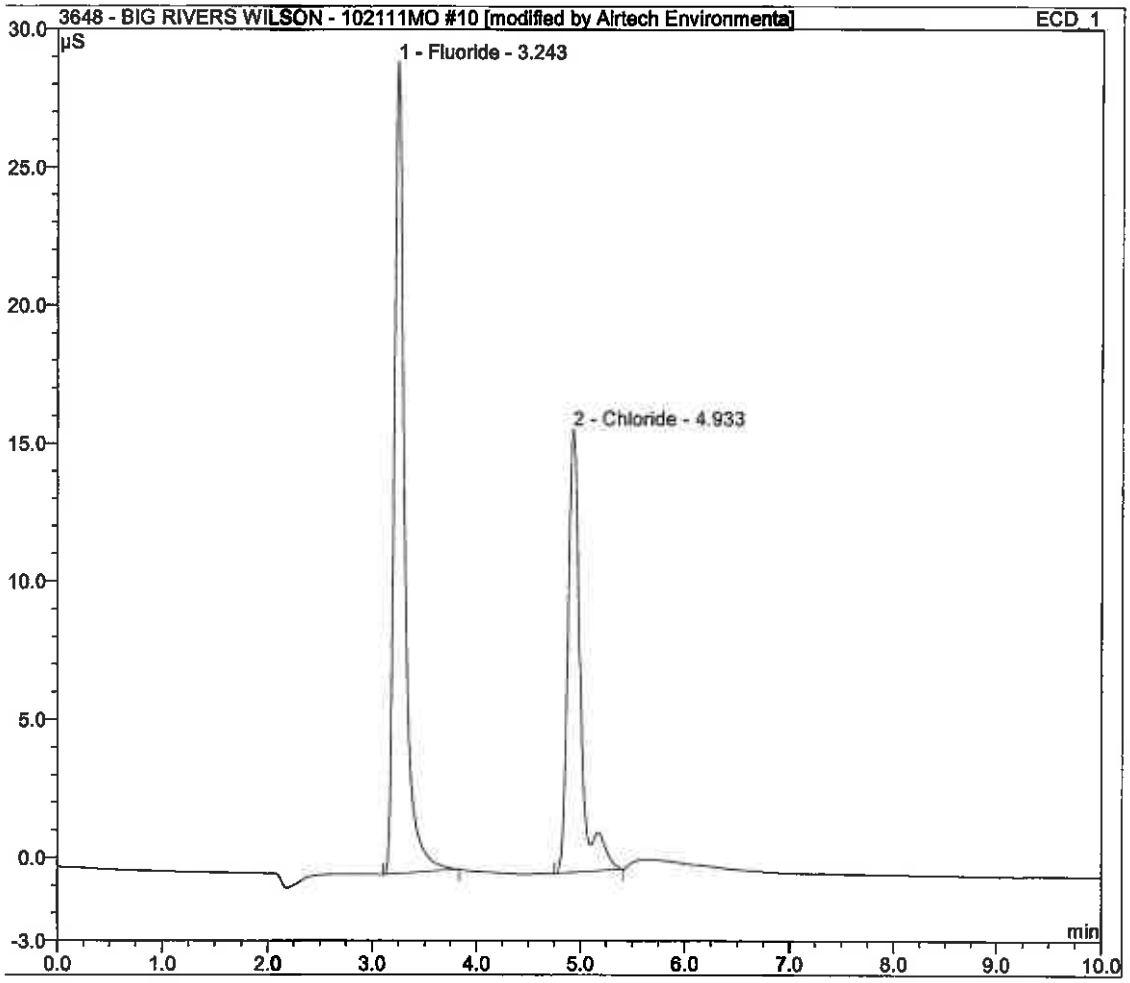
Sample Name:	**cal std 3**	*Inj. Vol.*	**10.0**
Sample Type:	**standard**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**21.10.11 13:07**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.25	Fluoride	BMB*	1.610	13.040	1.3940
2	4.93	Chloride	BMB*	1.120	7.775	0.0445
		TOTAL:		2.73	20.82	1.44



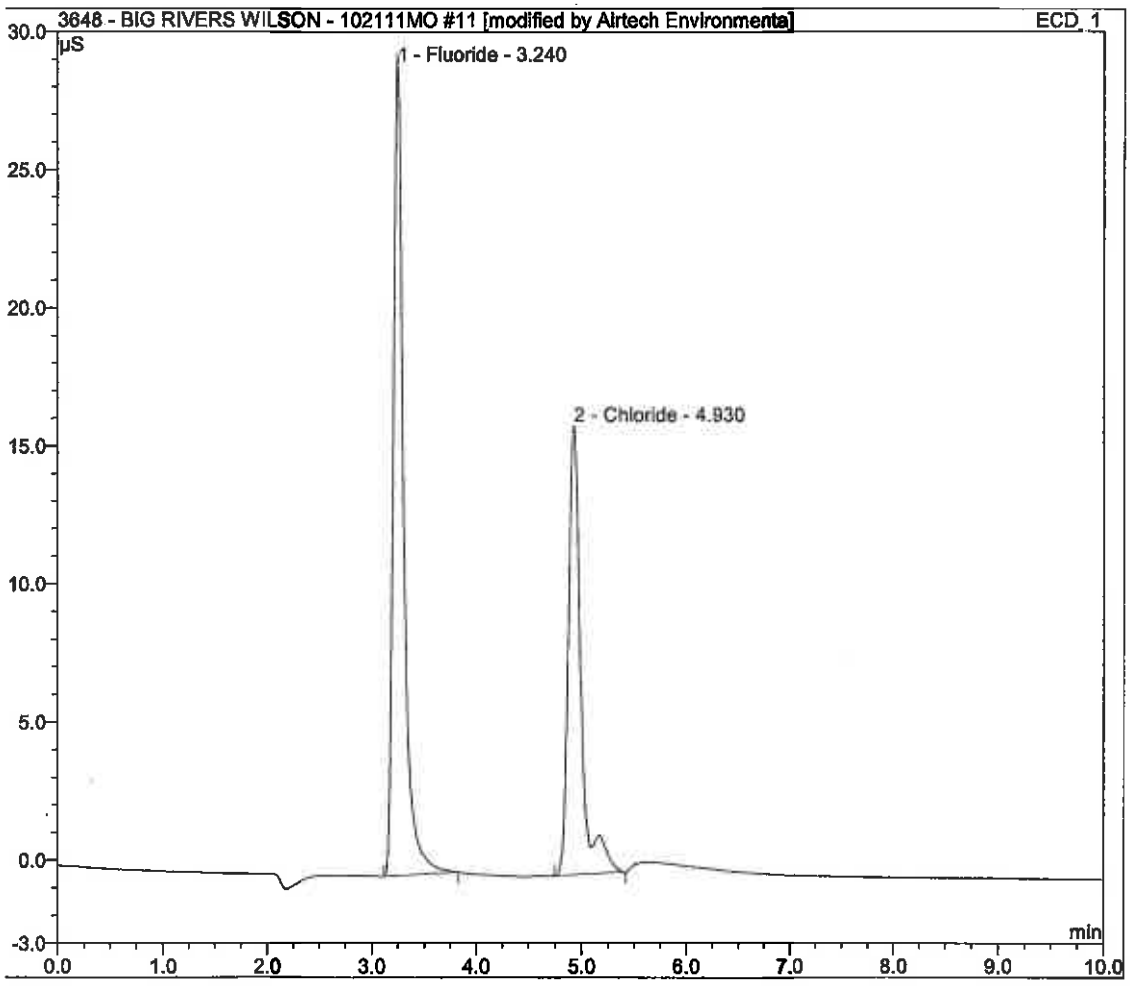
Sample Name:	**cal std 4**	*Inj. Vol.:*	**10.0**
Sample Type:	**standard**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time	**21.10.11 13:24**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.24	Fluoride	BMB*	3.399	29.427	2.9429
2	4.93	Chloride	BMB*	2.261	16.047	0.0898
		TOTAL:		5.66	45.47	3.03



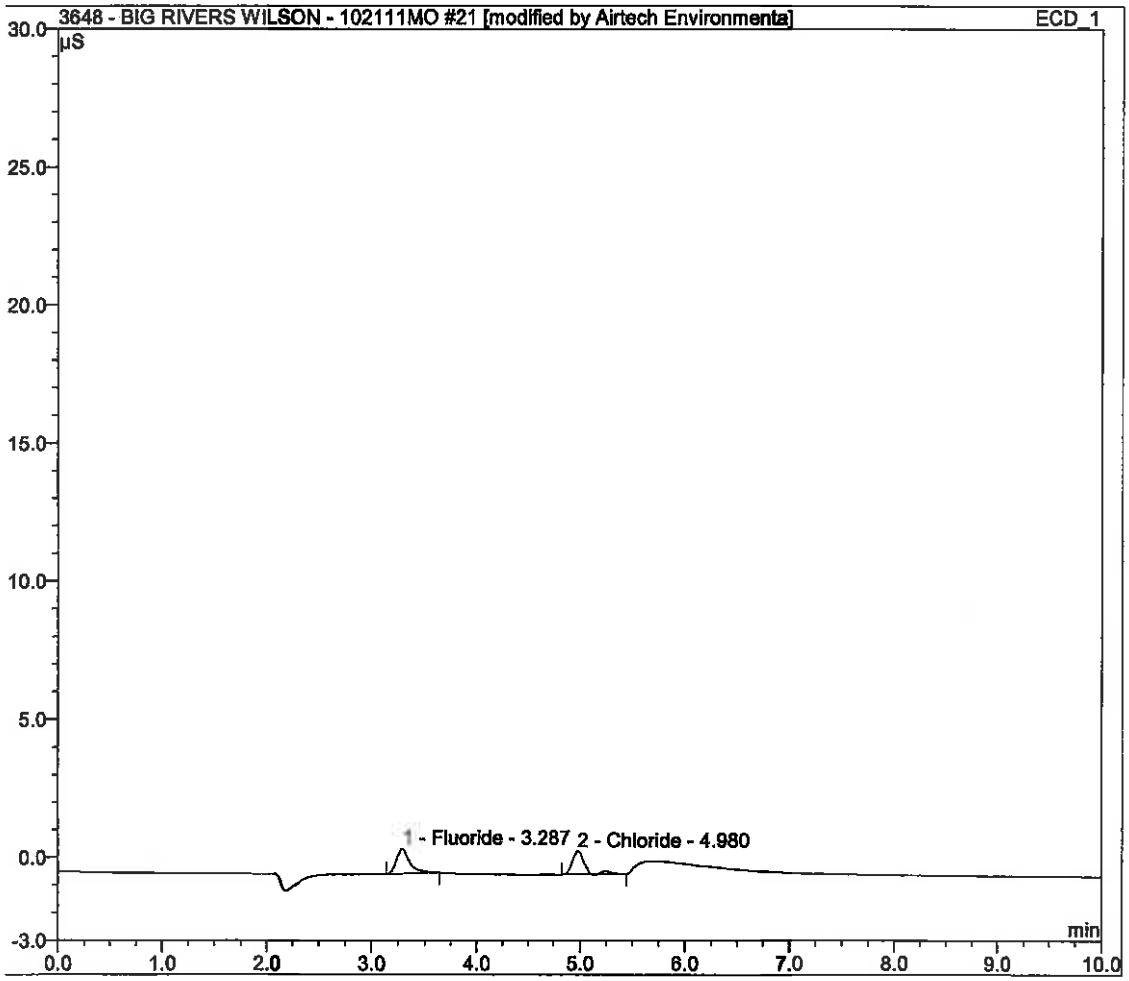
Sample Name:	**cal std 4**	*Inj. Vol.:*	**10.0**
Sample Type:	**standard**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**21.10.11 13:40**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.24	Fluoride	BMB*	3.418	29.759	2.9596
2	4.93	Chloride	BMB*	2.287	16.274	0.0909
		TOTAL:		5.71	46.03	3.05



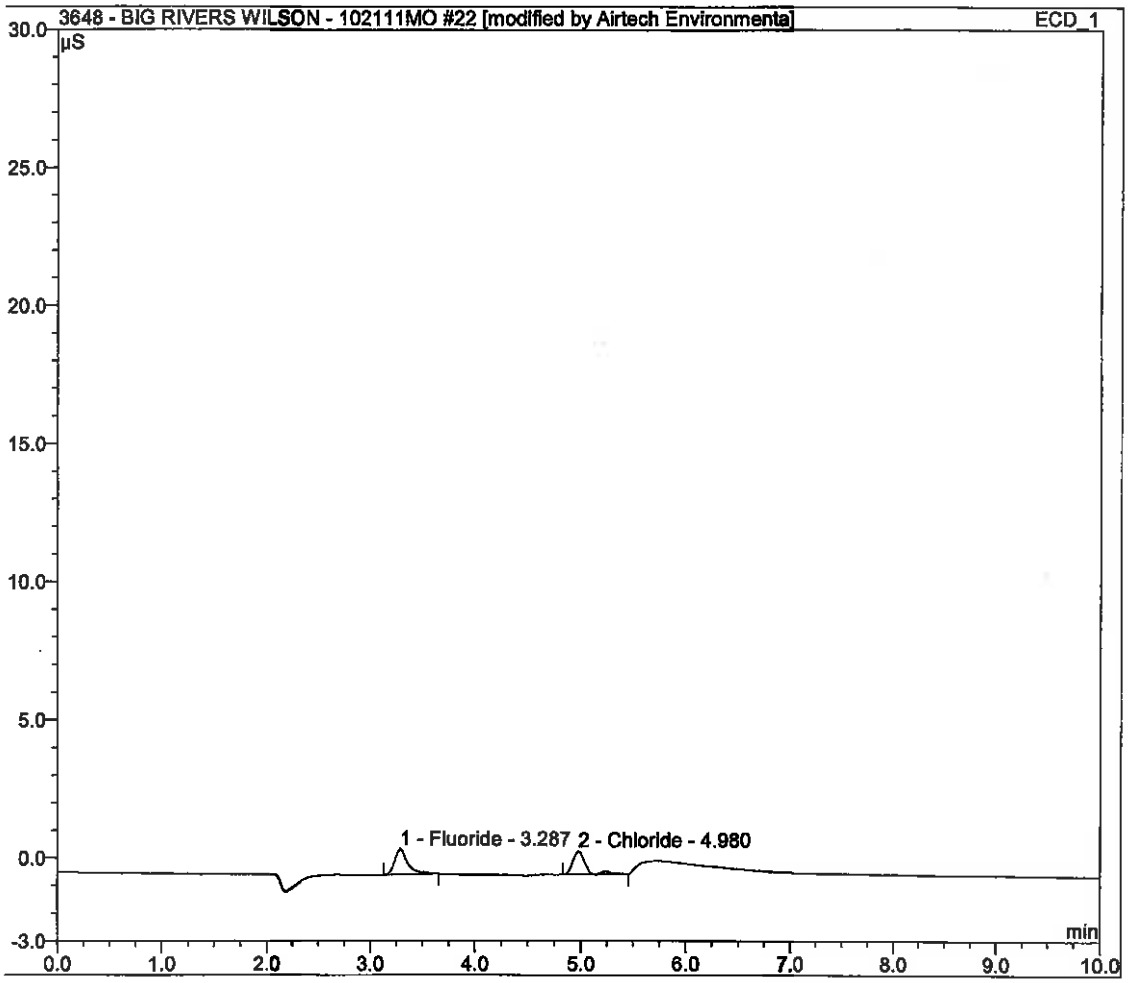
Sample Name:	**cal std 1**	*Inj. Vol.:*	**10.0**
Sample Type:	**standard**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator*	**n.a**
Inj. Date/Time	**24.10.11 10:10**	*Run Time*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.29	Fluoride	BMB*	0.134	0.909	0.1162
2	4.98	Chloride	BMB*	0.121	0.844	0.0048
		TOTAL:		0.26	1.75	0.12



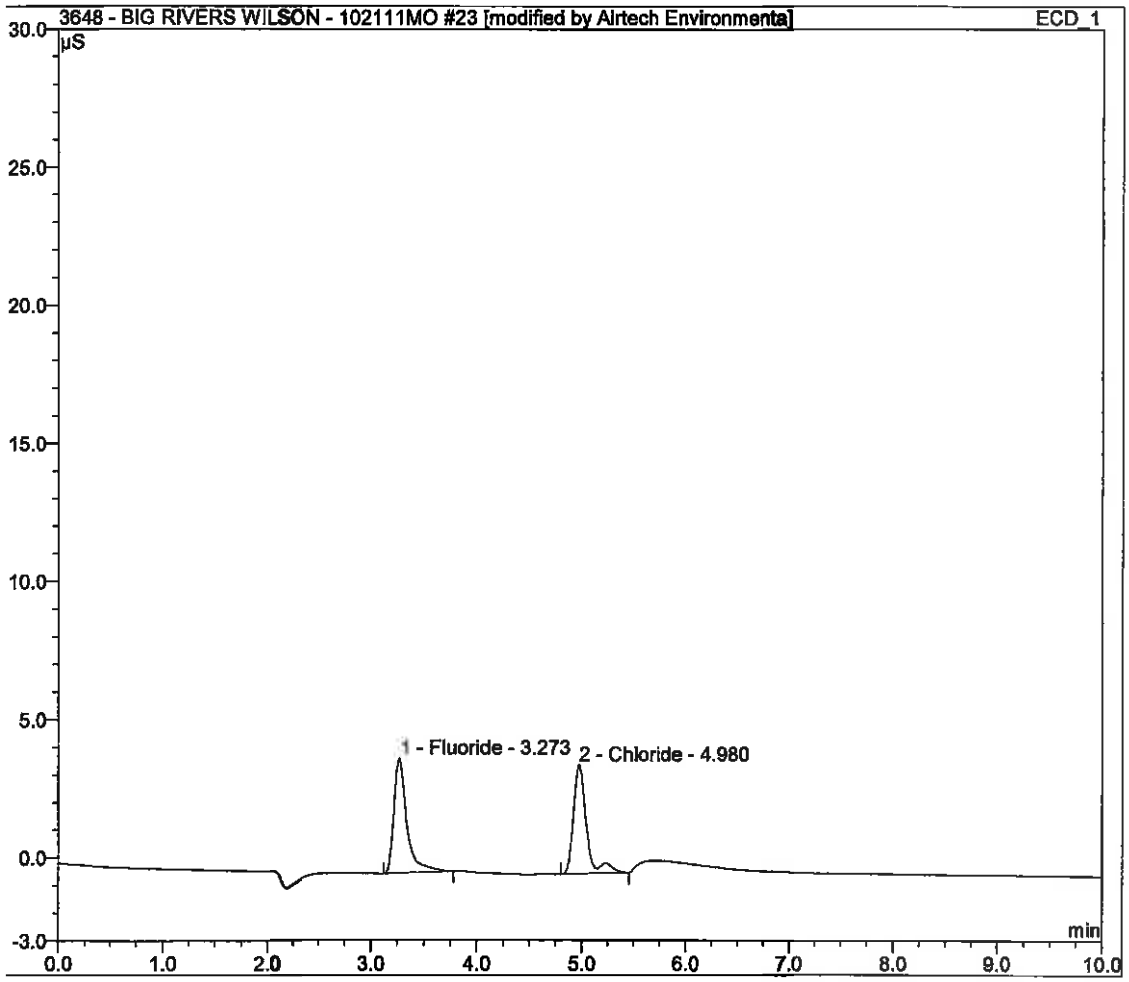
Sample Name:	**cal std 1**	*Inj. Vol.*	**10.0**
Sample Type:	**standard**	*Dilution Factor*	**1.0000**
Program	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time	**24.10.11 10:27**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.29	Fluoride	BMB*	0.135	0.925	0.1170
2	4.98	Chloride	BMB*	0.120	0.841	0.0047
		TOTAL:		0.25	1.77	0.12



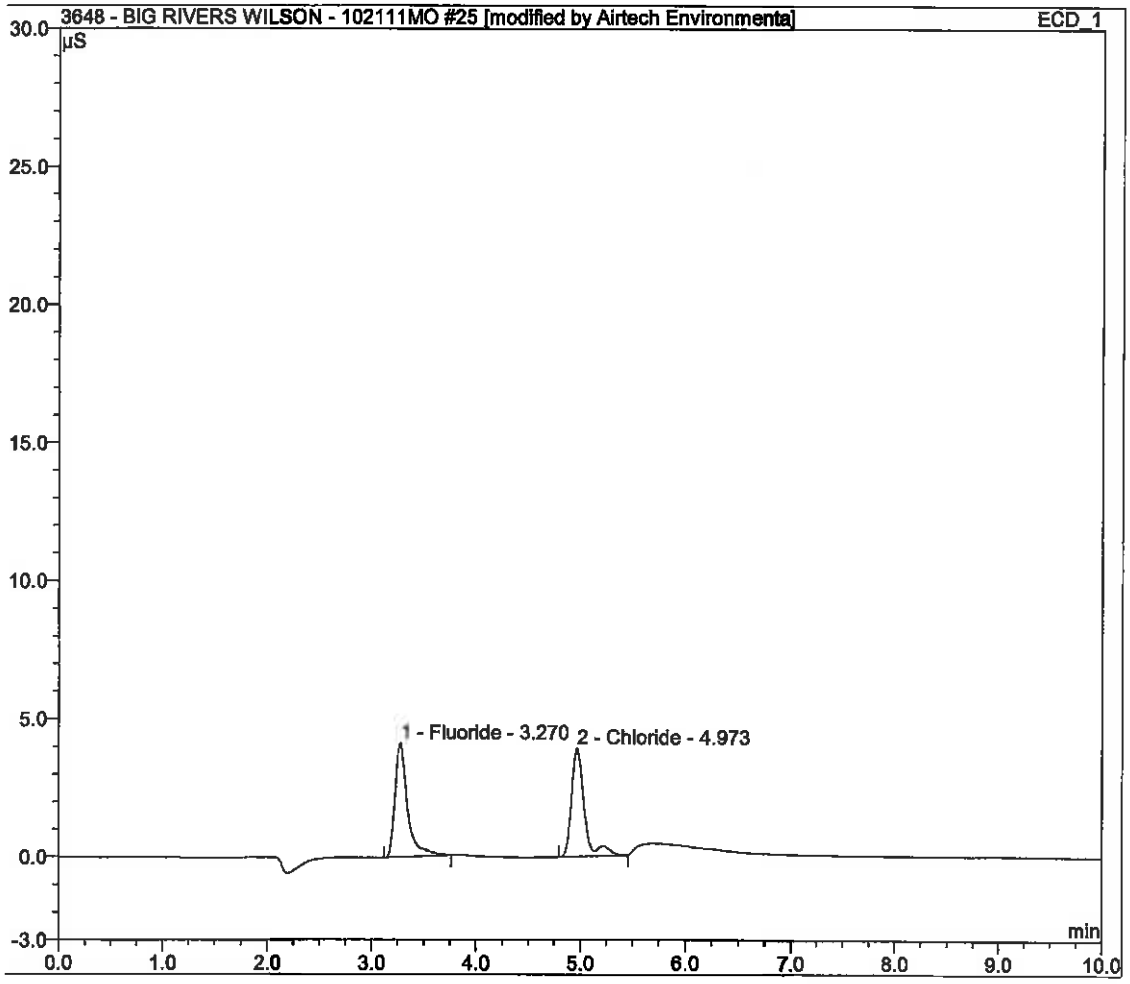
Sample Name:	**cal std 2**	*Inj. Vol.:*	**10.0**
Sample Type:	**standard**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**24.10.11 10:45**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.27	Fluoride	BMB*	0.590	4.141	0.5110
2	4.98	Chloride	BMB*	0.576	3.929	0.0229
		TOTAL:		1.17	8.07	0.53



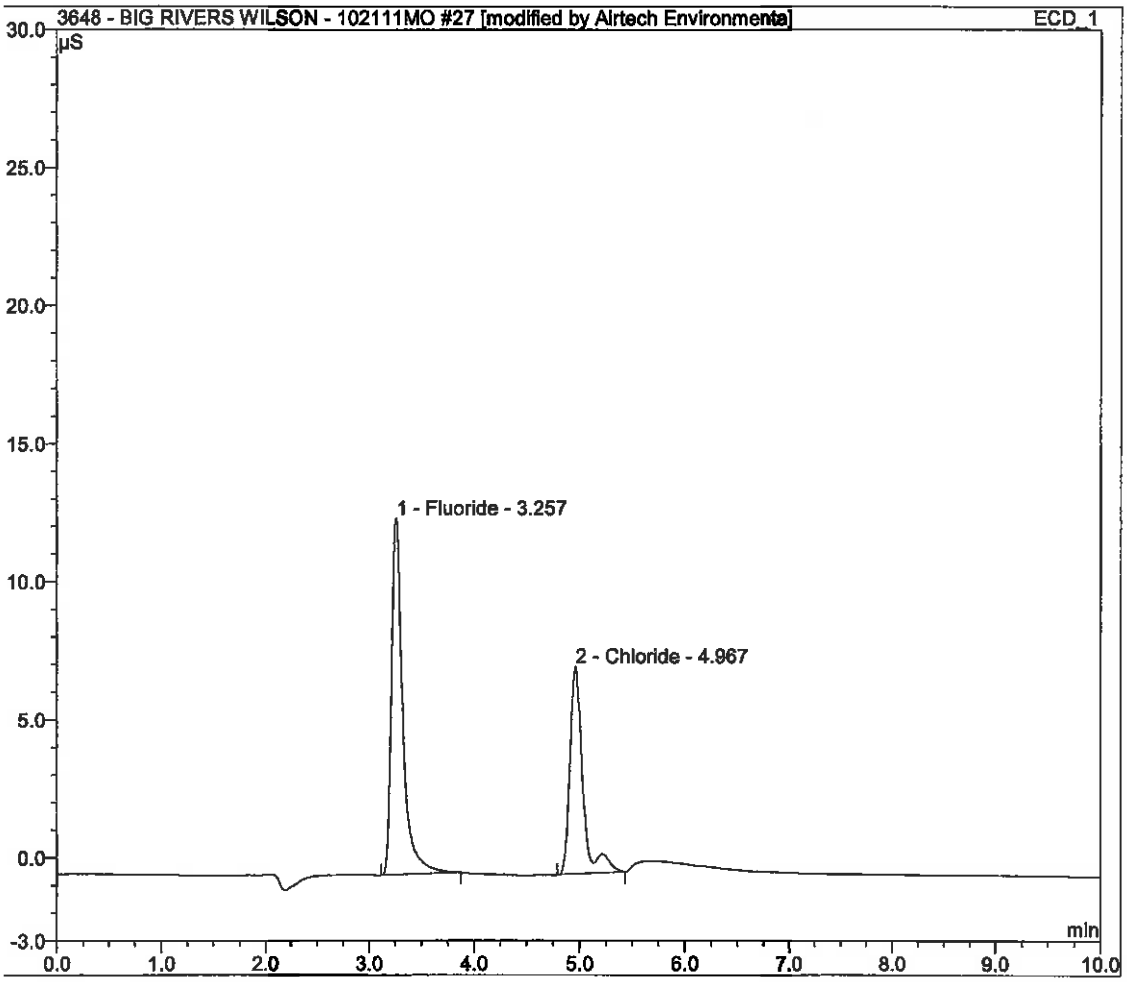
Sample Name	**cal std 2**	*Inj Vol*	**10.0**
Sample Type	**standard**	*Dilution Factor*	**1.0000**
Program	**ChlorideCal**	*Operator*	**n.a.**
Inj Date/Time	**24.10.11 11:16**	*Run Time*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.27	Fluoride	BMB*	0.585	4.142	0.5064
2	4.97	Chloride	BMB*	0.573	3.935	0.0228
		TOTAL:		1.16	8.08	0.53



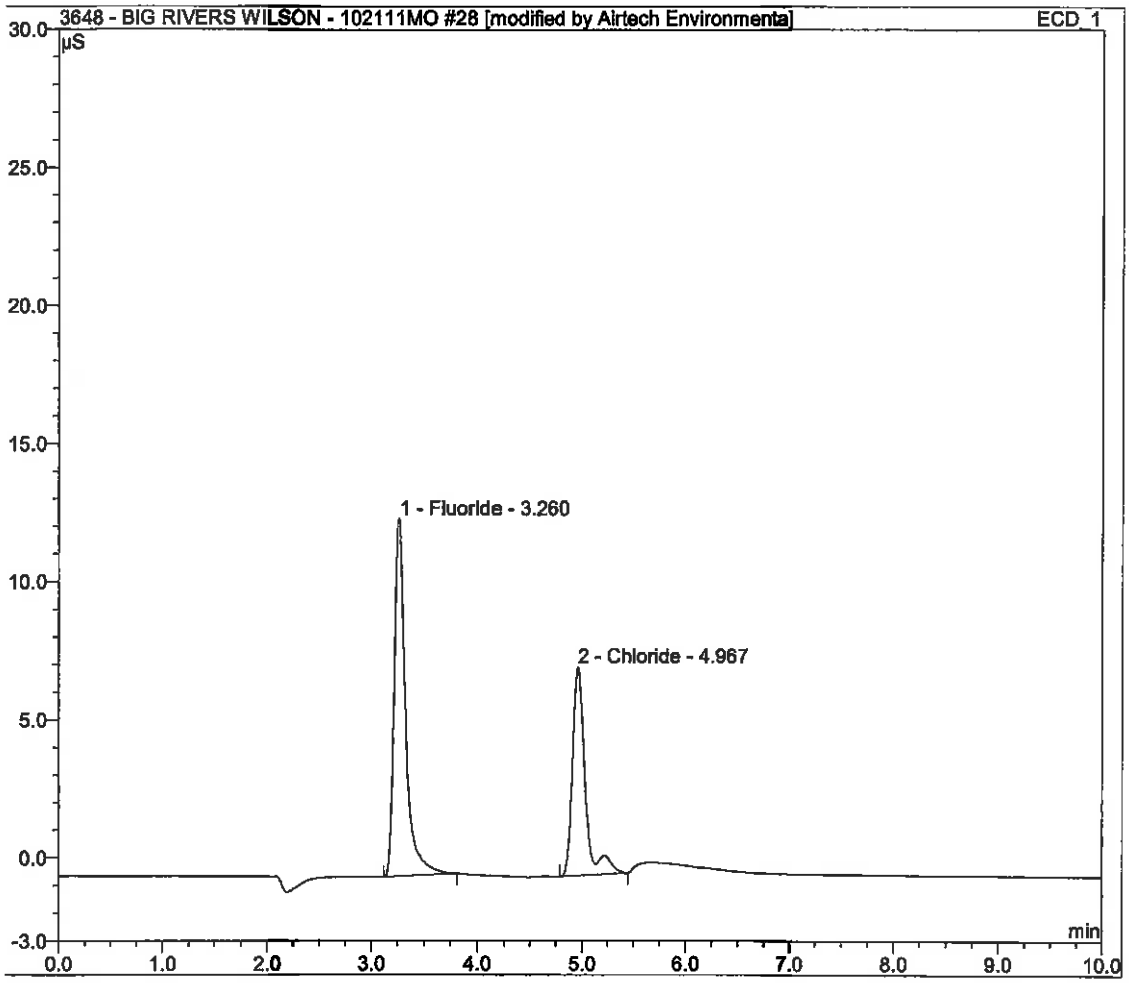
Sample Name:	**cal std 3**	*Inj. Vol.*	**10.0**
Sample Type:	**standard**	*Dilution Factor*	**1.0000**
Program:	**ChlorideCal**	*Operator*	**n.a.**
Inj. Date/Time:	**24.10.11 11:48**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.26	Fluoride	BMB*	1.618	12.895	1.4012
2	4.97	Chloride	BMB*	1.088	7.501	0.0432
		TOTAL:		2.71	20.40	1.44



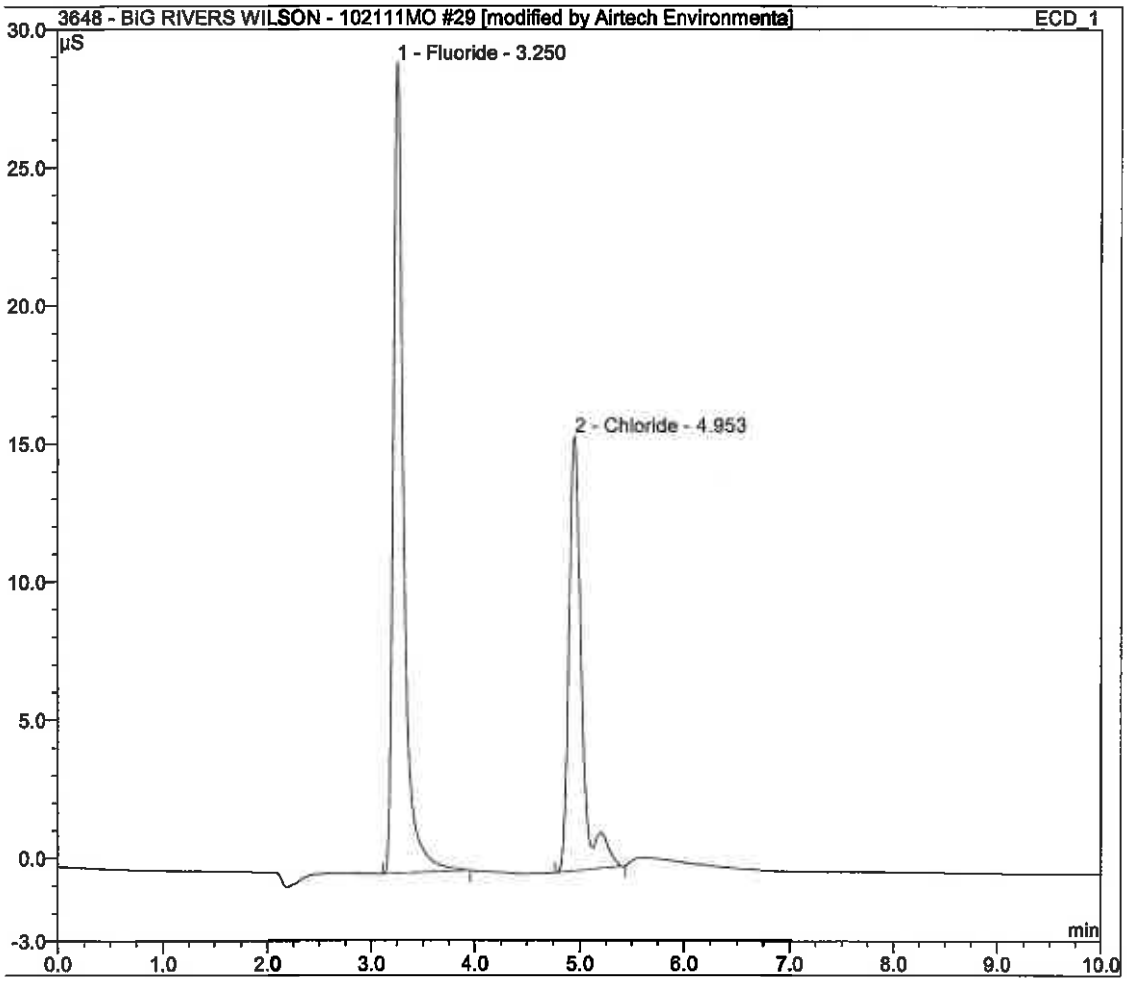
Sample Name:	**cal std 3**	*Inj. Vol.:*	**10.0**
Sample Type:	**standard**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**24.10.11 12:07**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.26	Fluoride	BMB*	1.622	12.941	1.4045
2	4.97	Chloride	BMB*	1.094	7.552	0.0435
		TOTAL:		2.72	20.49	1.45



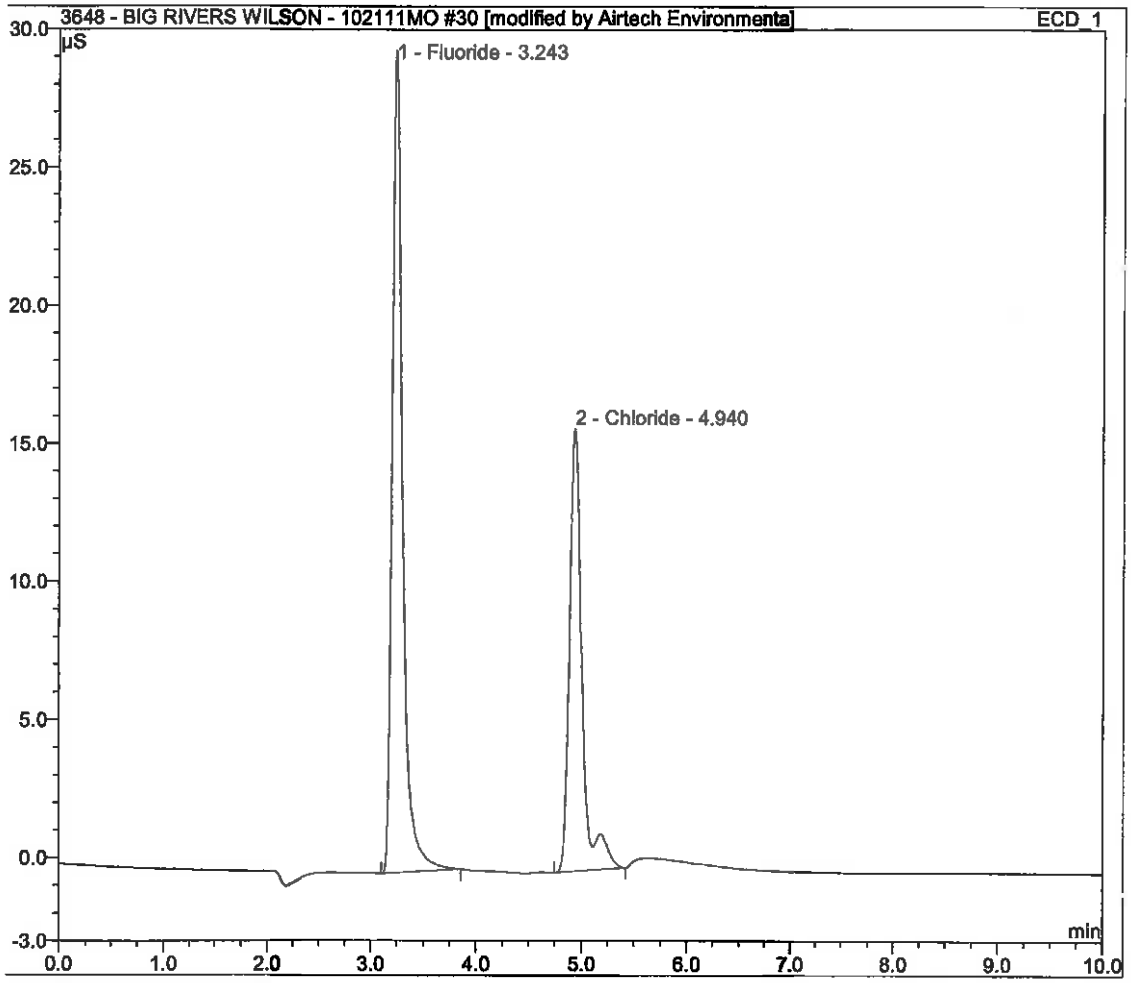
Sample Name:	**cal std 4**	*Inj. Vol.:*	**10.0**
Sample Type:	**standard**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**24.10.11 12:58**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.25	Fluoride	BMB*	3.435	29.381	2.9740
2	4.95	Chloride	BMB*	2.215	15.748	0.0880
TOTAL:				5.65	45.13	3.06



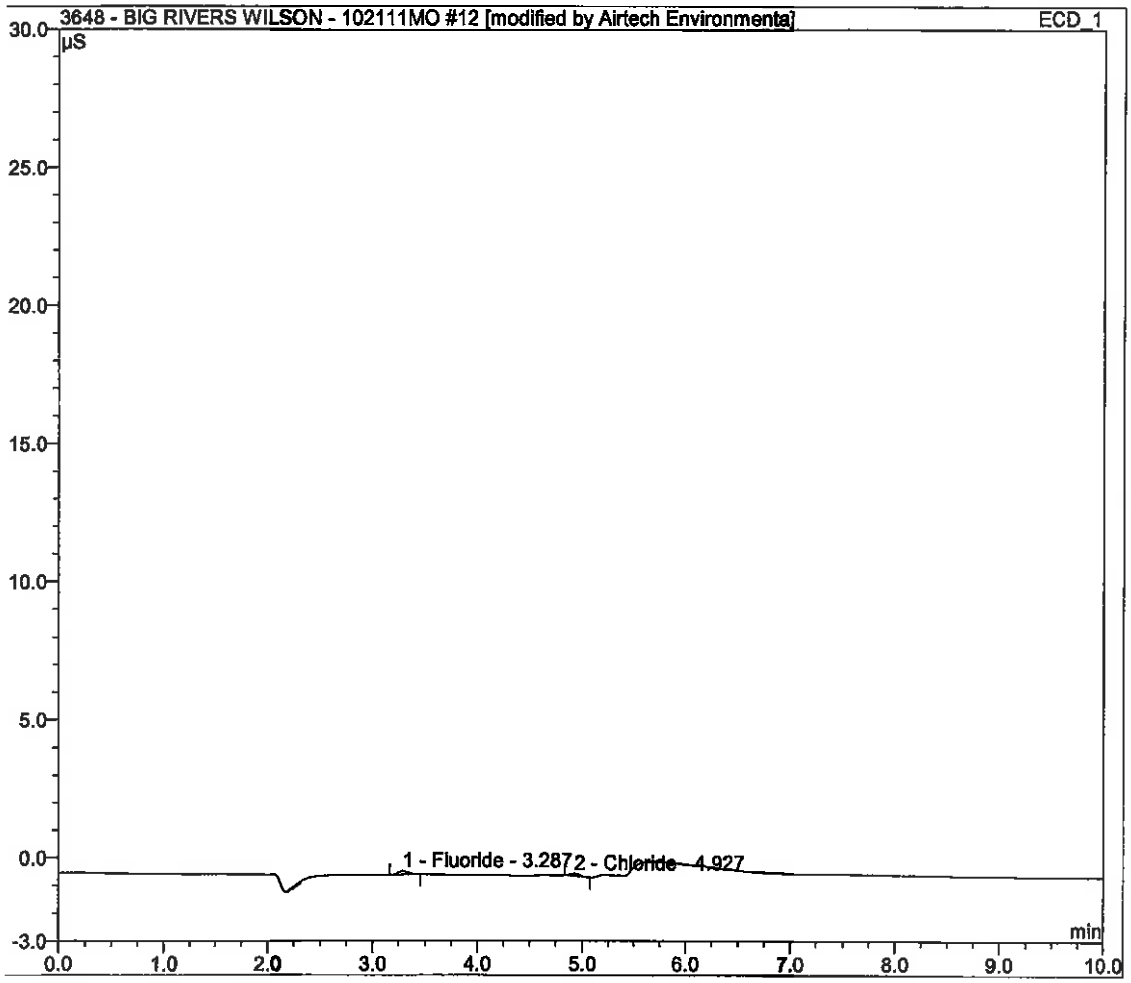
Sample Name:	**cal std 4**	*Inj. Vol.*	**10.0**
Sample Type:	**standard**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**24.10.11 13:14**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.24	Fluoride	BMB*	3.406	29.794	2.9488
2	4.94	Chloride	BMB*	2.247	16.028	0.0893
TOTAL:				5.65	45.82	3.04



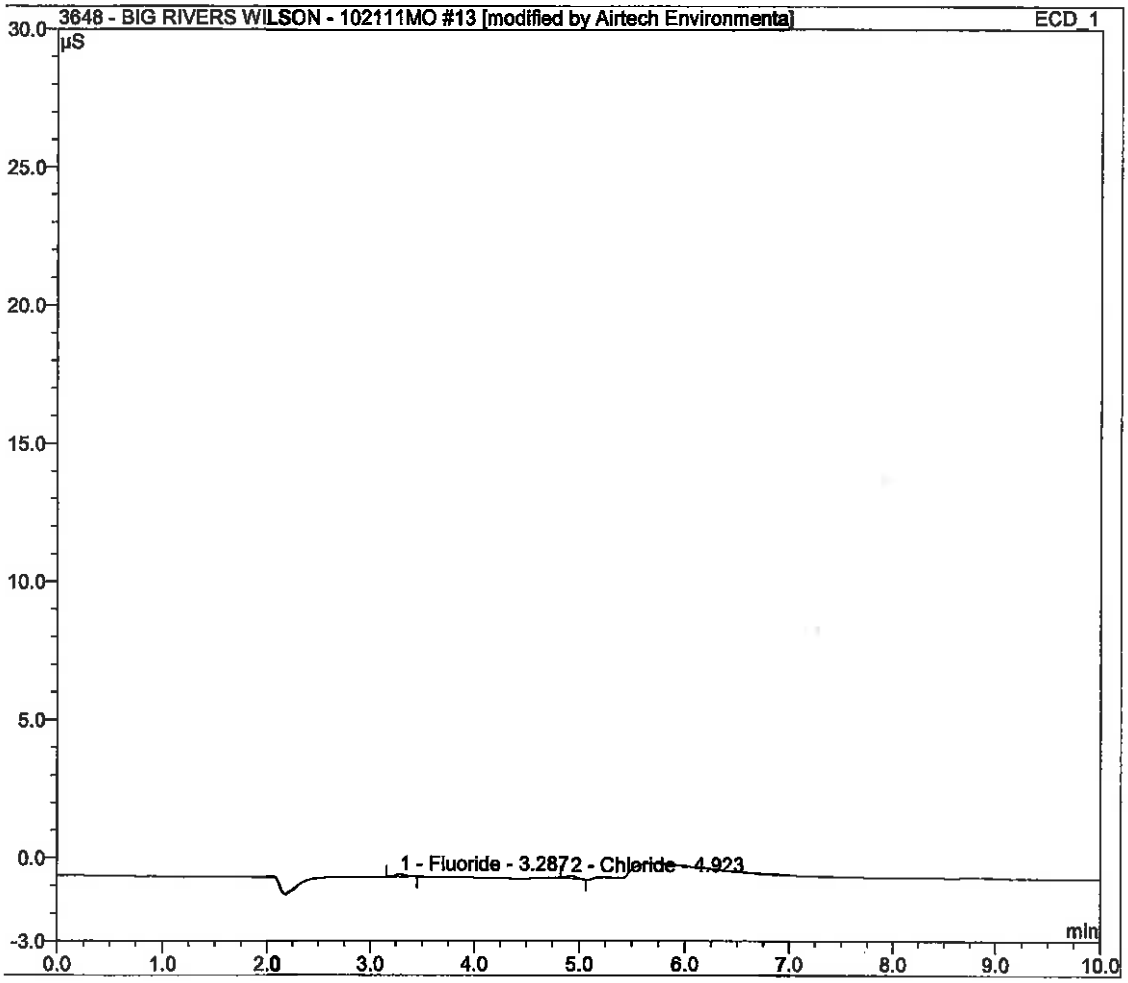
Sample Name:	**reagent blank**	*Inj. Vol:*	**10.0**
Sample Type:	**blank**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**21.10.11 13:55**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.29	Fluoride	BMB*	0.015	0.133	0.0129
2	4.93	Chloride	BMB*	0.011	0.095	0.0004
		TOTAL:		0.03	0.23	0.01



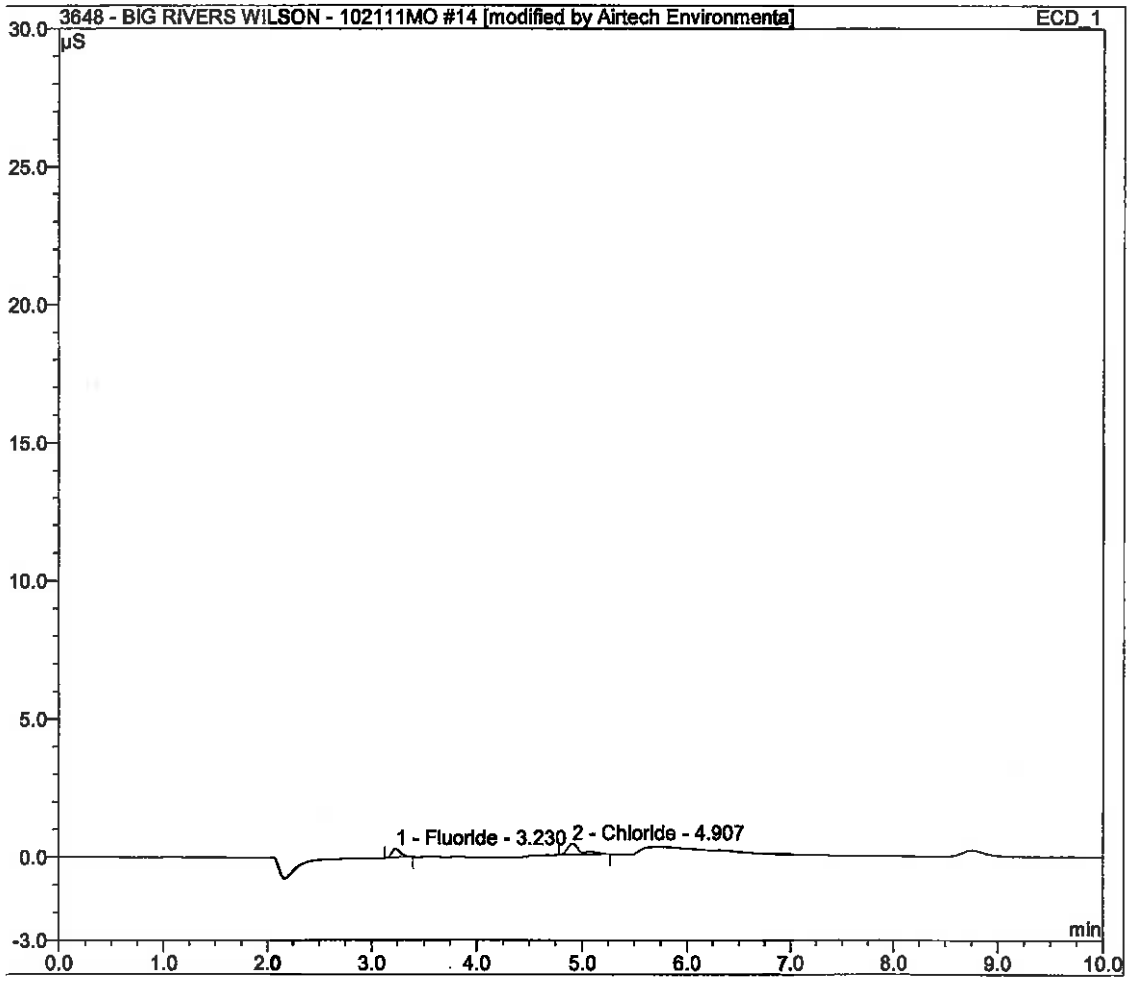
Sample Name:	**reagent blank**	*Inj. Vol.*	**10.0**
Sample Type:	**blank**	*Dilution Factor*	**1.0000**
Program	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time	**21.10.11 14:13**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.29	Fluoride	BMB*	0.011	0.099	0.0099
2	4.92	Chloride	BMB*	0.012	0.101	0.0005
		TOTAL:		0.02	0.20	0.01



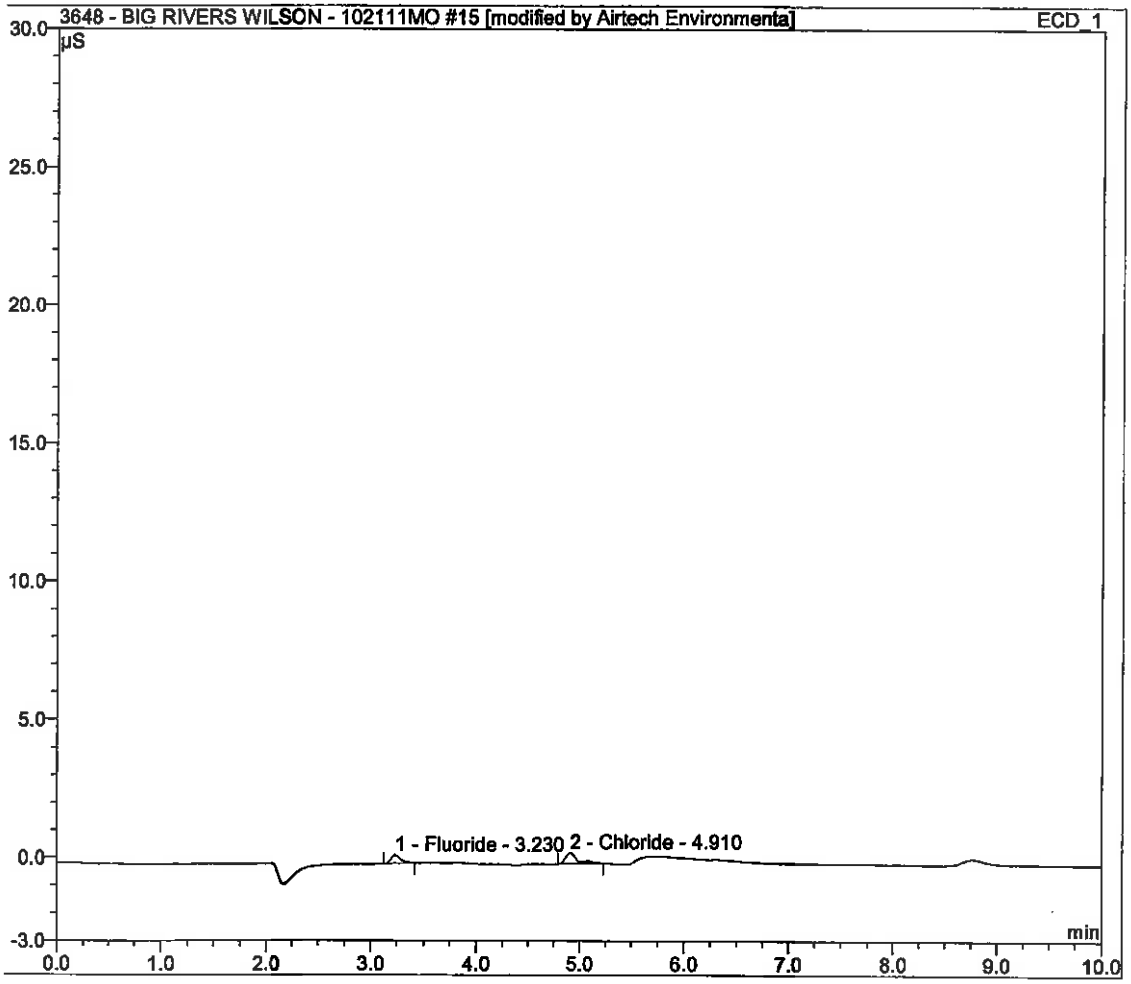
Sample Name:	**Run 1 Combined**	*Inj. Vol:*	**10.0**
Sample Type:	**unknown**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**21.10.11 14:41**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.23	Fluoride	BMB*	0.033	0.326	0.0286
2	4.91	Chloride	BMB*	0.061	0.411	0.0024
TOTAL:				0.09	0.74	0.03



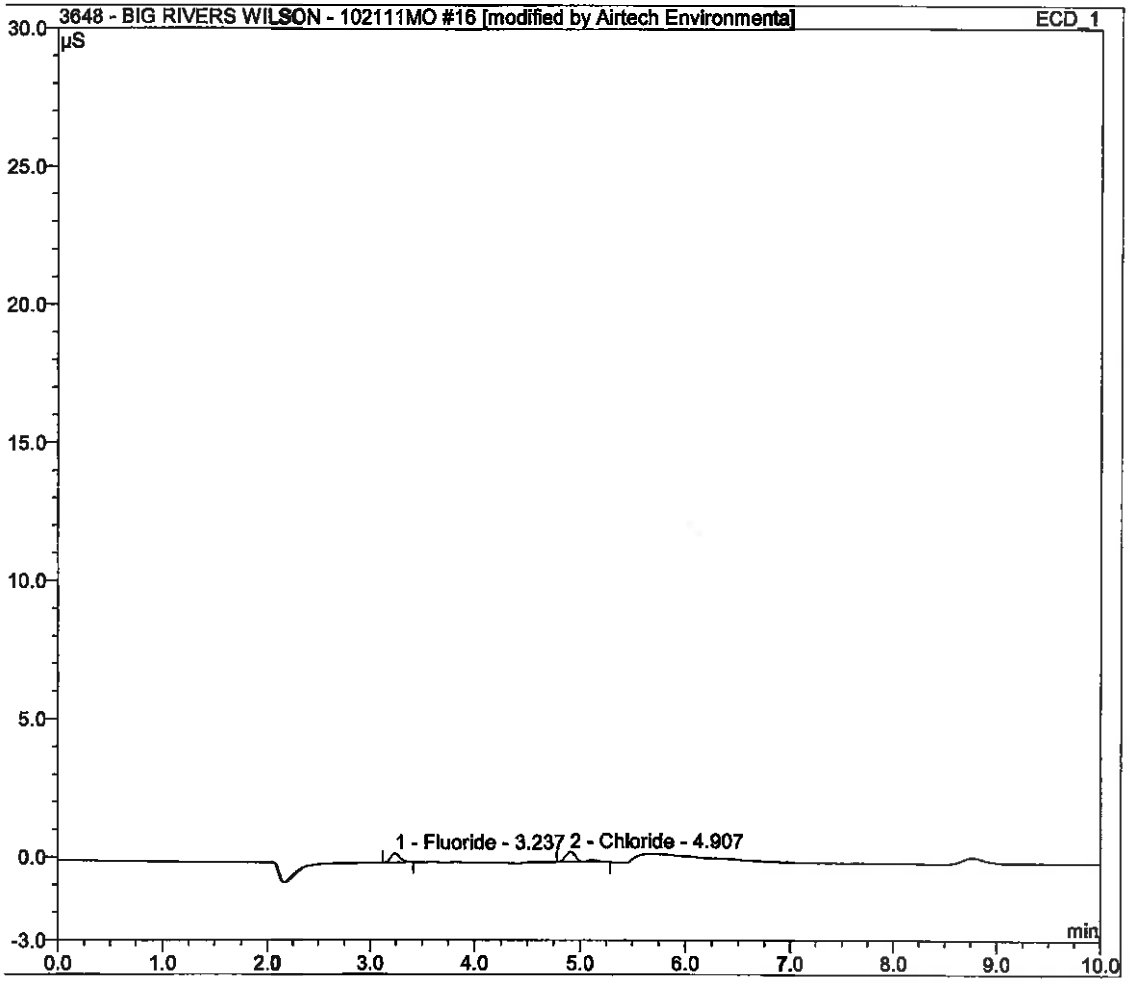
Sample Name:	**Run 1 Combined**	*Inj. Vol.*	**10.0**
Sample Type:	**unknown**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**21.10.11 14:57**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.23	Fluoride	BMB*	0.033	0.314	0.0283
2	4.91	Chloride	BMB*	0.057	0.405	0.0023
		TOTAL:		0.09	0.72	0.03



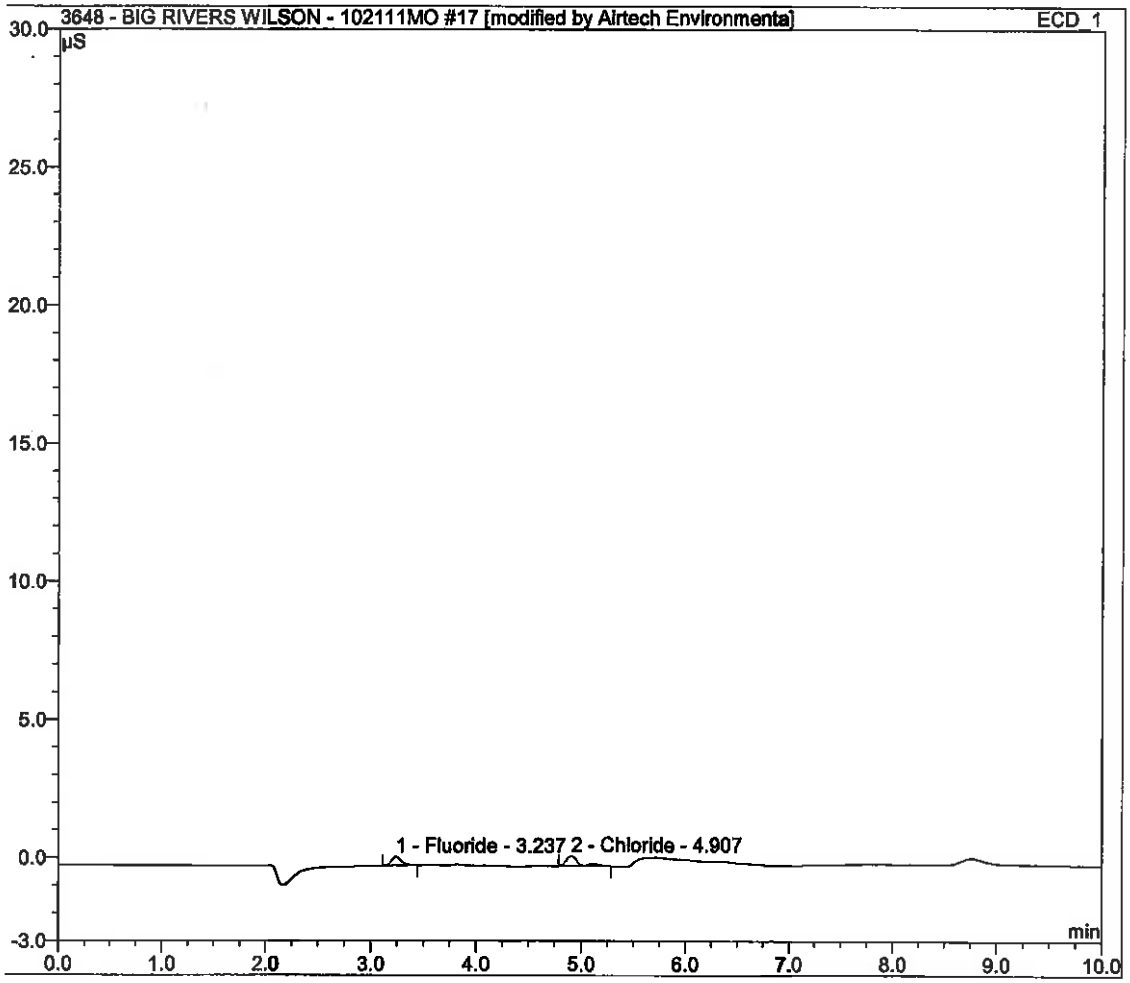
Sample Name:	**Run 2**	*Inj. Vol.*	**10.0**
Sample Type	**unknown**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time	**21.10.11 15:15**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.24	Fluoride	BMB*	0.036	0.341	0.0313
2	4.91	Chloride	BMB*	0.052	0.375	0.0021
		TOTAL:		0.09	0.72	0.03



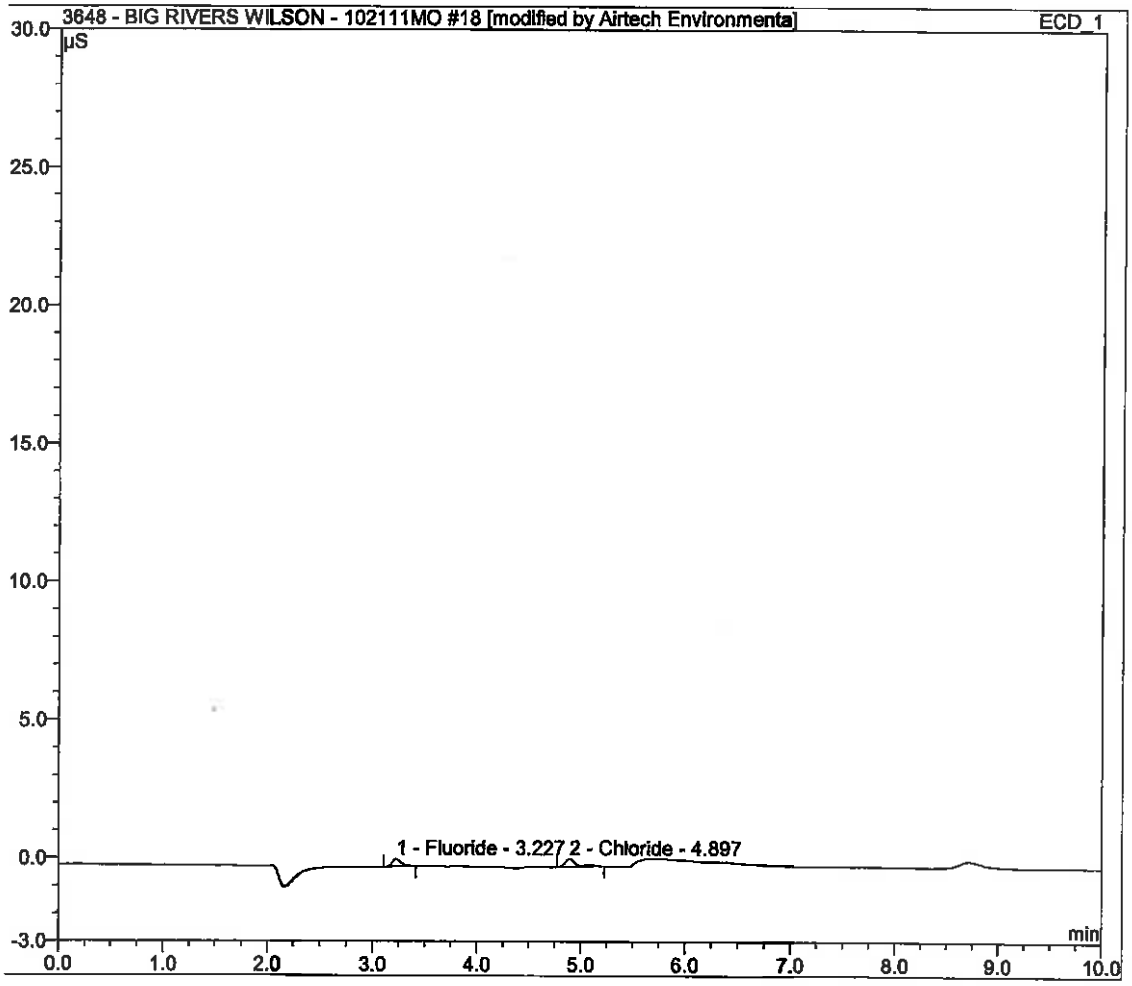
Sample Name:	**Run 2**	*Inj. Vol.:*	**10.0**
Sample Type:	**unknown**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**21.10.11 15:31**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.24	Fluoride	BMB*	0.037	0.338	0.0318
2	4.91	Chloride	BMB*	0.050	0.370	0.0020
		TOTAL:		0.09	0.71	0.03



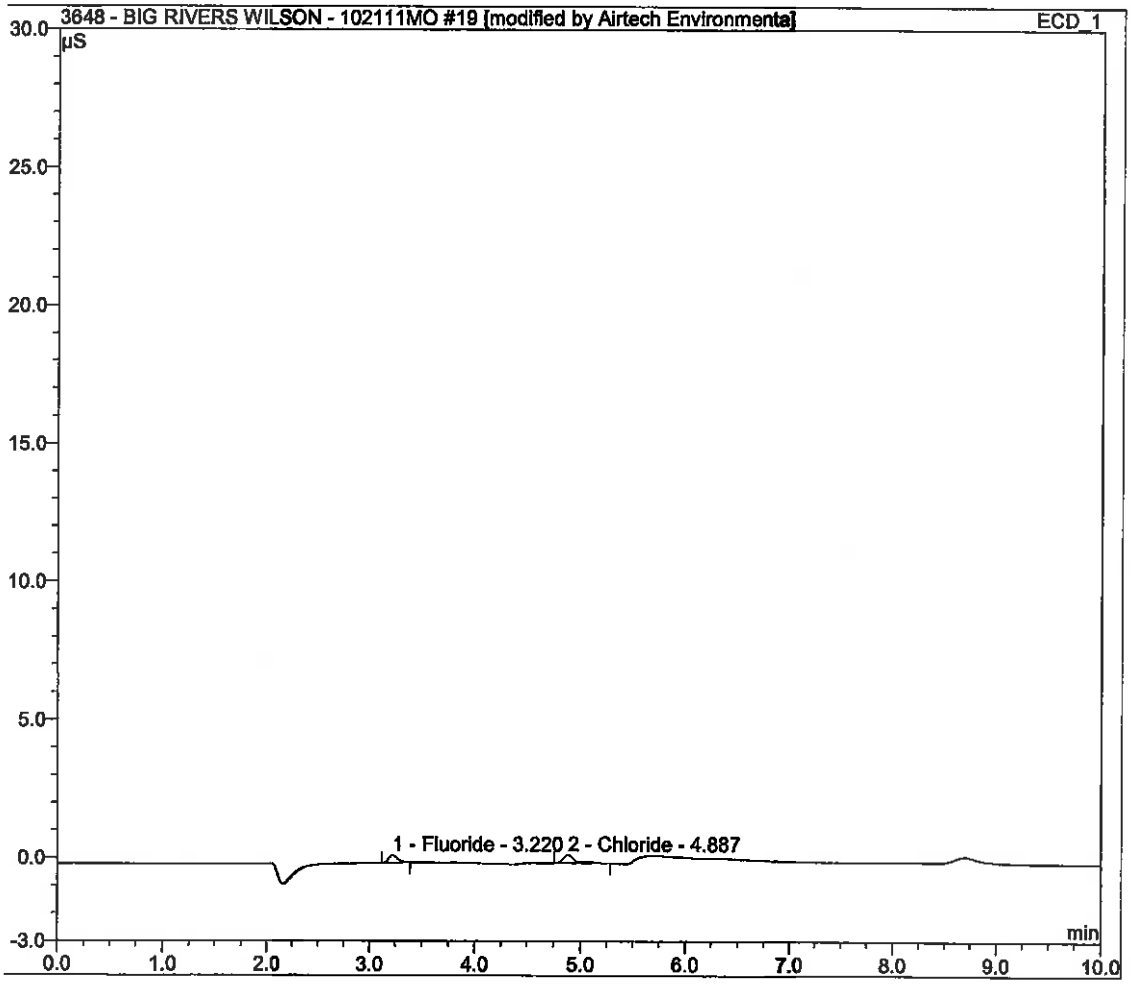
Sample Name:	**Run 3 Combined**	*Inj. Vol:*	**10.0**
Sample Type:	**unknown**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**21.10.11 15:48**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.23	Fluoride	BMB*	0.030	0.288	0.0259
2	4.90	Chloride	BMB*	0.041	0.296	0.0016
		TOTAL:		0.07	0.58	0.03



Sample Name:	**Run 3 Combined**	*Inj. Vol.:*	**10.0**
Sample Type:	**unknown**	*Dilution Factor:*	**1.0000**
Program:	**ChlorideCal**	*Operator:*	**n.a.**
Inj. Date/Time:	**21.10.11 16:06**	*Run Time:*	**15.00**

No.	Time min	Peak Name	Type	Area µS*min	Height µS	Amount ug/ml
1	3.22	Fluoride	BMB*	0.029	0.286	0.0253
2	4.89	Chloride	BMB*	0.044	0.303	0.0017
TOTAL:				0.07	0.59	0.03



10/4/11

AIRTECH Environmental Services Inc.
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800 • 941 • 6230

10/4/11

	easurement (g)
	~~Tot (tot)~~
	NA
	NA
	NA
	NA
	NA
	NA
B3	
B3	
B3	
B3	
B3	
B3	
B3	
B3	
B3	
B3	
B3	
B3	
B3	
B3	
NA	
NA	
NA	
NA	
B3	
B3	
B3	
NA	
55.9	
61.5	
68.6	
~~49.4~~	
49.4	

Big Rivers - Wilson M26A

ID	Vol. (ml)	
Run 1A	541	} 634 combined Vol
Run 1B	93	
Run 2	506	
Run 3A	528	} 654 combine Vol
Run 3B	126	
Reagent Blank	125	

Runs 1 + 3 ~~have~~ consists of 2 fractions "A" + "B" Fractions were combined for analysis.

Chain of Custody

Includes the following:

- **Field Chain of Custody**

AIRTECH ENVIRONMENTAL SERVICES INC.
Chain of Custody

1808

Project Number	3648	Location	Stack	Analysis Requested	Page of
Client	Big Rivers	Date	9-30-11		
Plant	Owens Boro, KY	Completed By	MH		
Comments:					

ID No.	Run No.	Date	Sample Description	264	Notes
Run 1A	1	9/30	Emp Catch + .1N H_2SO_4 solution"	X	
Run 1B	1	9/30	" "	X	
Run 2	2	9/30	" "	X	
Run 3A	3	9/30	" "	X	
Run 3B	3	9/30	" "	X	
Blank	Blank	9/30	200 mL H_2SO_4	X	

Relinquished By (signature)		Relinquished By (signature)		Carrier	
(printed)	Michael Hess	(printed)		Laboratory	
Date/Time	10-1-11	Date/Time	9/30/11	Contact	
Accepted By (signature)		Accepted By (signature)		Address	
(printed)		(printed)	Michael Oglesbee	Phone	
Date/Time	9/30/11	Date/Time	10/4/11	Fax	
				Date/Time	

AIRTECH Environmental Services Inc.

Airtech Environmental Services Inc.
601A Country Club Drive
Bensenville, IL 60106
Phone: (630) 860-4740, Fax: (630) 860 4745

Airtech Environmental Services, Inc.

601A Country Club Drive
Bensenville, IL 60106

Project Number: 3648

Antimony, Arsenic, Beryllium, Cadmium,
Chromium, Cobalt, Lead,
Manganese and Nickel

EPA Method 29 Analysis

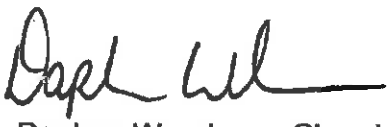
Analytical Report
17506

el1

Element One, Inc.
5022-C Wrightsville Av., Wilmington, NC 28403
910-793-0128 FAX: 910-792-6853 e1lab@e1lab.com

The following data for Analytical Report 17506
has been reviewed for completeness, accuracy,
adherence to method protocol,
and compliance with quality assurance guidelines.

Review by:



Daphne Woodman, Chemist
October 24, 2011

Report Reviewed and Finalized By:

Ken Smith, Laboratory Director
October 25, 2011

SUMMARY OF RESULTS

Summary of Analysis

Front Half - Summary of Method 29 Metals Analysis

Element	Stack R1 e17506-1 FH Total µg	Stack R2 e17506-2 FH Total µg	Stack R2 e17506-2 FH dup Total µg	Stack R3 e17506-3 FH Total µg	Reagent Blank e17506-4 FH Total µg
Antimony	0.262	1.42	1.41	0.202	< 0.1
Arsenic	2.43	2.13	2.12	2.40	< 0.1
Beryllium	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Cadmium	0.228	0.115	0.108	< 0.1	< 0.1
Chromium	32.9	8.84	8.60	4.99	1.64
Cobalt	0.692	0.323	0.316	0.190	< 0.1
Lead	1.36	0.938	0.916	0.825	0.342
Manganese	10.3	4.19	4.22	2.81	1.55
Nickel	123	69.3	69.6	25.4	1.25
Selenium	38.5	30.8	30.6	44.3	< 0.1

Back Half - Summary of Method 29 Metals Analysis

Element	Stack R1 e17506-1 BH Total µg	Stack R2 e17506-2 BH Total µg	Stack R2 e17506-2 BH dup Total µg	Stack R3 e17506-3 BH Total µg	Reagent Blank e17506-4 BH Total µg
Antimony	0.270	0.139	0.136	0.103	< 0.1
Arsenic	1.38	0.587	0.597	0.305	< 0.1
Beryllium	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Cadmium	< 0.1	2.28	2.24	< 0.1	< 0.1
Chromium	2.22	1.80	1.77	0.943	1.74
Cobalt	0.597	0.402	0.393	0.193	0.319
Lead	1.15	5.71	5.65	0.552	0.411
Manganese	2.62	4.37	4.27	2.15	4.62
Nickel	3.61	2.46	2.42	1.75	1.88
Selenium	37.7	16.7	16.4	9.00	< 0.1

ANALYTICAL NARRATIVE

Element One Analytical Narrative

Client:	Airtech Environmental Services, Inc.	Element One #	17506
Client ID:	3648/Big Rivers Energy	Analyst:	KMS
Method:	Method 29	Dates Received:	10/10/11
Analytes:	Sb, As, Be, Cd, Cr, Co, Pb, Mn & Ni	Dates Analyzed:	10/12-13/11

Summary of Analysis

The Method 29 samples were digested, prepared, and analyzed according to Method 29 protocol. Samples were analyzed for metals using a PerkinElmer ELAN 6100 ICP-MS.

Detection Limits

The ICP-MS instrument reporting limits were 0.25µg/L for beryllium and 1.0µg/L for the other metals.

Analysis QA/QC

Duplicate analyses relative percent difference (RPD), spike sample recovery and second source calibration verification data are summarized in the Quality Control Section.
*Ref page 8: The beryllium and cadmium spike recoveries for the back half fraction of Stack R3 was outside of the ±25% laboratory guidelines with 70% and 74% respectively.
The sample was analyzed at a five-fold dilution resulting in a spike recovery of 81% for beryllium and 83% for cadmium, indicating matrix interference. The sample were non-detect therefore this should have no significant impact on the results.
All other QA/QC data was within the criteria of the method.

Additional Comments

The reported results have not been corrected for any blank values or spike recovery values. The ICP analysis of the Reagent Blank samples revealed detectable concentrations of metals.

QUALITY CONTROL SUMMARY

Summary of Quality Control Data

Metals Duplicate Analysis RPD

(Method 29 QC limits: < 20% for RPD)

Element	Stack R2 Front Half RPD	Stack R2 Back Half RPD
Antimony	0.7%	2.1%
Arsenic	0.3%	1.6%
Beryllium	NA	NA
Cadmium	6.4%	1.8%
Chromium	2.8%	1.9%
Cobalt	2.1%	2.3%
Lead	2.4%	1.2%
Manganese	0.6%	2.4%
Nickel	0.4%	1.4%
Selenium	0.7%	1.9%

Metals Analysis Spike Recoveries

(Method 29 QC limits: ±25% for Spike Recoveries)

Element	Stack R3 Front Half Recovery	Stack R3 Back Half Recovery
Antimony	84%	81%
Arsenic	76%	80%
Beryllium	77%	*70%
Cadmium	84%	*74%
Chromium	107%	99%
Cobalt	105%	98%
Lead	93%	92%
Manganese	110%	99%
Nickel	94%	99%
Selenium	82%	84%

*See Analytical Narrative, page 6.

Summary of Quality Control Data

Second Source Calibration Check Recoveries

(Method 29 QC limits: ±10% for Second Source Continuing Check Standard)*

Element	1 ppb	50 ppb	100 ppb*	250 ppb
Antimony	122%	99%	102%	97%
Arsenic	123%	93%	104%	94%
Beryllium	122%	86%	102%	87%
Cadmium	122%	99%	105%	100%
Chromium	114%	89%	103%	90%
Cobalt	116%	91%	107%	93%
Lead	105%	101%	104%	99%
Manganese	98%	87%	110%	90%
Nickel	88%	92%	107%	92%
Selenium	106%	89%	103%	91%

SAMPLE CUSTODY

AIRTECH ENVIRONMENTAL SERVICES INC.
Chain of Custody

17506
1809

Project Number	3648	Location	Steele
Client	Big Rivers	Date	9-30-11
Plant	Owensboro, KY	Completed By	MH

Comments: Mercury analysis for F1/2 & B1/2 Separately.

Analysis Requested: M29

Page ___ of ___

ID No.	Run No.	Date	Sample Description	Notes
Run 1	1	9-30	IMP 1,2,3 Contents & Rinses	
Run 2	2	"	" "	
Run 3	3	"	" "	
Run 1	1	"	F1/2 Rinse 0.1 N HNO_3	
Run 2	2	"	" "	
Run 3	3	"	" "	
Run 1	1	"	Quartz Filter	
Run 2	2	"	" "	
Run 3	3	"	" "	
			~~0.1 N HNO_3~~	
Blank			Quartz Filter	
Blank			0.1 N HNO_3	
Blank			5% HNO_3 / 10% H_2O_2	

Relinquished By (signature)		Relinquished By (signature)		Carrier	
(printed)	Michael Hess	(printed)	Jim Cherry	Laboratory	
Date/Time	10-1-11	Date/Time	10-1-11	Contact	
Accepted By (signature)		Accepted By (signature)		Address	
(printed)	Jim Cherry	(printed)	Lisa Bratton	Phone	
Date/Time	10-3-11	Date/Time	10/10/11 0940	Fax	
				Date/Time	

Samples received in good condition. No empty container received.

AIRTECH Environmental Services Inc.

Airtech Environmental Services Inc.
601A Country Club Drive
Bensenville, IL 60106
Phone: (630) 860-4740, Fax: (630) 860 4745

elementOne
17506 Airtech M29 Report Packet.doc
Page 11 of 28

Metallic HAPs will be defined as antimony (Sb), arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), cobalt (Co), lead (Pb), manganese (Mn) and nickel (Ni).

ANALYTICAL DATA

Analytical Calculations

Metals-

Element Results (µg) =ICP Results (µg/L)*Dilution*Final Volume (L)

Where-

ICP Results= Raw sample concentration (ppb)--*ICP-Data Sheet*

Dilution= Diluted Volume--*ICP-MS Run Sheet*
Aliquot

Final Volume=FH=Final Volume (FV)--*Sample Submission*
BH=Received Volume (BV).*Final Volume (FV)--*Sample Submission*
Aliquot (Used)
Combined Results=FH+BH

Analytical Calculations

Spike Recovery-

$$\text{Spike (\%)} = \frac{\text{(Spiked Result (µg/L) – Sample Result (µg/L))}}{\text{Spike Amount (µg/L)}} \quad \text{X100}$$

Where-

Spike Result = Raw sample concentration (ppb)--*ICP-Data Sheet*

Sample Result = Raw sample concentration (ppb)--*ICP-Data Sheet*

Spike Amount--*ICP-MS Spike Table*

Duplicate Analysis RPD-

$$\text{RPD (\%)} = \frac{\text{(Duplicate Result (µg/L) - Sample Result (µg/L))}}{\text{Average (µg/L)}} \quad \text{X100}$$

Where-

Sample Result and Duplicate Results=Raw sample concentration (ppb)--*ICP-Data Sheet*

$$\text{Average} = \frac{\text{(Duplicate + Sample Results)}}{2}$$

elementOne **AIR TESTING SAMPLE SUBMISSION FORM** **Lab ID 17506**

FH / BH Separate Analysis

Analysis Due Date 10.18.11
QA/QC/Report Due Date 10.20.11

Client	Airtech Environmental Services, Inc.
Project No	3648
Project ID	Big Rivers Energy

Date Rec	10.10.11
Time Rec	0940
Rec by	LLB

HNO_3 Lot: 51024	HF Lot: 5108127	HCl Lot: 51035
Volume Marked Y / (N)	Volume Loss Y / N / (?)	**Ref. Method: 29**

Sample Identification

1	Stack-M29-R1	4	Reagent Blank		
2	Stack-M29-R2				
	Stack-M29-R2 Duplicate				
3	Stack-M29-R3				
	Stack-M29-R3 Spike				

Analyses Requested	Samples 1-4 Sb, As, Be, Cd, Cr, Co, Pb, Mn, Ni

Runs / FB	Fil / Ace (FH)		HNO_3 (FH)		5% HNO_3/10% H_2O_2 (BH)			HNO_3 (A)		$KMnO_4$ (B)		HCl ©	
	pH <2.0 Y / N		pH <2.0 (Y) / N		pH <2.0 (Y) / N			pH <2.0 Y / N		pH <2.0 Y / N		pH <2.0 Y / N	
Lab ID	Fil ID	BV ml	BV ml	FV ml	BV ml	Used	FV ml	BV ml	FV ml	BV ml	FV ml	BV ml	FV ml
1			63	100	540	270	50						
2.D			73	↓	570	285	↓						
3.S			35		540	270							

M-29 Reagent Blank

Lab ID	Fraction			BV, ml	FV, ml	Comments
4	C-7	FH	Acetone Blank			
	C-8A	FH	0.1N HNO_3	205	100	used 100mL
	C-8A	A	0.1N HNO_3			
	C-8B	B	DI H_2O			
	C-9	BH	5% HNO_3/10% H_2O_2	220	50	used 110mL
	C-10	B	4% $KMnO_4$/10% H_2SO_4			
	C-11	C	8N HCl DI H_2O			
	C-12-1	FH	Filter			

Lab Communications

LRB + spiked w/ 25ppm Std A, B (021411 - A, B)
200uL FH, 100uL BH - KLS 10.12.11

Fractions Received: C1, C3, C4—RB C12, C8a, C9—LLB 10.10.11

SS Page1 of 1
10/10/2011 11:40:08 AM
SS By LLB
Labeled By/Date KLS 10.12.11

FH Prep By/Date KLS 10.12.11 A Prep By/Date —
BH Prep By/Date KLS 10.12.11 B Prep By/Date —
BH/FH Prep By/Date KLS 10.12.11 C Prep By/Date —
PM Prep By/Date — ID Verification By / Date 10.12.11

elementOne **Method 29 Microwave Worksheet** Lab ID # e 17506

Client:

Date Digested: 10.12.11 Initials: ADS Worksheet Prepared by: ADS

Auto Sample Loc.	Sample Lab ID	Sample Weight (g)	# of filters digested	Spike	Prep Volume (ml)	Weight In Micro / Weight Out Micro	Units
1	LRB						
3	LFB+						
5	17470	.2525g			50		
7	17506-1						
9	-2						
11	-3						
13	-4						
15	BLK						

Filters = used 6 mLs HNO3 S1024 7 mLs HF S109120

Totals = used 6mLs HNO3 S1024 2mLs HCl 4110020

Element One, Inc. Form 104 - Revision 1.0

Sample/Batch Report

User Name: icp
Computer Name: ICP-MS
Sample File: C:\elandata_icp\Sample\x11.sam
Report Date/Time: Thursday, October 13, 2011 14:00:24

A/S Loc.	Batch ID	Sample ID	Description	Sample Type	Init. Quant.	Prep. Vol.	Aliquot Vol.	Diluted Vol.	Solids Ratio
5		QC Std 2		Sample					
303		17459-4		Sample					
304		17459-5		Sample					
305	d	17459-5		Duplicate of 3					
306		17459-6		Sample					
307	s	17459-6		Spike - 1 of 5					
308		17459-10		Sample					
309		17459-11		Sample					
310	d	17459-11		Duplicate of 8					
311		17459-12		Sample					
312	s	17459-12		Spike - 1 of 10					
313		17459-16		Sample					
314		17459-17		Sample					
315	d	17459-17		Duplicate of 13					
316		17459-18		Sample					
317	s	17459-18		Spike - 1 of 15					
318		17459-19		Sample					
319		17459-20		Sample					
1		QC Std 1		Sample					
3		QC Std 4		Sample					
5		QC Std 2		Sample					
322		17463-1		Sample					
323		17463-2		Sample					
234	d	17463-2		Duplicate of 23					
325		17463-3		Sample					
326	s	17463-3		Spike - 1 of 25					
327		17463-4		Sample					
1		QC Std 1		Sample					
3		QC Std 4		Sample					
5		QC Std 2	Airtech	Sample					
330		17506-1fh	Airtech	Sample					
331		17506-2fh	Airtech	Sample					
332	d	17506-2fh	Airtech	Duplicate of 32					
333		17506-3fh	Airtech	Sample					
334	s	17506-3fh	Airtech	Spike - 1 of 34					
335		17506-4fh	Airtech	Sample					
336		LRB	Airtech	Sample					
337	s	LRB	Airtech	Spike - 1 of 37					
338		17506-1bh	Airtech	Sample					
339		17506-2bh	Airtech	Sample					
340	d	17506-2bh	Airtech	Duplicate of 40					
341		17506-3bh	Airtech	Sample					
342	s	17506-3bh	Airtech	Spike - 1 of 42					
343		17506-4bh	Airtech	Sample					
1		QC Std 1	Airtech	Sample					
3		QC Std 4	Airtech	Sample					
5		QC Std 2		Sample					
103	x5	LRB		Sample					
104	x5s	LRB		Spike - 3 of 48					

105	x5	LRB	Sample
106	x5s	LRB	Spike - 3 of 50
107	x5	17470-1	Sample
108	x5	17470-2	Sample
109	x5d	17470-2	Duplicate of 53
110	x5	17470-3	Sample
111	x5s	17470-3	Spike - 3 of 55
112	x5	17470-4	Sample
113	x5	17470-5	Sample
114	x5	17470-6	Sample
115	x5s	17470-6	Spike - 3 of 59
116	x5	17470-7	Sample
117	x5	17470-8	Sample
118	x5	17470-9	Sample
119	x5s	17470-9	Spike - 3 of 63
120	x5	17470-10	Sample
121	x5	17492-1	Sample
122	x5	17492-2	Sample
123	x5d	17492-2	Duplicate of 67
124	x5	17492-3	Sample
125	x5s	17492-3	Spike - 3 of 69
126	x5	17492-4	Sample
127	x5	17492-5	Sample
128	x5	17501-1	Sample
129	x5s	14501-1	Spike - 3 of 73
130	x5	LRB	Sample
131	x5s	LRB	Spike - 3 of 75
132	x5	17493-1	Sample
133		QC Std 1	Sample
134		QC Std 4	Sample
135	x50	17493-1	Sample
136	x5	17494-1	Sample
137	x50	17494-1	Sample
138	x5	17502-1	Sample
139	x50	17502-1	Sample
140	x5	17505-1	Sample
141	x5d	17505-1	Sample
142	x50	17505-1	Sample
143	x50d	17505-1	Sample
144	x5	17470-1 TO	Sample
145	x50	17470-1 TO	Sample
146		QC Std 1	Sample
147		QC Std 4	Sample
5		QC Std 2	Sample
107	x5	17470-1	Sample
114	x5	17470-6	Sample
115	x5s	17470-6	Spike - 3 of 95
136	x5	17494-1	Sample
137	x50	17494-1	Sample
144	x5	17470-1 TO	Sample
145	x50	17470-1 TO	Sample
401	x2	17459-6	Sample
402	x2s	17459-6	Spike - 1 of 101
403	x2	17459-12	Sample
404	x2s	17459-12	Spike - 1 of 103
405		17459-17	Sample
406	d	17459-17	Duplicate of 105
407	x2	17459-18	Sample
408	x2s	17459-18	Spike - 1 of 107
6		QC STD 3	Sample

7		QC STD 5		Sample
409		17463-2		Sample
410	d	17463-2		Duplicate of 111
411	x2	17463-3		Sample
412	x2s	17463-3		Spike - 1 of 113
6		QC STD 3		Sample
7		QC STD 5		Sample
413	x10	17506-1fh	Airtech	Sample
414	x10	17506-2fh	Airtech	Sample
415	x10d	17506-2fh	Airtech	Duplicate of 118
416	x5	17506-3fh	Airtech	Sample
417	x5s	17506-3fh	Airtech	Spike - 1 of 120
418		17506-3bh	Airtech	Sample
419	s	17506-3bh	Airtech	Spike - 1 of 122

Dataset Report

User Name: icp
Computer Name: ICP-MS
Dataset File Path: C:\elandata_icp\DataSet\101211-3\
Report Date/Time: Thursday, October 13, 2011 14:00:19

Autosampler Position: 4

The Dataset

Time	Sample ID	Batch ID	Read Type	Description	Init. Quant	Prep. Vol.	Aliquot. Vol.	Diluted V
23:10:15 Wed 12-Oct-11	Blank		Blank					
23:12:03 Wed 12-Oct-11	Standard 1		Standard #1					
23:13:50 Wed 12-Oct-11	Standard 2		Standard #2					
23:16:17 Wed 12-Oct-11	Standard 3		Standard #3					
23:18:08 Wed 12-Oct-11	QC Std 1		QC Std #1					
23:19:59 Wed 12-Oct-11	QC Std 2		QC Std #2					
23:21:49 Wed 12-Oct-11	QC Std 3		QC Std #3					
23:23:41 Wed 12-Oct-11	QC Std 4		QC Std #4					
23:25:33 Wed 12-Oct-11	QC Std 5		QC Std #5					
23:27:24 Wed 12-Oct-11	QC Std 7		QC Std #7					
23:29:38 Wed 12-Oct-11	QC Std 8		QC Std #8					
23:31:30 Wed 12-Oct-11	QC Std 9		QC Std #9					
23:33:21 Wed 12-Oct-11	QC Std 10		QC Std #10					
23:35:13 Wed 12-Oct-11	QC Std 2		Sample					
23:37:04 Wed 12-Oct-11	17459-4		Sample					
23:38:55 Wed 12-Oct-11	17459-5		Sample					
23:40:46 Wed 12-Oct-11	17459-5	d	Duplicate of 16					
23:42:36 Wed 12-Oct-11	17459-6		Sample					
23:44:27 Wed 12-Oct-11	17459-6	s	Spike - 1 of 18					
23:46:17 Wed 12-Oct-11	17459-10		Sample					
23:48:08 Wed 12-Oct-11	17459-11		Sample					
23:49:59 Wed 12-Oct-11	17459-11	d	Duplicate of 21					
23:51:49 Wed 12-Oct-11	17459-12		Sample					
23:53:40 Wed 12-Oct-11	17459-12	s	Spike - 1 of 23					
23:55:32 Wed 12-Oct-11	QC Std 1		QC Std #1					
23:57:23 Wed 12-Oct-11	QC Std 4		QC Std #4					
23:59:15 Wed 12-Oct-11	17459-16		Sample					
00:01:05 Thu 13-Oct-11	17459-17		Sample					
00:02:56 Thu 13-Oct-11	17459-17	d	Duplicate of 28					
00:04:47 Thu 13-Oct-11	17459-18		Sample					
00:06:38 Thu 13-Oct-11	17459-18	s	Spike - 1 of 30					
00:08:28 Thu 13-Oct-11	17459-19		Sample					
00:10:19 Thu 13-Oct-11	17459-20		Sample					
00:12:12 Thu 13-Oct-11	QC Std 1		Sample					
00:14:03 Thu 13-Oct-11	QC Std 4		Sample					
00:15:54 Thu 13-Oct-11	Blank		Blank					
00:17:26 Thu 13-Oct-11	Standard 1		Standard #1					
00:18:58 Thu 13-Oct-11	Standard 2		Standard #2					
00:20:30 Thu 13-Oct-11	Standard 3		Standard #3					
00:22:02 Thu 13-Oct-11	QC Std 2		Sample					
00:23:35 Thu 13-Oct-11	QC Std 1		QC Std #1					
00:25:07 Thu 13-Oct-11	QC Std 4		QC Std #4					
00:26:42 Thu 13-Oct-11	17463-1		Sample					

elementOne
Analyst:--KMS--

ICP-MS RUN SHEET
10/13/2011

Job Number:

A/S Loc.	Dilution	Sample ID	Client	Type	Weight (g)	Prep Vol (ml)
5		QC Std 2	Airtech	Sample		
330		17506-1fh	Airtech	Sample		100
331		17506-2fh	Airtech	Sample		100
332	d	17506-2fh	Airtech	Duplicate of 32		100
333		17506-3fh	Airtech	Sample		100
334	s	17506-3fh	Airtech	Spike - 1 of 34		100
335		17506-4fh	Airtech	Sample		100
336		LRB	Airtech	Sample		50
337	s	LRB	Airtech	Spike - 1 of 37		50
338		17506-1bh	Airtech	Sample		50x2
339		17506-2bh	Airtech	Sample		50x2
340	d	17506-2bh	Airtech	Duplicate of 40		50x2
341		17506-3bh	Airtech	Sample		50x2
342	s	17506-3bh	Airtech	Spike - 1 of 42		50x2
343		17506-4bh	Airtech	Sample		50x2
1		QC Std 1	Airtech	Sample		
3		QC Std 4	Airtech	Sample		
6		QC STD 3		Sample		
7		QC STD 5		Sample		
413	x10	17506-1fh	Airtech	Sample		100
414	x10	17506-2fh	Airtech	Sample		100
415	x10d	17506-2fh	Airtech	Duplicate of 118		100
416	x5	17506-3fh	Airtech	Sample		100
417	x5s	17506-3fh	Airtech	Spike - 1 of 120		100
418		17506-3bh	Airtech	Sample		50x2
419	s	17506-3bh	Airtech	Spike - 1 of 122		50x2

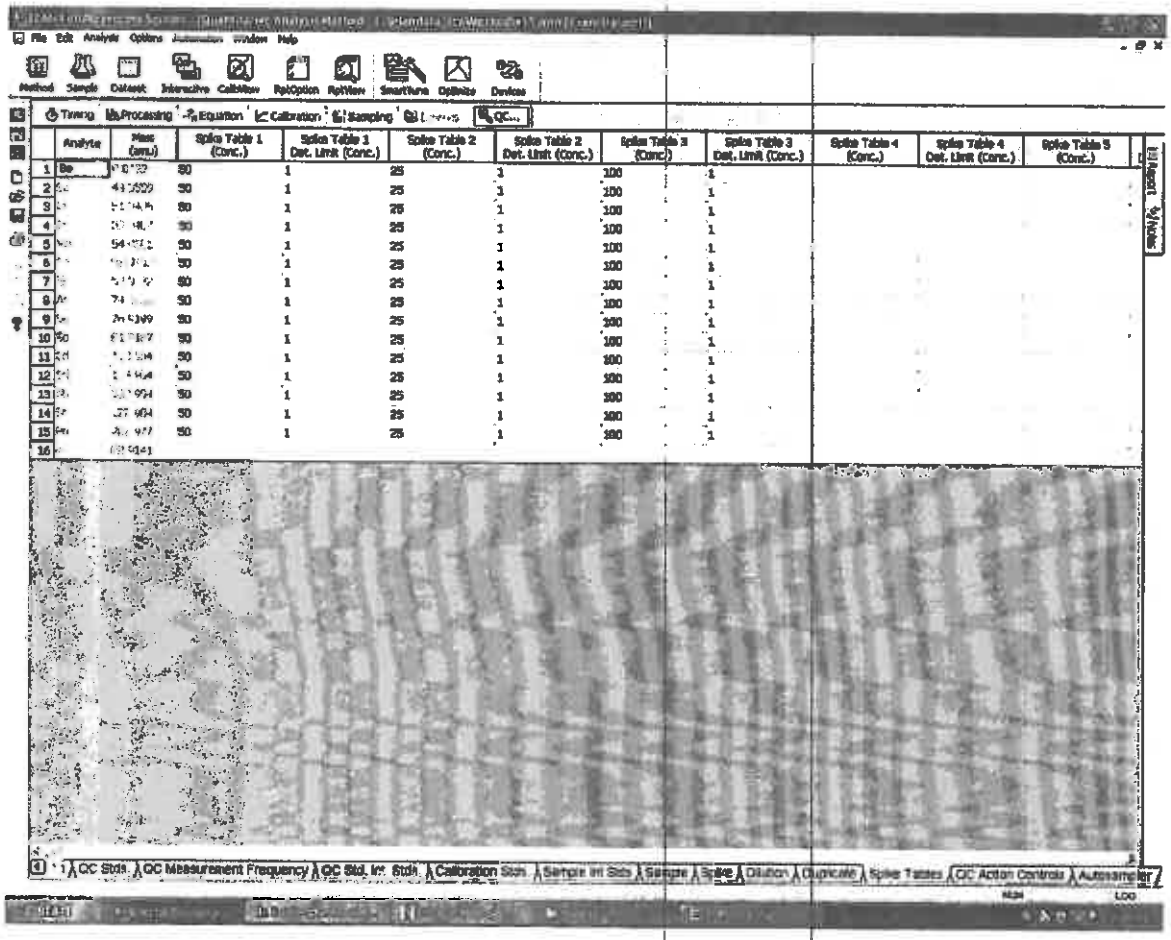
Spikes are post at 0.02mL of 25ppm spiking solutions lot 021411-ABCD & F in a final volume of 10mL

Submitted for QC by:	Date/Time:		QC Review By:	Date/Time:	
kms	10/13/11 14:05		DBL	10/21/11 1350	
Re-Test Required:	No: ✓	Yes:	Comments:		
Resubmitted for QC by:	Date/Time:		QC Review:	By:	Date/Time:

00:28:14 Thu 13-Oct-11	17463-2		Sample	
00:29:48 Thu 13-Oct-11	17463-2	d	Duplicate of 44	
00:31:22 Thu 13-Oct-11	17463-3		Sample	
00:32:55 Thu 13-Oct-11	17463-3	s	Spike - 1 of 46	
00:34:27 Thu 13-Oct-11	17463-4		Sample	
00:36:01 Thu 13-Oct-11	QC Std 1		Sample	
00:37:33 Thu 13-Oct-11	QC Std 4		Sample	
00:39:05 Thu 13-Oct-11	Blank		Blank	
00:41:15 Thu 13-Oct-11	Standard 1		Standard #1	
00:43:24 Thu 13-Oct-11	Standard 2		Standard #2	
00:45:33 Thu 13-Oct-11	Standard 3		Standard #3	
00:47:42 Thu 13-Oct-11	QC Std 2		Sample	Airtech
00:49:53 Thu 13-Oct-11	17506-1fh		Sample	Airtech
00:52:05 Thu 13-Oct-11	QC Std 1		QC Std #1	
00:54:14 Thu 13-Oct-11	QC Std 4		QC Std #4	
00:56:26 Thu 13-Oct-11	17506-2fh		Sample	Airtech
00:58:35 Thu 13-Oct-11	17506-2fh	d	Duplicate of 59	Airtech
01:00:44 Thu 13-Oct-11	17506-3fh		Sample	Airtech
01:02:54 Thu 13-Oct-11	17506-3fh	s	Spike - 1 of 61	Airtech
01:05:03 Thu 13-Oct-11	17506-4fh		Sample	Airtech
01:07:12 Thu 13-Oct-11	LRB		Sample	Airtech
01:09:21 Thu 13-Oct-11	LRB	s	Spike - 1 of 64	Airtech
01:11:31 Thu 13-Oct-11	17506-1bh		Sample	Airtech
01:13:40 Thu 13-Oct-11	17506-2bh		Sample	Airtech
01:15:49 Thu 13-Oct-11	17506-2bh	d	Duplicate of 67	Airtech
01:18:01 Thu 13-Oct-11	QC Std 1		QC Std #1	
01:20:10 Thu 13-Oct-11	QC Std 4		QC Std #4	
01:22:21 Thu 13-Oct-11	17506-3bh		Sample	Airtech
01:24:31 Thu 13-Oct-11	17506-3bh	s	Spike - 1 of 71	Airtech
01:26:40 Thu 13-Oct-11	17506-4bh		Sample	Airtech
01:28:52 Thu 13-Oct-11	QC Std 1		Sample	Airtech
01:31:01 Thu 13-Oct-11	QC Std 4		Sample	Airtech
01:33:09 Thu 13-Oct-11	Blank		Blank	
01:35:01 Thu 13-Oct-11	Standard 1		Standard #1	
01:36:52 Thu 13-Oct-11	Standard 2		Standard #2	
01:38:44 Thu 13-Oct-11	Standard 3		Standard #3	
01:40:36 Thu 13-Oct-11	QC Std 2		Sample	
01:42:30 Thu 13-Oct-11	LRB	x5	Sample	
01:44:22 Thu 13-Oct-11	LRB	x5s	Spike - 3 of 81	
01:46:13 Thu 13-Oct-11	LRB	x5	Sample	
01:48:06 Thu 13-Oct-11	LRB	x5s	Spike - 3 of 83	
01:50:00 Thu 13-Oct-11	QC Std 1		QC Std #1	
01:51:52 Thu 13-Oct-11	QC Std 4		QC Std #4	
01:53:46 Thu 13-Oct-11	17470-1	x5	Sample	
01:55:38 Thu 13-Oct-11	17470-2	x5	Sample	
01:57:30 Thu 13-Oct-11	17470-2	x5d	Duplicate of 8	
01:59:22 Thu 13-Oct-11	17470-3	x5	Sample	
02:01:14 Thu 13-Oct-11	17470-3	x5s	Spike - 3 of 90	
02:03:06 Thu 13-Oct-11	17470-4	x5	Sample	
02:04:58 Thu 13-Oct-11	17470-5	x5	Sample	
02:06:49 Thu 13-Oct-11	17470-6	x5	Sample	
02:08:42 Thu 13-Oct-11	17470-6	x5s	Spike - 3 of 94	
02:10:33 Thu 13-Oct-11	17470-7	x5	Sample	
02:12:27 Thu 13-Oct-11	QC Std 1		QC Std #1	
02:14:19 Thu 13-Oct-11	QC Std 4		QC Std #4	
02:16:13 Thu 13-Oct-11	17470-8	x5	Sample	

02:18:05 Thu 13-Oct-11	17470-9	x5	Sample
02:19:57 Thu 13-Oct-11	17470-9	x5s	Spike - 3 of 10
02:21:49 Thu 13-Oct-11	17470-10	x5	Sample
02:23:41 Thu 13-Oct-11	17492-1	x5	Sample
02:25:33 Thu 13-Oct-11	17492-2	x5	Sample
02:27:25 Thu 13-Oct-11	17492-2	x5d	Duplicate of 1(
02:29:17 Thu 13-Oct-11	17492-3	x5	Sample
02:31:09 Thu 13-Oct-11	17492-3	x5s	Spike - 3 of 1(
02:33:01 Thu 13-Oct-11	17492-4	x5	Sample
02:34:55 Thu 13-Oct-11	QC Std 1		QC Std #1
02:36:47 Thu 13-Oct-11	QC Std 4		QC Std #4
02:38:40 Thu 13-Oct-11	17492-5	x5	Sample
02:40:32 Thu 13-Oct-11	17501-1	x5	Sample
02:42:24 Thu 13-Oct-11	14501-1	x5s	Spike - 3 of 1'
02:44:16 Thu 13-Oct-11	LRB	x5	Sample
02:46:09 Thu 13-Oct-11	LRB	x5s	Spike - 3 of 1'
02:48:00 Thu 13-Oct-11	17493-1	x5	Sample
02:49:52 Thu 13-Oct-11	QC Std 1		Sample
02:51:44 Thu 13-Oct-11	QC Std 4		Sample
02:53:36 Thu 13-Oct-11	17493-1	x50	Sample
02:55:28 Thu 13-Oct-11	17494-1	x5	Sample
02:57:21 Thu 13-Oct-11	QC Std 1		QC Std #1
02:59:13 Thu 13-Oct-11	QC Std 4		QC Std #4
03:01:06 Thu 13-Oct-11	17494-1	x50	Sample
03:02:58 Thu 13-Oct-11	17502-1	x5	Sample
03:04:50 Thu 13-Oct-11	17502-1	x50	Sample
03:06:41 Thu 13-Oct-11	17505-1	x5	Sample
03:08:33 Thu 13-Oct-11	17505-1	x5d	Sample
03:10:25 Thu 13-Oct-11	17505-1	x50	Sample
03:12:17 Thu 13-Oct-11	17505-1	x50d	Sample
03:14:09 Thu 13-Oct-11	17470-1	x5	Sample
03:16:01 Thu 13-Oct-11	17470-1	x50	Sample
03:17:52 Thu 13-Oct-11	QC Std 1		Sample
03:19:47 Thu 13-Oct-11	QC Std 1		QC Std #1
03:21:39 Thu 13-Oct-11	QC Std 4		QC Std #4
03:23:33 Thu 13-Oct-11	QC Std 4		Sample
03:25:27 Thu 13-Oct-11	QC Std 1		QC Std #1
03:27:19 Thu 13-Oct-11	QC Std 4		QC Std #4
10:03:01 Thu 13-Oct-11	Blank		Blank
10:04:52 Thu 13-Oct-11	Standard 1		Standard #1
10:06:43 Thu 13-Oct-11	Standard 2		Standard #2
10:08:34 Thu 13-Oct-11	Standard 3		Standard #3
10:10:25 Thu 13-Oct-11	QC Std 1		QC Std #1
10:12:16 Thu 13-Oct-11	QC Std 2		QC Std #2
10:14:07 Thu 13-Oct-11	QC Std 3		QC Std #3
10:15:58 Thu 13-Oct-11	QC Std 4		QC Std #4
10:17:50 Thu 13-Oct-11	QC Std 5		QC Std #5
10:19:41 Thu 13-Oct-11	QC Std 6		QC Std #6
10:21:32 Thu 13-Oct-11	QC Std 7		QC Std #7
10:23:25 Thu 13-Oct-11	QC Std 9		QC Std #9
10:25:15 Thu 13-Oct-11	QC Std 11		QC Std #11
10:27:08 Thu 13-Oct-11	QC Std 2		Sample
10:29:01 Thu 13-Oct-11	17470-1	x5	Sample
10:30:54 Thu 13-Oct-11	17470-6	x5	Sample
10:32:44 Thu 13-Oct-11	17470-6	x5s	Spike - 3 of 15
10:34:37 Thu 13-Oct-11	17494-1	x5	Sample

10:36:28 Thu 13-Oct-11	17494-1	x50	Sample	
10:38:20 Thu 13-Oct-11	QC Std 1		QC Std #1	
10:40:11 Thu 13-Oct-11	QC Std 4		QC Std #4	
11:41:57 Thu 13-Oct-11	17470-1 TOT	x5	Sample	
11:43:48 Thu 13-Oct-11	17470-1 TOT	x50	Sample	
11:45:41 Thu 13-Oct-11	QC Std 1		QC Std #1	
11:47:32 Thu 13-Oct-11	QC Std 4		QC Std #4	
11:57:35 Thu 13-Oct-11	17459-6	x2	Sample	
11:59:26 Thu 13-Oct-11	17459-6	x2s	Spike - 1 of 16	
12:01:17 Thu 13-Oct-11	17459-12	x2	Sample	
12:03:07 Thu 13-Oct-11	17459-12	x2s	Spike - 1 of 16	
12:04:58 Thu 13-Oct-11	17459-17		Sample	
12:06:49 Thu 13-Oct-11	17459-17	d	Duplicate of 16	
12:08:39 Thu 13-Oct-11	17459-18	x2	Sample	
12:10:30 Thu 13-Oct-11	17459-18	x2s	Spike - 1 of 16	
12:12:24 Thu 13-Oct-11	QC STD 3		Sample	
12:13:56 Thu 13-Oct-11	QC STD 5		Sample	
12:15:29 Thu 13-Oct-11	QC Std 1		QC Std #1	
12:17:01 Thu 13-Oct-11	QC Std 4		QC Std #4	
12:18:36 Thu 13-Oct-11	17463-2		Sample	
12:20:09 Thu 13-Oct-11	17463-2	d	Duplicate of 17	
12:21:41 Thu 13-Oct-11	17463-3	x2	Sample	
12:23:13 Thu 13-Oct-11	17463-3	x2s	Spike - 1 of 17	
12:24:47 Thu 13-Oct-11	QC STD 3		Sample	
12:26:56 Thu 13-Oct-11	QC STD 5		Sample	
12:29:07 Thu 13-Oct-11	17506-1fh	x10	Sample	Airtech
12:31:17 Thu 13-Oct-11	17506-2fh	x10	Sample	Airtech
12:33:26 Thu 13-Oct-11	17506-2fh	x10d	Duplicate of 18	Airtech
12:35:35 Thu 13-Oct-11	17506-3fh	x5	Sample	Airtech
12:37:44 Thu 13-Oct-11	17506-3fh	x5s	Spike - 1 of 18	Airtech
12:39:56 Thu 13-Oct-11	QC Std 1		QC Std #1	
12:42:06 Thu 13-Oct-11	QC Std 4		QC Std #4	
12:44:17 Thu 13-Oct-11	17506-3bh		Sample	Airtech
12:46:27 Thu 13-Oct-11	17506-3bh	s	Spike - 1 of 18	Airtech
12:48:39 Thu 13-Oct-11	QC Std 1		QC Std #1	
12:50:48 Thu 13-Oct-11	QC Std 4		QC Std #4	
12:53:39 Thu 13-Oct-11	17459-6	x5	Sample	
12:55:30 Thu 13-Oct-11	17459-6	x5s	Spike - 1 of 19	
12:57:20 Thu 13-Oct-11	17459-12	x5	Sample	
12:59:11 Thu 13-Oct-11	17459-12	x5s	Spike - 1 of 19	
13:01:02 Thu 13-Oct-11	17459-18	x5	Sample	
13:02:52 Thu 13-Oct-11	17459-18	x5s	Spike - 1 of 19	
13:04:45 Thu 13-Oct-11	QC Std 1		QC Std #1	
13:06:36 Thu 13-Oct-11	QC Std 4		QC Std #4	
13:15:08 Thu 13-Oct-11	17506-3fh	x10	Sample	Airtech
13:17:17 Thu 13-Oct-11	17506-3fh	x10s	Spike - 1 of 20	Airtech
13:19:26 Thu 13-Oct-11	17506-3bh	x5	Sample	Airtech
13:21:36 Thu 13-Oct-11	17506-3bh	x5s	Spike - 1 of 20	Airtech
13:23:47 Thu 13-Oct-11	QC Std 1		QC Std #1	
13:25:57 Thu 13-Oct-11	QC Std 4		QC Std #4	
13:32:45 Thu 13-Oct-11	17506-3fh	x10	Sample	Airtech
13:34:55 Thu 13-Oct-11	17506-3fh	x10s	Spike - 1 of 20	Airtech
13:37:47 Thu 13-Oct-11	17459-6	x5	Sample	
13:39:38 Thu 13-Oct-11	17459-6	x5s	Spike - 1 of 20	
13:41:28 Thu 13-Oct-11	17459-12	x5	Sample	
13:43:19 Thu 13-Oct-11	17459-12	x5s	Spike - 1 of 21	



Thursday, Oct 13, 2011 02:00 PM

ICP Standards and QC Standards Values Table

Element or Test	Mass	Symbol	Std.#1 ppb	Std.#2 ppb	Std.#3 ppb	QC #1	QC #2	QC #3	QC #4	QC #6 A	QC #7 AB	QC #8 .25	QC #9 LRB	QC #10 LRB+	QC #11 LRB+
Lithium	6	*Li*													
Lithium	7	Li	1	100	500	0	1	250	100				0	50	100
Beryllium	9	Be	1	100	500	0	1	250	100			0.25	0	50	100
Boron	10	*B*	1	50	100	0	1	250	100				0	50	100
Boron	11	B	1	50	100	0	1	250	100				0	50	100
Sodium	23	Na	20	1100	5500	0	21	2500	1100				0	718	
Magnesium	24	Mg	20	1100	5500	0	21	2500	1100				0	550	
Magnesium	25	*Mg*	20	1100	5500	0	21	2500	1100				0	550	
Aluminum	27	Al	1	100	500	0	1	250	100				0	50	100
Phosphorus	31	P	20	1000	5000	0	20	2500	1000				0	200	
Potassium	39	K	20	1100	5500	0	21	2500	1100				0	500	
Calcium	44	Ca	50	1100	5500	0	21	2500	1100				0	550	
Scandium	45														
Titanium	47	Ti	1	100	500	0	1	250	100				0	50	100
Titanium	49	Ti	1	100	500	0	1	250	100				0	50	100
Vanadium	51	V	1	100	500	0	1	250	100	0	20		0	50	100
Vanadium	51	V	1	100	500	0	1	250	100	0	20		0	50	100
Chromium	52	Cr	1	100	500	0	1	250	100		10		0	50	100
Chromium	53	*Cr*	1	100	500	0	1	250	100		10		0	50	100
Iron	54	*Fe*	20	1100	5500	0	21	2500	1100	0			0		
Manganese	55	Mn	1	100	500	0	1	250	100	0	10		0	50	100
Iron	57	Fe	20	1100	5500	0	21	2500	1100	0			0		
Cobalt	59	Co	1	100	500	0	1	250	100	0	20		0	50	100
Nickel	60	Ni	1	100	500	0	1	250	100	0	20		0	50	100
Copper	63	Cu	1	100	500	0	1	250	100	0	10		0	50	100
Copper	65	Cu	1	100	500	0	1	250	100	0	10		0	50	100
Zinc	66	Zn	1	100	500	0	1	250	100	0	10		0	50	100
Zinc	67	*Zn*	1	100	500	0	1	250	100	0	10		0	50	100
Zinc	68	*Zn*	1	100	500	0	1	250	100	0	10		0	50	100
Germanium	72	Ge	1	100	500	0	1	250	100				0	50	100
Arsenic	75	As	1	100	500	0	1	250	100	0	10		0	50	100
Selenium	77	*Se*	1	100	500	0	1	250	100	0	10		0	50	100
Selenium	82	Se	1	100	500	0	1	250	100	0	10		0	50	100
Strontium	88	Sr	1	100	500	0	1	250	100	0			0	50	100
Molybdenum	95	*Mo*	1	100	500	0	1	250	100				0	50	100
Molybdenum	97	*Mo*	1	100	500	0	1	250	100				0	50	100
Molybdenum	98	Mo	1	100	500	0	1	200	100				0	50	100
Rhodium	103														
Silver	107	Ag	1	100	500	0	1	250	100	0	10		0	50	100
Silver	109	*Ag*	1	100	500	0	1	250	100	0	10		0	50	100
Cadmium	111	Cd	1	100	500	0	1	250	100	0	5		0	50	100
Cadmium	114	*Cd*	1	100	500	0	1	250	100	0	5		0	50	100
Tin	118	Sn	1	100	500	0	1	250	100	0			0	50	100
Antimony	121	*Sb*	1	100	500	0	1	250	100	0			0	50	100
Antimony	123	Sb	1	100	500	0	1	250	100	0			0	50	100
Tellurium	128	Te	1	100	500	0	1	250	100				0	50	100
Cesium	133														
Barium	135	*Ba*	1	100	500	0	1	250	100	0			0	50	100
Barium	137	Ba	1	100	500	0	1	250	100	0			0	50	100
Lanthanum	139	La	1	100	500	0	1	250	100				0	50	100
Tantalum	159	Ta	1	100	500	0	1	250	100				0	50	100
Platinum	195	Pt	1	100	500	0	1	250	100				0	50	100
Gold	181	Au	1	100	500	0	1	250	100				0	50	100
Thallium	205	Tl	1	100	500	0	1	250	100	0			0	50	100
Lead	208	Pb	1	100	500	0	1	250	100	0			0	50	100
Bismuth	209	Bi	1	100	500	0	1	250	100				0	50	100
Thorium	232	Th	1	100	500	0	1	250	100				0	50	100
Uranium	238	U	1	100	500	0	1	250	100				0	50	100
Krypton	83														

elementOne

PerkinElmer ELAN 6100 ICP-MS

Method 6020 & 200.8 Metals Summary Report
Sample ID: Blank
Sample Da Thursday, October 13, 2011 00:39:05
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	60728.3		ppb
|-	Be	9	26.7		ppb
|-	Sc	45	337065		ppb
|	Cr	52	11339.4		ppb
|	Cr	53	31391.4		ppb
|	Mn	55	6793.9		ppb
|	Co	59	763.7		ppb
|	Ni	60	1623.1		ppb
|	As	75	-136.9		ppb
|	Se	77	4168.3		ppb
|	Se	82	11.4		ppb
|>	Rh	103	836950.4		ppb
|	Cd	111	168.4		ppb
|-	Cd	114	387.4		ppb
|-	Sb	121	588.7		ppb
|	Sb	123	430.8		ppb
|>	Ho	165	1675707.7		ppb
|-	Pb	208	17731.1		ppb
	Kr	83	125.3		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 1
Sample Da Thursday, October 13, 2011 00:41:15
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	62656.2		ppb
|-	Be	9	535.3	1.07646	ppb
|-	Sc	45	339403.7		ppb
|	Cr	52	24663.4	1.03218	ppb
|	Cr	53	33795.1	1.35855	ppb
|	Mn	55	25202.3	0.90854	ppb
|	Co	59	17455.8	1.07059	ppb
|	Ni	60	3890.5	0.68785	ppb
|	As	75	2492.7	1.0292	ppb
|	Se	77	4302	0.41383	ppb
|	Se	82	273.3	1.0035	ppb
|>	Rh	103	846897.7		ppb
|	Cd	111	3988.4	1.06872	ppb
|-	Cd	114	9386.7	1.04656	ppb
|-	Sb	121	13584.1	1.06978	ppb
|	Sb	123	10508.1	1.06966	ppb
|>	Ho	165	1666450.4		ppb
|-	Pb	208	86096.4	0.95191	ppb
	Kr	83	-119		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 2
Sample Da Thursday, October 13, 2011 00:43:24
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	59707.6		ppb
|-	Be	9	47224.4	104.92954	ppb
|-	Sc	45	334080		ppb
|	Cr	52	1304222.1	99.99867	ppb
|	Cr	53	187826.9	102.98115	ppb
|	Mn	55	2153975.4	105.28749	ppb
|	Co	59	1618795.9	102.70301	ppb
|	Ni	60	342504.5	103.1513	ppb
|	As	75	263274.2	101.98128	ppb
|	Se	77	25281.4	101.87384	ppb
|	Se	82	27756	105.18107	ppb
|>	Rh	103	856245.1		ppb
|	Cd	111	386189.6	106.86567	ppb
|-	Cd	114	907038.6	104.34707	ppb
|-	Sb	121	1286496.7	103.38239	ppb
|	Sb	123	1000120.1	103.66717	ppb
|>	Ho	165	1705068.7		ppb
|-	Pb	208	7660348.3	103.85415	ppb
	Kr	83	-24990.1		mg/L

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Method 6020 & 200.8 Metals Summary Report
Sample ID: Standard 3
Sample Da Thursday, October 13, 2011 00:45:33
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
A	Li	6	51999.3		ppb
-	Be	9	195583.2	499.01394	ppb
-	Sc	45	304941.1		ppb
	Cr	52	5801687.4	500.0002	ppb
	Cr	53	705787.7	499.40305	ppb
	Mn	55	9127285.1	498.94268	ppb
	Co	59	7056050.4	499.45926	ppb
	Ni	60	1480554.1	499.37036	ppb
	As	75	1156649.4	499.60369	ppb
	Se	77	96242.7	499.6264	ppb
	Se	82	117976.8	498.96378	ppb
A	Rh	103	768046.7		ppb
	Cd	111	1616273.3	498.62673	ppb
-	Cd	114	3892017.6	499.13049	ppb
-	Sb	121	5700469.1	499.32338	ppb
	Sb	123	4418633.3	499.26643	ppb
A	Ho	165	1564487.7		ppb
-	Pb	208	33725623	499.22927	ppb
	Kr	83	-109562.6		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 2
Sample Da Thursday, October 13, 2011 00:47:42
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
A	Li	6	54716.5		ppb
-	Be	9	524.7	1.2176	ppb
-	Sc	45	313109.6		ppb
	Cr	52	26941.6	1.13749	ppb
	Cr	53	39623.2	4.33827	ppb
	Mn	55	27631.8	0.98231	ppb
	Co	59	19577.8	1.16386	ppb
	Ni	60	4670.2	0.87748	ppb
	As	75	3108.1	1.23022	ppb
	Se	77	4774.3	1.91575	ppb
	Se	82	298.8	1.062	ppb
A	Rh	103	877299.1		ppb
	Cd	111	4700.8	1.22309	ppb
-	Cd	114	10925.1	1.18211	ppb
-	Sb	121	15314.6	1.21979	ppb
	Sb	123	11832.6	1.21774	ppb
A	Ho	165	1657472.3		ppb
-	Pb	208	92521.7	1.04917	ppb
	Kr	83	-114.7		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-1fh
Sample Da Thursday, October 13, 2011 00:49:53
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
A	Li	6	78690.2		ppb
-	Be	9	123.3	0.15087	ppb
-	Sc	45	519081.9		ppb
	Cr	52	4308498.1	328.58732	ppb
	Cr	53	512460.5	313.80984	ppb
	Mn	55	2135993.7	103.17297	ppb
	Co	59	111053	6.92001	ppb
	Ni	60	4538651.8	1357.7902	ppb
	As	75	63263.4	24.28814	ppb
	Se	77	79979.8	362.76118	ppb
	Se	82	102786	385.37977	ppb
A	Rh	103	865684		ppb
	Cd	111	8485.5	2.27521	ppb
-	Cd	114	15528.8	1.72237	ppb
-	Sb	121	34967.8	2.60735	ppb
	Sb	123	27202.3	2.61878	ppb
A	Ho	165	1805287.6		ppb
-	Pb	208	1080532.9	13.62248	ppb
	Kr	83	-6623.3		mg/L

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Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Da Thursday, October 13, 2011 00:52:05
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	62948.4		ppb
|-	Be	9	13.3	-0.03023	ppb
|-	Sc	45	346168		ppb
|	Cr	52	12278	0.03132	ppb
|	Cr	53	32514.1	-0.20693	ppb
|	Mn	55	6888.6	-0.01074	ppb
|	Co	59	615	-0.01139	ppb
|	Ni	60	2207.3	0.14931	ppb
|	As	75	-98.6	0.01888	ppb
|	Se	77	4365.4	0.01382	ppb
|	Se	82	33.2	0.07841	ppb
|>	Rh	103	876035.2		ppb
|	Cd	111	142.6	-0.0091	ppb
|-	Cd	114	327.1	-0.00884	ppb
|-	Sb	121	475.7	-0.00952	ppb
|	Sb	123	368.2	-0.00683	ppb
|>	Ho	165	1686910.7		ppb
|-	Pb	208	16489.8	-0.01855	ppb
	Kr	83	116.9		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Da Thursday, October 13, 2011 00:54:14
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	62003.9		ppb
|-	Be	9	47518.4	101.65749	ppb
|-	Sc	45	334573.6		ppb
|	Cr	52	1340606.9	102.75199	ppb
|	Cr	53	192971.3	106.29562	ppb
|	Mn	55	2241706.1	109.51695	ppb
|	Co	59	1689235.2	107.09756	ppb
|	Ni	60	355236.6	106.93155	ppb
|	As	75	269661.3	104.39761	ppb
|	Se	77	25297.2	101.87503	ppb
|	Se	82	27072.6	102.55813	ppb
|>	Rh	103	856850.2		ppb
|	Cd	111	378208.2	104.60714	ppb
|-	Cd	114	895489.1	102.98293	ppb
|-	Sb	121	1266359.1	101.35142	ppb
|	Sb	123	989807.1	102.18657	ppb
|>	Ho	165	1712314.3		ppb
|-	Pb	208	7680244.8	103.70305	ppb
	Kr	83	-24834.7		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-2fh
Sample Da Thursday, October 13, 2011 00:56:26
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	86239.7		ppb
|-	Be	9	140.7	0.15928	ppb
|-	Sc	45	599724.3		ppb
|	Cr	52	1128236.9	88.44294	ppb
|	Cr	53	138155.3	72.27282	ppb
|	Mn	55	841467.9	41.89372	ppb
|	Co	59	50442.2	3.22712	ppb
|	Ni	60	2636363.4	816.03818	ppb
|	As	75	53578.1	21.28066	ppb
|	Se	77	62240.3	288.06458	ppb
|	Se	82	79307.5	307.63333	ppb
|>	Rh	103	836795.8		ppb
|	Cd	111	4242.4	1.15407	ppb
|-	Cd	114	5710.9	0.62736	ppb
|-	Sb	121	181674.6	14.20624	ppb
|	Sb	123	140568	14.18234	ppb
|>	Ho	165	1747079.4		ppb
|-	Pb	208	725855.6	9.38212	ppb
	Kr	83	-5204.9		mg/L

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Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-2fh
Sample Da Thursday, October 13, 2011 00:58:35
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	89896		ppb
|-	Be	9	122.7	0.12279	ppb
|-	Sc	45	606864.7		ppb
|	Cr	52	1138300.9	86.00802	ppb
|	Cr	53	140644.3	70.56528	ppb
|	Mn	55	878346.1	42.15987	ppb
|	Co	59	51235	3.15992	ppb
|	Ni	60	2648583.2	790.46758	ppb
|	As	75	55403.8	21.22373	ppb
|	Se	77	64076.7	285.83947	ppb
|	Se	82	81672.7	305.55344	ppb
|>	Rh	103	867636.7		ppb
|	Cd	111	4132	1.08232	ppb
|-	Cd	114	6430.7	0.68512	ppb
|-	Sb	121	184796.4	13.97928	ppb
|	Sb	123	144308.1	14.08263	ppb
|>	Ho	165	1806182.3		ppb
|-	Pb	208	732805.5	9.15613	ppb
	Kr	83	-5416.9		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-3fh
Sample Da Thursday, October 13, 2011 01:00:44
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	86602.5		ppb
|-	Be	9	98.3	0.09235	ppb
|-	Sc	45	473366.8		ppb
|	Cr	52	674120.9	49.90563	ppb
|	Cr	53	85453.5	33.83574	ppb
|	Mn	55	595191.6	28.09412	ppb
|	Co	59	31518.2	1.89986	ppb
|	Ni	60	862103.4	253.67497	ppb
|	As	75	63526.7	24.0093	ppb
|	Se	77	84492.5	378.37126	ppb
|	Se	82	108250.7	399.79672	ppb
|>	Rh	103	878908.8		ppb
|	Cd	111	3099.2	0.78785	ppb
|-	Cd	114	3776.4	0.37797	ppb
|-	Sb	121	27394.9	2.01093	ppb
|	Sb	123	21268.9	2.01627	ppb
|>	Ho	165	1824098.3		ppb
|-	Pb	208	668614.5	8.24781	ppb
	Kr	83	-4208.1		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-3fh
Sample Da Thursday, October 13, 2011 01:02:54
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	85331.3		ppb
|-	Be	9	24599.2	38.22955	ppb
|-	Sc	45	460902.3		ppb
|	Cr	52	1379883.4	103.5837	ppb
|	Cr	53	166908.7	86.80341	ppb
|	Mn	55	1741530.9	83.22418	ppb
|	Co	59	879076.9	54.56051	ppb
|	Ni	60	1016590.9	300.64628	ppb
|	As	75	163460.6	62.01241	ppb
|	Se	77	90367.9	408.11668	ppb
|	Se	82	115887.8	430.02235	ppb
|>	Rh	103	875042.6		ppb
|	Cd	111	154247.4	41.75689	ppb
|-	Cd	114	362738.4	40.82343	ppb
|-	Sb	121	584461.2	44.14048	ppb
|	Sb	123	451227.4	43.95859	ppb
|>	Ho	165	1813252.4		ppb
|-	Pb	208	4287938.2	54.54714	ppb
	Kr	83	-4161.1		mg/L

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Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-4fh
Sample Da Thursday, October 13, 2011 01:05:03
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	83384.2		ppb
|-	Be	9	53.3	0.02678	ppb
|-	Sc	45	497784.9		ppb
|	Cr	52	223995.8	16.35507	ppb
|	Cr	53	31631.6	-0.41085	ppb
|	Mn	55	323943.7	15.47604	ppb
|	Co	59	8669.5	0.49832	ppb
|	Ni	60	43238.6	12.52763	ppb
|	As	75	1190.9	0.51339	ppb
|	Se	77	453	-18.4842	ppb
|	Se	82	49.3	0.14193	ppb
|>	Rh	103	860015.5		ppb
|	Cd	111	1691.7	0.41842	ppb
|-	Cd	114	193.3	-0.02318	ppb
|-	Sb	121	12386.1	0.89076	ppb
|	Sb	123	9717.9	0.90471	ppb
|>	Ho	165	1808484.2		ppb
|-	Pb	208	286129.3	3.42071	ppb
	Kr	83	-2596.7		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB
Sample Da Thursday, October 13, 2011 01:07:12
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	85242.6		ppb
|-	Be	9	10.3	-0.04218	ppb
|-	Sc	45	425895.7		ppb
|	Cr	52	83392.1	4.94192	ppb
|	Cr	53	14967.4	-12.27095	ppb
|	Mn	55	425952.6	18.56547	ppb
|	Co	59	1237.8	0.02149	ppb
|	Ni	60	12160.5	2.82851	ppb
|	As	75	194.5	0.12223	ppb
|	Se	77	429.7	-18.77969	ppb
|	Se	82	17.5	0.01604	ppb
|>	Rh	103	945936.6		ppb
|	Cd	111	541	0.08789	ppb
|-	Cd	114	676.2	0.02485	ppb
|-	Sb	121	6120.7	0.4077	ppb
|	Sb	123	4778.3	0.41351	ppb
|>	Ho	165	1840690.1		ppb
|-	Pb	208	268621.1	3.13643	ppb
	Kr	83	74.8		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: LRB
Sample Da Thursday, October 13, 2011 01:09:21
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	84760.4		ppb
|-	Be	9	22126.2	34.59594	ppb
|-	Sc	45	421009.4		ppb
|	Cr	52	831071.5	56.43965	ppb
|	Cr	53	102246.5	39.06361	ppb
|	Mn	55	1586763.9	69.05758	ppb
|	Co	59	917766.9	51.90692	ppb
|	Ni	60	192528.8	51.46304	ppb
|	As	75	96363.8	33.32997	ppb
|	Se	77	6792.5	8.69354	ppb
|	Se	82	8280	27.95535	ppb
|>	Rh	103	960101.9		ppb
|	Cd	111	150368.2	37.07815	ppb
|-	Cd	114	353749.6	36.26902	ppb
|-	Sb	121	511995.2	37.55039	ppb
|	Sb	123	396306.8	37.49107	ppb
|>	Ho	165	1867086.7		ppb
|-	Pb	208	4047363.4	49.98355	ppb
	Kr	83	92		mg/L

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Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-1bh
Sample Da Thursday, October 13, 2011 01:11:31
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	92519		ppb
|-	Be	9	17.7	-0.033	ppb
|-	Sc	45	391048.7		ppb
|	Cr	52	316616.2	22.23891	ppb
|	Cr	53	43375	5.85462	ppb
|	Mn	55	572056.5	26.15534	ppb
|	Co	59	100344.4	5.96704	ppb
|	Ni	60	128039.8	36.09948	ppb
|	As	75	37579.2	13.79455	ppb
|	Se	77	81775.9	353.71854	ppb
|	Se	82	105329.7	377.14458	ppb
|>	Rh	103	906461.3		ppb
|	Cd	111	2294.2	0.55224	ppb
|-	Cd	114	2206	0.19444	ppb
|-	Sb	121	36269.2	2.72158	ppb
|	Sb	123	27838.4	2.69657	ppb
|>	Ho	165	1795214.9		ppb
|-	Pb	208	907727.6	11.47071	ppb
	Kr	83	-1480.1		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-2bh
Sample Da Thursday, October 13, 2011 01:13:40
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	101778.3		ppb
|-	Be	9	12	-0.04265	ppb
|-	Sc	45	418728.3		ppb
|	Cr	52	259275.2	18.02668	ppb
|	Cr	53	34962.4	0.58409	ppb
|	Mn	55	952694.2	43.73596	ppb
|	Co	59	67964.5	4.02078	ppb
|	Ni	60	87819.5	24.57626	ppb
|	As	75	15919.9	5.86979	ppb
|	Se	77	36433.5	145.98417	ppb
|	Se	82	46660.6	166.89021	ppb
|>	Rh	103	907497.8		ppb
|	Cd	111	87447	22.79778	ppb
|-	Cd	114	203168.8	22.02226	ppb
|-	Sb	121	18637.1	1.37385	ppb
|	Sb	123	14568.9	1.38821	ppb
|>	Ho	165	1796829.1		ppb
|-	Pb	208	4448917.6	57.12862	ppb
	Kr	83	-1645.4		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-2bh
Sample Da Thursday, October 13, 2011 01:15:49
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	101332.4		ppb
|-	Be	9	11.3	-0.04347	ppb
|-	Sc	45	424744.2		ppb
|	Cr	52	259242.5	17.68244	ppb
|	Cr	53	34903.2	0.15127	ppb
|	Mn	55	947064.9	42.68441	ppb
|	Co	59	67692.8	3.93121	ppb
|	Ni	60	88188.1	24.22434	ppb
|	As	75	16500.7	5.96633	ppb
|	Se	77	36729.7	144.27045	ppb
|	Se	82	46634.5	163.76134	ppb
|>	Rh	103	924209.2		ppb
|	Cd	111	87507.6	22.39825	ppb
|-	Cd	114	202595.4	21.56009	ppb
|-	Sb	121	18662.1	1.35106	ppb
|	Sb	123	14528.2	1.35984	ppb
|>	Ho	165	1828334		ppb
|-	Pb	208	4475066.6	56.47051	ppb
	Kr	83	-1661.5		mg/L

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Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Da Thursday, October 13, 2011 01:18:01
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	63654.2		ppb
|-	Be	9	16.3	-0.02415	ppb
|-	Sc	45	334733.2		ppb
|	Cr	52	12726.9	0.06391	ppb
|	Cr	53	32757.4	-0.0953	ppb
|	Mn	55	8704.4	0.07685	ppb
|	Co	59	406.7	-0.02438	ppb
|	Ni	60	1605.8	-0.02811	ppb
|	As	75	148.1	0.11101	ppb
|	Se	77	5044.1	3.19821	ppb
|	Se	82	37.6	0.09396	ppb
|>	Rh	103	877122.8		ppb
|	Cd	111	130.1	-0.01255	ppb
|-	Cd	114	271.5	-0.01508	ppb
|-	Sb	121	514.7	-0.00577	ppb
|	Sb	123	383	-0.00477	ppb
|>	Ho	165	1664708.7		ppb
|-	Pb	208	16328.1	-0.01791	ppb
	Kr	83	112.8		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Da Thursday, October 13, 2011 01:20:10
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	58780.8		ppb
|-	Be	9	45748.9	103.24432	ppb
|-	Sc	45	317073.4		ppb
|	Cr	52	1254409.8	99.42591	ppb
|	Cr	53	179856.8	101.7153	ppb
|	Mn	55	2030004.3	102.57716	ppb
|	Co	59	1519861.6	99.67881	ppb
|	Ni	60	324577.5	101.00551	ppb
|	As	75	248254.1	99.40523	ppb
|	Se	77	23866	98.9002	ppb
|	Se	82	25377.5	99.41829	ppb
|>	Rh	103	828519.8		ppb
|	Cd	111	360771.5	103.1542	ppb
|-	Cd	114	849239.5	100.97728	ppb
|-	Sb	121	1228034.1	102.54294	ppb
|	Sb	123	963561.8	103.78517	ppb
|>	Ho	165	1640929.5		ppb
|-	Pb	208	7326777.6	103.21922	ppb
	Kr	83	-23632.4		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-4bh
Sample Da Thursday, October 13, 2011 01:26:40
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	77904.1		ppb
|-	Be	9	12.7	-0.03681	ppb
|-	Sc	45	392299.8		ppb
|	Cr	52	251501.1	17.37631	ppb
|	Cr	53	34661.7	0.28209	ppb
|	Mn	55	1009916.6	46.16468	ppb
|	Co	59	54298.4	3.18693	ppb
|	Ni	60	67993.4	18.8196	ppb
|	As	75	702.6	0.3095	ppb
|	Se	77	472	-18.52456	ppb
|	Se	82	97.8	0.30394	ppb
|>	Rh	103	912315.7		ppb
|	Cd	111	705.2	0.13553	ppb
|-	Cd	114	-3606.4	-0.43629	ppb
|-	Sb	121	7728.6	0.55632	ppb
|	Sb	123	5922.2	0.55189	ppb
|>	Ho	165	1752712		ppb
|-	Pb	208	329113.6	4.10564	ppb
	Kr	83	-129.7		mg/L

PerkinElmer ELAN 6100 ICP-MS

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Da Thursday, October 13, 2011 01:28:52
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	53954.9		ppb
|-	Be	9	14.7	-0.02237	ppb
|-	Sc	45	292883.3		ppb
|	Cr	52	12187.5	0.04169	ppb
|	Cr	53	31479.5	-0.50179	ppb
|	Mn	55	9014.1	0.09971	ppb
|	Co	59	433	-0.02221	ppb
|	Ni	60	1484.5	-0.05499	ppb
|	As	75	-671.1	-0.20481	ppb
|	Se	77	4998.7	3.46694	ppb
|	Se	82	17.8	0.02346	ppb
|>	Rh	103	859588.5		ppb
|	Cd	111	112.2	-0.01677	ppb
|-	Cd	114	209.2	-0.02164	ppb
|-	Sb	121	394	-0.01245	ppb
|	Sb	123	293.1	-0.0113	ppb
|>	Ho	165	1523010.2		ppb
|-	Pb	208	14302.7	-0.02755	ppb
	Kr	83	155.5		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Da Thursday, October 13, 2011 01:31:01
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	51934.1		ppb
|-	Be	9	38162.6	97.43761	ppb
|-	Sc	45	283215.9		ppb
|	Cr	52	1110188.7	90.51042	ppb
|	Cr	53	163607.3	94.03188	ppb
|	Mn	55	1813085.5	94.38054	ppb
|	Co	59	1413552	95.56936	ppb
|	Ni	60	304507.6	97.7378	ppb
|	As	75	231521.5	95.57223	ppb
|	Se	77	22440.7	95.31058	ppb
|	Se	82	23328.7	94.21121	ppb
|>	Rh	103	804146.2		ppb
|	Cd	111	344265.7	101.54087	ppb
|-	Cd	114	815020.3	99.9346	ppb
|-	Sb	121	1148581.3	103.02158	ppb
|	Sb	123	896305.3	103.69281	ppb
|>	Ho	165	1527587.6		ppb
|-	Pb	208	6780757.7	102.58095	ppb
	Kr	83	-22427.1		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC STD 3
Sample Da Thursday, October 13, 2011 12:24:47
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	46838.9		ppb
|-	Be	9	76728.8	217.41417	ppb
|-	Sc	45	248770.3		ppb
|	Cr	52	2369842.1	225.06965	ppb
|	Cr	53	320465.7	240.0829	ppb
|	Mn	55	3716422.1	224.41281	ppb
|	Co	59	2982968.1	233.62486	ppb
|	Ni	60	616951.8	229.80379	ppb
|	As	75	490870	234.5192	ppb
|	Se	77	43740.1	240.593	ppb
|	Se	82	48860.9	228.38625	ppb
|>	Rh	103	694651.2		ppb
|	Cd	111	734878.9	250.79022	ppb
|-	Cd	114	1724666.3	244.74432	ppb
|-	Sb	121	2509356.8	248.05798	ppb
|	Sb	123	1909272.8	243.30932	ppb
|>	Ho	165	1389530.8		ppb
|-	Pb	208	14927417	248.57958	ppb
	Kr	83	-46690		mg/L

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Method 6020 & 200.8 Metals Summary Report
Sample ID: QC STD 5
Sample Da Thursday, October 13, 2011 12:26:56
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
>	Li	6	50269.5		ppb
-	Be	9	16220.5	42.77165	ppb
-	Sc	45	262128.6		ppb
	Cr	52	517143.9	44.74795	ppb
	Cr	53	109088.2	61.13269	ppb
	Mn	55	780949.7	43.34076	ppb
	Co	59	627519.9	45.36285	ppb
	Ni	60	135129.2	46.12101	ppb
	As	75	105335.8	46.54046	ppb
	Se	77	14355.7	58.73929	ppb
	Se	82	10265.4	44.29341	ppb
>	Rh	103	750889.6		ppb
	Cd	111	157314.8	49.66526	ppb
-	Cd	114	372286.3	48.84121	ppb
-	Sb	121	529122.1	49.49288	ppb
	Sb	123	408512.2	49.29171	ppb
>	Ho	165	1464152.8		ppb
-	Pb	208	3198402.5	50.38188	ppb
	Kr	83	211.6		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-1fh
Sample Da Thursday, October 13, 2011 12:29:07
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
>	Li	6	51680.6		ppb
-	Be	9	18.3	-0.01088	ppb
-	Sc	45	290733.2		ppb
	Cr	52	323246.1	26.87466	ppb
	Cr	53	86118.7	42.03684	ppb
	Mn	55	155568.6	8.13346	ppb
	Co	59	9025.5	0.58712	ppb
	Ni	60	368817.5	123.48205	ppb
	As	75	7281	3.18996	ppb
	Se	77	14479.5	57.27107	ppb
	Se	82	10813.8	45.49438	ppb
>	Rh	103	771069.2		ppb
	Cd	111	872.4	0.22063	ppb
-	Cd	114	1787.1	0.18265	ppb
-	Sb	121	3646.7	0.2802	ppb
	Sb	123	2794.1	0.27887	ppb
>	Ho	165	1523153.9		ppb
-	Pb	208	100351.2	1.28166	ppb
	Kr	83	-378.8		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-2fh
Sample Da Thursday, October 13, 2011 12:31:17
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
>	Li	6	51040.1		ppb
-	Be	9	14.7	-0.02025	ppb
-	Sc	45	287807.8		ppb
	Cr	52	89158.8	6.88478	ppb
	Cr	53	58378.5	22.32757	ppb
	Mn	55	60035	2.98047	ppb
	Co	59	3913.5	0.23054	ppb
	Ni	60	204512.9	69.30402	ppb
	As	75	5638.4	2.51592	ppb
	Se	77	12613.1	48.30204	ppb
	Se	82	8455.5	36.11084	ppb
>	Rh	103	759069.6		ppb
	Cd	111	427.1	0.08561	ppb
-	Cd	114	685.7	0.04347	ppb
-	Sb	121	17297.8	1.51797	ppb
	Sb	123	13486.7	1.52972	ppb
>	Ho	165	1514625.2		ppb
-	Pb	208	66809.6	0.77731	ppb
	Kr	83	-291.5		mg/L

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Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-2fh
Sample Da Thursday, October 13, 2011 12:33:26
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	51160.5		ppb
|-	Be	9	11.3	-0.02887	ppb
|-	Sc	45	289728.5		ppb
|	Cr	52	89206.3	6.80408	ppb
|	Cr	53	63510.4	25.66313	ppb
|	Mn	55	62278	3.06838	ppb
|	Co	59	3882.5	0.2256	ppb
|	Ni	60	207381.1	69.55632	ppb
|	As	75	5886.6	2.59082	ppb
|	Se	77	13477.3	52.23959	ppb
|	Se	82	8415.4	35.55571	ppb
|>	Rh	103	767100.1		ppb
|	Cd	111	429.4	0.08507	ppb
|-	Cd	114	667.8	0.04025	ppb
|-	Sb	121	17258.7	1.4948	ppb
|	Sb	123	13502.5	1.51154	ppb
|>	Ho	165	1533491.1		ppb
|-	Pb	208	66490.8	0.75953	ppb
	Kr	83	-296.6		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Da Thursday, October 13, 2011 12:39:56
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	47948.9		ppb
|-	Be	9	8	-0.03597	ppb
|-	Sc	45	248615.8		ppb
|	Cr	52	12162.8	0.18255	ppb
|	Cr	53	57388.2	22.31983	ppb
|	Mn	55	1964.2	-0.23026	ppb
|	Co	59	259.3	-0.0307	ppb
|	Ni	60	245.3	-0.41733	ppb
|	As	75	177.6	0.13277	ppb
|	Se	77	7081.8	18.72587	ppb
|	Se	82	-10.7	-0.09065	ppb
|>	Rh	103	745992.8		ppb
|	Cd	111	47.7	-0.03255	ppb
|-	Cd	114	98.6	-0.03259	ppb
|-	Sb	121	167.3	-0.03207	ppb
|	Sb	123	133	-0.02889	ppb
|>	Ho	165	1426976.8		ppb
|-	Pb	208	3285.9	-0.1918	ppb
	Kr	83	154.4		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Da Thursday, October 13, 2011 12:42:06
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	48429.6		ppb
|-	Be	9	32276.6	88.40463	ppb
|-	Sc	45	246210.5		ppb
|	Cr	52	1010846.8	89.20768	ppb
|	Cr	53	177511.4	114.01259	ppb
|	Mn	55	1565371.9	88.1065	ppb
|	Co	59	1286279.4	94.02893	ppb
|	Ni	60	276358.9	95.86765	ppb
|	As	75	217251.7	96.9796	ppb
|	Se	77	24026	113.51249	ppb
|	Se	82	21860.5	95.45273	ppb
|>	Rh	103	743102.9		ppb
|	Cd	111	318803.2	101.6516	ppb
|-	Cd	114	743760.1	98.5989	ppb
|-	Sb	121	1057865.1	101.47808	ppb
|	Sb	123	824460.5	102.01256	ppb
|>	Ho	165	1428350.8		ppb
|-	Pb	208	6360165.7	102.93511	ppb
	Kr	83	-20095.2		mg/L

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Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-3bh
Sample Da Thursday, October 13, 2011 12:44:17
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	71237.3		ppb
|-	Be	9	18.3	-0.02422	ppb
|-	Sc	45	368790.1		ppb
|	Cr	52	140469.7	9.42874	ppb
|	Cr	53	42666.1	5.5966	ppb
|	Mn	55	469231.3	21.52299	ppb
|	Co	59	32787	1.92808	ppb
|	Ni	60	62566.3	17.49272	ppb
|	As	75	8138.4	3.04843	ppb
|	Se	77	23027.1	85.39363	ppb
|	Se	82	24984.3	89.96492	ppb
|>	Rh	103	901062.6		ppb
|	Cd	111	919.1	0.19417	ppb
|-	Cd	114	1410.6	0.10928	ppb
|-	Sb	121	13085.8	1.02536	ppb
|	Sb	123	10164.2	1.03006	ppb
|>	Ho	165	1671516.3		ppb
|-	Pb	208	415697.4	5.51733	ppb
	Kr	83	-597.6		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-3bh
Sample Da Thursday, October 13, 2011 12:46:27
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	67025.9		ppb
|-	Be	9	17818.1	35.21617	ppb
|-	Sc	45	343198.1		ppb
|	Cr	52	753417.2	58.94591	ppb
|	Cr	53	112084.2	54.87445	ppb
|	Mn	55	1418463.3	71.10973	ppb
|	Co	59	779383.6	50.77429	ppb
|	Ni	60	216749.4	66.8775	ppb
|	As	75	107948.6	42.96339	ppb
|	Se	77	29952.4	128.31102	ppb
|	Se	82	33909.6	131.8936	ppb
|>	Rh	103	834131.6		ppb
|	Cd	111	130868.8	37.13656	ppb
|-	Cd	114	304931.6	35.97278	ppb
|-	Sb	121	487521.2	41.25177	ppb
|	Sb	123	379574	41.43268	ppb
|>	Ho	165	1617786.9		ppb
|-	Pb	208	3623115.4	51.65686	ppb
	Kr	83	-487.7		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Da Thursday, October 13, 2011 12:48:39
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	46959.8		ppb
|-	Be	9	7	-0.03856	ppb
|-	Sc	45	232772.8		ppb
|	Cr	52	11616.8	0.19063	ppb
|	Cr	53	45401.9	15.11488	ppb
|	Mn	55	1907.2	-0.22747	ppb
|	Co	59	229	-0.03197	ppb
|	Ni	60	192	-0.43208	ppb
|	As	75	-56.2	0.02616	ppb
|	Se	77	6530.7	17.6491	ppb
|	Se	82	-58.7	-0.31358	ppb
|>	Rh	103	706963		ppb
|	Cd	111	39.3	-0.03452	ppb
|-	Cd	114	65	-0.03655	ppb
|-	Sb	121	133	-0.03476	ppb
|	Sb	123	96.1	-0.03298	ppb
|>	Ho	165	1358472.9		ppb
|-	Pb	208	2776.5	-0.19783	ppb
	Kr	83	194		mg/L

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Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Da Thursday, October 13, 2011 12:50:48
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	48726.7		ppb
|-	Be	9	31756	86.45943	ppb
|-	Sc	45	238128.6		ppb
|	Cr	52	988625.9	90.58156	ppb
|	Cr	53	164259.4	108.6835	ppb
|	Mn	55	1495126	87.35352	ppb
|	Co	59	1251662.5	94.98627	ppb
|	Ni	60	269089	96.90934	ppb
|	As	75	211172.6	97.85425	ppb
|	Se	77	22932.9	112.28162	ppb
|	Se	82	21087.5	95.58056	ppb
|>	Rh	103	715843.4		ppb
|	Cd	111	305606.3	101.15433	ppb
|-	Cd	114	709700	97.66502	ppb
|-	Sb	121	1014304.4	101.84254	ppb
|	Sb	123	792407.1	102.62328	ppb
|>	Ho	165	1364714		ppb
|-	Pb	208	6090739.3	103.16738	ppb
	Kr	83	-19252.3		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-3bh
Sample Da Thursday, October 13, 2011 13:19:26
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	73902.9		ppb
|-	Be	9	9.3	-0.04056	ppb
|-	Sc	45	374248.9		ppb
|	Cr	52	68134.2	4.04207	ppb
|	Cr	53	52938.4	11.94283	ppb
|	Mn	55	198814.6	8.78792	ppb
|	Co	59	13451	0.75141	ppb
|	Ni	60	26556.2	7.02294	ppb
|	As	75	3729.1	1.40732	ppb
|	Se	77	14742	46.55332	ppb
|	Se	82	10155.5	36.06713	ppb
|>	Rh	103	912707.2		ppb
|	Cd	111	430.4	0.06446	ppb
|-	Cd	114	492.4	0.00768	ppb
|-	Sb	121	6215.5	0.45338	ppb
|	Sb	123	4707.7	0.44457	ppb
|>	Ho	165	1700205.1		ppb
|-	Pb	208	179666.1	2.20132	ppb
	Kr	83	-131.1		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-3bh
Sample Da Thursday, October 13, 2011 13:21:36
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	76715		ppb
|-	Be	9	23413.3	40.53688	ppb
|-	Sc	45	386830.1		ppb
|	Cr	52	779998.1	53.4356	ppb
|	Cr	53	130175.9	56.30394	ppb
|	Mn	55	1323199.9	58.0701	ppb
|	Co	59	860193.4	49.09603	ppb
|	Ni	60	204919.7	55.32581	ppb
|	As	75	123963.8	43.29492	ppb
|	Se	77	24180.5	84.88617	ppb
|	Se	82	22725.4	77.57364	ppb
|>	Rh	103	950514.5		ppb
|	Cd	111	165782.4	41.29447	ppb
|-	Cd	114	390029.2	40.39017	ppb
|-	Sb	121	582696.9	44.85924	ppb
|	Sb	123	453312.7	45.01507	ppb
|>	Ho	165	1779458.7		ppb
|-	Pb	208	3787228.5	49.06147	ppb
	Kr	83	-66.4		mg/L

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Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Da Thursday, October 13, 2011 13:23:47
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	48107.9		ppb
|-	Be	9	25.7	0.01084	ppb
|-	Sc	45	243403.5		ppb
|	Cr	52	12303.7	0.2406	ppb
|	Cr	53	42554.2	12.39607	ppb
|	Mn	55	2923.9	-0.16861	ppb
|	Co	59	734.1	0.00501	ppb
|	Ni	60	318.7	-0.38877	ppb
|	As	75	-407.1	-0.13087	ppb
|	Se	77	6224.8	15.29843	ppb
|	Se	82	-7.5	-0.08199	ppb
|>	Rh	103	719305.3		ppb
|	Cd	111	149.9	0.00105	ppb
|-	Cd	114	313.8	-0.00303	ppb
|-	Sb	121	464.7	0.00028	ppb
|	Sb	123	358.1	0.00246	ppb
|>	Ho	165	1335752.9		ppb
|-	Pb	208	5018.3	-0.15739	ppb
	Kr	83	170.2		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Da Thursday, October 13, 2011 13:25:57
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	50781.9		ppb
|-	Be	9	33595	87.78555	ppb
|-	Sc	45	244258		ppb
|	Cr	52	1003766.4	92.15773	ppb
|	Cr	53	162090.7	107.20816	ppb
|	Mn	55	1552206.9	90.85411	ppb
|	Co	59	1252517.8	95.21701	ppb
|	Ni	60	269512	97.23505	ppb
|	As	75	209448.1	97.22165	ppb
|	Se	77	22561	110.34638	ppb
|	Se	82	20687.7	93.94623	ppb
|>	Rh	103	714502.7		ppb
|	Cd	111	307269.3	101.91995	ppb
|-	Cd	114	719291.4	99.2021	ppb
|-	Sb	121	1038167.6	102.62213	ppb
|	Sb	123	816565.3	104.10733	ppb
|>	Ho	165	1386525.8		ppb
|-	Pb	208	6108882.5	101.83927	ppb
	Kr	83	-19481.6		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-3fh
Sample Da Thursday, October 13, 2011 13:32:45
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	50826.7		ppb
|-	Be	9	12.7	-0.02506	ppb
|-	Sc	45	271899.9		ppb
|	Cr	52	60186.9	4.41686	ppb
|	Cr	53	62291.2	25.7028	ppb
|	Mn	55	43116.1	2.07346	ppb
|	Co	59	2546.4	0.13481	ppb
|	Ni	60	69607	23.53031	ppb
|	As	75	6067.5	2.725	ppb
|	Se	77	16180.4	68.6844	ppb
|	Se	82	10278.3	44.29013	ppb
|>	Rh	103	751389.9		ppb
|	Cd	111	354.9	0.06618	ppb
|-	Cd	114	492.3	0.01876	ppb
|-	Sb	121	2496.7	0.19577	ppb
|	Sb	123	1950.8	0.20071	ppb
|>	Ho	165	1402214.7		ppb
|-	Pb	208	57279.1	0.70159	ppb
	Kr	83	-180.5		mg/L

PerkinElmer ELAN 6100 ICP-MS

Method 6020 & 200.8 Metals Summary Report
Sample ID: 17506-3fh
Sample Da Thursday, October 13, 2011 13:34:55
Sample De Airtech
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	52608.4		ppb
|-	Be	9	16052.2	40.44744	ppb
|-	Sc	45	273078.5		ppb
|	Cr	52	552786.6	47.16734	ppb
|	Cr	53	118658.8	67.0168	ppb
|	Mn	55	839602.5	45.91811	ppb
|	Co	59	637308.7	45.39291	ppb
|	Ni	60	202237.9	68.25925	ppb
|	As	75	104747.3	45.63314	ppb
|	Se	77	23012.8	104.67965	ppb
|	Se	82	20044.8	85.40995	ppb
|>	Rh	103	761700.3		ppb
|	Cd	111	145473.8	45.22411	ppb
|-	Cd	114	339081	43.81232	ppb
|-	Sb	121	494804.4	48.21152	ppb
|	Sb	123	384212.3	48.28222	ppb
|>	Ho	165	1405322		ppb
|-	Pb	208	2988448.2	49.05599	ppb
	Kr	83	-161.8		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 1
Sample Da Thursday, October 13, 2011 13:48:53
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	50569.4		ppb
|-	Be	9	10	-0.03211	ppb
|-	Sc	45	257469.7		ppb
|	Cr	52	12698.2	0.21253	ppb
|	Cr	53	52037.6	17.63769	ppb
|	Mn	55			ppb
|	Co	59			ppb
|	Ni	60	188.3	-0.43813	ppb
|	As	75	-92.6	0.01372	ppb
|	Se	77			ppb
|	Se	82	-44.3	-0.23404	ppb
|>	Rh	103	757894.1		ppb
|	Cd	111	68.4	-0.02627	ppb
|-	Cd	114	151.4	-0.0259	ppb
|-	Sb	121			ppb
|	Sb	123			ppb
|>	Ho	165	1414282.9		ppb
|-	Pb	208	3804	-0.18288	ppb
	Kr	83	145.8		mg/L

Method 6020 & 200.8 Metals Summary Report
Sample ID: QC Std 4
Sample Da Thursday, October 13, 2011 13:50:44
Sample Description:
Concentration Results

	Analyte	Mass	Meas. Intens	Conc. Mear	Report Unit
|>	Li	6	51384.4		ppb
|-	Be	9	35209.1	90.90214	ppb
|-	Sc	45	262046.2		ppb
|	Cr	52	1074987.7	95.17893	ppb
|	Cr	53	176372.3	113.47037	ppb
|	Mn	55			ppb
|	Co	59			ppb
|	Ni	60	282737.5	98.31516	ppb
|	As	75	222348	99.49284	ppb
|	Se	77			ppb
|	Se	82	22054.5	96.53694	ppb
|>	Rh	103	741990.7		ppb
|	Cd	111	315799.1	100.84204	ppb
|-	Cd	114	745010	98.89302	ppb
|-	Sb	121			ppb
|	Sb	123			ppb
|>	Ho	165	1421865.7		ppb
|-	Pb	208	6311729.7	102.64248	ppb
	Kr	83	-20282.5		mg/L

AIRTECH
Environmental
Services Inc.

Ohio Lumex Spectrometer (Mercury) Analytical Report

Performed for
Big Rivers
Wilson Plant
Project No. 3648
October 10, 2011

Analyst: _____
Michael Ogletree

Reviewer: _____
Patrick Clark P.E.

702 WEST 48TH AVENUE, UNIT J - DENVER, COLORADO - TEL: 303.670.0530 - FAX: 303.670.4130

Table of Contents

Project Summary

General

Project Information	
Date Received	10/4/2011
Analytical Protocol	EPA Method 30B
Total Number of Samples Received	6
Total Number of Blanks Received	NA

Analytical Equipment

Equipment Information	Manufacturer	Model	Serial No.
Zeeman Mercury Spectrometer	Ohio Lumex	RA-915+	1283

Parameters	Conditions
Oven Temperature	585° Celsius
Flow Rate	2 LPM

Condition of Samples When Received

Samples were received for analysis in good condition. The samples are summarized in the table below:

Sample Description	Trap ID	Spike (ng)
Run 1A	95038	None
Run 1B	82431	20
Run 2A	99020	None
Run 2B	82434	20
Run 3A	99127	None
Run 3B	82446	20

Methodology

All samples were analyzed according to the EPA Method 30B procedures found in 40 CFR Part 60 Appendix A.

QA/QC

The mercury calibration curve was generated using seven (7) calibration standards. The standards were prepared by using a micro pipette to transfer a known amount of NIST traceable mercury standards to a bed of activated carbon.

The preparation of the mercury standards used for this project is detailed in the table below.

Concentration (µg/ml)	Volume(µl)	Final Hg (ng)
0.1	20	2
0.1	50	5
0.1	100	10
1	25	25
1	50	50
1	100	100
10	25	250
10	50	500

An independent calibration standard was analyzed with the mercury calibration standards.

A 250 ng standard was run periodically throughout analytical procedure as a continuing calibration check.

All standards where supplied by Ohio Lumex, Twinsburg, Ohio 44087. Concentrations and lot number are detailed in the table below.

Concentration (µg/ml)	Lot No.
0.10	C2-HG02067
1.00	B2-MEB264072
10.00	B2-HG02061
10.00 (secondary source)	B2-MEB264073

Appendix

Includes the following:

- Results
- Calibration Data
- Chain of Custody

Results

Includes the following:

- Mercury Results

Big Rivers - Wilson **Method 30B Analysis Parameters** **Project No. 3648**

Analysis Date: 10/5/11
Analyst: MO
Analyzer: Ohio Lumex

Sample Parameters	**Run 1**	**Run 2**	**Run 3**
Oxidized Front Half (area)	945	1,200	806
Oxidized Back Half (area)	0	191	0
Elemental Front Half (area)	3,970	5,040	4,250
Elemental Back Half (area)	0	0	0
RESULTS			
Oxidized Front Half (ng)	5.17	6.56	4.41
Oxidized Back Half (ng)	0.00	0.890	0.00
Oxidized Breakthrough (%)	0.0	11.9	0.0
Total Oxidized (ng)	5.17	7.45	4.41
Elemental Front Half (ng)	21.7	27.6	23.2
Elemental Back Half (ng)	0.00	0.00	0.00
Elemental Breakthrough (%)	0.0	0.0	0.0
Total Elemental (ng)	21.7	27.6	23.2
Total Mercury (ng)	**26.9**	**35.0**	**27.7**

	0	**0**	
Sample Parameters	**Run 1 Spike**	**Run 2 Spike**	**Run 3 Spike**
Front Half (area)	8,110	9,134	9,560
Back Half (area)	0	10	0
RESULTS			
Front Half (ng)	44.4	50.0	52.3
Back Half (ng)	0.00	0.0466	0.00
Breakthrough (%)	0.00	0.0932	0.00
Total Mercury (ng)	**44.4**	**50.0**	**52.3**

Calibration Data

Includes the following:

- Mercury Standards
- Mercury Calibration Curves

GENERAL INFORMATION

Date: 10/5/11
Analyzer: Ohio Lumex
Analyst: MO

INITIAL CALIBRATION

Standard Number	Amount (ng)	Response (area)	RF (ng/area)	Calculated Value (ng)	Error (%)	Valid?
1	5	882	0.00567	4.82	-3.5	Yes
2	10	1,790	0.00559	9.8	-2.1	Yes
3	25	4,670	0.00535	25.5	2.2	Yes
4	50	9,750	0.00513	53.3	6.6	Yes
5	100	18,300	0.00546	100.1	0.1	Yes
6	250	45,000	0.00556	246	-1.6	Yes
7	500	90,500	0.00552	495	-1.0	Yes

Average Response Factor (ng/area) 0.00547
R-Squared 1.000

LOW LEVEL STANDARD - FOR QUANTIFICATION BELOW 5 NG

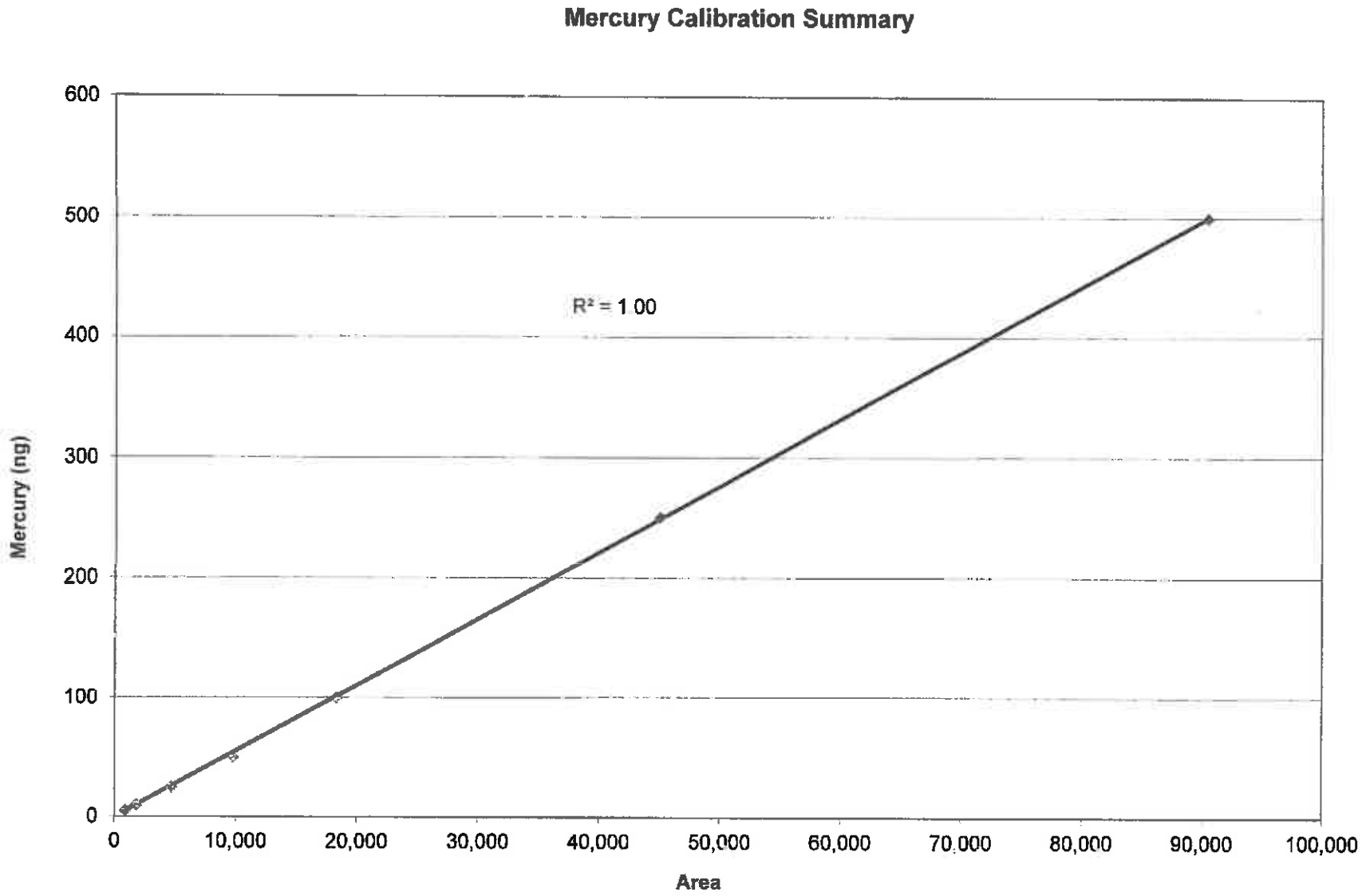
Standard Number	Amount (ng)	Response (area)	RF (ng/area)	Calculated Value (ng)	Error (%)	Valid?
NA	2	429	0.00466	2	17.3	NA

SECOND SOURCE CHECK STANDARD ANALYSIS

Standard Number	Amount (ng)	Response (area)	RF (ng/area)	Calculated Value (ng)	Error (%)	Valid?
NA	250	43,700	0.00572	239	-4.4	Yes

CONTINUING CALIBRATION VERIFICATION STANDARDS

Standard Number	Amount (ng)	Response (area)	RF (ng/area)	Calculated Value (ng)	Error (%)	Valid?
NA	250	44,600	0.00561	243.91	-2.4	Yes
NA	250	44,200	0.00566	241.72	-3.3	Yes
NA	250	44,100	0.00567	241.18	-3.5	Yes
NA	250	45,400	0.00551	248.29	-0.7	Yes
NA	250	49,500	0.00505	270.71	8.3	Yes


Mercury Calibration Summary
600
500
400
300
200
100
0
Mercury (ng)
R² = 1 00
0
10,000
20,000
30,000
40,000
50,000
60,000
70,000
80,000
90,000
100,000
Area

Chain of Custody

Includes the following:

- Field Chain of Custody

Run 1A

Sorbent Trap Chain of Custody

Plant/Source: Big Rivers Test Location: Stack

Boiler ID: Stack Trap ID: OL 95038

Trap (A) B (Circle One)

☒ Unspiked ☐ Spiked At: _____ Certified Accuracy ± 10%, Traceable to NIST

QA/QC Signature (Trap Maker) _____

Estimated Hg in Section 1: _____ ng QA/QC Signature (Spiker) _____

☐ COIL ☒ AGS ☐ 185 mm ☐ 240 mm ☒ 300 mm ☐ 450 mm

Sampled By: C.S Type of Trap: Speciation

Test Start (Date/Time :) 9-28-11 10:59pm Leak Check Pass/Fail ~~10:39A~~

Test End (Date/Time) 9-29-11 12:29pm Leak Check Pass/Fail

Date	Time	Duct Temp (°F or °C)	Sorbent Trap Temp (°F or °C)	Flow Rate (cc/min)	Dry Gas Meter Liters Initial	Dry Gas Meter Liters Final	Total Volume Pulled
9-28-11 9-29-11	10:59am 12:29pm	122-66		.3	0.00	27.39	27.38
Total/Average							

Chain of Custody

Relinquished by Tech.: _____ Date: 9-29-11

Received by: _____ Date: _____

Relinquished by: _____ Date: _____

Received for Laboratory by: _____ Date: _____

Keep Dry

For Analysis contact us:
Ohio Lumex Co., Inc. 9263 Ravenna Road Unit A-3, Twinsburg, OH 44087 USA
Phone 330-405-0837 Fax 330-405-0847 US Toll Free: 888-876-2611

Impregnated Activated Carbon – Refer to MSDS
Deactivated glass and glass wool

Run 1B

Sorbent Traps (Chain of Custody)

Plant/Source: Big Rivers Test Location: Stack

Boiler ID: Stack Trap ID: OL 82431

Trap A (B) (Circle One)

☐ Unspiked ☒ Spiked At: 20ng (Certified Accuracy ± 10%, Traceable to NIST) QA/QC Signature (Trap Maker)

Estimated Hg in Section 1: _____ ng QA/QC Signature (Spiker)

☐ COIL ☒ AGS ☒ 300mm ☐ 240mm ☐ Long 1st Bed ☐ Long 3rd Bed 450mm

Sampled By: C.S Type of Trap: 30/B

Test Start (Date/Time :) 9-28-11 10:59 Leak Check Pass/Fail

Test End (Date/Time) 9-29-11 12:09 Leak Check Pass/Fail

Date	Time	Duct Temp (°F or °C)	Sorbent Trap Temp (°F or °C)	Flow Rate (cc/min)	Dry Gas Meter Liters Initial	Dry Gas Meter Liters Final	Total Volume Pulled
9-28-11 9-29-11	10:59 12:09	122.66		.3	0.00	37.56	37.56
Total/Average							

Chain of Custody

Relinquished by Tech: _____ Date: 9-29-11

Received by: _____ Date: _____

Relinquished by: _____ Date: _____

Received for Laboratory by: _____ Date: _____

Keep Dry

For Analysis contact us:
Ohio Lumex Co., Inc. 9263 Ravenna Road Unit A-3, Twinsburg, OH 44087 USA
Phone 330-405-0837 Fax 330-405-0847 US Toll Free: 888-876-2611

Impregnated Activated Carbon – Refer to MSDS
Deactivated glass and glass wool

Run 2A

Sorbent Trap Chain of Custody

Plant/Source: Big Rivers DBwilsa Test Location: Stack

Boiler ID: Stack Trap ID: OL 99020

Trap A B (Circle One)

☒ Unspiked ☐ Spiked At: _____
Certified Accuracy ± 10%, Traceable to NIST

QA/QC Signature (Trap Maker) _____

Estimated Hg in Section 1: _____ ng QA/QC Signature (Spiker) _____

☐ COIL ☒ AGS ☐ 185 mm ☐ 240 mm ☒ 300 mm ☐ 450 mm

Sampled By: C.S Type of Trap: Speciation

Test Start (Date/Time :) 9-29-11 2:18 Leak Check Pass/Fail

Test End (Date/Time) 9-29-11 3:48 Leak Check Pass/Fail

Date	Time	Duct Temp (°F or °C)	Sorbent Trap Temp (°F or °C)	Flow Rate (cc/min)	Dry Gas Meter Liters Initial	Dry Gas Meter Liters Final	Total Volume Pulled
9-29-11		121-33		.3	0.00	27.69	27.69
Total/Average							

Chain of Custody

Relinquished by Tech.: _____ Date: 9-29-11

Received by: _____ Date: _____

Relinquished by: _____ Date: _____

Received for Laboratory by: _____ Date: _____

Make sure all of your sampling conditions prevent moisture condensation in the trap media. Moisture condensation is a major cause of breakthrough and spike loss in sorbent traps and should be prevented at all costs.

Best Before: September 2013

For Analysis contact us:
Ohio Lumex Co., Inc. 9263 Ravenna Road Unit A-3, Twinsburg, OH 44087 USA
Phone 330-405-0837 Fax 330-405-0847 US Toll Free: 888-876-2611

Impregnated Activated Carbon – Refer to MSDS
Deactivated glass and glass wool

Run 2B

Sorbent Traps (Chain of Custody)

Plant/Source: Big Rivers DB Wilson Test Location: Stack

Boiler ID: Stack Trap ID: OL 82434

Trap A (B) (Circle One)

☐ Unspiked ☒ Spiked At: 20 ng
Certified Accuracy ± 10%, Traceable to NIST

QA/QC Signature (Trap Maker)

Estimated Hg in Section 1: _____ ng QA/QC Signature (Spiker) dlm

Sampled By: C-S Type of Trap: 30B

☐ 240mm ☒ COIL / ☒ AGS 300mm ☐ Long 1st Bed / ☐ Long 3rd Bed 450mm

Test Start (Date/Time :) 9:18 9-29-11 Leak Check Pass/Fail

Test End (Date/Time) 3:48 9-29-11 Leak Check Pass/Fail

Date	Time	Duct Temp (°F or °C)	Sorbent Trap Temp (°F or °C)	Flow Rate (cc/min)	Dry Gas Meter Liters Initial	Dry Gas Meter Liters Final	Total Volume Pulled
9-29-11		121.33		1.3	0.00	27.17	27.17
Total/Average							

Chain of Custody

Relinquished by Tech : _____ Date: 9-29-11

Received by: _____ Date: _____

Relinquished by: _____ Date: _____

Received for Laboratory by: _____ Date: _____

Keep Dry

For Analysis contact us:
Ohio Lumex Co., Inc. 9263 Ravenna Road Unit A-3, Twinsburg, OH 44087 USA
Phone 330-405-0837 Fax 330-405-0847 US Toll Free: 888-876-2611

Impregnated Activated Carbon – Refer to MSDS
Deactivated glass and glass wool

Run 3 A

Sorbent Trap Chain of Custody

Plant/Source: Big Rivers DB Wilson Test Location: Stack

Boiler ID: Stack Trap ID: OL 9127

Trap A B (Circle One)

☒ Unspiked ☐ Spiked At: _____
Certified Accuracy ± 10%, Traceable to NIST

QA/QC Signature (Trap Maker) _____

Estimated Hg in Section 1: _____ ng QA/QC Signature (Spiker) _____

☐ COIL ☒ AGS ☐ 185 mm ☐ 240 mm ☒ 300 mm ☐ 450 mm

Sampled By: C.S Type of Trap: Speciation

Test Start (Date/Time :) 9-29-11 5:09 Leak Check Pass/Fail

Test End (Date/Time) 9-29-11 6:39 Leak Check Pass/Fail

Date	Time	Duct Temp (°F or °C)	Sorbent Trap Temp (°F or °C)	Flow Rate (cc/min)	Dry Gas Meter Liters Initial	Dry Gas Meter Liters Final	Total Volume Pulled
9-29-11		101-66		.3	0.00	27.21	27.21
Total/Average							

Chain of Custody

Relinquished by Tech.: _____ Date: 9-29-11

Received by: _____ Date: _____

Relinquished by: _____ Date: _____

Received for Laboratory by: _____ Date: _____

Make sure all of your sampling conditions prevent moisture condensation in the trap media. Moisture condensation is a major cause of breakthrough and spike loss in sorbent traps and should be prevented at all costs.

Best Before: September 2013

For Analysis contact us:
Ohio Lumex Co., Inc. 9263 Ravenna Road Unit A-3, Twinsburg, OH 44087 USA
Phone 330-405-0837 Fax 330-405-0847 US Toll Free: 888-876-2611

Impregnated Activated Carbon – Refer to MSDS
Deactivated glass and glass wool

Run 3B

Sorbent Traps (Chain of Custody)

Plant/Source: Big Rivers DBuilder Test Location: Stack

Boiler ID: Stack Trap ID: OL 82416

Trap A B (Circle One)

☐ Unspiked ☒ Spiked At: 20ng

Certified Accuracy ± 10%, Traceable to NIST

QA/QC Signature (Trap Maker)

Estimated Hg in Section 1: ng QA/QC Signature (Spiker)

Sampled By: C.S

☐ 240mm ☐ COIL ☒ AGS ☐ 300mm ☐ Long 1st Bed ☐ Long 3rd Bed ☐ 450mm

Type of Trap: 30B

Test Start (Date/Time :) 5:09 9-29-11 Leak Check Pass/Fail

Test End (Date/Time) 6:39 9-29-11 Leak Check Pass/Fail

Date	Time	Duct Temp (°F or °C)	Sorbent Trap Temp (°F or °C)	Flow Rate (cc/min)	Dry Gas Meter Liters Initial	Dry Gas Meter Liters Final	Total Volume Pulled
9-29-11	5:09 6:39	121.66		3	0.00	27.28	27.28
Total/Average							

Chain of Custody

Relinquished by Tech.: Date: 9-29-11

Received by: Date:

Relinquished by: Date:

Received for Laboratory by: Date:

Keep Dry

For Analysis contact us:
Ohio Lumex Co., Inc. 9263 Ravenna Road Unit A-3, Twinsburg, OH 44087 USA
Phone 330-405-0837 Fax 330-405-0847 US Toll Free: 888-876-2611

Impregnated Activated Carbon – Refer to MSDS
Deactivated glass and glass wool

AIRTECH ENVIRONMENTAL SERVICES INC.
Chain of Custody

№ 1810

Project Number	3618	Location	Stack
Client	Big Rivers	Date	10-1-11
Plant	Owensboro, KY	Completed By	MH

Comments:
Metallic HAP will be defined as Sb, As, Be, Cd, Cr, Co, Pb, Mn, Ni

Analysis Requested: Ultimate/Prox. | Chlorine | Fluorine | Hg (Mercury) | Metallic HAPs

Page 1 of 1

ID No.	Run No.	Date	Sample Description	Ultimate/Prox.	Chlorine	Fluorine	Hg (Mercury)	Metallic HAPs				Notes
12 AM	1		Coal Samples	X	X	X	X	X				
3 AM	2		" "	X	X	X	X	X				
7 AM	3		" "	X	X	X	X	X				

Relinquished By (signature)	Michael Hess	Relinquished By (signature)		Carrier	FedEx
(printed)	Michael Hess	(printed)	Jim Chrisp	Laboratory	C&C Coal Analysis
Date/Time		Date/Time	10/4/11	Contact	
Accepted By (signature)		Accepted By (signature)		Address	
(printed)	Jim Chrisp	(printed)		Phone	
Date/Time	10/4/11	Date/Time		Fax	
				Date/Time	

AIRTECH Environmental Services Inc.

Airtech Environmental Services Inc.
601A Country Club Drive
Bensenville, IL 60106
Phone: (630) 860-4740, Fax: (630) 860 4745

G and C COAL ANALYSIS LAB., INC.

1341 HOFFMAN HOLLOW RD.
SUMMERVILLE, PA 15864
(814) 849-2559
FAX (814) 849-8878

RECEIVED FROM:

AIRTECH ENVIROMENTAL
601A COUNTRY CLUB DRIVE

BENSONVILLE, IL 60106

LAB NO. 901813
SAMPLED 09/29/11
RECEIVED 10/07/11
REPORTED 11/03/11

SAMPLE MARKED:

PROJECT #3648
WILSON-RUN 1
12 AM
CHLORINE 429 MG/KG DRY (USGS BULLETIN 1823)
MERCURY 0.088 MG/KG DRY OR PPM DRY (ASTM 6722)
FLUORINE 55 MG/KG DRY (ASTM 3761-96)

ANALYSIS REPORT

	AS RECEIVED	DRY BASIS
% Moisture	10.07	
% Ash	8.32	9.25
% Sulfur	3.70	4.11
B.T.U	11,961	13,300
BTU (Moisture-ash free)	14,656	
% Volatile Matter	27.15	30.19
% Fixed Carbon	54.46	60.56

3.09 Lbs. Sul./mil. BTU
6.96 Lbs. Ash./mil. BTU

THE ABOVE ANALYTICAL RESULTS WERE OBTAINED FOLLOWING ASTM PROCEDURES.

APPROVED BY G&C COAL ANALYSIS LAB., INC.

G and C Coal Analysis Lab., Inc.

1341 Hoffman Hollow Road
Summerville, Pa 15864
814-849-2559
Fax: 814-849-8878

RECEIVED FROM:

AIRTECH ENVIRONMENTAL
601A COUNTRY CLUB DRIVE
BENSONVILLE, IL 60106

Lab # : 901813
Date Sampled: 09/29/11
Date Received: 10/07/11
Date Reported: 11/03/11

SAMPLE MARKED:
PROJECT #3648
BIG RIVERS-WILSON RUN #1

Procedure used following ASTM Method D-5373-02

ULTIMATE ANALYSIS

	As Received**	Dry Basis
% CARBON	67.92	75.53
% HYDROGEN	4.07	4.53
% NITROGEN	1.29	1.43
% OXYGEN (by difference)	4.63	5.15
% ASH	8.32	9.25
% SULFUR	3.70	4.11
% MOISTURE	10.07	

**Hydrogen and Oxygen do not include the Hydrogen and Oxygen from the Moisture.

The above analytical results were obtained following ASTM procedures.

G & C COAL ANALYSIS LAB., INC.

APPROVED BY _____

G and C Coal Analysis Lab., Inc.

1341 Hoffman Hollow Road
Summerville, Pa 15864
814-849-2559
Fax: 814-849-8878

Received From:

Airtech Environmental
601A Country Club Drive
Bensonville, IL 60106

Date Sampled: 09/29/11

Date Received: 10/07/11

Date Reported: 11/03/11

Sample Marked:
PO# 3648
BIG RIVERS
WILSON RUN #1

G&C Lab# 901813

% TOTAL MOISTURE	10.07
% ASH DRY	9.25
% ASH RECEIVED	8.32

Procedure Followed: EPA-SW-846,Method 3030B, Acid Digestion of Sediments, Sludges, and Solids

	OF ASH MG/KG	COAL(DRY) MG/KG	COAL(AS REC) MG/KG
Antimony	0.13	0.01	0.01
Arsenic	16.65	1.54	1.39
Beryllium	7.18	0.66	0.60
Cadmium	0.49	0.05	0.04
Chromium	31.23	2.89	2.60
Cobalt	12.29	1.14	1.02
Lead	54.43	5.03	4.53
Manganese	145.43	13.45	12.10
Nickel	386.95	35.79	32.19
Selenium	4.30	0.40	0.36

The above analytical results were obtained following ASTM procedures.

G & C COAL ANALYSIS LAB., INC.

APPROVED BY _____

G and C COAL ANALYSIS LAB., INC.

1341 HOFFMAN HOLLOW RD.
SUMMERVILLE, PA 15864
(814) 849-2559
FAX (814) 849-8878

RECEIVED FROM:

AIRTECH ENVIROMENTAL
601A COUNTRY CLUB DRIVE

BENSONVILLE, IL 60106

LAB NO. 901814
SAMPLED 09/29/11
RECEIVED 10/07/11
REPORTED 11/03/11

SAMPLE MARKED:

PROJECT #3648
WILSON-RUN 2
3AM
CHLORINE 402 MG/KG DRY (USGS BULLETIN 1823)
MERCURY 0.080 MG/KG DRY OR PPM DRY (ASTM 6722)
FLUORINE 56 MG/KG DRY (ASTM 3761-96)

ANALYSIS REPORT

	AS RECEIVED	DRY BASIS
% Moisture	9.99	
% Ash	7.69	8.54
% Sulfur	3.69	4.10
B.T.U.	12,123	13,468
BTU (Moisture-ash free)	14,726	
% Volatile Matter	27.43	30.47
% Fixed Carbon	54.89	60.99

3.04 Lbs. Sul./mil. BTU
6.34 Lbs. Ash./mil. BTU

THE ABOVE ANALYTICAL RESULTS WERE OBTAINED FOLLOWING ASTM PROCEDURES.

APPROVED BY G&C COAL ANALYSIS LAB., INC.

G and C Coal Analysis Lab., Inc.

1341 Hoffman Hollow Road
Summerville, Pa 15864
814-849-2559
Fax: 814-849-8878

RECEIVED FROM:

AIRTECH ENVIRONMENTAL
601A COUNTRY CLUB DRIVE
BENSONVILLE, IL 60106

Lab # : 901814
Date Sampled: 09/29/11
Date Received: 10/07/11
Date Reported: 11/03/11

SAMPLE MARKED:
PROJECT #3648
BIG RIVERS-WILSON RUN #2

Procedure used following ASTM Method D-5373-02

ULTIMATE ANALYSIS

	As Received**	Dry Basis
% CARBON	67.98	75.52
% HYDROGEN	4.19	4.66
% NITROGEN	1.38	1.53
% OXYGEN (by difference)	5.09	5.65
% ASH	7.69	8.54
% SULFUR	3.69	4.10
% MOISTURE	9.99	

**Hydrogen and Oxygen do not include the Hydrogen and Oxygen from the Moisture.

The above analytical results were obtained following ASTM procedures.

G & C COAL ANALYSIS LAB., INC.

APPROVED BY _____

G and C Coal Analysis Lab., Inc.

1341 Hoffman Hollow Road
Summerville, Pa 15864
814-849-2559
Fax: 814-849-8878

Received From:

Airtech Environmental
601A Country Club Drive
Bensonville, IL 60106

Date Sampled: 09/29/11

Date Received: 10/07/11

Date Reported: 11/03/11

Sample Marked:
PO# 3648
BIG RIVERS
WILSON RUN #2

G&C Lab# 901814

% TOTAL MOISTURE	9.99
% ASH DRY	8.54
% ASH RECEIVED	7.69

Procedure Followed: EPA-SW-846,Method 3030B, Acid Digestion of Sediments, Sludges, and Solids

	OF ASH MG/KG	COAL(DRY) MG/KG	COAL(AS REC) MG/KG
Antimony	0.26	0.02	0.02
Arsenic	15.81	1.35	1.22
Beryllium	3.28	0.28	0.25
Cadmium	0.28	0.02	0.02
Chromium	20.86	1.78	1.60
Cobalt	9.64	0.82	0.74
Lead	52.25	4.46	4.02
Manganese	51.39	4.39	3.95
Nickel	293.05	25.03	22.53
Selenium	1.76	0.15	0.14

The above analytical results were obtained following ASTM procedures.

G & C COAL ANALYSIS LAB., INC.

APPROVED BY _____

G and C COAL ANALYSIS LAB., INC.

1341 HOFFMAN HOLLOW RD.
SUMMERVILLE, PA 15864
(814) 849-2559
FAX (814) 849-8878

RECEIVED FROM:

AIRTECH ENVIROMENTAL
601A COUNTRY CLUB DRIVE

BENSONVILLE, IL 60106

LAB NO. 901812
SAMPLED 09/29/11
RECEIVED 10/07/11
REPORTED 11/03/11

SAMPLE MARKED:

PROJECT #3648
WILSON-RUN 3
7 AM
CHLORINE 358 MG/KG DRY (USGS BULLETIN 1823)
MERCURY 0.078 MG/KG DRY OR PPM DRY (ASTM 6722)
FLUORINE 55 MG/KG DRY (ASTM 3761-96)

ANALYSIS REPORT

	AS RECEIVED	DRY BASIS
% Moisture	8.80	
% Ash	7.13	7.82
% Sulfur	3.69	4.05
B.T.U.	12,289	13,475
BTU (Moisture-ash free)	14,618	
% Volatile Matter	25.86	28.35
% Fixed Carbon	58.21	63.83

3.00 Lbs. Sul./mil. BTU
5.80 Lbs. Ash./mil. BTU

THE ABOVE ANALYTICAL RESULTS WERE OBTAINED FOLLOWING ASTM PROCEDURES.

APPROVED BY G&C COAL ANALYSIS LAB., INC.

G and C Coal Analysis Lab., Inc.

1341 Hoffman Hollow Road
Summerville, Pa 15864
814-849-2559
Fax: 814-849-8878

RECEIVED FROM:

AIRTECH ENVIRONMENTAL
601A COUNTRY CLUB DRIVE
BENSONVILLE, IL 60106

Lab # : 901812
Date Sampled: 09/29/11
Date Received: 10/07/11
Date Reported: 11/03/11

SAMPLE MARKED:
PROJECT #3648
BIG RIVERS-WILSON RUN #3

Procedure used following ASTM Method D-5373-02

ULTIMATE ANALYSIS

	As Received**	Dry Basis
% CARBON	69.57	76.28
% HYDROGEN	4.08	4.47
% NITROGEN	1.40	1.53
% OXYGEN (by difference)	5.34	5.85
% ASH	7.13	7.82
% SULFUR	3.69	4.05
% MOISTURE	8.80	

**Hydrogen and Oxygen do not include the Hydrogen and Oxygen from the Moisture.

The above analytical results were obtained following ASTM procedures.

G & C COAL ANALYSIS LAB., INC.

APPROVED BY _____

G and C Coal Analysis Lab., Inc.

1341 Hoffman Hollow Road
Summerville, Pa 15864
814-849-2559
Fax: 814-849-8878

Received From:

Airtech Environmental
601A Country Club Drive
Bensonville, IL 60106

Date Sampled: 09/29/11

Date Received: 10/07/11

Date Reported: 11/03/11

Sample Marked:
PO# 3648
BIG RIVERS
WILSON RUN #3

G&C Lab# 901812

% TOTAL MOISTURE	8.80
% ASH DRY	7.82
% ASH RECEIVED	7.13

Procedure Followed: EPA-SW-846,Method 3030B, Acid Digestion of Sediments, Sludges, and Solids

	OF ASH MG/KG	COAL(DRY) MG/KG	COAL(AS REC) MG/KG
Antimony	0.09	0.01	0.01
Arsenic	21.09	1.65	1.50
Beryllium	0.97	0.08	0.07
Cadmium	0.48	0.04	0.03
Chromium	34.46	2.69	2.46
Cobalt	21.56	1.69	1.54
Lead	81.40	6.37	5.81
Manganese	86.70	6.78	6.18
Nickel	525.67	41.11	37.49
Selenium	2.24	0.18	0.16

The above analytical results were obtained following ASTM procedures.

G & C COAL ANALYSIS LAB., INC.

APPROVED BY _____

Calibration Data

Airtech Environmental Services, Inc.
Meter Box Full Test Calibration

Date: 9/12/2011

Operator: j burotn

Meter Box ID M-14				Meter Box ΔH@			1.801	Meter Box Y_d			1.0052	Barometric Pressure (in. Hg.)		29.50
Time	**Orifice Data**			**Meter Box Data**								**Results**		
θ (min)	K'	Vacuum	T_{amb}	V_{cr}	$V_{initial}$	V_{final}	V_d	ΔH	T_i	T_o	T_{avg}	V_{mstd}	Q	Y_d	ΔH@
5.0	0.3445	22.0	77	2.193	878.10	880.35	2.25	0.63	76	74	75	2.192	0.439	1.0004	1.781
5.0	0.3445	22.0	76	2.195	880.35	882.60	2.25	0.63	76	74	75.0	2.192	0.439	1.0013	1.781
5.0	0.3445	22.0	77	2.193	882.60	884.85	2.25	0.63	77	75	76.0	2.188	0.439	1.0022	1.785
5.0	0.4436	20.0	78	2.821	885.10	888.00	2.90	1.05	78	75	76.5	2.820	0.564	1.0002	1.792
5.0	0.4436	20.0	79	2.818	888.00	890.89	2.89	1.05	78	75	76.5	2.811	0.564	1.0028	1.804
5.0	0.4436	20.0	79	2.818	890.89	893.79	2.90	1.05	79	75	77.0	2.818	0.564	1.0003	1.794
5.0	0.5885	18.0	79	3.739	894.20	898.02	3.82	1.8	80	76	78.0	3.711	0.748	1.0074	1.775
5.0	0.5885	18.0	80	3.735	898.02	901.85	3.83	1.8	82	77	79.5	3.711	0.747	1.0066	1.771
5.0	0.5885	18.0	80	3.735	901.85	905.66	3.81	1.8	83	77	80.0	3.688	0.747	1.0129	1.791
5.0	0.7954	15.0	80	5.049	906.00	911.16	5.16	3.4	85	78	81.5	5.001	1.010	1.0096	1.850
5.0	0.7954	15.0	80	5.049	911.16	916.33	5.17	3.4	87	78	82.5	5.001	1.010	1.0095	1.846
5.0	0.7954	15.0	80	5.049	916.33	921.51	5.18	3.4	88	79	83.5	5.002	1.010	1.0094	1.843
													Average	1.0052	1.801

Nomenclature	
K'	Critical Orifice Coefficient
T_{amb}	Ambient Temperature (°F)
V_{cr}	Volume Through Orifice (scf)
V_d	Gas Meter Volume (ft^3)
ΔH	Orifice Pressure Differential (in. H_2O)
T_i	Meter Inlet Temperature (°F)
T_o	Meter Outlet Temperauture (°F)
T_{avg}	Average Meter Box Temperature (°F)
V_{mstd}	Volume Metered Standardized (scf)
Q	Flow Rate (scfm)
Y_d	Meter Correction Factor (dimensionless)
ΔH@	ΔH yielding 0.75 scfm

Vacuum Guage (in. Hg.)		Thermometers (°F)				Equations
Standard	Vacuum Gauge	Standard	Ch. No. 1	Ch. No. 2	Ch. No. 3	
5	5.0	32	31	32	32	$V_{cr} = \frac{K' * P_b * \theta}{(T_{amb} + 460)^{0.5}}$
10	10.0	50	50	51	49	
15	15.0	100	100	101	99	$V_{mstd} = \frac{17.64 * V_d * (P_b + (\Delta H/13.6))}{(T_{avg} + 460)}$
20	20.0	150	150	152	149	
25	25.0	212	212	214	212	$Q = V_{cr} / \theta$
		250	251	252	249	
		300	300	302	300	$Y_d = V_{cr} / V_{mstd}$
		350	351	352	349	
		400	400	402	400	$\Delta H@ = \frac{.0319 * \Delta H * (T_{avg} + 460) * \theta^2}{P_b * Y_d^2 * V_{cr}^2}$
		500	501	502	499	
		600	601	602	600	

Airtech Environmental Services
Meter Post Calibration

Average Field Sample Rate (ΔH)	1.800	Date	10/3/2011
Highest Field Vacuum (inches Hg)	12	Client	Big Rivers
Critical Orifice ID	AA-63	Project No.	3648
Orifice Flow Rate (cfm)	0.752	Meter ID	M-14

	Run 1	Run 2	Run 3
Initial Volume (ft^3)	558.80	562.56	566.31
Final Volume (ft^3)	562.56	566.31	570.07
Volume Metered (ft^3)	3.76	3.75	3.76
DGM Inlet Temperature (°F)	73	74	76
DGM Outlet Temperature (°F)	68	69	69
Average DGM Temperature (°F)	70.5	71.5	72.5
Ambient Temperature (°F)	81	82	82
Elapsed Time (min.)	5	5	5
ΔH (inches H_2O)	1.80	1.80	1.80
Barometric Pressure (inches Hg)	29.5	29.5	29.5
Pump Vacuum (inches Hg)	18	18	18
K'	0.5885	0.5885	0.5885
Vcr (ft^3)	3.732	3.729	3.729
Vmstd (ft^3)	3.705	3.688	3.691
Post Test Yc	1.0073	1.0110	1.0102
Full Test Yd	1.0052	1.0052	1.0052
% Difference	-0.21	-0.58	-0.50
Average % Difference			-0.43

Airtech Environmental Services, Inc.
Meter Box Full Test Calibration

Date: 4/19/2011

Operator: j burton

Meter Box ID M-19				Meter Box ΔH@			1.801	Meter Box Y_d			1.0101	Barometric Pressure (in. Hg.)		29.35
Time	Orifice Data			Meter Box Data								Results		
θ (min)	K'	Vacuum	T_{amb}	V_{cr}	$V_{initial}$	V_{final}	V_d	ΔH	T_i	T_o	T_{avg}	V_{mstd}	Q	Y_d	ΔH@
5.0	0.3445	23.0	68	2.200	262.00	264.23	2.23	0.62	71	68	69.5	2.184	0.440	1.0075	1.758
5.0	0.3445	23.0	68	2.200	264.23	266.47	2.24	0.62	72	70	71.0	2.187	0.440	1.0058	1.747
5.0	0.3445	23.0	68	2.200	266.47	268.70	2.23	0.61	72	69	70.5	2.180	0.440	1.0094	1.733
5.0	0.4436	21.0	67	2.836	269.00	271.90	2.90	1.05	72	69	70.5	2.838	0.567	0.9993	1.764
5.0	0.4436	21.0	67	2.836	271.90	274.79	2.89	1.05	73	69	71.0	2.825	0.567	1.0037	1.778
5.0	0.4436	21.0	66	2.838	274.79	277.68	2.89	1.05	73	70	71.5	2.823	0.568	1.0056	1.779
5.0	0.5885	19.0	68	3.758	278.10	281.94	3.84	1.9	75	71	73.0	3.748	0.752	1.0028	1.829
5.0	0.5885	19.0	68	3.758	281.94	285.75	3.81	1.9	77	72	74.5	3.708	0.752	1.0136	1.863
5.0	0.5885	19.0	68	3.758	285.75	289.58	3.83	1.9	78	73	75.5	3.721	0.752	1.0102	1.847
5.0	0.7994	15.0	69	5.101	290.00	295.17	5.17	3.4	81	74	77.5	5.022	1.020	1.0156	1.821
5.0	0.7994	15.0	70	5.096	295.17	300.32	5.15	3.4	83	75	79.0	4.989	1.019	1.0214	1.840
5.0	0.7994	15.0	70	5.096	300.32	305.46	5.14	3.4	85	76	80.5	4.965	1.019	1.0262	1.852
													Average	1.0101	1.801

Nomenclature	
K'	Critical Orifice Coefficient
T_{amb}	Ambient Temperature (°F)
V_{cr}	Volume Through Orifice (scf)
V_d	Gas Meter Volume (ft^3)
ΔH	Orifice Pressure Differential (in. H_2O)
T_i	Meter Inlet Temperature (°F)
T_o	Meter Outlet Temperauture (°F)
T_{avg}	Average Meter Box Temperature (°F)
V_{mstd}	Volume Metered Standardized (scf)
Q	Flow Rate (scfm)
Y_d	Meter Correction Factor (dimensionless)
ΔH@	ΔH yielding 0.75 scfm

Vacuum Guage (in. Hg.)		Thermometers (°F)				Equations
Standard	Vacuum Gauge	Standard	Ch. No 1	Ch. No 2	Ch. No 3	
5	5.0	32	32	32	33	$V_{cr} = \frac{K' * P_b * \theta}{(T_{amb} + 460)\ ^\wedge 0.5}$
10	10.0	50	50	50	51	$V_{mstd} = \frac{17.64 * V_d * (P_b + (\Delta H / 13.6))}{(T_{avg} + 460)}$
15	15.0	100	99	101	101	
20	20.0	150	151	151	152	
25	25.0	212	213	214	214	$Q = V_{cr} / \theta$
		250	251	251	352	
		300	301	302	302	$Y_d = V_{cr} / V_{mstd}$
		350	350	352	352	
		400	400	401	402	$\Delta H@ = \frac{.0319 * \Delta H * (T_{avg} + 460) * \theta^2}{P_b * Y_d^2 * V_m^2}$
		500	500	501	502	
		600	600	601	602	

Airtech Environmental Services
Meter Post Calibration

Average Field Sample Rate (ΔH)	1.900	Date	10/3/2011
Highest Field Vacuum (inches Hg)	18	Client	Big Rivers
Critical Orifice ID	AA-63	Project No.	3648
Orifice Flow Rate (cfm)	0.748	Meter ID	M-19

	Run 1	Run 2	Run 3
Initial Volume (ft^3)	64.60	68.34	72.08
Final Volume (ft^3)	68.34	72.08	75.82
Volume Metered (ft^3)	3.74	3.74	3.74
DGM Inlet Temperature (°F)	72	73	74
DGM Outlet Temperature (°F)	67	67	68
Average DGM Temperature (°F)	69.5	70.0	71.0
Ambient Temperature (°F)	77	78	79
Elapsed Time (min.)	5	5	5
ΔH (inches H_2O)	1.80	1.80	1.80
Barometric Pressure (inches Hg)	29.5	29.5	29.5
Pump Vacuum (inches Hg)	19	19	19
K'	0.5885	0.5885	0.5885
Vcr (ft^3)	3.746	3.742	3.739
Vmstd (ft^3)	3.692	3.689	3.682
Post Test Yc	1.0146	1.0146	1.0156
Full Test Yd	1.0101	1.0101	1.0101
% Difference	-0.44	-0.44	-0.54
Average % Difference			-0.48

Airtech Environmental Services, Inc.
30B Meter Box Full Test Calibration

Date: 1/5/2011 Operator: S. Behanish

Meter Box	M-25 A							Meter Box Y_d			0.9994	Barometric Pressure (in. Hg.)		24.57
Time	Orifice Data				Meter Box Data								Results	
θ (min)	K'	Vacuum	T_{amb}	V_{cr}	$V_{initial}$	V_{final}	V_d	LPM			T_m	V_{mstd}	Q	Y_d	ΔH@
10.0	0.012	15.0	75	3.610	0.00	4.84	4.84	0.48			115	3.654	0.361	0.9880	1.544
10.0	0.012	15.0	75	3.610	4.84	9.63	4.79	0.48			115	3.616	0.361	0.9983	1.560
10.0	0.012	15.0	75	3.610	9.63	14.47	4.84	0.48			116	3.647	0.361	0.9897	1.547
10.0	0.028	14.0	75	8.422	0.00	10.95	10.95	1.10			115	8.281	0.842	1.0171	0.683
10.0	0.028	14.0	75	8.422	10.95	22.03	11.08	1.11			115	8.379	0.842	1.0051	0.675
10.0	0.028	14.0	75	8.422	22.03	33.00	10.97	1.10			116	8.282	0.842	1.0170	0.683
10.0	0.051	12.5	76	15.326	0.00	20.30	20.30	2.03			116	15.368	1.533	0.9973	0.369
10.0	0.051	12.5	77	15.312	20.30	40.68	20.38	2.04			116	15.429	1.531	0.9925	0.367
10.0	0.051	12.5	78	15.298	40.68	61.10	20.42	2.04			116	15.459	1.530	0.9896	0.367
													Average	0.9994	0.866

Nomenclature	
K'	Critical Orifice Coefficient
T_{amb}	Ambient Temperature (°F)
V_{cr}	Volume Through Orifice (L)
V_d	Gas Meter Volume (L)
ΔH	Orifice Pressure Differential (in. H_2O)
T_i	Meter Inlet Temperature (°F)
T_o	Meter Outlet Temperauture (°F)
T_{avg}	Average Meter Box Temperature (°F)
V_{mstd}	Volume Metered Standardized (L)
Q	Flow Rate (scfm)
Y_d	Meter Correction Factor (dimensionless)
ΔH@	ΔH yielding 0.75 scfm

Vacuum Guage (in. Hg.)		Thermometers (°F)				Equations
Standard	Vacuum Gauge	Standard	Ch. No Stack	Ch. No Aux 1	Ch. No Aux 2	
5	5.0	32	33	34	34	$V_{cr} = \frac{K' * P_b * \theta}{(T_{amb} + 460)^{0.5}}$
10	10.0	50	50	51	51	$V_{mstd} = \frac{17.64 * V_d * (P_b + (\Delta H/13.6))}{(T_{m_{avg}} + 460)}$
15	15.0	100	101	102	102	$Q = V_{cr} / \theta$
20	20.0	150	151	152	152	$Y_d = V_{cr} / V_{mstd}$
25	25.0	212	213	214	214	$\Delta H@ = \frac{.0319 * \Delta H * (T_{m_{avg}} + 460) * \theta^2}{P_b * Y_d^2 * V_m^2}$
		250	251	252	252	
		300	300	302	302	
		350	350	352	352	
		400	401	402	402	
		500	502	502	502	
		600	601	602	602	

Airtech Environmental Services
Meter Post Calibration

Average Field Sample Rate (lpm)	0.300	Date	10/3/2011
Highest Field Vacuum (inches Hg)	4	Client	Big Rivers
Critical Orifice ID	.35 LPM	Project No.	3648
Orifice Flow Rate (lpm)		Meter ID	M-25-A

	Run 1	Run 2	Run 3
Initial Volume (l)	0.00	3.471	6.833
Final Volume (l)	3.471	6.833	10.269
Volume Metered (l)	3.471	3.362	3.436
DGM Inlet Temperature (°F)	102	102	104
DGM Outlet Temperature (°F)	102	102	104
Average DGM Temperature (°F)	102.0	102.0	104.0
Ambient Temperature (°F)	68	70	72
Elapsed Time (min.)	10	10	10
ΔH (inches H_2O)	0.25	0.25	0.25
Barometric Pressure (inches Hg)	29.5	29.5	29.5
Pump Vacuum (inches Hg)	20	20	20
K'	0.0090	0.0090	0.0090
Vcr (l)	3.272	3.266	3.260
Vmstd (l)	3.216	3.115	3.172
Post Test Yc	1.0174	1.0484	1.0275
Full Test Yd	0.9994	0.9994	0.9994
% Difference	-1.80	-4.90	-2.81
Average % Difference			-3.17

Airtech Environmental Services, Inc.
30B Meter Box Full Test Calibration

Date: 3/29/2011 **Operator:** j burton

Meter Box	M-25B							Meter Box Y_d			1.0017	Barometric Pressure (in. Hg.)			29.50
Time	**Orifice Data**				**Meter Box Data**								**Results**		
θ (min)	K'	Vacuum	T_{amb}	V_{cr}	$V_{initial}$	V_{final}	V_d	LPM			T_m	V_{mstd}	Q	Y_d	ΔH@
10.0	0.012	21.0	70	4.354	0.000	4.634	4.634	0.46			100	4.311	0.435	1.0100	1.293
10.0	0.012	21.0	70	4.354	4.634	9.253	4.619	0.46			99	4.305	0.435	1.0115	1.299
10.0	0.012	21.0	70	4.354	9.253	13.827	4.574	0.46			98	4.271	0.435	1.0196	1.322
10.0	0.019	20.0	68	6.907	0.000	7.530	7.530	0.75			97	7.048	0.691	0.9800	0.794
10.0	0.019	20.0	69	6.901	7.530	14.961	7.431	0.74			96	6.968	0.690	0.9904	0.803
10.0	0.019	20.0	70	6.894	14.961	22.428	7.467	0.75			96	7.002	0.689	0.9846	0.806
10.0	0.028	20.0	69	10.169	0.000	10.753	10.753	1.08			96	10.091	1.017	1.0078	0.560
10.0	0.028	20.0	69	10.169	10.753	21.576	10.823	1.08			96	10.157	1.017	1.0012	0.552
10.0	0.028	20.0	68	10.179	21.576	32.297	10.721	1.07			95	10.079	1.018	1.0099	0.557
10.0	0.041	19.0	68	14.905	0.000	15.482	15.482	1.55			95	14.572	1.491	1.0228	0.387
10.0	0.041	19.0	68	14.905	15.482	30.965	15.483	1.55			95	14.573	1.491	1.0228	0.387
10.0	0.041	19.0	68	14.905	30.985	46.450	15.465	1.55			95	14.556	1.491	1.0240	0.388
													Average	1.0017	0.887

Nomenclature	
K'	Critical Orifice Coefficient
T_{amb}	Ambient Temperature (°F)
V_{cr}	Volume Through Orifice (L)
V_d	Gas Meter Volume (L)
ΔH	Orifice Pressure Differential (in. H_2O)
T_i	Meter Inlet Temperature (°F)
T_o	Meter Outlet Temperauture (°F)
T_{avg}	Average Meter Box Temperature (°F)
V_{mstd}	Volume Metered Standardized (L)
Q	Flow Rate (scfm)
Y_d	Meter Correction Factor (dimensionless)
ΔH@	ΔH yielding 0.75 scfm

Vacuum Guage (in. Hg.)		Thermometers (°F)				Equations
Standard	Vacuum Gauge	Standard	Ch. No 1	Ch. No probe	Ch. No	
5	5.0	32	32	32		$V_{cr} = \frac{K' * P_b * \theta}{(T_{amb} + 460)\ ^\wedge\ 0.5}$
10	10.0	50	50	49		$V_{mstd} = \frac{17.64 * V_d * (P_b + (\Delta H/13.6))}{(T_{avg} + 460)}$
15	15.0	100	100	101		
20	20.0	150	152	152		$Q = V_{cr} / \theta$
25	25.0	212	213	213		
		250	250	251		$Y_d = V_{cr} / V_{mstd}$
		300	299	301		
		350	350	351		$\Delta H@ = \frac{.0319 * \Delta H * (T_{avg} + 460) * \theta\wedge 2}{P_b * Y_d\wedge 2 * V_m\ 2}$
		400	401	400		
		500	501	501		
		600	601	599		

Airtech Environmental Services
Meter Post Calibration

Average Field Sample Rate (lpm)	0.300	Date	10/3/2011
Highest Field Vacuum (inches Hg)	4	Client	Big Rivers
Critical Orifice ID	.35 LPM	Project No.	3648
Orifice Flow Rate (lpm)	0.3643	Meter ID	M-25-B

	Run 1	Run 2	Run 3
Initial Volume (l)	0.00	3.643	7.356
Final Volume (l)	3.643	7.356	11.028
Volume Metered (l)	3.643	3.713	3.672
DGM Inlet Temperature (°F)	104	104	103
DGM Outlet Temperature (°F)	104	104	103
Average DGM Temperature (°F)	104.0	104.0	103.0
Ambient Temperature (°F)	71	70	70
Elapsed Time (min.)	10	10	10
ΔH (inches H_2O)	0.25	0.25	0.25
Barometric Pressure (inches Hg)	29.5	29.5	29.5
Pump Vacuum (inches Hg)	20	20	20
K'	0.0090	0.0090	0.0090
Vcr (l)	3.263	3.266	3.266
Vmstd (l)	3.363	3.428	3.396
Post Test Yc	0.9700	0.9527	0.9616
Full Test Yd	1.0017	1.0017	1.0017
% Difference	3.16	4.90	4.00
Average % Difference			4.02

Meter Box Full Test Calibration

DATE: 7/15/2011 Operator: Joe Ward

Meter Box No: 2143 M-2				Meter Box H@: 1.8295						Meter Box Yd 0.9976						Barometric Pressure: 29.79		
				Standard Meter Gas Volume			Meter Box Gas Volume (ft( )			Std. Meter Temperature (ÞF)			Meter Box Temperature (ÞF)					
Q	P	H	Yds	Initial	Final	Vf	Initial	Final	Vf	Inlet	Outlet	Avg.	Inlet	Outlet	Avg.	Time	Yd	H@
0.96	-0.70	3.00	1.0000	0.0	5.000	5.000	71.639	76.825	5.186	74.0	74.0	74.0	96.0	86.0	91.0	5.15	1.0039	1.7799
0.95	-0.70	3.00	1.0000	0.0	5.000	5.000	76.825	82.002	5.177	74.0	74.0	74.0	96.0	86.0	91.0	5.18	1.0057	1.8007
0.67	-0.60	1.50	1.0000	0.0	5.005	5.005	88.458	93.637	5.179	74.0	74.0	74.0	91.0	86.0	88.5	7.32	0.9978	1.7944
0.68	-0.60	1.50	1.0000	0.0	5.005	5.005	93.637	98.827	5.190	74.0	74.0	74.0	91.0	86.0	88.5	7.28	0.9957	1.7748
0.38	-0.40	0.50	1.0000	0.0	5.000	5.000	102.295	107.455	5.160	74.0	74.0	74.0	86.0	83.0	84.5	13.07	0.9902	1.9213
0.38	-0.40	0.50	1.0000	0.0	5.005	5.005	107.455	112.609	5.154	74.0	74.0	74.0	86.0	83.0	84.5	13.03	0.9924	1.9057
															AVERAGE		0.9976	1.8295

Millennium Instruments Inc.
2402 Springridge Drive unit A
Spring Grove IL. 60081
PHONE#(815)675-3225
FAX#(815)675-6965
E-mail millennium@millinst.com
www.millinst.com

Vacuum Gauge

(in. Hg)	Gauge
5.0	5.0
10.0	10.0
15.0	15.0
20.0	20.0
25.0	25.0

Pyrometer Calibration Sheet

Pyrometer No.:001

Office: Spring Grove
Client: Airtech Environmental
Job or Reference No.:2143

Temperature Scale Used ☑ Fahrenheit ☐ Celsius

☑ Full Test ☐ Post Test

Calibration Reference Settings for Fahrenheit Scale	Pyrometer Reading	Calibration Reference Settings for Celsius Scale
50° F	50° F	10°C
100° F	100° F	38°C
150° F	150° F	66°C
200° F	200° F	93°C
250° F	250° F	121°C
300° F	300° F	149°C
350° F	350° F	177°C
400° F	400° F	204°C
450° F	450° F	232°C
500° F	500° F	260°C
550° F	550° F	288°C
600° F	600° F	316°C

Airtech Environmental Services
Meter Post Calibration

Average Field Sample Rate (ΔH)	1.100	Date	10/3/2011
Highest Field Vacuum (inches Hg)	4	Client	Big Rivers
Critical Orifice ID	BB-55	Project No.	3648
Orifice Flow Rate (cfm)	0.592	Meter ID	M-28

	Run 1	Run 2	Run 3
Initial Volume (ft^3)	260.40	263.36	266.32
Final Volume (ft^3)	263.36	266.32	269.28
Volume Metered (ft^3)	2.96	2.96	2.96
DGM Inlet Temperature (°F)	72	72	72
DGM Outlet Temperature (°F)	68	68	68
Average DGM Temperature (°F)	70.0	70.0	70.0
Ambient Temperature (°F)	76	77	76
Elapsed Time (min.)	5	5	5
ΔH (inches H_2O)	1.10	1.10	1.10
Barometric Pressure (inches Hg)	29.5	29.5	29.5
Pump Vacuum (inches Hg)	22	22	22
K'	0.4436	0.4436	0.4436
Vcr (ft^3)	2.826	2.824	2.826
Vmstd (ft^3)	2.914	2.914	2.914
Post Test Yc	0.9698	0.9689	0.9698
Full Test Yd	0.9776	0.9776	0.9776
% Difference	0.80	0.89	0.80
Average % Difference			0.83

Airtech Environmental Services, Inc.
S-Type Pitot Tube Inspection Form

Date 1/26/11
Pitot ID AE5-12-2
Operator EA

	Measured	Allowed
Outside Tube Diameter - Dt (inches)	0.250	NA
Base To Opening Distance - Pa (inches)	0.34	NA
Base To Opening Distance - Pb (inches)	0.34	NA
Pa/Dt	1.36	1.05-1.50
Pb/Dt	1.36	1.05-1.50
Angle $\alpha 1(^{\circ})$	0.4	10
Angle $\alpha 2(^{\circ})$	1	10
Angle $B1(^{\circ})$	0.9	5
Angle $B1(^{\circ})$	0.1	5
Opening to Opening Distance Pa+Pb (inches)	0.680	NA
Angle Z $(^{\circ})$	3.2	NA
z (inches)	0.0380	0.125
Angle W $(^{\circ})$	0.2	NA
w (inches)	0.002	0.031

Note Any Damage, Nicks or Dents to the Pitot Tube

Is the Pitot Tube Part of an Assembly Yes
If Yes, Complete the Section Below

Pitot	Measured	Minimum
Distance From Nozzle (inches)	0.75	0.75 in.
Pitot to Thermocouple Distance (inches)	2.25	2 in.
Pitot to Sample Probe Distance (inches)	6	3 in.

Does the Pitot Tube Meet the Above Requirements Yes
Is the Pitot Tube Free of Damage Yes

If Yes to Both, a Pitot Tube Coefficient of 0.84 is Assigned
If No to Either, then the Pitot Tube Must be Calibrated

Airtech Environmental Services, Inc.
S-Type Pitot Tube Inspection Form

Date 1/26/11
Pitot ID AE5/13/1
Operator EA

	Measured	Allowed
Outside Tube Diameter - Dt (inches)	0.250	NA
Base To Opening Distance - Pa (inches)	0.349	NA
Base To Opening Distance - Pb (inches)	0.349	NA
Pa/Dt	1.40	1.05-1.50
Pb/Dt	1.40	1.05-1.50
Angle $\alpha 1(^{\circ})$	1.2	10
Angle $\alpha 2(^{\circ})$	1	10
Angle $B1(^{\circ})$	1.3	5
Angle $B1(^{\circ})$	2.2	5
Opening to Opening Distance Pa+Pb (inches)	0.698	NA
Angle Z $(^{\circ})$	0.9	NA
z (inches)	0.0110	0.125
Angle W $(^{\circ})$	0.4	NA
w (inches)	0.005	0.031

Note Any Damage, Nicks or Dents to the Pitot Tube

Is the Pitot Tube Part of an Assembly Yes
If Yes, Complete the Section Below

Pitot	Measured	Minimum
Distance From Nozzle (inches)	0.75	0.75 in.
Pitot to Thermocouple Distance (inches)	2.5	2 in.
Pitot to Sample Probe Distance (inches)	5	3 in.

Does the Pitot Tube Meet the Above Requirements Yes
Is the Pitot Tube Free of Damage Yes

If Yes to Both, a Pitot Tube Coefficient of 0.84 is Assigned
If No to Either, then the Pitot Tube Must be Calibrated

Airtech Environmental Services, Inc.
S-Type Pitot Tube Inspection Form

Date: January 17, 2011
Pitot ID: AE5-12-4
Operator: A. Kienitz

	Measured	Allowed
Outside Tube Diameter - Dt (inches)	0.250	NA
Base To Opening Distance - Pa (inches)	0.356	NA
Base To Opening Distance - Pb (inches)	0.356	NA
Pa/Dt	1.424	1.05-1.50
Pb/Dt	1.424	1.05-1.50
Angle, α1(°)	1	10
Angle, α2(°)	0	10
Angle, B1(°)	0	5
Angle, B1(°)	3	5
Opening to Opening Distance Pa+Pb (inches)	0.712	NA
Angle, Z (°)	89	NA
z (inches)	0.030	0.125
Angle, W (°)	90	NA
w (inches)	0.003	0.031
Pitot to Thermocouple Distance,W (inches)	2.50	≥ 2

Note Any Damage, Nicks or Dents to the Pitot Tube

Is the Pitot Tube Part of an Assembly **Yes**

If Yes, Complete the Section Below

Pitot	Measured	Minimum
Distance From Nozzle,X (inches)	0.75	0.75
Pitot to Sample Probe Distance,Y(inches)	4.50	3

Does the Pitot Tube Meet the Above Requirements **Yes**
Is the Pitot Tube Free of Damage **Yes**

If Yes to Both, a Pitot Tube Coefficient of 0.84 is Assigned
If No to Either, then the Pitot Tube Must be Calibrated

Airtech Environmental Services, Inc.
Nozzle Calibration Form

Client	Big Rivers Electric	Job No.	3648
Plant	DB Wilson Centerbo	on Ky	

M-5b/29/2 M-26A M-29

	Nozzle 1	Nozzle 2	Nozzle 3
Date	9/28 - 9/29	9/28 - 9/29	9/28-9/29
Nozzle ID	.350	.360	.310
Operator	RG	RG	RG
Test Location	stack outlet	stack outlet	stack outlet
Run Number (s)	1,2,3	1,2,3	1,2,3
Diameter 1	.354	.364	.311
Diameter 2	.355	.365	.312
Diameter 3	.356	.366	.312
Average	.355	.365	.312

	Nozzle 4	Nozzle 5	Nozzle 6
Date			
Nozzle ID			
Operator			
Test Location			
Run Number (s)			
Diameter 1			
Diameter 2			
Diameter 3			
Average			

Notes:
Measurements must be made to the nearest 0.001 inches.
Three different diameters should be measured.
The difference between the high and low measurement must be less than 0.004 inches.

Signed _____ Date 9/28/

Process Data

Date Time	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	SO2 duct1	SO2 duct2	SO2 stack	SO2 (high)	NOX (low)	NOX (high)	Opacity duct1	Opacity duct2	Opacity stack	NOx rate(low)	NOx rate (high)	SO2 rate duct1	SO2 rate duct2	SO2 rate stack (low)	SO2 rate stack (high)	% SO2 red'n
Date Time	DEW1	FLOW1	CO22	CO23	CO21	SO22	SO23	SO21	SO2H1	NOX1	NOXH1	OPACITY2	OPACITY3	OPAC1	NOXRT1	NOXHRT1	SO2RT2	SO2RT3	SO2RT1	SO2HRT1	RED1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.13	[illegible]	2452.19	[illegible]	199.2	[illegible]	[illegible]	7	[illegible]	3.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1223.4	[illegible]	[illegible]	[illegible]	2391.97	[illegible]	[illegible]	190.1	[illegible]	[illegible]	[illegible]	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.556	[illegible]	91.4
[illegible]	[illegible]	[illegible]	11.119	[illegible]	[illegible]	2402.36	2417.8	[illegible]	[illegible]	35.6	[illegible]	[illegible]	[illegible]	[illegible]	0.072	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.4
[illegible]	[illegible]	[illegible]	11.195	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36.1	36.2	6.2	[illegible]	3.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.3
[illegible]	[illegible]	[illegible]	[illegible]	11.20	10.91	[illegible]	2417.6	[illegible]	[illegible]	[illegible]	[illegible]	6.5	[illegible]	3.4	[illegible]	[illegible]	[illegible]	[illegible]	0.566	[illegible]	91.2
[illegible]	[illegible]	[illegible]	11.342	11.39	[illegible]	[illegible]	[illegible]	[illegible]	194.8	36.3	36.3	6.2	[illegible]	[illegible]	[illegible]	0.073	[illegible]	[illegible]	[illegible]	0.547	91.2
[illegible]	[illegible]	1211.4	11.232	[illegible]	[illegible]	[illegible]	2430.97	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.471	6.443	[illegible]	0.541	[illegible]
[illegible]	[illegible]	[illegible]	11.23	[illegible]	10.72	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.4	[illegible]	[illegible]	0.072	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.4
[illegible]	[illegible]	[illegible]	11.21	11.19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.071	[illegible]	6.416	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	11.101	11.14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	35.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.072	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	11.032	[illegible]	[illegible]	[illegible]	2427.14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	3.7	0.074	[illegible]	[illegible]	6.418	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.2	[illegible]	[illegible]	0.074	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	11.11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	37.7	[illegible]	[illegible]	0.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1234.1	[illegible]	[illegible]	[illegible]	[illegible]	2405.71	[illegible]	193.1	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.075	[illegible]	6.114	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.41	[illegible]	[illegible]	[illegible]	199.02	[illegible]	[illegible]	[illegible]	6.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.42	[illegible]	[illegible]	91.3
[illegible]	[illegible]	[illegible]	[illegible]	11.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.5	[illegible]	[illegible]	[illegible]	[illegible]	6.454	[illegible]	[illegible]	[illegible]	91.4
[illegible]	[illegible]	1244.9	[illegible]	11.41	[illegible]	[illegible]	[illegible]	193.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.11	10.6	[illegible]	[illegible]	[illegible]	187.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.466	[illegible]	[illegible]	[illegible]	91.4
[illegible]	[illegible]	[illegible]	[illegible]	1.47	9.08	1301.47	[illegible]	165.71	[illegible]	[illegible]	[illegible]	[illegible]	0	3.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	0.741	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.208	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.29	[illegible]	[illegible]	[illegible]	71.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.441	[illegible]	[illegible]	77.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.801	5.801	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1072	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	203.4	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	0.073	[illegible]	6.447	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1240.7	11.141	11.19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	0.1	[illegible]	[illegible]	[illegible]	[illegible]	6.47	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.16	10.85	[illegible]	2410.69	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.1
[illegible]	[illegible]	[illegible]	[illegible]	11.14	[illegible]	[illegible]	[illegible]	216.14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.2
[illegible]	[illegible]	1107.1	11.212	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.2	[illegible]	3.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	11.101	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.3	[illegible]	0.072	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.8	[illegible]	4.1	[illegible]	[illegible]	[illegible]	[illegible]	0.671	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	[illegible]	3.7	[illegible]	[illegible]	[illegible]	[illegible]	0.675	[illegible]	91.1
[illegible]	[illegible]	1194.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.1
[illegible]	[illegible]	[illegible]	11.112	11.31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19.4	[illegible]	7.6	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	11.097	[illegible]	10.71	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.414	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	200.11	[illegible]	37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.074	[illegible]	[illegible]	[illegible]	[illegible]	91.3
[illegible]	[illegible]	1223.1	11.101	[illegible]	[illegible]	[illegible]	2419.84	[illegible]	[illegible]	38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.463	6.417	[illegible]	[illegible]	91.4
[illegible]	[illegible]	[illegible]	11.25	[illegible]	10.71	2439.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.8	[illegible]	[illegible]	[illegible]	[illegible]	6.447	[illegible]	[illegible]	[illegible]	91.4
[illegible]	[illegible]	[illegible]	11.214	11.41	[illegible]	[illegible]	2443.44	[illegible]	191.4	[illegible]	[illegible]	[illegible]	0.1	[illegible]	0.076	[illegible]	[illegible]	[illegible]	[illegible]	0.631	91.4
[illegible]	[illegible]	[illegible]	11.126	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.074	0.074	[illegible]	[illegible]	[illegible]	[illegible]	91.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.73	[illegible]	[illegible]	[illegible]	192.7	[illegible]	[illegible]	[illegible]	-0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.3
[illegible]	[illegible]	[illegible]	11.241	11.22	10.7	2422.48	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1	3.5	[illegible]	[illegible]	[illegible]	[illegible]	0.566	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]	[illegible]	0.073	[illegible]	[illegible]	[illegible]	[illegible]	91.4
[illegible]	[illegible]	[illegible]	[illegible]	11.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	11.121	11.42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	0	3.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.71	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.538	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	37.6	7.1	[illegible]	[illegible]	[illegible]	[illegible]	6.458	[illegible]	[illegible]	0.541	[illegible]
[illegible]	[illegible]	1211.8	11.073	11.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	37.1	7.1	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.551	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.47	[illegible]	[illegible]	[illegible]	194.05	[illegible]	[illegible]	[illegible]	[illegible]	-0.1	[illegible]	0.074	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.5
[illegible]	[illegible]	[illegible]	11.107	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	11.213	[illegible]	10.69	2427.77	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	0.073	[illegible]	6.407	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.09	[illegible]	[illegible]	2441.61	[illegible]	194.9	35.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.071	6.451	[illegible]	[illegible]	0.524	91.5
[illegible]	[illegible]	[illegible]	11.134	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	0.2	[illegible]	[illegible]	0.072	[illegible]	[illegible]	[illegible]	0.522	91.6
[illegible]	[illegible]	[illegible]	[illegible]	11.31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	0.073	[illegible]	[illegible]	0.747	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1	[illegible]	0.075	[illegible]	[illegible]	6.415	[illegible]	[illegible]	91.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2421.87	[illegible]	[illegible]	[illegible]	37	[illegible]	[illegible]	0	[illegible]	[illegible]	0.075	[illegible]	[illegible]	[illegible]	[illegible]	91.4
[illegible]	[illegible]	[illegible]	11.176	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	0	[illegible]	0.074	[illegible]	[illegible]	[illegible]	[illegible]	0.529	91.5
[illegible]	[illegible]	1208	[illegible]	11.40	[illegible]	[illegible]	[illegible]	[illegible]	192.4	[illegible]	[illegible]	7	[illegible]	3.7	[illegible]	[illegible]	[illegible]	6.424	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	11.134	[illegible]	[illegible]	[illegible]	2426.46	[illegible]	193.1	[illegible]	[illegible]	[illegible]	0.1	3.2	0.072	[illegible]	[illegible]	6.402	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.2	[illegible]	[illegible]	[illegible]	[illegible]	6.394	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	11.078	11.39	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.4
[illegible]	[illegible]	[illegible]	[illegible]	11.39	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	37	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.196	0.546	[illegible]	91.6
[illegible]	[illegible]	[illegible]	10.944	[illegible]	10.57	2358.4	[illegible]	[illegible]	185.5	[illegible]	[illegible]	[illegible]	0.2	[illegible]	[illegible]	[illegible]	[illegible]	6.121	0.545	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.38	[illegible]	[illegible]	[illegible]	192.77	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.074	[illegible]	[illegible]	0.517	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	35	[illegible]	[illegible]	[illegible]	[illegible]	0.072	6.411	[illegible]	[illegible]	0.512	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	3.5	[illegible]	[illegible]	6.411	[illegible]	[illegible]	[illegible]	91.9
[illegible]	[illegible]	[illegible]	11.117	11.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	3.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	92.1
[illegible]	[illegible]	[illegible]	11.117	[illegible]	10.64	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.43	[illegible]	[illegible]	[illegible]	92.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2407.23	2410.43	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]	[illegible]	[illegible]	6.45	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	171.7	[illegible]	[illegible]	6.7	[illegible]	3.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.492	[illegible]	[illegible]
[illegible]	[illegible]	1164	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1124.5	[illegible]	[illegible]	10.6	[illegible]	2429.4	[illegible]	[illegible]	[illegible]	[illegible]	6.2	[illegible]	[illegible]	0.036	[illegible]	6.44	6.418	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.428	6.102	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.5	7	0	[illegible]	[illegible]	0.065	[illegible]	6.422	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1110.9	[illegible]	11.23	[illegible]	[illegible]	2414.14	[illegible]	[illegible]	[illegible]	31.7	6.4	0.3	[illegible]	[illegible]	[illegible]	6.444	[illegible]	[illegible]	0.451	[illegible]
[illegible]	[illegible]	[illegible]	10.046	[illegible]	10.6	[illegible]	[illegible]	[illegible]	154.5	[illegible]	32.1	[illegible]	[illegible]	3.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	1.27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.1	3.3	0.051	[illegible]	[illegible]	[illegible]	0.479	0.463	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	1.40	[illegible]	[illegible]	[illegible]	14.74	[illegible]	0.4	0.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.748	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11	11	6.6	0.1	3.6	[illegible]	0.119	[illegible]	[illegible]	[illegible]	0.700	[illegible]
[illegible]	[illegible]	[illegible]	7.517	[illegible]	[illegible]	[illegible]	[illegible]	147.01	141.1	[illegible]	[illegible]	6.5	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.474	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.87	[illegible]	[illegible]	[illegible]	174.47	107.4	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.49	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2417.71	[illegible]	[illegible]	34.8	34.9	[illegible]	0	[illegible]	[illegible]	0.07	[illegible]	[illegible]	0.48	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.65	2390.24	[illegible]	[illegible]	157	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	0.072	[illegible]	6.414	[illegible]	0.441	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.9	[illegible]	5	[illegible]	[illegible]	6.442	[illegible]	0.441	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	10.91	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	0.1	4	[illegible]	0.072	[illegible]	6.116	[illegible]	[illegible]	93.3
[illegible]	[illegible]	[illegible]	[illegible]	11.02	[illegible]	[illegible]	[illegible]	[illegible]	141.4	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.401	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.7	[illegible]	[illegible]	[illegible]	[illegible]	6.409	[illegible]	0.409	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	10.684	11.17	10.51	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.08	10.52	[illegible]	[illegible]	134.54	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	94
[illegible]	[illegible]	[illegible]	10.731	[illegible]	[illegible]	[illegible]	2410.44	[illegible]	126.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.076	[illegible]	[illegible]	[illegible]	[illegible]	94.2
[illegible]	[illegible]	[illegible]	[illegible]	11.2	10.53	[illegible]	[illegible]	128.76	[illegible]	[illegible]	[illegible]	6.5	-0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2237.77	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.337	[illegible]
[illegible]	[illegible]	916.9	[illegible]	11.17	10.49	[illegible]	[illegible]	112.24	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	0.071	0.071	[illegible]	6.421	[illegible]	[illegible]	94.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2297.77	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.32	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.46	2251.41	[illegible]	[illegible]	112	36.9	37	6.4	-0.4	3.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	38.5	[illegible]	6.2	[illegible]	3.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.318	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.21	[illegible]	[illegible]	[illegible]	[illegible]	41.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.316	[illegible]
[illegible]	[illegible]	[illegible]	10.2	10.86	10.14	[illegible]	[illegible]	[illegible]	[illegible]	41.8	41.9	6.6	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9/28/2011 18:41	[illegible]	[illegible]	[illegible]	[illegible]	10.12	[illegible]	[illegible]	[illegible]	[illegible]	33.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	11.143	[illegible]	[illegible]	[illegible]	2417.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	0.075	6.074	[illegible]	[illegible]	0.317	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	10.93	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	10.445	11.08	10.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.2	6.2	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.2	[illegible]	[illegible]	[illegible]	102.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.075	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	3.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.291	95.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.36	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.4	[illegible]	[illegible]	0.073	6.394	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	872.6	[illegible]	[illegible]	10.4	[illegible]	[illegible]	[illegible]	[illegible]	27.2	[illegible]	[illegible]	[illegible]	[illegible]	0.057	[illegible]	[illegible]	[illegible]	0.258	0.277	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	65.1	[illegible]	[illegible]	6.4	[illegible]	[illegible]	[illegible]	0.038	[illegible]	6.411	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	819.1	[illegible]	11.22	[illegible]	[illegible]	2408.45	[illegible]	[illegible]	[illegible]	28.5	6.7	[illegible]	[illegible]	[illegible]	0.059	[illegible]	6.407	0.279	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6	0.3	3.4	[illegible]	[illegible]	6.412	[illegible]	0.270	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.16	[illegible]	[illegible]	[illegible]	[illegible]	92.7	31.4	[illegible]	[illegible]	-0.2	3	0.065	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.2	0	[illegible]	0.073	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.17	[illegible]	[illegible]	[illegible]	94.4	40.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.277	[illegible]
[illegible]	[illegible]	[illegible]	10.27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	41.3	[illegible]	[illegible]	-0.1	[illegible]	[illegible]	[illegible]	6.418	[illegible]	[illegible]	0.233	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	40.2	[illegible]	6.3	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	917.5	[illegible]	[illegible]	10.04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.056	[illegible]	[illegible]	[illegible]	0.296	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.6	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.4
[illegible]	[illegible]	[illegible]	[illegible]	11.2	10.13	[illegible]	2389.93	[illegible]	93.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.274	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	27.9	[illegible]	0	3.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.39	2260.64	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.27	95.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	88.42	[illegible]	27.2	27.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.274	[illegible]	[illegible]
[illegible]	[illegible]	824.6	10.614	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.27	[illegible]	95.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.7	[illegible]	[illegible]	[illegible]	0.1	[illegible]	[illegible]	0.06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	875.4	10.413	11.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.27	0.261	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2217.61	[illegible]	[illegible]	90.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.072	[illegible]	[illegible]	[illegible]	[illegible]	95.7
[illegible]	[illegible]	[illegible]	10.419	11.17	10.17	[illegible]	[illegible]	[illegible]	91.2	[illegible]	32.2	6.7	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.7
[illegible]	[illegible]	[illegible]	[illegible]	11.21	10.18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.278	0.269	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.056	[illegible]	[illegible]	[illegible]	[illegible]	0.27	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.28	10.27	[illegible]	2401.12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.3	[illegible]	[illegible]	[illegible]	91.2	[illegible]	[illegible]	7.1	-0.1	[illegible]	[illegible]	0.053	[illegible]	[illegible]	[illegible]	[illegible]	95.8
[illegible]	[illegible]	[illegible]	[illegible]	11.34	[illegible]	[illegible]	[illegible]	92.6	[illegible]	[illegible]	[illegible]	6.9	0	[illegible]	0.051	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.31	[illegible]	[illegible]	[illegible]	[illegible]	90.7	[illegible]	[illegible]	[illegible]	0.1	[illegible]	0.069	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.267	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.4	[illegible]	-0.1	5.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	0.064	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	816.3	4.714	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	71.2	[illegible]	[illegible]	[illegible]	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	814.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9.7	[illegible]	[illegible]	[illegible]	0	3.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.914	[illegible]
[illegible]	[illegible]	[illegible]	0.423	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11.3	[illegible]	6.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.093	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	3.76	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.8	31.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	93.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	116.16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	115.12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	10.177	10.24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.2	3.6	[illegible]	[illegible]	[illegible]	6.57	0.31	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	10.265	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	32	[illegible]	7	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2213.93	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	96.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.1	3.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	3.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.268	96.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.48	2202.65	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	92.4	[illegible]	[illegible]	[illegible]	-0.1	[illegible]	[illegible]	0.037	[illegible]	6.405	[illegible]	[illegible]	95.7
[illegible]	[illegible]	[illegible]	[illegible]	11.3	10.32	[illegible]	[illegible]	96	[illegible]	[illegible]	31.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.47	[illegible]	[illegible]	[illegible]	91.7	[illegible]	[illegible]	[illegible]	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.27	0.262	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.2	10.47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Date Time	GEN1	FLOW1	CO2 duct1	CO2 duct2	CO2 stack	SO2 duct1	SO2 duct2	SO2 stack	SO2 (high)	NOX (low)	NOX (high)	Opacity duct1	Opacity duct2	Opacity stack	NOx rate(low)	NOx rate (high)	SO2 rate duct1	SO2 rate duct2	SO2 rate stack (low)	SO2 rate stack (high)	% SO2 red'n
9/[illegible]/2011 19:25	[illegible]	841.1	10.515	11.21	10.51	[illegible]	[illegible]	0.5144	52.3	53.7	38.7	7.4	[illegible]	6	0.0012	[illegible]	0.6758	[illegible]	0.272	[illegible]	99.7
9/[illegible]/2011 19:30	9/[illegible]	849.2	10.535	11.22	10.53	[illegible]	2164.43	0.7117	52.5	53.7	37.4	7.3	-0.1	5.7	0.0076	[illegible]	0.6748	[illegible]	0.271	[illegible]	99.7
9/[illegible]/2011 19:35	9/[illegible]	857.4	[illegible]	11.25	10.61	[illegible]	[illegible]	[illegible]	52.7	53.7	35.7	7.3	[illegible]	5.4	0.0169	[illegible]	0.6758	6.35	0.272	0.2481	99.7
9/[illegible]/2011 19:40	9/[illegible]	865	10.295	11.19	10.43	[illegible]	[illegible]	[illegible]	52.5	53.5	34.2	7.2	0.1	5.8	0.0047	[illegible]	0.6316	[illegible]	0.278	0.2014	99.7
9/[illegible]/2011 19:45	9/[illegible]	872.9	10.475	11.23	10.42	[illegible]	[illegible]	[illegible]	52.7	53.8	35.2	7.3	-0.1	5.9	0.0107	[illegible]	0.6707	6.339	0.274	0.2432	99.7
9/[illegible]/2011 19:50	9/[illegible]	880.9	10.714	11.19	10.45	[illegible]	[illegible]	[illegible]	52.5	53.5	31.9	7.3	0	5.6	0.0015	[illegible]	0.6628	[illegible]	0.271	0.2414	99.7
9/[illegible]/2011 19:55	9/[illegible]	888.2	10.439	11.19	10.49	[illegible]	2215.78	[illegible]	[illegible]	[illegible]	[illegible]	7.4	0	5.5	0.0185	[illegible]	0.6758	[illegible]	0.276	[illegible]	99.7
9/[illegible]/2011 20:00	9/[illegible]	900	10.532	11.17	10.55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	0.1	5.7	[illegible]	[illegible]	0.6316	[illegible]	0.272	0.2417	99.7
9/[illegible]/2011 20:05	9/[illegible]	911.4	10.107	11.26	10.4	[illegible]	[illegible]	[illegible]	52.1	53	32.1	6.7	-0.1	5.4	0.0085	0.0084	0.6707	[illegible]	0.2712	[illegible]	99.7
9/[illegible]/2011 20:10	9/[illegible]	919.1	10.768	11.27	10.49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.7	0.2	5.5	0.0083	[illegible]	0.6749	[illegible]	0.2738	0.2432	99.7
9/[illegible]/2011 20:15	9/[illegible]	927.7	10.573	11.23	10.45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.5	-0.2	5.6	0.007	[illegible]	0.6707	[illegible]	0.2733	0.2417	99.7
9/[illegible]/2011 20:20	9/[illegible]	935.8	10.512	11.26	10.47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.5	0	5.5	0.0072	[illegible]	0.6749	[illegible]	0.2687	[illegible]	99.7
9/[illegible]/2011 20:25	9/[illegible]	943.9	10.47	11.23	10.45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	-0.2	5.7	0.0079	[illegible]	0.6707	[illegible]	0.2687	[illegible]	99.7
9/[illegible]/2011 20:30	9/[illegible]	952.4	10.495	11.2	10.44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 20:35	9/[illegible]	960.7	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 20:40	9/[illegible]	968.9	10.495	11.2	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 20:45	9/[illegible]	977.4	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 20:50	9/[illegible]	985.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 20:55	9/[illegible]	994.2	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 21:00	9/[illegible]	1002.7	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 21:05	9/[illegible]	1011.2	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 21:10	9/[illegible]	1019.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 21:15	9/[illegible]	1028.4	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 21:20	9/[illegible]	1037.1	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 21:25	9/[illegible]	1045.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 21:30	9/[illegible]	1054.6	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 21:35	9/[illegible]	1063.3	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 21:40	9/[illegible]	1072.1	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 21:45	9/[illegible]	1080.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 21:50	9/[illegible]	1089.4	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 21:55	9/[illegible]	1098.1	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 22:00	9/[illegible]	1106.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 22:05	9/[illegible]	1115.4	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 22:10	9/[illegible]	1124.1	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 22:15	9/[illegible]	1132.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 22:20	9/[illegible]	1141.4	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 22:25	9/[illegible]	1150.1	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 22:30	9/[illegible]	1158.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 22:35	9/[illegible]	1167.4	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 22:40	9/[illegible]	1176.1	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 22:45	9/[illegible]	1184.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 22:50	9/[illegible]	1193.4	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 22:55	9/[illegible]	1202.1	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 23:00	9/[illegible]	1210.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 23:05	9/[illegible]	1219.4	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 23:10	9/[illegible]	1228.1	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 23:15	9/[illegible]	1236.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 23:20	9/[illegible]	1245.4	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 23:25	9/[illegible]	1254.1	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 23:30	9/[illegible]	1262.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 23:35	9/[illegible]	1271.4	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 23:40	9/[illegible]	1280.1	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 23:45	9/[illegible]	1288.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 23:50	9/[illegible]	1297.4	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 23:55	9/[illegible]	1306.1	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7
9/[illegible]/2011 00:00	9/[illegible]	1314.8	10.495	11.23	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	0.1	5.8	0.0102	[illegible]	0.6749	[illegible]	0.2691	[illegible]	99.7

Date Time	GEN1	FLOW1	CO2 duct1	CO2 duct2	CO2 stack	SO2 duct1	SO2 duct2	SO2 stack	SO2 (high)	NOX (low)	NOX (high)	Opacity duct1	Opacity duct2	Opacity stack	NOx rate(low)	NOx rate (high)	SO2 rate duct1	SO2 rate duct2	SO2 rate stack (low)	SO2 rate stack (high)	% SO2 red'n
[illegible] 22:12	[illegible]	[illegible]	10.5	[illegible]	10.4	[illegible]	[illegible]	94.03	92	31.8	31.8	[illegible]	0.3	3.2	[illegible]	[illegible]	6.327	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] 22:13	327.4	[illegible]	10.461	[illegible]	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.7	[illegible]	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.7
[illegible] 22:14	[illegible]	[illegible]	[illegible]	11.22	10.1	2300.01	[illegible]	94.75	[illegible]	[illegible]	[illegible]	[illegible]	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.276	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	32	32.1	[illegible]	-0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.4	6.7	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.233	[illegible]
[illegible] 22:17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2337.7	91.1	[illegible]	[illegible]	[illegible]	8.2	0.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.271	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.233	[illegible]
[illegible] 22:18	[illegible]	[illegible]	[illegible]	[illegible]	7.49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.042	[illegible]	[illegible]	[illegible]	[illegible]	94.4
[illegible]	[illegible]	[illegible]	[illegible]	1.14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.3	0.4	[illegible]	[illegible]	[illegible]	[illegible]	0.041	[illegible]	[illegible]	[illegible]	[illegible]	79.1
[illegible] 22:21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.1	10.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.1	31.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2150.14	[illegible]	105.12	[illegible]	[illegible]	[illegible]	6.1	0.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.071	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	102.97	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	0.3	3.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.46	2217.41	[illegible]	[illegible]	[illegible]	31.6	31.3	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.282	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.44	[illegible]	[illegible]	101.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.277	95.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	100.85	[illegible]	34.1	[illegible]	[illegible]	-0.1	[illegible]	[illegible]	0.07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	99.15	[illegible]	[illegible]	31.9	7.3	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	326.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.16	[illegible]	[illegible]	[illegible]	98.01	[illegible]	[illegible]	[illegible]	[illegible]	0.4	[illegible]	[illegible]	0.064	[illegible]	[illegible]	[illegible]	[illegible]	95.7
[illegible]	[illegible]	[illegible]	[illegible]	11.21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	0	3.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.61	[illegible]	[illegible]	97.91	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.09	10.49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.275	[illegible]	[illegible]
[illegible]	[illegible]	884.4	10.541	11.01	10.47	[illegible]	[illegible]	[illegible]	91.7	[illegible]	[illegible]	[illegible]	-0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.271	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.9	-0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.27	0.269	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.275	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.1	[illegible]	[illegible]	[illegible]	[illegible]	92.4	[illegible]	[illegible]	7.1	-0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.277	[illegible]	[illegible]
[illegible] 22:47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	-0.1	[illegible]	[illegible]	0.058	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2402.14	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	0.079	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	327.2	[illegible]	[illegible]	11.24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.4	0.1	3.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91	34.9	[illegible]	[illegible]	-0.1	[illegible]	0.071	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	871.6	[illegible]	11.27	[illegible]	[illegible]	[illegible]	94.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] 22:55	[illegible]	[illegible]	[illegible]	11.24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] 22:56	[illegible]	875	[illegible]	11.21	10.44	[illegible]	[illegible]	[illegible]	92.6	[illegible]	36.5	[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.21	[illegible]	[illegible]	[illegible]	[illegible]	91	[illegible]	37.1	[illegible]	[illegible]	[illegible]	0.077	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.4	0	[illegible]	[illegible]	[illegible]	[illegible]	6.364	[illegible]	0.281	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.31	10.41	[illegible]	[illegible]	94.48	90.7	[illegible]	[illegible]	7	[illegible]	[illegible]	0.07	0.07	[illegible]	[illegible]	[illegible]	[illegible]	95.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.48	2251.18	[illegible]	[illegible]	92.7	[illegible]	[illegible]	7.1	[illegible]	[illegible]	0.062	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.274	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	327.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	328.4	[illegible]	[illegible]	11.29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	327.2	[illegible]	[illegible]	11.51	[illegible]	[illegible]	[illegible]	[illegible]	90.7	[illegible]	[illegible]	7.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.49	[illegible]	[illegible]	94.17	[illegible]	30.7	[illegible]	7.2	0.1	3.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.239	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.22	10.51	[illegible]	[illegible]	[illegible]	91.6	30.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.068	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.22	[illegible]	[illegible]	[illegible]	94.75	[illegible]	[illegible]	31.1	7	-0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.27	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.27	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	3.7	[illegible]	[illegible]	6.341	[illegible]	0.271	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.1	[illegible]	[illegible]	[illegible]	[illegible]	6.33	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	34.1	[illegible]	7.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.44	[illegible]	[illegible]	[illegible]	91.6	[illegible]	[illegible]	[illegible]	0.1	3.9	[illegible]	0.07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	0.07	0.07	[illegible]	[illegible]	[illegible]	0.282	[illegible]
[illegible]	327.4	[illegible]	[illegible]	11.27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	90.7	[illegible]	[illegible]	7.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.9	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	0.047	8.51	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	1.12	[illegible]	[illegible]	[illegible]	[illegible]	10	[illegible]	0.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.01	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.48	112.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30.1	30.1	[illegible]	-0.2	[illegible]	[illegible]	0.074	[illegible]	[illegible]	[illegible]	0.294	[illegible]
[illegible]	327.1	871	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.319	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.2	0	3.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.3	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.2	3.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	324.8	[illegible]	[illegible]	[illegible]	10.65	[illegible]	[illegible]	101.21	97.1	[illegible]	[illegible]	7.1	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	10.39	[illegible]	[illegible]	[illegible]	[illegible]	101.44	97.4	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.273	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.074	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	10.472	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	-0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	327.8	[illegible]	10.54	11.14	[illegible]	[illegible]	[illegible]	[illegible]	91	[illegible]	[illegible]	7.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.347	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.7	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	26.5	26.4	[illegible]	0.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28.4	28.1	7.3	[illegible]	[illegible]	[illegible]	0.057	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.272	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.7
[illegible]	[illegible]	[illegible]	[illegible]	11.03	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	35	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	10.45	[illegible]	10.45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	38	6.9	1.1	4.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	37.4	[illegible]	7.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.259	[illegible]
[illegible] 23:41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	[illegible]	2.7	[illegible]	[illegible]	[illegible]	[illegible]	0.268	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.48	[illegible]	[illegible]	[illegible]	92.2	[illegible]	30.4	6.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.271	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.2	0	[illegible]	[illegible]	[illegible]	[illegible]	6.411	[illegible]	0.262	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.26	[illegible]	[illegible]	[illegible]	[illegible]	92	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.06	[illegible]	[illegible]	[illegible]	[illegible]	0.261	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2410.48	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.271	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	3.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	326.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	89.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1	3.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	6.391	6.417	[illegible]	0.259	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.71	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.26	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	92.46	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.264	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.071	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	877.7	[illegible]	[illegible]	10.45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.413	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.27	10.48	[illegible]	2415.98	[illegible]	91.4	[illegible]	[illegible]	[illegible]	-0.1	3.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.8
[illegible]	327.4	[illegible]	[illegible]	[illegible]	10.47	[illegible]	[illegible]	94.2	91.2	[illegible]	[illegible]	7.1	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	29.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.41	[illegible]	[illegible]	[illegible]
[illegible] 0:02	[illegible]	[illegible]	[illegible]	11.29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.4	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	824.8	[illegible]	11.25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.5	[illegible]	[illegible]	-0.1	[illegible]	[illegible]	[illegible]	6.38	[illegible]	0.271	[illegible]	[illegible]
[illegible] 0.04	[illegible]	[illegible]	[illegible]	[illegible]	10.47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] 0.05	[illegible]	[illegible]	[illegible]	11.18	10.4	2271.12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1	3.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] 0:07	[illegible]	881	[illegible]	11.27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.27	[illegible]	93.8
[illegible]	[illegible]	[illegible]	[illegible]	11.24	[illegible]	[illegible]	[illegible]	94.21	90.4	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	327	[illegible]	[illegible]	[illegible]	10.42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	326.9	[illegible]	[illegible]	11.24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	92.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.417	0.273	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2421.27	[illegible]	93.1	[illegible]	[illegible]	7.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	11.28	10.47	[illegible]	[illegible]	[illegible]	92	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.271	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.1	[illegible]	[illegible]	0.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.271	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.4	7.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.261	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	4.57	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17.4	[illegible]	-0.1	[illegible]	[illegible]	0.042	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	1.1	[illegible]	[illegible]	[illegible]	[illegible]	9.1	0.4	0.4	[illegible]	0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.101	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	23.4	11	[illegible]	[illegible]	0.1	3.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1690.27	[illegible]	57.4	[illegible]	[illegible]	[illegible]	0.2	3.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	119.14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.319	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	10.31	10.62	[illegible]	2317.91	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] 0:26	[illegible]	[illegible]	10.412	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.411	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.231	[illegible]	95.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	97	[illegible]	32.2	[illegible]	[illegible]	[illegible]	[illegible]	0.065	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	11.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.231	0.271	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	11.15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	11.14	10.54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	97.44	[illegible]	[illegible]	[illegible]	[illegible]	-0.1	[illegible]	[illegible]	[illegible]	[illegible]	6.414	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	94.71	91.4	[illegible]	[illegible]	7.2	-0.1	3.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] 0:42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.2	7.2	0.1	3.6	[illegible]	0.064	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	94.17	[illegible]	[illegible]	[illegible]	7.4	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2410.48	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.7
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Date Time	GEN1	FLOW1	CO2 duct1	CO2 duct2	CO2 stack	SO2 duct1	SO2 duct2	SO2 stack	SO2 (high)	NOX (low)	NOX (high)	Opacity duct1	Opacity duct2	Opacity stack	NOx rate(low)	NOx rate (high)	SO2 rate duct1	SO2 rate duct2	SO2 rate stack (low)	SO2 rate stack (high)	% SO2 red'n
9/23/2011 11:00:49	[illegible]	[illegible]	11.17	10.4	22[illegible].5	[illegible]	[illegible]	5.4	4.8	[illegible]	7.5	0.3	4.1	0.079	0.073	[illegible].352	6.[illegible]	0.275	0.255	92.7
9/23/2011 11:01:49	[illegible].4	[illegible].6	11.[illegible]	11.27	10.4	[illegible]4[illegible].[illegible]	[illegible].[illegible]9	[illegible].[illegible]	29.5	[illegible].2	34.[illegible]	0.1	0.1	4.7	0.071	0.079	[illegible].[illegible]1	[illegible].[illegible]	0.[illegible]1	0.221	93.7
9/23/2011 11:02:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.23	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]2[illegible].[illegible]	[illegible].[illegible]	30.4	[illegible].[illegible]	7.9	0.4	4	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]
9/23/2011 11:03:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.3	10.[illegible]	2[illegible].[illegible]	[illegible]2[illegible].[illegible]	[illegible].[illegible]	27.6	[illegible].[illegible]	[illegible].[illegible]	0.1	0.1	4.5	0.067	0.08[illegible]	[illegible].[illegible]4	[illegible].[illegible]3	0.[illegible]7	[illegible].[illegible]	[illegible].[illegible]
9/23/2011 11:04:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]9	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:05:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]3	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:06:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:07:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:08:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:09:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:10:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:11:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:12:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:13:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:14:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:15:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:16:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:17:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:18:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:19:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:20:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:21:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:22:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:23:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:24:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:25:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:26:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:27:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:28:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:29:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:30:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:31:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:32:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:33:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:34:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:35:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:36:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:37:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:38:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:39:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:40:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:41:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:42:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:43:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:44:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:45:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:46:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:47:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:48:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:49:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:50:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:51:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:52:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:53:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:54:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:55:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:56:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:57:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:58:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/23/2011 11:59:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]
9/24/2011 12:00:49	[illegible].[illegible]	[illegible].[illegible]	11.[illegible]	11.[illegible]	10.[illegible]	[illegible]2[illegible].[illegible]	[illegible]1[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]	7.2	0.1	4.[illegible]	0.[illegible]	[illegible].[illegible]	[illegible].[illegible]3	[illegible].[illegible]3	[illegible].[illegible]4	0.[illegible]2	0.[illegible]5	[illegible].[illegible]

Date Time	GEN1	FLOW1	CO2 duct1	CO2 duct2	CO2 stack	SO2 duct1	SO2 duct2	SO2 stack	SO2 (high)	NOX (low)	NOX (high)	Opacity duct1	Opacity duct2	Opacity stack	NOx rate(low)	NOx rate (high)	SO2 rate duct1	SO2 rate duct2	SO2 rate stack (low)	SO2 rate stack (high)	% SO2 red'n
9/29/2011 3:26	[illegible]	8[illegible]	10.417	10.[illegible]	10.[illegible]	[illegible]	[illegible]	104.22	[illegible]	[illegible]	[illegible]	[illegible]	0.1	[illegible]7	[illegible]	0.07	[illegible].485	[illegible]	[illegible]	0.242	[illegible]
9/29/2011 3:27	327.1	833.5	10.407	10.50	10.59	[illegible]	2[illegible].12	105.28	[illegible]	[illegible].4	[illegible]	20.8	0.8	14	0.071	[illegible]	[illegible]	[illegible]	0.297	[illegible]3	[illegible]
9/29/2011 3:28	[illegible]	[illegible]	10.416	10.[illegible]	10.[illegible]	[illegible]	[illegible]7.16	[illegible]	1[illegible]1.7	[illegible]	29.8	[illegible]	0	4.5	[illegible]	0.078	[illegible].421	[illegible]	0.[illegible]	0.218	95.4
9/29/2011 3:29	324.4	[illegible]1.7	10.[illegible]	10.91	10.4[illegible]	[illegible]	2[illegible]1.77	103	[illegible]	[illegible]8	37.8	[illegible].1	0	4.2	[illegible]	0.[illegible]7	[illegible].574	[illegible].54[illegible]	0.204	0.[illegible]	9[illegible].5
9/29/2011 3:30	[illegible]0.8	[illegible]	10.[illegible]4	10.93	10.[illegible]	[illegible]	[illegible]17	102.[illegible]	98.5	[illegible]	[illegible]	7.[illegible]	0.[illegible]	4.1	[illegible]74	0.[illegible]4	[illegible]	6.508	0.[illegible]	[illegible].29	[illegible]
9/29/2011 3:31	[illegible]	844.1	10.[illegible]	11.0[illegible]	10.[illegible]7	[illegible]	[illegible]	[illegible]	97	[illegible]	[illegible]	7.[illegible]	-0.2	4.2	[illegible]77	0.[illegible]7	[illegible]	6.773	[illegible]	0.277	9[illegible].6
9/29/2011 3:32	[illegible]26.5	878	10.[illegible]	10.97	10.[illegible]	[illegible]11.2	[illegible]12	[illegible]	[illegible]	3[illegible].6	[illegible]	7.2	[illegible]	[illegible].9	0.071	0.[illegible]	6.495	6.[illegible]	0.231	[illegible]277	[illegible]
9/29/2011 3:33	[illegible]	[illegible]	10.[illegible]87	11.[illegible]	10.[illegible]	[illegible]	[illegible]	10[illegible].1	97.2	33.1	[illegible]	7.[illegible]	0.3	[illegible]	[illegible]	0.[illegible]58	6.501	[illegible]	[illegible]	0.[illegible]	[illegible]
9/29/2011 3:34	[illegible]	831.2	10.[illegible]62	11.[illegible]	10.[illegible]	[illegible]18.[illegible]7	[illegible]	100.[illegible]	96.7	31.[illegible]	31.[illegible]	8	-[illegible]2	4.[illegible]	0.02[illegible]	0.[illegible]	6.[illegible]	6.[illegible]	0.286	0.27[illegible]	[illegible]
9/29/2011 3:35	[illegible]8	[illegible]21	10.71[illegible]	11.07	10.[illegible]	[illegible]8	[illegible]	100.[illegible]	[illegible].7	[illegible].4	[illegible].4	7.2	-0.2	[illegible]7	0.0[illegible]	0.[illegible]	6.[illegible]8	[illegible]	[illegible]	0.[illegible]	[illegible]
9/29/2011 3:36	[illegible]	[illegible]5	10.[illegible]	11.1[illegible]	10.64	2[illegible]	24[illegible]29	100.15	[illegible].2	[illegible]	[illegible]	7.[illegible]	[illegible]	4.1	0.[illegible]	0.077	[illegible]	[illegible]	0.284	0.27[illegible]	[illegible]
9/29/2011 3:37	[illegible]	855.3	10.[illegible]7	11.09	10.59	2[illegible]	[illegible]	10[illegible]	[illegible]7	[illegible]	[illegible]3	7.4	[illegible].4	[illegible]	[illegible]	0.0[illegible]1	[illegible].512	[illegible]	0.2[illegible]	0.27[illegible]	95.[illegible]
9/29/2011 3:38	327.[illegible]	871.4	10.[illegible]	11.1	10.[illegible]	[illegible]	2[illegible]10.[illegible]	[illegible]	[illegible]	[illegible].2	[illegible].2	7	0	[illegible]	[illegible]74	[illegible]	[illegible].478	[illegible]	0.292	[illegible].27	[illegible]7
9/29/2011 3:39	[illegible]2	874.[illegible]	10.[illegible]7	11.15	1[illegible]	2[illegible]4.42	2[illegible]3.2	[illegible]31	94.1	[illegible]	[illegible]4	7.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible].51[illegible]	0.27[illegible]	0.2[illegible]	[illegible].7
9/29/2011 3:40	[illegible]	[illegible]68.3	10.[illegible]	11.1[illegible]	10.[illegible]	[illegible]4.1[illegible]	2444.[illegible]	99.[illegible]	[illegible]	[illegible].8	33	7.2	[illegible]	3.[illegible]	[illegible]7	0.[illegible]	[illegible]	[illegible].525	0.[illegible]	[illegible].271	[illegible].7
9/29/2011 3:41	[illegible]5.8	[illegible]	10.[illegible]	11.[illegible]7	10.[illegible]	[illegible]7.61	24[illegible]	10[illegible]	[illegible]	[illegible]	34	7.4	0.1	3.9	0.[illegible]69	[illegible]	[illegible].514	6.5[illegible]	0.26[illegible]	[illegible]	[illegible]
9/29/2011 3:42	[illegible]5	[illegible]1.2	10.[illegible]	11.25	10.[illegible]	2[illegible]0.60	2[illegible]	1[illegible]	[illegible]7	[illegible]	33.[illegible]	7.2	0.1	4	0.[illegible]	[illegible]68	[illegible]	[illegible].58	0.[illegible]	[illegible].27[illegible]	[illegible].6
9/29/2011 3:43	[illegible]	[illegible].4	10.771	11.21	10.[illegible]	23[illegible].47	2477.[illegible]	[illegible]	[illegible].2	3[illegible]	[illegible].2	7.[illegible]	-0.1	[illegible].7	0.[illegible]	0.[illegible]	[illegible]	6.[illegible]6	0.[illegible]2	[illegible].272	[illegible]
9/29/2011 3:44	[illegible]9	873	10.72	11.14	10.[illegible]	23[illegible]	2[illegible].2	96.03	[illegible]8	[illegible]	[illegible]	7.[illegible]	0.2	[illegible].7	0.[illegible]	0.[illegible]	6.564	[illegible]	0.2[illegible]	[illegible].2[illegible]	95.[illegible]
9/29/2011 3:45	[illegible]	[illegible]	10.[illegible]	11.08	10.6[illegible]	[illegible]6	249[illegible] 12	99.8	9[illegible]	34.2	34.2	7.1	0.[illegible]	[illegible]	0.0[illegible]	0.079	6.54[illegible]	6.55[illegible]	[illegible]	0.57[illegible]	[illegible].7
9/29/2011 3:46	[illegible]	[illegible]	10.655	11.30	10.4[illegible]	2318.[illegible]2	2[illegible]4	100.19	93	[illegible]	[illegible]	7.2	0.1	3.7	0.07[illegible]	0.07[illegible]	[illegible].5[illegible]1	[illegible].53	0.236	0.274	[illegible]
9/29/2011 3:47	[illegible]26.3	8[illegible]5	10.621	11.[illegible]	1[illegible]	[illegible]	[illegible]94.[illegible]	9[illegible].9[illegible]	94.7	[illegible].8	35.5	7.7	[illegible]	4.1	0.0[illegible]	[illegible]	[illegible].53	[illegible]	[illegible].261	0.27[illegible]	95.6
9/29/2011 3:48	[illegible]	8[illegible].8	10.[illegible]9	11.0[illegible]	10.29	[illegible]21.17	[illegible]39[illegible]	97.76	93.4	[illegible].4	[illegible]	6.[illegible]	0.[illegible]	[illegible]	[illegible]	[illegible]	[illegible].71[illegible]	[illegible].5	[illegible].261	0.[illegible]	[illegible].7
9/29/2011 3:49	[illegible]	[illegible]7.6	10.[illegible]7	11.[illegible]	10.4	2[illegible].47	[illegible]38	[illegible]	94.4	[illegible].9	[illegible]	7.2	[illegible].2	[illegible].7	0.[illegible]	0.07[illegible]	[illegible]	[illegible].5[illegible]2	0.[illegible]4	0.271	95.[illegible]
9/29/2011 3:50	[illegible]	897	10.[illegible]	11.22	10.[illegible]	2[illegible].05	2453.[illegible]	[illegible].22	97.2	[illegible]	[illegible]	7.[illegible]	0.1	[illegible].7	0.0[illegible]	0.07[illegible]	[illegible]	[illegible]	0.2[illegible]5	[illegible].274	95.6
9/29/2011 3:51	327.7	[illegible]	10.7[illegible]	11.24	10.43	2[illegible]	2[illegible].31	1[illegible]	97	[illegible]	33.[illegible]	[illegible]	0.2	3.3	[illegible]69	[illegible]	[illegible]	[illegible]	[illegible]8	0.277	9[illegible].6
9/29/2011 3:52	[illegible]3	[illegible]	10.7[illegible]	11.2[illegible]	10.5[illegible]	2345.[illegible]	[illegible].51	1[illegible]1.07	97.4	[illegible]1	30.[illegible]	[illegible]	[illegible]	2.[illegible]	0.0[illegible]	[illegible]	[illegible].317	6.585	0.[illegible]	0.277	[illegible]
9/29/2011 3:53	[illegible]7	[illegible]	10.7[illegible]	11.12	10.29	23[illegible]	2440.21	1[illegible]1	[illegible]	29.7	[illegible].7	[illegible]	-0.2	[illegible]	[illegible].081	[illegible]1	6.53	6.5[illegible]4	0.2[illegible]	0.2[illegible]	[illegible]
9/29/2011 3:54	[illegible].3	[illegible]7.3	10.7[illegible]	11.0[illegible]	10.64	[illegible].47	2[illegible]31.4[illegible]	100.[illegible]	9[illegible].7	[illegible].5	[illegible].4	7.2	-0.1	3.[illegible]	0.[illegible]32	0.[illegible]42	6.541	6.5[illegible]2	0.2[illegible]	0.27[illegible]	[illegible]
9/29/2011 3:55	[illegible]	830	10.7[illegible]	11.16	10.6[illegible]	2[illegible].21	[illegible]	[illegible].2	[illegible]	[illegible].7	[illegible]	7.2	[illegible]	[illegible]	[illegible].06[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.27[illegible]	9[illegible].7
9/29/2011 3:56	[illegible]	[illegible]7	10.517	11.2[illegible]	10.32	2[illegible]5.11	[illegible]	99.08	[illegible]	31	31.1	7.5	0	3.9	0.0[illegible]	0.0[illegible]	6.5[illegible]	6.[illegible]	0.292	[illegible].27	95.7
9/29/2011 3:57	327.6	8[illegible]7	10.5[illegible]	11.[illegible]2	10.[illegible]	2[illegible]3.2[illegible]	24[illegible]67	[illegible]	[illegible].2	[illegible]	28.[illegible]	7.4	-0.[illegible]	4	[illegible]	0.[illegible]1	6.554	[illegible]	0.273	0.[illegible]	[illegible].7
9/29/2011 3:58	327.3	834.7	10.74[illegible]	11.27	10.57	2[illegible]	247[illegible]	[illegible]	[illegible]	[illegible].7	[illegible]	7.4	0	[illegible].9	[illegible]	0.[illegible]	[illegible].[illegible]7	[illegible].571	[illegible]	0.[illegible]34	[illegible]
9/29/2011 3:59	[illegible]6.2	85[illegible].1	10.[illegible]	11.[illegible]	[illegible]	[illegible]9.06	24[illegible]	97.[illegible]	9[illegible].7	[illegible].8	2[illegible]	[illegible].4	-0.1	3.[illegible]	0.0[illegible]1	0.061	[illegible].544	[illegible]	0.27[illegible]	[illegible]	95.9
9/29/2011 4:00	[illegible]1	8[illegible]1	10.69	11.[illegible]	1[illegible]	2[illegible].87	24[illegible]4.64	97.45	94.1	[illegible]	32.6	7	[illegible]	[illegible].7	0.067	0.0[illegible]	6.547	[illegible]14	0.2[illegible]7	[illegible]67	9[illegible].8
9/29/2011 4:01	3[illegible]	[illegible]	10.306	11.19	10.4[illegible]	[illegible]	[illegible].16	[illegible].43	93	34.1	[illegible].2	7.5	[illegible]1	[illegible]	0.[illegible]7	0.07	[illegible]	[illegible]	0.2[illegible]	[illegible]265	[illegible]
9/29/2011 4:02	[illegible]	8[illegible].2	10.[illegible]5	11.18	10.[illegible]7	2424.[illegible]	2477.[illegible]	[illegible]	9[illegible].1	[illegible].1	35.1	[illegible]	[illegible].3	[illegible]	[illegible].072	0.072	[illegible]	[illegible]	[illegible]	[illegible]	[illegible].8
9/29/2011 4:03	[illegible]2	852.[illegible]	10.[illegible]2	11.12	10.[illegible]	[illegible]17.71	2408.17	98.[illegible]	[illegible]1	[illegible]	[illegible]	[illegible].5	0	3.[illegible]	[illegible].077	0.[illegible]	[illegible]	6.[illegible]17	0.2[illegible]1	0.27	95.[illegible]
9/29/2011 4:04	[illegible]	[illegible]	10.604	11.[illegible]	[illegible]4	[illegible]1	2[illegible]43.[illegible]	[illegible].1	96.[illegible]	[illegible].5	[illegible]	[illegible].9	0.1	3.[illegible]	[illegible]	0.0[illegible]	[illegible]	6.56[illegible]	[illegible]	[illegible].2[illegible]	9[illegible].7
9/29/2011 4:05	[illegible]	[illegible]3.5	1[illegible]	11.[illegible]	1[illegible].7	23[illegible].56	[illegible]440.[illegible]	1[illegible].2[illegible]	9[illegible]	37.8	[illegible]	7.4	-0.1	[illegible].5	0.0[illegible]	0.[illegible]9	[illegible].541	6.5[illegible]4	0.[illegible]	0.27[illegible]	[illegible]
9/29/2011 4:06	[illegible]6.4	870.9	10.[illegible]4	11.1	10.[illegible]	[illegible]1	244[illegible]	100.44	96.[illegible]	[illegible]	[illegible]	[illegible]	-0.2	3.7	0.079	[illegible].08	[illegible].57[illegible]	[illegible]	0.2[illegible]9	0.2[illegible]	95.3
9/29/2011 4:07	[illegible]7	[illegible]9	10.[illegible]1	11.11	1[illegible].41	2[illegible]	[illegible]	1[illegible]2	[illegible]4	[illegible]	[illegible]	7	0	[illegible].7	0.07[illegible]	[illegible]	[illegible].[illegible]7	[illegible]	0.[illegible]8	0.[illegible]77	95.[illegible]
9/29/2011 4:08	[illegible]1	[illegible].7	10.[illegible]7	11.11	1[illegible].44	[illegible]	[illegible].14	100.22	9[illegible].4	34.[illegible]	[illegible].8	7.6	[illegible]	[illegible]	0.071	0.071	[illegible].5[illegible]	6.[illegible]	0.2[illegible]	[illegible].[illegible]6	[illegible]
9/29/2011 4:09	[illegible]9	[illegible]4.[illegible]	10.744	11.17	10.[illegible]	2[illegible].93	[illegible]08.44	1[illegible]	9[illegible].4	[illegible].1	[illegible].2	7.1	-0.[illegible]	3.[illegible]	0.[illegible]7	0.07	[illegible].563	[illegible]	0.297	0.216	95.6
9/29/2011 4:10	[illegible].3	[illegible]	10.79	11.24	1[illegible]	2[illegible]1.[illegible]2	2[illegible].27	1[illegible].91	97	[illegible].4	[illegible]	7.1	0	3.7	0.07[illegible]	0.0[illegible]9	[illegible].57	[illegible]	0.[illegible]49	[illegible].2[illegible]7	[illegible]
9/29/2011 4:11	[illegible]27	[illegible]	10.2[illegible]	11.[illegible]8	10.52	[illegible]	2[illegible]1.[illegible]	1[illegible]6	[illegible].4	[illegible].1	[illegible]1	[illegible]	[illegible]1	[illegible]	0.0[illegible]6	0.085	[illegible].7[illegible]1	[illegible]4	0.[illegible]	[illegible]274	95.7
9/29/2011 4:12	[illegible]	[illegible]9	10.[illegible]	11.[illegible]	10.[illegible]	2408.9[illegible]	[illegible]	[illegible]	9[illegible].1	[illegible].2	32	[illegible]	0.1	[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]	0.[illegible]	0.25[illegible]	[illegible].8
9/29/2011 4:13	327.1	[illegible].2	10.819	11.[illegible]	10.[illegible]	2[illegible]1.12	2[illegible]	[illegible]	[illegible].8	[illegible]	[illegible].3	7.1	0.[illegible]	4.2	0.0[illegible]	0.[illegible]	[illegible]	[illegible]	0.23	0.266	95.6
9/29/2011 4:14	[illegible]	[illegible]4	10.[illegible]	11.[illegible]	10.[illegible]	23[illegible]	2[illegible]1.[illegible]2	[illegible].02	[illegible]	[illegible]	31.[illegible]	7.4	-0.1	[illegible]	[illegible]	[illegible]	6.[illegible]9	[illegible]	0.281	[illegible].271	9[illegible]
9/29/2011 4:15	[illegible]5.4	[illegible]4	10.721	11.[illegible]	10.53	2[illegible]3	247[illegible]	9[illegible].1	9[illegible]	32.6	[illegible]	7.[illegible]	-0.1	2.[illegible]	0.0[illegible]	0.[illegible]8	[illegible]79	6.5[illegible]	[illegible]1	0.[illegible]	9[illegible]
9/29/2011 4:16	[illegible]	87[illegible].4	10.[illegible]7	11.02	10.4[illegible]	2[illegible].8[illegible]	244[illegible]	98.[illegible]	91.1	34.[illegible]	[illegible]	6.[illegible]	0.1	3.5	[illegible]1	0.071	[illegible].571	[illegible].624	[illegible]	0.[illegible]	95.[illegible]
9/29/2011 4:17	[illegible]1	888.8	10.[illegible]	11	10.[illegible]	[illegible]	[illegible].42	97.1[illegible]	[illegible].7	38.[illegible]	38.7	6.8	-0.1	3.6	0.[illegible]	[illegible]	6.591	6.602	0.28	[illegible]7	95.8
9/29/2011 4:18	[illegible].9	8[illegible]4	10.[illegible]2	11.05	10.[illegible]	[illegible].27	24[illegible]	97.[illegible]	[illegible]	40.4	[illegible].5	[illegible].1	0.[illegible]	[illegible].6	0.084	[illegible].084	6.[illegible]9	6.614	[illegible].281	0.[illegible]	[illegible]
9/29/2011 4:19	[illegible].2	81[illegible]1	4.0[illegible]	[illegible]21	8.[illegible]	1[illegible].8	11[illegible].31	77.[illegible]	[illegible]1	[illegible].2	[illegible].2	[illegible].1	-0.1	3.[illegible]	0.[illegible]	0.[illegible]6	14.[illegible]	50.[illegible]9	0.2[illegible]	[illegible].276	[illegible].3
9/29/2011 4:20	[illegible]	89[illegible].9	0.[illegible]	1.[illegible]7	0.28	[illegible]	[illegible].44	[illegible]24	[illegible]	0.6	[illegible]	7.2	0.[illegible]	3.9	0.072	0.0[illegible]	[illegible]092	81.[illegible]	[illegible]	1.1[illegible]1	[illegible].9
9/29/2011 4:21	[illegible].5	82[illegible]1	[illegible]	2.[illegible]	2.[illegible]3	110.[illegible]	[illegible].97	24.1	24.8	[illegible]	10.8	7	0	[illegible]	[illegible].112	0.11	9.2[illegible]	[illegible].[illegible]83	[illegible].419	[illegible].747	[illegible].6
9/29/2011 4:22	[illegible]	814.1	[illegible]	8.83	9.[illegible]	11[illegible].71	10[illegible]8.17	[illegible].32	[illegible].9	28.4	2[illegible].4	[illegible].7	[illegible]1	[illegible]	0.[illegible]	0.0[illegible]	[illegible]57	5.[illegible]74	0.314	0.[illegible]	[illegible]
9/29/2011 4:23	[illegible].8	[illegible]7.6	10.[illegible]	10.[illegible]3	10.60	21[illegible]	2[illegible]2.8[illegible]	119.83	11[illegible]	2[illegible]	29.4	7.4	0.2	[illegible].9	[illegible].06	0.0[illegible]	6.[illegible]2	[illegible]	0.[illegible]6	0.32[illegible]	9[illegible]
9/29/2011 4:24	[illegible]6	[illegible]77.5	10.[illegible]7	1[illegible]	10.1[illegible]	22[illegible]	[illegible].64	119.63	114.4	[illegible].5	[illegible]	7.[illegible]	-0.1	[illegible]7	0.[illegible]67	0.[illegible]	[illegible]	[illegible]	[illegible]	0.217	[illegible].7
9/29/2011 4:25	[illegible].4	[illegible]	10.419	10.77	10.[illegible]7	[illegible]	[illegible].31	111.44	10[illegible].3	[illegible].1	[illegible]	[illegible].2	[illegible].2	4.[illegible]	0.[illegible]	[illegible].[illegible]3	[illegible]	[illegible].594	0.[illegible]2	0.[illegible]	9[illegible].2
9/29/2011 4:26	[illegible]	[illegible]	10.6	10.[illegible]	10.[illegible]1	2314.45	2[illegible].7[illegible]	105.2[illegible]	101	31.[illegible]	31.[illegible]	7.1	0.3	3.[illegible]	[illegible]	[illegible]	[illegible].6[illegible]	[illegible]	[illegible]	0.[illegible]4	[illegible]
9/29/2011 4:27	[illegible]26	834.9	10.561	10.[illegible]	10.[illegible]	2[illegible]27.68	2[illegible].[illegible]	[illegible].17	101	[illegible].2	[illegible].1	7.3	0.2	3.8	[illegible].0[illegible]	[illegible]	[illegible].6[illegible]	6.[illegible]	[illegible].2[illegible]	[illegible].251	95.[illegible]
9/29/2011 4:28	[illegible]	820.[illegible]	10.527	10.[illegible]	10.61	2[illegible]22.19	[illegible]	10[illegible]	[illegible].2	31.[illegible]	[illegible].2	7.3	0.[illegible]	[illegible].9	0.063	[illegible]	[illegible]	[illegible]	[illegible]1	0.[illegible]	[illegible]
9/29/2011 4:29	[illegible]27.2	[illegible]	10.5[illegible]	1[illegible].[illegible]2	10.[illegible]	[illegible].17	2[illegible]	101.[illegible]	97.5	[illegible].2	[illegible]2	7.8	0.[illegible]	4.1	0.[illegible]	0.[illegible]	6.[illegible]5	[illegible]	0.[illegible]	0.[illegible]	9[illegible]
9/29/2011 4:30	[illegible]	845.3	10.[illegible]	10.[illegible]2	10.[illegible]1	[illegible]	241[illegible]	101.[illegible]1	[illegible].4	[illegible]	31.7	7.3	-0.1	3.8	[illegible]	0.[illegible]	[illegible].[illegible]07	6.[illegible]6	[illegible].207	0.277	9[illegible].6
9/29/2011 4:31	[illegible]6	[illegible]4.5	10.646	11	10.[illegible]8	2[illegible]22	2[illegible].22	101.17	97	[illegible].2	[illegible]	7	0.7	4	0.0[illegible]	0.[illegible]	[illegible]	[illegible].529	0.20[illegible]	[illegible].27[illegible]	[illegible].7
9/29/2011 4:32	[illegible]7	[illegible]7.6	10.6[illegible]	11.05	10.5[illegible]	[illegible]17	2453.21	1[illegible]4	97.[illegible]	31.9	[illegible]2	7.[illegible]	[illegible].2	3.7	0.0[illegible]5	0.0[illegible]5	6.591	[illegible]635	0.[illegible]	[illegible]	95.8
9/29/2011 4:33	[illegible]5.5	[illegible]1	10.[illegible]2	10.[illegible]	10.[illegible]	2[illegible]	[illegible]	1[illegible]1.81	1[illegible]0.7	53.6	[illegible].6	7.[illegible]	[illegible].2	[illegible]	0.0[illegible]	0.066	[illegible]	[illegible]4	0.[illegible]	0.2[illegible]4	[illegible]3
9/29/2011 4:34	3[illegible]	[illegible]	10.[illegible]1	1[illegible].[illegible]1	10.[illegible]	2[illegible]2.68	2410.[illegible]	101.[illegible]1	[illegible].9	[illegible].7	[illegible]	7.1	0	3.7	0.0[illegible]	0.0[illegible]	[illegible]	[illegible].[illegible]02	0.[illegible]	[illegible].284	95.[illegible]
9/29/2011 4:35	[illegible]6.[illegible]	[illegible]6.[illegible]	10.[illegible]7	1[illegible]	10.[illegible]	[illegible]	2401.84	1[illegible]8.11	[illegible].9	[illegible]	[illegible].[illegible]1	7.4	[illegible].2	4	0.051	0.081	6.[illegible]6	6.[illegible]3	0.204	0.282	[illegible].6
9/29/2011 4:36	32[illegible].2	880.7	10.[illegible]1	10.[illegible]4	10.61	[illegible]	2[illegible]	104.81	10[illegible].1	37	27.1	7.2	-0.1	[illegible].8	[illegible]76	0.0[illegible]	6.613	[illegible]5	0.29[illegible]	[illegible].2[illegible]	[illegible].3
9/29/2011 4:37	[illegible]1	[illegible]54	1[illegible]	10.[illegible]3	10.5	[illegible]54.9[illegible]	241[illegible].42	10[illegible].12	[illegible].9	36.8	[illegible].9	7.2	[illegible].3	[illegible]	[illegible]	0.0[illegible]	6.[illegible]	[illegible]595	[illegible]	0.2[illegible]	[illegible]
9/29/2011 4:38	[illegible]7.2	845.4	10.74[illegible]	11.[illegible]5	1[illegible]	2[illegible]3.04	[illegible]44.[illegible]	10[illegible].79	9[illegible].2	[illegible]	[illegible]	[illegible]	0	4	[illegible]079	0.079	[illegible].5[illegible]4	6.[illegible]12	0.2[illegible]	0.2[illegible]	95.[illegible]
9/29/2011 4:39	[illegible]7	[illegible]1.1	1[illegible].7[illegible]	11	[illegible]	2[illegible].40	2[illegible].[illegible]2	101.[illegible]	[illegible].4	[illegible]1	[illegible].3	[illegible].7	0.1	4	[illegible]74	[illegible]	[illegible]792	[illegible]	[illegible]287	0.2[illegible]8	[illegible].6
9/29/2011 4:40	[illegible]	8[illegible]	10.[illegible]	10.95	10.[illegible]3	[illegible]	24[illegible]	9[illegible].7[illegible]	[illegible]	37	37.1	7.3	[illegible]1	3.8	0.[illegible]	[illegible]75	[illegible]74	6.5[illegible]	0.[illegible]	0.27[illegible]	95.7
9/29/2011 4:41	[illegible]9	[illegible]48.5	10.[illegible]1	10.97	10.[illegible]	2[illegible].02	2414.[illegible]	[illegible].71	[illegible]	[illegible].2	[illegible]1	7.4	0.[illegible]	[illegible].9	[illegible]	[illegible].78	[illegible]	6.574	[illegible].283	[illegible]74	[illegible]
9/29/2011 4:42	[illegible]	847.1	1[illegible]	11.02	10.[illegible]	2[illegible]	2[illegible]	10[illegible].5[illegible]	[illegible]	[illegible]	[illegible].4	7.[illegible]	[illegible]1	3.[illegible]	0.06	[illegible].081	6.[illegible]	6.[illegible]	[illegible].2[illegible]7	0.276	9[illegible].7
9/29/2011 4:43	[illegible]1	[illegible]4.1	10.776	11.[illegible]	10.49	238[illegible]	[illegible].21	10[illegible]	[illegible]	[illegible]	[illegible].1	7.[illegible]	0.[illegible]	[illegible].9	0.0[illegible]	0.[illegible]1	6.605	[illegible]7	0.289	0.27[illegible]	95.6
9/29/2011 4:44	[illegible]27	[illegible]7	10.817	11.[illegible]5	10.[illegible]	[illegible]2.17	[illegible]	1[illegible].99	[illegible]	[illegible]1	37.1	7.[illegible]	0	3.[illegible]	0.07[illegible]	0.076	6.611	[illegible].627	0.29	[illegible].27[illegible]	[illegible].6
9/29/2011 4:45	[illegible]	[illegible]3	10.7[illegible]0	11.11	10.55	2[illegible]2.61	2[illegible].73	102.[illegible]	96.8	36.1	[illegible]	7.1	-0.1	3.7	0.0[illegible]	0.0[illegible]	[illegible]06	6.[illegible]6	0.291	0.[illegible]	[illegible].3
9/29/2011 4:46	[illegible]27	[illegible]31	10.[illegible]	11.07	10.[illegible]	2[illegible]	2403	103.8	1[illegible]	[illegible]	36.4	7.6	[illegible]1	4.1	0.07[illegible]	0.07[illegible]	6.[illegible]1	[illegible]	0.294	0.[illegible]	[illegible]
9/29/2011 4:47	[illegible]9	[illegible]5	10.[illegible]	11.16	10.[illegible]	[illegible]66	[illegible]9.[illegible]7	10[illegible].34	9[illegible].3	[illegible].7	[illegible]1	7.[illegible]	0	[illegible]	0.07[illegible]	0.0[illegible]	[illegible]	[illegible]	0.2[illegible]	0.201	95[illegible]
9/29/2011 4:48	327	841.[illegible]	10.611	11.26	10.25	2[illegible]2.5[illegible]	[illegible]09.[illegible]	10[illegible].8[illegible]	9[illegible].2	[illegible].1	[illegible]	7.[illegible]	[illegible]	[illegible].1	0.071	0.071	6.[illegible]1	[illegible].[illegible]55	0.2[illegible]1	0.[illegible]	[illegible]
9/29/2011 4:49	[illegible].4	[illegible].5	10.786	11.22	10.61	[illegible]65	[illegible]01.02	1[illegible].14	98.7	[illegible].5	31.6	7.5	0.8	4.2	[illegible]	0.[illegible]84	[illegible]	[illegible].[illegible]51	[illegible]	0.27[illegible]	9[illegible].5
9/29/2011 4:50	[illegible]	[illegible]	1[illegible]	11.1[illegible]	10.[illegible]	2[illegible]89.[illegible]	[illegible].31	1[illegible].[illegible]	[illegible].5	[illegible]	[illegible]	7.2	0	[illegible].7	0.[illegible]6[illegible]	0.08[illegible]	[illegible].[illegible]29	6.[illegible]5	0.29	0.2[illegible]	[illegible]
9/29/2011 4:51	[illegible]26.9	[illegible]	10.[illegible]08	11.13	10.[illegible]	2[illegible]1	2[illegible]01	10[illegible].4[illegible]	97.[illegible]	[illegible]	[illegible]	7.4	-0.1	3.8	[illegible]077	[illegible]	6.6	6.[illegible]	0.[illegible]9	0.2[illegible]8	95.6
9/29/2011 4:52	[illegible]25.1	[illegible]	10.755	11.07	10.5	[illegible]0.[illegible]8	2[illegible].2[illegible]	101.[illegible]8	[illegible]	40.[illegible]	40.8	7.7	[illegible].2	4.1	[illegible].0[illegible]	0.084	[illegible].[illegible]18	6.5[illegible]	[illegible]1	0.2[illegible]1	[illegible]
9/29/2011 4:53	[illegible].5	[illegible]	10.6[illegible]	11.06	1[illegible].48	2[illegible]2.[illegible]7	[illegible]	102.65	[illegible].2	4[illegible].6	41.5	7.1	-0.[illegible]	3.6	0.0[illegible]	0.0[illegible]	[illegible].[illegible]27	[illegible]	[illegible]	0.27[illegible]	[illegible]
9/29/2011 4:54	[illegible]	[illegible]	10.[illegible]	10.9	10.[illegible]	23[illegible]	24[illegible]	10[illegible].7[illegible]	100.[illegible]	[illegible]	40.[illegible]	[illegible].9	0	3.7	0.094	0.[illegible]	[illegible].61[illegible]	[illegible]	0.29[illegible]	[illegible]276	95.[illegible]
9/29/2011 4:55	[illegible]3	[illegible]4.5	10.[illegible]45	1[illegible]	1[illegible]5	[illegible]28.08	24[illegible]07	107.67	103.2	[illegible]	[illegible].7	7.1	-0.1	[illegible]6	0.084	0.0[illegible]	[illegible]	[illegible]	[illegible]40[illegible]	[illegible]297	[illegible].8
9/29/2011 4:56	[illegible]	[illegible]9	10.[illegible]9	1[illegible]	10.26	2[illegible]	2[illegible]7.44	10[illegible].24	101.5	3[illegible].2	[illegible].2	6.8	0.1	[illegible]	0.092	0.0[illegible]	[illegible]	[illegible]1	0.31	[illegible]08	9[illegible]
9/29/2011 4:57	[illegible]7	907.[illegible]	10.782	11.[illegible]1	10.[illegible]	2[illegible]79.[illegible]	24[illegible]	10[illegible]	1[illegible]	[illegible].4	[illegible]4	7.3	0	3.6	[illegible]	0.[illegible]6	[illegible].594	[illegible].592	0.301	0.[illegible]	9[illegible].4
9/29/2011 4:58	[illegible]7.[illegible]	[illegible]7	10.[illegible]1	11.0[illegible]	1[illegible].4[illegible]	2[illegible].55	2440.13	1[illegible].43	98.2	[illegible].2	[illegible].2	7.2	0.3	[illegible].8	0.0[illegible]2	0.072	[illegible]	[illegible]	0.[illegible]3	[illegible]	95.[illegible]
9/29/2011 4:59	[illegible]7.6	[illegible]3.1	10.[illegible]4	11.11	10.51	2414.14	2[illegible]51.[illegible]	1[illegible].01	[illegible]4	[illegible]	31.[illegible]	7.3	[illegible]1	[illegible].7	0.064	0.0[illegible]	6.593	[illegible]	[illegible]	0.277	9[illegible]
9/29/2011 5:00	[illegible]	[illegible]72	10.9[illegible]	11.0[illegible]	10.53	[illegible]	2[illegible]9.78	101.[illegible]	97.2	2[illegible]	29	7.[illegible]	0.2	[illegible].7	0.059	0.0[illegible]	[illegible]4	[illegible]	[illegible]287	[illegible]73	9[illegible]
9/29/2011 5:01	[illegible]27.[illegible]	[illegible]2.7	10.828	11	10.54	2[illegible]1	2414.3[illegible]	99.89	[illegible]	[illegible].8	31.8	7.2	0	[illegible]	[illegible]	[illegible]	[illegible]	6.560	[illegible]	0.[illegible]	95.7
9/29/2011 5:02	[illegible]	[illegible]	10.7[illegible]	11.02	10.[illegible]	237[illegible].46	2410.02	98.[illegible]	94.1	[illegible]1	35.2	[illegible]	-0.2	[illegible]	[illegible]71	0.071	[illegible].57[illegible]	6.[illegible]	0.[illegible]	0.[illegible]	9[illegible].7
9/29/2011 5:03	327.1	[illegible]8	10.75[illegible]	1[illegible].[illegible]3	1[illegible]7	[illegible]5.11	241[illegible]	[illegible]4	[illegible]1	[illegible].7	[illegible]	[illegible]	-0.[illegible]	[illegible].8	[illegible].07[illegible]	0.07[illegible]	[illegible].57[illegible]	6.5[illegible]1	[illegible]281	[illegible]27	[illegible].8
9/29/2011 5:04	[illegible].8	884.[illegible]	10.7[illegible]	10.[illegible]2	10.[illegible]	2[illegible]3.37	241[illegible] 13	101.[illegible]	96.7	[illegible].1	[illegible].2	7.6	0.1	4.1	0.092	[illegible]2	6.583	[illegible]68	0.28[illegible]	[illegible]276	95.6
9/29/2011 5:05	[illegible]4	802.[illegible]	1[illegible].75[illegible]	1[illegible].94	10.4	2[illegible]7.93	2[illegible]7[illegible]	[illegible]1.[illegible]	97.2	[illegible].9	40	7.4	0	[illegible]4	0.0[illegible]	[illegible]8	[illegible]311	6.[illegible]	0.[illegible]	0.[illegible]	95.[illegible]
9/29/2011 5:06	[illegible].8	8[illegible]8	10.762	10.97	1[illegible]4	[illegible]79.17	24[illegible]	102.[illegible]	[illegible]	[illegible].1	[illegible].2	7.6	0.1	[illegible]	0.0[illegible]	0.[illegible]	[illegible]	6.[illegible]	0.294	0.291	9[illegible]
9/29/2011 5:07	[illegible]1	[illegible]5	1[illegible].771	1[illegible]	10.[illegible]	[illegible].[illegible]2	2440.42	1[illegible].[illegible]	97.6	[illegible]	[illegible]	7.4	1	4.[illegible]	0.074	0.0[illegible]	6.614	6.622	0.[illegible]94	0.[illegible]	9[illegible]
9/29/2011 5:08	[illegible]4	891.6	10.776	10.[illegible]	10.43	[illegible]0.[illegible]8	2[illegible].59	1[illegible].34	[illegible]	34.[illegible]	[illegible].7	7.1	0.2	[illegible].7	0.072	0.0[illegible]	6.60[illegible]	[illegible]	0.2[illegible]	[illegible]	[illegible]
9/29/2011 5:09	[illegible]	[illegible]	10.[illegible]7	1[illegible].81	10.42	[illegible]	2[illegible]	10[illegible].4[illegible]	[illegible].9	[illegible].7	[illegible].7	7.3	0.[illegible]	4	0.073	0.07[illegible]	[illegible].60[illegible]	[illegible]74	0.2[illegible]4	[illegible]	[illegible]
9/29/2011 5:10	[illegible]	[illegible]	10.852	10.8[illegible]	10.[illegible]3	241[illegible]	2[illegible]81	1[illegible].31	[illegible]	[illegible].9	[illegible].6	7.1	0	[illegible]	0.[illegible]71	0.071	[illegible]4	[illegible]67	0.2[illegible]	[illegible].2[illegible]	[illegible]
9/29/2011 5:11	[illegible]	[illegible]1.2	10.[illegible]	10.[illegible]	10.4[illegible]	2402.86	[illegible]41.[illegible]	10[illegible].37	9[illegible].7	[illegible]	31.[illegible]	7.3	0.[illegible]	4	[illegible]	0.0[illegible]	[illegible].[illegible]7	[illegible]4	[illegible]	[illegible]64	9[illegible]
9/29/2011 5:12	[illegible].7	[illegible].2	10.[illegible]	1[illegible]	1[illegible].4[illegible]	2400.51	2387.7	10[illegible].[illegible]7	99.2	[illegible].2	[illegible].2	[illegible]	[illegible]	[illegible]	0.[illegible]38	0.[illegible]	[illegible]	[illegible].62	[illegible].298	0.[illegible]	97.[illegible]
9/29/2011 5:13	327.5	[illegible]9.3	10.344	1[illegible]	1[illegible].46	240[illegible]	240[illegible]	104.1[illegible]	1[illegible]	[illegible]	[illegible]	7.7	-0.1	[illegible].5	[illegible].07[illegible]	0.[illegible]2	6.62	[illegible]	0.2[illegible]	0.206	9[illegible]
9/29/2011 5:14	[illegible]	887.5	10.[illegible]79	10.[illegible]	10.[illegible]3	2411.51	242[illegible]	10[illegible]	9[illegible]	[illegible].6	[illegible].7	7	[illegible]	[illegible]	0.0[illegible]5	0.075	[illegible].[illegible]26	[illegible]	0.23[illegible]	0.[illegible]	[illegible]3
9/29/2011 5:15	[illegible]	80[illegible]	1[illegible].[illegible]32	[illegible].59	1[illegible].46	2401.73	24[illegible]	107.25	10[illegible]	[illegible]	38.7	7	0.2	[illegible]	[illegible].074	[illegible].07[illegible]	[illegible]	6.64[illegible]	[illegible].29[illegible]	0.[illegible]	[illegible]
9/29/2011 5:16	[illegible].7	[illegible]	10.92	10.[illegible]	10.[illegible]	2[illegible].34	2[illegible]	105.[illegible]	111.1	[illegible]	[illegible]	7.[illegible]	0.2	4.[illegible]	[illegible].079	0.07[illegible]	[illegible]	6.644	0.[illegible]2	0.[illegible]	95.5
9/29/2011 5:17	[illegible]7	[illegible]	10.[illegible]34	10.[illegible]	10.41	2[illegible]	2[illegible]	107.76	1[illegible]	[illegible].9	[illegible].9	5	-0.1	2.[illegible]	0.[illegible]	0.[illegible]	6.651	[illegible]	0.30[illegible]	0.290	97.4
9/29/2011 5:18	[illegible]	[illegible]	10.[illegible]42	10.63	10.[illegible]	[illegible]7.45	[illegible]7.41	11[illegible]	105.1	4[illegible].7	40.6	[illegible]	-0.2	5.2	0.[illegible]	0.[illegible]4	[illegible].622	[illegible]	[illegible].819	[illegible].5[illegible]	[illegible]
9/29/2011 5:19	325.1	887.4	6.5[illegible]	[illegible]	7.[illegible]	10[illegible].74	1047.16	[illegible].76	[illegible].3	2[illegible]	[illegible]1	44.2	0	2[illegible]	0.0[illegible]	0.07	[illegible].177	63.994	0.[illegible]	0.2[illegible]	9[illegible]
9/29/2011 5:20	[illegible]	[illegible]	[illegible].[illegible]31	1.0[illegible]	0.[illegible]7	227.[illegible]	[illegible]5	[illegible]	1[illegible]	[illegible]	0.5	[illegible].4	0.[illegible]	3.[illegible]	0.0[illegible]	0.[illegible]	[illegible]	28.109	1.10[illegible]	1.3[illegible]	[illegible]
9/29/2011 5:21	[illegible]7.2	[illegible]18.4	0.3[illegible]	2.[illegible]	2.2[illegible]	149.[illegible]	4[illegible]	20.8	27.[illegible]	12.2	1[illegible]	[illegible]	0.6	3.5	0.1[illegible]	0.152	7.[illegible]	[illegible]	0.074	[illegible].4[illegible]	[illegible]
9/29/2011 5:22	[illegible].3	[illegible]1.[illegible]	4.[illegible]	[illegible]02	[illegible]	9[illegible].41	1791.[illegible]	107.[illegible]9	1[illegible]1	[illegible]1	[illegible]1	6.[illegible]	[illegible]	[illegible]	[illegible].[illegible]5	[illegible]	6.518	[illegible]	0.[illegible]	0.313	9[illegible]
9/29/2011 5:23	327.1	[illegible]	1[illegible].13	10.46	1[illegible]	2[illegible]1.[illegible]	2[illegible].27	12[illegible].41	1[illegible]	[illegible].6	[illegible].9	[illegible].4	16.1	12.4	[illegible].[illegible]8	0.067	[illegible]	[illegible]	0.3[illegible]1	[illegible]	95.2
9/29/2011 5:24	[illegible]	82[illegible]	1[illegible].[illegible]1	10.63	1[illegible].8	2[illegible].6	[illegible]412.[illegible]	127.47	122	[illegible]	31.7	[illegible]	[illegible]	[illegible].5	[illegible]	0.0[illegible]	6.69	[illegible]	[illegible].[illegible]35	0.[illegible]	[illegible]
9/29/2011 5:25	32[illegible]	[illegible]1	10.495	10.[illegible]3	1[illegible]	23[illegible].[illegible]9	2[illegible]	129.94	115.7	[illegible]3	[illegible]	[illegible].9	2	4.2	0.[illegible]	0.0[illegible]	[illegible]1	6.[illegible]	[illegible].[illegible]41	0.[illegible]	94.9
9/29/2011 5:26	[illegible]5.9	[illegible]6	10.[illegible]4	10.[illegible]	10.[illegible]	[illegible]	[illegible]56.14	117.[illegible]	11[illegible].5	[illegible].4	[illegible].3	[illegible]	0	[illegible].5	[illegible]	[illegible]	[illegible]27	6.702	0.[illegible]4	[illegible]19	[illegible]5
9/29/2011 5:27	[illegible]7.[illegible]	815.[illegible]	1[illegible].324	1[illegible].28	10.4	[illegible]1.40	[illegible]7.7[illegible]	11[illegible].41	112.9	40.4	[illegible]	[illegible].7	0.[illegible]	[illegible]	[illegible]09[illegible]	[illegible]	[illegible]	6.681	0.[illegible]	[illegible].[illegible]25	[illegible]4.9
9/29/2011 5:28	[illegible]4	921	10.[illegible]	1[illegible].39	10.27	2312.[illegible]1	2[illegible]4.[illegible]	114.[illegible]4	10[illegible].1	40.5	[illegible]	6.3	[illegible].2	3.4	0.[illegible]	0.086	[illegible].302	6.[illegible]	[illegible].3[illegible]1	0.[illegible]19	[illegible]5
9/29/2011 5:29	32[illegible]	91[illegible]	10.[illegible]	1[illegible].52	10.2[illegible]	[illegible]3.1	2[illegible]	11[illegible]	10[illegible]	3[illegible].7	[illegible]6.8	6.7	-0.1	3.5	[illegible]	0.07[illegible]	[illegible].[illegible]91	6.[illegible]	0.[illegible]	0.[illegible]15	[illegible]
9/29/2011 5:30	[illegible].2	[illegible]	10.[illegible]7	10.[illegible]	10.34	2[illegible]0.[illegible]	[illegible]34.[illegible]	112.[illegible]	107.[illegible]	[illegible].4	35.[illegible]	[illegible]	0.4	[illegible]	0.[illegible]	[illegible]78	[illegible]	[illegible]	[illegible].326	0.[illegible]11	95.1
9/29/2011 5:31	[illegible]7	[illegible]	10.[illegible]17	10.[illegible]	10.[illegible]	2[illegible].56	2386.[illegible]	11[illegible].[illegible]7	10[illegible]	[illegible].9	[illegible].8	6.5	-0.2	3.[illegible]	0.07[illegible]	0.[illegible]	[illegible].[illegible]79	[illegible]4	0.[illegible]	0.[illegible]19	[illegible]5
9/29/2011 5:32	[illegible]5.5	[illegible]	10.6[illegible]7	10.[illegible]	10.3[illegible]	[illegible]	2[illegible]74.27	11[illegible].[illegible]1	1[illegible].6	[illegible]	[illegible]	6.8	-0.3	[illegible]	0.0[illegible]	0.07	6.[illegible]7	[illegible]	0.[illegible]2	0.31[illegible]	[illegible]5
9/29/2011 5:33	[illegible]7.4	[illegible]7.[illegible]	10.8[illegible]1	10.[illegible]	1[illegible]	2[illegible].[illegible]7	2[illegible].88	11[illegible].8	110.4	[illegible]	[illegible]	[illegible]	0.[illegible]	[illegible].4	0.[illegible]2	0.[illegible]	6.[illegible]	[illegible]9	0.338	0.[illegible]18	9[illegible]
9/29/2011 5:34	[illegible]8.4	[illegible].4	10.7[illegible]	10.[illegible]9	10.4[illegible]	[illegible]	[illegible]410.[illegible]7	115.[illegible]	1[illegible].4	[illegible].4	30.4	[illegible].1	0	3.3	[illegible].0[illegible]7	0.[illegible]	[illegible]	[illegible]	0.[illegible]1	0.315	[illegible]
9/29/2011 5:35	[illegible].7	89[illegible].1	1[illegible].[illegible]1	1[illegible]	10.[illegible]7	[illegible]	[illegible]	112.13	1[illegible].6	[illegible].5	31.4	[illegible]	-0.4	[illegible].4	0.0[illegible]	0.0[illegible]	6.[illegible]9	[illegible]7	[illegible]	0.[illegible]8	[illegible]
9/29/2011 5:36	[illegible]	[illegible]2	1[illegible].7[illegible]5	1[illegible]	1[illegible]	[illegible]7.28	2410.[illegible]4	1[illegible]	1[illegible].9	[illegible].3	[illegible]1	[illegible].3	0.1	[illegible]	0.0[illegible]4	0.0[illegible]	6.[illegible]	[illegible]9	[illegible]11	0.[illegible]	95.3
9/29/2011 5:37	[illegible]1	[illegible].1	1[illegible]	1[illegible]	1[illegible]	2[illegible]	24[illegible]	108.34	104.1	[illegible]1	[illegible]	[illegible].7	[illegible].2	[illegible].5	0.0[illegible]6	0.0[illegible]	[illegible]	[illegible]	0.[illegible]	[illegible]	95.4
9/29/2011 5:38	326.7	[illegible].[illegible]	1[illegible]	1[illegible].[illegible]2	1[illegible].[illegible]6	2[illegible]7.[illegible]	[illegible]2[illegible]	10[illegible]	102.4	[illegible].5	33.4	[illegible].1	0	3.4	[illegible]	0.06[illegible]	6.[illegible]7	6.[illegible]2	[illegible]	[illegible]3	[illegible]
9/29/2011 5:39	[illegible]5	8[illegible]	1[illegible]	1[illegible]	10.46	[illegible]	[illegible]	10[illegible].71	101.1	3[illegible]1	[illegible]2	[illegible]	-0.1	[illegible]	0.[illegible]4	[illegible]	[illegible]	6.[illegible]	0.[illegible]	[illegible]	[illegible]4
9/29/2011 5:40	[illegible].9	[illegible]	10.4[illegible]	10.[illegible]	10.[illegible]	[illegible]3	[illegible]01.10	10[illegible].21	101.1	[illegible].7	[illegible].7	[illegible]	0.1	[illegible]9	0.[illegible]3	[illegible]	[illegible]	6.622	0.3[illegible]	0.2[illegible]1	[illegible]4
9/29/2011 5:41	3[illegible].2	[illegible]1	10.[illegible]1	10.5	1[illegible].49	2[illegible].[illegible]2	2[illegible]	1[illegible]	1[illegible].4	4[illegible]	[illegible]	[illegible]	0.1	3.[illegible]	[illegible]5	[illegible]	[illegible]319	6.[illegible]4	[illegible]312	0.[illegible]	[illegible]9
9/29/2011 5:42	32[illegible]	[illegible]	10.[illegible]	10.37	[illegible].15	[illegible]2	22[illegible]	10[illegible].61	104.5	4[illegible]	[illegible].2	6.[illegible]	-0.1	3.5	0.[illegible]05	0.[illegible]05	[illegible]	[illegible]	[illegible]	0.[illegible]	[illegible]1
9/29/2011 5:43	[illegible]1	94[illegible]7	1[illegible].[illegible]09	10.52	1[illegible]	[illegible].04	22[illegible].2	111.[illegible]	10[illegible]	47	4[illegible]	6.4	[illegible]	[illegible]8	0.1	0.1	[illegible]	6.56[illegible]	[illegible]31	0.[illegible]	[illegible].8
9/29/2011 5:44	[illegible].5	[illegible]1	10.1[illegible]	10.[illegible]	[illegible].93	2282.03	2[illegible].[illegible]1	111.[illegible]	107.2	4[illegible].1	43.1	[illegible]	0.1	[illegible]	0.101	0.1	[illegible]	[illegible]	0.5[illegible]	0.[illegible]	[illegible].8
9/29/2011 5:45	[illegible].5	94.[illegible]	1[illegible]	10.[illegible]	9.9	22[illegible]1	2[illegible].7	112.[illegible]	1[illegible].5	4[illegible].9	[illegible].9	[illegible]	0	[illegible].4	[illegible].094	[illegible].094	[illegible].43	[illegible].[illegible]72	0.[illegible]	[illegible]324	[illegible].8
9/29/2011 5:46	[illegible]	[illegible].5	10.[illegible]4	10.77	1[illegible].[illegible]5	[illegible].7	[illegible]	11[illegible].22	1[illegible].2	[illegible]	[illegible]	6.7	0.1	[illegible].6	0.[illegible]	0.[illegible]	6.[illegible]	6.[illegible]	0.[illegible]	[illegible]2	[illegible].9
9/29/2011 5:47	[illegible]	[illegible].8	10.[illegible]	1[illegible]	10.[illegible]8	2371.2[illegible]	[illegible]5.0[illegible]	11[illegible].29	1[illegible].4	[illegible]1	[illegible]1	6.7	0.[illegible]	[illegible].6	0.0[illegible]	0.[illegible]	6.[illegible]	[illegible].56	[illegible]2	[illegible]17	95
9/29/2011 5:48	[illegible]	[illegible]	10.[illegible]	1[illegible]	10.[illegible]9	240[illegible].16	[illegible]	111.[illegible]	1[illegible].5	[illegible]0	[illegible].9	[illegible]4	0.[illegible]	3.4	[illegible].07[illegible]	0.0[illegible]2	[illegible]	[illegible]	0.[illegible]	0.[illegible]	[illegible]1
9/29/2011 5:49	[illegible]	[illegible].2	1[illegible]	1[illegible].[illegible]9	10.4[illegible]	2415.[illegible]	2411.2	110.[illegible]	1[illegible]1	[illegible].2	[illegible].1	[illegible].2	0.1	3.6	0.0[illegible]	0.0[illegible]	[illegible]59	6.[illegible]5	0.316	0.[illegible]2	[illegible]
9/29/2011 5:50	[illegible].4	[illegible]7.4	[illegible]	10.95	10.54	[illegible]	24[illegible].35	1[illegible].17	1[illegible]	27.6	[illegible].8	[illegible]1	0.2	[illegible]	0.07[illegible]	0.06[illegible]	6.[illegible]1	[illegible]1	0.[illegible]	0.246	[illegible].4
9/29/2011 5:51	326.7	-7.4	10.[illegible]3	10.54	10.4[illegible]	2[illegible].77	[illegible]04	10[illegible].[illegible]	1[illegible].8	[illegible]	[illegible]	[illegible].6	[illegible]	[illegible]	0.[illegible]2	0.0[illegible]1	[illegible]6	[illegible]	0.[illegible]	0.2[illegible]3	[illegible].4
9/29/2011 5:52	[illegible].3	-1[illegible]	10.6[illegible]1	1[illegible]	10.41	2371.[illegible]	[illegible]74.27	107.1[illegible]	1[illegible].7	[illegible].7	3[illegible].8	[illegible]	[illegible]1	[illegible]	0.[illegible]	0.0[illegible]9	[illegible]	[illegible]611	0.[illegible]7	[illegible]	[illegible]
9/29/2011 5:53	[illegible]7	-1[illegible].5	10.[illegible]	10.69	1[illegible]	[illegible]47	[illegible]73	10[illegible]	1[illegible].1	[illegible].9	[illegible]	7	0.[illegible]	[illegible].7	[illegible]	0.076	[illegible]	6.57[illegible]	[illegible]	0.[illegible]5	[illegible]9
9/29/2011 5:54	[illegible]5	-[illegible]	10.[illegible]	10.[illegible]5	10.26	2[illegible]98.87	22[illegible]82	10[illegible]	101.7	[illegible].7	[illegible]	[illegible]	[illegible].4	[illegible]	0.0[illegible]	0.083	[illegible]13	[illegible].506	0.21	0.[illegible]7	[illegible]9
9/29/2011 5:55	[illegible].2	1[illegible]	1[illegible]	10.59	10.21	2[illegible]	2[illegible].07	1[illegible]	101.7	40.5	[illegible].7	[illegible]	0.1	[illegible]	[illegible]5	0.[illegible]36	[illegible]	[illegible]4	0.31	0.2[illegible]5	[illegible]3
9/29/2011 5:56	[illegible]	1,[illegible]	1[illegible]	10.[illegible]	10.2	2[illegible]1	[illegible].49	10[illegible]	101.7	40.[illegible]	[illegible]	6.7	-0.1	[illegible]	[illegible]7	0.[illegible]7	6.588	[illegible]2	[illegible].311	0.[illegible]9	[illegible]3
9/29/2011 5:57	[illegible]	12[illegible].7	10.761	10.5[illegible]	1[illegible]	2[illegible]	[illegible]	109.[illegible]	101.[illegible]	[illegible]	[illegible]1	7.1	[illegible]1	[illegible]	0.[illegible]	[illegible]05	6.[illegible]	6.[illegible]6	0.211	0.[illegible]7	96.[illegible]
9/29/2011 5:58	[illegible]7.[illegible]	120[illegible]4	10.7[illegible]	10.[illegible]	10.[illegible]	2[illegible].71	2[illegible]14.[illegible]	1[illegible].37	102.[illegible]	[illegible]	[illegible]	7	0.[illegible]	[illegible]	0.0[illegible]	[illegible]	[illegible]	[illegible]7	[illegible]	[illegible]44	[illegible]
9/29/2011 5:59	[illegible]	[illegible]	10.[illegible]	10.[illegible]	1[illegible]	[illegible]4	[illegible]1	1[illegible]	1[illegible]2.1	[illegible]1	[illegible]1	7.1	[illegible]	3.7	0.0[illegible]	0.[illegible]61	[illegible]	[illegible]	0.[illegible]7	[illegible]293	[illegible]
9/29/2011 6:00	[illegible]	[illegible]3	10.[illegible]5	11.[illegible]1	10.4	[illegible]1.1[illegible]	[illegible]27	1[illegible].[illegible]	1[illegible].4	[illegible].8	[illegible]	[illegible]	0.1	3.6	0.0[illegible]4	[illegible]	6.585	[illegible].603	0.[illegible]7	0.[illegible]4	9[illegible].4
9/29/2011 6:01	32[illegible]	[illegible]7	1[illegible].[illegible]	11.[illegible]	10.42	[illegible].8	2161.99	1[illegible].[illegible]3	102.1	27.[illegible]	[illegible].9	6.5	-0.[illegible]	[illegible]	0.[illegible]	0.[illegible]	6.[illegible]	[illegible]	0.[illegible]7	[illegible]	[illegible].1
9/29/2011 6:02	328.1	[illegible]2	10.[illegible]28	11.12	10.4[illegible]	22[illegible]	2471.11	[illegible]	10[illegible]	27.[illegible]	27.9	7.1	0.3	[illegible]	0.[illegible]	0.057	6.616	[illegible]	[illegible]1	[illegible]	95.3

Date Time	GEN1	FLOW1	CO2 duct1	CO2 duct2	CO2 stack	SO2 duct1	SO2 duct2	SO2 stack	SO2 (lb/hr)	NOX (lb/hr)	NOX (lb/MMBtu)	Opacity duct1	Opacity duct2	Opacity stack	NOx rate(lb/mw)	NOx rate (lb/hr)	SO2 rate duct1	SO2 rate duct2	SO2 rate stack (lb/hr)	SO2 rate stack (lb/hr)	% SO2 rem'n
9/1/2011 0:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 0:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 0:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 0:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 1:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 1:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 1:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 1:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 2:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 2:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 2:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 2:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 3:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 3:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 3:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 3:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 4:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 4:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 4:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 4:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 5:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 5:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 5:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 5:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 6:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 6:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 6:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 6:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 7:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 7:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 7:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 7:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 8:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 8:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 8:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 8:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 9:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 9:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 9:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 9:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 10:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 10:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 10:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 10:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 11:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 11:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 11:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 11:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 12:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 12:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 12:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 12:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 13:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 13:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 13:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 13:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 14:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 14:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 14:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 14:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 15:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 15:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 15:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 15:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 16:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 16:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 16:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 16:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 17:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 17:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 17:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 17:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 18:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 18:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 18:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 18:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 19:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 19:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 19:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 19:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 20:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 20:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 20:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 20:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 21:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 21:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 21:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 21:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 22:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 22:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 22:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 22:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 23:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 23:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 23:30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0
9/1/2011 23:45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0	0.0	0.0	0.0	0.0	0.0