Environment

Submitted to:
Sumitomo Metal Mining Pogo, LLC
Delta Junction, Alaska

Submitted by:
AECOM
Fort Collins, Colorado
60284905.2200
November 2013

Sumitomo Metal Mining Pogo LLC Unit 412 Incinerator Test Report

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Air Quality Scientist

Executive Summary

Sumitomo Metal Mining Pogo LLC (Pogo) is located near Delta Junction, Alaska. Pogo operates a solid waste incinerator under an Alaska Department of Environmental Conservation (ADEC), Air Quality Control Minor Permit Number AQ0406MSS05, issued on May 12, 2011. Pogo's incinerator, permitted as Unit 412, is used to burn non-hazardous waste. Pogo's incinerator is considered a small, remote commercial and industrial solid waste incinerator under U.S. Environmental Protection Agency's (USEPA's) New Source Performance Standards for Commercial and Industrial Solid Waste Incineration (CISWI) Units, 40 Code of Federal Regulations (CFR) Part 60, Subpart CCCC.

40 CFR Part 60, Subpart CCCC, Table 8 specifies the applicable emission limits, averaging times, and performance test methods for determining compliance for the following pollutants from small, remote incinerators that commenced construction after June 4, 2010:

- Particulate (PM);
- Nitrogen Oxides (NO_x);
- Visual Smoke;
- Dioxins and Furans (D/F);
- Cadmium (Cd);
- Mercury (Hg);
- Sulfur Dioxide (SO_2);
- Carbon Monoxide (CO);
- Hydrochloric Acid (HCl); and
- Lead (Pb).

During September 29 through October 2, 2013, an initial performance test was conducted to determine compliance with the emissions limits in Table 8. The measurements and analytical procedures followed during the source testing are accepted USEPA Reference Method (RM) procedures and defined in 40 CFR 60, Appendix A. The measurements results are provided in the same engineering units as the applicable emissions standards and emission rate for ease of evaluation.

Pogo retained AECOM, Technical Services, Inc. (AECOM) to perform the required emissions measurements. AECOM is located at 1601 Prospect Parkway, Fort Collins, Colorado 80525-9769. Mr. John Rosburg, AECOM Emissions Measurements Manager, is the Project Manager for this test program. Mr. Rosburg may be reached by telephone at (970) 420-0602 or by e-mail at john.rosburg@aecom.com. Ms. Sally McLeod, Pogo's Environmental Manager was responsible for the coordination of the test program and collection of process data. Ms. McLeod may be reached by telephone at (907) 895-2879, by cell phone at (907) 978-3774, or by e-mail at Sally.Mcleod@smmpogo.com. Zach Hedgpeth, USEPA Region 10, observed emission measurements performed on September 29 and 30, 2013. Robin Wagner, ADEC, observed emission measurements performed on October 1, 2013.

Four RM5/26A RM 23 and RM 29 sample runs were performed at the Unit 412 incinerator test location. In addition, 10 NO_x, SO_2, and CO continuous emission monitor system (CEMS) sample runs were conducted at the Unit 412 test location. Three RM 22 sample runs also were performed.

In addition to source testing to demonstrate compliance with the Subpart CCCC, Table 8 emission limits, the initial performance test also served to establish the seven operating limits that Pogo identified in its

petition submitted to the USEPA pursuant to 40 CFR 60.2115. In its petition, Pogo proposed the operating limits on the following parameters:

- Charge rate;
- Charge interval;
- Primary chamber temperature;
- Primary chamber burn time;
- Secondary chamber temperature;
- Secondary chamber burn time; and
- Waste composition.

In the USEPA's acceptance of Pogo's petition, it proposed establishing the waste composition limit by varying the relative amounts of each waste component on each day of testing. During a September 18, 2013, teleconference meeting with the USEPA, it was agreed that four test runs of each required method would be conducted over the four day testing period. On each day, the waste composition consisted of different percentages of its three components: municipal solid waste (MSW), sewage sludge, and cleanup adsorbs. The highest percentage of each waste component that was burned on one of those days would be established as the upper bound (provided that day's test results demonstrated compliance with applicable emission limits). On the fourth day of testing, the waste composition was composed of 100 percent MSW to determine whether an upper bound on the MSW component was necessary. Compliance with the HCl emission limit was not demonstrated while burning 100 percent MSW. Therefore, only the results of the first 3 day's test runs, comprising three valid runs of each required test method, are being used to demonstrate compliance with the applicable emission limits of Subpart CCCC and to establish the operating limits under which the incinerator will operate. The results from the day 4 testing are included in this report but are not included in the 3-run averages shown in the tables.

Table ES-1 provides the individual and average results of the measurements conducted on the first three days of testing. The results are provided in terms of pertinent concentrations (milligrams per dry standard cubic meter [mg/dscm] @ 7% oxygen [O_2], parts per million, volumetric dry [ppmvd], ppmvd @ 7% O_2, and nanograms per dry standard cubic meter [ng/dscm] @ 7% O_2). With the exception of SO_2, **Table ES-1** shows that all the Subpart CCCC emissions limits were met for the various waste-composition mixtures on the first 3 days of testing. A separate Site Specific Operating Report which provides all seven operating limits established by this performance test will be submitted by Pogo.

Table ES-0-1 Unit 412 Measurements Results Summary

Test Parameter	Units	9/29/13	9/30/13	10/1/13	3 Run Average	Emission Standard
PM	mg/dscm	86.8	56.4	75.5	72.87	270
SO_2	ppmvd	35.1	30.1	19.8	27.2	1.2
NO_x	ppmvd	93.0	79.2	86.7	85.8	170
CO	ppmvd	0.3	1.5	0.7	1.0	13
D/F	TEQ ng/dscm[1]	0.032	0.267	0.113	0.137	31
Hydrogen Chloride (HCl)	ppmvd	193	136	138	155	200
Cd	mg/dscm	0.01	0.01	0.01	0.01	0.67
Pb	mg/dscm	0.01	0.51	0.22	0.28	2.0
Hg	mg/dscm	0.0023	0.0009	0.0002	0.0011	0.0035

[1] Toxicity equivalence concentration (nano-grams per dry standard cubic meter.

Note 1: Measurement results are presented in the units of the applicable emission standards in 40 CFR Part 60, Subpart CCCC, Table 8 (results corrected to an oxygen content of 7 percent).

Note 2: Visual determinations of smoke emissions were conducted between 9/30/13 and 10/1/13 according to RM 22. A total of three observation periods of 60 minutes each were performed. The observations were performed simultaneously with particulate, metals, and D/F sample runs. The emission frequency resulted in zero percent for all three observation periods.

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1.0 Introduction

Sumitomo Metal Mining Pogo LLC (Pogo) is located near Delta Junction, Alaska. Pogo operates its incinerator under an Alaska Department of Environmental Conservation (ADEC), Air Quality Control Minor Permit Number AQ0406MSS05, issued on May 12, 2011. Pogo's incinerator, permitted as Unit 412, is used to burn non-hazardous waste.

Pogo conducted an emissions measurements evaluation of Unit 412 in order to demonstrate compliance with the Commercial and Industrial Waste Incinerator (CISWI) emission standards and to establish the operating limits identified in Pogo's petition submitted to the U.S. Environmental Protection Agency (USEPA) under Code of Federal Regulations, Title 40, Part 60.2115 (40 CFR 60.2115). The September 2013 test program was designed to evaluate Unit 412 pollutant emission rates using different waste "recipes." The field measurements of Unit 412 included the following:

- Particulate (PM);
- Nitrogen Oxides (NO_x);
- Visual Smoke;
- Dioxins and Furans (D/F);
- Cadmium (Cd);
- Mercury (Hg);
- Sulfur Dioxide (SO_2);
- Carbon Monoxide (CO);
- Hydrochloric Acid (HCl); and
- Lead (Pb).

The measurements and analytical procedures followed for this source testing are accepted USEPA Reference Method (RM) procedures and defined in the (40 CFR 60), Appendix A. The measurements results are provided in the same engineering units as the applicable emissions standards and emission rate for ease of evaluation.

Pogo retained AECOM, Technical Services, Inc. (AECOM) to perform the required emissions measurements. AECOM is located at 1601 Prospect Parkway, Fort Collins, Colorado 80525-9769. Mr. John Rosburg, AECOM Emissions Measurements Manager, is the Project Manager for this test program. Mr. Rosburg may be reached by telephone at (970) 420-0602 or by e-mail at john.rosburg@aecom.com. Ms. Sally McLeod Pogo's Environmental Manager was responsible for the coordination of the test program and collection of process data. Ms. McLeod may be reached by telephone at (907) 895-2879, by cell phone at (907) 978-3774, or by e-mail at Sally.Mcleod@smmpogo.com. Zach Hedgpeth, USEPA Region 10, observed emission measurements performed on September 29 and 30, 2013. Robin Wagner, ADEC, observed emission measurement performed on October 1, 2013.

The following test report is organized as follows: the testing approach is provided in Chapter 2.0; a description of the process and operations is provided in Chapter 3.0; source test methodology, calculations, and nomenclature are presented in Chapter 4.0; a concise description of the quality assurance/quality control (QA/QC) procedures implemented are provided in Chapter 5.0; copies of the

field data sheets used and continuous emission monitor system (CEMS) 1-minute data averages are provided in **Appendix A**; copies of the laboratory results are provided in **Appendix B**; **Appendix C** contains copies of the equipment calibrations pertinent to this test program; and located in **Appendix D** are copies of the process information recorded during the test program.

2.0 Test Approach

The test plan and protocol outlined specific methods and procedures for quantifying PM, SO_2, NO_x, CO, visual smoke, D/F, HCl, Cd, Pb, and Hg emissions results from Unit 412. All measurements procedures followed for this project are accepted USEPA RM procedures and are defined in 40 CFR 60, Appendix A. **Table 2-1** provides a test matrix for the source tested and includes the test parameter, methods followed, number of sample runs, and run duration. The test matrix shown in **Table 2-1** is based on the performance test requirements of the CISWI rule for small remote incinerators (see 40 CFR 60 Subpart CCCC, Table 8).

Table 2-1 Pogo's Unit 412 Test Matrix

Source ID	Test Type	Test Parameter	Method	Number of Runs	Minimum Run Duration
Unit 412 Incinerator	Performance Test	Sample Points	RM 1	1	NA
		Velocity	RM 2	12	60 min
		Molecular Weight (O_2 & CO_2)	RM 3A	12	NA
		Moisture	RM 4	12	60 min
		Particulate	RM 5	4	60 min
		Sulfur Dioxide	RM 6C	10	60 min
		Nitrogen Oxides	RM 7E	10	60 min
		Carbon Monoxide	RM 10	10	60 min
		Visual Smoke Observations	RM 22	3	60 min
		Dioxin/Furan	RM 23	4	120 min
		Hydrochloric Acid	RM 26A	4	60 min
		Metals (Cd, Pb, Hg)	RM 29	4	120 min

Pogo submitted a test plan to the USEPA with a copy to Robin Wagner, ADEC. The test plan included a description of the methods and procedures to be used for sampling, QA/QC activities implemented, how the source was to be operated during the test, and how Pogo was to document that operation.

The field program was performed on September 28 through October 3, 2013. On Day 1 of the field effort, AECOM prepared the equipment for testing. Days 2 through 5 entailed the performance of four combined PM and HCl sample runs, four metals (Cd, Pb, Hg) sample runs, four D/F sample runs, and 10 combined NO_x, SO_2, CO, O_2, and CO_2 sample runs. On Day 6 demobilization of the equipment and field crew, as well as, sample shipping occurred.

2.1 Equipment Preparation

All equipment was prepared and calibrated in accordance with USEPA's Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III; Stationary Source Specific Methods, 40 CFR 60, Appendix A; and AECOM's general QA/QC policy described in Chapter 5.0 of this report. These procedures meet or exceed all USEPA requirements and guidelines for equipment maintenance and calibration. All equipment was in proper working order prior during the test program.

2.2 Summary of Field Measurements

The Unit 412 incinerator test program was performed according to approved USEPA methods. The methods selected and listed in **Table 2-1** above are applicable for the determination of the pollutant parameters required by the CISWI Rule. The field measurements results, presented in the following tables, are provided in the same engineering units as the CISWI Rule emission standards to facilitate the evaluation of compliance status and determine if pollution control is necessary.

The PM/HCl, metals (Cd, Pb, Hg) and D/F samples were withdrawn isokinetically from the source and collected on the front-half and condensate portions of the sample train. The sample volumes collected during each run are specific to the pollutant parameter and dictated by the CISWI Rule. A total of four, with a minimum run time of 72-minutes, sample runs were performed for combined PM/HCl. A total of four, with sample run times of 120-minutes or greater, sample runs were performed for metals (Cd, Pb, Hg). A total of four, with run times of 120-minutes or greater, sample runs were performed for D/F.

The gaseous pollutant (SO_2, NO_x, CO) and diluents (O_2 and CO_2) parameters were measured with a CEMS. A total of 10, with 9 of them being 60-minutes or greater, sample runs were performed. Only one, 50-minute, sample run was performed on October 2 due to a failure of the permeation dryer which is the mechanism that removes moisture from the sample gas. The responses of the CEMS instruments were digitally recorded, at 1-minute intervals, using a Campbell Data Acquisition System (DAS). The CEMS' were calibrated with certified Protocol 1 calibration gas standards.

2.3 Particulate and Hydrogen Chloride Results

The particulate and HCl samples were collected simultaneously following RM 5 and RM 26A which were combined as allowed by the methods procedures. One sample was collected each of four consecutive test days. A total of 12 traverse points, each point sampled twice, through one test port, were used for each sample run. The particulate gravimetric analysis and HCl ion chromatography analysis were performed by TestAmerica located in West Sacramento, California. The particulate and HCl sample results are provided in **Table 2-2**. The table presents the recorded measured effluent parameters, calculated effluent volumetric flow rates, particulate results and HCl results.

The acetone blank residue mass is 1.4 milligrams (mg) which was subtracted from each sample's acetone residue results. The particulate concentration (milligrams per dry standard cubic meter [mg/dscm] @ 7% O_2) ranged from 56.37 mg/dscm @ 7% O_2 for Run I5-2 to 127.73 mg/dscm @ 7 % O_2 for Run I5-4. The average particulate concentration, of the first three sample runs, is 72.87 mg/dscm @ 7% O_2.

The HCl blank residue concentration results were below the detection limit; therefore, no HCl blank corrections were performed on the HCl sample results. The HCl concentration (parts per million by volume [ppmv] @ 7% O_2) ranged from 136 ppmv @ 7% O_2 for Run I5-2 to 342 ppmv @ 7% O_2 for Run I5-4. The average HCl concentration, of the first three sample runs, is 155 ppmv @ 7% O_2.

Table 2-2 Pogo's Unit 412 Particulate and Hydrogen Chloride Results

Test Parameters	I5-1 09/29/13 1106-1242	I5-2 09/30/13 1251-1410	I5-3 10/01/13 1506-1626	I5-4 10/02/13 1510-1629	Average * (Run 1-3)
Sample Time (min)	81	79	80	79	80
Vol meter (acf)	60.407	57.485	58.110	55.557	58.667
Ave. SQRT dP (in WC)1/2	0.102	0.100	0.100	0.100	0.101
dH (in WC)	1.71	1.63	1.63	1.57	1.66
T stack (F)	1151.1	1148.4	1146.6	1206.2	1148.7
T meter (F)	60.3	68.7	65.3	88.1	64.8
P static (in WC)	0.04	0.04	0.04	0.04	0.04
P bar (in Hg)	28.00	28.25	28.40	28.45	28.22
P stack (in WC)	28.00	28.25	28.40	28.45	28.22
H2O Mass Gain (g)	139.00	126.80	132.00	145.00	132.60
Yd (meter coef.)	1.003	1.003	1.003	1.003	1.003
dH @ (in WC)	1.773	1.773	1.773	1.773	1.77
Cp (pitot coef.)	0.84	0.84	0.84	0.84	0.84
Dia stack (in)	30.0	30.0	30.0	30.0	30.0
Dia nozzle (in)	0.875	0.875	0.875	0.875	0.875
CO_2 (%)	7.51	7.85	7.14	7.40	7.50
O_2 (%)	10.71	10.39	11.21	11.10	10.77
Vol meter (std) (dscf)	57.797	54.598	55.846	51.252	56.080
Vol meter (std) (dscm)	1.64	1.55	1.58	1.45	1.59
Md (lb/lb-mole)	29.63	29.67	29.59	29.63	29.63
Ms (lb/lb-mole)	28.45	28.52	28.43	28.26	28.47
Vwc	6.54	5.97	6.21	6.83	6.24
H_2O (%)	10.2	9.9	10.0	11.8	10.0
ISO (%)	99.0	97.4	98.1	94.3	98.2
Flow Rate					
Velocity (ft/s)	10.5	10.1	10.1	10.3	10.2
Vol. Flow Rate (acfm)	3,079	2,988	2,983	3,045	3,017
Vol. Flow Rate (wscfm)	944	926	931	917	934
Vol. Flow Rate (dscfm)	848	835	838	810	840
Filterable Particulate Results					
Filter Mass Gain (mg)	23.5	14.1	16.5	39.9	18.0
Acetone Rinse Mass Gain (mg)	82.0	53.2	68.1	92.2	67.8
Acetone Blank Mass Gain (mg)	1.4	1.4	1.4	1.4	1.4
Filterable Particulate Mass Gain (mg)	104.1	65.9	83.2	130.7	84.4
Particulate Concentration (lb/dscf)	3.97E-06	2.66E-06	3.28E-06	5.62E-06	3.31E-06
Particulate Concentration (gr/dscf)	0.0278	0.0186	0.0230	0.0394	0.0231
Particulate Concentration (mg/dscm)	63.61	42.63	52.61	90.06	52.95
Particulate Conc. (mg/dscm @ 7% O_2)	86.77	56.37	75.47	127.73	72.87
Particulate Emission Rate (lb/hr)	0.20	0.13	0.17	0.27	0.17
Hydrochloric Acid Results					
HCl Mass (mg)	350	240	230	530	273
HCl Concentration (lb/dscf)	1.34E-05	9.69E-06	9.08E-06	2.28E-05	1.07E-05
HCl Concentrtion (ppmv)	141	102	96	241	113
HCl Concentration (ppmv) @ 7% O2	193	136	138	342	155
HCl Emission Rate (lb/hr)	0.68	0.49	0.46	1.11	0.54

* Average results are based on the first three runs of the sample series.

2.4 Cadmium, Lead, and Mercury Results

The Cd, Pb, and Hg samples were collected simultaneously following RM 29. The first sample run was abbreviated, due to the quartz nozzle breaking due to cooling while moving from one sample port to the other sample port. The USEPA's, Mr. Zach Hedgepeth, observed the test and determined that the abbreviated first run should be considered a valid run. The second through fourth sample runs were approximately 127-minutes in duration for the following test days. A total of 12 traverse points, each point sampled twice, through one test port were used for second through fourth sample runs. The metals analysis was performed by TestAmerica located in West Sacramento, California. The Cd, Pb, and Hg sample results are provided in **Table 2-3**. The table presents the individual and average (for the first three runs) recorded, measured effluent parameters, calculated effluent volumetric flow rates, and metals results.

The Cd, Pb, and Hg blank residue concentration results are 0.06 microgram per sample (µg/sample), 8.5 ug/sample, and 0.051 µg/sample, respectively. The Cd, Pb, and Hg blank residue mass was subtracted from each sample's results.

The cadmium concentration (mg/dscm @ 7% O_2) results for each of the three sample runs ranged from 0.01 mg/dscm @ 7% O_2 for Run 129-1 to 0.0051 mg/dscm @ 7% O_2 for Run 129-2. The average cadmium concentration, of the first three sample runs, is 0.01 mg/dscm @7% O_2.

The lead concentration (mg/dscm @ 7% O_2) ranged from 0.10 mg/dscm @ 7% O_2 for Run I29-1 to 0.51 mg/dscm @ 7% O_2 for Run I29-2. The average lead concentration, of the first three sample runs, is 0.28 mg/dscm @ 7% O_2.

The mercury concentration (mg/dscm @ 7% O_2) ranged from 0.0002 mg/dscm @ 7% O_2 for Runs I29-3 and I29-4 to 0.0023 mg/dscm @ 7% O_2 for Run I29-1. The average mercury concentration, of the first three sample runs, is 0.0011 mg/dscm @ 7% O_2.

2.5 Dioxin and Furan Results

The dioxin and furan samples were collected according to the procedures of RM 23. One sample run was performed during each of four consecutive test days. The four sample runs performed were 127 minutes in duration. A total of 12 traverse points, each point sampled twice, through one test port were used for each sample run. Two sample fractions (front half and back half) were submitted to and analyzed by Analytical Perspectives of Wilmington, North Carolina. Each front half sample was composed of a probe wash and filter. Each back half sample included rinses and XAD-2 resin trap.

Included in **Table 2-4** are the individual and average (for the first three runs) recorded dioxin and furan test parameters such as stack temperature, meter temperature, pressure, etc. Also included in this table are calculations of effluent molecular weight (wet and dry), moisture content, and isokinetics. In addition, the calculated effluent volumetric flow rates are provided.

The dioxin and furan results are provided in terms of toxicity equivalence (TEQ) concentration (nano grams per cubic meter [TEQ ng/m^3], and TEQ concentration nano-grams per cubic meter corrected to 7% oxygen [TEQ ng/m^3 at 7% O_2] and TEQ emission rate (nano-grams per second [ng/s]).

Table 2-5 presents the total dioxin and furan results of the four sample runs and average of the first three sample runs. The total dioxin and furan concentration ranged from 0.0928 TEQ ng/m^3 at 7% O_2 for Run I23-4 to 0.2670 TEQ ng/m^3 @ 7% O_2 for Run I23-2. The average dioxin and furan concentration, of the first three sample runs, is 0.0011 mg/dscm @ 7% O_2.

Table 2-3 Pogo's Unit 412 Cadmium, Lead, and Mercury Results

Test Parameters	I29-1 09/29/13 1406-1506	I29-2 09/30/13 1505-1712	I29-3 10/01/13 0859-1106	I29-4 10/02/13 0845-1052	Average * (Run 1-3)
Sample Time (min)	60	127	127	127	105
Vol meter (acf)	43.625	92.412	91.847	90.120	75.961
Ave. SQRT dP (in WC)1/2	0.10	0.10	0.10	0.10	0.10
dH (in WC)	1.63	1.63	1.63	1.65	1.63
T stack (F)	1144.6	1143.7	1145.1	1127.1	1144.5
T meter (F)	70.2	69.9	62.5	49.1	67.6
P static (in WC)	0.04	0.04	0.04	0.04	0.04
P bar (in Hg)	28.00	28.25	28.40	28.45	28.22
P stack (in WC)	28.00	28.25	28.40	28.45	28.22
H_2O Mass Gain (g)	126.10	206.80	198.70	190.60	177.20
Yd (meter coef.)	1.003	1.003	1.003	1.003	1.003
dH @ (in WC)	1.773	1.773	1.773	1.773	1.773
Cp (pitot coef.)	0.84	0.84	0.84	0.84	0.84
Dia stack (in)	30.0	30.0	30.0	30.0	30.0
Dia nozzle (in)	0.874	0.875	0.875	0.875	0.875
CO_2 (%)	7.98	7.80	7.31	6.97	7.70
O_2 (%)	10.25	10.31	10.91	11.27	10.49
Vol meter (dscf)	40.952	87.569	88.730	89.527	72.417
Vol meter (dscm)	1.16	2.48	2.51	2.54	2.05
Md (lb/lb-mole)	29.69	29.66	29.61	29.57	29.65
Ms (lb/lb-mole)	28.21	28.49	28.50	28.51	28.40
Vwc	5.94	9.73	9.35	8.97	8.34
H_2O (%)	12.7	10.0	9.5	9.1	10.7
ISO (%)	99.2	97.2	97.7	97.5	98.0
Flow Rate					
Velocity (ft/s)	10.2	10.1	10.1	10.0	10.2
Vol. Flow Rate (acfm)	3,014	2,985	2,978	2,958	2,993
Vol. Flow Rate (wscfm)	928	928	930	936	929
Vol. Flow Rate (dscfm)	811	835	841	851	829
Metals Results					
Cd Mass (ug)	9.0	13.0	9.3	9.9	10.4
Cd Blank (ug)	0.060	0.060	0.060	0.060	0.060
Cd Blank Corrected mass (ug)	8.94	12.94	9.24	9.84	10.37
Cd Concentration (ug/dscm)	7.71	5.22	3.68	3.88	5.53
Cd Concentration (mg/dscm @ 7% O_2)	0.0101	0.0068	0.0051	0.0056	0.0073
Cd Concentration (lb/dscf)	4.15E-10	1.31E-10	9.14E-11	9.56E-11	2.13E-10
Cd Emission Rate (lb/hr)	2.02E-05	6.58E-06	4.61E-06	4.88E-06	1.05E-05
Pb Mass (ug)	97.0	980.0	410.0	360.0	495.7
Pb Blank (ug)	8.50	8.50	8.50	8.50	8.500
Pb Blank Corrected Mass (ug)	88.5	971.5	401.5	351.5	487.17
Pb Concentration (ug/dscm)	76.3	391.8	159.8	138.6	209.30
Pb Concentration (mg/dscm @ 7% O_2)	0.0996	0.5142	0.2223	0.2001	0.2787
Pb Concentration (lb/dscf)	4.11E-09	9.86E-09	3.97E-09	3.41E-09	5.98E-09
Pb Emission Rate (lb/hr)	0.0002	0.0005	0.0002	0.0002	0.0003
Hg Empty Mass (ug)	ND	0.08	ND	ND	0.08
Hg Front Half (ug)	0.65	0.17	0.20	0.13	0.34
Hg HCl (ug)	0.59	0.25	0.28	0.34	0.37
Hg KMnO4 (ug)	ND	ND	ND	ND	0.00
Hg H2O2 (ug)	0.87	1.20	ND	ND	1.04
Hg Blank Sum (ug)	0.051	0.051	0.051	0.051	0.051
Hg Blank Corrected Mass (ug)	2.06	1.65	0.43	0.42	1.38
Hg Concentration (ug/dscm)	1.78	0.66	0.17	0.17	0.87
Hg Concentration (mg/dscm @ 7% O_2)	0.0023	0.0009	0.0002	0.0002	0.0011
Hg Concentration (lb/dscf)	1.11E-10	4.14E-11	1.07E-11	1.03E-11	5.43E-11
Hg Emission Rate (lb/hr)	5.39E-06	2.08E-06	5.38E-07	5.27E-07	2.67E-06

* Average results are based on the first three runs of the sample series.

Table 2-4 Pogo's Unit 412 Average Measured Test Parameters

Test Parameters	I23-1 09/29/13 1722-1929	I23-2 09/30/13 0923-1130	I23-3 10/01/13 1159-1406	I23-4 10/02/13 1157-1404	Average * (Run 1-3)
Sample Time (min)	127	127	127	127	127
Vol meter (acf)	92.252	90.889	90.196	89.285	91.112
Ave. SQRT dP (in WC)1/2	0.100	0.100	0.100	0.100	0.100
dH (in WC)	1.64	1.64	1.62	1.57	1.63
T stack (F)	1136.9	1135.8	1162.7	1223.8	1145.1
T meter (F)	62.8	55.7	65.2	73.3	61.2
P static (in WC)	0.04	0.04	0.04	0.04	0.04
P bar (in Hg)	28.05	28.20	28.40	28.45	28.22
P stack (in WC)	28.05	28.20	28.40	28.45	28.22
H2O Mass Gain (g)	225.50	214.20	212.10	244.20	217.27
Yd (meter coef.)	1.003	1.003	1.003	1.003	1.003
dH @ (in WC)	1.773	1.773	1.773	1.773	1.77
Cp (pitot coef.)	0.84	0.84	0.84	0.84	0.84
Dia stack (in)	30.0	30.0	30.0	30.0	30.0
Dia nozzle (in)	0.875	0.875	0.875	0.875	0.875
CO_2 (%)	7.45	8.11	7.83	7.10	7.80
O_2 (%)	10.83	9.64	10.47	11.20	10.31
Vol meter (std) (dscf)	87.977	88.342	86.697	84.651	87.672
Vol meter (std) (dscm)	2.49	2.50	2.45	2.40	2.48
Md (lb/lb-mole)	29.63	29.68	29.67	29.58	29.66
Ms (lb/lb-mole)	28.37	28.49	28.47	28.20	28.44
Vwc	10.61	10.08	9.98	11.49	10.23
H_2O (%)	10.8	10.2	10.3	12.0	10.4
ISO (%)	98.4	98.1	96.8	97.5	97.8
Flow Rate					
Velocity (ft/s)	10.2	10.1	10.2	10.4	10.2
Vol. Flow Rate (acfm)	2,996	2,981	2,996	3,064	2,991
Vol. Flow Rate (wscfm)	929	930	926	914	928
Vol. Flow Rate (dscfm)	829	834	830	804	831

* Average results are based on the first three runs of the sample series.

Table 2-5 Pogo's Unit 412 Dioxin and Furan Results

	Run No.	I23-1		I23-2		I23-3		I23-4			
	Date	09/29/13		09/30/13		10/01/13		10/02/13		Average *	
	Time	1722-1929		0923-1130		1159-1406		1157-1404		(Run 1-3)	
Sample Volume	dscf	87.977		88.342		86.697		84.651		87.672	
Sample Volume	m³	2.49		2.50		2.46		2.40		2.48	
Moisture Content	% v/v	10.8		10.2		10.3		12.0		10.4	
O_2 Concentration	% v/v (dry)	10.83		9.64		10.47		11.20		10.31	
CO_2 Concentration	% v/v (dry)	7.45		8.11		7.83		7.10		7.80	
Isokinetics	%	98		98		97		98		98	
Stack Flow rate	dscfm	829		834		830		804		831	
PCDD / PCDF Parameters	TEF (a)	pg	ng/m³ TEQ	pg	ng/m³ TEQ	pg	ng/m³ TEQ	pg	ng/m³ TEQ	pg	ng/m³ TEQ
2,3,7,8-TCDD	1.00	2.34	9.4E-04	12.2	4.9E-03	6.58	2.7E-03	6.42	2.7E-03	7.04	2.8E-03
1,2,3,7,8-PeCDD	0.50	6.45	1.3E-03	86.3	1.7E-02	25.8	5.3E-03	21.5	4.5E-03	39.5	7.9E-03
1,2,3,4,7,8-HxCDD	0.10	13	5.2E-04	148	5.9E-03	29.9	1.2E-03	25.9	1.1E-03	63.6	2.6E-03
1,2,3,6,7,8-HxCDD	0.10	33.9	1.4E-03	209	8.4E-03	69.1	2.8E-03	40.9	1.7E-03	104.0	4.2E-03
1,2,3,7,8,9-HxCDD	0.10	18.9	7.6E-04	166	6.6E-03	44.6	1.8E-03	30.4	1.3E-03	76.5	3.1E-03
1,2,3,4,6,7,8-HpCDD	0.01	316	1.3E-03	1,670	6.7E-03	750	3.1E-03	395	1.6E-03	912	3.7E-03
OCDD	0.001	546	2.2E-04	2,600	1.0E-03	1,640	6.7E-04	989	4.1E-04	1,595	6.4E-04
2,3,7,8-TCDF	0.10	21.5	8.6E-04	107	4.3E-03	39.4	1.6E-03	40.2	1.7E-03	56	2.2E-03
1,2,3,7,8-PeCDF	0.05	18	3.6E-04	166	3.3E-03	72.6	1.5E-03	61.6	1.3E-03	85.5	1.7E-03
2,3,4,7,8-PeCDF	0.50	50	1.0E-02	450	9.0E-02	151	3.1E-02	125	2.6E-02	217	4.4E-02
1,2,3,4,7,8-HxCDF	0.10	33.4	1.3E-03	327	1.3E-02	146	5.9E-03	113	4.7E-03	169	6.8E-03
1,2,3,6,7,8-HxCDF	0.10	29.2	1.2E-03	368	1.5E-02	182	7.4E-03	123	5.1E-03	193	7.8E-03
2,3,4,6,7,8-HxCDF	0.10	54.3	2.2E-03	830	3.3E-02	372	1.5E-02	235	9.8E-03	419	1.7E-02
1,2,3,7,8,9-HxCDF	0.10	(1.71)	0.0E+00	(4.95)	0.0E+00	(4.76)	0.0E+00	(4.22)	0.0E+00	-3.81	0.0E+00
1,2,3,4,6,7,8-HpCDF	0.01	143	5.7E-04	1,630	6.5E-03	871	3.5E-03	574	2.4E-03	881	3.5E-03
1,2,3,4,7,8,9-HpCDF	0.01	27.6	1.1E-04	173	6.9E-04	199	8.1E-04	102	4.3E-04	133	5.4E-04
OCDF	0.001	142	5.7E-05	546	2.2E-04	961	3.9E-04	462	1.9E-04	550	2.2E-04
TOTAL TEQs (ng/m³)		=	0.0231		0.2167		0.0846		0.0650		0.1081
TOTAL TEQs (ng/m³ @ 7% O_2)		=	0.0317		0.2670		0.1125		0.0928		0.1371
TOTAL TEQs (ng/s)		=	0.0090		0.0853		0.0331		0.0247		0.0425

(a) U.S.EPA (1989) Toxic Equivalency Factor (TEF)

Note: Results below the detection limit are listed as the reporting limit, shown in parentheses, and treated as zero in the calculation of concentration on a TEQ basis.
EMPC - IF a result was reported as an Estimated Maximum Possible Concentration (EMPC), the EMPC result is reported as the actual conentration.

2.6 Continuous Emission Monitor Results

Ten continuous emission monitor sample runs were performed at the Unit 412 exhaust stack test location over a four day period. Each CEMS sample run included the measurements of gaseous pollutant (SO_2, NO_x, CO) and diluents (O_2 and CO_2) parameters. Prior to the initiation of the CEMS measurements, the CEMS was calibrated with USEPA Protocol 1 calibration gas standards following RMs 3A, 6C, 7E and 10. A calibration bias check of the CEMS was performed prior to the initiation and upon completion of each sample run. The CEMS response was digitally recorded and averaged at 1-minute intervals. The 1-minute data averages were used to calculate sample run averages.

As noted above, the CEMS permeation dryer, which removes moisture from the sample gas, failed 50 minutes into the first sample run (Run I29-4) performed on October 2. Therefore, no CEMS measurements could be conducted during the second (Run I23-4) and third (Run I5-4) sample runs performed that day. However, bag samples were collected during the sample runs on October 2 and subjected to the O_2 and CO_2 analyzers for the determination of sample gas molecular weight. **Table 2-6** presents the results of the CEMS sample runs. The results are presented in terms of concentration (ppmv and ppmv at 7% O_2) and emission rate (pound per hour [lb/hr]). The emission rate results provided in the table were calculated using the volumetric flow rate recorded by the corresponding isokinetic sample run conducted simultaneously with the CEMS sample run.

Table 2-6 Pogo's Unit 412 Continuous Emission Monitor System

Date	Time	Run ID	Flow Rate (dscfm)	O_2 (%)	CO_2 (%)	NO_x (ppm)	NO_x (ppm @ 7% O_2)	NO_x (lb/hr)	CO (ppm)	CO (ppm @ 7% O_2)	CO (lb/hr)	SO_2 (ppm)	SO_2 (ppm @ 7% O_2)	SO_2 (lb/hr)
09/29/13	1106-1242	I5-1	848	10.71	7.51	71.2	97.1	0.43	0.5	0.7	0.00	18.5	25.2	0.16
09/29/13	1406-1506	I29-1	811	10.25	7.98	71.7	93.5	0.42	0.0	0.0	0.00	31.6	41.2	0.26
09/29/13	1722-1929	I23-1	829	10.83	7.45	64.1	88.5	0.38	0.1	0.2	0.00	28.2	39.0	0.23
Average			829	10.59	7.65	69.0	93.0	0.41	0.2	0.3	0.00	26.1	35.1	0.22
09/30/13	0923-1129	I23-2	834	9.64	8.11	58.7	72.5	0.35	3.6	4.4	0.01	17.5	21.5	0.15
09/30/13	1251-1410	I5-2	835	10.39	7.85	64.5	85.3	0.39	0.0	0.0	0.00	26.1	34.6	0.22
09/30/13	1506-1712	I29-2	835	10.31	7.80	60.8	79.7	0.36	0.0	0.0	0.00	26.1	34.2	0.22
Average			835	10.11	7.92	61.3	79.2	0.37	1.2	1.5	0.00	23.2	30.1	0.19
10/01/13	0859-1106	I29-3	841	10.91	7.31	64.7	90.1	0.39	0.2	0.3	0.00	13.5	18.8	0.11
10/01/13	1159-1406	I23-3	830	10.47	7.83	61.0	81.3	0.36	0.0	0.0	0.00	19.4	25.8	0.16
10/01/13	1506-1626	I5-3	838	11.21	7.14	61.9	88.8	0.37	1.3	1.9	0.00	10.3	14.7	0.09
Average			836	10.86	7.43	62.5	86.7	0.38	0.5	0.7	0.00	14.4	19.8	0.12
10/02/13	0845-0938	I29-4	851	11.27	6.97	55.0	79.4	0.34	2.3	3.3	0.01	9.5	13.7	0.08
10/02/13	1157-1404	I23-4 *	804	11.20	7.10	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/02/13	1510-1629	I5-4 *	810	11.10	7.40	NA	NA	NA	NA	NA	NA	NA	NA	NA
Average			822	11.19	7.16	55.0	79.4	0.34	2.3	3.3	0.01	9.5	13.7	0.08
Average Runs 09/29/13-10/01/13			831	10.66	7.56	63.6	85.8	0.38	0.8	1.0	0.00	20.3	27.2	0.17

2.7 Visual Determination of Smoke Emissions Results

Visual determinations of smoke emissions from Unit 412 were conducted according to RM 22. A total of three observation periods of 60 minutes each were performed. The observations were performed simultaneously with particulate, metals, and D/F sample runs. **Table 2-7** presents the results of the visual observations. The emission frequency resulted in zero percent for all three observation periods.

Table 2-7 Pogo's Unit 412 Visual Determination of Smoke Results

Date	Time	Run ID	Accumulated Emission Time (seconds)	Observation Period (seconds)	Emission Frequency (%)
09/30/13	1252-1352	I5-2	0	3,600	0.0
10/01/13	0910-1010	I29-3	0	3,600	0.0
10/01/13	1208-1308	I23-3	0	3,600	0.0
Average			0	3,600	0.0

3.0 Process Description and Operation

3.1 Process Description

Unit 412 is an ACS, Inc., Model CA 400, solid waste incinerator used to reduce the amount of non-hazardous waste transported off site from the Pogo facility. The unit is fired by propane. The incinerator is equipped with one primary-chamber burner rated at 0.8 MMBtu/hr and two secondary-chamber burners each rated at 0.8 million British thermal units per hour (MMBtu/hr). The waste loading/burning capacity is an operating limit to be established during this performance test. A separate report describing the site-specific operating limits established during the test will be submitted separately.

3.2 Process Operation

The emission measurements of Unit 412 were conducted in accordance with the Test Plan and petition submitted by Pogo to the USEPA. For all measurements associated with Unit 412, all pertinent process and control device operations data were monitored and recorded. The following parameters were monitored and recorded during each sample run:

- Weight of each batch loaded into the incinerator;
- Weight of each of the 3 waste components (i.e., MSW, sludge, and adsorbs);
- Start time of each batch loaded;
- Time interval between batches loaded;
- Primary oven temperature at 5- minute intervals;
- Secondary oven temperature at 5 minute intervals;
- Primary oven burn time following loading of final batch; and
- Secondary burn time following completion of the primary burn cycle.

Table 3-1 presents a summary of the process parameters recorded during the measurements program. Included in the table is the date, time, and associated run identification (ID) of the process data collected. For each sample run, the average primary and secondary temperature (F) is listed. In addition, the total weight (lb) of each charge type and total charge weight (lb) are presented. The actual process operations data for the time periods during which testing was conducted are provided in **Appendix D** of this test report.

Table 3-1 Pogo's Unit 412 Summary of Process Operations

Date	Time	Run ID	Average Primary (F)	Average Secondary (F)	Type 2 Waste (lb)	Type 3 Waste (lb)	Sludge (lb)	Adsorbs (lb)	Total Charge (lb)
9/29/2013	1106-1242	I5-1	1,471	1,827	84	50	29	29	192
9/29/2013	1406-1508	I29-1	1,525	1,826	44	28	128	33	233
9/29/2013	1721-1929	I23-1	1,453	1,828	52	21	200	61	334
9/30/2013	0923-1129	I23-2	1,369	1,812	71	132	88	80	371
9/30/2013	1251-1410	I5-2	1,480	1,827	20	24	114	53	211
9/30/2013	1505-1712	I29-2	1,542	1,826	13	118	116	118	365
10/1/2013	0858-1155	I29-3	1,358	1,825	133	183	30	24	370
10/1/2013	1158-1405	I23-3	1,518	1,826	70	204	56	80	410
10/1/2013	1505-1625	I5-3	1,475	1,828	72	101	29	21	223
10/2/2013	0846-1053	I29-4	1377	1825	205	180	0	0	385
10/2/2013	1157-1404	I23-4	1460	1825	166	221	0	0	387
10/2/2013	1511-1630	I5-4	1398	1757	100	140	0	0	240

4.0 Methodology

The testing program was performed according to the following accepted and approved USEPA RMs as contained in the USEPA's Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods, 40 CFR 60, Appendix A. The general procedures that were followed for this measurements evaluation included:

- RM 1 – Sample Velocity Traverse for Stationary Sources;
- RM 2 – Determination of Stack Gas Velocity and Volumetric Flow Rate (Type-S Pitot Tube);
- RM 3A – Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure);
- RM 4 – Determination of Moisture Content In Stack Gases;
- RM 5 – Determination of Particulate Matter Emissions from Stationary Sources;
- RM 6C – Determination of Sulfur Dioxide Emissions from Stationary Sources (Instrumental Analyzer Procedure);
- RM 7E – Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure);
- RM 10 – Determination of Carbon Monoxide Emissions from Stationary Sources;
- RM 22 – Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares
- RM 023 – Determination of Polychlorinated Dibenzo-p-dioxin and Polychlorinated Dibenzofuran Emissions from Municipal Waste Combustors;
- RM 26A – Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources Isokinetic Method; and
- RM 29 – Determination of Metals Emissions from Stationary Sources.

4.1 Support Measurements for Stack Parameters

USEPA RMs 1 through 4 were performed in support of the emissions measurements procedures selected for quantifying pollutant emission rates. RM 1, selection of sample points for velocity and particulate traverses, was conducted prior to the initiation of any emission measurements at the test location. The determination of stack gas flow rate, molecular weight, and moisture content (RMs 2 through 4) were integrated into and performed concurrently with each isokinetic sample run.

4.1.1 Selection of Traverse Points by Reference Method 1

USEPA RM 1, "Sample Velocity Traverses for Stationary Sources," was followed for the selection of measurement points at the test location. The physical characteristics of the test location meet the minimum criteria of RM 1 for isokinetic sampling. The calculated measurement points were used for all isokinetic sample runs. A copy of the RM 1 data form completed prior to sampling is located in **Appendix A** of this report.

4.1.2 Flow Rate Determination by Reference Method 2

USEPA RM 2, "Determination of Stack Gas Velocity and Volumetric Flow Rate (Type-S Pitot Tube)," was followed to measure the volumetric flow rate during each sample run at the sample location. This method was incorporated into, and conducted concurrently with, each isokinetic sample run.

RM 2 allows for a stainless steel Type-S or standard pitot tube to be connected to a differential pressure gauge (inclined manometer). The measured pressure differential, observed at each traverse point, was recorded on field data forms and used in determining the overall emission rate for each constituent.

In addition to velocity pressures, gas temperatures were measured and recorded concurrently with all differential pressure data. The temperature was measured with a Type K thermocouple located at the measurement tip of the pitot tube (in the same measurement plane). The Type K thermocouple was connected directly to a calibrated digital temperature indicator for accurate measurements.

4.1.3 Molecular Weight Determination by Reference Method 3

USEPA RM 3A, “Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure),” was conducted concurrently with the pollutant measurements at the test location. During the first sample day, integrated gas samples were collected in Tedlar bags and subjected to a combination O_2/CO_2 analyzer. During the second and third sample days, sample gas was continuously extracted from the Unit 412 exhaust stack and directed to a combination O_2/CO_2 analyzer. Diluent O_2 and CO_2 data collected during the course of the sampling was used to determine effluent gas dry molecular weight in accordance with USEPA RM 3A. The results of the O_2 and CO_2 analysis were used for the determination of effluent molecular weight.

USEPA RM 3A analyzer calibration requirements include three point calibrations using USEPA Protocol 1 gas standards, and stringent instrument drift requirements. Calibrations will be completed at 80 to 100 percent of the full span value, 40 to 60 percent of the full span value, and 0 percent of the full span value (ultra-pure nitrogen for both analyzers).

The O_2/CO_2 analyzer was subjected to a zero and two up-scale calibration gases prior to and upon completion of the sample runs when they were used continuously. The gas standards were certified and traceable to USEPA Protocol 1 specifications, which require that the gas concentration be within ±1 percent of the documented value. The response of the analyzers compared to each certified calibration standard must be within ±2 percent of the high calibration gas standard (CS) value for each component as required by the method.

To calibrate the instruments, the gas standards were introduced directly to the monitors at the sample inlet located on the back of each instrument. For the continuous measurements, the amount of bias of the O_2/CO_2 instrument also was determined. This was accomplished by introducing zero and one span gas to the instrument at the point at which the sample probe and heated sample filter are connected. The response of the analyzers to the direct zero and span gases (bias check) must be less than ±5 percent of the span value for each component as required by the method. The bias calibration check was performed prior to and upon completion of each sample run.

The magnitude of calibration drift was calculated for each continuous sample run. Calibration drift is the difference in the initial (pre-test) bias calibration response and the final (post-test) bias calibration response for the same gas standard. The calibration drift must be within ±3 percent of the CS over each sample run for each O_2/CO_2 gas standard as required by RM 3A.

4.1.4 Percent Moisture Determination by Reference Method 4

USEPA RM 4, “Determination of Moisture Content in Stack Gases,” was incorporated into each isokinetic sample run. The determination of moisture content was accomplished by using a condenser and pump assembly, connected between a sample probe and metering system and performed concurrently with each sample run.

Throughout each isokinetic sample run, a known volume of gas (measured by a dry gas meter) was passed through the condenser assembly. Upon completion of each sample run, the total amount of condensate collected was gravimetrically measured and the net gain calculated. The total moisture gain,

volume of gas extracted, and measured meter temperature data were used to calculate the actual moisture content of the effluent.

4.2 Particulate Determination by Reference Method 5

USEPA RM 5, “Determination of Particulate Matter Emissions from Stationary Sources” was followed to determine particulate emission rates. Each RM 5 was conducted in accordance with all applicable USEPA quality assurance requirements

Samples were withdrawn isokinetically (100 percent ± 10 percent) from the source using a modular isokinetic sampling system. The sampling train consisted of a quartz glass nozzle and probe assembly, heated stainless steel probe with an S-Type pitot tube attached, a heated filter, four chilled impingers, and a metering console. The particulate sample was collected on a quartz fiber filter supported by a Teflon frit and maintained at a temperature of 248 ± 25°F. The impinger train was consistent with RM 5.

The system vacuum was used to extract the effluent gas through the interconnected, leak-free components. The entire system was “leak checked” before and after each individual sample run to ensure sample integrity following RM 5 procedures.

A “K-factor” (coefficient) was determined prior to the initiation of each sample run. This coefficient was based upon preliminary measurements of gas temperature, flow rate, pressure, and moisture content. Multiplying the K-factor by the measured differential pressure was used to determine the isokinetic sample rate for each sample point. If a variable changed during a sample run, the coefficient was adjusted to maintain isokinetic sampling rates. At isokinetic conditions, the velocity of the stack gas entering the nozzle of the extraction system will be equal to the effluent velocity at the sample point.

The quartz filter was removed from the filter holder and placed in a Petri dish and sealed. The impingers were recovered following RM 5 procedures. The RM 5 sample recovery was conducted in accordance with all applicable USEPA quality assurance requirements.

4.3 Sulfur Dioxide Determination by Reference Method 6C

Sulfur dioxide emissions were quantified at the Unit 412 exhaust stack according to USEPA RM 6C, “Determination of Sulfur Dioxide Emissions from Stationary Sources (Instrumental Analyzer Procedure).” This method allows for the determination of SO_2 concentrations by continuously extracting stack effluent and directing a portion of the sample to an SO_2 analyzer. An AMETEK Model 921M UV photometric SO_2 monitor was used to measure the concentration (parts per million [ppm] by volume) of the effluent at the test location on a dry basis.

RM 6C provides rigorous analyzer calibration requirements, including three point calibrations using USEPA Protocol 1 gas standards, and stringent instrument drift requirements. Calibrations were performed at 80 to 100 percent of the span value, 40 to 60 percent of the span value, and 0 percent of the span value (ultra-pure nitrogen).

The SO_2 analyzer was subjected to the zero and two up-scale calibration gases prior to and upon completion of the test series. The gas standards were certified and traceable to USEPA Protocol 1 specifications, which require that the gas concentration be within ±1 percent of the documented value. The response of the analyzer compared to each certified calibration standard must be within ±2 percent of the CS value for each component. To calibrate the instrument, the gas standards were introduced to the inlet of the SO_2 RM analyzer before and upon completion of each test series. The amount of bias of the SO_2 RM system was determined before and after each sample run. This was accomplished by delivering zero and one span gas directly to the point where the sample probe and heated sample filter were connected. The response of the analyzer to the bias checks must be less than ±5 percent of the span value for each check.

The magnitude of calibration drift also was calculated. Calibration drift is the difference in the initial bias calibration response check and the final bias calibration response check for the same gas standard. The calibration drift must be within ±3 percent of the span for each sample run.

4.4 Nitrogen Oxides Determination by Reference Method 7E

USEPA RM 7E, "Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)," was used to accomplish the Unit 412 NO_X measurements. This method allows for the determination of NO_X concentrations by continuously extracting effluent from the stack and directing a portion of the sample to a NO_X analyzer. A TEI Model 42C Chemiluminescent NO_X analyzer was used to measure the concentration (ppm by volume) of the effluent at the stack on a dry basis.

USEPA RM 7E provides rigorous analyzer calibration requirements, including three point calibrations using USEPA Protocol 1 gas standards, and stringent instrument drift requirements. Calibrations were completed at 80 to 100 percent of the span value, 40 to 60 percent of the span value, and zero percent of the span value (ultra-pure nitrogen).

The NO_X analyzer was subjected to a zero and two up-scale calibration gases prior to the performance of the sample runs. The gas standards were certified and traceable to USEPA Protocol 1 specifications, which require that the gas concentration is within ±1 percent of the documented value. The response of the analyzer compared to each certified calibration standard must be within ±2 percent of the CS for each component.

To calibrate the instrument, the gas standards were introduced directly to the NO_X monitor at the sample inlet located on the back of the instrument. The amount of bias of the NO_X CEMS was determined. This was accomplished by introducing zero and one span gas to the NO_X system at the point in which the sample probe and heated sample filter were connected. The response of the analyzer system to the zero and span gas (bias check) must be less than ±5 percent of the CS for each component. The bias calibration check was performed prior to, and upon completion of, each sample run

The magnitude of calibration drift also was calculated. Calibration drift is the difference in the initial (pre-test) bias calibration response and the final (post-test) bias calibration response for the same gas standard. The calibration drift must be within ±3 percent of the CS each sample run for each gas standard.

4.5 Carbon Monoxide Determination by Reference Method 10

The CO measurements were conducted according to USEPA RM 10, "Determination of Carbon Monoxide Emissions from Stationary Sources." Sample gas was continuously extracted from the test location and directed to a TEI Model 48C, Gas Filter Correlation (GFC), NDIR CO instrument for analysis. The GFC feature of the CO analyzer eliminates potential interference by substances, which absorb infrared energy.

USEPA RM 10 provides rigorous analyzer calibration requirements, including three point calibrations using USEPA Protocol 1 gas standards, and stringent instrument drift requirements. Calibrations were completed at 80 to 100 percent of the span value, 40 to 60 percent of the span value, and zero percent of the span value (ultra-pure nitrogen).

The CO analyzer was subjected to a zero and two up-scale calibration gases prior to the performance of the sample runs. The gas standards were certified and traceable to USEPA Protocol 1 specifications, which require that the gas concentration is within ±1 percent of the documented value. The response of the analyzer compared to each certified calibration standard must be within ±2 percent of the CS for each component.

To calibrate the instrument, the gas standards were introduced directly to the CO monitor at the sample inlet located on the back of the instrument. The amount of bias of the CO CEMS was determined. This was accomplished by introducing zero and one span gas to the CO system at the point in which the sample probe and heated sample filter are connected. The response of the analyzer system to the zero and span gas (bias check) must be less than ±5 percent of the CS for each component. The bias calibration check was performed prior to, and upon completion of, each sample run.

The magnitude of calibration drift was also calculated. Calibration drift is the difference in the initial (pre-test) bias calibration response and the final (post-test) bias calibration response for the same gas standard. The calibration drift must be within ±3 percent of the CS each sample run for each gas standard.

4.6 Visual Determination of Smoke Emissions by Reference Method 22

This method is applicable for the determination of the frequency of smoke emission from stationary sources. Smoke emissions produced during source operations are observed without the aid of instruments. This method determines the amount of time that visible emissions occur during an observation period (the accumulated emission time). This method does not require the determination of opacity emissions.

4.7 Dioxins and Furans Determination by Reference Method 23

USEPA RM 23, “Determination of Polychlorinated Dibenzo-p-dioxin and Polychlorinated Dibenzofuran Emissions from Municipal Waste Combustors,” was followed to determine D/F concentrations and emissions from the Unit 412 test location.

4.7.1 Sample Train Component Preparation

All glass parts of the sample train, including the sorbent trap, were pre-cleaned prior to sampling according to the following procedures.

- Soak in hot soapy water (Alconox) at 50 degrees Celsius (°C) or higher;
- Rinse three times with tap water;
- Rinse three times with deionized water;
- Rinse three times with pesticide grade acetone;
- Rinse three times with pesticide grade methanol/methylene chloride;
- Bake at 450 degrees Fahrenheit (ºF) for 2 hours; and
- Seal with clean Teflon tape.

The glassware was sealed with Teflon tape followed by aluminum foil until sample train assembly. Following sample recovery, the glassware was reused at the same sampling location as allowed by the method.

The XAD-2 resin traps were pre-cleaned and prepared by Analytical Perspectives. Each sorbent trap was charged with 20 to 30 grams of the precleaned resin and the five surrogate compounds listed in Table 2 of RM 23 were added to the resin. Care was taken to ensure that the resin was kept at temperatures below 120°F during shipment and before and after sample collection to prevent resin decomposition. The time between charging the trap and use in the field was minimized and was not allowed to exceed 14 days. The sorbent traps were shipped from Analytical Perspectives to the Pogo facility under strict chain-of-custody (COC) documentation.

4.7.2 Sample Collection

Samples for D/F were withdrawn isokinetically from the source using an RM 23 sampling train as depicted in **Figure 4-1**. The sampling train consisted of a quartz glass nozzle and probe liner, a pretreated glass fiber filter maintained at a temperature of 248°F ± 25°F, a water-cooled condenser, a sorbent trap containing XAD-2 resin, five chilled impingers, and a metering console. The water-cooled condenser and sorbent trap were arranged in a manner that allows the condensate to drain vertically through the trap. Gas entering the trap was maintained at or below 68°F. The first impinger (optional knockout) was empty, the second and third impingers each contained 100 ml of HPLC water, the fourth was empty, and the fifth contained pre-weighed silica gel. Sealing greases were not used on any portion of the sample train.

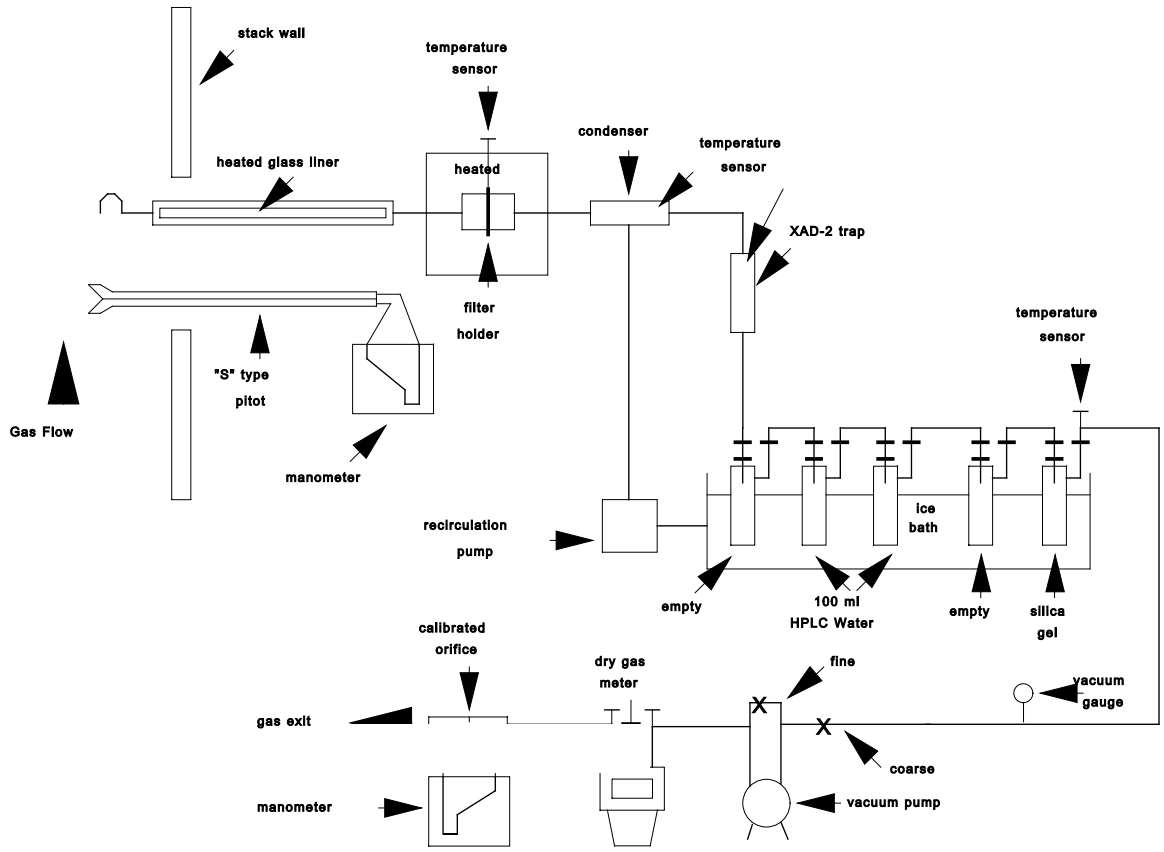

Figure 4-1 Reference Method 23 Sampling Train

4.7.3 Sample Recovery

Recovery of the samples and assembly of the sample trains for reuse was conducted in a dust-free environment. Each impinger and the XAD-2 trap was weighed prior to and at the conclusion of each sample run. The volume of water vapor condensed in the impingers, XAD resin, and silica gel was summed and entered into moisture content calculations.

All sample-exposed components of the sampling train were rinsed with acetone and methylene chloride (rinses recovered per RM 23), and toluene. Sample containers from a typical run include the following.

- Container 1 – Filter(s);
- Container 2 – Rinses of nozzle, probe, and front-half of filter holder and rinses of back-half of filter holder and condenser;
- Container 3 – XAD cartridge and resin;
- Container 4 – Impinger contents; and
- Container 5 – Silica gel.

The samples, comprised of containers 1 through 3, were shipped to Analytical Perspectives, Inc. under strict COC documentation. Appropriate shipping containers were used to keep the samples cool during shipping.

4.7.4 Sample Analysis

The RM 23A samples were analyzed by Analytical Perspectives, Inc. in strict accordance with Analytical Perspective's QA Program. The filter(s), XAD-2 resin, toluene and methylene chloride rinses were analyzed for tetra-octa (4-8) D/F according to USEPA RM 23 with high-resolution gas chromatography/high resolution mass spectrometry. All extracts from one run were analyzed in separate front half and back half sample fractions.

4.7.5 Data Reduction

The D/F results are expressed in terms of toxicity equivalents (TEQ), as specified in 40 CFR 63.1342. The D/F congeners (tetra, hepta, hexa and octa) were converted to TEQ using toxicity equivalence factors (TEFs), as the summation of the TEFs of the congeners, multiplied by their relative concentrations.

Any D/F congeners that are reported by Analytical Perspectives, Inc. as nondetected (below the method detection limit ND) are counted as zero for the purpose of calculating the total D/F TEQ concentration for that sample, as specified in RM 23 (§7.4).

4.8 Hydrogen Chloride Determination by Reference Method 26A

USEPA RM 26A, "Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources Isokinetic Method," was followed for the determination of HCl emissions at the Unit 412 test location. This method was performed in conjunction with the particulate measurement procedures as allowed by the methods. Included in the RM 26A sampling system was a calibrated quartz glass nozzle and probe assembly, stainless steel probe, insulated filter oven, glass filter holder and tared quartz-fiber filter, condenser assembly, and calibrated extraction system. The system vacuum extracted the effluent sample gas through the interconnected, leak-free components. The entire system was "leak checked" before and after each individual sample run to ensure sample integrity.

A "K-factor" (coefficient) was determined prior to the initiation of each RM 26A sample run. This coefficient was based upon preliminary measurements of gas temperature, flow rate, pressure, and moisture content. Multiplying the K-factor by the measured differential pressure at each sample point provided for isokinetic sample rates for each sample point. If a variable changed during a sample run, the coefficient was adjusted to maintain isokinetic sample rates. At isokinetic conditions, the velocity of the stack gas entering the nozzle of the extraction system was equal to the effluent velocity at the sample point.

The condenser assembly consisted of a series of five glass impingers with glass inserts interconnected to each other by glass U-tubes, providing a "leak tight" seal with 28/15 ball and socket connections. The

first and second impingers contained sulfuric acid (H_2SO_4). The third and fourth impingers contained sodium hydroxide (NaOH). The fifth impinger was filled with a pre-weighed amount of silica gel to capture any residual moisture from the sample stream. The impinger train was set in an ice bath to maintain the extracted gas outlet temperature at or below 70°F. By cooling the sample, all water vapor and gases were condensed and collected.

Three valid sample runs were performed at the test location. Upon completion of each sample run, the probe was removed from the effluent and allowed to cool. A leak check of the sampling system was then performed to verify the integrity of the system. The leak rate must not exceed 0.02 actual cubic feet per minute (acfm) in order for the test to be considered valid.

Each sample train was carefully recovered. The H_2SO_4 solution in the first two impingers was quantitatively recovered in a glass sample container. The impingers and connecting glassware were then rinsed with water and added to the same sample jar. The contents of the third and fourth impingers were placed in a glass sample jar. The silica gel from the fifth impinger was weighed to determine the moisture gain.

Portions of the H_2SO_4 absorbing reagent was collected for a blank and diluted to the approximate volume of the corresponding sample jars with rinse water from the same wash bottle used. All liquid levels were marked. The H_2SO_4 sample jars and reagent blanks were sent to TestAmerica located in West Sacramento, California, for HCl analysis by ICPMS.

4.9 Metals Determination by Reference Method 29

USEPA RM 29, “Determination of Metals Emissions from Stationary Sources,” will be followed to determine the metals (Cd, Pb, Hg) emission rates exhausted by Unit 412. Included in the RM 29 sampling system will be a calibrated glass or Teflon coated stainless steel nozzle, stainless steel probe, glass or Teflon probe liner, insulated filter oven, glass filter holder, and tared quartz-fiber filter, condenser assembly, and calibrated extraction system. The system vacuum will be used to extract the effluent gas through the interconnected, leak-free components. The entire system will be “leak checked” before and after each individual sample run to ensure sample integrity.

A “K-factor” (coefficient) will be determined prior to the initiation of each mercury sample run. This coefficient will be based upon preliminary measurements of gas temperature, flow rate, pressure, and moisture content. Multiplying the K-factor by the measured differential pressure will determine the isokinetic sample rate for each sample point. If a variable changes during a sample run, the coefficient will be adjusted to maintain isokinetic sampling rates. At isokinetic conditions, the velocity of the stack gas entering the nozzle of the extraction system will be equal to the effluent velocity at the sample point.

4.9.1 Sampling by Reference Method 29

By this method, Cd, Pb, and Hg emissions were withdrawn isokinetically from the selected source, collected on a heated quartz fiber filter (maintained at a controlled temperature of 248 ± 25°F), and passed through a series of chilled impingers containing solutions of nitric acid/hydrogen peroxide (HNO_3/H_2O_2) and potassium permanganate ($KMnO_4$) as shown in **Figure 4-2**.

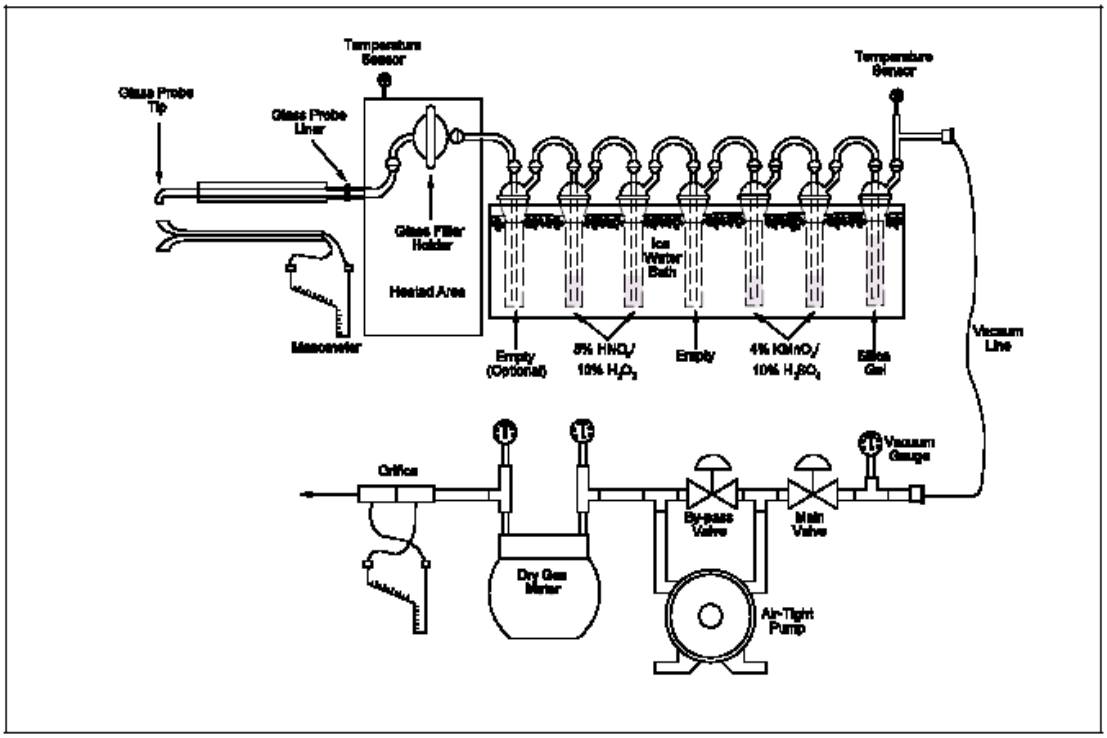

Figure 4-2 Reference Method 29 Sampling Train

The sample components were recovered in separate front-half (probe wash and filter) and back-half (impinger solutions) fractions. The front-half and back-half components were rinsed with 0.1 normal (N) nitric acid (HNO_3) to capture all residue and collected in their respective containers. The probe wash, digested filter, and aliquots of impinger solutions were analyzed for the selected metals by inductively coupled plasma-mass spectroscopy (ICPMS) analysis or cold vapor atomic absorption (CVAA) analysis.

The condenser assembly consisted of a series of six glass impingers with glass inserts interconnected to each other by glass U tubes, providing a “leak tight” seal with 28/15 ball and socket connections. The first and second impingers contained HNO_3/H_2O_2. The third impinger was left empty. The fourth and fifth impingers contained $KMnO_4$.The sixth impinger was filled with a pre-weighed amount of silica gel to capture any residual moisture from the sample stream. The impinger train was set in an ice bath to maintain the extracted gas outlet temperature at or below 70°F. By cooling the sample, all water vapor and gases were condensed and collected. **Table 4-1** describes the condensate (impinger) train configuration for RM 29 testing including the $KMnO_4$ impingers which are exclusive to mercury capture and analysis.

Prior to sampling, the impingers and their contents were weighed and the initial weights recorded. Upon completion of sampling, the impingers were removed from the ice bath and the moisture gain determined gravimetrically by subtracting the final weight from the initial weight for each impinger.

Three valid sample runs were performed for each of the processes being tested. Upon completion of each sample run, the probe was removed from the exhaust stack and allowed to cool. A leak check of the sampling system was then performed to verify the integrity of the system. The leak rate must not exceed 0.02 actual cubic feet per minute (acfm), in order for the test to be considered valid.

Table 4-1 Reference Method 29 Condensate (Impinger) Train

Impinger No.	Contents	Configuration
1	100 ml HNO_3/H_2O_2	Straight
2	100 ml HNO_3/H_2O_2	Greenburg-Smith
3	Empty	Straight
4	100 ml $KMnO_4$ (Optional)	Straight
5	100 ml $KMnO_4$ (Optional)	Straight
6	200 - 300 grams Silica Gel	Straight

Each sample train was carefully recovered. The filter was removed from its sample holder with Teflon-coated or non-metallic tweezers and placed in a labeled petri dish. The nozzle, probe, and front-half of the filter holder were first rinsed with 0.1 $NHNO_3$ to collect any of the selected metals that adhered to the front-half components. The rinse was quantitatively recovered in a glass sample container. The contents of the first two impingers were placed in a glass sample jar and the contents of the third impinge were placed in a separate sample jar. The impingers and filter back-half were then rinsed with 100 ml of 0.1 $NHNO_3$ and added to the respective same sample jar. The contents of the fourth and fifth impingers were placed in a glass sample jar; these impingers were then rinsed with 100 ml of $KMnO_4$ and added to the same sample jar. The silica gel from the sixth impinger was weighed to determine moisture gain.

4.9.2 Analyses by Reference Method 29

Each recovered sample was composed of five fractions: a filter, HNO_3 front-half wash, HNO_3/H_2O_2 impinger contents with rinse, empty impinge with rinse and $KMnO_4$ impinger contents and rinse. The filters were digested and added to the probe wash for mercury analysis. Proportional aliquots of the probe rinse (front-half of the sample train) and samples recovered from impingers 1 and 2 and rinses, empty impinge, and rinse (back-half of the sample train) were combined and analyzed for selected metals by ICPMS and mercury by CVAA.

4.10 Calculations and Nomenclature

The following section presents the calculations for determining flow rate, molecular weight, and moisture content. In addition, calculations for the determination of particulate concentration and pollutant emission rate are provided below. The nomenclature for each calculation also is defined.

Calculations

Stack Pressure (in Hg):

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

Volume of Water Collected (scf):

$$V_{wc(std)} = 0.04707 \times MG$$

Gas Meter Volume at Standard Conditions (dscf):

$$V_{m(std)} = V_m \times Y_d \times \left(\frac{T_{std}}{P_{std}}\right) \times \left(\frac{P_b + \frac{\Delta H_{avg}}{13.6}}{T_{m(avg)}}\right)$$

Fractional Moisture Content (dimensionless):

$$B_{ws} = \frac{V_{wc(std)}}{V_{wc(std)} + V_{m(std)}}$$

Moisture Content (%):

$$H_2O\% = B_{ws} \times 100$$

Molecular Weight (dry, lb/lb-mole):

$$M_d = (0.44 \times \% CO_2 + (0.32 \times \% O_2) + (0.28 \times (100 - \% CO_2 - \% O_2))$$

Molecular Weight (wet, lb/lb-mole):

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

Velocity (feet per second):

$$v_s = 85.49 \text{ x } C_p \text{ x } \sqrt{\Delta p} \text{ x } \sqrt{\frac{T_s}{P_s \text{ x } M_w}}$$

Flow Rate (actual cubic feet per minute):

$$Q_a = V_s \times A_s \times 60$$

Flow Rate (dry standard cubic feet per minute):

$$Q_s = Q_a \times (1 - B_{ws}) \times 17.64 \times \left(\frac{P_s}{T_s}\right)$$

Percent Isokinetic (%):

$$\% I = \frac{0.09450 \text{ x } T_s \text{ x } V_{m(std)}}{P_s \text{ x } v_s \text{ x } A_n \text{ x } \Theta \text{ x } (1 - B_{ws})}$$

Particulate Concentration (lb/dscf):

$$C_{particulate} = \frac{MG_{particulate}}{453.5924 \; x \; V_{m(std)}}$$

Particulate Emission Rate (lb/hr):

$$E_p = C_{particulate} \; x \; dscfm \; x \; 60$$

Gaseous Pollutant Concentration (dry, ppm):

$$C_{gas} = (C^{/} - C_o) \times \left(\frac{C_{ma}}{C_m - C_o} \right)$$

Gaseous Pollutant Emission Rate (lb/hr):

$$E_{gas} = \frac{C_{gas} \; x \; MW \; x \; Q_s \; x \; 60}{385 \; x \; 1{,}000{,}000}$$

Emissions of D/F (ng TEQ/dscm):

$$\mathrm{C}_{(\mathrm{D/F})\mathrm{T}} = \frac{\sum_{i=1}^{n} C_{(\mathrm{D/F})_i} TEF_i}{V_{m(std)}} \; \frac{ng}{1{,}000\, pg} \; \frac{(20.9 - 7)}{(20.9 - \%O_2)}$$

<u>Nomenclature</u>

A_n Cross-Sectional Area of the Nozzle (square feet)

A_s Cross-Sectional Area of the Stack (square feet)

B_{ws} Water Vapor in Gas Stream (proportional by volume)

C' Average Gas Concentration Indicated by Analyzer, dry basis (ppm)

CC Confidence Coefficient (one tailed, 2.5% error)

C_{gas} Corrected Effluent Gas Concentration, dry basis (ppm)

C_m Average of Initial and Final System Calibration Bias Check Responses for the Upscale Calibration Gas (ppm)

C_{ma} Actual Concentration of Upscale Calibration Gas (ppm)

C_o Average of Initial and Final System Calibration Bias Check Responses for the Zero Gas (ppm)

C_p Pitot Tube Coefficient, Dimensionless (0.84 for Type-S)

$C_{particulate}$ Particulate Concentration (lb//dscf)

$C_{(D/F)I}$ Concentration of D/F congener i in sample (pg/liter)

$C_{(D/F)T}$ Total concentration of D/F congeners in sample (ng/liter)

D/F Stack concentration of polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (ng TEQ/dscm)

ΔP Average Velocity Head of Gas (in WC)

E_p Particulate Emission Rate (lb/hr)

$H_2O\%$ Moisture Content of Gas Stream (%)

M_d Molecular Weight of Stack Gas, dry basis (lb/lb-mole)

M_s Molecular Weight of Stack Gas, wet basis (lb/lb-mole)

$MG_{particulate}$ Particulate mass gain (mg)

MW Molecular Weight of Pollutant (SO_2 = 64, NO_X = 46, CO = 28)

ng nanograms (10^{-9} grams)

pg picograms (10^{-12} grams)

P_b Uncorrected Barometric Pressure (in Hg)

P_g Static Pressure of Stack Gas (in WC)

P_s Absolute Pressure of Stack Gas (in Hg)

P_{std} Standard Absolute Pressure (29.92 in. Hg)

$\%CO_2$ Percent Carbon Dioxide, Dry Basis

$\%O_2$ Percent Oxygen, Dry Basis

%I Isokinetic sample rate (%)

Q_a Actual Flow Rate (acfm)

Q_s Dry Standard Flow Rate (dscfm)

RM Reference Method (RM 6C, RM 7E or RM 10) Data Average (Arithmetic Mean)

$T_{m(avg)}$ Average DGM Absolute Temperature (°R)

T_s Average Stack Gas Temperature (°R)

V_s Average Gas Velocity (feet per minute)

T_{std} Standard Absolute Temperature (528 °R)

V_m Dry Gas Volume as Measured by the DGM (dcf)

$V_{m(std)}$ Dry Gas Volume Corrected to Standard Conditions (dscf)

$V_{wc(std)}$ Volume of H_2O Collected in Impingers and Silica Gel Corrected to Standard Conditions (ml)

Y_d DGM Calibration Factor

Θ Sample Time (minutes)

5.0 Quality Assurance/Quality Control

5.1 Objectives

The objectives of AECOM's QA/QC program are as follows:

- To continually monitor the precision and accuracy of the data being generated for all source emission measurements.
- To implement measures designed to control the precision and accuracy of all data generated for individual sources.
- To maintain permanent records of analytical QC data and equipment calibrations that include traceability and certification.
- To identify, document, and maintain a COC log, which accounts for each method sample collected during each measurement program.

5.2 Field Program

All primary, USEPA-approved testing procedures selected for this test program are referenced in 40 CFR 60, Appendix A. No deviations from these procedures were expected or necessary. All field personnel responsible for this emission test program strictly followed the procedures dictated by the applicable test methods.

All field test personnel involved with this test program are experienced and trained in field sampling methods and procedures. Each field personnel was assigned key responsibilities in phases of sample collection, sample recovery, COC, and transportation of samples. Basic responsibilities for field personnel include, but are not limited to:

Record keeping. Field personnel recorded all pertinent test parameters and relevant observations on the appropriate field data forms.

Safety requirements. Field personnel are familiar with all company safety regulations and are provided with all the necessary safety equipment.

Sample handling. Field personnel are trained in the proper procedures for handling samples including: use of sample containers, sample preservation, identification, storage of collected samples, and COC.

Instrumentation. Specific field personnel are trained in the proper operation, calibration, trouble shooting, and maintenance of the instrumentation intended for this program. This includes the use of pumps, control console(s), samplers, and instrumentation.

Quality control (QC). Field personnel are trained in all aspects of QC that relate directly to the specific reference method test procedures, sample handling, analyses, and reporting.

Mr. John Rosburg, of AECOM, is the designated field manager and was responsible for coordinating testing activities with Pogo and ADEC. He provided answers to questions concerning test methodology, QC, and all other project aspects. The field manager also was responsible for delegating work assignments to the members of the test crew, making sure all QA/QC procedures are carried out, and documenting all field activities in a bound log book.

All field instrumentation was maintained and calibrated according to all applicable USEPA guidelines. Records of instrument maintenance and calibration are kept in historical files and continually updated. Calibrations of all field instrumentation, at a minimum, meet or exceed the mandated procedures stipulated in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III. All

documentation of calibrations are maintained on file at all times. Calibration documentation for the equipment used in this test program is provided in the appendices of this test report.

5.3 Sample Documentation

All field data collected for each selected reference method test procedure was documented on field data forms. Each form, specific to each particular sample run, included information as to the source tested, date and time of sample collection, analyst(s) performing the test, and all data necessary for test validation. Each field data sheet was completed by the responsible technician at the time of the test and checked by the Field Manager for accuracy and completeness after each test series. Copies of all raw field data sheets are included in the appendices of this test report, with the originals maintained in project files at AECOM's Fort Collins office.

Sample containers utilized for the collection and storage of samples are specific to each test procedure. Filter substrates were maintained in individually labeled polyethylene Petri dishes sufficient in size to receive the samples unaltered and with the exposed surface protected from sample loss.

Collection of all blanks was specific to each test performed. The field blanks were collected at the test location and subjected to the same ambient conditions as the samples. This type of blank was collected for each reagent used in each test series and analyzed in the same manner as the sample itself.

Each recovered sample was labeled with standard sample tags and uniquely identified. The tags provided information regarding the unit tested, sample location, date and time of collection, reagent(s) used, and the test number. The sample containers were sealed, liquid level marked (if applicable), and properly stored until they were transported to the laboratory.

Standard COC forms were completed before any samples were transported to the laboratory. This procedure is dictated by the USEPA and strictly adhered to by AECOM. Each sample was tagged with a COC tag, which requires the same information as the field sample label.

5.4 Analytical Quality Control

All analytical procedures used for this program are approved by the USEPA and referenced in 40 CFR 60 (where applicable). AECOM's QA/QC program meets or exceeds USEPA standards. All particulate gravimetric analysis was performed by TestAmerica in West Sacramento, California. The D/F XAD-2 resin traps and filters were prepared by Analytical Perspectives of Wilmington, North Carolina, who also performed the sample RM 23 analyses. The metals (Cd, Pb, Hg) and HCl analyses were performed by TestAmerica.

5.5 Data Reduction, Validation, and Reporting

AECOM has implemented specific measures to ensure that reliable data is generated as a result of the sampling and analytical activities of every field program. The objective of this phase of AECOM's QA/QC program is to follow the proper collection of representative and QA field and analytical data with approved data reduction methods and equations.

All calculations are performed using QA spreadsheets incorporating standard accepted equations, as required by the applicable pollutant specific sampling methodology. Data reduction was performed by qualified engineers or data analysts familiar with standard engineering practices and approved methods. Calculation methods and equations, including conversion factors and units, are defined in this test report to allow the reviewer to easily reproduce the final results from the raw field data and process information provided in the appendices of the report. This final report includes all raw data, QA/QC documentation, and process data collected during the test program. The initial draft of this test report, including both narrative and calculations, was subjected to review by the project manager and/or Principal-in-Charge, prior to final publication.

Appendix A

Field Data Forms and CEMS Data

AECOM

RM 1 - Minimum Number of Traverse Points

Client	Sumitomo Metal Mining Inc.
Location	Delta Junction, AK
Source	Incinerator
Operator	J. Rosburg

Stack Diameter (in)	30		
Upstream Distance (in)	36	Diameters	1.2
Downstream Distance (in)	144	Diameters	4.8
Port Depth (in)	4.0		
Port Diameter (in)	4		

Location of Traverse Points in Circular Stacks

Traverse Point Number	Number of traverse points (% of stack diameter from inside wall)						
	6	8	10	12	16	20	24
1	4.4	3.2	2.6	2.1	1.6	1.3	1.1
2	14.5	10.5	8.2	6.7	4.9	2.9	3.2
3	29.6	19.4	14.6	11.8	8.5	6.7	5.5
4	70.4	32.3	22.6	17.7	12.5	9.7	7.9
5	85.4	67.7	34.2	25.0	16.9	12.9	10.5
6	95.6	80.6	66.8	35.6	22.0	16.5	12.2
7		89.5	77.4	64.4	28.3	20.4	16.1
8		96.8	85.4	75.0	37.5	25.0	19.4
9			91.8	82.3	62.5	30.6	23.0
10			97.4	88.2	71.7	38.8	27.2
11				93.3	78.0	61.2	32.3
12				97.9	83.1	69.4	39.8
13					87.5	75.0	60.2
14					91.5	79.6	67.7
15					95.1	83.5	72.8
16					98.4	87.1	77.0
17						90.3	80.6
18						93.3	83.9
19						96.1	86.8
20						98.7	88.6
21							92.1
22							94.5
23							96.8
24							99.9

Distance (in)	Distance with port (in)
1.0	5.0
2.0	6.0
3.5	7.5
5.3	9.3
7.5	11.5
10.7	14.7
19.3	23.3
22.5	26.5
24.7	28.7
26.5	30.5
28.0	32.0
29.0	33.0

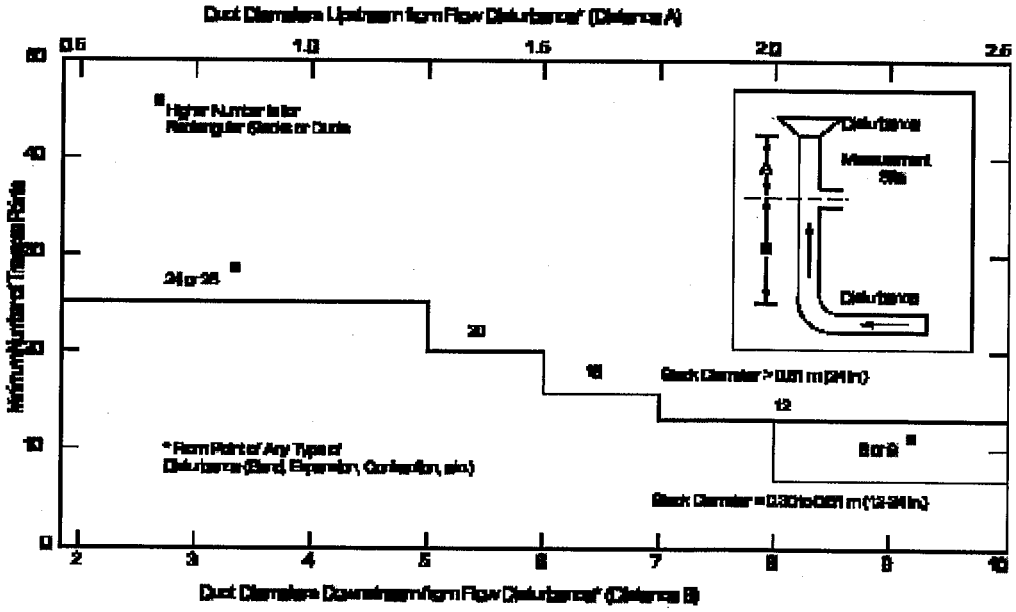

Table 1
Continuous Emissions Measurements Results
Run I5-1
09/29/13

Time (1-min)	NOx (ppm)	NOx (ppm Cor.)	NOx (lb/hr)	CO (ppm)	CO (ppm Cor.)	CO (lb/hr)	SO2 (ppm)	SO2 (ppm Cor.)	SO2 (lb/hr)	O2 (%)	O2 (% Cor.)	CO2 (%)	CO2 (% Cor.)
1106	56.1	56.9	0.35	-0.2	0.1	0.00	1.9	1.2	0.01	11.98	11.95	5.86	6.21
1107	56.5	57.3	0.35	-0.2	0.1	0.00	2.6	1.8	0.01	12.79	12.76	5.58	5.92
1108	177.7	180.3	1.10	-0.6	-0.3	0.00	52.1	51.6	0.44	9.06	9.02	8.80	9.35
1109	189.8	192.6	1.17	0.4	0.7	0.00	48.3	47.7	0.40	11.13	11.09	7.32	7.77
1110	192.3	195.1	1.19	0.7	1.0	0.00	57.8	57.2	0.48	10.62	10.58	7.55	8.02
1111	171.2	173.7	1.06	1.1	1.4	0.01	49.1	48.5	0.41	10.92	10.88	7.25	7.70
1112	144.6	146.7	0.89	2.4	2.7	0.01	40.3	39.6	0.34	10.73	10.69	7.35	7.80
1113	116.8	118.5	0.72	3.8	4.0	0.01	36.8	36.2	0.31	10.70	10.66	7.25	7.70
1114	81.4	82.6	0.50	4.5	4.7	0.02	33.0	32.4	0.27	9.62	9.58	7.95	8.44
1115	58.1	59.0	0.36	1.7	1.9	0.01	25.3	24.6	0.21	9.35	9.31	7.97	8.46
1116	47.8	48.6	0.30	-0.2	0.1	0.00	18.5	17.8	0.15	10.13	10.09	7.46	7.92
1117	46.9	47.6	0.29	-0.3	0.0	0.00	14.1	13.3	0.11	10.02	9.98	7.49	7.95
1118	52.0	52.8	0.32	-0.5	-0.2	0.00	12.1	11.3	0.10	10.54	10.50	7.06	7.50
1119	51.6	52.4	0.32	-0.5	-0.2	0.00	10.1	9.3	0.08	11.62	11.58	6.35	6.74
1120	56.3	57.1	0.35	-0.4	-0.1	0.00	8.7	7.9	0.07	11.53	11.49	6.44	6.84
1121	57.7	58.6	0.36	-0.4	-0.1	0.00	8.3	7.6	0.06	11.70	11.66	6.24	6.62
1122	64.9	65.9	0.40	-0.4	-0.1	0.00	7.9	7.1	0.06	11.98	11.95	6.05	6.42
1123	56.5	57.3	0.35	-0.2	0.1	0.00	8.4	7.6	0.06	12.31	12.28	5.81	6.17
1124	54.2	55.0	0.33	1.3	1.6	0.01	8.9	8.1	0.07	12.13	12.10	6.18	6.56
1125	43.8	44.5	0.27	0.1	0.4	0.00	13.6	12.8	0.11	9.23	9.19	8.06	8.56
1126	44.3	44.9	0.27	-0.4	-0.1	0.00	15.7	14.9	0.13	9.88	9.84	7.51	7.97
1127	46.2	47.0	0.29	-0.4	-0.1	0.00	15.1	14.3	0.12	10.38	10.34	7.27	7.72
1128	45.7	46.4	0.28	-0.5	-0.1	0.00	15.4	14.6	0.12	9.98	9.94	7.45	7.91
1129	51.0	51.8	0.31	-0.6	-0.3	0.00	16.2	15.4	0.13	10.22	10.18	7.23	7.68
1130	49.9	50.6	0.31	-0.6	-0.3	0.00	15.3	14.5	0.12	10.98	10.94	6.74	7.16
1131	51.4	52.2	0.32	-0.5	-0.2	0.00	13.4	12.7	0.11	10.59	10.55	7.03	7.46
1132	53.5	54.3	0.33	-0.6	-0.3	0.00	13.2	12.5	0.11	10.57	10.53	6.98	7.41
1133	51.2	52.0	0.32	-0.6	-0.3	0.00	12.4	11.6	0.10	11.13	11.09	6.57	6.97
1134	54.5	55.4	0.34	-0.6	-0.3	0.00	12.1	11.4	0.10	10.87	10.83	6.83	7.25
1135	53.2	54.0	0.33	-0.6	-0.3	0.00	12.2	11.4	0.10	10.60	10.56	6.95	7.37
1136	53.0	53.9	0.33	-0.7	-0.4	0.00	12.2	11.4	0.10	11.16	11.12	6.51	6.91
1137	55.5	56.4	0.34	-0.6	-0.3	0.00	11.2	10.4	0.09	11.23	11.19	6.57	6.98
1138	51.9	52.7	0.32	-0.6	-0.3	0.00	10.7	10.0	0.08	10.93	10.89	6.70	7.12
1139	53.7	54.5	0.33	-0.7	-0.3	0.00	10.8	10.0	0.08	11.22	11.18	6.51	6.91
1140	64.1	65.1	0.40	-0.7	-0.4	0.00	22.7	22.0	0.19	10.41	10.37	7.89	8.38
1141	108.5	110.1	0.67	-0.6	-0.3	0.00	42.8	42.2	0.36	9.77	9.73	8.46	8.99
1142	61.4	62.3	0.38	-0.8	-0.5	0.00	32.9	32.3	0.27	9.38	9.34	8.26	8.77
1143	50.8	51.6	0.31	-1.0	-0.7	0.00	21.5	20.8	0.18	9.87	9.83	7.93	8.42
1144	55.4	56.2	0.34	-1.0	-0.7	0.00	18.7	17.9	0.15	10.06	10.02	7.66	8.13
1145	53.0	53.8	0.33	-1.0	-0.7	0.00	16.3	15.5	0.13	11.23	11.19	6.87	7.29
1146	55.8	56.6	0.34	-1.0	-0.7	0.00	13.6	12.9	0.11	10.83	10.79	7.15	7.59
1147	62.5	63.4	0.39	-1.1	-0.8	0.00	12.8	12.0	0.10	11.12	11.08	6.82	7.24
1148	60.5	61.4	0.37	-1.0	-0.7	0.00	12.0	11.3	0.10	11.96	11.93	6.27	6.65
1149	65.5	66.4	0.40	-0.9	-0.6	0.00	11.4	10.6	0.09	11.61	11.57	6.53	6.93
1150	66.2	67.2	0.41	-1.0	-0.7	0.00	10.9	10.1	0.09	11.50	11.46	6.51	6.90
1151	69.3	70.4	0.43	-1.0	-0.7	0.00	10.6	9.9	0.08	11.99	11.96	6.13	6.50
1152	61.6	62.5	0.38	-0.8	-0.5	0.00	12.1	11.3	0.10	10.83	10.79	7.04	7.47
1153	57.4	58.3	0.35	-1.0	-0.7	0.00	13.0	12.2	0.10	10.09	10.05	7.38	7.84
1154	63.0	64.0	0.39	-1.1	-0.8	0.00	12.4	11.6	0.10	10.61	10.57	6.96	7.39
1155	66.8	67.8	0.41	-1.0	-0.7	0.00	11.1	10.3	0.09	10.99	10.95	6.82	7.23
1156	62.9	63.8	0.39	0.7	0.9	0.00	9.8	9.0	0.08	11.93	11.90	6.20	6.58
1157	60.9	61.8	0.38	-0.9	-0.6	0.00	10.2	9.4	0.08	10.76	10.72	6.90	7.33
1158	57.0	57.9	0.35	-1.2	-0.9	0.00	11.1	10.4	0.09	11.19	11.15	6.61	7.01
1159	61.9	62.8	0.38	-1.3	-1.0	0.00	13.2	12.5	0.11	10.40	10.36	7.25	7.70
1200	63.0	64.0	0.39	-1.4	-1.1	0.00	16.8	16.1	0.14	9.85	9.81	7.54	8.01
1201	59.8	60.7	0.37	-1.5	-1.2	0.00	18.5	17.8	0.15	10.49	10.45	7.08	7.52
1202	61.5	62.4	0.38	-1.4	-1.1	0.00	18.7	18.0	0.15	9.95	9.91	7.53	8.00
1203	62.7	63.7	0.39	-1.5	-1.1	0.00	18.4	17.7	0.15	9.98	9.94	7.40	7.86
1204	59.1	60.0	0.37	-1.5	-1.1	0.00	17.1	16.3	0.14	10.84	10.80	6.85	7.27
1205	61.2	62.1	0.38	-1.4	-1.1	0.00	16.0	15.3	0.13	10.32	10.28	7.27	7.72
1206	62.6	63.6	0.39	-1.4	-1.1	0.00	15.9	15.2	0.13	10.33	10.29	7.18	7.62
1207	61.0	61.9	0.38	-1.4	-1.1	0.00	15.1	14.3	0.12	11.28	11.24	6.49	6.89
1208	67.3	68.3	0.42	-1.4	-1.1	0.00	13.1	12.4	0.10	11.56	11.52	6.41	6.80
1209	66.8	67.8	0.41	-1.4	-1.0	0.00	12.8	12.1	0.10	11.47	11.43	6.38	6.77
1210	72.0	73.1	0.44	-1.4	-1.0	0.00	12.4	11.7	0.10	11.92	11.89	6.03	6.39
1211	60.4	61.3	0.37	-1.0	-0.7	0.00	13.4	12.6	0.11	11.64	11.60	6.32	6.71
1212	55.6	56.4	0.34	-1.3	-0.9	0.00	13.6	12.8	0.11	11.17	11.13	6.55	6.95
1213	187.2	190.0	1.15	59.6	59.0	0.22	68.2	67.7	0.57	9.12	9.08	8.88	9.43
1214	124.3	126.1	0.77	31.3	31.1	0.11	36.6	35.9	0.30	11.65	11.61	7.12	7.56
1215	74.2	75.3	0.46	0.6	0.9	0.00	32.9	32.2	0.27	10.14	10.10	7.87	8.36
1216	54.3	55.1	0.34	-0.6	-0.3	0.00	24.1	23.4	0.20	9.78	9.74	7.91	8.40
1217	52.9	53.7	0.33	-1.3	-0.9	0.00	17.9	17.2	0.15	10.55	10.51	7.40	7.86
1218	57.4	58.2	0.35	-1.6	-1.2	0.00	14.9	14.2	0.12	10.08	10.04	7.62	8.09
1219	59.3	60.2	0.37	-1.6	-1.3	0.00	13.2	12.5	0.11	11.24	11.20	6.75	7.16
1220	65.6	66.6	0.41	-1.5	-1.2	0.00	10.9	10.1	0.09	11.29	11.25	6.77	7.18
1221	63.6	64.5	0.39	-1.5	-1.2	0.00	9.9	9.1	0.08	11.24	11.20	6.66	7.07
1222	60.5	61.4	0.37	-1.5	-1.2	0.00	9.1	8.4	0.07	12.20	12.17	5.97	6.34
1223	66.8	67.8	0.41	-1.4	-1.1	0.00	8.6	7.9	0.07	11.99	11.96	6.19	6.57
1224	66.6	67.6	0.41	-1.4	-1.1	0.00	8.7	8.0	0.07	11.90	11.87	6.15	6.52
1225	65.7	66.7	0.41	-1.5	-1.2	0.00	11.3	10.6	0.09	11.00	10.96	6.75	7.16
1226	60.5	61.4	0.37	-1.5	-1.2	0.00	11.9	11.2	0.09	10.64	10.60	7.02	7.45
1227	60.8	61.7	0.38	-1.6	-1.3	0.00	12.1	11.3	0.10	10.30	10.26	7.15	7.59
1228	62.5	63.5	0.39	-1.5	-1.2	0.00	11.8	11.1	0.09	11.16	11.12	6.54	6.94
1229	65.8	66.8	0.41	-1.3	-0.9	0.00	15.4	14.6	0.12	10.94	10.90	7.12	7.56
1230	116.2	117.9	0.72	-1.9	-1.6	-0.01	39.0	38.4	0.32	9.80	9.76	8.04	8.54
1231	120.8	122.6	0.75	-1.7	-1.3	0.00	38.6	38.0	0.32	10.77	10.73	7.43	7.89
1232	116.8	118.5	0.72	-1.8	-1.5	-0.01	39.6	38.9	0.33	10.18	10.14	7.79	8.27
1233	100.6	102.1	0.62	-1.1	-0.8	0.00	39.3	38.7	0.33	9.82	9.78	8.01	8.51
1234	78.4	79.6	0.48	0.3	0.6	0.00	39.7	39.0	0.33	9.76	9.72	7.89	8.38
1235	60.0	60.9	0.37	-0.7	-0.4	0.00	33.7	33.0	0.28	9.28	9.24	8.25	8.76
1236	50.1	50.9	0.31	-1.8	-1.5	-0.01	32.5	31.8	0.27	9.09	9.05	8.14	8.64
1237	51.1	51.9	0.32	-2.1	-1.8	-0.01	25.1	24.4	0.21	10.46	10.42	7.33	7.78
1238	54.3	55.1	0.34	-2.1	-1.7	-0.01	20.8	20.1	0.17	10.02	9.98	7.53	8.00
1239	56.2	57.1	0.35	-2.1	-1.7	-0.01	19.2	18.5	0.16	10.65	10.61	7.04	7.47
1240	55.9	56.7	0.34	-2.0	-1.7	-0.01	16.8	16.1	0.14	10.89	10.85	6.99	7.42
1241	55.9	56.8	0.35	-2.1	-1.7	-0.01	16.6	15.9	0.13	10.48	10.44	7.16	7.60
Ave	70.1	71.2	0.43	0.2	0.5	0.00	19.2	18.5	0.16	10.75	10.71	7.07	7.51

Table 2
Continuous Emissions Measurements Results
Run I29-1
09/29/13

Time (1-min)	NOx (ppm)	NOx (ppm Cor.)	NOx (lb/hr)	CO (ppm)	CO (ppm Cor.)	CO (lb/hr)	SO2 (ppm)	SO2 (ppm Cor.)	SO2 (lb/hr)	O2 (%)	O2 (% Cor.)	CO2 (%)	CO2 (% Cor.)
1406	69.9	70.7	0.41	-1.4	-0.3	0.00	18.4	17.8	0.14	11.01	10.99	6.75	7.19
1407	74.7	75.6	0.44	-1.2	-0.1	0.00	17.4	16.8	0.14	12.22	12.21	5.94	6.32
1408	91.7	92.8	0.54	0.8	1.8	0.01	29.4	29.0	0.23	9.67	9.65	8.27	8.82
1409	139.8	141.4	0.82	0.7	1.7	0.01	36.9	36.7	0.30	9.59	9.57	8.34	8.89
1410	139.9	141.5	0.82	-1.2	-0.1	0.00	40.3	40.1	0.32	9.76	9.74	8.25	8.79
1411	131.0	132.5	0.77	-1.7	-0.6	0.00	45.5	45.4	0.37	9.30	9.28	8.46	9.02
1412	112.7	114.0	0.66	-1.7	-0.7	0.00	46.4	46.3	0.37	9.19	9.17	8.54	9.10
1413	114.2	115.5	0.67	-1.7	-0.7	0.00	45.7	45.6	0.37	8.81	8.78	8.59	9.16
1414	94.6	95.7	0.56	-1.6	-0.6	0.00	37.4	37.1	0.30	9.52	9.50	8.17	8.71
1415	80.1	81.0	0.47	-1.7	-0.6	0.00	36.5	36.3	0.29	8.52	8.49	8.73	9.31
1416	53.6	54.3	0.32	-1.7	-0.6	0.00	34.0	33.7	0.27	9.65	9.63	7.87	8.39
1417	46.9	47.5	0.28	-1.7	-0.7	0.00	26.7	26.3	0.21	9.36	9.34	8.14	8.68
1418	49.6	50.2	0.29	-1.8	-0.7	0.00	26.1	25.7	0.21	9.58	9.56	7.84	8.36
1419	49.8	50.4	0.29	-1.7	-0.7	0.00	21.4	20.9	0.17	10.54	10.52	7.29	7.77
1420	53.6	54.3	0.32	-1.8	-0.7	0.00	22.3	21.7	0.18	9.93	9.91	7.65	8.15
1421	55.3	55.9	0.33	-1.8	-0.7	0.00	21.0	20.4	0.17	10.57	10.55	7.13	7.60
1422	52.1	52.7	0.31	-1.8	-0.7	0.00	18.2	17.6	0.14	10.77	10.75	7.12	7.59
1423	57.9	58.6	0.34	-1.6	-0.6	0.00	19.7	19.1	0.15	10.84	10.82	6.99	7.45
1424	59.2	59.9	0.35	-1.3	-0.3	0.00	26.4	25.9	0.21	10.79	10.77	7.35	7.83
1425	70.0	70.8	0.41	-1.6	-0.5	0.00	36.0	35.7	0.29	9.34	9.32	8.23	8.77
1426	90.7	91.8	0.53	-1.2	-0.2	0.00	41.5	41.3	0.33	10.78	10.76	7.31	7.79
1427	84.0	85.0	0.49	-1.6	-0.5	0.00	48.4	48.4	0.39	9.23	9.21	8.24	8.78
1428	93.0	94.1	0.55	-1.8	-0.7	0.00	43.2	43.1	0.35	9.12	9.10	8.41	8.97
1429	82.2	83.2	0.48	-1.9	-0.8	0.00	43.7	43.6	0.35	8.64	8.61	8.51	9.07
1430	57.9	58.6	0.34	-2.0	-0.9	0.00	37.6	37.4	0.30	9.66	9.64	7.91	8.43
1431	46.0	46.6	0.27	-1.9	-0.9	0.00	35.7	35.4	0.29	9.23	9.21	8.14	8.68
1432	46.4	46.9	0.27	-2.0	-0.9	0.00	33.4	33.0	0.27	9.53	9.51	7.83	8.35
1433	47.4	47.9	0.28	-2.1	-1.0	0.00	29.3	28.9	0.23	10.53	10.51	7.22	7.69
1434	52.1	52.7	0.31	-2.0	-0.9	0.00	26.5	26.1	0.21	9.93	9.91	7.64	8.14
1435	53.3	53.9	0.31	-2.0	-1.0	0.00	27.8	27.4	0.22	10.54	10.52	7.10	7.57
1436	53.6	54.2	0.32	-2.0	-0.9	0.00	22.1	21.5	0.17	10.75	10.73	7.08	7.54
1437	58.5	59.2	0.34	-2.0	-1.0	0.00	24.8	24.3	0.20	10.42	10.40	7.19	7.66
1438	62.3	63.0	0.37	-2.0	-1.0	0.00	22.1	21.5	0.17	11.37	11.36	6.57	7.00
1439	58.8	59.5	0.35	-1.6	-0.5	0.00	20.3	19.8	0.16	11.94	11.93	6.28	6.68
1440	116.0	117.3	0.68	-1.9	-0.9	0.00	39.5	39.3	0.32	9.85	9.83	8.24	8.78
1441	100.7	101.9	0.59	-2.1	-1.1	0.00	47.8	47.7	0.39	9.48	9.46	8.30	8.85
1442	58.1	58.8	0.34	-2.2	-1.1	0.00	45.4	45.3	0.37	9.02	9.00	8.33	8.88
1443	55.9	56.5	0.33	-2.3	-1.2	0.00	38.3	38.1	0.31	10.38	10.36	7.33	7.81
1444	51.4	52.0	0.30	-2.2	-1.1	0.00	32.2	31.8	0.26	10.51	10.49	7.31	7.79
1445	55.4	56.1	0.33	-2.2	-1.1	0.00	30.3	29.9	0.24	10.45	10.43	7.20	7.67
1446	54.9	55.6	0.32	-2.2	-1.1	0.00	28.6	28.2	0.23	11.35	11.34	6.63	7.06
1447	56.7	57.4	0.33	-2.2	-1.1	0.00	26.4	25.9	0.21	10.79	10.77	7.05	7.51
1448	59.1	59.8	0.35	-2.2	-1.1	0.00	26.0	25.6	0.21	10.88	10.86	6.86	7.31
1449	57.3	57.9	0.34	-2.2	-1.1	0.00	26.0	25.5	0.21	11.63	11.62	6.42	6.84
1450	61.2	62.0	0.36	-2.2	-1.2	0.00	22.8	22.3	0.18	11.05	11.03	6.80	7.24
1451	67.1	67.9	0.39	-2.3	-1.2	0.00	22.8	22.3	0.18	11.06	11.04	6.70	7.13
1452	73.2	74.1	0.43	-2.2	-1.2	0.00	22.1	21.6	0.17	11.89	11.88	6.13	6.53
1453	67.5	68.3	0.40	-2.3	-1.2	0.00	19.6	19.0	0.15	11.84	11.83	6.26	6.67
1454	74.0	74.9	0.44	-2.2	-1.2	0.00	21.0	20.5	0.17	11.63	11.62	6.31	6.72
1455	72.6	73.5	0.43	-1.9	-0.8	0.00	25.7	25.3	0.20	11.33	11.32	6.71	7.15
1456	103.4	104.6	0.61	-2.3	-1.2	0.00	46.5	46.4	0.38	9.51	9.49	8.27	8.82
1457	81.6	82.6	0.48	-2.3	-1.2	0.00	48.0	48.0	0.39	9.59	9.57	8.22	8.76
1458	57.5	58.1	0.34	-2.3	-1.2	0.00	46.3	46.2	0.37	9.09	9.07	8.50	9.06
1459	51.5	52.1	0.30	-2.3	-1.2	0.00	43.8	43.6	0.35	9.48	9.46	8.04	8.57
1500	57.3	57.9	0.34	-2.3	-1.2	0.00	40.5	40.3	0.33	10.14	10.12	7.71	8.22
1501	65.3	66.0	0.38	-2.3	-1.2	0.00	42.6	42.5	0.34	9.76	9.74	7.80	8.31
1502	68.6	69.4	0.40	-2.3	-1.2	0.00	35.5	35.2	0.28	10.89	10.87	7.00	7.46
1503	66.2	67.0	0.39	-2.3	-1.2	0.00	30.3	29.9	0.24	10.71	10.69	7.19	7.66
1504	68.7	69.5	0.40	-2.3	-1.2	0.00	28.5	28.1	0.23	10.60	10.58	7.15	7.62
1505	70.5	71.3	0.41	-2.3	-1.2	0.00	25.5	25.0	0.20	11.24	11.23	6.66	7.10
1506	66.9	67.7	0.39	-2.3	-1.2	0.00	24.4	23.9	0.19	11.34	11.33	6.71	7.15
Ave	70.8	71.7	0.42	-1.9	-0.8	0.00	31.9	31.6	0.26	10.26	10.25	7.49	7.98

Table 3
Continuous Emissions Measurements Results
Run I23-1
09/29/13

Time (1-min)	NOx (ppm)	NOx (ppm Cor.)	NOx (lb/hr)	CO (ppm)	CO (ppm Cor.)	CO (lb/hr)	SO2 (ppm)	SO2 (ppm Cor.)	SO2 (lb/hr)	O2 (%)	O2 (% Cor.)	CO2 (%)	CO2 (% Cor.)
1722	76.9	78.0	0.46	0.1	0.0	0.00	4.2	4.0	0.03	11.91	11.90	6.07	6.48
1723	77.1	78.2	0.46	0.3	0.2	0.00	5.6	5.4	0.04	13.22	13.22	5.26	5.61
1724	82.7	83.9	0.50	0.3	0.2	0.00	20.6	20.1	0.17	9.69	9.67	8.13	8.68
1725	106.0	107.5	0.64	-0.1	-0.1	0.00	39.7	39.1	0.32	9.72	9.70	7.81	8.34
1726	57.0	57.8	0.34	0.0	-0.1	0.00	27.6	27.0	0.22	10.63	10.62	7.09	7.57
1727	58.3	59.1	0.35	-0.1	-0.1	0.00	19.0	18.6	0.15	10.96	10.95	6.90	7.38
1728	63.1	64.0	0.38	-0.1	-0.1	0.00	17.5	17.1	0.14	10.85	10.84	6.89	7.36
1729	63.1	64.0	0.38	-0.1	-0.1	0.00	16.0	15.7	0.13	11.50	11.49	6.38	6.81
1730	65.6	66.5	0.40	0.1	0.0	0.00	14.4	14.1	0.12	11.61	11.60	6.62	6.86
1731	68.3	69.3	0.41	0.2	0.2	0.00	15.0	14.7	0.12	11.17	11.16	6.66	7.11
1732	66.1	67.0	0.40	0.3	0.3	0.00	15.7	15.4	0.13	11.66	11.65	6.27	6.69
1733	70.6	71.6	0.43	0.4	0.4	0.00	15.2	15.9	0.13	11.83	11.82	6.27	6.69
1734	67.4	68.3	0.41	0.5	0.5	0.00	15.1	15.8	0.13	11.38	11.37	6.60	6.93
1735	74.7	75.7	0.45	0.6	0.6	0.00	14.6	14.3	0.12	11.47	11.46	6.38	6.81
1736	72.1	73.1	0.43	0.5	0.5	0.00	13.2	12.9	0.11	12.22	12.21	5.89	6.28
1737	74.5	75.5	0.45	0.4	0.3	0.00	12.5	12.2	0.10	11.91	11.90	6.18	6.59
1738	74.7	75.7	0.45	0.5	0.5	0.00	12.7	12.4	0.10	11.86	11.85	6.13	6.54
1739	70.7	71.7	0.43	0.5	0.4	0.00	16.8	16.5	0.14	12.13	12.12	5.97	6.37
1740	64.5	65.4	0.39	0.6	0.5	0.00	21.2	20.8	0.17	10.85	10.84	7.09	7.57
1741	55.2	56.0	0.33	0.2	0.2	0.00	25.4	25.0	0.21	9.80	9.78	7.70	8.22
1742	54.0	54.8	0.33	0.2	0.2	0.00	23.6	23.2	0.19	10.65	10.64	7.04	7.52
1743	60.9	61.7	0.37	0.3	0.2	0.00	19.8	19.4	0.16	11.23	11.22	6.76	7.22
1744	60.0	60.8	0.36	0.5	0.4	0.00	21.0	20.6	0.17	10.77	10.76	6.99	7.46
1745	63.6	64.4	0.38	0.3	0.2	0.00	20.5	20.1	0.17	11.21	11.20	6.61	7.06
1746	67.5	68.5	0.41	0.3	0.2	0.00	18.3	18.0	0.15	11.67	11.66	6.42	6.85
1747	66.0	67.0	0.40	0.3	0.3	0.00	18.8	18.4	0.15	11.10	11.09	6.71	7.16
1748	67.8	68.5	0.41	0.3	0.3	0.00	18.4	18.0	0.15	11.68	11.67	6.26	6.68
1749	71.8	72.8	0.43	0.3	0.3	0.00	18.8	18.4	0.14	11.77	11.76	6.33	6.76
1750	69.4	70.4	0.42	0.3	0.2	0.00	18.9	18.5	0.15	11.23	11.22	6.61	7.05
1751	59.1	60.0	0.36	0.3	0.3	0.00	28.1	27.6	0.23	10.28	10.27	7.23	7.72
1752	47.7	48.4	0.29	0.3	0.2	0.00	35.7	35.1	0.29	9.80	9.78	7.60	8.11
1753	45.1	45.7	0.27	0.3	0.3	0.00	33.4	32.8	0.27	9.33	9.31	7.81	8.34
1754	62.3	63.2	0.38	0.2	0.1	0.00	23.6	23.2	0.19	11.50	11.49	6.33	6.76
1755	72.4	73.4	0.44	0.4	0.3	0.00	19.6	19.2	0.16	12.17	12.16	6.08	6.49
1756	65.2	66.1	0.39	0.3	0.3	0.00	20.4	20.0	0.17	10.88	10.87	7.17	7.65
1757	57.5	58.3	0.35	-0.1	-0.1	0.00	31.1	30.5	0.25	9.56	9.54	8.03	8.57
1758	55.7	56.4	0.34	0.0	0.0	0.00	29.0	28.5	0.24	9.64	9.62	7.98	8.52
1759	60.4	61.2	0.36	-0.2	-0.2	0.00	27.7	27.2	0.23	9.49	9.47	7.86	8.39
1800	59.9	60.8	0.36	0.0	0.0	0.00	23.8	23.4	0.19	10.49	10.48	7.31	7.80
1801	53.7	54.5	0.32	0.0	-0.1	0.00	22.6	22.2	0.18	10.09	10.08	7.47	7.98
1802	53.0	53.8	0.32	0.0	-0.1	0.00	22.0	21.6	0.18	10.77	10.76	6.93	7.40
1803	55.5	56.3	0.33	0.0	-0.1	0.00	18.7	18.3	0.15	11.29	11.28	6.70	7.15
1804	53.9	54.6	0.32	0.1	0.0	0.00	18.5	18.1	0.15	10.73	10.72	6.98	7.45
1805	57.5	58.3	0.35	0.0	-0.1	0.00	18.8	18.4	0.15	10.97	10.96	6.73	7.18
1806	58.3	59.1	0.35	0.0	0.0	0.00	16.3	16.0	0.13	11.70	11.69	6.36	6.79
1807	56.7	57.5	0.34	0.1	0.0	0.00	16.4	16.0	0.13	11.08	11.07	6.70	7.15
1808	62.9	63.8	0.38	0.0	0.0	0.00	15.9	15.5	0.13	11.31	11.30	6.47	6.91
1809	63.9	64.8	0.39	0.1	0.1	0.00	14.9	14.6	0.12	11.92	11.91	6.12	6.53
1810	67.1	68.0	0.40	0.1	0.0	0.00	14.5	14.2	0.12	11.48	11.47	6.46	6.89
1811	68.2	69.2	0.41	0.2	0.1	0.00	15.4	15.0	0.12	11.84	11.83	6.19	6.60
1812	59.0	59.8	0.36	0.4	0.4	0.00	23.9	23.5	0.19	10.43	10.42	7.44	7.94
1813	49.0	49.7	0.30	0.1	0.0	0.00	25.8	25.4	0.21	10.02	10.00	7.61	8.13
1814	57.9	58.8	0.35	0.0	0.0	0.00	24.6	24.2	0.20	10.74	10.73	7.01	7.48
1815	56.4	57.2	0.34	0.0	-0.1	0.00	24.2	23.8	0.20	11.38	11.37	6.69	7.13
1816	54.5	55.2	0.33	-0.1	-0.1	0.00	26.3	25.8	0.21	10.87	10.86	6.96	7.43
1817	62.0	62.8	0.37	-0.1	-0.2	0.00	25.4	25.0	0.21	10.97	10.96	6.82	7.28
1818	59.7	60.5	0.36	0.0	-0.1	0.00	23.5	23.1	0.19	11.78	11.77	6.23	6.65
1819	65.8	66.7	0.40	0.0	0.0	0.00	22.2	21.8	0.18	11.48	11.47	6.55	6.99
1820	62.0	62.8	0.37	0.0	0.0	0.00	25.5	25.0	0.21	10.75	10.74	6.97	7.44
1821	47.2	47.8	0.28	0.1	0.1	0.00	42.3	41.7	0.34	10.16	10.15	7.31	7.80
1822	45.6	46.2	0.27	0.2	0.1	0.00	42.4	41.7	0.35	9.30	9.28	7.93	8.47
1823	47.6	48.3	0.29	0.1	0.1	0.00	41.2	40.5	0.33	10.02	10.00	7.30	7.79
1824	61.2	62.0	0.37	0.1	0.1	0.00	27.4	27.0	0.22	11.76	11.75	6.31	6.73
1825	62.7	63.6	0.38	0.2	0.1	0.00	23.4	23.0	0.19	11.44	11.43	6.45	6.88
1826	71.5	72.6	0.43	0.1	0.1	0.00	23.0	22.6	0.19	11.52	11.51	6.37	6.79
1827	70.7	71.7	0.43	0.4	0.3	0.00	23.4	23.0	0.19	12.69	12.69	5.68	6.04
1828	74.9	75.9	0.45	0.8	0.7	0.00	23.0	22.6	0.19	10.96	10.95	6.99	7.46
1829	68.5	69.5	0.41	0.1	0.1	0.00	25.2	24.7	0.20	10.68	10.67	7.06	7.54
1830	71.4	72.4	0.43	0.1	0.0	0.00	24.0	23.5	0.19	11.28	11.27	6.59	7.03
1831	63.0	63.9	0.38	0.2	0.1	0.00	36.0	35.4	0.29	10.29	10.28	7.42	7.92
1832	54.1	54.9	0.33	0.2	0.1	0.00	45.4	44.7	0.37	9.21	9.19	7.89	8.42
1833	54.6	55.3	0.33	0.1	0.1	0.00	44.8	44.1	0.36	10.02	10.00	7.46	7.97
1834	53.5	54.2	0.32	0.2	0.2	0.00	48.8	48.1	0.40	9.15	9.13	8.02	8.56
1835	54.6	55.3	0.33	0.2	0.1	0.00	50.0	49.3	0.41	9.83	9.81	7.48	7.99
1836	59.6	60.5	0.36	0.2	0.1	0.00	37.6	37.0	0.31	11.10	11.09	6.80	7.26
1837	63.8	64.7	0.38	0.1	0.1	0.00	36.2	35.6	0.29	10.87	10.86	6.91	7.37
1838	69.7	70.7	0.42	0.1	0.0	0.00	35.0	34.4	0.28	11.00	10.99	6.76	7.22
1839	64.8	65.7	0.39	0.1	0.0	0.00	30.2	29.7	0.25	11.74	11.73	6.33	6.76
1840	68.0	68.9	0.41	0.1	0.1	0.00	29.1	28.6	0.24	11.10	11.09	6.78	7.24
1841	70.2	71.2	0.42	0.0	0.0	0.00	30.2	29.7	0.25	10.98	10.97	6.80	7.26
1842	68.9	69.8	0.41	0.1	0.0	0.00	29.3	28.8	0.24	11.66	11.65	6.31	6.74
1843	72.5	73.5	0.44	0.2	0.2	0.00	31.2	30.6	0.25	11.69	11.68	6.49	6.92
1844	63.4	64.3	0.38	0.3	0.2	0.00	33.1	32.6	0.27	9.92	9.90	7.73	8.25
1845	56.6	57.3	0.34	0.0	0.0	0.00	42.1	41.5	0.34	9.91	9.89	7.66	8.18
1846	53.0	53.8	0.32	0.1	0.1	0.00	40.1	39.4	0.33	10.12	10.11	7.65	8.17
1847	51.4	52.1	0.31	0.1	0.0	0.00	43.3	42.6	0.35	9.59	9.57	7.87	8.40
1848	51.4	52.1	0.31	0.0	0.0	0.00	41.9	41.2	0.34	10.57	10.56	7.22	7.71
1849	53.1	53.9	0.32	0.1	0.0	0.00	42.0	41.4	0.34	9.87	9.85	7.74	8.26
1850	58.2	59.0	0.35	0.1	0.1	0.00	42.7	42.0	0.35	10.11	10.10	7.44	7.94
1851	68.4	69.2	0.35	0.1	0.0	0.00	39.7	39.0	0.32	10.89	10.88	7.03	7.51
1852	61.2	62.0	0.37	0.1	0.0	0.00	39.3	38.7	0.32	10.19	10.18	7.45	7.95
1853	65.8	66.7	0.40	0.1	0.0	0.00	38.8	38.2	0.32	10.54	10.53	7.12	7.60
1854	64.5	65.4	0.39	0.1	0.1	0.00	36.0	35.4	0.29	10.90	10.89	7.01	7.48
1855	64.8	65.7	0.39	0.1	0.1	0.00	36.6	36.0	0.30	10.29	10.28	7.33	7.83
1856	68.1	69.1	0.41	0.1	0.0	0.00	36.0	35.4	0.29	10.70	10.69	6.99	7.46
1857	66.7	67.6	0.40	0.1	0.1	0.00	33.1	32.6	0.27	11.16	11.15	6.80	7.26
1858	67.4	68.4	0.41	0.2	0.1	0.00	32.1	31.6	0.26	10.53	10.52	7.14	7.62
1859	68.8	69.7	0.41	0.4	0.4	0.00	31.8	31.3	0.26	11.81	11.80	6.34	6.76
1900	90.3	91.6	0.54	0.4	0.4	0.00	56.6	55.8	0.46	9.27	9.25	8.63	9.22
1901	78.7	79.8	0.47	0.0	0.0	0.00	70.0	69.0	0.57	9.14	9.12	8.63	9.22
1902	56.0	56.8	0.34	-0.1	-0.1	0.00	60.2	59.4	0.49	9.34	9.32	8.17	8.72
1903	53.7	54.5	0.32	0.0	-0.1	0.00	45.0	44.3	0.37	10.57	10.56	7.41	7.91
1904	55.1	55.8	0.33	0.0	0.0	0.00	40.2	39.6	0.33	10.03	10.02	7.65	8.17
1905	57.1	57.9	0.34	0.1	0.0	0.00	36.6	36.0	0.30	10.95	10.94	6.95	7.42
1906	62.0	62.8	0.37	0.1	0.1	0.00	32.3	31.8	0.26	10.85	10.84	7.11	7.59
1907	63.9	64.8	0.38	0.0	0.0	0.00	33.1	32.5	0.27	10.68	10.67	7.14	7.62
1908	63.1	64.0	0.38	0.1	0.1	0.00	30.3	29.8	0.25	11.48	11.47	6.56	7.00
1909	65.9	66.9	0.40	0.2	0.2	0.00	29.6	29.1	0.24	11.01	11.00	6.93	7.40
1910	69.2	70.2	0.42	0.1	0.1	0.00	30.8	30.3	0.25	10.96	10.95	6.83	7.29
1911	66.6	67.6	0.40	0.2	0.2	0.00	29.6	29.1	0.23	11.61	11.60	6.51	6.95
1912	67.4	68.3	0.41	0.3	0.2	0.00	27.6	27.1	0.22	10.97	10.96	6.86	7.33
1913	70.2	71.2	0.42	0.2	0.2	0.00	26.7	26.2	0.22	11.57	11.56	6.38	6.81
1914	70.5	71.5	0.42	0.3	0.2	0.00	24.5	24.0	0.20	11.75	11.74	6.38	6.81
1915	70.6	71.6	0.43	0.3	0.3	0.00	27.2	26.7	0.22	11.22	11.21	6.69	7.14
1916	65.8	66.8	0.40	0.9	0.9	0.00	33.9	33.4	0.28	10.82	10.81	7.18	7.67
1917	78.4	79.5	0.47	0.3	0.2	0.00	66.9	66.0	0.48	8.99	8.97	8.62	9.21
1918	55.2	56.0	0.33	0.1	0.0	0.00	61.6	60.9	0.42	9.33	9.31	8.13	8.69
1919	68.0	68.8	0.35	0.1	0.0	0.00	41.6	41.0	0.34	10.26	10.25	7.61	8.13
1920	67.2	67.9	0.34	0.1	0.1	0.00	39.9	39.3	0.32	9.81	9.79	7.77	8.30
1921	53.8	54.3	0.32	0.2	0.1	0.00	35.4	34.9	0.29	11.00	10.99	6.95	7.42
1922	57.7	58.5	0.35	0.3	0.3	0.00	31.7	31.1	0.26	10.62	10.61	7.27	7.76
1923	60.7	61.5	0.37	0.3	0.3	0.00	31.8	31.3	0.26	10.78	10.77	7.00	7.47
1924	58.9	59.8	0.36	0.3	0.2	0.00	28.2	27.7	0.23	11.33	11.32	6.76	7.21
1925	62.0	62.9	0.37	0.3	0.3	0.00	27.5	27.0	0.22	10.78	10.77	7.02	7.49
1926	64.8	65.7	0.39	0.3	0.3	0.00	27.1	26.6	0.22	11.44	11.43	6.51	6.95
1927	66.6	67.5	0.40	0.4	0.4	0.00	24.5	24.0	0.20	11.41	11.40	6.64	7.09
1928	67.2	68.1	0.40	0.4	0.3	0.00	24.8	24.3	0.20	10.95	10.94	6.85	7.32
Ave	63.2	64.1	0.38	0.2	0.1	0.00	28.7	28.2	0.23	10.84	10.83	6.97	7.45

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	272	910	16.60	15.45	19.9	13.1	-3.4	30.6	10.9
2013	272	911	0.05	0.10	100.6	228.5	4.7	225.2	99.3
2013	272	912	0.02	0.06	100.6	238.1	0.9	237.2	100.3
2013	272	913	0.01	0.05	100.6	236.9	1.1	235.9	100.3
2013	272	914	0.01	0.04	99.2	195.8	-1.5	208.3	100.3
2013	272	915	0.00	0.03	89.5	93.7	1.2	92.5	94.7
2013	272	916	0.00	0.03	90.7	91.7	0.4	91.0	92.8
2013	272	917	1.12	1.56	86.5	86.7	-1.0	90.9	91.7
2013	272	918	19.89	19.32	5.7	5.2	-1.7	12.1	21.0
2013	272	919	20.06	19.38	0.3	0.0	-0.1	0.0	0.1
2013	272	920	20.07	19.39	0.1	0.0	-0.1	-0.1	0.0
2013	272	921	17.93	16.86	0.3	0.0	-0.1	-0.1	0.1
2013	272	922	10.07	9.65	0.1	-0.1	-0.1	0.0	0.9
2013	272	923	9.04	6.82	1.7	0.3	-1.3	1.4	4.1
2013	272	924	0.51	0.07	33.1	29.2	-1.2	30.2	41.3
2013	272	925	0.01	0.04	44.2	44.0	0.4	43.7	47.2
2013	272	926	0.00	0.03	44.9	44.6	0.4	44.4	47.2
2013	272	927	16.26	0.07	13.7	13.1	-3.8	20.0	23.0
2013	272	928	20.97	0.07	0.3	0.0	-0.1	0.0	2.7
2013	272	929	20.98	0.07	0.1	-0.1	-0.1	0.0	2.7
2013	272	930	20.95	0.09	1.3	0.0	0.0	-0.1	2.7
2013	272	931	1.75	0.17	81.3	64.6	-4.2	79.7	67.2
2013	272	932	0.09	0.02	89.9	90.4	0.1	90.1	91.4
2013	272	933	0.07	0.02	89.8	90.4	0.3	90.4	91.3
2013	272	934	0.06	0.01	47.6	58.3	7.3	50.8	59.3
2013	272	935	0.04	0.01	45.3	45.4	0.4	44.9	46.4
2013	272	936	0.04	0.00	45.4	45.4	0.4	44.9	46.3
2013	272	937	0.03	0.00	45.4	45.8	0.4	45.3	46.2
2013	272	938	5.30	5.26	25.2	28.5	0.9	27.3	32.7
2013	272	939	10.05	9.53	0.8	0.2	-0.1	0.1	0.3
2013	272	940	10.06	9.55	0.5	0.0	-0.1	0.0	-0.6
2013	272	941	10.07	9.55	0.5	0.0	-0.1	-0.1	-0.7
2013	272	942	10.15	9.34	0.9	2.6	2.5	-0.1	-0.9
2013	272	943	13.24	5.09	13.2	58.7	-6.1	69.8	-0.2
2013	272	944	13.30	5.04	8.5	70.4	-3.2	76.4	0.0
2013	272	945	13.28	5.05	5.5	70.2	-3.5	76.9	-0.1
2013	272	946	13.31	5.04	3.9	70.8	-1.1	73.3	-0.2
2013	272	947	13.34	5.03	3.0	73.1	2.2	71.0	-0.4
2013	272	948	13.25	5.09	2.6	77.4	6.2	71.2	-0.6
2013	272	949	13.32	5.04	2.1	73.8	1.7	72.0	-0.7
2013	272	950	13.29	5.06	1.9	70.4	-2.8	76.2	-0.8
2013	272	951	13.31	5.05	1.7	69.9	-4.6	77.6	-1.0
2013	272	952	13.30	5.05	1.6	69.7	-3.0	75.6	-1.0
2013	272	953	13.30	5.05	1.5	70.7	-1.0	73.4	-1.1
2013	272	954	13.33	5.03	1.5	72.1	1.8	70.1	-1.2
2013	272	955	13.37	4.99	1.3	74.4	4.5	69.9	-1.3
2013	272	956	14.40	4.37	1.1	72.5	13.3	58.9	2.5
2013	272	957	13.38	5.07	1.1	66.8	8.7	58.0	1.2
2013	272	958	11.56	6.13	1.4	61.8	4.8	56.8	-1.6
2013	272	959	11.58	6.11	1.4	57.5	-0.5	58.1	-1.8
2013	272	1000	11.52	6.15	1.4	55.1	-4.8	60.9	-2.0
2013	272	1001	11.73	5.98	1.3	57.9	1.6	56.2	-2.0
2013	272	1002	11.90	5.91	1.2	57.5	0.8	56.4	-2.1
2013	272	1003	11.74	6.07	1.1	55.9	-0.1	56.8	-2.1
2013	272	1004	11.59	6.12	1.1	54.9	-2.1	56.9	-2.2
2013	272	1005	11.59	6.11	1.2	54.7	-2.5	57.7	-2.2
2013	272	1006	11.58	6.11	1.1	60.6	5.1	55.3	-2.3

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	272	1007	11.70	6.04	1.0	54.6	-4.5	60.2	-2.3
2013	272	1008	11.67	6.02	1.0	55.7	-2.3	57.7	-2.3
2013	272	1009	11.96	5.87	1.1	58.1	2.9	55.2	-2.3
2013	272	1010	11.98	5.90	1.0	54.7	-1.1	56.5	-2.3
2013	272	1011	11.69	6.07	1.0	55.8	-0.1	56.1	-2.3
2013	272	1012	11.61	6.10	1.1	55.1	-2.6	57.9	-2.3
2013	272	1013	11.66	6.06	1.1	56.7	1.5	55.0	-2.3
2013	272	1014	11.64	6.07	1.1	59.5	4.1	55.2	-2.3
2013	272	1015	11.71	6.03	0.9	54.7	-4.5	60.1	-2.3
2013	272	1016	11.89	5.88	0.9	56.6	1.3	55.3	-2.3
2013	272	1017	12.00	5.86	0.9	56.6	1.4	55.1	-2.3
2013	272	1018	11.91	5.96	0.8	55.3	0.4	56.3	-2.3
2013	272	1019	11.72	6.04	0.9	56.3	1.1	55.1	-2.3
2013	272	1020	11.69	6.05	0.9	54.5	-3.3	58.4	-2.3
2013	272	1021	11.67	6.07	1.0	55.8	-0.2	55.8	-2.3
2013	272	1022	11.62	6.09	0.9	56.5	-1.1	57.6	-2.3
2013	272	1023	11.77	5.96	0.9	55.1	-2.2	57.3	-2.3
2013	272	1024	11.90	5.90	1.0	58.0	2.6	55.1	-2.3
2013	272	1025	12.10	5.82	0.9	55.2	0.5	54.4	-2.3
2013	272	1026	11.77	6.03	0.9	54.6	-0.3	55.8	-2.3
2013	272	1027	11.68	6.05	0.9	54.4	-3.8	59.5	-2.3
2013	272	1028	11.68	6.05	0.8	57.9	2.8	55.2	-2.3
2013	272	1029	11.68	6.05	0.9	56.8	0.4	56.5	-2.3
2013	272	1030	11.85	5.90	0.9	54.7	-2.8	57.8	-2.3
2013	272	1031	12.07	5.80	0.9	57.3	2.8	54.4	-2.3
2013	272	1032	11.83	6.00	0.8	55.7	1.0	55.7	-2.3
2013	272	1033	11.73	6.01	0.8	54.2	-2.5	56.7	-2.3
2013	272	1034	11.72	6.02	0.8	54.6	-2.9	58.3	-2.3
2013	272	1035	11.71	6.02	0.9	57.3	2.1	55.0	-2.3
2013	272	1036	11.75	6.00	0.9	58.5	3.7	54.6	-2.3
2013	272	1037	11.85	5.89	0.9	53.5	-5.0	59.6	-2.3
2013	272	1038	12.10	5.77	0.9	57.7	3.1	54.5	-2.3
2013	272	1039	11.99	5.91	0.9	54.7	0.6	54.9	-2.3
2013	272	1040	11.69	6.05	0.8	54.6	-0.8	55.3	-2.3
2013	272	1041	11.76	6.00	0.9	53.6	-2.6	57.2	-2.3
2013	272	1042	11.76	6.01	1.0	59.5	5.1	54.4	-2.3
2013	272	1043	11.74	6.01	1.0	55.0	-2.3	57.5	-2.3
2013	272	1044	11.89	5.88	0.9	55.1	-0.6	55.5	-2.3
2013	272	1045	12.01	5.83	0.9	57.8	3.1	54.8	-2.3
2013	272	1046	11.93	5.90	0.8	55.2	-1.2	56.6	-2.3
2013	272	1047	11.86	5.98	0.9	55.9	1.4	55.4	-1.2
2013	272	1048	11.76	5.99	0.8	53.4	-3.0	56.4	0.3
2013	272	1049	11.79	5.98	0.9	53.7	-2.9	57.2	0.2
2013	272	1050	11.83	5.95	1.9	56.8	3.1	53.7	0.1
2013	272	1051	11.81	5.96	3.9	55.5	0.3	55.0	0.1
2013	272	1052	12.08	5.76	3.6	52.2	-4.1	56.8	0.1
2013	272	1053	12.24	5.71	3.2	55.7	2.5	53.4	0.1
2013	272	1054	11.97	5.92	2.8	53.9	0.0	54.7	0.1
2013	272	1055	11.89	5.93	2.6	52.7	-1.4	54.0	0.1
2013	272	1056	11.89	5.91	2.5	53.3	-2.5	56.5	0.1
2013	272	1057	12.00	5.85	2.5	56.5	3.3	53.1	0.0
2013	272	1058	11.86	5.94	2.3	56.7	2.5	53.9	-0.1
2013	272	1059	11.86	5.91	2.3	53.8	-4.0	58.6	-0.1
2013	272	1100	12.23	5.68	2.2	55.1	1.8	53.2	-0.1
2013	272	1101	12.19	5.75	2.1	55.2	1.7	53.4	-0.1
2013	272	1102	12.01	5.89	2.1	54.6	0.9	54.3	-0.1
2013	272	1103	11.84	5.95	2.0	54.3	-0.7	54.6	-0.2

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	272	1104	11.86	5.93	2.0	53.1	-3.8	57.9	-0.2
2013	272	1105	11.83	5.95	2.0	55.3	0.7	54.5	-0.2
2013	272	1106	11.98	5.86	1.9	56.1	2.7	53.2	-0.2
2013	272	1107	12.79	5.58	2.6	56.5	-3.4	62.7	-0.2
2013	272	1108	9.06	8.80	52.1	177.7	-3.3	187.2	-0.6
2013	272	1109	11.13	7.32	48.3	189.8	-1.5	191.2	0.4
2013	272	1110	10.62	7.55	57.8	192.3	1.4	190.9	0.7
2013	272	1111	10.92	7.25	49.1	171.2	-1.0	172.0	1.1
2013	272	1112	10.73	7.35	40.3	144.6	2.1	142.4	2.4
2013	272	1113	10.70	7.25	36.8	116.8	2.2	114.8	3.8
2013	272	1114	9.62	7.95	33.0	81.4	-4.9	86.8	4.5
2013	272	1115	9.35	7.97	25.3	58.1	1.6	56.4	1.7
2013	272	1116	10.13	7.46	18.5	47.8	1.4	46.4	-0.2
2013	272	1117	10.02	7.49	14.1	46.9	-4.5	51.4	-0.3
2013	272	1118	10.54	7.06	12.1	52.0	2.0	50.0	-0.5
2013	272	1119	11.62	6.35	10.1	51.6	-0.7	52.3	-0.5
2013	272	1120	11.53	6.44	8.7	56.3	1.0	55.0	-0.4
2013	272	1121	11.70	6.24	8.3	57.7	-3.1	61.6	-0.4
2013	272	1122	11.98	6.05	7.9	64.9	3.3	61.5	-0.4
2013	272	1123	12.31	5.81	8.4	56.5	-7.8	65.4	-0.2
2013	272	1124	12.13	6.18	8.9	54.2	-1.3	55.4	1.3
2013	272	1125	9.23	8.06	13.6	43.8	-3.4	47.0	0.1
2013	272	1126	9.88	7.51	15.7	44.3	-1.6	45.7	-0.4
2013	272	1127	10.38	7.27	15.1	46.2	1.4	44.6	-0.4
2013	272	1128	9.98	7.45	15.4	45.7	-3.7	49.3	-0.5
2013	272	1129	10.22	7.23	16.2	51.0	1.7	49.1	-0.6
2013	272	1130	10.98	6.74	15.3	49.9	-2.0	51.7	-0.6
2013	272	1131	10.59	7.03	13.4	51.4	-0.6	51.9	-0.5
2013	272	1132	10.57	6.98	13.2	53.5	0.6	52.6	-0.6
2013	272	1133	11.13	6.57	12.4	51.2	-4.1	55.2	-0.6
2013	272	1134	10.87	6.83	12.1	54.5	2.7	51.8	-0.6
2013	272	1135	10.60	6.95	12.2	53.2	-1.1	54.2	-0.6
2013	272	1136	11.16	6.51	12.2	53.0	-3.9	56.8	-0.7
2013	272	1137	11.23	6.57	11.2	55.5	3.5	51.7	-0.6
2013	272	1138	10.93	6.70	10.7	51.9	-3.9	55.6	-0.6
2013	272	1139	11.22	6.51	10.8	53.7	-1.4	55.1	-0.7
2013	272	1140	10.41	7.89	22.7	64.1	2.0	61.9	-0.7
2013	272	1141	9.77	8.46	42.8	108.5	-0.7	108.9	-0.6
2013	272	1142	9.38	8.26	32.9	61.4	-0.4	61.8	-0.8
2013	272	1143	9.87	7.93	21.5	50.8	1.2	49.4	-1.0
2013	272	1144	10.06	7.66	18.7	55.4	0.6	54.7	-1.0
2013	272	1145	11.23	6.87	16.3	53.0	-3.8	56.6	-1.0
2013	272	1146	10.83	7.15	13.6	55.8	-2.6	58.3	-1.0
2013	272	1147	11.12	6.82	12.8	62.5	2.2	60.0	-1.1
2013	272	1148	11.96	6.27	12.0	60.5	-3.5	63.8	-1.0
2013	272	1149	11.61	6.53	11.4	65.5	1.7	63.6	-0.9
2013	272	1150	11.50	6.51	10.9	66.2	-2.9	69.8	-1.0
2013	272	1151	11.99	6.13	10.6	69.3	-1.9	71.2	-1.0
2013	272	1152	10.83	7.04	12.1	61.6	3.6	57.9	-0.8
2013	272	1153	10.09	7.38	13.0	57.4	-3.2	60.7	-1.0
2013	272	1154	10.61	6.96	12.4	63.0	-0.8	63.7	-1.1
2013	272	1155	10.99	6.82	11.1	66.8	3.1	63.6	-1.0
2013	272	1156	11.93	6.20	9.8	62.9	-5.2	68.8	0.7
2013	272	1157	10.76	6.90	10.2	60.9	3.1	57.8	-0.9
2013	272	1158	11.19	6.61	11.1	57.0	-4.7	61.6	-1.2
2013	272	1159	10.40	7.25	13.2	61.9	1.3	60.4	-1.3
2013	272	1200	9.85	7.54	16.8	63.0	-0.3	63.0	-1.4

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	272	1201	10.49	7.08	18.5	59.8	-4.0	63.6	-1.5
2013	272	1202	9.95	7.53	18.7	61.5	1.3	59.9	-1.4
2013	272	1203	9.98	7.40	18.4	62.7	1.6	61.1	-1.5
2013	272	1204	10.84	6.85	17.1	59.1	-4.0	62.9	-1.5
2013	272	1205	10.32	7.27	16.0	61.2	1.1	60.1	-1.4
2013	272	1206	10.33	7.18	15.9	62.6	0.2	62.2	-1.4
2013	272	1207	11.28	6.49	15.1	61.0	-3.8	64.7	-1.4
2013	272	1208	11.56	6.41	13.1	67.3	4.7	62.4	-1.4
2013	272	1209	11.47	6.38	12.8	66.8	-4.7	71.9	-1.4
2013	272	1210	11.92	6.03	12.4	72.0	2.4	69.5	-1.4
2013	272	1211	11.64	6.32	13.4	60.4	0.1	60.3	-1.0
2013	272	1212	11.17	6.55	13.6	55.6	-1.0	56.3	-1.3
2013	272	1213	9.12	8.88	68.2	187.2	-5.7	224.2	59.6
2013	272	1214	11.65	7.12	36.6	124.3	-7.1	133.5	31.3
2013	272	1215	10.14	7.87	32.9	74.2	-3.2	77.4	0.6
2013	272	1216	9.78	7.91	24.1	54.3	2.3	51.9	-0.6
2013	272	1217	10.55	7.40	17.9	52.9	-1.7	54.4	-1.3
2013	272	1218	10.08	7.62	14.9	57.4	-4.1	61.4	-1.6
2013	272	1219	11.24	6.75	13.2	59.3	-3.4	62.6	-1.6
2013	272	1220	11.29	6.77	10.9	65.6	4.1	61.4	-1.5
2013	272	1221	11.24	6.66	9.9	63.6	-1.5	64.9	-1.5
2013	272	1222	12.20	5.97	9.1	60.5	-6.0	67.1	-1.5
2013	272	1223	11.99	6.19	8.6	66.8	4.9	61.9	-1.4
2013	272	1224	11.90	6.15	8.7	66.6	-4.2	71.6	-1.4
2013	272	1225	11.00	6.75	11.3	65.7	1.3	64.3	-1.5
2013	272	1226	10.64	7.02	11.9	60.5	1.9	58.4	-1.5
2013	272	1227	10.30	7.15	12.1	60.8	-2.0	62.8	-1.6
2013	272	1228	11.16	6.54	11.8	62.5	-3.1	65.4	-1.5
2013	272	1229	10.94	7.12	15.4	65.8	-0.6	66.4	-1.3
2013	272	1230	9.80	8.04	39.0	116.2	-4.1	120.4	-1.9
2013	272	1231	10.77	7.43	38.6	120.8	-2.0	122.6	-1.7
2013	272	1232	10.18	7.79	39.6	116.8	0.1	116.6	-1.8
2013	272	1233	9.82	8.01	39.3	100.6	-4.6	105.9	-1.1
2013	272	1234	9.76	7.89	39.7	78.4	-2.9	81.2	0.3
2013	272	1235	9.28	8.25	33.7	60.0	-0.4	60.3	-0.7
2013	272	1236	9.09	8.14	32.5	50.1	-0.4	50.3	-1.8
2013	272	1237	10.46	7.33	25.1	51.1	-0.5	51.5	-2.1
2013	272	1238	10.02	7.53	20.8	54.3	-2.0	56.2	-2.1
2013	272	1239	10.65	7.04	19.2	56.2	-0.5	56.5	-2.1
2013	272	1240	10.89	6.99	16.8	55.9	1.5	54.2	-2.0
2013	272	1241	10.48	7.16	16.6	55.9	-2.9	58.8	-2.1
2013	272	1242	11.41	6.51	16.1	56.1	-4.7	60.7	-2.0
2013	272	1243	10.88	6.94	14.6	59.9	2.9	56.9	-2.0
2013	272	1244	11.04	6.74	14.6	62.4	3.2	59.4	-2.1
2013	272	1245	4.02	2.08	44.1	67.7	5.9	61.8	35.2
2013	272	1246	0.09	0.05	84.0	91.1	0.3	90.9	87.2
2013	272	1247	0.08	0.02	87.3	91.0	0.4	90.6	90.5
2013	272	1248	0.08	0.01	81.1	87.8	-0.1	87.8	89.9
2013	272	1249	0.06	0.01	43.4	49.5	2.0	47.6	50.7
2013	272	1250	0.05	0.00	45.5	45.4	0.4	44.9	45.6
2013	272	1251	5.93	5.85	24.0	21.4	-3.8	28.3	29.7
2013	272	1252	10.02	9.50	1.7	0.0	-0.1	0.0	-0.7
2013	272	1253	10.03	9.52	1.2	-0.1	-0.1	-0.1	0.3
2013	272	1254	9.86	9.17	1.5	9.6	5.2	4.2	0.3
2013	272	1255	13.60	4.94	4.0	44.0	-3.9	54.2	1.3
2013	272	1256	21.18	0.06	0.6	0.2	-0.3	1.0	2.6
2013	272	1257	21.19	0.04	0.5	-0.1	-0.1	-0.1	2.8

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	272	1258	21.20	0.03	0.6	-0.1	-0.1	-0.1	2.8
2013	272	1259	21.20	0.03	0.6	-0.1	-0.1	-0.1	2.7
2013	272	1300	21.21	0.03	0.5	-0.1	-0.1	0.0	2.7
2013	272	1301	21.21	0.03	0.5	-0.1	-0.1	-0.1	2.7
2013	272	1302	21.21	0.02	0.5	-0.1	-0.1	0.0	2.6
2013	272	1303	21.21	0.03	0.4	-0.1	-0.1	0.0	2.6
2013	272	1304	21.22	0.02	0.4	0.0	-0.1	-0.1	2.6
2013	272	1305	21.22	0.02	0.4	-0.1	-0.1	-0.1	2.5
2013	272	1306	21.22	0.02	0.5	-0.1	-0.1	-0.1	2.4
2013	272	1307	21.22	0.02	0.5	-0.1	-0.1	-0.1	2.3
2013	272	1308	21.22	0.02	0.5	-0.1	-0.1	0.0	2.3
2013	272	1309	21.22	0.02	0.5	-0.1	-0.1	-0.1	2.2
2013	272	1310	21.22	0.02	0.5	-0.1	-0.1	0.0	2.2
2013	272	1311	21.22	0.01	0.5	-0.1	-0.1	-0.1	2.1
2013	272	1312	21.22	0.01	0.5	-0.1	-0.1	0.0	2.1
2013	272	1313	21.22	0.01	0.5	-0.1	-0.1	-0.1	2.0
2013	272	1314	21.22	0.01	0.4	-0.1	-0.1	0.0	1.9
2013	272	1315	21.22	0.01	0.4	-0.1	-0.1	-0.1	1.9
2013	272	1316	21.22	0.01	0.4	-0.1	-0.1	0.0	1.8
2013	272	1317	21.22	0.01	0.5	-0.1	-0.1	-0.1	1.9
2013	272	1318	21.22	0.01	0.4	-0.1	-0.1	-0.1	1.8
2013	272	1319	21.22	0.01	0.4	-0.1	-0.1	-0.1	1.7
2013	272	1320	21.22	0.01	0.4	-0.1	-0.1	0.0	1.7
2013	272	1321	21.22	0.01	0.4	-0.1	-0.1	-0.1	1.6
2013	272	1322	21.22	0.01	0.5	-0.1	-0.1	-0.1	1.7
2013	272	1323	21.22	0.01	0.5	-0.1	-0.1	-0.1	1.6
2013	272	1324	21.22	0.02	0.5	-0.1	-0.1	-0.1	1.6
2013	272	1325	21.22	0.02	0.4	-0.1	-0.1	-0.1	1.5
2013	272	1326	21.22	0.02	0.4	-0.1	-0.1	0.0	1.5
2013	272	1327	21.22	0.02	0.4	-0.1	-0.1	-0.1	1.5
2013	272	1328	21.22	0.02	0.4	-0.1	-0.1	0.0	1.4
2013	272	1329	21.22	0.02	0.5	-0.1	-0.1	-0.1	1.4
2013	272	1330	21.22	0.02	0.5	-0.1	-0.1	-0.1	1.4
2013	272	1331	21.22	0.02	0.4	-0.1	-0.1	0.0	1.4
2013	272	1332	21.23	0.02	0.4	-0.1	-0.1	-0.1	1.4
2013	272	1333	21.23	0.01	0.5	-0.1	-0.1	-0.1	1.3
2013	272	1334	21.22	0.01	0.4	-0.1	-0.1	-0.1	1.3
2013	272	1335	21.22	0.01	0.5	-0.1	-0.1	-0.1	1.2
2013	272	1336	21.22	0.01	0.4	-0.1	-0.1	0.0	1.3
2013	272	1337	21.22	0.01	0.3	-0.1	-0.1	0.0	1.2
2013	272	1338	21.22	0.01	0.4	-0.1	-0.1	-0.1	1.1
2013	272	1339	21.22	0.01	0.4	-0.1	-0.1	0.0	1.1
2013	272	1340	21.22	0.01	0.3	-0.1	-0.1	-0.1	1.1
2013	272	1341	21.22	0.01	0.4	-0.1	-0.1	0.0	1.1
2013	272	1342	21.22	0.01	0.4	-0.1	-0.1	0.0	1.1
2013	272	1343	21.22	0.01	0.4	-0.1	-0.1	0.0	1.0
2013	272	1344	21.22	0.01	0.4	-0.1	-0.1	-0.1	1.0
2013	272	1345	21.22	0.02	0.5	-0.1	-0.1	-0.1	0.9
2013	272	1346	21.21	0.01	0.3	-0.1	-0.1	0.0	0.9
2013	272	1347	21.21	0.01	0.3	-0.1	-0.1	-0.1	0.9
2013	272	1348	21.21	0.01	0.3	-0.1	-0.1	0.0	0.8
2013	272	1349	16.81	3.05	0.9	14.2	-4.9	22.5	0.4
2013	272	1350	10.90	6.86	5.7	61.6	-4.5	66.0	-1.0
2013	272	1351	12.26	6.09	9.0	69.6	0.5	69.1	-0.9
2013	272	1352	9.45	8.19	16.5	59.4	2.3	57.0	-0.9
2013	272	1353	9.88	7.66	21.2	60.4	-0.1	60.3	-1.2
2013	272	1354	10.96	7.02	18.8	60.1	-5.0	65.0	-1.1

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	272	1355	10.37	7.31	18.9	66.7	3.2	63.6	-1.2
2013	272	1356	10.44	7.18	19.7	65.1	-2.3	67.3	-1.2
2013	272	1357	11.29	6.65	18.8	63.8	-2.6	66.3	-1.2
2013	272	1358	10.71	7.08	18.9	65.0	2.7	62.1	-1.2
2013	272	1359	10.65	7.04	19.1	63.8	-3.4	67.0	-1.2
2013	272	1400	11.18	6.62	18.7	68.4	3.1	65.0	-1.3
2013	272	1401	11.35	6.64	18.3	63.1	-4.9	67.6	-1.3
2013	272	1402	10.85	6.89	18.8	69.4	3.1	66.4	-1.3
2013	272	1403	10.97	6.75	18.1	69.0	-1.1	70.0	-1.4
2013	272	1404	11.68	6.32	16.6	68.5	-1.7	70.2	-1.4
2013	272	1405	11.19	6.72	17.6	69.2	0.5	68.6	-1.3
2013	272	1406	11.01	6.75	18.4	69.9	-4.7	74.7	-1.4
2013	272	1407	12.22	5.94	17.4	74.7	3.3	71.4	-1.2
2013	272	1408	9.67	8.27	29.4	91.7	3.2	88.3	0.8
2013	272	1409	9.59	8.34	36.9	139.8	-1.7	141.3	0.7
2013	272	1410	9.76	8.25	40.3	139.9	0.2	139.6	-1.2
2013	272	1411	9.30	8.46	45.5	131.0	2.4	128.4	-1.7
2013	272	1412	9.19	8.54	46.4	112.7	-4.5	118.0	-1.7
2013	272	1413	8.81	8.59	45.7	114.2	11.2	102.9	-1.7
2013	272	1414	9.52	8.17	37.4	94.6	0.1	95.4	-1.6
2013	272	1415	8.52	8.73	36.5	80.1	3.1	76.9	-1.7
2013	272	1416	9.65	7.87	34.0	53.6	-0.1	53.6	-1.7
2013	272	1417	9.36	8.14	26.7	46.9	0.9	46.0	-1.7
2013	272	1418	9.58	7.84	26.1	49.6	-2.0	51.7	-1.8
2013	272	1419	10.54	7.29	21.4	49.8	-2.6	52.3	-1.7
2013	272	1420	9.93	7.65	22.3	53.6	2.5	51.3	-1.8
2013	272	1421	10.57	7.13	21.0	55.3	1.1	53.8	-1.8
2013	272	1422	10.77	7.12	18.2	52.1	-3.1	55.0	-1.8
2013	272	1423	10.84	6.99	19.7	57.9	2.1	55.7	-1.6
2013	272	1424	10.79	7.35	26.4	59.2	-3.6	62.6	-1.3
2013	272	1425	9.34	8.23	36.0	70.0	-3.9	74.5	-1.6
2013	272	1426	10.78	7.31	41.5	90.7	-3.6	95.4	-1.2
2013	272	1427	9.23	8.24	48.4	84.0	2.1	82.9	-1.6
2013	272	1428	9.12	8.41	43.2	93.0	0.3	93.0	-1.8
2013	272	1429	8.64	8.51	43.7	82.2	3.2	78.9	-1.9
2013	272	1430	9.66	7.91	37.6	57.9	-1.5	59.3	-2.0
2013	272	1431	9.23	8.14	35.7	46.0	2.3	43.6	-1.9
2013	272	1432	9.53	7.83	33.4	46.4	-1.7	48.1	-2.0
2013	272	1433	10.53	7.22	29.3	47.4	-1.6	48.9	-2.1
2013	272	1434	9.93	7.64	26.5	52.1	2.0	49.9	-2.0
2013	272	1435	10.54	7.10	27.8	53.3	0.1	53.1	-2.0
2013	272	1436	10.75	7.08	22.1	53.6	-2.5	55.9	-2.0
2013	272	1437	10.42	7.19	24.8	58.5	-2.5	60.6	-2.0
2013	272	1438	11.37	6.57	22.1	62.3	0.1	62.0	-2.0
2013	272	1439	11.94	6.28	20.3	58.8	-4.9	64.5	-1.6
2013	272	1440	9.85	8.24	39.5	116.0	1.1	114.6	-1.9
2013	272	1441	9.48	8.30	47.8	100.7	4.4	96.0	-2.1
2013	272	1442	9.02	8.33	45.4	58.1	-1.3	59.2	-2.2
2013	272	1443	10.38	7.33	38.3	55.9	0.4	55.3	-2.3
2013	272	1444	10.51	7.31	32.2	51.4	-2.0	53.5	-2.2
2013	272	1445	10.45	7.20	30.3	55.4	-1.4	56.7	-2.2
2013	272	1446	11.35	6.63	28.6	54.9	0.2	54.6	-2.2
2013	272	1447	10.79	7.05	26.4	56.7	-0.2	56.9	-2.2
2013	272	1448	10.88	6.86	26.0	59.1	-3.2	62.2	-2.2
2013	272	1449	11.63	6.42	26.0	57.3	-0.6	57.7	-2.2
2013	272	1450	11.05	6.80	22.8	61.2	1.3	59.9	-2.2
2013	272	1451	11.06	6.70	22.8	67.1	-4.9	72.5	-2.3

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	272	1452	11.89	6.13	22.1	73.2	3.2	69.9	-2.2
2013	272	1453	11.84	6.26	19.6	67.5	-5.7	73.5	-2.3
2013	272	1454	11.63	6.31	21.0	74.0	2.8	71.2	-2.2
2013	272	1455	11.33	6.71	25.7	72.6	-2.4	74.9	-1.9
2013	272	1456	9.51	8.27	46.5	103.4	-0.5	104.0	-2.3
2013	272	1457	9.59	8.22	48.0	81.6	-5.7	88.5	-2.3
2013	272	1458	9.09	8.50	46.3	57.5	-1.2	58.7	-2.3
2013	272	1459	9.48	8.04	43.8	51.5	-0.1	51.5	-2.3
2013	272	1500	10.14	7.71	40.5	57.3	-3.3	60.3	-2.3
2013	272	1501	9.76	7.80	42.6	65.3	-0.6	66.1	-2.3
2013	272	1502	10.89	7.00	35.5	68.6	1.2	67.4	-2.3
2013	272	1503	10.71	7.19	30.3	66.2	-2.0	68.0	-2.3
2013	272	1504	10.60	7.15	28.5	68.7	-1.0	69.6	-2.3
2013	272	1505	11.24	6.66	25.5	70.5	1.5	68.8	-2.3
2013	272	1506	11.34	6.71	24.4	66.9	-4.5	71.4	-2.3
2013	272	1507	10.88	6.92	25.0	71.4	1.8	69.5	-2.3
2013	272	1508	11.26	6.60	24.6	70.8	-1.1	71.8	-2.3
2013	272	1509	11.76	6.36	20.4	69.5	-1.6	70.9	-2.3
2013	272	1510	11.20	6.68	21.4	72.1	1.7	70.2	-2.3
2013	272	1511	10.47	7.62	39.9	76.6	-2.5	84.0	-2.2
2013	272	1512	10.15	8.12	78.1	140.7	-6.6	149.7	-2.3
2013	272	1513	9.78	7.89	70.3	101.0	-1.4	104.0	-2.3
2013	272	1514	9.91	7.78	50.6	47.7	-3.6	51.3	-2.3
2013	272	1515	9.80	7.69	45.6	47.8	-1.0	48.7	-2.3
2013	272	1516	10.98	6.92	39.8	49.2	1.3	47.7	-2.3
2013	272	1517	10.45	7.28	33.6	51.4	-0.6	52.1	-2.3
2013	272	1518	10.65	7.02	32.4	57.3	-2.8	60.1	-2.3
2013	272	1519	11.58	6.44	28.5	63.3	2.1	60.9	-2.3
2013	272	1520	11.10	6.79	28.4	62.5	-2.1	64.8	-2.3
2013	272	1521	10.98	6.78	28.4	65.5	-1.8	67.1	-2.3
2013	272	1522	11.68	6.28	23.7	69.2	3.0	66.2	-2.3
2013	272	1523	11.60	6.43	22.5	64.8	-6.5	71.6	-2.3
2013	272	1524	11.36	6.49	24.9	71.5	3.1	68.5	-2.3
2013	272	1525	11.91	6.07	29.5	69.8	-0.4	70.1	-2.3
2013	272	1526	12.30	5.90	24.8	70.8	0.4	71.2	-2.3
2013	272	1527	11.91	6.14	22.3	70.7	-3.4	75.0	-2.3
2013	272	1528	12.12	6.07	18.7	76.4	2.5	73.7	-1.3
2013	272	1529	9.59	7.74	29.9	67.9	2.1	66.3	-2.2
2013	272	1530	9.65	7.78	42.8	83.1	-5.3	89.4	-2.3
2013	272	1531	9.81	7.64	42.8	61.3	-4.0	70.2	-2.3
2013	272	1532	10.57	7.06	41.8	50.9	-2.4	53.2	-2.3
2013	272	1533	11.16	6.78	30.9	51.2	-0.2	51.3	-2.3
2013	272	1534	10.54	7.12	30.0	54.1	2.8	51.2	-2.3
2013	272	1535	11.02	6.72	30.1	53.7	-0.8	54.5	-2.3
2013	272	1536	11.14	6.78	31.2	53.4	-5.6	59.0	-2.3
2013	272	1537	10.63	7.02	29.7	59.5	1.5	57.9	-2.3
2013	272	1538	11.50	6.40	26.5	61.5	3.8	57.6	-2.3
2013	272	1539	11.04	6.81	25.8	57.9	-3.7	61.8	-2.3
2013	272	1540	10.88	6.81	28.6	61.9	-1.6	63.5	-2.3
2013	272	1541	11.63	6.30	25.1	63.0	2.9	60.1	-2.3
2013	272	1542	11.43	6.53	23.6	59.4	-5.8	65.1	-2.3
2013	272	1543	11.17	6.63	24.8	65.8	2.3	63.6	-2.3
2013	272	1544	11.10	7.04	38.3	73.5	-1.4	77.1	-2.3
2013	272	1545	10.32	8.07	98.2	182.7	-1.6	185.1	-2.3
2013	272	1546	10.12	7.93	88.8	150.0	-2.2	152.7	-2.3
2013	272	1547	8.87	8.56	72.8	99.5	-4.6	104.9	-2.3
2013	272	1548	9.55	7.96	57.9	72.8	2.4	70.3	-2.3

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	272	1549	9.50	8.06	47.7	54.6	0.0	54.6	-2.3
2013	272	1550	9.33	8.01	44.8	59.4	0.4	58.9	-2.3
2013	272	1551	10.36	7.31	39.2	59.2	2.3	56.9	-2.3
2013	272	1552	10.30	7.49	33.6	53.1	-3.4	58.0	-2.2
2013	272	1553	0.80	0.38	68.4	65.3	-4.2	83.1	61.5
2013	272	1554	0.07	0.02	88.0	91.0	0.4	90.5	91.0
2013	272	1555	0.06	0.00	89.0	91.0	0.5	90.5	91.1
2013	272	1556	0.07	-0.01	53.3	65.3	-3.5	69.0	68.2
2013	272	1557	0.05	-0.02	44.4	45.5	0.4	45.2	44.5
2013	272	1558	1.73	1.84	40.0	42.9	0.0	42.8	43.1
2013	272	1559	10.00	9.43	2.9	1.7	-2.5	4.9	4.3
2013	272	1600	10.02	9.48	0.8	0.0	0.0	0.0	-2.3
2013	272	1601	10.03	9.49	0.6	0.0	0.0	0.0	-2.3
2013	272	1602	10.04	9.50	0.5	0.0	0.0	0.0	-1.6
2013	272	1603	14.38	5.47	0.9	5.0	-0.4	5.4	0.2
2013	272	1604	21.18	0.03	0.1	0.3	0.2	0.0	2.1
2013	272	1605	21.19	0.02	0.0	0.0	0.0	0.0	2.3
2013	272	1606	21.20	0.01	0.0	0.0	0.0	0.0	2.3
2013	272	1607	21.20	0.01	0.0	0.0	0.0	0.0	2.3
2013	272	1608	21.20	0.01	0.0	0.0	0.0	0.0	2.2
2013	272	1609	21.20	0.00	0.0	0.0	0.0	0.0	2.2
2013	272	1610	21.21	0.00	0.1	0.0	0.0	0.0	2.2
2013	272	1611	21.21	0.00	0.0	0.0	0.0	0.0	2.2
2013	272	1612	21.21	0.00	0.0	0.0	0.0	0.0	2.2
2013	272	1613	21.21	0.00	-0.1	0.0	0.0	0.0	2.2
2013	272	1614	21.21	0.00	0.0	0.0	0.0	0.0	2.2
2013	272	1615	21.21	0.00	0.0	0.0	0.0	0.0	2.2
2013	272	1616	21.22	-0.01	-0.1	0.0	0.0	0.0	2.1
2013	272	1617	21.22	-0.01	0.0	0.0	0.0	0.0	2.1
2013	272	1618	21.22	-0.01	0.0	0.0	0.0	0.0	2.1
2013	272	1619	21.22	-0.01	-0.1	0.0	0.0	0.0	2.1
2013	272	1620	21.22	-0.01	-0.1	0.0	0.0	0.0	2.1
2013	272	1621	21.22	-0.01	0.0	0.0	0.0	0.0	2.1
2013	272	1622	21.22	-0.01	-0.1	0.0	0.0	0.0	2.1
2013	272	1623	21.22	-0.01	-0.1	0.0	0.0	0.0	2.1
2013	272	1624	21.22	-0.01	-0.1	0.0	0.0	0.0	2.1
2013	272	1625	21.22	-0.01	-0.1	0.0	0.0	0.0	2.0
2013	272	1626	21.22	-0.01	-0.1	0.0	0.0	0.0	2.0
2013	272	1627	21.22	-0.01	-0.1	0.0	0.0	0.0	2.1
2013	272	1628	21.22	-0.01	-0.1	0.0	0.0	0.0	2.0
2013	272	1629	21.22	-0.01	-0.2	0.0	0.0	0.0	2.0
2013	272	1630	21.22	-0.01	-0.1	0.0	0.0	0.0	2.0
2013	272	1631	21.22	-0.01	-0.1	0.0	0.0	0.0	2.0
2013	272	1632	21.22	-0.01	-0.2	0.0	0.0	0.0	2.0
2013	272	1633	21.22	-0.01	-0.1	0.0	0.0	0.0	2.0
2013	272	1634	21.22	-0.01	-0.1	0.0	0.0	0.0	2.0
2013	272	1635	21.22	-0.01	-0.2	0.0	0.0	0.0	2.0
2013	272	1636	21.22	-0.01	-0.1	0.0	0.0	0.0	2.0
2013	272	1637	21.22	-0.01	-0.2	0.0	0.0	0.0	1.9
2013	272	1638	21.22	-0.01	-0.1	0.0	0.0	0.0	2.0
2013	272	1639	21.22	-0.01	-0.2	0.0	0.0	0.0	2.0
2013	272	1640	21.22	-0.01	-0.2	0.0	0.0	0.0	1.9
2013	272	1641	21.22	-0.01	-0.1	0.0	0.0	0.0	2.0
2013	272	1642	21.22	-0.01	-0.2	0.0	0.0	0.0	2.0
2013	272	1643	21.23	-0.01	-0.1	0.0	0.0	0.0	2.0
2013	272	1644	21.23	-0.01	-0.2	0.0	0.0	0.0	2.0
2013	272	1645	21.23	-0.01	-0.2	0.0	0.0	0.0	2.0

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	272	1646	21.23	-0.01	-0.2	0.0	0.0	0.0	2.0
2013	272	1647	21.22	-0.01	-0.2	0.0	0.0	0.0	2.0
2013	272	1648	21.23	-0.01	-0.2	0.0	0.0	0.0	2.0
2013	272	1649	21.23	-0.01	-0.2	0.0	0.0	0.0	2.0
2013	272	1650	21.23	-0.01	-0.2	0.0	0.0	0.0	1.9
2013	272	1651	21.23	-0.01	-0.3	0.0	0.0	0.0	1.9
2013	272	1652	21.23	-0.01	-0.3	0.0	0.0	0.0	2.0
2013	272	1653	21.23	-0.01	-0.2	0.0	0.0	0.0	2.0
2013	272	1654	21.22	-0.01	-0.2	0.0	0.0	0.0	1.9
2013	272	1655	21.23	-0.01	-0.3	0.0	0.0	0.0	1.9
2013	272	1656	21.23	-0.01	-0.3	0.0	0.0	0.0	1.9
2013	272	1657	21.22	-0.01	-0.3	0.0	0.0	0.0	2.0
2013	272	1658	21.23	-0.01	-0.3	0.0	0.0	0.0	2.0
2013	272	1659	21.22	-0.01	-0.3	0.0	0.0	0.0	2.0
2013	272	1700	21.22	-0.01	-0.3	0.0	0.0	0.0	2.0
2013	272	1701	21.22	-0.01	-0.3	0.0	0.0	0.0	2.0
2013	272	1702	21.23	-0.01	-0.3	0.0	0.0	0.0	2.0
2013	272	1703	21.23	-0.01	-0.3	0.0	0.0	0.0	1.9
2013	272	1704	21.23	-0.01	-0.3	0.0	0.0	0.0	1.9
2013	272	1705	21.23	-0.01	-0.3	0.0	0.0	0.0	1.9
2013	272	1706	21.23	-0.01	-0.3	0.0	0.0	0.0	1.9
2013	272	1707	21.23	-0.01	-0.4	0.0	0.0	0.0	1.9
2013	272	1708	21.23	-0.01	-0.4	0.0	0.0	0.0	1.9
2013	272	1709	21.23	-0.01	-0.3	0.0	0.0	0.0	1.9
2013	272	1710	21.23	-0.01	-0.4	0.0	0.0	0.0	1.9
2013	272	1711	21.23	-0.01	-0.4	0.0	0.0	0.0	1.9
2013	272	1712	21.22	-0.01	-0.3	0.0	0.0	0.0	1.9
2013	272	1713	21.22	-0.01	-0.4	0.0	0.0	0.0	1.9
2013	272	1714	21.22	-0.01	-0.4	0.0	0.0	0.0	1.9
2013	272	1715	21.23	-0.01	-0.4	0.0	0.0	0.0	1.9
2013	272	1716	21.23	-0.01	-0.4	0.0	0.0	0.0	1.9
2013	272	1717	21.23	-0.01	-0.5	0.0	0.0	0.0	1.9
2013	272	1718	21.22	-0.01	-0.4	0.3	0.0	0.1	2.1
2013	272	1719	21.22	-0.01	-0.4	0.1	0.0	0.0	2.0
2013	272	1720	21.04	0.20	-0.4	0.1	-0.3	1.0	2.0
2013	272	1721	12.20	5.98	1.4	59.1	-3.0	65.8	0.5
2013	272	1722	11.91	6.07	4.2	76.9	1.0	75.8	0.1
2013	272	1723	13.22	5.26	5.6	77.1	-3.0	80.7	0.3
2013	272	1724	9.59	8.13	20.5	82.7	-1.3	84.1	0.3
2013	272	1725	9.72	7.81	39.7	106.0	-3.7	110.4	-0.1
2013	272	1726	10.53	7.09	27.5	57.0	-3.7	60.7	0.0
2013	272	1727	10.96	6.90	19.0	58.3	-3.3	61.7	-0.1
2013	272	1728	10.85	6.89	17.5	63.1	1.4	61.9	-0.1
2013	272	1729	11.50	6.38	16.0	63.1	-5.2	68.7	-0.1
2013	272	1730	11.51	6.52	14.4	65.6	-0.2	65.8	0.1
2013	272	1731	11.17	6.66	15.0	68.3	1.4	67.0	0.2
2013	272	1732	11.66	6.27	15.7	66.1	-5.0	71.4	0.3
2013	272	1733	11.83	6.27	16.2	70.6	4.6	66.0	0.4
2013	272	1734	11.38	6.50	16.1	67.4	-5.5	73.4	0.5
2013	272	1735	11.47	6.38	14.6	74.7	2.3	72.2	0.6
2013	272	1736	12.22	5.89	13.2	72.1	-1.6	73.7	0.5
2013	272	1737	11.91	6.18	12.5	74.5	1.2	73.5	0.4
2013	272	1738	11.86	6.13	12.7	74.7	-1.7	76.8	0.5
2013	272	1739	12.13	5.97	16.8	70.7	-2.1	72.5	0.5
2013	272	1740	10.85	7.09	21.2	64.5	4.5	59.9	0.6
2013	272	1741	9.80	7.70	25.4	55.2	-2.8	57.8	0.2
2013	272	1742	10.65	7.04	23.6	54.0	-2.5	56.6	0.2

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	272	1743	11.23	6.76	19.8	60.9	4.0	56.7	0.3
2013	272	1744	10.77	6.99	21.0	60.0	-3.0	62.9	0.5
2013	272	1745	11.21	6.61	20.5	63.6	-2.0	65.5	0.3
2013	272	1746	11.67	6.42	18.3	67.5	5.3	62.3	0.3
2013	272	1747	11.10	6.71	18.8	66.0	-2.9	69.0	0.3
2013	272	1748	11.68	6.26	18.4	67.6	-4.2	72.1	0.3
2013	272	1749	11.77	6.33	16.8	71.8	4.4	67.3	0.3
2013	272	1750	11.23	6.61	18.9	69.4	-4.0	73.5	0.3
2013	272	1751	10.28	7.23	28.1	59.1	-0.3	59.3	0.3
2013	272	1752	9.80	7.60	35.7	47.7	3.2	44.3	0.3
2013	272	1753	9.33	7.81	33.4	45.1	-0.7	45.7	0.3
2013	272	1754	11.50	6.33	23.6	62.3	-3.7	66.1	0.2
2013	272	1755	12.17	6.08	19.6	72.4	3.4	69.0	0.4
2013	272	1756	10.88	7.17	20.4	65.2	-4.3	69.4	0.3
2013	272	1757	9.56	8.03	31.1	57.5	-1.9	59.3	-0.1
2013	272	1758	9.64	7.98	29.0	55.7	-0.1	55.6	0.0
2013	272	1759	9.49	7.86	27.7	60.4	0.6	59.7	-0.2
2013	272	1800	10.49	7.31	23.8	59.9	1.2	58.7	0.0
2013	272	1801	10.09	7.47	22.6	53.7	-2.9	56.6	0.0
2013	272	1802	10.77	6.93	22.0	53.0	-2.0	55.0	0.0
2013	272	1803	11.29	6.70	18.7	55.5	3.2	52.3	0.0
2013	272	1804	10.73	6.98	18.5	53.9	-4.4	58.3	0.1
2013	272	1805	10.97	6.73	18.8	57.5	0.9	56.7	0.0
2013	272	1806	11.70	6.36	16.3	58.3	2.8	55.3	0.0
2013	272	1807	11.08	6.70	16.4	56.7	-5.6	62.6	0.1
2013	272	1808	11.31	6.47	15.9	62.9	1.2	61.6	0.0
2013	272	1809	11.92	6.12	14.9	63.9	-0.7	64.7	0.1
2013	272	1810	11.48	6.46	14.5	67.1	1.3	66.1	0.1
2013	272	1811	11.84	6.19	15.4	68.2	-0.8	68.9	0.2
2013	272	1812	10.43	7.44	23.9	59.0	-3.5	64.1	0.4
2013	272	1813	10.02	7.61	25.8	49.0	-2.9	52.0	0.1
2013	272	1814	10.74	7.01	24.6	57.9	1.7	56.2	0.0
2013	272	1815	11.38	6.68	24.2	56.4	1.7	54.7	0.0
2013	272	1816	10.87	6.96	26.3	54.5	-4.4	58.8	-0.1
2013	272	1817	10.97	6.82	25.4	62.0	2.8	59.2	-0.1
2013	272	1818	11.78	6.23	23.5	59.7	-5.6	66.1	0.0
2013	272	1819	11.48	6.55	22.2	65.8	4.1	61.6	0.0
2013	272	1820	10.75	6.97	26.5	62.0	-3.3	65.2	0.0
2013	272	1821	10.16	7.31	42.3	47.2	-1.9	49.0	0.1
2013	272	1822	9.30	7.93	42.4	45.6	-1.6	47.1	0.2
2013	272	1823	10.02	7.30	41.2	47.6	-0.4	48.0	0.1
2013	272	1824	11.76	6.31	27.4	61.2	2.7	58.5	0.1
2013	272	1825	11.44	6.45	23.4	62.7	-5.5	68.6	0.2
2013	272	1826	11.52	6.37	23.0	71.6	3.5	68.1	0.1
2013	272	1827	12.69	5.66	23.4	70.7	-4.9	76.2	0.4
2013	272	1828	10.96	6.99	23.0	74.9	2.3	72.4	0.8
2013	272	1829	10.68	7.06	25.2	68.5	-3.9	72.5	0.1
2013	272	1830	11.28	6.59	24.0	71.4	-0.8	72.2	0.1
2013	272	1831	10.29	7.42	36.0	63.0	4.0	59.0	0.2
2013	272	1832	9.21	7.89	45.4	54.1	-2.1	56.3	0.2
2013	272	1833	10.02	7.46	44.8	54.6	1.3	53.2	0.1
2013	272	1834	9.15	8.02	48.8	53.5	-3.7	57.2	0.2
2013	272	1835	9.83	7.48	50.0	54.6	-3.3	57.8	0.2
2013	272	1836	11.10	6.80	37.6	59.6	5.0	54.4	0.2
2013	272	1837	10.87	6.91	36.2	63.8	-4.2	68.2	0.1
2013	272	1838	11.00	6.76	35.0	69.7	2.3	67.1	0.1
2013	272	1839	11.74	6.33	30.2	64.8	-3.4	68.2	0.1

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	272	1840	11.10	6.78	29.1	68.0	0.4	67.7	0.1
2013	272	1841	10.98	6.80	30.2	70.2	0.3	70.0	0.0
2013	272	1842	11.66	6.31	29.3	68.9	-4.4	73.4	0.1
2013	272	1843	11.69	6.49	31.2	72.5	0.6	71.9	0.2
2013	272	1844	9.92	7.73	33.1	63.4	-1.2	64.6	0.3
2013	272	1845	9.91	7.66	42.1	56.6	0.5	56.0	0.0
2013	272	1846	10.12	7.65	40.1	53.0	1.5	51.5	0.1
2013	272	1847	9.59	7.87	43.3	51.4	-1.1	52.6	0.1
2013	272	1848	10.57	7.22	41.9	51.4	-2.8	54.3	0.0
2013	272	1849	9.87	7.74	42.0	53.1	-0.4	53.6	0.1
2013	272	1850	10.11	7.44	42.7	58.2	0.8	57.3	0.1
2013	272	1851	10.89	7.03	39.7	58.4	-2.1	60.6	0.1
2013	272	1852	10.19	7.45	39.3	61.2	-2.5	63.6	0.1
2013	272	1853	10.54	7.12	38.8	65.8	1.5	64.1	0.1
2013	272	1854	10.90	7.01	36.0	64.5	1.2	63.2	0.1
2013	272	1855	10.29	7.33	36.6	64.8	-3.6	68.3	0.1
2013	272	1856	10.70	6.99	36.0	68.1	1.1	67.0	0.1
2013	272	1857	11.16	6.80	33.1	66.7	0.3	66.4	0.1
2013	272	1858	10.53	7.14	32.1	67.4	-2.7	70.3	0.2
2013	272	1859	11.81	6.34	31.8	68.8	-2.0	70.9	0.4
2013	272	1900	9.27	8.63	56.6	90.3	-3.6	95.5	0.4
2013	272	1901	9.14	8.63	70.0	78.7	0.1	78.6	0.0
2013	272	1902	9.34	8.17	60.2	56.0	-0.4	56.3	-0.1
2013	272	1903	10.57	7.41	45.0	53.7	-1.1	54.8	0.0
2013	272	1904	10.03	7.65	40.2	55.1	-1.6	56.5	0.0
2013	272	1905	10.95	6.95	36.6	57.1	-1.9	58.9	0.1
2013	272	1906	10.85	7.11	32.3	62.0	2.3	59.6	0.1
2013	272	1907	10.58	7.14	33.1	63.9	-0.8	64.7	0.0
2013	272	1908	11.48	6.56	30.3	63.1	-5.0	68.1	0.1
2013	272	1909	11.01	6.93	29.6	65.9	2.0	63.9	0.2
2013	272	1910	10.96	6.83	30.8	69.2	2.2	66.8	0.1
2013	272	1911	11.61	6.51	28.6	66.6	-1.1	67.6	0.2
2013	272	1912	10.97	6.86	27.6	67.4	-4.1	71.4	0.3
2013	272	1913	11.57	6.38	26.7	70.2	-0.5	70.4	0.2
2013	272	1914	11.75	6.38	24.5	70.5	1.7	68.8	0.3
2013	272	1915	11.22	6.69	27.2	70.6	-5.9	76.7	0.3
2013	272	1916	10.82	7.18	33.9	65.8	-4.5	70.7	0.9
2013	272	1917	8.99	8.62	56.9	78.4	0.7	80.2	0.3
2013	272	1918	9.33	8.13	51.6	55.2	0.2	55.0	0.1
2013	272	1919	10.26	7.61	41.6	58.0	0.6	57.6	0.1
2013	272	1920	9.81	7.77	39.9	57.2	-1.7	58.7	0.1
2013	272	1921	11.00	6.95	35.4	53.6	-3.3	56.7	0.2
2013	272	1922	10.62	7.27	31.7	57.7	2.4	55.3	0.3
2013	272	1923	10.78	7.00	31.8	60.7	1.1	59.6	0.3
2013	272	1924	11.33	6.76	28.2	58.9	-0.1	58.9	0.3
2013	272	1925	10.78	7.02	27.5	62.0	-4.1	66.1	0.3
2013	272	1926	11.44	6.51	27.1	64.8	-2.0	66.8	0.3
2013	272	1927	11.41	6.64	24.5	66.6	1.0	65.7	0.4
2013	272	1928	10.95	6.85	24.8	67.2	-3.9	71.1	0.4
2013	272	1929	11.55	6.38	24.4	68.3	-0.6	69.0	0.4
2013	272	1930	11.44	6.59	22.1	70.5	4.0	66.5	0.4
2013	272	1931	3.82	2.62	49.0	79.6	19.5	59.9	37.9
2013	272	1932	0.07	0.03	85.8	90.4	0.3	89.9	95.1
2013	272	1933	0.06	0.00	89.4	90.5	0.5	90.1	92.3
2013	272	1934	0.06	-0.01	68.6	81.6	5.0	76.5	82.2
2013	272	1935	0.04	-0.02	44.3	45.7	0.6	45.4	47.7
2013	272	1936	0.04	-0.02	44.8	45.0	0.4	44.8	46.9

SMMI - Pogo Mine
09/29/13

Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	272	1937	0.04	-0.03	45.1	45.0	0.5	44.5	46.9
2013	272	1938	3.63	3.63	32.1	34.6	1.0	33.5	39.3
2013	272	1939	10.00	9.45	0.4	0.3	-0.2	0.4	2.2
2013	272	1940	10.02	9.48	-0.4	0.0	0.0	0.0	0.0
2013	272	1941	7.00	4.27	27.7	46.7	4.1	48.6	34.1
2013	272	1942	0.03	-0.03	100.6	233.6	-0.7	234.5	100.3
2013	272	1943	0.01	-0.04	100.6	238.3	0.9	237.5	100.3
2013	272	1944	0.00	-0.05	100.6	207.2	-3.0	226.4	100.3
2013	272	1945	-0.01	-0.05	95.0	93.6	1.2	93.1	96.0
2013	272	1946	-0.02	-0.05	94.0	91.9	0.4	91.5	93.2
2013	272	1947	-0.02	-0.05	87.2	91.9	6.7	85.4	90.8
2013	272	1948	-0.02	-0.05	46.2	51.1	4.9	46.1	54.1
2013	272	1949	-0.03	-0.05	45.8	45.8	0.4	45.5	47.4
2013	272	1950	-0.03	-0.05	45.7	45.4	0.4	45.5	47.5
2013	272	1951	18.18	18.01	5.9	9.8	-1.8	12.1	16.5
2013	272	1952	20.15	19.42	-1.5	0.0	0.0	0.0	-0.6
2013	272	1953	16.38	15.40	-1.5	0.0	-0.1	0.0	-0.6
2013	272	1954	10.08	9.60	-1.6	0.0	-0.1	0.0	0.3
2013	272	1955	10.07	9.59	-1.7	0.0	-0.1	0.0	0.4

Table 4
Continuous Emissions Measurements Results
Run I23-2
09/30/13

Time (1-min)	NOx (ppm)	NOx (ppm Cor.)	NOx (lb/hr)	CO (ppm)	CO (ppm Cor.)	CO (lb/hr)	SO2 (ppm)	SO2 (ppm Cor.)	SO2 (lb/hr)	O2 (%)	O2 (% Cor.)	CO2 (%)	CO2 (% Cor.)
923	51.5	53.2	0.32	3.3	3.1	0.01	14.3	13.4	0.11	11.00	10.97	6.55	6.75
924	53.4	55.2	0.33	3.4	3.2	0.01	10.9	10.1	0.08	11.43	11.40	6.24	6.43
925	49.2	50.8	0.30	22.9	22.4	0.08	8.6	7.8	0.06	14.20	14.18	4.64	4.66
926	52.7	54.5	0.33	25.5	25.0	0.09	6.5	5.8	0.05	13.26	13.24	5.19	5.34
927	36.8	38.1	0.23	84.0	82.6	0.30	5.0	4.3	0.04	16.42	16.41	3.06	3.13
928	33.2	34.3	0.21	100.3	98.6	0.36	2.9	2.3	0.02	18.74	18.73	2.84	2.90
929	45.9	47.4	0.28	62.9	61.7	0.22	3.1	2.5	0.02	11.68	11.68	6.54	6.74
930	47.9	49.5	0.30	3.3	3.1	0.01	5.4	4.7	0.04	9.21	9.18	8.04	8.29
931	50.1	51.8	0.31	2.7	2.5	0.01	6.6	5.9	0.05	9.34	9.31	7.94	8.19
932	49.7	51.4	0.31	2.5	2.3	0.01	7.9	7.2	0.06	9.59	9.56	7.76	8.00
933	49.8	51.5	0.31	2.7	2.5	0.01	8.8	8.0	0.07	9.98	9.95	7.47	7.70
934	49.8	51.5	0.31	2.7	2.5	0.01	8.9	8.1	0.07	10.22	10.19	7.29	7.51
935	50.2	51.9	0.31	2.7	2.6	0.01	8.8	8.1	0.07	10.30	10.27	7.23	7.45
936	51.5	53.4	0.32	2.7	2.5	0.01	8.8	8.0	0.07	10.30	10.27	7.21	7.43
937	53.5	55.4	0.33	2.6	2.4	0.01	8.5	7.7	0.06	10.39	10.36	7.14	7.36
938	54.6	56.5	0.34	2.6	2.4	0.01	8.4	7.6	0.06	10.36	10.33	7.15	7.37
939	57.1	59.0	0.35	2.5	2.3	0.01	8.2	7.5	0.06	10.39	10.36	7.10	7.32
940	64.8	67.0	0.40	4.1	3.9	0.01	8.8	8.0	0.07	12.01	11.98	6.12	6.30
941	58.4	60.4	0.36	3.9	3.7	0.01	9.7	8.9	0.07	11.08	11.05	6.94	7.15
942	74.6	77.1	0.46	5.0	4.7	0.02	37.7	36.1	0.30	7.86	7.82	9.49	9.79
943	88.0	91.0	0.54	5.9	5.6	0.02	35.0	33.5	0.28	7.77	7.73	9.34	9.64
944	80.6	83.3	0.50	4.6	4.4	0.02	33.7	32.2	0.27	7.45	7.41	9.44	9.74
945	77.3	79.9	0.48	3.8	3.6	0.01	32.3	30.8	0.26	7.44	7.40	9.40	9.70
946	77.7	80.3	0.48	3.2	3.0	0.01	31.4	30.0	0.25	7.43	7.39	9.38	9.68
947	64.9	67.1	0.40	2.9	2.7	0.01	28.5	27.2	0.23	7.50	7.46	9.29	9.59
948	53.7	55.5	0.33	2.7	2.5	0.01	24.9	23.6	0.20	7.83	7.79	9.06	9.35
949	51.6	53.3	0.32	2.5	2.3	0.01	23.0	21.8	0.18	8.14	8.10	8.85	9.13
950	51.1	52.8	0.32	2.7	2.5	0.01	19.3	18.2	0.15	7.75	7.71	9.11	9.40
951	48.4	50.0	0.30	2.5	2.3	0.01	18.2	17.2	0.14	8.42	8.38	8.66	8.93
952	48.3	49.9	0.30	1.7	1.5	0.01	17.9	16.9	0.14	8.14	8.10	8.80	9.08
953	45.4	47.0	0.28	2.0	1.8	0.01	16.1	15.1	0.13	9.05	9.02	8.21	8.47
954	48.2	49.9	0.30	1.9	1.8	0.01	13.3	12.4	0.10	8.62	8.59	8.46	8.73
955	51.5	53.2	0.32	1.8	1.6	0.01	13.8	12.8	0.11	9.27	9.24	8.06	8.31
956	64.2	66.4	0.40	3.1	2.9	0.01	14.3	13.4	0.11	9.44	9.41	8.22	8.48
957	95.8	99.0	0.59	1.8	1.6	0.01	25.6	24.3	0.20	8.52	8.48	8.89	9.17
958	81.3	84.0	0.50	2.0	1.8	0.01	23.3	22.1	0.18	8.30	8.26	8.95	9.23
959	60.0	62.0	0.37	2.2	2.0	0.01	20.6	19.4	0.16	8.09	8.05	9.04	9.33
1000	53.7	55.5	0.33	2.2	2.1	0.01	18.5	17.4	0.14	8.61	8.57	8.63	8.90
1001	49.6	51.3	0.31	2.1	2.0	0.01	17.1	16.1	0.13	9.03	9.00	8.32	8.58
1002	48.1	49.7	0.30	2.2	2.0	0.01	16.2	15.2	0.13	9.47	9.44	8.03	8.28
1003	48.1	49.7	0.30	1.8	1.6	0.01	15.0	14.0	0.12	9.08	9.05	8.25	8.51
1004	46.7	48.3	0.29	2.3	2.1	0.01	12.0	11.1	0.09	9.67	9.64	7.86	8.11
1005	48.1	49.7	0.30	1.6	1.4	0.01	12.6	11.7	0.10	9.64	9.61	7.85	8.09
1006	50.8	52.5	0.31	1.6	1.4	0.01	12.0	11.1	0.09	9.37	9.34	8.00	8.25
1007	49.6	51.3	0.31	1.9	1.7	0.01	10.9	10.0	0.08	9.96	9.93	7.61	7.85
1008	52.3	54.1	0.32	1.4	1.2	0.00	10.7	9.9	0.08	10.03	10.00	7.52	7.76
1009	51.9	53.6	0.32	1.7	1.5	0.01	9.2	8.4	0.07	9.75	9.72	7.72	7.96
1010	51.1	52.8	0.32	1.7	1.5	0.01	8.9	8.1	0.07	10.25	10.22	7.36	7.59
1011	54.9	56.7	0.34	1.3	1.1	0.00	9.5	8.7	0.07	9.91	9.88	7.52	7.75
1012	58.4	60.4	0.36	4.1	3.9	0.01	9.5	8.7	0.07	10.76	10.73	7.68	7.92
1013	74.2	76.7	0.46	1.8	1.7	0.01	20.0	18.9	0.16	9.48	9.44	9.18	9.47
1014	53.3	55.1	0.33	2.3	2.1	0.01	16.6	15.6	0.13	8.15	8.11	9.13	9.42
1015	52.4	54.2	0.32	1.6	1.4	0.01	14.6	13.7	0.11	8.62	8.59	8.74	9.02
1016	52.9	54.7	0.33	1.4	1.2	0.00	11.7	10.8	0.09	9.13	9.10	8.31	8.57
1017	52.5	54.3	0.32	1.2	1.1	0.00	11.1	10.3	0.09	8.80	8.77	8.44	8.71
1018	50.8	52.6	0.31	1.5	1.3	0.00	9.3	8.5	0.07	9.46	9.43	8.06	8.31
1019	52.0	53.7	0.32	1.4	1.2	0.00	8.2	7.5	0.06	9.80	9.77	7.77	8.01
1020	53.5	55.3	0.33	1.4	1.2	0.00	7.5	6.8	0.06	9.95	9.92	7.65	7.89
1021	53.8	55.6	0.33	1.3	1.1	0.00	6.9	6.2	0.05	10.09	10.06	7.51	7.74
1022	55.4	57.2	0.34	1.4	1.2	0.00	6.1	5.3	0.04	9.48	9.45	7.93	8.18
1023	54.3	56.1	0.34	1.4	1.3	0.00	5.2	4.6	0.04	10.23	10.20	7.41	7.64
1024	55.1	57.0	0.34	1.4	1.3	0.00	6.1	5.4	0.04	10.28	10.25	7.37	7.60
1025	54.2	56.0	0.33	1.3	1.1	0.00	6.3	5.6	0.05	10.41	10.38	7.27	7.49
1026	55.5	57.3	0.34	1.2	1.0	0.00	5.7	5.0	0.04	9.90	9.87	7.58	7.82
1027	55.5	57.3	0.34	1.2	1.0	0.00	5.1	4.5	0.04	10.55	10.52	7.27	7.49
1028	58.6	60.6	0.36	3.6	3.4	0.01	6.8	6.1	0.05	10.16	10.13	7.79	8.03
1029	86.9	89.8	0.54	1.0	0.8	0.00	14.6	13.6	0.11	9.08	9.05	8.44	8.71
1030	105.9	109.5	0.65	0.9	0.7	0.00	19.7	18.7	0.16	8.84	8.81	8.61	8.88
1031	96.1	99.4	0.59	1.0	0.9	0.00	25.1	23.8	0.20	8.90	8.87	8.53	8.80
1032	81.6	84.4	0.50	1.4	1.2	0.00	29.0	27.6	0.23	9.02	8.99	8.41	8.67
1033	66.8	69.1	0.41	1.6	1.4	0.01	30.0	28.6	0.24	8.72	8.69	8.62	8.89
1034	63.8	65.9	0.39	1.4	1.3	0.00	30.7	29.3	0.24	8.24	8.20	8.84	9.12
1035	53.3	55.1	0.33	1.1	0.9	0.00	28.0	26.7	0.22	9.01	8.98	8.28	8.54
1036	58.9	59.8	0.35	1.0	0.8	0.00	19.8	18.7	0.16	10.28	10.25	7.46	7.69
1037	53.7	55.5	0.33	0.9	0.7	0.00	17.1	16.0	0.13	10.40	10.37	7.34	7.57
1038	60.9	62.9	0.38	0.9	0.7	0.00	14.8	13.9	0.12	10.32	10.29	7.33	7.56
1039	49.9	51.6	0.31	1.3	1.1	0.00	14.1	13.2	0.11	9.76	9.72	7.78	8.02
1040	47.7	49.3	0.29	1.1	1.0	0.00	14.0	13.1	0.11	9.74	9.71	7.79	8.03
1041	50.1	51.8	0.31	1.1	0.9	0.00	15.1	14.1	0.12	9.87	9.84	7.65	7.89
1042	48.3	49.9	0.30	1.0	0.9	0.00	13.9	12.9	0.11	9.91	9.88	7.62	7.86
1043	51.4	53.2	0.32	0.8	0.6	0.00	13.8	12.8	0.11	9.71	9.68	7.74	7.98
1044	56.8	58.7	0.35	1.7	1.5	0.01	21.0	19.9	0.17	9.12	9.09	8.68	8.95
1045	69.5	71.9	0.43	1.0	0.8	0.00	26.1	25.7	0.22	8.48	8.44	9.19	9.48
1046	49.8	51.5	0.31	0.9	0.7	0.00	21.3	20.2	0.17	8.98	8.95	8.63	8.90
1047	43.0	44.5	0.27	0.8	0.7	0.00	15.4	14.4	0.12	9.60	9.57	8.16	8.42
1048	49.4	51.1	0.31	0.9	0.7	0.00	12.1	11.2	0.09	10.14	10.11	7.65	7.89
1049	55.3	57.2	0.34	0.8	0.7	0.00	12.2	11.3	0.09	10.65	10.62	7.24	7.46
1050	56.7	58.6	0.35	0.7	0.6	0.00	10.3	9.5	0.08	11.04	11.01	6.94	7.16
1051	55.5	57.4	0.34	0.7	0.5	0.00	10.1	9.3	0.08	10.47	10.44	7.35	7.58
1052	47.5	49.1	0.29	0.6	0.5	0.00	12.4	11.5	0.10	9.38	9.35	8.00	8.25
1053	49.8	51.5	0.31	0.6	0.5	0.00	13.1	12.2	0.10	9.54	9.51	7.87	8.12
1054	49.7	51.4	0.31	0.6	0.4	0.00	12.2	11.4	0.09	9.51	9.48	7.87	8.12
1055	49.8	51.4	0.31	0.6	0.5	0.00	12.0	11.1	0.09	9.75	9.72	7.70	7.94
1056	50.9	52.7	0.31	0.7	0.5	0.00	11.3	10.4	0.09	9.93	9.90	7.58	7.82
1057	52.9	54.8	0.33	0.8	0.4	0.00	10.9	10.0	0.08	10.02	9.99	7.51	7.74
1058	54.0	55.9	0.33	0.8	0.4	0.00	10.9	10.0	0.08	10.22	10.19	7.35	7.58
1059	56.3	58.2	0.35	0.8	0.4	0.00	10.5	9.7	0.08	10.30	10.27	7.30	7.52
1100	55.4	57.3	0.34	0.6	0.5	0.00	9.8	9.0	0.08	11.35	11.32	6.87	7.07
1101	49.2	50.8	0.30	0.4	0.3	0.00	13.6	12.6	0.11	9.67	9.64	8.07	8.32
1102	47.1	48.7	0.29	0.4	0.2	0.00	22.2	21.0	0.17	8.94	8.91	8.47	8.74
1103	48.2	49.9	0.30	0.4	0.3	0.00	22.9	21.7	0.18	8.83	8.80	8.51	8.78
1104	49.7	51.4	0.31	0.4	0.2	0.00	25.3	24.0	0.20	8.86	8.83	8.41	8.67
1105	46.9	48.4	0.29	0.3	0.2	0.00	23.4	22.2	0.18	9.07	9.04	8.27	8.53
1106	47.7	49.3	0.30	0.3	0.1	0.00	23.1	21.9	0.18	9.12	9.09	8.20	8.46
1107	48.8	50.5	0.30	0.3	0.2	0.00	22.0	20.9	0.17	9.23	9.20	8.12	8.37
1108	50.1	51.8	0.31	0.2	0.0	0.00	22.4	21.2	0.18	9.19	9.16	8.12	8.37
1109	49.3	51.0	0.30	0.1	0.0	0.00	20.6	19.5	0.16	9.37	9.34	8.00	8.25
1110	49.9	51.6	0.31	0.1	0.0	0.00	19.1	18.0	0.15	9.54	9.51	7.88	8.13
1111	51.3	53.0	0.32	0.1	0.0	0.00	19.0	18.0	0.15	9.50	9.47	7.89	8.14
1112	52.0	53.7	0.32	0.1	0.0	0.00	19.2	18.1	0.15	9.57	9.54	7.83	8.07
1113	53.2	55.0	0.33	0.1	-0.1	0.00	17.7	16.7	0.14	9.56	9.53	7.84	8.08
1114	52.6	54.3	0.32	0.0	-0.1	0.00	16.6	15.6	0.13	9.68	9.65	7.77	8.01
1115	51.8	53.5	0.32	0.1	0.0	0.00	15.0	14.1	0.12	9.93	9.90	7.59	7.83
1116	60.5	62.6	0.37	0.7	0.5	0.00	19.8	18.7	0.16	10.04	10.01	7.79	8.03
1117	109.8	113.5	0.68	1.4	1.2	0.00	44.3	42.5	0.35	9.49	9.46	8.42	8.69
1118	98.1	101.4	0.61	1.0	0.9	0.00	61.9	59.6	0.50	9.47	9.43	9.04	9.33
1119	71.1	73.5	0.44	0.3	0.2	0.00	64.6	62.3	0.52	9.10	9.06	9.07	9.36
1120	55.1	57.0	0.34	0.1	-0.1	0.00	61.5	59.3	0.49	9.84	9.81	8.49	8.76
1121	57.5	59.5	0.36	0.0	-0.1	0.00	54.7	52.6	0.44	9.36	9.33	8.18	8.45
1122	61.4	63.4	0.38	0.0	-0.2	0.00	53.1	51.1	0.42	9.64	9.61	8.01	8.26
1123	61.3	63.4	0.38	-0.1	-0.2	0.00	49.4	47.4	0.39	9.60	9.57	7.99	8.24
1124	62.7	64.8	0.39	0.0	-0.2	0.00	49.4	47.4	0.39	9.64	9.61	7.93	8.18
1125	58.4	60.3	0.38	0.0	-0.1	0.00	48.9	46.0	0.37	9.78	9.75	7.83	8.07
1126	56.7	58.6	0.35	0.0	-0.2	0.00	41.1	39.4	0.33	10.04	10.01	7.61	7.85
1127	57.1	59.0	0.35	-0.1	-0.2	0.00	34.2	32.7	0.27	10.48	10.43	7.33	7.56
1128	55.8	57.5	0.34	0.0	-0.2	0.00	28.8	27.4	0.23	10.56	10.53	7.32	7.55
Ave	58.8	58.7	0.35	3.8	3.6	0.01	18.5	17.5	0.15	9.67	9.64	7.86	8.11

Table 5
Continuous Emissions Measurements Results
Run I5-2
09/30/13

Time (1-min)	NOx (ppm)	NOx (ppm Cor.)	NOx (lb/hr)	CO (ppm)	CO (ppm Cor.)	CO (lb/hr)	SO2 (ppm)	SO2 (ppm Cor.)	SO2 (lb/hr)	O2 (%)	O2 (% Cor.)	CO2 (%)	CO2 (% Cor.)
1251	62.2	64.9	0.39	-1.5	-1.2	0.00	18.4	17.0	0.14	10.56	10.55	7.36	7.59
1252	60.0	62.6	0.37	-1.4	-1.1	0.00	21.5	20.0	0.17	10.75	10.74	7.33	7.56
1253	96.3	100.5	0.60	-0.3	0.0	0.00	39.6	37.9	0.32	9.27	9.26	9.15	9.44
1254	104.6	109.1	0.65	-1.3	-1.0	0.00	39.2	37.5	0.31	9.47	9.46	8.86	9.14
1255	79.4	82.8	0.50	-1.8	-1.5	-0.01	39.5	37.9	0.32	8.98	8.97	8.96	9.25
1256	56.4	58.8	0.35	-1.8	-1.5	-0.01	31.3	29.7	0.25	8.54	8.52	9.12	9.41
1257	51.5	53.7	0.32	-1.8	-1.5	-0.01	28.6	27.1	0.23	8.78	8.77	8.81	9.09
1258	48.8	50.9	0.30	-1.8	-1.5	-0.01	30.4	28.8	0.24	9.50	9.49	8.38	8.65
1259	46.7	48.7	0.29	-1.8	-1.5	-0.01	26.9	25.3	0.21	9.18	9.17	8.62	8.89
1300	49.7	51.8	0.31	-1.8	-1.5	-0.01	23.9	22.4	0.19	9.39	9.38	8.33	8.59
1301	50.5	52.7	0.32	-1.8	-1.5	-0.01	22.5	21.0	0.17	10.02	10.01	7.83	8.08
1302	53.0	55.3	0.33	-1.7	-1.4	-0.01	18.4	16.9	0.14	10.63	10.62	7.49	7.72
1303	50.1	52.2	0.31	-1.7	-1.4	-0.01	16.9	15.5	0.13	10.23	10.22	7.77	8.01
1304	53.3	55.6	0.33	-1.7	-1.4	-0.01	16.9	15.4	0.13	10.17	10.16	7.74	7.98
1305	53.6	55.9	0.33	-1.8	-1.5	-0.01	15.4	14.0	0.12	10.53	10.52	7.45	7.68
1306	54.1	56.4	0.34	-1.8	-1.5	-0.01	14.7	13.3	0.11	11.00	10.99	7.17	7.39
1307	53.6	55.9	0.33	-1.8	-1.5	-0.01	13.1	11.7	0.10	10.75	10.74	7.39	7.62
1308	53.3	55.6	0.33	-1.3	-1.0	0.00	13.0	11.6	0.10	10.73	10.72	7.37	7.60
1309	67.0	69.9	0.42	-0.2	0.0	0.00	23.8	22.3	0.19	9.25	9.24	8.76	9.04
1310	57.9	60.3	0.36	-1.7	-1.4	0.00	32.7	31.1	0.26	9.32	9.31	8.66	8.93
1311	52.3	54.5	0.33	-1.9	-1.6	-0.01	29.2	27.6	0.23	9.62	9.61	8.40	8.67
1312	53.0	55.3	0.33	-1.8	-1.5	-0.01	27.4	25.8	0.22	9.60	9.59	8.28	8.54
1313	55.1	57.5	0.34	-1.9	-1.6	-0.01	24.9	23.4	0.19	9.95	9.94	7.95	8.20
1314	55.6	58.0	0.35	-1.8	-1.5	-0.01	21.9	20.4	0.17	10.80	10.79	7.38	7.61
1315	57.1	59.6	0.36	-1.8	-1.5	-0.01	19.8	18.3	0.15	10.88	10.87	7.35	7.58
1316	56.8	59.2	0.35	-1.8	-1.5	-0.01	18.3	16.9	0.14	10.63	10.62	7.42	7.65
1317	59.8	62.4	0.37	-1.8	-1.5	-0.01	17.8	16.3	0.14	10.79	10.78	7.25	7.48
1318	58.9	61.5	0.37	-1.7	-1.4	-0.01	16.3	14.9	0.12	11.44	11.44	6.81	7.02
1319	61.5	64.1	0.38	-1.8	-1.5	-0.01	16.0	14.6	0.12	11.32	11.32	6.95	7.17
1320	60.8	63.4	0.38	-1.8	-1.5	-0.01	16.1	14.7	0.12	11.07	11.06	7.04	7.26
1321	65.3	68.2	0.41	-1.8	-1.5	-0.01	14.1	12.7	0.11	11.25	11.24	6.90	7.11
1322	64.5	67.3	0.40	-1.8	-1.5	-0.01	14.0	12.6	0.10	11.46	11.46	6.69	6.89
1323	66.3	69.2	0.41	-1.8	-1.5	-0.01	12.7	11.3	0.09	11.88	11.88	6.45	6.65
1324	63.2	66.0	0.39	-1.5	-1.2	0.00	14.4	13.0	0.11	11.68	11.68	6.72	6.93
1325	54.1	56.5	0.34	-1.4	-1.1	0.00	19.6	18.1	0.15	11.00	10.99	7.38	7.61
1326	52.3	54.5	0.33	-1.8	-1.5	-0.01	27.3	25.8	0.21	9.97	9.96	8.00	8.25
1327	52.9	55.2	0.33	-1.9	-1.6	-0.01	26.4	24.8	0.21	10.64	10.63	7.44	7.67
1328	56.2	58.6	0.35	-1.9	-1.6	-0.01	23.2	21.7	0.18	11.02	11.01	7.25	7.48
1329	53.7	56.1	0.34	-1.8	-1.5	-0.01	23.3	21.8	0.18	10.65	10.64	7.41	7.64
1330	59.8	62.4	0.37	-1.8	-1.5	-0.01	25.1	23.6	0.20	10.74	10.73	7.29	7.52
1331	57.6	60.1	0.36	-1.8	-1.5	-0.01	25.7	24.2	0.20	11.16	11.15	6.94	7.15
1332	59.9	62.4	0.37	-1.8	-1.5	-0.01	22.3	20.9	0.17	11.52	11.52	6.79	7.00
1333	57.2	59.6	0.36	-1.8	-1.5	-0.01	21.5	20.0	0.17	11.11	11.10	7.02	7.24
1334	59.2	61.8	0.37	-1.8	-1.5	-0.01	20.5	19.1	0.16	11.14	11.13	6.95	7.17
1335	61.6	64.3	0.38	-1.8	-1.5	-0.01	21.6	20.1	0.17	11.26	11.25	6.86	7.07
1336	57.9	60.4	0.36	-1.8	-1.5	-0.01	26.5	24.9	0.21	10.76	10.75	7.18	7.40
1337	47.2	49.2	0.29	-2.0	-1.7	-0.01	36.9	35.2	0.29	9.67	9.66	7.94	8.19
1338	45.6	47.5	0.28	-2.0	-1.7	-0.01	35.9	34.2	0.29	8.98	8.97	8.39	8.66
1339	50.8	53.0	0.32	-1.9	-1.6	-0.01	27.6	26.1	0.22	10.54	10.53	7.26	7.49
1340	62.5	65.1	0.39	-1.6	-1.3	0.00	22.4	20.9	0.17	11.82	11.82	6.52	6.72
1341	64.3	67.1	0.40	-1.3	-1.0	0.00	37.9	36.2	0.30	9.33	9.32	8.70	8.98
1342	52.9	55.2	0.33	-2.1	-1.8	-0.01	48.7	46.9	0.39	8.68	8.66	8.90	9.18
1343	49.8	51.9	0.31	-2.1	-1.8	-0.01	43.3	41.6	0.35	9.44	9.43	8.29	8.55
1344	51.9	54.2	0.32	-2.0	-1.7	-0.01	37.9	36.3	0.30	10.19	10.18	7.79	8.03
1345	55.5	57.9	0.35	-1.9	-1.6	-0.01	32.5	30.9	0.26	10.26	10.25	7.75	7.99
1346	56.6	59.0	0.35	-2.0	-1.7	-0.01	30.3	28.7	0.24	10.28	10.27	7.65	7.89
1347	59.9	62.5	0.37	-1.9	-1.6	-0.01	28.2	26.6	0.22	10.52	10.51	7.47	7.70
1348	62.9	65.6	0.39	-1.8	-1.5	-0.01	26.9	25.4	0.21	10.65	10.64	7.35	7.58
1349	62.0	64.6	0.39	-1.9	-1.6	-0.01	24.9	23.4	0.19	10.91	10.90	7.12	7.34
1350	64.3	67.1	0.40	-1.8	-1.5	-0.01	22.7	21.2	0.18	11.34	11.34	6.89	7.11
1351	65.7	68.5	0.41	-1.8	-1.5	-0.01	23.4	21.9	0.18	11.00	10.99	7.11	7.33
1352	66.0	68.9	0.41	-1.8	-1.5	-0.01	24.3	22.8	0.19	11.02	11.01	7.04	7.26
1353	68.5	71.4	0.43	-1.8	-1.5	-0.01	22.9	21.4	0.18	11.11	11.10	6.97	7.19
1354	67.3	70.2	0.42	-1.8	-1.5	-0.01	21.6	20.1	0.17	11.29	11.29	6.81	7.02
1355	65.9	68.8	0.41	-1.8	-1.5	-0.01	23.4	21.9	0.18	11.76	11.76	6.47	6.67
1356	67.5	70.4	0.42	-0.9	-0.6	0.00	20.7	19.2	0.16	12.54	12.54	6.09	6.28
1357	77.6	81.0	0.48	-0.6	-0.3	0.00	36.7	35.1	0.29	9.15	9.14	8.59	8.86
1358	138.5	144.5	0.86	-1.8	-1.5	-0.01	67.8	65.8	0.55	10.30	10.29	7.77	8.01
1359	121.1	126.3	0.76	-1.6	-1.3	0.00	73.5	71.5	0.60	9.74	9.73	8.12	8.38
1400	89.6	93.5	0.56	-0.7	-0.4	0.00	67.6	65.6	0.55	9.35	9.34	8.33	8.59
1401	59.0	61.5	0.37	-0.9	-0.7	0.00	48.9	47.1	0.39	9.37	9.36	8.23	8.49
1402	60.8	63.4	0.38	-0.8	-0.5	0.00	37.3	35.7	0.30	10.09	10.08	7.69	7.93
1403	62.1	64.8	0.39	-0.1	0.1	0.00	37.8	36.1	0.30	10.28	10.27	7.66	7.90
1404	62.2	64.9	0.39	0.3	0.5	0.00	37.4	35.7	0.30	9.87	9.86	7.88	8.13
1405	62.8	65.5	0.39	1.7	1.9	0.01	33.6	32.0	0.27	9.95	9.94	7.79	8.03
1406	64.0	66.7	0.40	0.5	0.7	0.00	33.5	31.9	0.27	10.32	10.31	7.49	7.72
1407	62.3	65.0	0.39	0.7	0.9	0.00	30.1	28.6	0.24	10.74	10.73	7.26	7.49
1408	62.7	65.4	0.39	1.1	1.3	0.00	28.3	26.8	0.22	10.43	10.42	7.50	7.73
1409	62.5	65.2	0.39	1.3	1.5	0.01	29.7	28.1	0.23	10.30	10.29	7.53	7.77
Ave	61.9	64.5	0.39	-1.4	-1.2	0.00	27.7	26.1	0.22	10.40	10.39	7.61	7.85

Table 6
Continuous Emissions Measurements Results
Run I29-2
09/30/13

Time (1-min)	NOx (ppm)	NOx (ppm Cor.)	NOx (lb/hr)	CO (ppm)	CO (ppm Cor.)	CO (lb/hr)	SO2 (ppm)	SO2 (ppm Cor.)	SO2 (lb/hr)	O2 (%)	O2 (% Cor.)	CO2 (%)	CO2 (% Cor.)
1506	61.7	64.2	0.38	-0.1	-0.1	0.00	3.9	2.6	0.02	12.32	12.31	6.16	6.34
1507	57.3	59.7	0.36	-1.7	-1.7	-0.01	12.2	10.9	0.09	9.05	9.03	8.87	9.13
1508	56.2	58.6	0.35	-2.0	-2.0	-0.01	23.0	21.7	0.18	9.40	9.38	8.34	8.59
1509	53.7	55.9	0.33	-1.9	-1.9	-0.01	24.6	23.2	0.19	10.07	10.06	7.95	8.18
1510	52.6	54.7	0.33	-1.9	-1.9	-0.01	23.6	22.2	0.18	9.74	9.72	8.03	8.27
1511	55.5	57.7	0.35	-2.0	-2.0	-0.01	21.6	20.1	0.17	10.28	10.27	7.55	7.77
1512	54.6	56.8	0.34	-1.9	-1.9	-0.01	15.2	13.9	0.12	10.91	10.90	7.23	7.44
1513	58.9	61.3	0.37	-2.0	-2.0	-0.01	16.0	14.7	0.12	10.51	10.50	7.40	7.61
1514	66.3	69.0	0.41	-2.0	-2.0	-0.01	17.0	15.7	0.13	10.85	10.84	7.09	7.29
1515	63.5	66.1	0.40	-2.0	-2.0	-0.01	15.8	14.5	0.12	11.60	11.59	6.84	6.82
1516	69.9	72.8	0.44	-1.9	-1.9	-0.01	14.8	13.5	0.11	11.05	11.04	7.01	7.21
1517	69.1	71.9	0.43	-2.1	-2.1	-0.01	14.9	13.5	0.11	10.95	10.94	7.01	7.21
1518	69.7	72.6	0.43	-2.1	-2.1	-0.01	13.6	12.2	0.10	11.71	11.70	6.46	6.64
1519	72.3	75.3	0.45	-2.0	-2.0	-0.01	12.0	10.7	0.09	11.52	11.51	6.68	6.87
1520	71.4	74.3	0.44	-2.1	-2.1	-0.01	12.2	10.8	0.09	11.26	11.25	6.78	6.97
1521	76.1	79.2	0.47	-2.1	-2.1	-0.01	12.4	11.1	0.09	11.54	11.53	6.52	6.71
1522	65.4	68.1	0.41	-1.6	-1.6	-0.01	12.2	10.9	0.09	12.51	12.50	6.22	6.39
1523	56.2	58.5	0.35	-1.9	-1.9	-0.01	23.7	22.3	0.19	8.73	8.71	9.06	9.33
1524	55.6	57.9	0.35	-2.3	-2.3	-0.01	30.8	29.4	0.24	9.23	9.21	8.61	8.86
1525	52.1	54.2	0.32	-2.3	-2.3	-0.01	30.4	29.0	0.24	9.22	9.20	8.68	8.94
1526	49.8	51.6	0.31	-2.3	-2.3	-0.01	30.2	28.8	0.24	9.11	9.09	8.59	8.84
1527	54.1	56.3	0.34	-2.3	-2.3	-0.01	28.2	26.8	0.22	10.07	10.06	7.85	8.08
1528	53.7	55.9	0.33	-2.3	-2.3	-0.01	24.3	22.9	0.19	10.07	10.06	7.93	8.16
1529	52.8	55.0	0.33	-2.3	-2.3	-0.01	22.1	20.7	0.17	9.86	9.84	7.96	8.19
1530	54.9	57.2	0.34	-2.3	-2.3	-0.01	22.2	20.8	0.17	10.41	10.40	7.52	7.74
1531	53.7	55.9	0.33	-2.3	-2.3	-0.01	22.7	21.4	0.18	10.46	10.45	7.60	7.82
1532	54.1	56.3	0.34	-2.3	-2.3	-0.01	19.8	18.2	0.15	9.94	9.92	7.87	8.10
1533	56.2	58.5	0.35	-2.3	-2.3	-0.01	20.9	19.5	0.16	10.25	10.24	7.59	7.81
1534	52.7	54.9	0.33	-2.3	-2.3	-0.01	21.2	19.8	0.16	10.79	10.78	7.33	7.54
1535	55.2	57.5	0.34	-2.3	-2.3	-0.01	21.8	20.4	0.17	10.15	10.14	7.70	7.92
1536	57.7	60.1	0.36	-2.3	-2.3	-0.01	21.6	20.2	0.17	10.71	10.70	7.25	7.46
1537	52.8	54.9	0.33	-2.3	-2.3	-0.01	18.8	17.5	0.15	10.84	10.83	7.27	7.48
1538	56.1	58.4	0.35	-2.3	-2.2	-0.01	20.3	19.0	0.16	10.80	10.79	7.22	7.43
1539	86.4	89.9	0.54	-2.0	-2.0	-0.01	34.8	33.3	0.28	9.44	9.42	8.51	8.76
1540	103.4	107.6	0.64	-2.3	-2.3	-0.01	48.0	46.5	0.39	10.00	9.98	8.21	8.45
1541	88.0	91.6	0.55	-2.3	-2.3	-0.01	55.0	53.4	0.45	8.92	8.90	8.88	9.14
1542	72.0	74.9	0.45	-2.3	-2.3	-0.01	49.6	48.0	0.40	8.92	8.90	8.67	8.93
1543	59.5	62.0	0.37	-2.3	-2.3	-0.01	42.5	41.0	0.34	9.11	9.09	8.60	8.85
1544	51.0	53.0	0.32	-2.3	-2.3	-0.01	41.0	39.6	0.33	9.81	8.79	8.62	8.87
1545	46.4	48.3	0.29	-2.3	-2.3	-0.01	35.5	34.1	0.28	9.74	9.72	8.04	8.28
1546	46.8	48.7	0.29	-2.3	-2.3	-0.01	29.0	27.5	0.23	9.16	9.14	8.45	8.70
1547	46.4	48.3	0.29	-2.3	-2.3	-0.01	27.8	26.4	0.22	9.44	9.42	8.12	8.36
1548	44.2	46.0	0.28	-2.3	-2.3	-0.01	24.9	23.5	0.20	10.14	10.13	7.76	7.98
1549	47.5	49.4	0.30	-2.3	-2.3	-0.01	25.4	24.0	0.20	9.49	9.47	8.14	8.38
1550	48.3	50.2	0.30	-2.3	-2.3	-0.01	27.0	25.6	0.21	10.31	10.30	7.50	7.72
1551	49.2	51.2	0.31	-2.3	-2.3	-0.01	25.8	24.4	0.20	10.01	9.99	7.81	8.04
1552	49.5	51.5	0.31	-2.3	-2.3	-0.01	26.5	25.1	0.21	9.98	9.96	7.69	7.91
1553	47.9	49.9	0.30	-2.3	-2.3	-0.01	23.0	21.6	0.18	10.79	10.78	7.22	7.43
1554	60.8	63.3	0.38	-2.1	-2.1	-0.01	33.9	32.4	0.27	9.71	9.69	8.04	8.28
1555	61.7	64.2	0.38	-1.7	-1.7	-0.01	34.7	33.2	0.28	9.12	9.10	8.72	8.98
1556	67.8	70.5	0.42	-2.3	-2.3	-0.01	39.0	37.5	0.31	8.80	8.78	8.67	8.93
1557	67.3	69.7	0.36	-2.3	-2.3	-0.01	34.2	32.8	0.27	9.71	9.69	8.10	8.34
1558	51.6	53.7	0.32	-2.3	-2.3	-0.01	35.1	33.6	0.28	9.06	9.04	8.53	8.78
1559	50.8	52.9	0.32	-2.3	-2.3	-0.01	31.7	30.3	0.25	9.86	9.84	7.87	8.10
1600	49.3	51.3	0.31	-2.3	-2.3	-0.01	26.2	24.8	0.21	10.09	10.08	7.83	8.08
1601	51.5	53.6	0.32	-2.3	-2.3	-0.01	25.1	23.7	0.20	9.77	9.76	7.92	8.16
1602	49.8	51.8	0.31	-2.3	-2.3	-0.01	24.9	23.5	0.20	10.90	10.89	7.16	7.37
1603	52.4	54.5	0.33	-2.3	-2.3	-0.01	25.7	24.3	0.20	10.09	10.08	7.69	7.91
1604	53.4	55.6	0.33	-2.3	-2.3	-0.01	26.9	25.5	0.21	11.01	11.00	6.99	7.19
1605	53.8	56.0	0.34	-2.3	-2.3	-0.01	23.4	22.0	0.18	10.74	10.73	7.28	7.49
1606	55.8	58.1	0.35	-2.3	-2.3	-0.01	22.8	21.5	0.18	10.58	10.57	7.25	7.46
1607	54.6	56.8	0.34	-2.3	-2.3	-0.01	21.6	20.2	0.17	11.37	11.36	6.78	6.97
1608	59.5	61.9	0.37	-2.3	-2.3	-0.01	18.8	17.5	0.15	10.66	10.65	7.27	7.48
1609	59.4	61.8	0.37	-2.3	-2.3	-0.01	16.7	15.4	0.13	10.93	10.92	6.98	7.18
1610	54.5	56.7	0.34	-2.3	-2.2	-0.01	20.7	19.4	0.16	10.96	10.95	7.20	7.41
1611	58.5	60.9	0.36	-2.3	-2.3	-0.01	28.8	27.4	0.23	9.00	8.98	8.51	8.76
1612	54.1	56.3	0.34	-2.3	-2.3	-0.01	33.3	31.9	0.27	9.49	9.47	8.05	8.29
1613	43.6	45.3	0.27	-2.3	-2.3	-0.01	28.3	26.9	0.22	10.17	10.16	7.71	7.93
1614	47.8	49.8	0.30	-2.3	-2.3	-0.01	28.8	27.4	0.23	10.12	10.11	7.63	7.85
1615	54.0	56.2	0.34	-2.3	-2.3	-0.01	29.1	27.7	0.23	11.06	11.05	6.95	7.14
1616	55.4	57.7	0.35	-2.3	-2.3	-0.01	29.4	28.0	0.23	10.82	10.81	7.22	7.43
1617	58.9	61.3	0.37	-2.3	-2.3	-0.01	33.9	32.4	0.27	10.58	10.57	7.27	7.48
1618	59.5	61.9	0.37	-2.3	-2.3	-0.01	30.5	29.1	0.24	11.54	11.53	6.67	6.88
1619	66.2	68.9	0.41	-2.3	-2.3	-0.01	35.1	33.7	0.28	10.71	10.70	7.22	7.43
1620	67.8	70.6	0.42	-2.3	-2.3	-0.01	36.7	35.2	0.29	11.09	11.08	6.88	7.07
1621	64.6	67.2	0.40	-2.3	-2.3	-0.01	41.0	39.6	0.33	11.50	11.49	6.72	6.91
1622	67.5	70.2	0.42	-2.3	-2.3	-0.01	36.7	35.3	0.29	10.86	10.85	7.08	7.28
1623	71.1	74.0	0.44	-2.3	-2.3	-0.01	24.6	23.3	0.19	11.40	11.39	6.65	6.84
1624	66.0	68.7	0.41	-2.3	-2.3	-0.01	18.7	17.4	0.14	11.29	11.28	6.85	7.05
1625	66.9	69.7	0.42	-2.3	-2.3	-0.01	19.4	18.0	0.15	10.84	10.83	7.06	7.26
1626	64.6	67.2	0.40	-2.3	-2.3	-0.01	21.2	19.8	0.17	11.83	11.82	6.53	6.71
1627	74.1	77.1	0.46	-2.3	-2.3	-0.01	33.3	31.9	0.27	9.17	9.16	8.64	8.90
1628	75.3	78.4	0.47	-2.3	-2.3	-0.01	44.9	43.4	0.36	8.75	8.73	8.76	9.02
1629	48.2	50.2	0.30	-2.3	-2.3	-0.01	37.9	36.4	0.30	9.78	9.76	8.10	8.34
1630	48.1	50.1	0.30	-2.3	-2.3	-0.01	31.7	30.3	0.25	9.39	9.37	8.28	8.53
1631	50.3	52.4	0.31	-2.3	-2.3	-0.01	30.7	29.3	0.24	10.16	10.14	7.69	7.91
1632	48.3	50.2	0.30	-2.3	-2.3	-0.01	26.8	25.4	0.21	10.35	10.34	7.67	7.89
1633	51.0	53.1	0.32	-2.3	-2.3	-0.01	27.0	25.6	0.21	9.84	9.82	7.88	8.11
1634	51.5	53.6	0.32	-2.3	-2.3	-0.01	25.1	23.8	0.20	10.75	10.74	7.30	7.51
1635	53.7	55.8	0.33	-2.3	-2.3	-0.01	22.9	21.5	0.18	10.15	10.14	7.76	7.99
1636	54.1	56.3	0.34	-2.3	-2.3	-0.01	23.9	22.5	0.19	10.46	10.45	7.41	7.62
1637	53.4	55.6	0.33	-2.3	-2.3	-0.01	20.1	18.7	0.16	10.90	10.89	7.23	7.44
1638	57.3	59.6	0.36	-2.3	-2.3	-0.01	22.2	20.8	0.17	10.45	10.44	7.39	7.60
1639	57.3	59.6	0.36	-2.3	-2.3	-0.01	19.7	18.3	0.15	11.32	11.31	6.88	7.08
1640	61.1	63.6	0.38	-2.3	-2.3	-0.01	17.9	16.5	0.14	10.68	10.67	7.35	7.56
1641	61.0	63.5	0.38	-2.3	-2.3	-0.01	19.1	17.8	0.15	11.17	11.16	6.87	7.07
1642	58.0	60.4	0.36	-2.3	-2.3	-0.01	20.7	19.3	0.16	11.35	11.34	6.95	7.15
1643	56.9	59.2	0.35	-2.3	-2.3	-0.01	28.0	24.6	0.20	9.99	9.97	7.76	7.98
1644	60.6	63.1	0.38	-2.3	-2.3	-0.01	27.6	26.2	0.22	10.97	10.96	7.03	7.23
1645	64.4	67.0	0.40	-2.3	-2.3	-0.01	24.8	23.4	0.19	10.74	10.73	7.28	7.49
1646	67.2	69.9	0.42	-2.3	-2.3	-0.01	26.1	24.7	0.21	10.99	10.98	6.97	7.17
1647	64.6	67.2	0.40	-2.3	-2.3	-0.01	21.7	20.4	0.17	11.77	11.76	6.54	6.73
1648	67.1	69.8	0.42	-2.3	-2.3	-0.01	20.8	19.4	0.16	10.98	10.97	7.04	7.24
1649	62.9	65.5	0.39	-2.3	-2.3	-0.01	21.9	20.6	0.17	11.00	10.99	6.98	7.18
1650	64.1	66.7	0.40	-2.3	-2.3	-0.01	20.1	18.7	0.16	11.68	11.67	6.55	6.73
1651	64.3	67.0	0.40	-2.3	-2.3	-0.01	18.7	17.4	0.14	11.23	11.22	6.89	7.09
1652	64.9	67.5	0.40	-2.3	-2.3	-0.01	18.8	17.4	0.14	11.23	11.22	6.84	7.03
1653	63.7	66.3	0.40	-2.3	-2.3	-0.01	18.7	17.3	0.14	11.32	11.31	6.77	6.96
1654	66.1	68.8	0.41	-2.3	-2.3	-0.01	18.3	17.0	0.14	11.74	11.73	6.45	6.63
1655	61.4	63.9	0.38	-2.3	-2.3	-0.01	16.9	15.5	0.13	11.88	11.87	6.44	6.62
1656	66.6	69.3	0.41	-2.3	-2.3	-0.01	15.6	14.2	0.12	11.67	11.66	6.59	6.77
1657	66.3	69.0	0.41	-2.3	-2.3	-0.01	16.1	14.8	0.12	11.65	11.65	6.58	6.77
1658	70.5	73.4	0.44	-2.2	-2.2	-0.01	17.7	16.3	0.14	12.45	12.45	6.01	6.17
1659	68.3	71.1	0.43	-2.1	-2.1	-0.01	30.3	28.9	0.24	9.41	9.39	8.33	8.58
1700	70.6	73.6	0.44	-2.3	-2.3	-0.01	49.6	47.1	0.39	8.43	8.41	8.85	9.11
1701	53.2	55.3	0.33	-2.3	-2.3	-0.01	50.0	48.5	0.40	9.55	9.53	8.11	8.35
1702	52.5	54.6	0.33	-2.3	-2.3	-0.01	48.3	46.8	0.39	8.69	8.67	8.72	8.98
1703	52.5	54.6	0.33	-2.3	-2.3	-0.01	48.6	47.0	0.39	9.30	9.28	8.21	8.45
1704	47.0	49.0	0.29	-2.3	-2.3	-0.01	44.9	43.4	0.36	9.16	9.14	8.42	8.67
1705	46.9	48.8	0.29	-2.3	-2.3	-0.01	46.3	44.8	0.37	9.00	8.98	8.41	8.66
1706	46.3	48.2	0.29	-2.3	-2.3	-0.01	46.9	45.4	0.38	9.78	9.76	7.94	8.17
1707	46.9	48.8	0.29	-2.3	-2.3	-0.01	49.1	47.6	0.40	8.99	8.97	8.49	8.74
1708	46.9	48.8	0.29	-2.3	-2.3	-0.01	51.5	50.0	0.42	9.23	9.21	8.24	8.48
1709	47.5	49.4	0.30	-2.3	-2.3	-0.01	48.0	46.5	0.39	9.25	9.23	8.36	8.61
1710	51.8	53.9	0.32	-2.3	-2.3	-0.01	49.3	47.8	0.40	8.70	8.68	8.63	8.89
1711	53.8	56.0	0.33	-2.3	-2.3	-0.01	47.2	45.7	0.38	9.42	9.40	8.14	8.38
Ave	58.4	60.8	0.36	-2.2	-2.2	-0.01	27.4	26.1	0.22	10.32	10.31	7.58	7.80

SMMI - Pogo Mine
09/30/13

Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	273	800	0.01	0.01	95.7	91.9	0.4	91.4	93.7
2013	273	801	0.01	0.01	96.2	91.7	0.4	91.4	93.0
2013	273	802	1.44	1.89	84.1	91.8	5.2	86.0	90.2
2013	273	803	20.03	19.39	4.4	13.8	9.9	2.5	18.1
2013	273	804	20.18	19.45	0.1	0.0	-0.1	0.0	-0.1
2013	273	805	20.19	19.46	0.1	0.0	-0.1	0.0	0.2
2013	273	806	20.20	19.47	0.0	0.0	-0.1	0.0	0.2
2013	273	807	20.20	19.47	0.0	0.0	0.0	0.3	0.1
2013	273	808	12.67	11.62	42.0	46.8	-4.0	87.2	28.3
2013	273	809	0.04	0.07	100.6	235.9	-0.1	235.9	100.3
2013	273	810	0.02	0.04	100.6	236.6	0.5	235.9	100.3
2013	273	811	0.02	0.03	100.6	236.8	0.9	236.0	100.3
2013	273	812	0.01	0.02	96.6	159.8	23.5	136.2	99.2
2013	273	813	0.00	0.02	90.5	91.4	0.4	90.9	92.3
2013	273	814	0.00	0.02	90.5	91.4	0.4	91.0	92.2
2013	273	815	0.00	0.02	89.7	91.4	1.6	89.8	92.3
2013	273	816	0.02	0.01	40.3	53.2	0.5	52.6	59.2
2013	273	817	-0.01	0.01	44.6	45.4	0.4	44.6	47.4
2013	273	818	2.18	2.38	37.8	38.2	-3.0	42.3	44.5
2013	273	819	10.08	9.62	0.8	1.3	0.1	1.1	5.5
2013	273	820	10.09	9.63	0.0	0.0	-0.1	0.0	1.0
2013	273	821	13.94	5.51	0.6	0.0	-0.1	0.0	1.3
2013	273	822	20.13	0.08	0.8	0.0	-0.1	0.0	3.2
2013	273	823	20.13	0.06	0.4	0.0	-0.1	0.0	3.2
2013	273	824	20.13	0.06	0.4	-0.1	-0.1	0.0	3.4
2013	273	825	20.13	0.05	0.3	-0.1	-0.1	0.0	3.3
2013	273	826	20.13	0.06	0.4	-0.1	-0.1	0.0	3.5
2013	273	827	20.14	0.05	0.4	-0.1	-0.1	0.0	3.4
2013	273	828	20.14	0.05	0.3	0.0	-0.1	0.0	3.4
2013	273	829	20.14	0.05	0.4	0.0	-0.1	0.0	3.2
2013	273	830	20.14	0.05	0.4	0.0	-0.1	-0.1	3.2
2013	273	831	20.14	0.05	0.4	0.0	-0.1	0.0	3.1
2013	273	832	20.14	0.05	0.4	0.0	-0.1	0.0	3.0
2013	273	833	20.14	0.05	0.5	-0.1	-0.1	0.0	3.5
2013	273	834	20.14	0.05	0.5	0.0	-0.1	0.0	3.1
2013	273	835	20.14	0.05	0.4	0.0	-0.1	0.0	3.1
2013	273	836	20.13	0.05	0.5	0.0	-0.1	0.0	3.2
2013	273	837	20.13	0.05	0.4	-0.1	-0.1	0.0	3.2
2013	273	838	20.13	0.05	0.4	0.0	-0.1	0.0	2.9
2013	273	839	20.13	0.05	0.4	0.0	-0.1	0.0	2.8
2013	273	840	20.13	0.05	0.5	-0.1	-0.1	0.0	2.9
2013	273	841	20.13	0.05	0.4	0.0	-0.1	0.0	2.9
2013	273	842	20.12	0.05	0.5	0.0	-0.1	0.0	2.8
2013	273	843	20.12	0.05	0.4	0.0	-0.1	0.0	3.3
2013	273	844	20.12	0.05	0.4	0.0	-0.1	0.0	2.8
2013	273	845	20.12	0.05	0.4	0.0	-0.1	0.0	2.7
2013	273	846	20.13	0.05	0.5	0.0	-0.1	-0.1	2.8
2013	273	847	20.13	0.05	0.5	0.0	-0.1	0.0	2.8
2013	273	848	20.13	0.05	0.5	0.0	-0.1	0.0	2.9
2013	273	849	20.14	0.05	0.6	0.0	-0.1	0.0	3.1
2013	273	850	20.14	0.05	0.5	0.0	-0.1	-0.1	3.3
2013	273	851	20.14	0.05	0.6	0.0	-0.1	0.0	3.2
2013	273	852	20.14	0.05	0.5	0.0	-0.1	-0.1	3.1
2013	273	853	20.14	0.05	0.6	0.0	-0.1	0.0	3.1
2013	273	854	20.14	0.05	0.6	0.0	-0.1	0.0	3.0
2013	273	855	20.14	0.05	0.7	0.0	-0.1	0.0	2.9
2013	273	856	20.14	0.05	0.6	0.0	-0.1	0.0	3.1

SMMI - Pogo Mine
09/30/13

Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	273	857	20.14	0.05	0.6	0.0	-0.1	0.0	3.4
2013	273	858	20.15	0.05	0.6	0.0	-0.1	0.0	3.4
2013	273	859	20.15	0.06	0.6	0.0	-0.1	0.0	3.1
2013	273	900	20.15	0.06	0.6	0.0	-0.1	0.0	3.8
2013	273	901	20.16	0.06	0.6	0.0	-0.1	0.0	4.0
2013	273	902	20.16	0.05	0.7	-0.1	-0.1	0.0	3.3
2013	273	903	20.16	0.05	0.6	0.0	-0.1	0.0	3.1
2013	273	904	20.16	0.05	0.6	0.0	-0.1	0.0	3.6
2013	273	905	20.15	0.05	0.7	0.0	-0.1	0.0	3.3
2013	273	906	20.15	0.05	0.7	-0.1	-0.1	0.0	3.4
2013	273	907	20.15	0.05	0.7	0.0	-0.1	0.0	3.4
2013	273	908	20.14	0.04	0.6	0.0	-0.1	0.0	3.8
2013	273	909	18.49	1.49	1.1	4.5	0.2	4.2	3.3
2013	273	910	11.23	6.23	3.7	45.5	5.0	42.0	3.6
2013	273	911	10.24	9.18	0.9	12.8	-0.2	13.2	2.0
2013	273	912	10.05	9.81	0.0	0.0	-0.1	0.0	0.8
2013	273	913	10.04	9.82	0.0	0.0	-0.1	0.0	0.9
2013	273	914	9.75	9.37	2.2	-0.1	-2.0	2.1	1.5
2013	273	915	0.26	0.20	76.3	81.3	8.1	73.0	68.7
2013	273	916	0.09	0.07	86.7	89.4	-0.1	89.4	91.3
2013	273	917	0.08	0.05	88.6	89.4	0.1	89.4	91.4
2013	273	918	0.07	0.04	90.5	89.5	0.4	89.5	91.4
2013	273	919	0.07	0.03	73.2	78.8	5.5	73.4	81.7
2013	273	920	0.06	0.02	46.0	44.7	0.1	44.5	47.7
2013	273	921	3.70	2.41	45.2	46.8	0.6	46.1	40.9
2013	273	922	10.85	6.61	19.1	52.7	-0.4	53.0	5.9
2013	273	923	11.00	6.55	14.3	51.5	-1.1	52.6	3.3
2013	273	924	11.43	6.24	10.9	53.4	-2.1	55.5	3.4
2013	273	925	14.20	4.54	8.6	49.2	-8.4	57.5	22.9
2013	273	926	13.26	5.19	6.5	52.7	-4.5	57.3	25.5
2013	273	927	16.42	3.06	5.0	36.8	-0.2	36.9	84.0
2013	273	928	16.74	2.84	2.9	33.2	-4.8	38.0	100.3
2013	273	929	11.68	6.54	3.1	45.9	1.3	44.7	62.9
2013	273	930	9.21	8.04	5.4	47.9	-0.6	48.4	3.3
2013	273	931	9.34	7.94	6.6	50.1	0.3	49.9	2.7
2013	273	932	9.59	7.76	7.9	49.7	0.0	49.7	2.5
2013	273	933	9.98	7.47	8.8	49.8	-0.6	50.4	2.7
2013	273	934	10.22	7.29	8.9	49.8	-0.9	50.6	2.7
2013	273	935	10.30	7.23	8.8	50.2	-0.3	50.6	2.7
2013	273	936	10.30	7.21	8.8	51.6	-1.8	53.4	2.7
2013	273	937	10.39	7.14	8.5	53.5	-1.5	54.9	2.6
2013	273	938	10.36	7.15	8.4	54.6	-1.8	56.3	2.6
2013	273	939	10.39	7.10	8.2	57.1	-1.5	58.4	2.5
2013	273	940	12.01	6.12	8.8	64.8	4.2	60.4	4.1
2013	273	941	11.08	6.94	9.7	58.4	-3.9	62.1	3.9
2013	273	942	7.86	9.49	37.7	74.6	-0.3	74.9	5.0
2013	273	943	7.77	9.34	35.0	88.0	0.4	87.4	5.9
2013	273	944	7.45	9.44	33.7	80.6	1.1	79.3	4.6
2013	273	945	7.44	9.40	32.3	77.3	-2.1	79.5	3.8
2013	273	946	7.43	9.38	31.4	77.7	-1.4	78.8	3.2
2013	273	947	7.50	9.29	28.5	64.9	1.8	63.0	2.9
2013	273	948	7.83	9.06	24.9	53.7	-1.1	54.6	2.7
2013	273	949	8.14	8.85	23.0	51.6	-0.3	51.8	2.5
2013	273	950	7.75	9.11	19.3	51.1	1.1	50.0	2.7
2013	273	951	8.42	8.66	18.2	48.4	-0.3	48.4	2.5
2013	273	952	8.14	8.80	17.9	48.3	-0.4	48.5	1.7
2013	273	953	9.05	8.21	16.1	45.4	-3.5	48.9	2.0

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	273	954	8.62	8.46	13.3	48.2	-1.3	49.5	1.9
2013	273	955	9.27	8.06	13.8	51.5	-0.3	51.8	1.8
2013	273	956	9.44	8.22	14.3	64.2	0.8	63.3	3.1
2013	273	957	8.52	8.89	25.6	95.8	0.1	95.6	1.8
2013	273	958	8.30	8.95	23.3	81.3	-1.0	82.2	2.0
2013	273	959	8.09	9.04	20.6	60.0	-2.5	62.6	2.2
2013	273	1000	8.61	8.63	18.5	53.7	-1.3	55.0	2.2
2013	273	1001	9.03	8.32	17.1	49.6	-1.8	51.3	2.1
2013	273	1002	9.47	8.03	16.2	48.1	-1.0	49.0	2.2
2013	273	1003	9.08	8.25	15.0	48.1	-1.4	49.4	1.8
2013	273	1004	9.67	7.86	12.0	46.7	-1.4	48.1	2.3
2013	273	1005	9.64	7.85	12.6	48.1	-2.7	50.7	1.6
2013	273	1006	9.37	8.00	12.0	50.8	-2.0	52.6	1.6
2013	273	1007	9.96	7.61	10.9	49.6	-1.8	51.3	1.9
2013	273	1008	10.03	7.52	10.7	52.3	0.1	52.0	1.4
2013	273	1009	9.75	7.72	9.2	51.9	0.2	51.5	1.7
2013	273	1010	10.25	7.36	8.9	51.1	-2.3	53.1	1.7
2013	273	1011	9.91	7.52	9.5	54.9	-1.8	56.6	1.3
2013	273	1012	10.76	7.58	9.5	58.4	-3.4	61.8	4.1
2013	273	1013	8.48	9.18	20.0	74.2	3.9	70.2	1.8
2013	273	1014	8.15	9.13	16.8	53.3	-1.1	54.3	2.3
2013	273	1015	8.62	8.74	14.6	52.4	2.3	50.0	1.6
2013	273	1016	9.13	8.31	11.7	52.9	-2.5	55.3	1.4
2013	273	1017	8.80	8.44	11.1	52.5	-0.7	53.3	1.2
2013	273	1018	9.46	8.06	9.3	50.8	-3.2	54.0	1.5
2013	273	1019	9.80	7.77	8.2	52.0	-2.5	54.4	1.4
2013	273	1020	9.95	7.65	7.5	53.5	1.0	52.5	1.4
2013	273	1021	10.09	7.51	6.9	53.8	-0.7	54.5	1.3
2013	273	1022	9.48	7.93	6.1	55.4	0.6	54.6	1.4
2013	273	1023	10.23	7.41	5.2	54.3	1.0	53.2	1.4
2013	273	1024	10.28	7.37	6.1	55.1	1.9	53.0	1.4
2013	273	1025	10.41	7.27	6.3	54.2	-2.2	56.1	1.3
2013	273	1026	9.90	7.58	5.7	56.5	-1.1	57.7	1.2
2013	273	1027	10.55	7.27	5.1	55.5	-2.9	58.3	1.2
2013	273	1028	10.16	7.79	6.9	58.6	2.3	56.3	3.6
2013	273	1029	9.08	8.44	14.6	86.9	2.8	83.9	1.0
2013	273	1030	8.84	8.61	19.7	105.9	-1.5	107.5	0.9
2013	273	1031	8.90	8.53	25.1	96.1	-2.3	98.4	1.0
2013	273	1032	9.02	8.41	29.0	81.6	0.5	81.1	1.4
2013	273	1033	8.72	8.62	30.0	66.8	-5.2	72.0	1.6
2013	273	1034	8.24	8.84	30.7	63.8	0.7	63.0	1.4
2013	273	1035	9.01	8.28	28.0	53.3	1.2	52.1	1.1
2013	273	1036	10.28	7.46	19.8	56.9	1.3	55.7	1.0
2013	273	1037	10.40	7.34	17.1	53.7	-4.2	57.7	0.9
2013	273	1038	10.32	7.33	14.8	60.9	0.2	60.5	0.9
2013	273	1039	9.75	7.78	14.1	49.9	-2.7	52.5	1.3
2013	273	1040	9.74	7.79	14.0	47.7	-2.2	49.8	1.1
2013	273	1041	9.87	7.65	15.1	50.1	1.5	48.5	1.1
2013	273	1042	9.91	7.62	13.9	48.3	-2.5	50.8	1.0
2013	273	1043	9.71	7.74	13.8	51.4	1.5	49.9	0.8
2013	273	1044	9.12	8.68	21.0	56.8	-1.4	58.0	1.7
2013	273	1045	8.48	9.19	28.1	69.5	-3.1	72.5	1.0
2013	273	1046	8.98	8.63	21.3	49.8	1.6	48.1	0.9
2013	273	1047	9.60	8.16	15.4	43.0	-1.7	44.6	0.8
2013	273	1048	10.14	7.65	12.1	49.4	1.4	47.9	0.9
2013	273	1049	10.65	7.24	12.2	55.3	3.4	51.8	0.8
2013	273	1050	11.04	6.94	10.3	56.7	2.2	54.3	0.7

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	273	1051	10.47	7.35	10.1	55.5	2.2	53.3	0.7
2013	273	1052	9.38	8.00	12.4	47.5	1.2	46.3	0.6
2013	273	1053	9.54	7.87	13.1	49.8	1.5	48.5	0.6
2013	273	1054	9.51	7.87	12.2	49.7	0.4	49.2	0.6
2013	273	1055	9.75	7.70	12.0	49.8	-1.2	50.9	0.6
2013	273	1056	9.93	7.58	11.3	50.9	-1.8	52.6	0.7
2013	273	1057	10.02	7.51	10.9	52.9	-1.9	54.5	0.6
2013	273	1058	10.22	7.35	10.9	54.0	-1.6	55.6	0.6
2013	273	1059	10.30	7.30	10.5	56.3	-1.5	57.6	0.6
2013	273	1100	11.35	6.87	9.8	55.4	-3.8	59.2	0.6
2013	273	1101	9.67	8.07	13.6	49.2	-2.8	51.8	0.4
2013	273	1102	8.94	8.47	22.2	47.1	-0.1	47.2	0.4
2013	273	1103	8.83	8.51	22.9	48.2	-0.4	48.5	0.4
2013	273	1104	8.86	8.41	25.3	49.7	1.5	48.2	0.4
2013	273	1105	9.07	8.27	23.4	46.9	0.7	46.0	0.3
2013	273	1106	9.12	8.20	23.1	47.7	1.8	45.8	0.3
2013	273	1107	9.23	8.12	22.0	48.8	1.2	47.5	0.3
2013	273	1108	9.19	8.12	22.4	50.1	1.5	48.6	0.2
2013	273	1109	9.37	8.00	20.6	49.3	0.9	48.3	0.1
2013	273	1110	9.54	7.88	19.1	49.9	0.3	49.5	0.1
2013	273	1111	9.50	7.89	19.0	51.3	0.7	50.6	0.1
2013	273	1112	9.57	7.83	19.2	52.0	1.2	50.8	0.1
2013	273	1113	9.56	7.84	17.7	53.2	1.4	51.7	0.1
2013	273	1114	9.68	7.77	16.6	52.6	0.0	52.2	0.0
2013	273	1115	9.93	7.59	15.0	51.8	-1.1	52.7	0.1
2013	273	1116	10.04	7.79	19.8	60.5	1.4	59.1	0.7
2013	273	1117	9.49	8.42	44.3	109.8	0.1	109.6	1.4
2013	273	1118	8.47	9.04	61.9	98.1	-2.3	100.6	1.0
2013	273	1119	8.10	9.07	64.6	71.1	1.1	69.8	0.3
2013	273	1120	8.84	8.49	61.5	55.1	-0.5	55.5	0.1
2013	273	1121	9.36	8.19	54.7	57.5	1.5	56.1	0.0
2013	273	1122	9.64	8.01	53.1	61.4	-1.8	63.0	0.0
2013	273	1123	9.60	7.99	49.4	61.3	-2.9	64.2	-0.1
2013	273	1124	9.64	7.93	49.4	62.7	0.4	62.2	0.0
2013	273	1125	9.78	7.83	46.9	58.4	-2.7	61.1	0.0
2013	273	1126	10.04	7.61	41.1	56.7	-0.4	57.2	0.0
2013	273	1127	10.46	7.33	34.2	57.1	1.0	56.0	-0.1
2013	273	1128	10.56	7.32	28.8	55.6	-0.7	56.4	0.0
2013	273	1129	10.43	7.37	26.3	54.7	-2.5	57.0	0.0
2013	273	1130	10.57	7.23	26.4	56.7	0.7	55.8	0.0
2013	273	1131	10.67	7.16	26.1	57.4	0.4	56.9	0.0
2013	273	1132	8.96	8.57	12.3	19.3	-1.8	22.4	4.6
2013	273	1133	10.03	9.80	1.6	0.0	-0.1	0.0	-0.7
2013	273	1134	10.03	9.81	1.3	0.0	-0.1	0.0	-0.7
2013	273	1135	4.48	4.15	42.0	31.9	-3.6	44.3	28.2
2013	273	1136	0.10	0.10	90.0	88.1	-0.1	88.1	88.4
2013	273	1137	0.09	0.07	91.3	88.4	0.0	88.4	89.2
2013	273	1138	0.08	0.05	91.6	88.8	0.4	88.4	90.4
2013	273	1139	0.08	0.04	65.1	69.7	4.1	65.5	73.7
2013	273	1140	0.07	0.04	47.0	44.4	-0.1	44.0	46.4
2013	273	1141	0.07	0.03	47.0	44.4	-0.1	44.0	46.3
2013	273	1142	5.29	1.54	36.7	44.2	3.7	40.4	39.8
2013	273	1143	21.13	0.07	1.6	0.9	-2.0	3.2	3.3
2013	273	1144	21.17	0.06	0.9	0.0	-0.1	0.0	1.3
2013	273	1145	21.18	0.06	1.0	0.0	-0.1	0.0	1.3
2013	273	1146	21.19	0.05	0.9	0.0	-0.1	0.0	1.3
2013	273	1147	21.19	0.05	1.0	0.0	-0.1	0.0	1.2

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	273	1148	21.19	0.06	0.9	0.0	-0.1	0.0	1.3
2013	273	1149	21.20	0.06	0.9	0.0	-0.1	0.0	1.2
2013	273	1150	21.20	0.06	0.9	0.0	-0.1	0.0	1.1
2013	273	1151	21.20	0.06	0.9	0.0	-0.1	0.0	1.1
2013	273	1152	21.20	0.06	0.8	0.0	-0.1	0.0	1.2
2013	273	1153	21.20	0.05	0.8	0.0	-0.1	0.0	1.1
2013	273	1154	21.20	0.05	0.9	0.0	-0.1	0.0	1.1
2013	273	1155	21.20	0.05	0.8	0.0	-0.1	0.0	1.1
2013	273	1156	21.20	0.05	0.8	0.0	-0.1	0.0	1.1
2013	273	1157	21.20	0.05	0.9	0.0	-0.1	0.0	1.1
2013	273	1158	21.20	0.05	0.9	0.0	-0.1	0.0	1.0
2013	273	1159	21.20	0.05	0.9	0.0	-0.1	0.0	1.0
2013	273	1200	21.20	0.05	0.9	0.0	-0.1	0.0	0.9
2013	273	1201	21.20	0.05	0.9	0.0	-0.1	0.0	0.9
2013	273	1202	21.21	0.05	0.9	0.0	-0.1	0.0	0.9
2013	273	1203	21.21	0.05	0.9	0.0	-0.1	0.0	0.9
2013	273	1204	21.21	0.05	0.9	0.0	-0.1	0.0	0.9
2013	273	1205	21.21	0.05	0.9	-0.1	-0.1	0.0	0.9
2013	273	1206	21.20	0.05	0.9	0.0	-0.1	0.0	0.9
2013	273	1207	21.21	0.05	1.0	0.0	-0.1	0.0	0.9
2013	273	1208	21.21	0.05	0.9	0.0	-0.1	0.0	0.8
2013	273	1209	21.21	0.05	0.9	0.0	-0.1	0.0	0.8
2013	273	1210	21.21	0.04	0.9	0.0	-0.1	0.0	0.8
2013	273	1211	21.21	0.05	0.9	0.0	-0.1	0.0	0.7
2013	273	1212	21.21	0.05	0.9	0.0	-0.1	0.0	0.8
2013	273	1213	21.21	0.05	0.9	0.0	-0.1	0.0	0.8
2013	273	1214	21.21	0.05	1.0	0.0	-0.1	0.0	0.7
2013	273	1215	21.21	0.05	0.9	0.0	-0.1	0.0	0.7
2013	273	1216	21.20	0.05	0.9	0.0	-0.1	0.0	0.6
2013	273	1217	21.20	0.05	0.9	0.0	-0.1	0.0	0.6
2013	273	1218	21.21	0.04	0.9	0.0	-0.1	0.0	0.6
2013	273	1219	21.21	0.04	1.0	0.0	-0.1	0.0	0.6
2013	273	1220	21.21	0.04	0.9	0.0	-0.1	0.0	0.6
2013	273	1221	21.21	0.04	0.9	0.0	-0.1	0.0	0.6
2013	273	1222	21.21	0.04	0.9	0.0	-0.1	0.0	0.6
2013	273	1223	21.21	0.04	1.0	0.0	-0.1	0.0	0.5
2013	273	1224	21.21	0.04	1.0	0.0	-0.1	0.0	0.5
2013	273	1225	21.21	0.04	0.9	0.0	-0.1	0.0	0.5
2013	273	1226	21.21	0.05	0.9	0.0	-0.1	0.0	0.5
2013	273	1227	21.21	0.05	0.9	0.0	-0.1	0.0	0.5
2013	273	1228	21.21	0.05	0.9	0.0	-0.1	0.0	0.5
2013	273	1229	21.21	0.04	0.9	0.0	-0.1	0.0	0.5
2013	273	1230	21.21	0.04	0.9	-0.1	-0.1	0.0	0.5
2013	273	1231	21.21	0.04	0.9	0.0	-0.1	0.0	0.4
2013	273	1232	21.21	0.04	0.8	0.0	-0.1	0.0	0.5
2013	273	1233	21.21	0.04	0.9	0.0	-0.1	0.0	0.4
2013	273	1234	21.20	0.04	0.8	0.0	-0.1	0.0	0.4
2013	273	1235	21.21	0.04	0.9	0.0	-0.1	0.0	0.4
2013	273	1236	21.21	0.04	0.9	0.0	-0.1	0.0	0.4
2013	273	1237	21.21	0.04	0.8	0.0	-0.1	0.0	0.4
2013	273	1238	21.21	0.04	0.8	0.0	-0.1	0.0	0.4
2013	273	1239	21.21	0.04	0.9	0.0	-0.1	0.0	0.4
2013	273	1240	21.21	0.05	0.8	0.0	-0.1	-0.1	0.4
2013	273	1241	21.21	0.05	0.8	0.0	-0.1	0.0	0.4
2013	273	1242	21.21	0.04	0.8	0.0	-0.1	0.0	0.4
2013	273	1243	21.21	0.04	0.9	0.0	-0.1	0.0	0.4
2013	273	1244	21.21	0.04	0.9	0.0	-0.1	0.0	0.3

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	273	1245	21.22	0.04	0.8	0.0	-0.1	0.0	0.4
2013	273	1246	21.21	0.04	0.9	0.0	-0.1	0.0	0.3
2013	273	1247	21.21	0.04	1.0	0.0	-0.1	0.0	0.3
2013	273	1248	15.09	4.36	4.2	27.0	2.0	28.5	0.0
2013	273	1249	10.47	7.47	13.5	58.7	-3.7	63.3	-1.3
2013	273	1250	10.49	7.42	16.9	62.1	0.4	61.7	-1.5
2013	273	1251	10.56	7.36	18.4	62.2	-0.8	63.0	-1.5
2013	273	1252	10.75	7.33	21.5	60.0	-4.6	64.7	-1.4
2013	273	1253	9.27	9.15	39.6	96.3	-1.4	100.4	-0.3
2013	273	1254	9.47	8.86	39.2	104.6	-2.2	107.7	-1.3
2013	273	1255	8.98	8.96	39.5	79.4	-3.3	82.7	-1.8
2013	273	1256	8.54	9.12	31.3	56.4	-4.2	60.6	-1.8
2013	273	1257	8.78	8.81	28.6	51.5	1.1	50.2	-1.8
2013	273	1258	9.50	8.38	30.4	48.8	0.4	48.3	-1.8
2013	273	1259	9.18	8.62	26.9	46.7	-1.3	47.9	-1.8
2013	273	1300	9.39	8.33	23.9	49.7	0.3	49.4	-1.8
2013	273	1301	10.02	7.83	22.5	50.5	-2.3	52.6	-1.8
2013	273	1302	10.63	7.49	18.4	53.0	2.8	50.1	-1.7
2013	273	1303	10.23	7.77	16.9	50.1	-2.6	52.6	-1.7
2013	273	1304	10.17	7.74	16.9	53.3	-0.1	53.2	-1.7
2013	273	1305	10.53	7.45	15.4	53.6	-1.9	55.4	-1.8
2013	273	1306	11.00	7.17	14.7	54.1	0.4	53.8	-1.8
2013	273	1307	10.75	7.39	13.1	53.6	-0.7	54.2	-1.8
2013	273	1308	10.73	7.37	13.0	53.3	-3.8	57.5	-1.3
2013	273	1309	9.25	8.76	23.8	67.0	2.3	64.5	-0.2
2013	273	1310	9.32	8.66	32.7	57.9	-4.1	61.9	-1.7
2013	273	1311	9.62	8.40	29.2	52.3	1.3	51.0	-1.9
2013	273	1312	9.60	8.28	27.4	53.0	-2.6	55.6	-1.8
2013	273	1313	9.95	7.95	24.9	55.1	-0.1	55.2	-1.9
2013	273	1314	10.80	7.38	21.9	55.6	-1.0	56.4	-1.8
2013	273	1315	10.88	7.35	19.8	57.1	1.7	55.3	-1.8
2013	273	1316	10.63	7.42	18.3	56.8	-3.3	60.1	-1.8
2013	273	1317	10.79	7.25	17.8	59.8	-0.2	59.9	-1.8
2013	273	1318	11.44	6.81	16.3	58.9	-2.4	61.3	-1.7
2013	273	1319	11.32	6.95	16.0	61.5	1.7	59.7	-1.8
2013	273	1320	11.07	7.04	16.1	60.8	-4.9	65.4	-1.8
2013	273	1321	11.25	6.90	14.1	65.3	0.8	64.4	-1.8
2013	273	1322	11.46	6.69	14.0	64.5	-3.2	67.8	-1.8
2013	273	1323	11.88	6.45	12.7	66.3	0.8	65.7	-1.8
2013	273	1324	11.68	6.72	14.4	63.2	-3.2	66.6	-1.5
2013	273	1325	11.00	7.38	19.6	54.1	-2.0	56.0	-1.4
2013	273	1326	9.97	8.00	27.3	52.3	0.5	51.7	-1.8
2013	273	1327	10.64	7.44	26.4	52.9	-3.5	56.3	-1.9
2013	273	1328	11.02	7.25	23.2	56.2	2.2	54.0	-1.9
2013	273	1329	10.65	7.41	23.3	53.7	-5.0	58.7	-1.8
2013	273	1330	10.74	7.29	25.1	59.8	1.0	58.7	-1.8
2013	273	1331	11.16	6.94	25.7	57.6	-3.5	61.0	-1.8
2013	273	1332	11.52	6.79	22.3	59.9	3.5	56.3	-1.8
2013	273	1333	11.11	7.02	21.5	57.2	-2.9	59.9	-1.8
2013	273	1334	11.14	6.95	20.5	59.2	-1.6	60.7	-1.8
2013	273	1335	11.26	6.86	21.6	61.6	1.3	60.4	-1.8
2013	273	1336	10.76	7.18	26.5	57.9	-2.5	60.5	-1.8
2013	273	1337	9.67	7.94	36.9	47.2	0.0	47.2	-2.0
2013	273	1338	8.98	8.39	35.9	45.6	-1.8	47.2	-2.0
2013	273	1339	10.54	7.26	27.6	50.8	-0.2	50.9	-1.9
2013	273	1340	11.82	6.52	22.4	62.5	0.9	61.6	-1.6
2013	273	1341	9.33	8.70	37.9	64.3	0.4	64.1	-1.3

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	273	1342	8.68	8.90	48.7	52.9	-2.6	55.5	-2.1
2013	273	1343	9.44	8.29	43.3	49.8	-1.9	51.4	-2.1
2013	273	1344	10.19	7.79	37.9	51.9	-0.5	52.3	-2.0
2013	273	1345	10.26	7.75	32.5	55.5	1.2	54.3	-1.9
2013	273	1346	10.28	7.65	30.3	56.6	-2.3	58.8	-2.0
2013	273	1347	10.52	7.47	28.2	59.9	-0.1	59.9	-1.9
2013	273	1348	10.65	7.35	26.9	62.9	1.2	61.7	-1.8
2013	273	1349	10.91	7.12	24.9	62.0	-3.3	65.3	-1.9
2013	273	1350	11.34	6.89	22.7	64.3	-0.4	64.6	-1.8
2013	273	1351	11.00	7.11	23.4	65.7	-0.4	65.9	-1.8
2013	273	1352	11.02	7.04	24.3	66.0	-3.6	69.7	-1.8
2013	273	1353	11.11	6.97	22.9	68.5	0.7	67.9	-1.8
2013	273	1354	11.29	6.81	21.6	67.3	-2.0	69.2	-1.8
2013	273	1355	11.76	6.47	23.4	65.9	-3.1	68.8	-1.8
2013	273	1356	12.54	6.09	20.7	67.5	1.4	66.0	-0.9
2013	273	1357	9.15	8.59	36.7	77.6	0.5	76.9	-0.6
2013	273	1358	10.30	7.77	67.8	138.5	1.3	137.2	-1.8
2013	273	1359	9.74	8.12	73.5	121.1	-0.4	121.5	-1.6
2013	273	1400	9.35	8.33	67.6	89.6	1.7	90.7	-0.7
2013	273	1401	9.37	8.23	48.9	59.0	-0.3	59.2	-0.9
2013	273	1402	10.09	7.69	37.3	60.8	-3.0	63.6	-0.8
2013	273	1403	10.28	7.66	37.8	62.1	1.7	60.3	-0.1
2013	273	1404	9.87	7.88	37.4	62.2	-1.0	63.1	0.3
2013	273	1405	9.95	7.79	33.6	62.8	-0.1	62.8	1.7
2013	273	1406	10.32	7.49	33.5	64.0	-0.3	64.1	0.5
2013	273	1407	10.74	7.26	30.1	62.3	-2.3	64.4	0.7
2013	273	1408	10.43	7.50	28.3	62.7	0.5	62.1	1.1
2013	273	1409	10.30	7.53	29.7	62.5	-1.8	64.2	1.3
2013	273	1410	10.58	7.27	27.0	62.9	1.0	61.6	1.2
2013	273	1411	11.23	6.87	24.4	59.9	-3.0	62.7	1.3
2013	273	1412	10.95	7.10	23.1	64.1	2.1	62.0	1.6
2013	273	1413	9.16	6.17	37.5	63.5	-7.0	78.1	5.4
2013	273	1414	0.09	0.10	83.8	83.2	-1.6	85.8	77.5
2013	273	1415	0.06	0.04	90.2	87.4	0.1	87.4	93.0
2013	273	1416	0.05	0.03	90.8	87.9	0.4	87.4	92.0
2013	273	1417	0.04	0.02	90.9	87.9	0.4	87.6	92.1
2013	273	1418	0.05	0.01	79.8	80.6	0.5	80.3	87.1
2013	273	1419	0.04	0.01	46.8	44.5	-0.3	44.8	49.6
2013	273	1420	0.03	0.01	46.4	43.9	0.0	43.5	47.0
2013	273	1421	0.04	0.01	46.5	43.9	0.0	43.5	46.8
2013	273	1422	4.20	4.37	31.8	36.4	7.4	28.7	38.5
2013	273	1423	9.99	9.80	2.4	0.3	-0.1	0.2	2.1
2013	273	1424	10.00	9.82	1.6	0.0	-0.1	0.0	0.1
2013	273	1425	12.72	6.38	3.1	26.1	-2.7	30.4	0.4
2013	273	1426	21.11	0.07	1.2	4.4	2.4	1.8	1.9
2013	273	1427	21.14	0.05	1.1	0.0	-0.1	0.0	2.0
2013	273	1428	21.15	0.05	1.0	-0.1	-0.1	0.0	1.9
2013	273	1429	21.15	0.05	1.0	0.0	-0.1	0.0	1.8
2013	273	1430	21.16	0.04	1.0	0.0	-0.1	0.0	1.6
2013	273	1431	21.16	0.04	1.0	0.0	-0.1	0.0	1.5
2013	273	1432	21.17	0.04	1.0	0.0	-0.1	0.0	1.4
2013	273	1433	21.17	0.04	1.0	0.0	-0.1	0.0	1.3
2013	273	1434	21.17	0.04	1.0	0.0	-0.1	0.0	1.3
2013	273	1435	21.17	0.04	0.9	0.0	-0.1	0.0	1.2
2013	273	1436	21.17	0.04	1.0	0.0	-0.1	0.0	1.1
2013	273	1437	21.17	0.04	1.0	0.0	-0.1	0.0	1.0
2013	273	1438	21.18	0.04	1.0	0.0	-0.1	0.0	0.9

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	273	1439	21.18	0.04	1.0	0.0	0.0	0.0	0.9
2013	273	1440	21.18	0.04	1.0	0.0	-0.1	0.0	0.8
2013	273	1441	21.18	0.04	0.9	0.0	-0.1	0.0	0.8
2013	273	1442	21.18	0.04	1.0	0.0	-0.1	0.0	0.7
2013	273	1443	21.18	0.04	1.0	0.0	-0.1	0.0	0.6
2013	273	1444	21.18	0.04	1.0	0.0	-0.1	0.0	0.6
2013	273	1445	21.18	0.04	1.0	0.0	-0.1	0.0	0.6
2013	273	1446	21.18	0.04	1.0	0.0	-0.1	0.0	0.5
2013	273	1447	21.18	0.04	0.9	0.0	-0.1	0.0	0.5
2013	273	1448	21.18	0.03	1.0	0.0	-0.1	0.0	0.4
2013	273	1449	21.18	0.04	1.0	0.0	-0.1	0.0	0.4
2013	273	1450	21.19	0.03	1.0	0.0	-0.1	0.0	0.4
2013	273	1451	21.19	0.03	0.9	0.0	-0.1	0.0	0.3
2013	273	1452	21.19	0.04	0.9	0.0	-0.1	0.0	0.3
2013	273	1453	21.19	0.04	1.0	0.0	-0.1	0.0	0.2
2013	273	1454	21.18	0.04	0.8	0.0	0.0	0.0	0.2
2013	273	1455	21.18	0.04	0.9	0.0	-0.1	0.0	0.1
2013	273	1456	21.19	0.04	0.9	0.0	0.0	0.0	0.1
2013	273	1457	21.19	0.04	0.9	0.0	-0.1	0.0	0.1
2013	273	1458	21.19	0.03	0.9	0.0	-0.1	0.0	0.0
2013	273	1459	21.19	0.03	0.9	0.0	-0.1	0.0	-0.1
2013	273	1500	21.19	0.03	0.9	0.0	-0.1	0.0	-0.1
2013	273	1501	21.19	0.03	0.8	0.0	-0.1	0.0	-0.1
2013	273	1502	21.19	0.03	0.9	0.0	0.0	0.0	-0.2
2013	273	1503	21.19	0.03	0.9	0.0	-0.1	0.0	-0.2
2013	273	1504	21.19	0.03	0.9	0.0	-0.1	0.0	-0.2
2013	273	1505	19.69	1.18	1.0	1.1	-1.2	4.3	-0.3
2013	273	1506	12.32	6.16	3.9	61.7	-1.6	66.4	-0.1
2013	273	1507	9.05	8.87	12.2	57.3	3.4	53.9	-1.7
2013	273	1508	9.40	8.34	23.0	56.2	1.3	54.6	-2.0
2013	273	1509	10.07	7.95	24.6	53.7	-0.3	54.0	-1.9
2013	273	1510	9.74	8.03	23.5	52.6	-2.7	55.2	-1.9
2013	273	1511	10.28	7.55	21.5	55.5	1.9	53.6	-2.0
2013	273	1512	10.91	7.23	15.2	54.6	-2.3	56.9	-1.9
2013	273	1513	10.51	7.40	16.0	58.9	-2.2	61.2	-2.0
2013	273	1514	10.85	7.09	17.0	66.3	1.9	64.2	-2.0
2013	273	1515	11.60	6.64	15.8	63.5	-5.7	69.0	-2.0
2013	273	1516	11.05	7.01	14.8	69.9	3.5	66.5	-1.9
2013	273	1517	10.95	7.01	14.9	69.1	-3.2	72.6	-2.1
2013	273	1518	11.71	6.46	13.6	69.7	-3.8	73.8	-2.1
2013	273	1519	11.52	6.68	12.0	72.3	1.6	70.7	-2.0
2013	273	1520	11.26	6.78	12.2	71.4	-4.7	76.4	-2.1
2013	273	1521	11.54	6.52	12.4	76.1	2.6	73.6	-2.1
2013	273	1522	12.51	6.22	12.2	65.4	-6.0	71.5	-1.6
2013	273	1523	8.73	9.06	23.7	56.2	-3.2	60.0	-1.9
2013	273	1524	9.23	8.61	30.8	55.6	1.3	54.4	-2.3
2013	273	1525	9.22	8.68	30.4	52.1	1.3	50.6	-2.3
2013	273	1526	9.11	8.59	30.2	49.6	-2.2	51.8	-2.3
2013	273	1527	10.07	7.85	28.2	54.1	-0.6	54.4	-2.3
2013	273	1528	10.07	7.93	24.3	53.7	1.2	52.5	-2.3
2013	273	1529	9.86	7.96	22.1	52.8	-2.8	55.4	-2.3
2013	273	1530	10.41	7.52	22.2	54.9	0.4	54.5	-2.3
2013	273	1531	10.46	7.60	22.7	53.7	-1.0	54.6	-2.3
2013	273	1532	9.94	7.87	19.6	54.1	-1.0	55.1	-2.3
2013	273	1533	10.25	7.59	20.9	56.2	0.6	55.3	-2.3
2013	273	1534	10.79	7.33	21.2	52.7	-4.2	56.6	-2.3
2013	273	1535	10.15	7.70	21.8	55.2	0.1	55.0	-2.3

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	273	1536	10.71	7.25	21.6	57.7	1.2	56.5	-2.3
2013	273	1537	10.84	7.27	18.8	52.8	-1.7	54.3	-2.3
2013	273	1538	10.80	7.22	20.3	56.1	-0.1	56.3	-2.3
2013	273	1539	9.44	8.51	34.8	86.4	1.5	84.9	-2.0
2013	273	1540	10.00	8.21	48.0	103.4	-4.1	107.4	-2.3
2013	273	1541	8.92	8.88	55.0	88.0	1.2	86.7	-2.3
2013	273	1542	8.92	8.67	49.6	72.0	-2.2	74.4	-2.3
2013	273	1543	9.11	8.60	42.5	59.5	0.5	59.0	-2.3
2013	273	1544	8.81	8.62	41.0	51.0	0.0	51.0	-2.3
2013	273	1545	9.74	8.04	35.5	46.4	-1.4	48.0	-2.3
2013	273	1546	9.16	8.45	29.0	46.8	1.9	44.8	-2.3
2013	273	1547	9.44	8.12	27.8	46.4	-0.4	46.6	-2.3
2013	273	1548	10.14	7.75	24.9	44.2	-2.8	47.0	-2.3
2013	273	1549	9.49	8.14	25.4	47.5	1.3	46.1	-2.3
2013	273	1550	10.31	7.50	27.0	48.3	-0.3	48.5	-2.3
2013	273	1551	10.01	7.81	25.8	49.2	1.8	47.3	-2.3
2013	273	1552	9.98	7.69	26.5	49.5	-1.2	50.6	-2.3
2013	273	1553	10.79	7.22	23.0	47.9	-3.5	51.2	-2.3
2013	273	1554	9.71	8.04	33.9	60.8	0.8	62.5	-2.1
2013	273	1555	9.12	8.72	34.7	61.7	-5.2	69.7	-1.7
2013	273	1556	8.80	8.67	39.0	67.8	5.5	62.2	-2.3
2013	273	1557	9.71	8.10	34.2	57.3	0.7	56.7	-2.3
2013	273	1558	9.06	8.53	35.1	51.6	2.5	49.1	-2.3
2013	273	1559	9.86	7.87	31.7	50.8	0.3	50.5	-2.3
2013	273	1600	10.09	7.83	26.2	49.3	-1.5	50.6	-2.3
2013	273	1601	9.77	7.92	25.1	51.5	-1.2	52.6	-2.3
2013	273	1602	10.90	7.16	24.9	49.8	-3.5	53.4	-2.3
2013	273	1603	10.09	7.69	25.7	52.4	0.5	51.9	-2.3
2013	273	1604	11.01	6.99	26.9	53.4	-0.1	53.3	-2.3
2013	273	1605	10.74	7.28	23.4	53.8	0.6	53.2	-2.3
2013	273	1606	10.58	7.25	22.8	55.8	-1.5	57.3	-2.3
2013	273	1607	11.37	6.78	21.6	54.6	-5.1	59.4	-2.3
2013	273	1608	10.66	7.27	18.8	59.5	3.1	56.3	-2.3
2013	273	1609	10.93	6.98	16.7	59.4	0.0	59.5	-2.3
2013	273	1610	10.96	7.20	20.7	54.5	-3.8	58.4	-2.3
2013	273	1611	9.00	8.51	28.8	58.5	-2.7	61.2	-2.3
2013	273	1612	9.49	8.05	33.3	54.1	-0.6	55.3	-2.3
2013	273	1613	10.17	7.71	28.3	43.6	-0.6	44.4	-2.3
2013	273	1614	10.12	7.63	28.8	47.8	-1.6	49.3	-2.3
2013	273	1615	11.06	6.95	29.1	54.0	0.9	53.0	-2.3
2013	273	1616	10.82	7.22	29.4	55.4	-1.1	56.6	-2.3
2013	273	1617	10.58	7.27	33.9	58.9	-3.6	62.6	-2.3
2013	273	1618	11.54	6.67	30.5	59.5	-3.2	62.6	-2.3
2013	273	1619	10.71	7.22	35.1	66.2	3.1	63.0	-2.3
2013	273	1620	11.09	6.88	36.7	67.8	0.5	67.2	-2.3
2013	273	1621	11.50	6.72	41.0	64.6	-6.0	70.6	-2.3
2013	273	1622	10.86	7.08	36.7	67.5	-1.6	69.0	-2.3
2013	273	1623	11.40	6.65	24.6	71.1	2.8	68.2	-2.3
2013	273	1624	11.29	6.85	18.7	66.0	-2.3	68.2	-2.3
2013	273	1625	10.84	7.06	19.4	66.9	-4.2	71.1	-2.3
2013	273	1626	11.83	6.53	21.2	64.6	0.2	64.3	-2.3
2013	273	1627	9.17	8.64	33.3	74.1	0.8	73.1	-2.3
2013	273	1628	8.75	8.76	44.9	75.3	0.9	74.5	-2.3
2013	273	1629	9.78	8.10	37.9	48.2	-2.0	50.2	-2.3
2013	273	1630	9.39	8.29	31.7	48.1	2.1	46.1	-2.3
2013	273	1631	10.15	7.69	30.7	50.3	1.2	49.2	-2.3
2013	273	1632	10.35	7.67	26.8	48.3	-2.5	51.0	-2.3

SMMI - Pogo Mine
09/30/13

Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	273	1633	9.84	7.88	27.0	51.0	-2.6	53.8	-2.3
2013	273	1634	10.75	7.30	25.1	51.5	-0.7	52.2	-2.3
2013	273	1635	10.15	7.76	22.9	53.7	1.7	51.8	-2.3
2013	273	1636	10.46	7.41	23.9	54.1	0.0	53.9	-2.3
2013	273	1637	10.90	7.23	20.1	53.4	-3.9	57.2	-2.3
2013	273	1638	10.45	7.39	22.2	57.3	-3.1	60.5	-2.3
2013	273	1639	11.32	6.88	19.7	57.3	-2.1	59.3	-2.3
2013	273	1640	10.58	7.35	17.9	61.1	2.9	58.1	-2.3
2013	273	1641	11.17	6.87	19.1	61.0	1.7	59.2	-2.3
2013	273	1642	11.35	6.95	20.7	58.0	-3.2	61.2	-2.3
2013	273	1643	9.99	7.75	26.0	56.9	1.5	55.2	-2.3
2013	273	1644	10.97	7.03	27.6	60.6	2.3	58.3	-2.3
2013	273	1645	10.74	7.28	24.8	64.4	1.1	63.3	-2.3
2013	273	1646	10.99	6.97	26.1	67.2	-3.3	70.5	-2.3
2013	273	1647	11.77	6.54	21.7	64.6	-4.7	69.4	-2.3
2013	273	1648	10.98	7.04	20.8	67.1	3.5	63.5	-2.3
2013	273	1649	11.00	6.98	21.9	62.9	-4.5	67.3	-2.3
2013	273	1650	11.68	6.55	20.1	64.1	-0.9	64.9	-2.3
2013	273	1651	11.23	6.89	18.7	64.3	0.0	64.3	-2.3
2013	273	1652	11.23	6.84	18.8	64.9	0.0	64.6	-2.3
2013	273	1653	11.32	6.77	18.7	63.7	-3.7	67.3	-2.3
2013	273	1654	11.74	6.45	18.3	66.1	0.9	65.2	-2.3
2013	273	1655	11.88	6.44	16.9	61.4	-5.2	66.5	-2.3
2013	273	1656	11.57	6.59	15.6	66.6	2.6	64.1	-2.3
2013	273	1657	11.56	6.58	16.1	66.3	-1.8	68.0	-2.3
2013	273	1658	12.46	6.01	17.7	70.5	1.1	69.4	-2.2
2013	273	1659	9.41	8.33	30.3	68.3	2.0	66.3	-2.1
2013	273	1700	8.43	8.85	48.6	70.6	-1.0	72.5	-2.3
2013	273	1701	9.55	8.11	50.0	53.2	-1.7	54.8	-2.3
2013	273	1702	8.69	8.72	48.3	52.5	1.6	50.8	-2.3
2013	273	1703	9.30	8.21	48.5	52.5	0.3	52.0	-2.3
2013	273	1704	9.16	8.42	44.9	47.0	-1.1	48.2	-2.3
2013	273	1705	9.00	8.41	46.3	46.9	-2.1	49.1	-2.3
2013	273	1706	9.78	7.94	46.9	46.3	-0.2	46.7	-2.3
2013	273	1707	8.99	8.49	49.1	46.9	1.2	45.5	-2.3
2013	273	1708	9.23	8.24	51.5	46.9	0.0	46.8	-2.3
2013	273	1709	9.25	8.36	48.0	47.5	-2.5	49.8	-2.3
2013	273	1710	8.70	8.63	49.3	51.8	-0.7	52.3	-2.3
2013	273	1711	9.42	8.14	47.2	53.8	0.8	52.9	-2.3
2013	273	1712	8.90	8.59	45.8	54.4	-2.7	57.2	-2.3
2013	273	1713	8.93	8.45	50.1	65.6	3.6	62.0	-2.3
2013	273	1714	9.07	8.50	46.6	65.6	-0.2	65.8	-2.3
2013	273	1715	8.73	8.58	52.1	70.1	3.1	67.1	-2.3
2013	273	1716	9.40	8.26	48.4	67.1	-1.1	68.2	-2.3
2013	273	1717	9.36	8.77	35.6	43.4	-4.8	50.9	-2.3
2013	273	1718	10.04	9.83	1.9	0.3	0.1	0.0	-2.3
2013	273	1719	10.04	9.84	1.3	0.0	0.0	0.0	-0.6
2013	273	1720	10.04	9.85	1.1	0.0	0.0	0.0	0.1
2013	273	1721	2.84	2.57	56.2	57.5	12.9	44.7	42.5
2013	273	1722	0.07	0.09	89.7	88.7	-0.1	88.5	91.1
2013	273	1723	0.06	0.06	90.4	89.0	0.3	88.6	91.2
2013	273	1724	0.05	0.04	90.3	88.4	-0.2	88.5	91.3
2013	273	1725	0.06	0.03	51.8	55.2	2.9	52.1	60.1
2013	273	1726	0.05	0.02	46.5	44.1	-0.1	44.0	46.6
2013	273	1727	0.04	0.02	46.4	44.0	0.0	44.0	46.5
2013	273	1728	1.58	0.02	43.7	42.2	-0.7	44.0	45.6
2013	273	1729	19.91	11.43	4.0	2.1	-2.9	7.5	9.7

SMMI - Pogo Mine
09/30/13

Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	273	1730	20.11	19.87	0.7	0.0	0.0	0.0	-0.8
2013	273	1731	20.12	19.71	0.7	0.0	0.0	0.0	-0.9
2013	273	1732	20.13	19.73	0.6	0.0	0.0	0.0	-1.0
2013	273	1733	11.16	10.52	0.6	0.0	0.0	0.0	-0.5
2013	273	1734	10.08	9.78	0.5	0.0	-0.1	0.0	0.1
2013	273	1735	5.04	4.61	47.9	81.1	0.5	100.8	43.1
2013	273	1736	0.02	0.03	100.6	234.4	0.1	234.4	100.3
2013	273	1737	0.01	0.02	100.6	235.0	0.6	234.4	100.3
2013	273	1738	0.00	0.01	100.6	227.9	3.9	224.7	100.3
2013	273	1739	-0.01	0.00	94.4	95.8	-2.4	104.2	96.1
2013	273	1740	-0.01	0.00	92.1	90.7	0.4	90.5	92.0
2013	273	1741	-0.01	-0.01	92.0	90.6	0.4	90.5	92.0
2013	273	1742	-0.02	-0.01	57.5	59.6	1.3	58.2	66.0
2013	273	1743	-0.02	-0.01	46.3	45.0	0.2	44.5	46.8
2013	273	1744	-0.02	-0.01	46.2	44.9	0.1	44.5	46.8

Table 7
Continuous Emissions Measurements Results
Run I29-3
10/01/13

Time (1-min)	NOx (ppm)	NOx (ppm Cor.)	NOx (lb/hr)	CO (ppm)	CO (ppm Cor.)	CO (lb/hr)	SO2 (ppm)	SO2 (ppm Cor.)	SO2 (lb/hr)	O2 (%)	O2 (% Cor.)	CO2 (%)	CO2 (% Cor.)
859	50.1	51.1	0.31	4.3	4.1	0.02	2.1	1.6	0.01	12.76	12.70	6.47	5.68
900	51.9	53.0	0.32	1.6	1.4	0.01	2.3	1.9	0.02	12.83	12.78	6.76	5.96
901	39.5	40.3	0.24	0.7	0.6	0.00	4.4	4.0	0.03	10.22	10.17	7.63	7.92
902	40.1	41.0	0.26	0.7	0.6	0.00	4.5	4.1	0.03	10.80	10.75	7.11	7.38
903	45.8	46.7	0.28	0.0	-0.2	0.00	4.3	3.9	0.03	11.16	11.11	6.72	6.97
904	48.1	49.1	0.30	0.7	0.6	0.00	4.3	3.9	0.03	11.27	11.22	6.67	6.92
905	48.1	49.1	0.30	1.1	0.9	0.00	3.8	3.4	0.03	11.74	11.69	6.30	6.54
906	51.6	52.7	0.32	1.1	1.0	0.00	3.7	3.3	0.03	11.90	11.85	6.19	6.42
907	52.6	53.6	0.32	0.9	0.8	0.00	4.2	3.7	0.03	12.07	12.02	6.08	6.30
908	52.3	53.4	0.32	1.3	1.1	0.00	4.3	3.9	0.03	11.98	11.93	6.10	6.32
909	52.1	53.2	0.32	2.2	2.1	0.01	4.0	3.6	0.03	12.05	12.00	6.12	6.35
910	50.0	51.0	0.31	2.7	2.6	0.01	3.6	3.0	0.03	12.21	12.16	5.98	6.20
911	48.7	49.7	0.30	2.5	2.3	0.01	3.7	3.3	0.03	12.27	12.22	5.94	6.16
912	51.7	52.8	0.32	2.0	1.8	0.01	3.8	3.4	0.03	12.28	12.23	5.92	6.14
913	50.1	51.1	0.31	2.0	1.8	0.01	3.7	3.2	0.03	12.33	12.28	5.87	6.08
914	50.0	51.0	0.31	2.0	1.8	0.01	3.1	2.7	0.02	12.03	11.98	6.06	6.28
915	52.8	53.7	0.32	2.5	2.3	0.01	3.0	2.5	0.02	12.45	12.40	5.78	5.99
916	58.0	59.3	0.36	12.9	12.8	0.05	2.6	2.2	0.02	13.76	13.71	5.01	5.19
917	69.3	70.7	0.43	1.4	1.2	0.00	5.1	4.7	0.04	9.98	9.91	7.72	8.01
918	59.0	60.2	0.36	1.3	1.2	0.00	6.3	5.8	0.05	10.44	10.39	7.29	7.56
919	52.6	53.7	0.32	1.8	1.7	0.01	6.1	5.7	0.05	11.18	11.13	6.73	6.98
920	54.3	55.5	0.33	1.7	1.6	0.01	6.5	6.0	0.05	11.65	11.60	6.38	6.62
921	54.7	55.9	0.34	1.7	1.5	0.01	6.3	5.9	0.05	11.85	11.80	6.23	6.46
922	52.9	54.0	0.33	1.9	1.7	0.01	5.3	4.8	0.04	11.94	11.89	6.14	6.38
923	52.4	53.5	0.32	2.0	1.8	0.01	5.0	4.6	0.04	11.82	11.77	6.24	6.47
924	52.5	53.6	0.32	2.2	2.1	0.01	4.6	4.2	0.04	12.18	12.13	5.98	6.21
925	54.2	55.3	0.33	2.1	2.0	0.01	4.5	4.0	0.03	12.19	12.14	5.97	6.19
926	54.8	55.9	0.34	2.0	1.8	0.01	4.4	3.9	0.03	12.27	12.22	5.91	6.13
927	51.4	52.5	0.32	2.0	1.9	0.01	4.0	3.6	0.03	12.41	12.36	5.82	6.03
928	50.4	51.5	0.31	2.0	1.8	0.01	4.1	3.7	0.03	12.44	12.39	5.80	6.01
929	52.1	53.2	0.32	2.0	1.8	0.01	4.1	3.7	0.03	12.47	12.42	5.77	5.98
930	54.7	55.9	0.34	1.8	1.6	0.01	4.1	3.7	0.03	12.43	12.38	5.79	6.01
931	62.8	64.1	0.39	1.8	1.7	0.01	4.0	3.5	0.03	12.79	12.74	5.53	5.74
932	89.3	91.1	0.55	1.4	1.3	0.00	7.5	7.0	0.06	11.47	11.42	7.06	7.33
933	116.6	118.9	0.72	-0.2	-0.4	0.00	22.1	21.6	0.18	8.96	8.91	8.94	9.28
934	102.8	104.7	0.63	-0.2	-0.4	0.00	26.3	25.7	0.22	8.40	8.35	9.11	9.46
935	59.3	60.6	0.37	0.1	0.0	0.00	21.4	20.9	0.18	9.45	9.40	8.22	8.53
936	51.3	52.4	0.32	0.2	0.1	0.00	17.0	16.5	0.14	9.88	9.83	7.83	8.13
937	52.0	53.1	0.32	0.2	0.0	0.00	14.0	13.5	0.11	10.47	10.42	7.36	7.64
938	54.3	55.5	0.33	0.2	0.0	0.00	12.2	11.7	0.10	10.78	10.73	7.11	7.38
939	56.5	57.7	0.35	0.2	0.1	0.00	11.1	10.6	0.09	11.07	11.02	6.89	7.15
940	57.1	58.3	0.35	0.3	0.1	0.00	9.5	9.1	0.08	11.28	11.23	6.71	6.96
941	59.0	60.2	0.36	0.2	0.1	0.00	8.6	8.1	0.07	11.46	11.41	6.55	6.80
942	59.3	60.6	0.37	0.3	0.2	0.00	7.9	7.4	0.06	11.54	11.49	6.49	6.73
943	60.0	61.2	0.37	0.3	0.1	0.00	7.6	7.2	0.06	11.57	11.52	6.46	6.70
944	59.4	60.6	0.37	0.4	0.2	0.00	7.2	6.7	0.06	11.70	11.65	6.37	6.61
945	60.3	61.5	0.37	0.3	0.1	0.00	6.5	6.0	0.05	11.69	11.64	6.37	6.61
946	60.9	62.1	0.37	0.6	0.3	0.00	6.4	6.0	0.05	11.73	11.68	6.34	6.58
947	62.5	63.8	0.38	0.3	0.1	0.00	6.4	6.0	0.05	11.95	11.90	6.20	6.43
948	107.7	109.9	0.66	0.7	0.6	0.00	17.9	17.4	0.15	10.61	10.56	7.70	7.99
949	218.7	223.1	1.35	1.2	1.1	0.00	50.5	49.7	0.42	9.73	9.68	8.34	8.66
950	173.7	177.2	1.07	2.2	2.0	0.01	52.5	51.7	0.43	9.56	9.51	8.32	8.64
951	140.3	143.2	0.86	1.5	1.3	0.00	47.7	46.9	0.39	9.28	9.23	8.43	8.75
952	138.5	141.3	0.85	-0.2	-0.4	0.00	50.2	49.4	0.41	8.86	8.81	8.66	8.99
953	120.1	122.6	0.74	0.0	-0.2	0.00	50.0	49.2	0.41	9.12	9.07	8.46	8.78
954	102.9	105.0	0.63	-0.3	-0.4	0.00	44.0	43.2	0.36	9.20	9.15	8.40	8.72
955	76.5	78.1	0.47	-0.3	-0.5	0.00	39.8	39.0	0.33	8.88	8.83	8.48	8.80
956	55.4	56.5	0.34	-0.6	-0.7	0.00	25.1	24.5	0.21	10.81	10.76	7.23	7.50
957	57.4	58.6	0.35	-0.6	-0.7	0.00	19.9	19.3	0.16	10.64	10.59	7.27	7.54
958	61.6	62.9	0.38	-0.3	-0.5	0.00	16.1	15.6	0.13	11.62	11.57	6.53	6.77
959	67.9	69.3	0.42	-0.1	-0.2	0.00	12.2	11.7	0.10	11.71	11.66	6.59	6.83
1000	53.1	54.2	0.33	0.3	0.1	0.00	15.0	14.5	0.12	10.44	10.39	7.34	7.62
1001	51.6	52.7	0.32	0.0	-0.1	0.00	16.7	16.1	0.14	10.62	10.47	7.22	7.49
1002	51.1	52.1	0.31	0.1	0.0	0.00	15.4	14.8	0.12	10.92	10.87	6.99	7.26
1003	56.7	57.9	0.35	0.1	-0.1	0.00	13.3	12.8	0.11	11.24	11.19	6.77	7.02
1004	68.1	69.5	0.42	0.6	0.4	0.00	18.1	17.5	0.15	10.72	10.67	7.49	7.77
1005	61.0	62.3	0.38	0.9	0.7	0.00	29.4	28.8	0.24	9.97	9.92	8.62	8.95
1006	61.9	63.2	0.38	-0.5	-0.7	0.00	25.3	24.7	0.21	9.67	9.62	8.27	8.58
1007	64.3	65.6	0.40	-0.7	-0.8	0.00	23.0	22.4	0.19	10.03	9.98	7.77	8.06
1008	65.8	67.1	0.40	-0.5	-0.6	0.00	18.0	17.5	0.15	10.97	10.92	7.21	7.48
1009	65.5	66.9	0.40	-0.4	-0.6	0.00	16.8	16.3	0.14	10.86	10.81	7.16	7.43
1010	65.5	66.8	0.40	-0.4	-0.6	0.00	15.1	14.6	0.12	11.48	11.43	6.69	6.94
1011	49.9	51.0	0.31	0.1	0.0	0.00	16.9	16.3	0.14	10.76	10.71	7.19	7.46
1012	49.5	50.5	0.30	0.2	0.0	0.00	15.7	15.2	0.13	10.56	10.51	7.28	7.55
1013	49.9	50.9	0.31	0.0	-0.2	0.00	15.5	14.9	0.13	10.65	10.60	7.19	7.46
1014	51.9	53.0	0.32	-0.3	-0.4	0.00	14.9	14.4	0.12	10.85	10.80	7.01	7.27
1015	51.3	52.3	0.32	0.0	-0.2	0.00	13.9	13.4	0.11	11.20	11.15	6.83	7.09
1016	52.6	53.7	0.32	-0.1	-0.3	0.00	13.6	13.1	0.11	10.95	10.90	6.95	7.21
1017	51.3	52.4	0.32	-0.2	-0.3	0.00	11.9	11.4	0.10	11.03	10.98	6.87	7.13
1018	52.4	53.5	0.32	-0.3	-0.4	0.00	11.5	11.0	0.09	11.41	11.36	6.57	6.82
1019	57.3	58.5	0.35	0.1	0.0	0.00	12.1	11.6	0.10	11.72	11.67	6.49	6.74
1020	64.1	65.4	0.39	1.1	0.9	0.00	22.8	22.3	0.19	9.82	9.77	8.60	8.93
1021	58.6	59.8	0.36	0.4	0.3	0.00	26.3	25.7	0.22	9.19	9.14	8.65	8.98
1022	58.8	60.0	0.36	-0.6	-0.8	0.00	18.2	17.6	0.15	10.20	10.15	7.90	8.20
1023	63.5	64.8	0.39	-0.8	-0.9	0.00	14.2	13.7	0.11	10.26	10.21	7.66	7.95
1024	65.4	66.8	0.40	-0.6	-0.8	0.00	11.9	11.4	0.10	11.22	11.17	7.05	7.32
1025	67.3	68.7	0.41	-0.7	-0.8	0.00	11.1	10.6	0.09	10.92	10.87	7.18	7.45
1026	72.7	74.2	0.45	-0.6	-0.8	0.00	10.1	9.6	0.08	11.60	11.55	6.62	6.87
1027	67.9	69.4	0.42	-0.4	-0.6	0.00	9.5	9.0	0.08	11.02	10.97	7.15	7.42
1028	51.1	52.1	0.31	-0.5	-0.6	0.00	12.0	11.5	0.10	9.87	9.82	7.75	8.04
1029	52.8	53.9	0.32	-0.6	-0.7	0.00	10.9	10.4	0.09	10.83	10.78	7.13	7.40
1030	55.7	56.8	0.34	-0.5	-0.7	0.00	10.5	10.0	0.08	10.37	10.32	7.42	7.70
1031	58.2	59.4	0.36	-0.7	-0.8	0.00	10.4	9.9	0.08	10.79	10.74	7.07	7.34
1032	57.6	58.7	0.35	-0.5	-0.7	0.00	9.6	9.1	0.08	10.85	10.80	7.13	7.40
1033	56.5	57.7	0.35	-0.6	-0.7	0.00	9.1	8.7	0.07	10.77	10.72	7.10	7.37
1034	57.8	58.8	0.35	-0.7	-0.8	0.00	9.1	8.6	0.07	11.34	11.29	6.69	6.94
1035	54.6	55.9	0.40	-0.4	-0.5	0.00	8.1	7.7	0.06	11.73	11.68	6.54	6.78
1036	55.3	56.5	0.34	0.5	0.4	0.00	12.8	12.3	0.10	9.45	9.40	8.59	8.91
1037	57.0	58.2	0.35	-0.9	-1.0	0.00	15.3	14.8	0.12	10.12	10.07	7.93	8.23
1038	66.7	68.1	0.41	-1.1	-1.2	0.00	12.5	12.0	0.10	10.83	10.78	7.45	7.73
1039	69.3	70.7	0.43	-1.0	-1.1	0.00	11.6	11.1	0.09	11.39	11.34	6.87	7.13
1040	67.6	69.0	0.42	-0.9	-1.1	0.00	11.6	11.1	0.09	12.23	12.18	6.31	6.55
1041	66.6	67.9	0.41	-0.9	-1.0	0.00	12.2	11.7	0.10	10.94	10.89	7.17	7.44
1042	56.5	57.7	0.35	-1.1	-1.2	0.00	16.1	15.6	0.13	9.98	9.93	7.69	7.98
1043	55.2	56.3	0.34	-1.2	-1.3	0.00	15.3	14.8	0.12	10.68	10.63	7.17	7.44
1044	57.7	58.9	0.35	-1.0	-1.1	0.00	14.6	14.1	0.12	10.30	10.25	7.49	7.77
1045	58.4	59.6	0.35	-1.1	-1.2	0.00	15.5	15.0	0.13	10.37	10.32	7.31	7.59
1046	54.9	56.0	0.34	-1.0	-1.1	0.00	14.3	13.8	0.12	10.88	10.83	7.09	7.36
1047	56.4	57.6	0.35	-0.9	-1.1	0.00	14.1	13.6	0.11	10.29	10.24	7.41	7.69
1048	58.8	60.0	0.36	-1.1	-1.2	0.00	13.3	12.8	0.11	10.94	10.89	6.90	7.16
1049	62.2	63.5	0.38	-1.0	-1.1	0.00	11.6	11.1	0.09	10.65	10.60	7.19	7.46
1050	62.2	63.4	0.38	-1.0	-1.2	0.00	12.3	11.8	0.10	10.82	10.77	6.96	7.22
1051	62.4	63.7	0.38	-0.6	-0.8	0.00	11.5	11.0	0.09	12.06	12.01	6.22	6.45
1052	87.7	89.5	0.54	-0.4	-0.5	0.00	35.5	35.8	0.30	9.78	9.73	8.79	9.13
1053	84.7	86.5	0.52	2.0	1.8	0.01	35.7	36.1	0.30	9.67	9.62	8.68	8.89
1054	53.7	54.8	0.33	-0.5	-0.6	0.00	28.0	27.4	0.23	8.84	8.79	8.82	9.16
1055	66.9	68.1	0.35	-1.5	-1.7	-0.01	21.9	21.3	0.18	10.30	10.25	7.67	7.96
1056	64.0	65.3	0.39	-1.5	-1.6	-0.01	18.0	17.4	0.15	10.38	10.33	7.65	7.94
1057	70.6	72.1	0.43	-1.5	-1.6	-0.01	16.5	15.9	0.13	11.12	11.07	6.97	7.23
1058	68.9	70.3	0.42	-1.3	-1.4	-0.01	12.8	12.3	0.10	11.67	11.62	6.69	6.94
1059	69.2	70.6	0.43	-1.2	-1.4	-0.01	12.0	11.5	0.10	11.27	11.22	6.86	7.11
1100	64.7	66.0	0.40	-1.2	-1.3	0.00	12.7	12.2	0.10	11.62	11.57	6.61	6.86
1101	51.3	52.4	0.32	-0.8	-0.9	0.00	15.7	15.2	0.13	10.34	10.29	7.52	7.80
1102	51.6	52.7	0.32	-1.2	-1.3	0.00	17.2	16.6	0.14	10.39	10.34	7.38	7.66
1103	49.9	51.0	0.31	-1.1	-1.2	0.00	16.2	15.7	0.13	10.80	10.75	7.18	7.45
1104	51.0	52.1	0.31	-1.2	-1.3	0.00	16.1	15.6	0.13	10.38	10.33	7.40	7.68
1105	53.9	55.0	0.33	-1.3	-1.4	-0.01	15.7	15.1	0.13	10.96	10.91	6.96	7.22
Ave	63.4	64.7	0.39	0.3	0.2	0.00	14.0	13.5	0.11	10.97	10.91	7.04	7.31

Table 8
Continuous Emissions Measurements Results
Run I23-3
10/01/13

Time (1-min)	NOx (ppm)	NOx (ppm Cor.)	NOx (lb/hr)	CO (ppm)	CO (ppm Cor.)	CO (lb/hr)	SO2 (ppm)	SO2 (ppm Cor.)	SO2 (lb/hr)	O2 (%)	O2 (% Cor.)	CO2 (%)	CO2 (% Cor.)
1159	71.3	73.1	0.43	0.9	0.9	0.00	6.8	6.9	0.05	11.74	11.72	6.61	6.77
1200	62.7	64.3	0.38	0.9	0.9	0.00	9.5	9.6	0.07	10.83	10.81	7.36	7.65
1201	73.2	75.1	0.46	1.1	1.1	0.00	17.4	16.5	0.14	9.93	9.90	8.38	8.71
1202	64.1	65.8	0.39	1.4	1.4	0.01	21.0	20.1	0.17	8.65	8.62	9.07	9.43
1203	53.6	54.9	0.33	0.9	0.9	0.00	21.2	20.2	0.17	8.36	8.33	8.70	9.05
1204	49.7	51.0	0.30	0.9	0.9	0.00	21.5	20.5	0.17	8.44	8.41	8.12	8.48
1205	43.3	44.4	0.26	0.4	0.4	0.00	18.0	17.1	0.14	9.74	9.71	8.27	8.60
1206	46.5	47.6	0.28	0.2	0.2	0.00	14.7	13.8	0.11	9.65	9.62	8.14	8.47
1207	47.1	48.3	0.29	0.1	0.1	0.00	11.7	10.8	0.09	10.76	10.73	7.60	7.80
1208	51.7	53.0	0.32	0.2	0.2	0.00	10.4	9.5	0.08	10.39	10.37	7.61	7.91
1209	53.8	55.2	0.33	0.1	0.1	0.00	9.1	8.2	0.07	11.56	11.54	6.83	7.10
1210	60.0	61.5	0.37	0.2	0.2	0.00	8.2	7.3	0.06	11.05	11.03	7.15	7.43
1211	63.5	65.2	0.39	0.2	0.2	0.00	7.4	6.5	0.05	11.82	11.80	6.52	6.78
1212	66.0	67.7	0.40	0.2	0.2	0.00	6.8	5.9	0.05	11.43	11.41	6.86	7.14
1213	67.6	69.3	0.41	0.2	0.2	0.00	7.0	6.1	0.05	11.89	11.87	6.53	6.78
1214	58.4	59.9	0.36	0.4	0.4	0.00	6.7	5.9	0.05	11.25	11.23	7.09	7.37
1215	62.0	63.6	0.38	0.3	0.3	0.00	6.5	5.6	0.05	11.73	11.71	6.62	6.88
1216	53.5	54.9	0.33	1.1	1.0	0.00	8.0	7.1	0.06	10.88	10.86	7.58	7.88
1217	52.8	54.2	0.32	0.6	0.6	0.00	14.1	13.2	0.11	8.92	8.89	8.68	9.01
1218	52.5	53.8	0.32	0.0	0.0	0.00	13.6	12.7	0.11	9.51	9.48	8.32	8.65
1219	52.6	54.0	0.32	-0.1	-0.1	0.00	14.0	13.0	0.11	9.40	9.37	8.21	8.54
1220	47.8	49.0	0.29	-0.1	-0.1	0.00	11.5	10.6	0.09	10.58	10.56	7.48	7.78
1221	48.6	49.9	0.30	-0.1	-0.1	0.00	10.6	9.7	0.08	10.05	10.03	7.76	8.07
1222	47.4	48.6	0.29	-0.1	-0.1	0.00	9.9	9.0	0.07	11.05	11.03	7.08	7.36
1223	50.0	51.2	0.30	0.0	0.0	0.00	9.3	8.4	0.07	10.64	10.62	7.39	7.68
1224	49.3	50.6	0.30	0.1	0.1	0.00	8.6	7.6	0.06	11.51	11.49	6.72	6.99
1225	51.9	53.2	0.32	0.0	0.0	0.00	8.1	7.3	0.06	10.71	10.69	7.24	7.53
1226	50.9	52.2	0.31	0.0	0.0	0.00	7.8	6.9	0.06	11.62	11.60	6.58	6.85
1227	54.0	55.4	0.33	0.1	0.1	0.00	7.5	6.6	0.05	10.98	10.96	7.03	7.31
1228	54.7	56.1	0.33	0.1	0.1	0.00	7.2	6.3	0.05	11.81	11.79	6.38	6.64
1229	53.9	55.3	0.33	0.2	0.2	0.00	6.5	5.7	0.05	11.50	11.48	6.69	6.95
1230	54.2	55.6	0.33	0.2	0.2	0.00	6.4	5.6	0.05	11.98	11.96	6.25	6.50
1231	53.2	54.6	0.32	0.3	0.3	0.00	6.2	5.3	0.04	11.78	11.76	6.53	6.79
1232	61.8	63.4	0.38	1.4	1.4	0.01	8.6	7.7	0.06	11.03	11.01	7.05	7.33
1233	48.3	49.6	0.29	0.1	0.1	0.00	17.1	16.2	0.13	9.60	9.57	8.26	8.59
1234	49.3	50.6	0.30	0.0	0.0	0.00	21.0	20.1	0.17	9.37	9.34	8.26	8.59
1235	50.9	52.2	0.31	0.0	0.0	0.00	19.6	18.6	0.15	10.74	10.72	7.34	7.63
1236	56.6	58.1	0.35	-0.1	-0.1	0.00	19.0	18.1	0.15	10.15	10.13	7.70	8.01
1237	58.4	59.9	0.36	-0.1	-0.1	0.00	18.4	17.5	0.14	11.19	11.17	6.95	7.22
1238	60.5	62.0	0.37	-0.1	-0.1	0.00	17.2	16.3	0.14	10.70	10.68	7.29	7.58
1239	60.8	62.3	0.37	-0.1	-0.1	0.00	17.3	16.4	0.14	11.38	11.34	6.73	7.00
1240	56.9	58.4	0.35	0.1	0.1	0.00	15.3	14.4	0.12	11.39	11.37	6.83	7.10
1241	60.2	61.7	0.37	0.0	0.0	0.00	15.9	15.0	0.12	11.31	11.29	6.73	6.99
1242	57.8	59.2	0.35	0.0	0.0	0.00	14.3	13.4	0.11	11.85	11.83	6.48	6.74
1243	62.0	63.5	0.38	-0.2	-0.2	0.00	14.7	13.8	0.11	11.18	11.16	6.84	7.11
1244	62.4	64.0	0.38	-0.2	-0.2	0.00	13.9	12.9	0.11	12.02	12.00	6.29	6.54
1245	64.5	66.1	0.39	0.0	0.0	0.00	13.2	12.2	0.10	11.34	11.32	6.72	6.99
1246	65.2	66.9	0.40	-0.1	-0.1	0.00	13.0	12.1	0.10	12.19	12.17	6.11	6.35
1247	64.1	65.7	0.39	-0.1	-0.1	0.00	12.2	11.3	0.09	11.87	11.85	6.52	6.78
1248	61.3	62.9	0.37	1.2	1.2	0.00	15.2	14.3	0.12	11.46	11.44	7.03	7.31
1249	61.0	62.6	0.37	0.6	0.6	0.00	25.3	24.4	0.20	8.98	8.95	9.02	9.39
1250	58.4	57.9	0.34	0.3	0.3	0.00	27.8	26.6	0.22	9.35	9.32	8.48	8.80
1251	48.7	50.0	0.30	0.2	0.2	0.00	21.7	20.8	0.17	9.39	9.36	8.41	8.75
1252	54.9	56.3	0.33	-0.4	-0.4	0.00	17.7	16.8	0.14	10.68	10.64	7.40	7.70
1253	57.4	58.9	0.35	-0.4	-0.4	0.00	14.0	13.1	0.11	10.47	10.45	7.62	7.92
1254	62.7	64.2	0.38	-0.3	-0.3	0.00	13.4	12.5	0.10	11.28	11.26	6.90	7.17
1255	63.0	64.6	0.38	-0.2	-0.2	0.00	12.3	11.3	0.09	11.40	11.38	6.90	7.17
1256	65.5	67.2	0.40	-0.3	-0.3	0.00	12.0	11.1	0.09	11.53	11.51	6.66	6.93
1257	62.7	64.3	0.38	-0.3	-0.3	0.00	10.5	9.6	0.08	12.03	12.01	6.42	6.68
1258	68.1	69.8	0.42	-0.3	-0.3	0.00	10.1	9.2	0.08	11.60	11.58	6.61	6.88
1259	68.5	70.2	0.42	-0.4	-0.4	0.00	9.5	8.7	0.07	12.15	12.13	6.18	6.42
1300	55.2	56.6	0.34	-0.2	-0.2	0.00	10.3	9.4	0.08	11.21	11.19	6.98	7.25
1301	43.9	45.1	0.27	-0.2	-0.2	0.00	13.6	12.7	0.11	10.10	10.08	7.58	7.88
1302	45.7	46.9	0.28	-0.3	-0.3	0.00	13.8	12.9	0.11	10.62	10.60	7.29	7.58
1303	52.4	53.7	0.32	-0.4	-0.4	0.00	13.8	12.9	0.11	10.42	10.40	7.41	7.71
1304	56.6	58.1	0.35	-0.1	-0.1	0.00	16.4	15.5	0.13	10.62	10.60	7.64	7.94
1305	45.4	46.6	0.28	-0.7	-0.7	0.00	19.9	18.9	0.16	9.08	9.05	8.66	8.90
1306	53.1	54.4	0.32	-0.7	-0.7	0.00	16.6	15.7	0.13	10.93	10.91	7.19	7.48
1307	54.0	55.4	0.33	-0.6	-0.6	0.00	13.8	12.9	0.11	10.98	10.94	7.26	7.54
1308	56.8	58.3	0.35	-0.6	-0.6	0.00	12.7	11.8	0.10	11.40	11.38	6.78	7.05
1309	56.5	57.9	0.34	-0.6	-0.5	0.00	11.7	10.8	0.09	11.58	11.56	6.77	7.04
1310	61.0	62.5	0.37	-0.6	-0.6	0.00	11.8	10.9	0.09	11.35	11.33	6.80	7.07
1311	65.2	66.8	0.40	-0.5	-0.5	0.00	11.1	10.2	0.08	12.05	12.03	6.41	6.67
1312	69.7	71.4	0.42	-0.5	-0.5	0.00	10.5	9.6	0.08	11.19	11.17	6.98	7.25
1313	52.5	53.8	0.32	-0.6	-0.6	0.00	15.4	14.5	0.12	9.88	9.85	7.81	8.12
1314	50.5	51.8	0.31	-0.6	-0.6	0.00	17.3	16.4	0.14	9.24	9.21	8.28	8.61
1315	50.4	51.7	0.31	-0.8	-0.8	0.00	17.9	17.0	0.14	10.12	10.10	7.56	7.86
1316	61.9	63.5	0.38	-0.7	-0.7	0.00	12.6	11.7	0.10	11.28	11.26	6.94	7.22
1317	67.0	68.7	0.41	-0.7	-0.7	0.00	11.2	10.3	0.09	11.64	11.62	6.67	6.93
1318	62.9	64.5	0.38	-0.7	-0.7	0.00	9.5	8.7	0.07	11.57	11.55	6.73	7.00
1319	66.6	68.2	0.41	-0.6	-0.6	0.00	9.3	8.4	0.07	11.93	11.91	6.38	6.63
1320	83.8	85.4	0.39	-0.2	-0.2	0.00	16.0	14.1	0.12	10.24	10.22	8.16	8.49
1321	82.3	84.4	0.50	-0.7	-0.7	0.00	32.7	31.7	0.28	8.72	8.69	9.04	9.40
1322	89.6	91.9	0.55	-0.7	-0.7	0.00	45.1	44.0	0.38	9.18	9.15	8.69	9.04
1323	82.0	84.1	0.50	-0.6	-0.6	0.00	48.8	47.8	0.40	9.42	9.39	8.44	8.78
1324	63.5	65.1	0.39	-0.6	-0.6	0.00	43.5	42.5	0.35	8.76	8.73	8.86	9.21
1325	52.5	53.9	0.32	-0.8	-0.8	0.00	42.5	41.4	0.34	9.24	9.21	8.37	8.70
1326	46.4	47.6	0.28	-1.0	-1.0	0.00	34.0	33.0	0.27	9.05	9.02	8.53	8.87
1327	47.9	49.1	0.29	-1.2	-1.2	0.00	30.2	29.2	0.24	10.18	10.16	7.74	8.05
1328	48.3	49.6	0.29	-1.2	-1.2	0.00	26.6	25.7	0.21	9.52	9.49	8.15	8.48
1329	50.2	51.5	0.31	-1.2	-1.2	0.00	24.9	23.9	0.20	10.71	10.69	7.31	7.60
1330	50.5	51.8	0.31	-1.2	-1.2	0.00	22.9	22.0	0.18	9.95	9.92	7.84	8.15
1331	52.0	53.3	0.32	-1.2	-1.2	0.00	20.8	19.8	0.16	10.97	10.95	7.09	7.37
1332	51.1	52.4	0.31	-1.2	-1.2	0.00	18.4	17.5	0.14	10.39	10.37	7.55	7.85
1333	53.8	55.0	0.33	-1.2	-1.2	0.00	16.0	15.1	0.12	11.07	11.05	6.98	7.25
1334	53.2	54.6	0.32	-1.2	-1.2	0.00	15.6	14.6	0.12	10.77	10.75	7.29	7.58
1335	55.1	56.5	0.34	-1.1	-1.1	0.00	15.9	15.0	0.12	11.48	11.46	6.75	7.02
1336	69.5	71.3	0.42	-0.7	-0.7	0.00	27.4	26.4	0.22	9.26	9.23	8.77	9.12
1337	81.9	84.0	0.50	-0.9	-0.9	0.00	40.8	39.8	0.33	8.89	8.86	8.92	9.28
1338	58.2	60.7	0.36	-1.0	-1.0	0.00	36.5	35.5	0.29	9.41	9.38	8.65	9.00
1339	49.1	50.4	0.30	-1.4	-1.4	0.00	33.4	32.4	0.27	8.68	8.65	8.92	9.28
1340	44.2	45.3	0.27	-1.4	-1.4	-0.01	29.8	28.8	0.24	9.45	9.42	8.62	8.86
1341	45.8	46.9	0.28	-1.5	-1.5	-0.01	28.8	27.8	0.23	9.52	9.49	8.28	8.61
1342	44.2	45.3	0.27	-1.5	-1.5	-0.01	23.3	22.4	0.19	9.97	9.94	8.07	8.39
1343	46.2	47.4	0.28	-1.5	-1.5	-0.01	22.1	21.1	0.17	9.97	9.94	7.91	8.23
1344	44.2	45.3	0.27	-1.5	-1.5	-0.01	19.1	18.1	0.15	10.29	10.27	7.80	8.11
1345	45.9	47.1	0.28	-1.6	-1.5	-0.01	18.5	17.6	0.15	10.47	10.45	7.61	7.81
1346	45.1	46.3	0.28	-1.5	-1.5	-0.01	16.2	15.3	0.13	10.56	10.54	7.56	7.86
1347	49.4	50.6	0.30	-1.6	-1.5	-0.01	16.1	15.2	0.13	10.86	10.84	7.22	7.51
1348	49.4	50.7	0.30	-1.5	-1.4	-0.01	14.1	13.2	0.11	10.74	10.72	7.39	7.68
1349	52.2	53.5	0.32	-1.5	-1.4	-0.01	13.3	12.4	0.10	11.29	11.27	6.88	7.15
1350	52.7	54.1	0.32	-1.4	-1.4	-0.01	12.2	11.3	0.09	10.93	10.91	7.21	7.50
1351	57.9	59.3	0.35	-1.3	-1.3	0.00	13.7	12.8	0.11	11.50	11.48	6.87	7.14
1352	72.6	74.4	0.44	-1.5	-1.5	-0.01	27.2	26.2	0.22	9.43	9.40	8.43	8.77
1353	95.1	97.5	0.58	-1.9	-1.8	-0.01	51.8	50.7	0.42	9.60	9.57	8.39	8.73
1354	94.7	97.1	0.58	-1.8	-1.8	-0.01	60.1	59.0	0.49	9.81	9.78	8.20	8.53
1355	93.2	95.6	0.57	-1.9	-1.9	-0.01	59.5	58.4	0.48	9.81	9.58	8.29	8.62
1356	91.8	94.1	0.56	-1.8	-1.8	-0.01	58.1	57.0	0.47	9.53	9.50	8.32	8.65
1357	90.7	93.0	0.55	-1.8	-1.8	-0.01	54.8	53.7	0.44	9.61	9.58	8.24	8.57
1358	87.2	89.4	0.53	-1.7	-1.7	-0.01	51.9	50.8	0.42	9.68	9.65	8.17	8.50
1359	82.1	84.2	0.50	-1.6	-1.6	-0.01	47.6	46.5	0.39	9.79	9.76	8.08	8.40
1400	79.2	81.2	0.48	-1.6	-1.6	-0.01	53.9	52.8	0.44	9.38	9.35	8.32	8.65
1401	75.7	77.6	0.46	-1.0	-1.0	0.00	46.1	45.0	0.37	9.35	9.32	8.31	8.64
1402	73.5	75.4	0.45	-0.3	-0.3	0.00	42.6	41.6	0.34	9.97	9.94	7.95	8.27
1403	73.7	75.6	0.45	0.3	0.2	0.00	44.0	42.9	0.36	9.57	9.54	8.14	8.47
1404	72.5	74.3	0.44	1.3	1.3	0.00	49.7	48.7	0.40	9.52	9.49	8.18	8.51
1405	71.2	73.0	0.43	2.5	2.4	0.01	40.7	39.6	0.33	9.50	9.47	8.19	8.52
1406	65.6	67.3	0.40	2.7	2.7	0.01	36.3	34.3	0.28	9.61	9.58	8.10	8.42
Ave	59.5	61.0	0.36	-0.4	-0.4	0.00	20.3	19.4	0.16	10.49	10.47	7.53	7.83

Table 9
Continuous Emissions Measurements Results
Run I5-3
10/01/13

Time (1-min)	NOx (ppm)	NOx (ppm Cor.)	NOx (lb/hr)	CO (ppm)	CO (ppm Cor.)	CO (lb/hr)	SO2 (ppm)	SO2 (ppm Cor.)	SO2 (lb/hr)	O2 (%)	O2 (% Cor.)	CO2 (%)	CO2 (% Cor.)
1506	66.2	68.4	0.41	1.5	2.2	0.01	4.5	3.7	0.03	12.98	12.96	5.58	5.75
1507	74.1	76.6	0.46	2.1	2.8	0.01	5.3	4.5	0.04	12.78	12.76	5.80	5.99
1508	52.1	53.8	0.32	1.4	2.1	0.01	14.2	13.4	0.11	10.06	10.03	7.99	8.27
1509	52.7	54.5	0.33	1.3	2.0	0.01	21.4	20.4	0.17	8.86	8.82	8.83	9.15
1510	52.8	54.6	0.33	1.1	1.7	0.01	19.2	18.3	0.15	9.82	9.78	8.05	8.33
1511	54.8	56.6	0.34	1.0	1.7	0.01	16.7	15.8	0.13	9.65	9.61	8.21	8.50
1512	52.4	54.2	0.33	0.9	1.6	0.01	15.7	14.8	0.12	10.61	10.58	7.42	7.68
1513	48.9	50.6	0.30	1.0	1.7	0.01	15.1	14.2	0.12	10.32	10.29	7.69	7.96
1514	53.1	54.9	0.33	0.9	1.6	0.01	13.8	12.9	0.11	11.16	11.13	6.96	7.20
1515	54.6	56.4	0.34	1.0	1.7	0.01	12.5	11.7	0.10	11.03	11.00	7.13	7.37
1516	60.7	62.7	0.38	0.9	1.6	0.01	11.7	10.9	0.09	11.51	11.48	6.64	6.86
1517	61.6	63.6	0.38	1.0	1.6	0.01	10.4	9.6	0.08	11.59	11.56	6.70	6.93
1518	69.9	72.2	0.43	0.9	1.6	0.01	10.4	9.6	0.08	11.41	11.38	6.68	6.90
1519	70.6	73.0	0.44	1.0	1.6	0.01	9.6	8.8	0.07	12.08	12.05	6.34	6.55
1520	72.3	74.7	0.45	1.0	1.7	0.01	10.0	9.2	0.08	11.47	11.44	6.62	6.84
1521	72.9	75.4	0.45	1.0	1.7	0.01	9.7	8.9	0.07	12.28	12.25	6.15	6.36
1522	70.1	72.5	0.44	0.9	1.6	0.01	9.0	8.2	0.07	11.58	11.55	6.56	6.78
1523	68.9	71.2	0.43	1.4	2.1	0.01	9.1	8.3	0.07	12.04	12.01	6.53	6.74
1524	75.9	78.5	0.47	1.2	1.8	0.01	18.3	17.4	0.15	9.06	9.02	8.78	9.10
1525	56.8	58.7	0.35	0.7	1.4	0.00	18.8	17.9	0.15	9.63	9.59	8.04	8.32
1526	56.3	58.2	0.35	0.6	1.3	0.00	14.5	13.6	0.11	10.18	10.15	7.74	8.01
1527	53.4	55.2	0.33	0.6	1.3	0.00	12.5	11.7	0.10	10.80	10.77	7.13	7.37
1528	55.5	57.4	0.34	0.6	1.3	0.00	10.0	9.2	0.08	11.22	11.19	6.94	7.17
1529	61.3	63.4	0.38	0.6	1.3	0.00	9.4	8.6	0.07	11.23	11.20	6.78	7.01
1530	60.5	62.5	0.38	0.7	1.4	0.00	8.7	8.0	0.07	11.72	11.69	6.58	6.80
1531	60.5	62.6	0.38	0.6	1.3	0.00	8.5	7.8	0.06	11.10	11.07	6.87	7.10
1532	65.6	67.8	0.41	0.6	1.3	0.00	7.8	7.1	0.06	11.97	11.94	6.37	6.58
1533	67.7	70.0	0.42	0.6	1.3	0.00	7.8	7.0	0.06	11.44	11.41	6.61	6.83
1534	68.5	70.8	0.43	0.6	1.2	0.00	7.6	6.8	0.06	12.19	12.16	6.19	6.39
1535	65.8	68.1	0.41	0.6	1.3	0.00	7.3	6.6	0.05	11.64	11.61	6.51	6.72
1536	72.0	74.4	0.45	0.6	1.2	0.00	7.3	6.5	0.05	11.85	11.82	6.29	6.50
1537	73.0	75.5	0.45	0.6	1.3	0.00	6.7	6.0	0.05	12.42	12.39	6.01	6.20
1538	68.3	70.6	0.42	0.6	1.3	0.00	6.6	5.8	0.05	11.94	11.91	6.26	6.46
1539	69.6	72.0	0.43	1.2	1.9	0.01	6.5	5.7	0.05	12.89	12.87	5.68	5.87
1540	57.8	59.7	0.36	1.1	1.8	0.01	8.0	7.2	0.06	10.41	10.38	7.66	7.93
1541	54.2	56.1	0.34	0.2	0.9	0.00	11.4	10.6	0.09	10.30	10.27	7.60	7.86
1542	54.6	56.4	0.34	0.3	1.0	0.00	10.6	9.8	0.08	10.17	10.14	7.68	7.95
1543	57.3	59.2	0.36	0.4	1.1	0.00	8.9	8.1	0.07	11.55	11.52	6.62	6.84
1544	57.3	59.2	0.36	0.5	1.2	0.00	7.1	6.3	0.05	11.40	11.37	6.75	6.98
1545	62.4	64.5	0.39	0.6	1.2	0.00	7.3	6.5	0.05	12.07	12.04	6.19	6.40
1546	64.3	66.5	0.40	0.5	1.2	0.00	6.9	6.1	0.05	11.69	11.66	6.53	6.74
1547	67.4	69.7	0.42	0.5	1.2	0.00	7.3	6.5	0.05	11.98	11.95	6.20	6.41
1548	71.2	73.6	0.44	0.6	1.3	0.00	6.3	5.6	0.05	12.37	12.34	6.05	6.25
1549	67.7	70.0	0.42	0.6	1.3	0.00	6.1	5.3	0.04	12.10	12.07	6.15	6.35
1550	66.5	68.8	0.41	0.6	1.3	0.00	6.3	5.6	0.05	12.63	12.61	5.76	5.94
1551	59.3	61.3	0.37	0.8	1.4	0.01	7.2	6.4	0.05	11.55	11.52	6.65	6.87
1552	45.6	47.1	0.28	0.8	1.4	0.01	9.1	8.3	0.07	10.33	10.30	7.30	7.55
1553	44.6	46.1	0.28	0.8	1.5	0.01	9.2	8.4	0.07	11.09	11.06	6.88	7.11
1554	44.7	46.2	0.28	0.7	1.4	0.01	9.1	8.3	0.07	10.33	10.30	7.32	7.57
1555	55.5	57.4	0.34	0.9	1.6	0.01	7.6	6.8	0.06	12.54	12.52	5.91	6.10
1556	67.4	69.7	0.42	0.9	1.5	0.01	12.2	11.4	0.10	9.45	9.41	8.42	8.72
1557	71.6	74.0	0.44	0.3	1.0	0.00	18.8	17.9	0.15	9.70	9.66	8.18	8.47
1558	46.2	47.8	0.29	0.3	1.0	0.00	15.1	14.2	0.12	9.58	9.54	8.25	8.54
1559	44.9	46.4	0.28	0.3	1.0	0.00	13.0	12.1	0.10	10.79	10.76	7.29	7.54
1600	46.3	47.9	0.29	0.4	1.1	0.00	10.9	10.0	0.08	10.72	10.69	7.38	7.64
1601	52.6	54.3	0.33	0.4	1.1	0.00	10.2	9.4	0.08	11.52	11.49	6.68	6.90
1602	57.5	59.5	0.36	0.5	1.2	0.00	8.6	7.8	0.07	11.54	11.51	6.75	6.98
1603	61.3	63.3	0.38	0.4	1.1	0.00	8.3	7.5	0.06	11.84	11.81	6.40	6.61
1604	62.8	64.9	0.39	0.5	1.2	0.00	7.5	6.7	0.06	11.84	11.81	6.51	6.73
1605	64.4	66.6	0.40	0.5	1.2	0.00	7.5	6.7	0.06	12.04	12.01	6.24	6.44
1606	64.5	66.7	0.40	0.5	1.2	0.00	6.8	6.1	0.05	12.14	12.11	6.28	6.48
1607	65.7	67.9	0.41	0.5	1.2	0.00	6.7	5.9	0.05	12.09	12.06	6.17	6.37
1608	67.5	69.8	0.42	0.5	1.2	0.00	6.3	5.5	0.05	12.40	12.37	6.08	6.27
1609	65.7	68.0	0.41	0.5	1.2	0.00	6.5	5.7	0.05	12.01	11.98	6.21	6.42
1610	63.1	65.2	0.39	0.5	1.1	0.00	6.2	5.4	0.05	12.85	12.83	5.71	5.89
1611	62.2	64.3	0.39	0.7	1.4	0.01	6.1	5.4	0.04	12.26	12.23	6.15	6.35
1612	63.3	65.5	0.39	1.0	1.6	0.01	13.7	12.9	0.11	10.15	10.12	7.99	8.27
1613	51.6	53.4	0.32	0.6	1.2	0.00	19.9	19.0	0.16	9.06	9.02	8.73	9.04
1614	48.6	50.3	0.30	0.1	0.8	0.00	19.4	18.5	0.15	10.27	10.24	7.82	8.09
1615	50.6	52.3	0.31	0.0	0.7	0.00	18.7	17.8	0.15	9.81	9.77	8.01	8.29
1616	48.6	50.2	0.30	0.0	0.7	0.00	17.2	16.3	0.14	10.87	10.84	7.34	7.59
1617	48.6	50.3	0.30	0.1	0.7	0.00	18.0	17.1	0.14	10.34	10.31	7.56	7.82
1618	50.7	52.4	0.31	0.1	0.8	0.00	15.9	15.0	0.13	11.17	11.14	7.08	7.32
1619	52.8	54.6	0.33	0.1	0.8	0.00	16.4	15.5	0.13	10.86	10.83	7.14	7.38
1620	54.4	56.3	0.34	0.1	0.8	0.00	15.6	14.8	0.12	11.27	11.24	6.98	7.22
1621	56.4	58.3	0.35	0.1	0.7	0.00	15.8	14.9	0.12	11.24	11.21	6.84	7.07
1622	57.6	59.6	0.36	0.2	0.9	0.00	15.3	14.4	0.12	11.45	11.42	6.82	7.05
1623	58.1	60.0	0.36	0.1	0.8	0.00	16.3	15.4	0.13	11.56	11.53	6.59	6.81
1624	59.0	61.0	0.37	0.1	0.8	0.00	13.9	13.0	0.11	11.52	11.49	6.74	6.97
1625	58.5	60.5	0.36	0.1	0.8	0.00	14.9	14.0	0.12	11.76	11.73	6.44	6.65
Ave	59.9	61.9	0.37	0.6	1.3	0.00	11.1	10.3	0.09	11.24	11.21	6.91	7.14

SMMI - Pogo Mine
10/01/13

Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	274	809	0.00	0.04	90.9	92.6	0.1	92.5	83.2
2013	274	810	4.23	4.73	75.1	85.2	4.7	80.3	84.8
2013	274	811	20.15	19.60	1.5	0.1	-2.0	3.7	10.6
2013	274	812	20.17	19.63	0.0	0.0	-0.1	0.0	-0.7
2013	274	813	20.11	19.42	3.3	-0.1	-0.1	0.0	0.1
2013	274	814	0.74	0.31	99.8	180.2	-4.2	220.2	87.5
2013	274	815	0.00	0.04	100.6	237.7	0.8	236.8	100.3
2013	274	816	0.00	0.02	100.6	237.1	1.0	235.9	100.3
2013	274	817	-0.01	0.02	100.6	237.3	1.1	236.1	100.3
2013	274	818	-0.01	0.01	100.6	237.6	1.3	236.5	100.3
2013	274	819	-0.02	0.01	100.6	223.3	1.1	228.8	100.3
2013	274	820	-0.03	0.01	93.4	92.2	-1.3	100.5	94.4
2013	274	821	-0.03	0.00	91.3	92.0	0.5	91.4	90.0
2013	274	822	-0.03	0.00	91.3	91.9	0.4	91.5	89.9
2013	274	823	-0.03	-0.01	70.2	71.9	-3.4	78.1	77.2
2013	274	824	-0.03	-0.01	45.7	45.4	0.4	44.9	45.5
2013	274	825	7.19	7.56	24.6	25.9	-3.0	30.3	31.4
2013	274	826	20.06	19.49	0.1	0.0	-0.1	-0.1	-1.2
2013	274	827	20.09	19.52	-0.1	0.0	0.0	0.0	-2.2
2013	274	828	12.07	11.37	0.0	0.0	-0.1	0.0	-2.0
2013	274	829	10.08	9.86	-0.1	-0.1	-0.1	0.0	-1.6
2013	274	830	15.26	5.00	-0.1	0.1	-0.3	0.3	-1.1
2013	274	831	10.63	6.61	2.4	21.3	-3.8	28.7	5.9
2013	274	832	10.08	9.74	-1.3	0.5	-0.1	0.3	-0.8
2013	274	833	10.07	9.76	-1.5	0.0	-0.1	0.0	-1.8
2013	274	834	10.07	9.77	-1.0	-0.1	-0.1	0.0	-1.0
2013	274	835	10.07	9.77	0.1	0.0	-0.1	0.0	0.1
2013	274	836	5.05	4.68	38.7	38.6	11.5	26.9	24.4
2013	274	837	0.07	0.08	87.8	90.3	-0.1	90.4	88.8
2013	274	838	0.05	0.04	88.8	90.6	0.4	90.4	90.2
2013	274	839	0.04	0.03	68.6	70.4	-2.4	73.5	76.6
2013	274	840	0.04	0.02	45.5	44.9	0.1	44.9	46.1
2013	274	841	0.51	0.34	44.2	45.0	0.2	44.8	45.3
2013	274	842	12.64	5.34	13.0	47.9	-0.3	48.1	12.9
2013	274	843	12.54	5.55	6.1	47.3	-1.8	49.1	3.5
2013	274	844	12.72	5.51	4.3	49.1	3.3	45.6	4.6
2013	274	845	12.83	5.43	3.4	45.8	-2.1	48.0	4.3
2013	274	846	12.88	5.40	3.1	44.1	-4.8	49.6	4.5
2013	274	847	12.91	5.38	3.2	46.6	-0.3	47.0	3.8
2013	274	848	12.88	5.39	3.3	49.2	3.3	45.9	2.7
2013	274	849	12.75	5.44	3.2	47.7	-0.9	48.7	2.5
2013	274	850	12.59	5.61	3.3	47.0	-1.6	48.5	3.2
2013	274	851	12.83	5.42	3.0	46.8	-1.2	48.0	3.4
2013	274	852	12.81	5.44	2.8	46.8	-2.3	49.0	3.3
2013	274	853	12.88	5.39	2.4	48.4	2.8	45.4	3.7
2013	274	854	12.84	5.42	2.3	46.7	-1.6	48.2	3.3
2013	274	855	12.87	5.39	2.4	47.8	-1.0	48.6	2.4
2013	274	856	12.51	5.61	2.3	46.8	-2.5	49.3	2.5
2013	274	857	12.82	5.45	2.1	48.8	3.4	45.2	3.7
2013	274	858	12.87	5.40	2.1	44.3	-4.9	49.6	3.7
2013	274	859	12.75	5.47	2.1	50.1	4.0	45.9	4.3
2013	274	900	12.83	5.75	2.3	51.9	-1.0	53.0	1.6
2013	274	901	10.22	7.63	4.4	39.5	0.1	39.4	0.7
2013	274	902	10.80	7.11	4.5	40.1	-2.1	42.1	0.7
2013	274	903	11.16	6.72	4.3	45.8	-0.9	46.7	0.0
2013	274	904	11.27	6.67	4.3	48.1	-0.7	48.8	0.7
2013	274	905	11.74	6.30	3.8	48.1	-2.5	50.5	1.1

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	274	906	11.90	6.19	3.7	51.6	1.7	50.0	1.1
2013	274	907	12.07	6.08	4.2	52.5	1.3	51.2	0.9
2013	274	908	11.98	6.10	4.3	52.3	-0.1	52.5	1.3
2013	274	909	12.05	6.12	4.0	52.1	1.1	50.9	2.2
2013	274	910	12.21	5.98	3.5	50.0	-1.2	51.1	2.7
2013	274	911	12.27	5.94	3.7	48.7	-2.8	51.5	2.5
2013	274	912	12.28	5.92	3.8	51.7	2.1	49.6	2.0
2013	274	913	12.33	5.87	3.7	50.1	-1.7	51.8	2.0
2013	274	914	12.03	6.06	3.1	50.0	-2.3	52.1	2.0
2013	274	915	12.45	5.78	3.0	52.6	1.0	51.5	2.5
2013	274	916	13.76	5.01	2.6	58.0	-6.0	66.6	12.9
2013	274	917	9.96	7.72	5.1	69.3	-1.8	70.9	1.4
2013	274	918	10.44	7.29	6.3	59.0	-0.9	60.0	1.3
2013	274	919	11.18	6.73	6.1	52.6	-1.9	54.4	1.8
2013	274	920	11.65	6.38	6.5	54.3	1.1	53.4	1.7
2013	274	921	11.85	6.23	6.3	54.7	-0.1	54.8	1.7
2013	274	922	11.94	6.14	5.3	52.9	-2.0	54.7	1.9
2013	274	923	11.82	6.24	5.0	52.4	-2.2	54.5	2.0
2013	274	924	12.18	5.98	4.6	52.5	-1.1	53.4	2.2
2013	274	925	12.19	5.97	4.5	54.2	0.9	53.1	2.1
2013	274	926	12.27	5.91	4.4	54.8	2.5	52.2	2.0
2013	274	927	12.41	5.82	4.0	51.4	-2.0	53.2	2.0
2013	274	928	12.44	5.80	4.1	50.4	-3.8	54.2	2.0
2013	274	929	12.47	5.77	4.1	52.1	-2.1	54.3	2.0
2013	274	930	12.43	5.79	4.1	54.7	2.1	52.5	1.8
2013	274	931	12.79	5.53	4.0	62.8	2.2	60.6	1.8
2013	274	932	11.47	7.06	7.5	89.3	6.6	82.9	1.4
2013	274	933	8.96	8.94	22.1	116.5	3.8	112.4	-0.2
2013	274	934	8.40	9.11	26.3	102.6	-2.9	106.5	-0.2
2013	274	935	9.45	8.22	21.4	59.3	-2.3	61.5	0.1
2013	274	936	9.88	7.83	17.0	51.3	-0.2	51.5	0.2
2013	274	937	10.47	7.36	14.0	52.0	-0.2	52.1	0.2
2013	274	938	10.78	7.11	12.2	54.3	-0.8	55.0	0.2
2013	274	939	11.07	6.89	11.1	56.5	-0.9	57.5	0.2
2013	274	940	11.28	6.71	9.5	57.1	-1.9	59.1	0.3
2013	274	941	11.46	6.55	8.6	59.0	-0.2	59.1	0.2
2013	274	942	11.54	6.49	7.9	59.3	0.4	58.8	0.3
2013	274	943	11.57	6.46	7.6	60.0	1.6	58.4	0.3
2013	274	944	11.70	6.37	7.2	59.4	1.4	58.1	0.4
2013	274	945	11.69	6.37	6.5	60.3	1.2	59.1	0.3
2013	274	946	11.73	6.34	6.4	60.9	1.5	59.2	0.5
2013	274	947	11.95	6.20	6.4	62.5	2.5	60.1	0.3
2013	274	948	10.61	7.70	17.9	107.7	-5.4	127.8	0.7
2013	274	949	9.73	8.34	50.5	218.7	9.8	222.5	1.2
2013	274	950	9.56	8.32	52.5	173.7	15.3	162.4	2.2
2013	274	951	9.28	8.43	47.7	140.3	-0.6	142.6	1.5
2013	274	952	8.86	8.66	50.2	138.5	2.5	135.9	-0.2
2013	274	953	9.12	8.46	50.0	120.1	-3.6	125.4	0.0
2013	274	954	9.20	8.40	44.0	102.9	-3.5	106.3	-0.3
2013	274	955	8.88	8.48	39.8	76.5	-2.8	78.9	-0.3
2013	274	956	10.81	7.23	25.1	55.4	-3.5	58.9	-0.6
2013	274	957	10.64	7.27	19.9	57.4	-5.9	63.2	-0.5
2013	274	958	11.62	6.53	16.1	61.6	-4.1	65.7	-0.3
2013	274	959	11.71	6.59	12.2	67.9	4.7	63.0	-0.1
2013	274	1000	10.44	7.34	15.0	53.1	-1.4	54.4	0.3
2013	274	1001	10.52	7.22	16.7	51.6	0.5	51.0	0.0
2013	274	1002	10.92	6.99	15.4	51.1	-1.0	51.9	0.1

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	274	1003	11.24	6.77	13.3	56.7	1.4	55.3	0.1
2013	274	1004	10.72	7.49	18.1	68.1	-0.4	68.5	0.6
2013	274	1005	8.97	8.62	29.4	61.0	-0.6	61.6	0.9
2013	274	1006	9.57	8.27	25.3	61.9	3.3	58.5	-0.5
2013	274	1007	10.03	7.77	23.0	64.3	2.2	62.0	-0.7
2013	274	1008	10.97	7.21	18.0	65.8	3.0	62.7	-0.5
2013	274	1009	10.86	7.16	16.8	65.5	-4.9	70.5	-0.4
2013	274	1010	11.48	6.69	15.1	65.5	-1.8	67.5	-0.4
2013	274	1011	10.76	7.19	16.9	49.9	-1.2	51.2	0.1
2013	274	1012	10.56	7.28	15.7	49.5	0.0	49.3	0.2
2013	274	1013	10.65	7.19	15.5	49.9	-1.7	51.5	0.0
2013	274	1014	10.85	7.01	14.9	51.9	0.1	51.8	-0.3
2013	274	1015	11.20	6.83	13.9	51.3	-1.4	52.7	0.0
2013	274	1016	10.95	6.95	13.6	52.6	-0.1	52.7	-0.1
2013	274	1017	11.03	6.87	11.9	51.3	-1.7	53.0	-0.2
2013	274	1018	11.41	6.57	11.5	52.4	-1.3	53.5	-0.3
2013	274	1019	11.72	6.49	12.1	57.3	1.8	55.4	0.1
2013	274	1020	9.82	8.60	22.8	64.1	-3.0	66.9	1.1
2013	274	1021	9.19	8.55	26.3	58.6	1.0	57.4	0.4
2013	274	1022	10.20	7.90	18.2	58.8	1.7	57.0	-0.6
2013	274	1023	10.26	7.66	14.2	63.5	-0.5	63.9	-0.8
2013	274	1024	11.22	7.05	11.9	65.4	-4.3	70.0	-0.6
2013	274	1025	10.92	7.18	11.1	67.3	-5.6	73.0	-0.7
2013	274	1026	11.60	6.62	10.1	72.7	0.4	72.3	-0.6
2013	274	1027	11.02	7.15	9.5	67.9	2.8	65.2	-0.4
2013	274	1028	9.87	7.75	12.0	51.1	-3.2	54.1	-0.5
2013	274	1029	10.83	7.13	10.9	52.8	-5.0	57.7	-0.6
2013	274	1030	10.37	7.42	10.5	55.7	-0.3	56.0	-0.5
2013	274	1031	10.79	7.07	10.4	58.2	2.0	55.9	-0.7
2013	274	1032	10.85	7.13	9.6	57.5	1.7	55.9	-0.5
2013	274	1033	10.77	7.10	9.1	56.5	-1.6	58.2	-0.6
2013	274	1034	11.34	6.69	9.1	57.6	-2.2	59.7	-0.7
2013	274	1035	11.73	6.54	8.1	64.6	3.2	61.3	-0.4
2013	274	1036	9.45	8.58	12.8	55.3	-1.1	56.3	0.5
2013	274	1037	10.12	7.93	15.3	57.0	-0.1	57.0	-0.9
2013	274	1038	10.83	7.45	12.5	66.7	4.9	61.9	-1.1
2013	274	1039	11.39	6.87	11.6	69.3	1.3	67.8	-1.0
2013	274	1040	12.23	6.31	11.6	67.6	-6.0	73.8	-0.9
2013	274	1041	10.94	7.17	12.2	66.6	1.0	65.5	-0.9
2013	274	1042	9.98	7.69	16.1	56.5	-0.9	57.5	-1.1
2013	274	1043	10.68	7.17	15.3	55.2	-4.7	59.8	-1.2
2013	274	1044	10.30	7.49	14.6	57.7	2.1	55.5	-1.0
2013	274	1045	10.37	7.31	15.5	58.4	1.9	56.6	-1.1
2013	274	1046	10.88	7.09	14.3	54.9	-1.7	56.7	-1.0
2013	274	1047	10.29	7.41	14.1	56.4	-3.4	59.7	-0.9
2013	274	1048	10.94	6.90	13.3	58.8	-1.6	60.3	-1.1
2013	274	1049	10.65	7.19	11.6	62.2	4.3	57.9	-1.0
2013	274	1050	10.82	6.96	12.3	62.2	1.1	61.2	-1.0
2013	274	1051	12.06	6.22	11.5	62.4	-3.3	65.7	-0.6
2013	274	1052	9.78	8.79	36.5	87.7	-6.9	95.5	-0.4
2013	274	1053	9.67	8.56	36.7	84.7	-2.5	87.4	2.0
2013	274	1054	8.84	8.82	28.0	53.7	-1.3	54.9	-0.5
2013	274	1055	10.30	7.67	21.9	56.9	-2.4	59.2	-1.5
2013	274	1056	10.38	7.65	18.0	64.0	2.9	61.2	-1.5
2013	274	1057	11.12	6.97	16.5	70.6	2.4	68.2	-1.5
2013	274	1058	11.67	6.69	12.8	68.9	0.0	68.8	-1.3
2013	274	1059	11.27	6.86	12.0	69.2	-5.3	74.6	-1.2

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	274	1100	11.62	6.61	12.7	64.7	-0.1	64.7	-1.2
2013	274	1101	10.34	7.52	15.7	51.3	1.8	49.5	-0.8
2013	274	1102	10.39	7.38	17.2	51.6	-0.1	51.7	-1.2
2013	274	1103	10.80	7.18	16.2	49.9	-3.1	53.1	-1.1
2013	274	1104	10.38	7.40	16.1	51.0	-2.6	53.6	-1.2
2013	274	1105	10.96	6.96	15.7	53.9	0.2	53.6	-1.3
2013	274	1106	10.85	7.10	14.6	54.7	2.0	52.8	-1.1
2013	274	1107	11.59	6.52	14.5	60.1	-1.5	61.4	-0.9
2013	274	1108	12.12	6.39	10.8	67.9	-1.8	69.8	0.4
2013	274	1109	10.93	7.16	11.2	67.2	-5.6	73.2	-1.4
2013	274	1110	11.29	6.90	11.8	64.9	-0.7	65.5	-1.5
2013	274	1111	9.14	6.75	15.1	59.9	5.1	54.8	0.2
2013	274	1112	9.91	9.67	3.8	4.9	-1.4	6.2	2.9
2013	274	1113	10.04	9.74	0.9	0.0	-0.1	0.0	0.1
2013	274	1114	10.04	9.74	0.8	0.0	-0.1	0.0	0.2
2013	274	1115	1.93	1.64	61.7	53.4	-3.7	66.9	50.4
2013	274	1116	0.07	0.06	86.7	89.5	0.0	89.5	90.2
2013	274	1117	0.05	0.03	87.5	89.8	0.4	89.5	90.3
2013	274	1118	0.05	0.02	87.8	89.9	0.4	89.5	90.4
2013	274	1119	0.04	0.01	89.9	89.9	0.4	89.5	90.4
2013	274	1120	0.04	0.01	90.3	89.9	0.4	89.5	90.4
2013	274	1121	0.04	0.00	56.3	58.7	2.9	55.8	62.6
2013	274	1122	0.04	0.00	46.4	44.4	0.4	44.5	46.1
2013	274	1123	0.03	-0.01	46.1	44.5	0.3	44.2	46.0
2013	274	1124	0.03	-0.01	46.0	44.4	0.3	44.0	46.0
2013	274	1125	14.25	2.28	14.9	25.6	-2.6	31.0	20.1
2013	274	1126	21.20	0.03	0.6	0.0	-0.1	0.0	2.1
2013	274	1127	21.22	0.03	0.6	0.0	-0.1	0.0	2.1
2013	274	1128	21.23	0.03	0.5	0.0	-0.1	0.0	2.0
2013	274	1129	21.24	0.03	0.5	0.0	-0.1	0.0	2.0
2013	274	1130	21.24	0.02	0.5	0.0	-0.1	0.0	2.0
2013	274	1131	21.24	0.02	0.5	0.0	-0.1	0.0	1.9
2013	274	1132	21.24	0.02	0.6	0.0	-0.1	0.0	2.0
2013	274	1133	21.25	0.02	0.5	0.0	-0.1	0.0	2.0
2013	274	1134	21.25	0.02	0.5	0.0	-0.1	0.0	1.9
2013	274	1135	21.25	0.02	0.4	0.0	-0.1	0.0	1.9
2013	274	1136	21.25	0.02	0.5	0.0	-0.1	0.0	1.8
2013	274	1137	21.25	0.02	0.5	-0.1	-0.1	0.0	1.8
2013	274	1138	21.25	0.03	0.4	0.0	-0.1	0.0	1.8
2013	274	1139	21.25	0.02	0.6	-0.1	-0.1	0.0	1.8
2013	274	1140	21.25	0.02	0.5	0.0	-0.1	0.0	1.8
2013	274	1141	21.25	0.02	0.5	0.0	-0.1	0.0	1.8
2013	274	1142	21.25	0.02	0.5	0.0	-0.1	0.0	1.8
2013	274	1143	21.25	0.02	0.4	0.0	-0.1	0.0	1.8
2013	274	1144	21.25	0.02	0.6	0.0	-0.1	0.0	1.7
2013	274	1145	21.25	0.02	0.5	0.0	-0.1	0.0	1.7
2013	274	1146	21.25	0.02	0.5	0.0	-0.1	0.0	1.7
2013	274	1147	21.25	0.02	0.5	0.0	-0.1	0.0	1.7
2013	274	1148	21.25	0.02	0.5	-0.1	-0.1	0.0	1.7
2013	274	1149	21.26	0.02	0.5	0.0	-0.1	0.0	1.7
2013	274	1150	21.26	0.02	0.5	0.0	-0.1	0.0	1.7
2013	274	1151	21.26	0.02	0.4	0.0	-0.1	0.0	1.7
2013	274	1152	14.81	4.47	2.0	33.0	11.2	26.3	3.1
2013	274	1153	11.76	6.48	3.9	69.6	4.9	68.5	1.4
2013	274	1154	11.49	6.76	4.2	67.4	2.5	64.8	0.6
2013	274	1155	11.57	6.57	5.0	68.2	-1.8	70.0	0.6
2013	274	1156	11.90	6.47	5.3	67.1	-5.6	72.8	0.6

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	274	1157	11.55	6.59	6.1	69.4	-4.7	74.1	0.6
2013	274	1158	12.33	6.13	6.5	67.3	-6.4	74.0	0.7
2013	274	1159	11.74	6.51	6.8	71.3	2.2	68.9	0.9
2013	274	1200	10.83	7.36	9.5	62.7	-3.3	65.9	0.9
2013	274	1201	9.93	8.38	17.4	73.2	0.7	72.3	1.1
2013	274	1202	8.65	9.07	21.0	64.1	5.4	58.6	1.4
2013	274	1203	9.36	8.70	21.2	53.5	2.3	51.1	0.9
2013	274	1204	8.44	9.12	21.5	49.7	1.0	48.8	0.9
2013	274	1205	9.74	8.27	18.0	43.3	-3.7	46.9	0.4
2013	274	1206	9.65	8.14	14.7	46.5	-2.4	48.8	0.2
2013	274	1207	10.75	7.50	11.7	47.1	-5.0	52.1	0.1
2013	274	1208	10.39	7.61	10.4	51.7	-2.5	54.0	0.2
2013	274	1209	11.56	6.83	9.1	53.8	-2.0	55.9	0.1
2013	274	1210	11.05	7.15	8.2	60.0	3.7	56.2	0.2
2013	274	1211	11.82	6.52	7.4	63.5	3.2	60.3	0.2
2013	274	1212	11.43	6.86	6.8	66.0	4.5	61.6	0.2
2013	274	1213	11.89	6.53	7.0	67.6	4.9	62.7	0.2
2013	274	1214	11.25	7.09	6.7	58.4	2.8	55.6	0.4
2013	274	1215	11.73	6.62	6.5	62.0	-1.6	63.6	0.3
2013	274	1216	10.88	7.58	8.0	53.5	-6.6	61.1	1.1
2013	274	1217	8.92	8.66	14.1	52.8	-0.1	52.9	0.6
2013	274	1218	9.51	8.32	13.6	52.5	-2.0	54.5	0.0
2013	274	1219	9.40	8.21	14.0	52.6	-2.0	54.6	-0.1
2013	274	1220	10.58	7.48	11.5	47.8	-2.8	50.5	-0.1
2013	274	1221	10.05	7.76	10.6	48.6	1.7	46.7	-0.1
2013	274	1222	11.05	7.08	9.9	47.4	-1.1	48.5	-0.1
2013	274	1223	10.54	7.39	9.3	50.0	1.6	48.2	0.0
2013	274	1224	11.51	6.72	8.5	49.3	0.0	49.3	0.1
2013	274	1225	10.71	7.24	8.1	51.9	3.6	48.2	0.0
2013	274	1226	11.62	6.58	7.8	50.9	1.4	49.4	0.0
2013	274	1227	10.98	7.03	7.5	54.0	4.6	49.5	0.1
2013	274	1228	11.81	6.38	7.2	54.7	3.9	50.9	0.1
2013	274	1229	11.50	6.69	6.5	53.9	1.1	52.4	0.2
2013	274	1230	11.98	6.25	6.4	54.2	0.0	54.3	0.2
2013	274	1231	11.78	6.53	6.2	53.2	-3.7	56.8	0.3
2013	274	1232	11.03	7.05	8.6	61.8	-4.3	65.8	1.4
2013	274	1233	9.60	8.26	17.1	48.3	-3.1	51.1	0.1
2013	274	1234	9.37	8.26	21.0	49.3	0.2	49.1	0.0
2013	274	1235	10.74	7.34	19.6	50.9	0.3	50.3	0.0
2013	274	1236	10.15	7.70	19.0	56.6	3.3	53.3	-0.1
2013	274	1237	11.19	6.95	18.4	58.4	3.0	55.4	-0.1
2013	274	1238	10.70	7.29	17.2	60.5	3.8	56.7	-0.1
2013	274	1239	11.36	6.73	17.3	60.8	1.6	59.1	-0.1
2013	274	1240	11.39	6.83	15.3	56.9	-4.0	60.8	0.1
2013	274	1241	11.31	6.73	15.9	60.2	-4.2	64.6	0.0
2013	274	1242	11.85	6.48	14.3	57.8	-6.1	64.0	0.0
2013	274	1243	11.18	6.84	14.7	62.0	-0.2	62.0	-0.2
2013	274	1244	12.02	6.29	13.9	62.4	1.6	60.7	-0.2
2013	274	1245	11.34	6.72	13.2	64.5	4.9	59.4	0.0
2013	274	1246	12.19	6.11	13.0	65.2	5.5	59.6	-0.1
2013	274	1247	11.67	6.52	12.2	64.1	2.8	61.1	-0.1
2013	274	1248	11.46	7.03	15.2	61.3	3.3	57.9	1.2
2013	274	1249	8.98	9.02	25.3	61.0	-2.7	63.7	0.6
2013	274	1250	9.35	8.46	27.6	56.4	1.4	54.8	0.3
2013	274	1251	9.39	8.41	21.7	48.7	1.6	47.1	0.2
2013	274	1252	10.66	7.40	17.7	54.9	2.7	52.3	-0.4
2013	274	1253	10.47	7.62	14.0	57.4	0.9	56.5	-0.4

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	274	1254	11.28	6.90	13.4	62.7	1.4	61.3	-0.3
2013	274	1255	11.40	6.90	12.3	63.0	-5.4	68.6	-0.2
2013	274	1256	11.53	6.66	12.0	65.5	-5.1	70.5	-0.3
2013	274	1257	12.03	6.42	10.5	62.7	-6.0	68.6	-0.3
2013	274	1258	11.60	6.61	10.1	68.1	2.5	65.5	-0.3
2013	274	1259	12.15	6.18	9.5	68.5	2.8	65.7	-0.4
2013	274	1300	11.21	6.98	10.3	55.2	-4.2	59.4	-0.2
2013	274	1301	10.10	7.56	13.6	43.9	-2.7	46.6	-0.2
2013	274	1302	10.62	7.29	13.8	45.7	-0.8	46.4	-0.3
2013	274	1303	10.42	7.41	13.8	52.4	2.4	49.8	-0.4
2013	274	1304	10.52	7.64	16.4	56.6	1.6	54.9	-0.1
2013	274	1305	9.08	8.56	19.9	45.4	2.5	43.0	-0.7
2013	274	1306	10.93	7.19	16.6	53.1	0.9	51.9	-0.7
2013	274	1307	10.96	7.25	13.8	54.0	-2.6	56.3	-0.6
2013	274	1308	11.40	6.78	12.7	56.8	-3.2	60.0	-0.6
2013	274	1309	11.58	6.77	11.7	56.5	-6.1	62.6	-0.6
2013	274	1310	11.35	6.80	11.8	61.0	-3.6	64.4	-0.6
2013	274	1311	12.05	6.41	11.1	65.2	-0.4	65.3	-0.5
2013	274	1312	11.19	6.98	10.5	69.7	4.3	65.5	-0.5
2013	274	1313	9.88	7.81	15.4	52.5	1.0	51.4	-0.6
2013	274	1314	9.24	8.28	17.3	50.5	1.4	49.1	-0.6
2013	274	1315	10.12	7.56	17.9	50.4	-0.1	50.3	-0.8
2013	274	1316	11.28	6.94	12.6	61.9	-1.6	63.4	-0.7
2013	274	1317	11.64	6.57	11.2	67.0	-0.8	67.6	-0.7
2013	274	1318	11.57	6.73	9.5	62.9	-5.4	68.2	-0.7
2013	274	1319	11.93	6.38	9.3	66.6	-5.2	71.8	-0.6
2013	274	1320	10.24	8.16	15.0	63.8	-6.7	70.5	-0.2
2013	274	1321	8.72	9.04	32.7	82.3	-8.5	93.3	-0.7
2013	274	1322	9.18	8.69	45.1	89.6	-7.0	98.2	-0.7
2013	274	1323	9.42	8.44	48.8	82.0	-0.4	82.9	-0.6
2013	274	1324	8.76	8.86	43.5	63.5	0.1	63.4	-0.6
2013	274	1325	9.24	8.37	42.5	52.5	-1.1	53.6	-0.8
2013	274	1326	9.05	8.53	34.0	46.4	-0.2	46.5	-1.0
2013	274	1327	10.18	7.74	30.2	47.9	1.8	46.2	-1.2
2013	274	1328	9.52	8.15	26.6	48.3	0.6	47.6	-1.2
2013	274	1329	10.71	7.31	24.9	50.2	1.8	48.2	-1.2
2013	274	1330	9.95	7.84	22.9	50.5	1.2	49.1	-1.2
2013	274	1331	10.97	7.09	20.8	52.0	2.4	49.5	-1.2
2013	274	1332	10.39	7.55	18.4	51.1	-0.9	51.8	-1.2
2013	274	1333	11.07	6.98	16.0	53.6	0.7	52.7	-1.2
2013	274	1334	10.77	7.29	15.6	53.2	-1.6	54.7	-1.2
2013	274	1335	11.48	6.75	15.9	55.1	-1.1	56.1	-1.1
2013	274	1336	9.26	8.77	27.4	69.5	5.8	63.8	-0.7
2013	274	1337	8.89	8.92	40.6	81.9	4.1	78.6	-0.9
2013	274	1338	9.41	8.65	36.5	59.2	-4.4	64.9	-1.0
2013	274	1339	8.68	8.92	33.4	49.1	-1.9	51.1	-1.4
2013	274	1340	9.45	8.52	29.8	44.2	-1.5	45.8	-1.4
2013	274	1341	9.52	8.28	28.8	45.8	0.5	45.2	-1.5
2013	274	1342	9.97	8.07	23.3	44.2	-2.9	47.0	-1.5
2013	274	1343	9.97	7.91	22.1	46.2	-0.9	47.1	-1.5
2013	274	1344	10.29	7.80	19.1	44.2	-2.7	46.8	-1.5
2013	274	1345	10.47	7.51	18.5	45.9	-0.8	46.7	-1.6
2013	274	1346	10.56	7.56	16.2	45.1	-3.6	48.7	-1.5
2013	274	1347	10.86	7.22	16.1	49.4	0.0	49.2	-1.6
2013	274	1348	10.74	7.39	14.1	49.4	-3.4	52.5	-1.5
2013	274	1349	11.29	6.88	13.3	52.2	-0.5	52.6	-1.5
2013	274	1350	10.93	7.21	12.2	52.7	-2.5	55.1	-1.4

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	274	1351	11.50	6.87	13.7	57.9	1.1	56.8	-1.3
2013	274	1352	9.43	8.43	27.2	72.6	-2.8	75.8	-1.5
2013	274	1353	9.60	8.39	51.8	95.1	-0.1	95.2	-1.9
2013	274	1354	9.81	8.20	60.1	94.7	-1.6	96.1	-1.8
2013	274	1355	9.61	8.29	59.5	93.2	-1.4	94.7	-1.9
2013	274	1356	9.53	8.32	58.1	91.8	-1.5	93.0	-1.8
2013	274	1357	9.61	8.24	54.8	90.7	1.7	88.9	-1.8
2013	274	1358	9.68	8.17	51.9	87.2	-0.2	87.1	-1.7
2013	274	1359	9.79	8.08	47.6	82.1	-1.7	83.8	-1.6
2013	274	1400	9.38	8.32	53.9	79.2	-4.8	83.9	-1.6
2013	274	1401	9.35	8.31	46.1	75.7	-5.5	81.6	-1.0
2013	274	1402	9.97	7.95	42.6	73.5	-4.4	78.0	-0.3
2013	274	1403	9.57	8.14	44.0	73.7	-0.7	74.4	0.3
2013	274	1404	9.52	8.18	49.7	72.5	-4.9	77.8	1.3
2013	274	1405	9.50	8.19	40.7	71.2	-1.9	72.8	2.5
2013	274	1406	9.61	8.10	35.3	65.6	-4.3	70.4	2.7
2013	274	1407	9.42	8.26	34.8	63.9	3.9	59.8	2.7
2013	274	1408	8.52	7.38	40.1	56.2	2.9	53.2	1.6
2013	274	1409	9.83	9.65	6.2	8.6	2.0	6.4	2.1
2013	274	1410	10.02	9.73	1.1	0.0	-0.1	0.0	-1.8
2013	274	1411	10.03	9.74	0.9	0.0	-0.1	0.0	-0.1
2013	274	1412	7.21	6.77	18.5	6.9	-3.6	20.1	8.5
2013	274	1413	0.07	0.09	86.4	88.0	-0.3	88.7	83.8
2013	274	1414	0.05	0.03	88.9	89.5	0.3	89.0	90.1
2013	274	1415	0.04	0.01	89.5	89.5	0.4	89.0	90.1
2013	274	1416	0.04	0.00	80.6	86.1	7.1	79.0	86.0
2013	274	1417	0.03	-0.01	46.6	44.9	0.5	44.4	48.5
2013	274	1418	0.03	-0.01	45.9	44.5	0.4	44.0	45.9
2013	274	1419	8.32	3.92	25.5	53.9	0.5	53.3	26.8
2013	274	1420	19.86	0.74	2.0	17.5	3.6	14.1	1.6
2013	274	1421	21.20	0.02	0.6	0.0	-0.1	0.0	2.1
2013	274	1422	21.21	0.01	0.6	0.0	-0.1	0.0	2.2
2013	274	1423	21.22	0.01	0.6	0.0	-0.1	0.0	2.2
2013	274	1424	21.23	0.01	0.5	0.0	-0.1	0.0	2.1
2013	274	1425	21.23	0.01	0.6	0.0	-0.1	0.0	2.2
2013	274	1426	21.23	0.01	0.6	0.0	-0.1	0.0	2.2
2013	274	1427	21.24	0.01	0.5	0.0	-0.1	0.0	2.2
2013	274	1428	21.24	0.01	0.5	0.0	-0.1	0.0	2.2
2013	274	1429	21.24	0.01	0.5	0.0	-0.1	0.0	2.2
2013	274	1430	21.24	0.01	0.5	0.0	0.0	0.0	2.2
2013	274	1431	21.24	0.01	0.5	0.0	-0.1	0.0	2.1
2013	274	1432	21.24	0.01	0.4	0.0	0.0	0.0	2.1
2013	274	1433	21.25	0.01	0.5	0.0	-0.1	0.0	2.1
2013	274	1434	21.25	0.01	0.5	0.0	-0.1	0.0	2.1
2013	274	1435	21.24	0.01	0.5	0.0	-0.1	0.0	2.1
2013	274	1436	21.25	0.01	0.5	0.0	-0.1	0.0	2.1
2013	274	1437	21.25	0.01	0.5	0.0	0.0	0.0	2.0
2013	274	1438	21.25	0.01	0.5	0.0	-0.1	0.0	2.1
2013	274	1439	21.25	0.01	0.4	0.0	-0.1	0.0	2.0
2013	274	1440	21.25	0.00	0.5	0.0	-0.1	0.0	2.0
2013	274	1441	21.25	0.01	0.4	0.0	-0.1	0.0	2.0
2013	274	1442	21.25	0.00	0.5	0.0	-0.1	0.0	2.0
2013	274	1443	21.25	0.00	0.4	0.0	-0.1	0.0	2.0
2013	274	1444	21.25	0.00	0.5	0.0	-0.1	0.0	2.0
2013	274	1445	21.25	0.00	0.4	0.0	-0.1	0.0	2.0
2013	274	1446	21.25	0.00	0.4	0.0	-0.1	0.0	2.0
2013	274	1447	21.25	0.00	0.4	0.0	-0.1	0.0	1.9

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	274	1448	21.25	0.00	0.5	0.0	-0.1	0.0	1.9
2013	274	1449	21.25	0.00	0.5	0.0	-0.1	0.0	1.9
2013	274	1450	21.25	0.00	0.5	0.0	-0.1	0.0	1.9
2013	274	1451	21.25	0.00	0.4	0.0	-0.1	0.0	1.9
2013	274	1452	21.25	0.00	0.4	0.0	-0.1	0.0	1.9
2013	274	1453	21.25	0.00	0.4	0.0	-0.1	0.0	1.8
2013	274	1454	21.25	0.00	0.4	0.0	-0.1	0.0	1.9
2013	274	1455	21.25	0.01	0.5	0.0	-0.1	0.0	2.0
2013	274	1456	21.24	0.01	0.4	0.0	-0.1	0.0	2.2
2013	274	1457	21.23	0.01	0.4	0.0	-0.1	0.0	2.6
2013	274	1458	21.22	0.02	0.4	0.0	-0.1	0.0	2.7
2013	274	1459	21.22	0.01	0.5	0.0	-0.1	0.0	2.8
2013	274	1500	21.23	0.01	0.4	0.0	-0.1	0.0	2.9
2013	274	1501	21.23	0.01	0.4	0.0	-0.1	0.0	2.9
2013	274	1502	21.23	0.01	0.4	0.0	-0.1	0.0	2.9
2013	274	1503	20.96	0.25	0.5	0.4	0.0	0.4	2.9
2013	274	1504	11.45	6.58	2.2	40.7	-6.7	50.6	2.4
2013	274	1505	10.89	6.84	4.6	56.0	-1.8	57.8	1.5
2013	274	1506	12.98	5.58	4.5	66.2	3.8	62.2	1.5
2013	274	1507	12.78	5.80	5.3	74.1	3.2	70.7	2.1
2013	274	1508	10.06	7.99	14.2	52.1	-3.2	55.2	1.4
2013	274	1509	8.86	8.83	21.4	52.7	-4.0	56.8	1.3
2013	274	1510	9.82	8.05	19.2	52.8	-1.2	53.9	1.1
2013	274	1511	9.65	8.21	16.7	54.8	-3.0	57.7	1.0
2013	274	1512	10.61	7.42	15.7	52.4	-2.3	54.5	0.9
2013	274	1513	10.32	7.69	15.1	48.9	-5.4	54.3	1.0
2013	274	1514	11.16	6.96	13.8	53.1	-3.0	56.1	0.9
2013	274	1515	11.03	7.13	12.5	54.6	-4.3	58.8	1.0
2013	274	1516	11.51	6.64	11.7	60.7	-3.9	64.4	0.9
2013	274	1517	11.59	6.70	10.4	61.6	-2.3	63.8	1.0
2013	274	1518	11.41	6.68	10.4	69.9	3.0	66.8	0.9
2013	274	1519	12.08	6.34	9.6	70.6	5.1	65.4	1.0
2013	274	1520	11.47	6.62	10.0	72.3	2.4	70.0	1.0
2013	274	1521	12.28	6.15	9.7	72.9	6.1	66.7	1.0
2013	274	1522	11.58	6.56	9.0	70.1	-0.6	70.7	0.9
2013	274	1523	12.04	6.53	9.1	68.9	0.3	68.7	1.4
2013	274	1524	9.06	8.78	18.3	75.9	-1.7	78.8	1.2
2013	274	1525	9.63	8.04	18.8	56.8	0.0	57.1	0.7
2013	274	1526	10.18	7.74	14.5	56.3	-0.8	57.0	0.6
2013	274	1527	10.80	7.13	12.5	53.4	-1.7	55.0	0.6
2013	274	1528	11.22	6.94	10.0	55.5	-1.0	56.5	0.6
2013	274	1529	11.23	6.78	9.4	61.3	1.7	59.4	0.6
2013	274	1530	11.72	6.58	8.7	60.5	4.6	55.8	0.7
2013	274	1531	11.10	6.87	8.5	60.5	0.5	59.9	0.6
2013	274	1532	11.97	6.37	7.8	65.6	4.7	60.8	0.6
2013	274	1533	11.44	6.61	7.8	67.7	1.4	66.2	0.6
2013	274	1534	12.19	6.19	7.6	68.5	3.4	65.0	0.6
2013	274	1535	11.64	6.51	7.3	65.8	-5.7	71.8	0.6
2013	274	1536	11.85	6.29	7.3	72.0	1.3	70.6	0.6
2013	274	1537	12.42	6.01	6.7	73.0	5.5	67.2	0.6
2013	274	1538	11.94	6.26	6.6	68.3	-5.0	73.6	0.6
2013	274	1539	12.89	5.68	6.5	69.6	-0.4	70.1	1.2
2013	274	1540	10.41	7.66	8.0	57.8	-4.2	62.1	1.1
2013	274	1541	10.30	7.60	11.4	54.2	-1.8	56.0	0.2
2013	274	1542	10.17	7.68	10.6	54.6	-4.0	58.4	0.3
2013	274	1543	11.55	6.62	8.9	57.3	-3.1	60.3	0.4
2013	274	1544	11.40	6.75	7.1	57.3	-5.4	62.6	0.5

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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	274	1545	12.07	6.19	7.3	62.4	-4.8	67.1	0.6
2013	274	1546	11.69	6.53	6.9	64.3	-4.4	68.9	0.5
2013	274	1547	11.98	6.20	7.3	67.4	-1.4	68.7	0.5
2013	274	1548	12.37	6.05	6.3	71.2	6.0	65.1	0.6
2013	274	1549	12.10	6.15	6.1	67.7	-1.8	69.4	0.6
2013	274	1550	12.63	5.76	6.3	66.5	-5.3	72.1	0.6
2013	274	1551	11.55	6.65	7.2	59.3	2.8	56.3	0.8
2013	274	1552	10.33	7.30	9.1	45.6	0.7	44.7	0.8
2013	274	1553	11.09	6.88	9.2	44.6	0.6	43.9	0.8
2013	274	1554	10.33	7.32	9.1	44.7	-2.0	46.6	0.7
2013	274	1555	12.54	5.91	7.6	55.5	-0.7	56.3	0.9
2013	274	1556	9.45	8.42	12.2	67.4	-4.1	71.5	0.9
2013	274	1557	9.70	8.18	18.8	71.6	1.4	69.9	0.3
2013	274	1558	9.58	8.25	15.1	46.2	-0.8	46.8	0.3
2013	274	1559	10.79	7.29	13.0	44.9	-1.9	46.8	0.3
2013	274	1600	10.72	7.38	10.9	46.3	-3.2	49.4	0.4
2013	274	1601	11.52	6.68	10.2	52.6	-3.1	55.6	0.4
2013	274	1602	11.54	6.75	8.6	57.5	0.0	57.4	0.5
2013	274	1603	11.84	6.40	8.3	61.3	-0.6	61.8	0.4
2013	274	1604	11.84	6.51	7.5	62.8	1.6	61.1	0.5
2013	274	1605	12.04	6.24	7.5	64.4	0.9	63.5	0.5
2013	274	1606	12.14	6.28	6.8	64.5	2.9	61.6	0.5
2013	274	1607	12.09	6.17	6.7	65.7	2.2	63.4	0.5
2013	274	1608	12.40	6.08	6.3	67.5	5.2	62.1	0.5
2013	274	1609	12.01	6.21	6.5	65.7	1.0	64.7	0.5
2013	274	1610	12.85	5.71	6.2	63.1	-2.2	65.4	0.5
2013	274	1611	12.26	6.15	6.1	62.2	-6.2	68.9	0.7
2013	274	1612	10.15	7.99	13.7	63.3	-3.7	66.8	1.0
2013	274	1613	9.06	8.73	19.9	51.6	-1.1	52.8	0.6
2013	274	1614	10.27	7.82	19.4	48.6	-0.8	49.7	0.1
2013	274	1615	9.81	8.01	18.7	50.6	-1.3	51.8	0.0
2013	274	1616	10.87	7.34	17.2	48.6	-0.3	48.8	0.0
2013	274	1617	10.34	7.56	18.0	48.6	-1.5	49.9	0.1
2013	274	1618	11.17	7.08	15.9	50.7	1.2	49.4	0.1
2013	274	1619	10.86	7.14	16.4	52.8	0.2	52.7	0.1
2013	274	1620	11.27	6.98	15.6	54.4	2.1	52.2	0.1
2013	274	1621	11.24	6.84	15.8	56.4	0.5	55.8	0.1
2013	274	1622	11.45	6.82	15.3	57.6	3.5	54.3	0.2
2013	274	1623	11.56	6.59	16.3	58.1	-0.2	58.2	0.1
2013	274	1624	11.52	6.74	13.9	59.0	2.3	56.3	0.1
2013	274	1625	11.76	6.44	14.9	58.5	-1.1	59.5	0.1
2013	274	1626	11.58	6.68	12.7	58.4	0.6	57.7	0.2
2013	274	1627	11.86	6.35	13.0	60.3	0.2	60.0	0.1
2013	274	1628	12.29	9.06	14.1	51.9	1.4	51.2	2.7
2013	274	1629	19.97	19.55	1.4	0.3	-0.7	1.5	0.9
2013	274	1630	19.99	19.63	0.6	0.0	-0.1	0.0	-1.5
2013	274	1631	17.70	16.73	0.7	0.0	-2.2	2.3	-1.4
2013	274	1632	10.06	9.80	0.5	0.0	-0.3	0.3	-0.7
2013	274	1633	4.45	4.11	40.8	43.1	11.6	31.3	29.0
2013	274	1634	0.09	0.11	86.8	88.9	-0.1	88.9	88.6
2013	274	1635	0.12	0.12	89.5	88.5	0.2	88.5	88.9
2013	274	1636	0.11	0.09	77.7	80.6	6.9	73.9	81.7
2013	274	1637	0.11	0.08	46.8	44.1	0.0	44.1	46.4
2013	274	1638	0.12	0.09	46.3	44.0	-0.1	44.0	45.0
2013	274	1639	4.97	0.05	38.3	37.3	-2.8	40.6	41.7
2013	274	1640	20.23	10.30	1.5	1.4	0.1	1.3	4.8
2013	274	1641	20.15	19.90	0.2	0.0	-0.1	0.0	-1.4

SMMI - Pogo Mine
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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	274	1642	20.16	19.92	0.0	0.0	-0.1	0.0	-1.4
2013	274	1643	20.16	19.95	0.0	0.0	-0.1	0.0	-1.1
2013	274	1644	19.14	18.62	-0.1	0.0	-0.1	0.0	-0.9
2013	274	1645	10.11	9.89	-0.2	0.0	-0.1	0.0	-0.1
2013	274	1646	4.79	4.42	56.2	105.7	25.1	82.8	44.6
2013	274	1647	-0.01	0.01	100.6	236.5	0.3	236.0	100.3
2013	274	1648	-0.02	0.00	100.5	207.5	24.7	182.9	100.3
2013	274	1649	-0.03	-0.01	94.2	91.4	0.4	91.0	94.4
2013	274	1650	-0.04	-0.01	93.5	91.4	0.4	90.9	92.6
2013	274	1651	-0.05	-0.01	93.5	91.4	0.4	91.0	92.9
2013	274	1652	-0.05	-0.02	59.1	62.1	3.5	58.7	67.7
2013	274	1653	-0.06	-0.02	47.0	44.9	0.4	44.8	48.6
2013	274	1654	1.38	-0.02	44.5	44.9	2.9	42.1	48.0
2013	274	1655	19.94	0.01	3.3	6.3	4.8	1.5	13.0

Table 10
Continuous Emissions Measurements Results
Run I29-4
10/02/13

Time (1-min)	NOx (ppm)	NOx (ppm Cor.)	NOx (lb/hr)	CO (ppm)	CO (ppm Cor.)	CO (lb/hr)	SO2 (ppm)	SO2 (ppm Cor.)	SO2 (lb/hr)	O2 (%)	O2 (% Cor.)	CO2 (%)	CO2 (% Cor.)
846	48.0	48.9	0.30	1.3	1.3	0.00	8.8	8.6	0.07	12.87	12.70	5.45	5.59
847	43.8	44.6	0.27	9.2	9.0	0.03	7.5	7.3	0.06	14.36	14.18	4.53	4.63
848	46.1	47.0	0.29	12.7	12.5	0.05	7.6	7.4	0.06	13.40	13.23	5.41	5.54
849	43.2	43.9	0.27	1.0	1.0	0.00	13.7	13.3	0.11	10.22	10.08	7.67	7.88
850	35.8	36.4	0.22	1.5	1.5	0.01	18.1	17.6	0.15	9.11	8.98	8.41	8.64
851	34.0	34.6	0.21	0.8	0.8	0.00	15.3	14.8	0.13	8.63	8.51	8.73	8.97
852	38.1	38.8	0.24	0.6	0.6	0.00	21.4	20.7	0.18	7.60	7.49	9.36	9.62
853	34.4	34.9	0.21	1.8	1.8	0.01	22.7	22.0	0.19	9.91	9.77	7.84	8.05
854	30.4	30.9	0.19	3.2	3.1	0.01	16.2	15.7	0.13	9.56	9.43	8.03	8.25
855	40.0	40.7	0.25	1.5	1.5	0.01	10.5	10.2	0.09	10.97	10.82	6.93	7.11
856	45.6	46.4	0.28	2.6	2.5	0.01	7.5	7.2	0.06	11.65	11.50	6.48	6.64
857	48.3	49.3	0.30	3.1	3.0	0.01	6.8	6.6	0.06	12.29	12.13	6.03	6.18
858	49.1	50.1	0.31	1.5	1.5	0.01	6.0	5.8	0.05	12.23	12.07	6.04	6.19
859	48.5	49.5	0.30	3.8	3.7	0.01	5.1	4.9	0.04	12.60	12.44	5.81	5.95
900	50.1	51.1	0.31	2.3	2.2	0.01	4.8	4.7	0.04	12.68	12.51	5.74	5.88
901	50.0	50.9	0.31	2.6	2.6	0.01	4.3	4.1	0.04	12.48	12.32	5.85	6.00
902	49.4	50.4	0.31	2.6	2.6	0.01	4.4	4.2	0.04	12.89	12.72	5.59	5.72
903	56.9	58.1	0.35	3.5	3.4	0.01	3.9	3.8	0.03	13.44	13.27	5.24	5.36
904	61.1	62.4	0.38	1.8	1.8	0.01	10.5	10.2	0.09	9.52	9.39	8.90	9.15
905	67.5	69.0	0.42	1.3	1.3	0.00	18.9	18.4	0.16	8.69	8.56	9.22	9.48
906	53.0	54.1	0.33	2.5	2.5	0.01	18.4	17.9	0.15	9.45	9.32	8.57	8.81
907	48.5	49.4	0.30	2.9	2.8	0.01	16.5	16.0	0.14	9.68	9.54	8.27	8.50
908	47.2	48.1	0.29	2.1	2.1	0.01	13.6	13.2	0.11	10.41	10.27	7.70	7.91
909	49.7	50.7	0.31	1.9	1.9	0.01	12.4	12.0	0.10	10.98	10.83	7.21	7.40
910	50.9	51.9	0.32	1.7	1.6	0.01	13.6	13.2	0.11	11.17	11.02	7.04	7.23
911	53.9	55.0	0.34	1.3	1.2	0.00	12.4	12.0	0.10	11.02	10.87	7.08	7.27
912	55.6	56.8	0.35	2.2	2.2	0.01	10.0	9.7	0.08	11.62	11.47	6.65	6.82
913	57.4	58.5	0.36	1.9	1.9	0.01	8.5	8.3	0.07	11.74	11.58	6.54	6.71
914	58.6	59.8	0.36	1.2	1.2	0.00	8.5	8.3	0.07	11.80	11.64	6.46	6.62
915	58.2	59.4	0.36	1.9	1.9	0.01	7.7	7.5	0.06	11.78	11.62	6.49	6.66
916	58.8	60.0	0.37	2.3	2.3	0.01	7.3	7.1	0.06	12.10	11.94	6.25	6.40
917	58.3	59.5	0.36	1.8	1.7	0.01	7.0	6.8	0.06	12.19	12.03	6.18	6.33
918	59.2	60.4	0.37	1.6	1.6	0.01	6.1	5.9	0.05	12.15	11.99	6.15	6.31
919	59.7	61.0	0.37	2.3	2.3	0.01	5.5	5.4	0.05	12.82	12.65	5.79	5.93
920	68.2	69.7	0.43	1.7	1.6	0.01	6.2	6.0	0.05	12.01	11.85	6.70	6.88
921	63.9	65.3	0.40	1.3	1.3	0.00	10.6	10.3	0.09	10.17	10.03	7.84	8.05
922	55.0	56.2	0.34	1.8	1.8	0.01	11.4	11.1	0.09	11.17	11.02	7.05	7.24
923	52.1	53.1	0.32	1.7	1.7	0.01	10.2	9.9	0.08	11.41	11.26	6.81	6.99
924	52.1	53.1	0.32	1.0	1.0	0.00	9.3	9.0	0.08	11.41	11.26	6.72	6.90
925	51.6	52.6	0.32	2.1	2.1	0.01	8.6	8.3	0.07	11.81	11.65	6.49	6.65
926	53.6	54.7	0.33	1.6	1.6	0.01	8.3	8.0	0.07	12.00	11.84	6.31	6.47
927	55.3	56.4	0.34	1.5	1.5	0.01	7.0	6.8	0.06	11.77	11.61	6.43	6.60
928	55.2	56.3	0.34	2.2	2.1	0.01	5.8	5.6	0.05	12.15	11.99	6.18	6.33
929	54.8	55.9	0.34	2.3	2.3	0.01	5.2	5.0	0.04	12.22	12.06	6.12	6.27
930	55.0	56.1	0.34	1.6	1.6	0.01	4.8	4.7	0.04	12.27	12.11	6.08	6.23
931	54.7	55.8	0.34	2.0	2.0	0.01	4.2	4.1	0.03	12.05	11.89	6.20	6.36
932	54.1	55.2	0.34	2.5	2.5	0.01	4.3	4.1	0.04	12.38	12.22	5.98	6.13
933	53.4	54.5	0.33	1.9	1.8	0.01	4.7	4.6	0.04	12.44	12.28	5.93	6.07
934	54.4	55.5	0.34	1.7	1.7	0.01	4.4	4.3	0.04	12.22	12.06	6.05	6.20
935	62.5	63.9	0.39	2.8	2.7	0.01	4.5	4.3	0.04	13.12	12.95	5.44	5.57
936	83.1	85.0	0.52	2.9	2.9	0.01	5.9	5.7	0.05	10.59	10.45	7.96	8.18
937	125.3	128.4	0.78	2.7	2.7	0.01	19.1	18.5	0.16	9.46	9.33	8.45	8.68
938	65.3	66.7	0.41	2.1	2.1	0.01	24.0	23.3	0.20	10.49	10.35	7.52	7.72
Ave	53.9	55.0	0.34	2.3	2.3	0.01	9.8	9.5	0.08	11.42	11.27	6.79	6.97

SMMI - Pogo Mine
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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	275	759	20.32	0.04	-0.3	0.1	0.0	0.0	5.9
2013	275	800	20.32	0.05	-0.3	0.1	0.0	0.1	6.0
2013	275	801	20.32	0.05	-0.3	0.1	0.0	0.1	6.1
2013	275	802	20.32	0.04	-0.3	0.0	-0.1	0.0	6.0
2013	275	803	20.32	0.04	-0.4	0.0	-0.1	0.0	5.8
2013	275	804	20.33	0.04	-0.3	0.0	-0.1	0.0	6.0
2013	275	805	20.33	0.04	-0.3	0.0	0.0	0.0	6.3
2013	275	806	20.33	0.04	-0.4	0.0	-0.1	0.0	5.8
2013	275	807	20.38	8.19	-0.1	0.0	-0.4	0.3	5.1
2013	275	808	20.32	19.84	-0.4	-0.1	-0.1	0.0	2.7
2013	275	809	20.32	19.67	-0.3	0.0	-0.1	0.0	1.5
2013	275	810	20.33	19.57	0.0	0.0	-0.1	0.0	0.1
2013	275	811	8.38	7.42	63.5	98.5	2.8	111.4	52.9
2013	275	812	0.04	0.04	100.6	237.6	0.3	237.3	100.3
2013	275	813	0.09	0.02	100.3	192.4	-2.7	213.2	100.3
2013	275	814	0.01	0.01	96.5	91.7	0.6	91.0	94.2
2013	275	815	4.67	5.09	75.3	84.2	6.9	77.3	85.0
2013	275	816	20.34	19.57	1.5	3.9	3.8	0.0	9.8
2013	275	817	20.36	19.60	0.2	0.0	-0.1	0.0	0.1
2013	275	818	8.39	7.48	65.3	104.3	3.7	113.6	51.8
2013	275	819	0.02	0.04	100.6	236.5	1.2	235.5	100.3
2013	275	820	0.01	0.02	96.4	142.5	12.8	131.2	98.9
2013	275	821	0.00	0.01	90.2	91.4	0.4	90.8	92.5
2013	275	822	0.02	0.01	68.9	76.7	3.0	73.5	82.4
2013	275	823	-0.02	0.00	44.6	44.9	0.4	44.9	48.2
2013	275	824	-0.02	0.00	45.1	44.9	0.4	45.0	47.6
2013	275	825	6.21	6.19	20.5	24.4	1.3	23.2	30.5
2013	275	826	10.16	9.78	0.2	-0.1	-0.1	0.0	1.5
2013	275	827	10.14	9.83	0.0	0.0	-0.1	0.0	1.1
2013	275	828	16.90	3.14	1.5	9.1	2.5	6.7	3.0
2013	275	829	13.49	5.00	1.7	43.1	-1.2	44.3	2.8
2013	275	830	13.42	5.07	2.0	44.2	-1.0	45.1	2.3
2013	275	831	15.81	3.48	1.7	35.1	1.8	33.2	2.8
2013	275	832	20.91	0.16	1.0	5.1	1.7	3.2	3.0
2013	275	833	19.29	1.43	0.9	3.9	-2.4	7.6	3.1
2013	275	834	13.08	5.30	1.9	45.2	-1.5	47.2	2.2
2013	275	835	12.95	5.39	2.5	47.6	-0.8	48.5	2.1
2013	275	836	11.11	5.24	5.6	42.0	-0.6	42.4	5.6
2013	275	837	10.15	9.75	1.5	2.8	-0.1	2.7	4.8
2013	275	838	10.16	9.84	0.4	0.3	-0.1	0.3	0.3
2013	275	839	8.96	8.45	7.8	3.6	-2.4	8.0	2.5
2013	275	840	0.10	0.12	82.6	85.1	2.7	82.4	76.5
2013	275	841	0.06	0.05	88.0	89.9	0.4	89.5	90.4
2013	275	842	0.05	0.03	75.8	75.2	-3.4	81.3	82.5
2013	275	843	0.04	0.02	46.3	44.7	0.3	44.5	47.0
2013	275	844	0.91	0.51	45.0	44.7	-0.9	45.9	45.7
2013	275	845	13.11	5.22	14.7	48.4	3.5	44.9	14.5
2013	275	846	12.87	5.45	8.8	48.0	-1.1	48.9	1.3
2013	275	847	14.36	4.53	7.5	43.8	-9.3	54.7	9.2
2013	275	848	13.40	5.41	7.6	46.1	-2.4	48.6	12.7
2013	275	849	10.22	7.67	13.7	43.2	-0.5	43.6	1.0
2013	275	850	9.11	8.41	18.1	35.8	1.2	34.7	1.5
2013	275	851	8.63	8.73	15.3	34.0	0.3	33.7	0.8
2013	275	852	7.60	9.36	21.4	38.1	0.3	37.8	0.6
2013	275	853	9.91	7.84	22.7	34.4	2.0	32.3	1.8
2013	275	854	9.56	8.03	16.2	30.4	-1.1	31.5	3.2
2013	275	855	10.97	6.93	10.5	40.0	0.6	39.4	1.5

SMMI - Pogo Mine
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Year	Julian Day	Time (min)	O2 (%)	CO2 (%)	SO2 (ppm)	NOx (ppm)	NO2 (ppm)	NO (ppm)	CO (ppm)
2013	275	856	11.65	6.48	7.5	45.6	-0.3	45.9	2.6
2013	275	857	12.29	6.03	6.8	48.3	1.9	46.6	3.1
2013	275	858	12.23	6.04	6.0	49.1	-1.2	50.2	1.5
2013	275	859	12.60	5.81	5.1	48.5	-1.2	49.7	3.8
2013	275	900	12.68	5.74	4.8	50.1	1.0	49.2	2.3
2013	275	901	12.48	5.85	4.3	50.0	0.6	49.3	2.6
2013	275	902	12.89	5.59	4.4	49.4	0.4	49.1	2.6
2013	275	903	13.44	5.24	3.9	56.9	3.9	52.9	3.5
2013	275	904	9.52	8.90	10.5	61.1	2.6	58.4	1.8
2013	275	905	8.69	9.22	18.9	67.5	1.0	66.1	1.3
2013	275	906	9.45	8.57	18.4	53.0	0.4	52.7	2.5
2013	275	907	9.68	8.27	16.5	48.5	-1.4	49.9	2.9
2013	275	908	10.41	7.70	13.6	47.2	-1.6	48.8	2.1
2013	275	909	10.98	7.21	12.4	49.7	-0.9	50.5	1.9
2013	275	910	11.17	7.04	13.6	50.9	-2.1	52.9	1.7
2013	275	911	11.02	7.08	12.4	53.9	-0.8	54.7	1.3
2013	275	912	11.62	6.65	10.0	55.6	0.8	54.7	2.2
2013	275	913	11.74	6.54	8.5	57.4	1.1	56.1	1.9
2013	275	914	11.80	6.46	8.5	58.6	-0.8	59.3	1.2
2013	275	915	11.78	6.49	7.7	58.2	-1.5	59.6	1.9
2013	275	916	12.10	6.25	7.3	58.8	-1.0	59.8	2.3
2013	275	917	12.19	6.18	7.0	58.3	-2.2	60.6	1.8
2013	275	918	12.15	6.15	6.1	59.2	-1.1	60.3	1.6
2013	275	919	12.82	5.79	5.5	59.7	-3.8	63.5	2.3
2013	275	920	12.01	6.70	6.2	68.2	-0.1	68.1	1.7
2013	275	921	10.17	7.84	10.6	63.9	0.2	63.6	1.3
2013	275	922	11.17	7.05	11.4	55.0	-0.4	55.4	1.8
2013	275	923	11.41	6.81	10.2	52.1	0.1	52.0	1.7
2013	275	924	11.41	6.72	9.3	52.1	-0.4	52.5	1.0
2013	275	925	11.81	6.49	8.6	51.6	-1.5	53.1	2.1
2013	275	926	12.00	6.31	8.3	53.6	-0.5	54.2	1.6
2013	275	927	11.77	6.43	7.0	55.3	-0.1	55.5	1.5
2013	275	928	12.15	6.18	5.8	55.2	1.9	53.3	2.2
2013	275	929	12.22	6.12	5.2	54.8	1.7	53.1	2.3
2013	275	930	12.27	6.08	4.8	55.0	0.9	54.0	1.6
2013	275	931	12.05	6.20	4.2	54.7	0.3	54.6	2.0
2013	275	932	12.38	5.98	4.3	54.1	0.5	53.7	2.5
2013	275	933	12.44	5.93	4.7	53.4	-1.4	54.8	1.9
2013	275	934	12.22	6.05	4.4	54.4	-0.4	54.5	1.7
2013	275	935	13.12	5.44	4.5	62.5	0.2	62.6	2.8
2013	275	936	10.59	7.96	5.9	83.1	0.8	82.5	2.9
2013	275	937	9.46	8.45	19.1	125.3	2.3	122.9	2.7
2013	275	938	10.49	7.52	24.0	65.3	1.3	63.9	2.1

AECOM

RM 3
MOLECULAR WEIGHT DETERMINATION

Client: Pogo Mine
Plant Location: Delta Junction, AK
Test Location: Incinerator

Operator: J. Rosburg
Ambient Temperature: 65

Sample Type (circle one): Bag Integrated Continuous Other _____
Has Orsat or Fyrite unit been successfully leak checked? YES/NO

Date	Bag ID/Run Number	% O_2			% CO_2		
		Actual Readings		Average	Actual Readings		Average
10/02/13	I29-4	10.45	10.49	10.47	7.91	7.96	7.94
10/02/130	I23-4	10.83	10.92	10.88	7.47	7.41	7.44
10/02/130	I5-4	10.72	10.79	10.76	7.62	7.77	7.70

1125	165.5
1150	162.9
1175	160.4
1200	158.0
1225	155.6

T(°F)	K
1250	~~165.6~~ 153.4
1275	~~162.8~~ 151.0 #3
1300	~~160.5~~ 149.0
1325	~~158.2~~ 146.9
1350	~~156.0~~ 144.9
1375	~~153.9~~ 142.9
1400	~~151.8~~ 141.0
1425	~~149.8~~ 139.1

AECOM

ISOKINETIC SAMPLE DATA FORM

Plant:	POGO	Filter ID:	P2
Location:	Delta Junction, AK	Ambient Temp. (°F):	56
Source I.D.:	Incinerator	Baro. Press. (in. Hg):	28.00
Date:	9/29/13	Static Press. (in H_2O):	0.04
Flow Traverse Time:	NA	O_2 (%):	
Run No.:	IS-1	CO_2 (%):	
Operators:	DR, AW	Duct Dia. (in):	30
Meter Box I.D.:	Black	B_{ws} (assumed):	12
Meter Y:	1.003	Nozzle Dia. (in):	0.875, 0.874, 0.875 Ave = 0.8747
Meter Delta H@:	1.77321	K Factor:	
Probe I.D./ Impinger outlet I.D.:	403	Leak Check:	
Probe Length/Type:	4' RM5	Pre: 0.002 acf	10 in. Hg Vac.
Pitot Coeff. (Cp):	0.84	Post: * NOZZLE acf	in. Hg Vac.

Moisture		
Imp.	Initial	Final
1	712.7	799.9
2	589.3	621.3
3	714.1	720.5
4	697.6	699.3
5	886.6	898.3
	Net Gain	

Pitot:	Impact	Static	
Pre:	0	0	in. H_2O/15 sec.
Post:			in. H_2O/15 sec.

DGM Clock Time	Port/Point I.D.		Sample Time (min.)	DGM Reading (DACF)	ΔP (in. H_2O)	ΔH (in. H_2O)	Stack Temp. (F)	Probe Temp. (°F)	Filter Temp. (°F)	Imp. Outlet Temp. (°F)	DGM Temp. (°F)		Vacuum (in. Hg)
1106	1	1	0	139.118	0.01	1.63	1148	235	252	40	53	52	4
		2	3	141.28	0.02	3.07	1243	239	257	38	53	51	4
		3	6	144.02	0.015	2.33	1224	240	257	38	54	51	4
		4	9	146.65	0.01	1.60	1174	242	254	38	56	51	4
		5	12	148.88	0.01	1.60	1178	251	251	38	58	52	4
		6	15	151.08	0.01	1.66	1134	257	251	39	60	52	4
		7	18	153.27	0.01	1.63	1141	260	251	39	62	53	4
		8	21	155.58	0.01	1.60	1163	238	249	40	64	53	6
		9	24	157.71	0.01	1.60	1170	235	250	40	65	54	6
		10	27	159.83	0.01	1.63	1156	255	248	40	66	54	6
		11	30	162.12	0.01	1.63	1141	242	250	41	67	54	7
		12	33	164.24	0.01	1.63	1146	241	250	41	68	55	7
1142 | 1157	2	1	36	166.416	0.01	1.66	1128	247	248	46	61	57	7
		2	39	168.56	0.01	1.66	1123	246	254	42	62	57	7
		3	42	170.76	0.01	1.66	1130	252	254	41	63	57	7
		4	45	172.98	0.01	1.66	1121	249	252	40	65	57	7
		5	48	175.20	0.01	1.66	1122	242	251	40	66	57	7
		6	51	177.43	0.01	1.63	1145	254	252	41	67	57	7
		7	54	179.57	0.01	1.63	1143	248	251	42	68	57	7
		8	57	181.89	0.01	1.63	1135	253	251	42	69	58	7
		9	60	184.10	0.01	1.66	1124	241	251	42	69	58	7
		10	63	186.37	0.01	1.66	1130	251	250	43	71	59	7
		11	66	188.51	0.01	1.63	1143	245	250	43	72	59	7
		12	69	190.85	0.01	1.63	1164	249	250	43	72	59	7
			72	193.06	0.01	1.63	1162	249	245	43	73	60	7
			75	195.26	0.01	1.63	1152	248	250	43	73	61	7
			78	197.41	0.01	1.63	1140	257	248	42	74	61	7
1242			81	199.525									
			Total Time	Vol. (DACF)	Avg. √ΔP	Avg. ΔH	Avg. t_s				Average DGM Temp.		Max. Vac.
			81	60.407	0.0102		1151				59.4		7

Plant =	SMMI - Pogo Mine	Point Duration (min) =	3
Plant Location =	Delta Junction, AK	Bar. Pres. (in Hg) =	28
Source ID =	Incinerator	Static Pres. (in WC) =	0.04
Run No =	I5-1	Nozzle Dia (in WC) =	0.8747
Date =	09/29/13	Meter dH @ =	1.7732
Run Time =	1106-1242	Meter Yd =	1.0034
Sample Duration (min) =	81	H2O Mass (ml/g) =	139

	Moisture		
	Initial	Final	Change
	712.7	799.9	87.2
	589.3	621.3	32
	714.1	720.5	6.4
	697.6	699.3	1.7
	886.6	898.3	11.7
Sum	3600.3	3739.3	

Point No.	DGM Reading (acf)	Sample Volume (acf)	dP (in WC)	dP1/2 (in WC)1/2	dH (in WC)	dH1/2 (in WC)1/2	Stack T (F)	DGM Inlet (F)	DGM Outlet (F)	DGM Ave (F)	velocity (ft/s)	Stack Pres (in Hg)	Meter Pres. (in Hg)
1	139.118	2.162	0.01	0.10	1.63	1.28	1148	53.0	52.0	52.5	10.2	28.00	28.12
2	141.280	2.740	0.02	0.14	3.07	1.75	1243	53.0	51.0	52.0	14.8	28.00	28.23
3	144.020	2.630	0.02	0.12	2.33	1.53	1224	54.0	51.0	52.5	12.8	28.00	28.17
4	146.650	2.230	0.01	0.10	1.60	1.26	1174	56.0	51.0	53.5	10.3	28.00	28.12
5	148.880	2.200	0.01	0.10	1.60	1.26	1178	58.0	52.0	55.0	10.3	28.00	28.12
6	151.080	2.190	0.01	0.10	1.66	1.29	1134	60.0	52.0	56.0	10.2	28.00	28.12
7	153.270	2.310	0.01	0.10	1.63	1.28	1141	62.0	53.0	57.5	10.2	28.00	28.12
8	155.580	2.130	0.01	0.10	1.60	1.26	1163	64.0	53.0	58.5	10.3	28.00	28.12
9	157.710	2.120	0.01	0.10	1.60	1.26	1170	65.0	54.0	59.5	10.3	28.00	28.12
10	159.830	2.290	0.01	0.10	1.63	1.28	1156	66.0	54.0	60.0	10.2	28.00	28.12
11	162.120	2.120	0.01	0.10	1.63	1.28	1141	67.0	54.0	60.5	10.2	28.00	28.12
12	164.240	2.176	0.01	0.10	1.63	1.28	1146	68.0	55.0	61.5	10.2	28.00	28.12
1	166.416	2.144	0.01	0.10	1.66	1.29	1128	61.0	57.0	59.0	10.1	28.00	28.12
2	168.560	2.200	0.01	0.10	1.66	1.29	1123	62.0	57.0	59.5	10.1	28.00	28.12
3	170.760	2.220	0.01	0.10	1.66	1.29	1130	63.0	57.0	60.0	10.1	28.00	28.12
4	172.980	2.220	0.01	0.10	1.66	1.29	1121	65.0	57.0	61.0	10.1	28.00	28.12
5	175.200	2.230	0.01	0.10	1.66	1.29	1122	66.0	57.0	61.5	10.1	28.00	28.12
6	177.430	2.140	0.01	0.10	1.63	1.28	1145	67.0	57.0	62.0	10.2	28.00	28.12
7	179.570	2.310	0.01	0.10	1.63	1.27	1143	68.0	57.0	62.5	10.2	28.00	28.12
8	181.880	2.220	0.01	0.10	1.63	1.28	1135	69.0	58.0	63.5	10.2	28.00	28.12
9	184.100	2.220	0.01	0.10	1.66	1.29	1124	69.0	58.0	63.5	10.1	28.00	28.12
10	186.320	2.190	0.01	0.10	1.66	1.29	1130	71.0	59.0	65.0	10.1	28.00	28.12
11	188.510	2.340	0.01	0.10	1.63	1.28	1143	72.0	59.0	65.5	10.2	28.00	28.12
12	190.850	2.210	0.01	0.10	1.63	1.28	1164	72.0	59.0	65.5	10.3	28.00	28.12
	193.060	2.200	0.01	0.10	1.63	1.28	1162	73.0	60.0	66.5	10.2	28.00	28.12
	195.260	2.150	0.01	0.10	1.63	1.28	1152	73.0	61.0	67.0	10.2	28.00	28.12
	197.410	2.115	0.01	0.10	1.63	1.28	1140	74.0	61.0	67.5	10.2	28.00	28.12
	199.525												
	60.407		0.01	0.10	1.71	1.31	1151.1	64.85	55.78	60.31	10.46	28.00	28.13

ISOKINETIC SAMPLE DATA FORM

AECOM

#3

T(°F)	K
1125	165.5
1150	162.9
1175	160.4
1200	158.0
1225	155.6

Moisture		
Imp.	Initial	Final
1	715.8	806.9
2	590.0	613.1
3	717.0	719.9
4	700.1	700.4
5	898.3	907.7
	Net Gain	

Plant:	Pogo Mine	Filter ID:	P4
Location:	Delta Junction, AK	Ambient Temp. (°F):	36
Source I.D.:	Incinerator	Baro. Press. (in. Hg):	28.25
Date:	9-30-13	Static Press. (in H_2O):	0.04
Flow Traverse Time:	N.A	O_2 (%):	
Run No.:	252	CO_2 (%):	
Operators:	DB, AW	Duct Dia. (in):	30"
Meter Box I.D.:	Black	B_{ws} (assumed):	12
Meter Y:	1.00339	Nozzle Dia. (in):	0.8747
Meter Delta H@:	1.7732	K Factor:	
Probe I.D./ Impinger outlet I.D.:	403	Leak Check:	
Probe Length/Type:	4' RMS	Pre: 0.001 acf	10 in. Hg Vac.
Pitot Coeff. (Cp):	0.84	Post: 0.001 acf	7 in. Hg Vac.

Pitot:	Impact	Static	
Pre:	0	0	in. H_2O/15 sec.
Post:			in. H_2O/15 sec.

DGM Clock Time	Port/Point I.D.	Sample Time (min.)	DGM Reading (DACF)	ΔP (in. H_2O)	ΔH (in. H_2O)	Stack Temp. (F)	Probe Temp. (°F)	Filter Temp. (°F)	Imp. Outlet Temp. (°F)	DGM Temp. (°F)		Vacuum (in. Hg)
1251	1	0	427.433	0.01	1.66	1109	251	247	43	59	59	5
	2	3	429.63	0.01	1.66	1126	255	247	42	61	59	5
	3	6	431.79	0.01	1.63	1150	251	252	42	63	59	5
	4	9	433.95	0.01	1.63	1168	248	257	41	65	59	5
	5	12	436.13	0.01	1.63	1144	247	257	41	68	59	5
	6	15	438.28	0.01	1.63	1161	249	255	41	69	59	5
	7	18	440.43	0.01	1.63	1150	252	253	41	70	60	5
	8	21	442.61	0.01	1.63	1153	250	250	42	70	60	5
	9	24	444.77	0.01	1.60	1171	248	249	42	73	61	6
	10	27	446.94	0.01	1.60	1175	248	244	42	73	61	6
	11	30	449.17	0.01	1.63	1145	249	245	42	75	62	6
	12	33	451.25	0.01	1.60	1167	251	252	42	76	63	6
	1	36	453.39	0.01	1.63	1141	254	254	42	77	63	6
	2	39	455.55	0.01	1.63	1157	249	252	43	76	64	6
	3	42	457.61	0.01	1.66	1109	253	251	43	77	64	6
	4	45	459.99	0.01	1.63	1166	248	248	43	77	64	6
	5	48	462.22	0.01	1.66	1125	250	255	43	78	65	6
	6	51	464.42	0.01	1.60	1177	249	246	43	78	66	6
	7	54	466.62	0.01	1.63	1156	250	251	43	78	66	7
	8	57	468.88	0.01	1.66	1134	254	250	43	79	67	7
	9	60	471.11	0.01	1.66	1138	252	252	45	80	67	7
	10	63	473.20	0.01	1.63	1145	249	250	43	79	67	7
	11	66	475.40	0.01	1.60	1168	251	251	43	79	67	7
	12	69	477.60	0.01	1.60	1172	252	252	43	80	68	7
		72	479.78	0.01	1.66	1132	254	251	43	79	68	7
		75	482.00	0.01	1.66	1133	251	251	43	79	68	7
		78	484.19	0.01	1.66	1130	250	251	44	79	68	7
1410		79	484.918									
		Total Time	Vol. (DACF)	Avg. √ΔP	Avg. ΔH	Avg. t_s				Average DGM Temp.		Max. Vac.

Plant =	SMMI - Pogo Mine	Point Duration (min) =	3
Plant Location =	Delta Junction, AK	Bar. Pres. (in Hg) =	28.25
Source ID =	Incinerator	Static Pres. (in WC) =	0.04
Run No =	I5-2	Nozzle Dia (in WC) =	0.8747
Date =	09/30/13	Meter dH @ =	1.7732
Run Time =	1251-1410	Meter Yd =	1.0034
Sample Duration (min) =	79	H2O Mass (ml/g) =	126.8

	Moisture		
	Initial	Final	Change
	715.8	806.9	91.1
	590.0	613.1	23.1
	717.0	719.9	2.9
	700.1	700.4	0.3
	898.3	907.7	9.4
Sum	3621.2	3748.0	

Point No.	DGM Reading (acf)	Sample Volume (acf)	dP (in WC)	dP1/2 (in WC)1/2	dH (in WC)	dH1/2 (in WC)1/2	Stack T (F)	DGM Inlet (F)	DGM Outlet (F)	DGM Ave (F)	velocity (ft/s)	Stack Pres (in Hg)	Meter Pres. (in Hg)
1	427.433	2.197	0.01	0.10	1.66	1.29	1109.0	59.0	59.0	59.0	10.0	28.25	28.37
2	429.630	2.160	0.01	0.10	1.66	1.29	1126.0	61.0	59.0	60.0	10.1	28.25	28.37
3	431.790	2.160	0.01	0.10	1.63	1.28	1150.0	63.0	59.0	61.0	10.2	28.25	28.37
4	433.950	2.180	0.01	0.10	1.63	1.28	1168.0	65.0	59.0	62.0	10.2	28.25	28.37
5	436.130	2.150	0.01	0.10	1.63	1.28	1144.0	68.0	59.0	63.5	10.1	28.25	28.37
6	438.280	2.150	0.01	0.10	1.63	1.28	1161.0	69.0	59.0	64.0	10.2	28.25	28.37
7	440.430	2.180	0.01	0.10	1.63	1.28	1150.0	70.0	60.0	65.0	10.2	28.25	28.37
8	442.610	2.160	0.01	0.10	1.63	1.28	1153.0	70.0	60.0	65.0	10.2	28.25	28.37
9	444.770	2.170	0.01	0.10	1.60	1.26	1171.0	73.0	61.0	67.0	10.2	28.25	28.37
10	446.940	2.230	0.01	0.10	1.60	1.26	1179.0	73.0	61.0	67.0	10.3	28.25	28.37
11	449.170	2.080	0.01	0.10	1.63	1.28	1145.0	75.0	62.0	68.5	10.1	28.25	28.37
12	451.250	2.140	0.01	0.10	1.60	1.26	1167.0	76.0	63.0	69.5	10.2	28.25	28.37
1	453.390	2.160	0.01	0.10	1.63	1.28	1141.0	77.0	63.0	70.0	10.1	28.25	28.37
2	455.550	2.060	0.01	0.10	1.63	1.28	1157.0	76.0	64.0	70.0	10.2	28.25	28.37
3	457.610	2.380	0.01	0.10	1.66	1.29	1109.0	77.0	64.0	70.5	10.0	28.25	28.37
4	459.990	2.230	0.01	0.10	1.63	1.28	1166.0	77.0	64.0	70.5	10.1	28.25	28.37
5	462.220	2.200	0.01	0.10	1.66	1.29	1125.0	78.0	65.0	71.5	10.2	28.25	28.37
6	464.420	2.200	0.01	0.10	1.60	1.26	1177.0	78.0	66.0	72.0	10.2	28.25	28.37
7	466.620	2.260	0.01	0.10	1.63	1.28	1156.0	78.0	66.0	72.0	10.1	28.25	28.37
8	468.880	2.230	0.01	0.10	1.66	1.29	1134.0	79.0	67.0	73.0	10.1	28.25	28.37
9	471.110	2.090	0.01	0.10	1.66	1.29	1138.0	80.0	67.0	73.5	10.1	28.25	28.37
10	473.200	2.200	0.01	0.10	1.63	1.28	1145.0	79.0	67.0	73.0	10.2	28.25	28.37
11	475.400	2.200	0.01	0.10	1.60	1.26	1168.0	79.0	67.0	73.0	10.2	28.25	28.37
12	477.600	2.180	0.01	0.10	1.60	1.26	1172.0	80.0	68.0	74.0	5.4	28.25	28.37
	479.780	2.220	0.01	0.10	1.66	1.29	1132.0	79.0	68.0	73.5	10.2	28.25	28.37
	482.000	2.190	0.01	0.10	1.66	1.29	1133.0	79.0	68.0	73.5	5.4	28.25	28.37
	484.190	0.728	0.01	0.10	1.66	1.29	1130.0	79.0	68.0	73.5	5.4	28.25	28.37
	484.918												
	57.485		0.01	0.10	1.63	1.28	1148.37	73.96	63.44	68.70	9.64	28.25	28.37

ISOKINETIC SAMPLE DATA FORM

AECOM

T(°F)	K
1125	1,65.5
1150	1,62.9
1175	160.4
1200	158.0

#3

Moisture		
Imp.	Initial	Final
1	715.8	807.8
2	591.1	618.2
3	715.8	719.3
4	699.4	700.7
5	907.5	915.6
	Net Gain	

Plant:	Pogo Mine	Filter ID:	P6
Location:	Delta Junction, AK	Ambient Temp. (°F):	40
Source I.D.:	Incinerator	Baro. Press. (in. Hg):	28.40
Date:	10-1-13	Static Press. (in H_2O):	0.04
Flow Traverse Time:	N/A	O_2 (%):	
Run No.:	IS-3	CO_2 (%):	
Operators:	DB, AW	Duct Dia. (in):	30
Meter Box I.D.:	5616	B_{ws} (assumed):	10
Meter Y:	1.00339	Nozzle Dia. (in):	0.8747
Meter Delta H@:	1.7732	K Factor:	
Probe I.D./ Impinger outlet I.D.:	403	Leak Check:	
Probe Length/Type:	4' Pyrex	Pre: 0.000 acf 10 in. Hg Vac.	
Pitot Coeff. (Cp):	0.84	Post: 0.000 acf 7 in. Hg Vac.	

Pitot:	Impact	Static	
Pre:	0	0	in. H_2O/15 sec.
Post:			in. H_2O/15 sec.

DGM Clock Time	Port/Point I.D.	Sample Time (min.)	DGM Reading (DACF)	ΔP (in. H_2O)	ΔH (in. H_2O)	Stack Temp. (F)	Probe Temp. (°F)	Filter Temp. (°F)	Imp. Outlet Temp. (°F)	DGM Temp. (°F)		Vacuum (in. Hg)
1506	1	0	760.208	0.01	1.63	1142	264	251	40	58	59	5
	2	3	762.39	0.01	1.58	1187	262	253	39	58	59	5
	3	6	764.51	0.01	1.60	1167	262	256	39	60	58	5
	4	9	766.57	0.01	1.63	1151	259	257	40	62	58	5
	5	12	768.71	0.01	1.66	1125	252	257	41	63	58	5
	6	15	770.87	0.01	1.63	1156	243	254	40	65	57	5
	7	18	773.02	0.01	1.63	1163	246	253	40	66	57	5
	8	21	775.20	0.01	1.66	1127	252	252	40	67	57	5
	9	24	777.38	0.01	1.63	1144	246	252	40	68	58	5
	10	27	779.54	0.01	1.63	1112	253	251	41	69	58	5
	11	30	781.70	0.01	1.66	1120	250	250	41	70	58	5
	12	33	783.85	0.01	1.63	1143	249	250	41	70	58	5
	1	36	786.01	0.01	1.63	1152	247	250	41	71	59	6
	2	39	788.20	0.01	1.66	1126	256	250	41	72	59	6
	3	42	790.42	0.01	1.63	1140	251	250	41	73	60	6
	4	45	792.64	0.01	1.63	1136	249	251	42	73	61	6
	5	48	794.87	0.01	1.63	1142	247	249	41	74	61	6
	6	51	797.08	0.01	1.60	1169	246	248	41	75	62	6
	7	54	799.26	0.01	1.63	1153	250	250	41	76	63	6
	8	57	801.44	0.01	1.63	1140	250	250	41	76	63	6
	9	60	803.64	0.01	1.63	1147	250	250	41	76	64	6
	10	63	805.84	0.01	1.66	1130	254	251	41	76	64	6
	11	66	808.04	0.01	1.66	1172	249	250	41	76	65	6
	12	69	810.23	0.01	1.63	1154	249	250	42	76	64	6
		72	812.38	0.01	1.63	1165	250	250	42	77	65	6
		75	814.61	0.01	1.63	1155	252	251	42	77	65	6
1626		80	818.318									
		Total Time	Vol. (DACF)	Avg. $\sqrt{\Delta P}$	Avg. ΔH	Avg. t_s				Average DGM Temp.		Max. Vac.

Plant =	SMMI - Pogo Mine	Point Duration (min) =	5
Plant Location =	Delta Junction, AK	Bar. Pres. (in Hg) =	28.4
Source ID =	Incinerator	Static Pres. (in WC) =	0.04
Run No =	I5-3	Nozzle Dia (in WC) =	0.8747
Date =	10/01/13	Meter dH @ =	1.7732
Run Time =	1506-1626	Meter Yd =	1.0034
Sample Duration (min) =	80	H2O Mass (ml/g) =	132

	Moisture		
	Initial	Final	Change
	715.8	807.8	92
	591.1	618.2	27.1
	715.8	719.3	3.5
	699.4	700.7	3.5
	907.5	915.6	1.3
Sum	3629.6	3761.6	

Point No.	DGM Reading (acf)	Sample Volume (acf)	dP (in WC)	dP1/2 (in WC)1/2	dH (in WC)	dH1/2 (in WC)1/2	Stack T (F)	DGM Inlet (F)	DGM Outlet (F)	DGM Ave (F)	velocity (ft/s)	Stack Pres (in Hg)	Meter Pres. (in Hg)
1	760.208	2.182	0.01	0.10	1.63	1.28	1142.0	58.0	59.0	58.5	10.1	28.40	28.52
2	762.390	2.120	0.01	0.10	1.58	1.26	1187.0	58.0	59.0	58.5	10.3	28.40	28.52
3	764.510	2.060	0.01	0.10	1.60	1.26	1167.0	60.0	58.0	59.0	10.2	28.40	28.52
4	766.570	2.140	0.01	0.10	1.63	1.28	1151.0	62.0	58.0	60.0	10.1	28.40	28.52
5	768.710	2.160	0.01	0.10	1.66	1.29	1125.0	63.0	58.0	60.5	10.1	28.40	28.52
6	770.870	2.150	0.01	0.10	1.63	1.28	1150.0	65.0	57.0	61.0	10.1	28.40	28.52
7	773.020	2.180	0.01	0.10	1.63	1.28	1163.0	66.0	57.0	61.5	10.2	28.40	28.52
8	775.200	2.180	0.01	0.10	1.66	1.29	1127.0	67.0	57.0	62.0	10.1	28.40	28.52
9	777.380	2.160	0.01	0.10	1.63	1.28	1144.0	68.0	58.0	63.0	10.1	28.40	28.52
10	779.540	2.160	0.01	0.10	1.66	1.29	1112.0	69.0	58.0	63.5	10.0	28.40	28.52
11	781.700	2.150	0.01	0.10	1.66	1.29	1120.0	70.0	58.0	64.0	10.0	28.40	28.52
12	783.850	2.160	0.01	0.10	1.63	1.28	1143.0	70.0	58.0	64.0	10.1	28.40	28.52
1	786.010	2.190	0.01	0.10	1.63	1.28	1152.0	71.0	59.0	65.0	10.1	28.40	28.52
2	788.200	1.800	0.01	0.10	1.66	1.29	1126.0	72.0	59.0	65.5	10.1	28.40	28.52
3	790.000	2.420	0.01	0.10	1.63	1.28	1140.0	73.0	60.0	66.5	10.1	28.40	28.52
4	792.420	2.450	0.01	0.10	1.63	1.28	1136.0	73.0	61.0	67.0	10.1	28.40	28.52
5	794.870	2.210	0.01	0.10	1.63	1.28	1142.0	74.0	61.0	67.5	10.1	28.40	28.52
6	797.080	2.180	0.01	0.10	1.60	1.26	1169.0	75.0	62.0	68.5	10.2	28.40	28.52
7	799.260	2.180	0.01	0.10	1.63	1.28	1153.0	76.0	63.0	69.5	10.1	28.40	28.52
8	801.440	2.200	0.01	0.10	1.63	1.28	1140.0	76.0	63.0	69.5	10.1	28.40	28.52
9	803.640	2.200	0.01	0.10	1.63	1.28	1147.0	76.0	64.0	70.0	10.1	28.40	28.52
10	805.840	2.200	0.01	0.10	1.66	1.29	1130.0	76.0	64.0	70.0	10.1	28.40	28.52
11	808.040	2.190	0.01	0.10	1.60	1.26	1172.0	76.0	65.0	70.5	10.2	28.40	28.52
12	810.230	2.150	0.01	0.10	1.63	1.28	1154.0	76.0	64.0	70.0	10.1	28.40	28.52
	812.380	2.230	0.01	0.10	1.63	1.28	1165.0	77.0	65.0	71.0	10.2	28.40	28.52
	814.610	3.708	0.01	0.10	1.63	1.28	1155.0	77.0	65.0	71.0	10.2	28.40	28.52
	818.318												
	58.110		0.01	0.10	1.63	1.28	1146.62	70.15	60.38	65.27	10.13	28.40	28.52

ISOKINETIC SAMPLE DATA FORM

AECOM

#3

Plant:	Pogo Mine	Filter ID:	P8
Location:	Delta Junction, AK	Ambient Temp. (°F):	45
Source I.D.:	Incinerator	Baro. Press. (in. Hg):	28.45
Date:	10-2-13	Static Press. (in H_2O):	0.04
Flow Traverse Time:	NA	O_2 (%):	
Run No.:	IS-4	CO_2 (%):	
Operators:	DB, AW	Duct Dia. (in):	30
Meter Box I.D.:	Black	B_{ws} (assumed):	10
Meter Y:	1.00339	Nozzle Dia. (in):	0.8747
Meter Delta H@:	1.7732	K Factor:	
Probe I.D./ Impinger outlet I.D.:	463	Leak Check:	
Probe Length/Type:	4' 12m5	Pre: 0.000 acf	10 in. Hg Vac.
Pitot Coeff. (Cp):	0.84	Post: 0.000 acf	7 in. Hg Vac.

T (°F)	K
1125	165.5
1150	162.9
1175	160.2
1200	158.0
1225	155.8

Moisture		
Imp.	Initial	Final
1	714.7	821.6
2	587.7	613.8
3	716.0	719.7
4	699.6	700.2
5	915.6	973.3
	Net Gain	

Pitot:	Impact	Static	
Pre:	0	6	in. H_2O/15 sec.
Post:			in. H_2O/15 sec.

DGM Clock Time	Port/Point I.D.	Sample Time (min.)	DGM Reading (DACF)	ΔP (in. H_2O)	ΔH (in. H_2O)	Stack Temp. (F)	Probe Temp. (°F)	Filter Temp. (°F)	Imp. Outlet Temp. (°F)	DGM Temp. (°F)		Vacuum (in. Hg)
1510	1	0	998.198	0.01	1.66	1125	243	244	57	83	83	5
	2	3	1000.37	0.01	1.58	1187	256	245	52	86	84	5
	3	6	1002.41	0.01	1.58	1201	259	243	49	88	83	5
	4	9	1004.63	0.01	1.58	1197	257	251	47	90	83	5
	5	12	6.28	0.01	1.58	1186	259	256	47	90	83	5
	6	15	8.29	0.01	1.58	1199	251	257	47	91	84	5
	7	18	10.37	0.01	1.54	1248	250	257	47	92	84	5
	8	21	12.45	0.01	1.54	1236	247	252	48	93	85	5
	9	24	14.58	0.01	1.54	1189	250	250	48	93	85	5
	10	27	16.70	0.01	1.54	1206	250	247	48	93	85	5
	11	30	18.80	0.01	1.56	1227	251	252	48	94	86	6
	12	33	20.92	0.01	1.58	1200	256	251	49	93	85	6
	1	36	23.05	0.01	1.56	1231	252	256	49	94	84	6
	2	39	25.16	0.01	1.58	1209	250	250	49	94	85	6
	3	42	27.27	0.01	1.58	1205	251	250	49	94	86	6
	4	45	29.42	0.01	1.58	1195	251	250	49	93	85	6
	5	48	31.57	0.01	1.58	1202	250	249	48	92	84	6
	6	51	33.68	0.01	1.58	1212	253	248	49	92	84	6
	7	54	35.77	0.01	1.58	1214	254	251	49	92	84	6
	8	57	37.92	0.01	1.56	1225	252	253	49	92	84	6
	9	60	40.07	0.01	1.58	1201	250	251	49	92	84	6
	10	63	42.25	0.01	1.58	1207	251	251	49	93	84	6
	11	66	44.43	0.01	1.56	1225	251	251	49	92	84	6
	12	69	46.59	0.01	1.54	1241	249	250	50	93	84	6
		72	48.74	0.01	1.58	1204	247	250	50	93	85	6
		75	50.89	0.01	1.58	1190	240	250	49	94	85	6
1629		79	53.755									
		Total Time	Vol. (DACF)	Avg. √ΔP	Avg. ΔH	Avg. t_s				Average DGM Temp.		Max. Vac.

Plant =	SMMI - Pogo Mine	Point Duration (min) =	5
Plant Location =	Delta Junction, AK	Bar. Pres. (in Hg) =	28.45
Source ID =	Incinerator	Static Pres. (in WC) =	0.04
Run No =	I5-4	Nozzle Dia (in WC) =	0.8747
Date =	10/02/13	Meter dH @ =	1.7732
Run Time =	1510-1629	Meter Yd =	1.0034
Sample Duration (min) =	79	H2O Mass (ml/g) =	145

	Moisture		
	Initial	Final	Change
	714.7	821.6	106.9
	587.7	613.8	26.1
	716.0	719.7	3.7
	699.6	700.2	3.7
	915.6	923.3	0.6
Sum	3633.6	3778.6	

Point No.	DGM Reading (acf)	Sample Volume (acf)	dP (in WC)	dP1/2 (in WC)1/2	dH (in WC)	dH1/2 (in WC)1/2	Stack T (F)	DGM Inlet (F)	DGM Outlet (F)	DGM Ave (F)	velocity (ft/s)	Stack Pres (in Hg)	Meter Pres. (in Hg)
1	998.198	2.172	0.01	0.10	1.60	1.26	1125.0	83.0	83.0	83.0	10.0	28.45	28.57
2	1000.370	2.040	0.01	0.10	1.58	1.26	1187.0	86.0	84.0	85.0	10.2	28.45	28.57
3	1002.410	2.220	0.01	0.10	1.58	1.26	1201.0	88.0	83.0	85.5	10.3	28.45	28.57
4	1004.630	1.650	0.01	0.10	1.58	1.26	1197.0	90.0	83.0	86.5	10.3	28.45	28.57
5	1006.280	2.010	0.01	0.10	1.58	1.26	1186.0	90.0	83.0	86.5	10.2	28.45	28.57
6	1008.290	2.080	0.01	0.10	1.58	1.26	1199.0	91.0	84.0	87.5	10.3	28.45	28.57
7	1010.370	2.080	0.01	0.10	1.54	1.24	1248.0	92.0	84.0	88.0	10.4	28.45	28.56
8	1012.450	2.130	0.01	0.10	1.54	1.24	1236.0	93.0	85.0	89.0	10.4	28.45	28.56
9	1014.580	2.120	0.01	0.10	1.54	1.24	1189.0	93.0	85.0	89.0	10.2	28.45	28.56
10	1016.700	2.100	0.01	0.10	1.54	1.24	1206.0	93.0	85.0	89.0	10.3	28.45	28.56
11	1018.800	2.120	0.01	0.10	1.56	1.25	1227.0	94.0	86.0	90.0	10.4	28.45	28.56
12	1020.920	2.130	0.01	0.10	1.58	1.26	1200.0	93.0	85.0	89.0	10.3	28.45	28.57
1	1023.050	2.110	0.01	0.10	1.56	1.25	1231.0	94.0	86.0	90.0	10.4	28.45	28.56
2	1025.160	2.110	0.01	0.10	1.58	1.26	1209.0	94.0	85.0	89.5	10.3	28.45	28.57
3	1027.270	2.150	0.01	0.10	1.58	1.26	1205.0	94.0	86.0	90.0	10.3	28.45	28.57
4	1029.420	2.150	0.01	0.10	1.58	1.26	1195.0	93.0	85.0	89.0	10.3	28.45	28.57
5	1031.570	2.110	0.01	0.10	1.58	1.26	1202.0	92.0	84.0	88.0	10.3	28.45	28.57
6	1033.680	2.090	0.01	0.10	1.58	1.26	1212.0	92.0	84.0	88.0	10.3	28.45	28.57
7	1035.770	2.150	0.01	0.10	1.58	1.26	1214.0	92.0	84.0	88.0	10.3	28.45	28.57
8	1037.920	2.150	0.01	0.10	1.56	1.25	1225.0	92.0	84.0	88.0	10.4	28.45	28.56
9	1040.070	2.180	0.01	0.10	1.58	1.26	1201.0	92.0	84.0	88.0	10.3	28.45	28.57
10	1042.250	2.180	0.01	0.10	1.58	1.26	1207.0	93.0	84.0	88.5	10.3	28.45	28.57
11	1044.430	2.160	0.01	0.10	1.56	1.25	1225.0	92.0	84.0	88.0	10.4	28.45	28.56
12	1046.590	2.150	0.01	0.10	1.54	1.24	1241.0	93.0	84.0	88.5	10.4	28.45	28.56
	1048.740	2.150	0.01	0.10	1.58	1.26	1204.0	93.0	85.0	89.0	10.3	28.45	28.57
	1050.890	2.865	0.01	0.10	1.58	1.26	1190.0	94.0	85.0	89.5	10.3	28.45	28.57
	1053.755												
	55.557		0.01	0.10	1.57	1.25	1206.23	91.77	84.38	88.08	10.30	28.45	28.57

ISOKINETIC SAMPLE DATA FORM

AECOM

Trap # T1856-003 black box

Plant:	Poco	Filter ID:	~~24~~ D/F-1
Location:	Delta Junction, AK	Ambient Temp. (°F):	56
Source I.D.:	Incinerator	Baro. Press. (in. Hg):	28.05
Date:	9-29-13	Static Press. (in H_2O):	0.04
Flow Traverse Time:	NA	O_2 (%):	
Run No.:	I 28 -1	CO_2 (%):	
Operators:	DB, AW	Duct Dia. (in):	30"
Meter Box I.D.:	Black	B_{ws} (assumed):	12
Meter Y:	1.00339	Nozzle Dia. (in):	0.875, 0.875, 0.874 = 0.8747
Meter Delta H@:	1.7732	K Factor:	
Probe I.D./ Impinger outlet I.D.:	403	Leak Check:	
Probe Length/Type:	4' 12m5	Pre: 0.001 acf 10.0 in. Hg Vac.	
Pitot Coeff. (Cp):	0.84	Post: 0.003 acf 9 in. Hg Vac.	

Moisture

Imp.	Initial	Final
1	278.2	291.8
2	351.2	542.0
3	698.9	699.8
4	702.4	702.9
5	622.3	624.5
913.0	Net Gain	930.5

Pitot:	Impact	Static	
Pre:	0	0	in. H_2O/15 sec.
Post:			in. H_2O/15 sec.

DGM Clock Time	Port/Point I.D.	Sample Time (min.)	DGM Reading (DACF)	ΔP (in. H_2O)	ΔH (in. H_2O)	Stack Temp. (F)	Probe Temp. (°F)	Filter Temp. (°F)	Imp. Outlet Temp. (°F)	DGM Temp. (°F)		Vacuum (in. Hg)
1722	1	0	243.473	0.01	1.66	1125	246	258	39	56	54	4
	2	5	247.11	0.01	1.66	1120	255	259	37	58	55	4
	3	10	250.73	0.01	1.66	1124	255	255	37	61	55	4
	4	15	254.13	0.01	1.66	1104	251	250	38	62	55	5
	5	20	257.70	0.01	1.66	1115	251	252	39	63	55	5
	6	25	261.35	0.01	1.66	1109	251	251	39	64	56	5
	7	30	264.99	0.01	1.63	1147	251	250	40	65	56	5
	8	35	268.60	0.01	1.63	1142	250	250	40	65	56	5
	9	40	272.21	0.01	1.66	1131	253	251	41	66	56	7
	10	45	275.89	0.01	1.63	1140	247	250	41	66	57	8
	11	50	279.78	0.01	1.63	1139	253	250	42	66	57	8
	12	55	283.24	0.01	1.63	1139	249	250	42	67	57	8
	1	60	286.88	0.01	1.63	1147	252	251	42	67	57	8
	2	65	290.51	0.01	1.63	1131	249	251	42	68	58	8
	3	70	294.14	0.01	1.63	1140	250	250	43	68	58	8
	4	75	297.80	0.01	1.60	1175	247	256	43	69	59	8
	5	80	301.47	0.01	1.66	1138	249	250	43	69	59	8
	6	85	305.11	0.01	1.63	1145	252	250	43	70	60	8
	7	90	308.74	0.01	1.63	1156	248	250	43	70	60	8
	8	95	312.38	0.01	1.63	1155	248	249	43	72	61	9
	9	100	315.99	0.01	1.63	1157	250	250	43	73	62	9
	10	105	319.61	0.01	1.63	1141	252	251	43	73	63	9
	11	110	323.27	0.01	1.63	1143	250	250	43	73	63	9
	12	115	326.95	0.01	1.63	[illegible]	250	251	43	73	63	9
		120	330.61	0.01	1.63	1161	249	250	43	72	64	9
		125	334.26	0.01	1.63	1147	250	250	44	72	64	9
1929		127	335.725									
		Total Time	Vol. (DACF)	Avg. $\sqrt{\Delta P}$	Avg. ΔH	Avg. t_s				Average DGM Temp.		Max. Vac.

Plant =	SMMI - Pogo Mine	Point Duration (min) =	5		Moisture		
Plant Location =	Delta Junction, AK	Bar. Pres. (in Hg) =	28.05		Initial	Final	Change
Source ID =	Incinerator	Static Pres. (in WC) =	0.04		278.2	291.8	13.6
Run No =	I23-1	Nozzle Dia (in WC) =	0.8747		351.2	542.0	190.8
Date =	09/29/13	Meter dH @ =	1.7732		698.9	699.8	0.9
Run Time =	1722-1929	Meter Yd =	1.0034		702.4	702.9	0.5
Sample Duration (min) =	127	H2O Mass (ml/g) =	225.5		622.3	624.5	2.2
					913	930.5	17.5
							0

Point No.	DGM Reading (acf)	Sample Volume (acf)	dP (in WC)	dP1/2 (in WC)1/2	dH (in WC)	dH1/2 (in WC)1/2	Stack T (F)	DGM Inlet (F)	DGM Outlet (F)	DGM Ave (F)	velocity (ft/s)	Stack Pres (in Hg)	Meter Pres. (in Hg)
1	243.473	3.637	0.01	0.10	1.66	1.29	1125	56.0	54.0	55.0	10.1	28.05	28.17
2	247.110	3.620	0.01	0.10	1.66	1.29	1120	58.0	55.0	56.5	10.1	28.05	28.17
3	250.730	3.400	0.01	0.10	1.66	1.29	1124	61.0	55.0	58.0	10.1	28.05	28.17
4	254.130	3.570	0.01	0.10	1.66	1.29	1104	62.0	55.0	58.5	10.1	28.05	28.17
5	257.700	3.650	0.01	0.10	1.66	1.29	1115	63.0	55.0	59.0	10.1	28.05	28.17
6	261.350	3.640	0.01	0.10	1.66	1.29	1109	64.0	56.0	60.0	10.1	28.05	28.17
7	264.990	3.610	0.01	0.10	1.63	1.28	1147	65.0	56.0	60.5	10.2	28.05	28.17
8	268.600	3.610	0.01	0.10	1.63	1.28	1142	65.0	56.0	60.5	10.2	28.05	28.17
9	272.210	3.680	0.01	0.10	1.66	1.29	1131	66.0	56.0	61.0	10.2	28.05	28.17
10	275.890	3.890	0.01	0.10	1.63	1.28	1140	66.0	57.0	61.5	10.2	28.05	28.17
11	279.780	3.460	0.01	0.10	1.63	1.28	1139	66.0	57.0	61.5	10.2	28.05	28.17
12	283.240	3.640	0.01	0.10	1.63	1.28	1139	67.0	57.0	62.0	10.2	28.05	28.17
1	286.880	3.630	0.01	0.10	1.63	1.28	1147	67.0	57.0	62.0	10.2	28.05	28.17
2	290.510	3.630	0.01	0.10	1.63	1.28	1131	68.0	58.0	63.0	10.2	28.05	28.17
3	294.140	3.660	0.01	0.10	1.63	1.28	1140	68.0	58.0	63.0	10.2	28.05	28.17
4	297.800	3.670	0.01	0.10	1.60	1.26	1125	69.0	59.0	64.0	10.1	28.05	28.17
5	301.470	3.640	0.01	0.10	1.66	1.29	1130	69.0	59.0	64.0	10.1	28.05	28.17
6	305.110	3.630	0.01	0.10	1.63	1.28	1145	70.0	60.0	65.0	10.2	28.05	28.17
7	308.740	3.640	0.01	0.10	1.63	1.27	1156	70.0	60.0	65.0	10.2	28.05	28.17
8	312.380	3.610	0.01	0.10	1.63	1.28	1155	72.0	61.0	66.5	10.2	28.05	28.17
9	315.990	3.620	0.01	0.10	1.63	1.28	1157	73.0	62.0	67.5	10.2	28.05	28.17
10	319.610	3.660	0.01	0.10	1.63	1.28	1141	73.0	63.0	68.0	10.2	28.05	28.17
11	323.270	3.680	0.01	0.10	1.63	1.28	1143	73.0	63.0	68.0	10.2	28.05	28.17
12	326.950	3.660	0.01	0.10	1.63	1.28	1146	73.0	63.0	68.0	10.2	28.05	28.17
	330.610	3.650	0.01	0.10	1.63	1.28	1161	72.0	64.0	68.0	10.2	28.05	28.17
	334.260	1.465	0.01	0.10	1.63	1.28	1147	72.0	64.0	68.0	10.2	28.05	28.17
	335.725												
	92.252		0.01	0.10	1.64	1.28	1136.9	67.23	58.46	62.85	10.17	28.05	28.17

T1856-006

ISOKINETIC SAMPLE DATA FORM

AECOM

Plant:	Pogo Mine	Filter ID:	D/F-2
Location:	Delta Junction	Ambient Temp. (°F):	34
Source I.D.:	Incinerator	Baro. Press. (in. Hg):	28.20
Date:	9-30-13	Static Press. (in H_2O):	0.01
Flow Traverse Time:	NA	O_2 (%):	
Run No.:	I23-2	CO_2 (%):	
Operators:	DB, AW	Duct Dia. (in):	30
Meter Box I.D.:	Black	B_{ws} (assumed):	12
Meter Y:	1.00339	Nozzle Dia. (in):	0.8747
Meter Delta H@:	1.7732	K Factor:	
Probe I.D./ Impinger outlet I.D.:	463	Leak Check:	
Probe Length/Type:	4' Rms	Pre: 0.001 acf 10 in. Hg Vac.	
Pitot Coeff. (Cp):	0.84	Post: 0.001 acf 10 in. Hg Vac.	

T(°F)	K
1125	165.5
1150	162.9
1175	160.4
1200	158.0
1225	155.6

black

Moisture

Imp.	Initial	Final
1	528.5	539.4
2	352.5	535.1
3	700.9	700.9
4	704.7	705.7
5	620.1	626.8
	98.5 Net Gain	943.5

Pitot: Impact Static

Pre: 0 0 in. H_2O/15 sec.

Post: 0 0 in. H_2O/15 sec.

DGM Clock Time	Port/Point I.D.	Sample Time (min.)	DGM Reading (DACF)	ΔP (in. H_2O)	ΔH (in. H_2O)	Stack Temp. (F)	Probe Temp. (°F)	Filter Temp. (°F)	Imp. Outlet Temp. (°F)	DGM Temp. (°F)		Vacuum (in. Hg)
923	1	0	336.315	0.01	1.66	1100	251	251	42	40	43	6
	2	5	339.87	0.01	1.66	1105	255	255	37	47	40	6
	3	10	343.37	0.01	1.66	1111	250	252	38	52	41	6
	4	15	346.94	0.01	1.66	1116	253	252	39	55	42	6
	5	20	350.51	0.01	1.66	1127	252	250	40	56	43	6
	6	25	354.04	0.01	1.63	1145	249	250	41	56	44	6
	7	30	357.55	0.01	1.66	1128	250	250	41	58	45	6
	8	35	361.09	0.01	1.63	1146	250	250	42	59	46	7
	9	40	364.67	0.01	1.63	1137	251	250	43	60	47	7
	10	45	368.25	0.01	1.63	1142	246	249	43	61	48	7
	11	50	371.85	0.01	1.63	1138	251	249	44	62	49	7
	12	55	375.52	0.01	1.66	1131	250	251	45	62	49	7
	1	60	379.10	0.01	1.66	1122	251	250	45	63	50	7
	2	65	382.71	0.01	1.63	1146	247	250	46	63	51	7
	3	70	386.28	0.01	1.63	1139	244	248	45	64	51	7
	4	75	389.91	0.01	1.63	1141	250	250	45	64	52	8
	5	80	393.51	0.01	1.63	1154	249	249	45	65	53	8
	6	85	397.12	0.01	1.66	1120	251	251	46	66	54	8
	7	90	400.74	0.01	1.63	1149	249	251	46	66	55	8
	8	95	404.33	0.01	1.63	1144	245	250	46	67	55	8
	9	100	407.92	0.01	1.63	1165	250	250	46	68	56	8
	10	105	411.51	0.01	1.63	1164	251	250	46	68	57	8
	11	110	415.11	0.01	1.63	1152	249	251	45	68	57	8
	12	115	418.67	0.01	1.63	1159	250	249	47	68	58	8
		120	422.22	0.01	1.66	1134	250	250	48	68	58	8
		125	425.77	0.01	1.66	1123	252	250	49	69	59	8
1130		127	427.204									
		Total Time	Vol. (DACF)	Avg. √ΔP	Avg. ΔH	Avg. t_s				Average DGM Temp.		Max. Vac.

Plant =	SMMI - Pogo Mine	Point Duration (min) =	5		Moisture
Plant Location =	Delta Junction, AK	Bar. Pres. (in Hg) =	28.2	Initial	Final	Change
Source ID =	Incinerator	Static Pres. (in WC) =	0.04	328.5	339.4	10.9
Run No =	I23-2	Nozzle Dia (in WC) =	0.875	352.5	535.1	182.6
Date =	09/30/13	Meter dH @ =	1.7732	700.9	700.9	0
Run Time =	0923-1130	Meter Yd =	1.0034	704.7	705.7	1
Sample Duration (min) =	127	H2O Mass (ml/g) =	214.2	620.1	626.8	6.7
				930.5	943.5	13
						0

Point No.	DGM Reading (acf)	Sample Volume (acf)	dP (in WC)	dP1/2 (in WC)1/2	dH (in WC)	dH1/2 (in WC)1/2	Stack T (F)	DGM Inlet (F)	DGM Outlet (F)	DGM Ave (F)	velocity (ft/s)	Stack Pres (in Hg)	Meter Pres. (in Hg)
1	336.315	3.555	0.010	0.10	1.66	1.29	1100.0	40.0	43.0	41.5	10.0	28.20	28.32
2	339.870	3.500	0.010	0.10	1.66	1.29	1105.0	47.0	40.0	43.5	10.0	28.20	28.32
3	343.370	3.570	0.010	0.10	1.66	1.29	1111.0	52.0	41.0	46.5	10.1	28.20	28.32
4	346.940	3.570	0.010	0.10	1.66	1.29	1110.0	55.0	42.0	48.5	10.1	28.20	28.32
5	350.510	3.530	0.010	0.10	1.66	1.29	1127.0	56.0	43.0	49.5	10.1	28.20	28.32
6	354.040	3.510	0.010	0.10	1.63	1.28	1145.0	56.0	44.0	50.0	10.2	28.20	28.32
7	357.550	3.540	0.010	0.10	1.66	1.29	1128.0	58.0	45.0	51.5	10.1	28.20	28.32
8	361.090	3.580	0.010	0.10	1.63	1.28	1146.0	59.0	46.0	52.5	10.2	28.20	28.32
9	364.670	3.580	0.010	0.10	1.63	1.28	1137.0	60.0	47.0	53.5	10.1	28.20	28.32
10	368.250	3.600	0.010	0.10	1.63	1.28	1142.0	61.0	48.0	54.5	10.2	28.20	28.32
11	371.850	3.670	0.010	0.10	1.63	1.28	1138.0	62.0	49.0	55.5	10.1	28.20	28.32
12	375.520	3.580	0.010	0.10	1.66	1.29	1131.0	62.0	49.0	55.5	10.1	28.20	28.32
1	379.100	3.610	0.010	0.10	1.66	1.29	1122.0	63.0	50.0	56.5	10.1	28.20	28.32
2	382.710	13.570	0.010	0.10	1.63	1.28	1146.0	63.0	51.0	57.0	10.2	28.20	28.32
3	396.280	-6.370	0.010	0.10	1.63	1.28	1139.0	64.0	51.0	57.5	10.2	28.20	28.32
4	389.910	3.600	0.010	0.10	1.63	1.28	1141.0	64.0	52.0	58.0	10.2	28.20	28.32
5	393.510	3.610	0.010	0.10	1.63	1.28	1154.0	65.0	53.0	59.0	10.1	28.20	28.32
6	397.120	3.620	0.010	0.10	1.66	1.29	1120.0	66.0	54.0	60.0	10.2	28.20	28.32
7	400.740	3.590	0.010	0.10	1.63	1.28	1149.0	66.0	55.0	60.5	10.2	28.20	28.32
8	404.330	3.590	0.010	0.10	1.63	1.28	1144.0	67.0	55.0	61.0	10.2	28.20	28.32
9	407.920	3.590	0.010	0.10	1.63	1.28	1165.0	68.0	56.0	62.0	10.2	28.20	28.32
10	411.510	3.600	0.010	0.10	1.63	1.28	1164.0	68.0	57.0	62.5	10.2	28.20	28.32
11	415.110	3.560	0.010	0.10	1.63	1.28	1152.0	68.0	57.0	62.5	10.2	28.20	28.32
12	418.670	3.550	0.010	0.10	1.63	1.28	1159.0	68.0	58.0	63.0	10.1	28.20	28.32
	422.220	3.550	0.010	0.100	1.66	1.29	1134.0	68.0	58.0	63.0	10.1	28.20	28.32
	425.770	1.434	0.010	0.100	1.66	1.29	1123.0	69.0	59.0	64.0	5.4	28.20	28.32
	427.204												
	90.889		0.01	0.10	1.64	1.28	1135.85	61.35	50.12	55.73	9.96	28.20	28.32

ISOKINETIC SAMPLE DATA FORM

AECOM

black

T(°F)	K
1125	165.5
1150	162.9
1175	160.2
1200	158.00

Moisture		
Imp.	Initial	Final
1	329.1	342.5
2	354.9	535.7
3	701.6	701.2
4	705.7	705.4
5	626.0	626.5
	915.4 Net Gain	933.5

Plant:	Pogo Mine	Filter ID:	D/F 3
Location:	Delta Junction, AK	Ambient Temp. (°F):	43
Source I.D.:	Incinerator	Baro. Press. (in. Hg):	28.40
Date:	10-1-13	Static Press. (in H_2O):	0.04
Flow Traverse Time:	NA	O_2 (%):	
Run No.:	F23-3	CO_2 (%):	
Operators:	DB, AW	Duct Dia. (in):	30"
Meter Box I.D.:	Black	B_{ws} (assumed):	12
Meter Y:	1.00339	Nozzle Dia. (in):	0.8747
Meter Delta H@:	1.7772	K Factor:	
Probe I.D./ Impinger outlet I.D.:	403	Leak Check:	
Probe Length/Type:	41' Rem5	Pre: 0.001 acf 10 in. Hg Vac.	
Pitot Coeff. (Cp):	0.84	Post: 0.001 acf 9 in. Hg Vac.	

Pitot:	Impact	Static	
Pre:	0	0	in. H_2O/15 sec.
Post:	0	0	in. H_2O/15 sec.

DGM Clock Time	Port/Point I.D.	Sample Time (min.)	DGM Reading (DACF)	ΔP (in. H_2O)	ΔH (in. H_2O)	Stack Temp. (F)	Probe Temp. (°F)	Filter Temp. (°F)	Imp. Outlet Temp. (°F)	DGM Temp. (°F)		Vacuum (in. Hg)
1159	1	0	669.716	0.01	1.66	1114	257	235	43	57	58	6
	2	5	673.27	0.01	1.60	1185	259	238	39	59	58	6
	3	10	676.72	0.01	1.63	1143	251	254	38	62	57	6
	4	15	680.00	0.01	1.63	1159	250	258	38	64	57	6
	5	20	683.24	0.01	1.63	1160	251	255	38	65	57	6
	6	25	686.47	0.01	1.63	1137	255	253	39	67	58	6
	7	30	689.69	0.01	1.63	1157	244	252	40	67	58	6
	8	35	693.22	0.01	1.66	1173	245	251	42	69	58	6
	9	40	696.85	0.01	1.66	1135	259	250	39	70	59	6
	10	45	700.51	0.01	1.63	1148	249	250	39	70	59	7
	11	50	704.16	0.01	1.60	1173	248	250	39	71	60	7
	12	55	707.86	0.01	1.63	1141	257	250	40	71	60	7
	1	60	711.36	0.01	1.63	1140	246	251	40	72	62	7
	2	65	714.98	0.01	1.66	1183	253	251	41	72	62	7
	3	70	718.34	0.01	1.63	1164	250	250	41	72	62	7
	4	75	722.15	0.01	1.60	1185	255	249	42	72	62	7
	5	80	725.90	0.01	1.63	1161	247	251	41	72	62	7
	6	85	729.43	0.01	1.60	1186	248	250	41	72	63	7
	7	90	733.14	0.01	1.63	1173	251	249	41	72	63	7
	8	95	736.72	0.01	1.63	1171	256	250	40	73	63	7
	9	100	740.39	0.01	1.60	1177	257	250	41	73	63	7
	10	105	744.09	0.01	1.60	1173	247	250	42	74	64	7
	11	110	747.77	0.01	1.63	1149	251	250	42	74	65	7
	12	115	751.40	0.01	1.58	1195	251	250	42	74	65	7
		120	755.12	0.01	1.58	1193	247	250	42	74	65	7
1406		127	759.912									
		Total Time	Vol. (DACF)	Avg. √ΔP	Avg. ΔH	Avg. t_s				Average DGM Temp.		Max. Vac.

Plant =	SMMI - Pogo Mine	Point Duration (min) =	5		Moisture		
Plant Location =	Delta Junction, AK	Bar. Pres. (in Hg) =	28.4		Initial	Final	Change
Source ID =	Incinerator	Static Pres. (in WC) =	0.04		329.1	342.5	13.4
Run No =	I23-3	Nozzle Dia (in WC) =	0.875		354.9	535.7	180.8
Date =	10/01/13	Meter dH @ =	1.7732		701.6	701.2	-0.4
Run Time =	1159-1406	Meter Yd =	1.0034		705.7	705.4	-0.4
Sample Duration (min) =	127	H2O Mass (ml/g) =	212.1		626	626.5	-0.3
					915.4	933.5	0.5
							18.1

Point No.	DGM Reading (acf)	Sample Volume (acf)	dP (in WC)	dP1/2 (in WC)1/2	dH (in WC)	dH1/2 (in WC)1/2	Stack T (F)	DGM Inlet (F)	DGM Outlet (F)	DGM Ave (F)	velocity (ft/s)	Stack Pres (in Hg)	Meter Pres. (in Hg)
1	669.716	3.554	0.010	0.10	1.66	1.29	1114.0	57.0	58.0	57.5	10.0	28.40	28.52
2	673.270	3.450	0.010	0.10	1.60	1.26	1185.0	59.0	58.0	58.5	10.3	28.40	28.52
3	676.720	3.280	0.010	0.10	1.63	1.28	1143.0	62.0	57.0	59.5	10.1	28.40	28.52
4	680.000	3.240	0.010	0.10	1.63	1.28	1159.0	64.0	57.0	60.5	10.2	28.40	28.52
5	683.240	3.230	0.010	0.10	1.63	1.28	1160.0	65.0	57.0	61.0	10.2	28.40	28.52
6	686.470	3.220	0.010	0.10	1.63	1.28	1137.0	67.0	58.0	62.5	10.1	28.40	28.52
7	689.690	3.530	0.010	0.10	1.63	1.28	1157.0	67.0	58.0	62.5	10.2	28.40	28.52
8	693.220	3.630	0.010	0.10	1.60	1.26	1173.0	69.0	58.0	63.5	10.2	28.40	28.52
9	696.850	3.660	0.010	0.10	1.66	1.29	1135.0	70.0	59.0	64.5	10.1	28.40	28.52
10	700.510	3.650	0.010	0.10	1.63	1.28	1140.0	70.0	59.0	64.5	10.1	28.40	28.52
11	704.160	3.700	0.010	0.10	1.60	1.26	1173.0	71.0	60.0	65.5	10.2	28.40	28.52
12	707.860	3.500	0.010	0.10	1.63	1.28	1141.0	71.0	60.0	65.5	10.1	28.40	28.52
1	711.360	3.620	0.010	0.10	1.63	1.28	1140.0	72.0	62.0	67.0	10.1	28.40	28.52
2	714.980	3.360	0.010	0.10	1.60	1.26	1183.0	72.0	62.0	67.0	10.3	28.40	28.52
3	718.340	3.810	0.010	0.10	1.63	1.28	1164.0	72.0	62.0	67.0	10.2	28.40	28.52
4	722.150	3.650	0.010	0.10	1.60	1.26	1185.0	72.0	62.0	67.0	10.3	28.40	28.52
5	725.800	3.630	0.010	0.10	1.63	1.28	1161.0	72.0	62.0	67.0	10.2	28.40	28.52
6	729.430	3.710	0.010	0.10	1.60	1.26	1186.0	72.0	63.0	67.5	10.3	28.40	28.52
7	733.140	3.580	0.010	0.10	1.63	1.28	1173.0	72.0	63.0	67.5	10.2	28.40	28.52
8	736.720	3.670	0.010	0.10	1.63	1.28	1171.0	73.0	63.0	68.0	10.2	28.40	28.52
9	740.390	3.700	0.010	0.10	1.60	1.26	1177.0	73.0	63.0	68.0	10.2	28.40	28.52
10	744.090	3.680	0.010	0.10	1.60	1.26	1173.0	74.0	64.0	69.0	10.2	28.40	28.52
11	747.770	3.630	0.010	0.10	1.63	1.28	1149.0	74.0	65.0	69.5	10.1	28.40	28.52
12	751.400	3.720	0.010	0.10	1.58	1.26	1195.0	74.0	65.0	69.5	10.3	28.40	28.52
	755.120	4.792	0.010	0.10	1.58	1.26	1193.0	74.0	65.0	69.5	10.3	28.40	28.52
	759.912												
	90.196		0.010	0.10	1.62	1.27	1162.68	69.52	60.80	65.16	10.19	28.40	28.52

ISOKINETIC SAMPLE DATA FORM

AECOM

black

Plant:	Pogo Mine	Filter ID:	DFL4
Location:	Delta Junction, AK	Ambient Temp. (°F):	47
Source I.D.:	Incinerator	Baro. Press. (in. Hg):	28.45
Date:	10-2-13	Static Press. (in H_2O):	0.04
Flow Traverse Time:	NA	O_2 (%):	
Run No.:	I23-4	CO_2 (%):	
Operators:	DB, AW	Duct Dia. (in):	30
Meter Box I.D.:	Black	B_{ws} (assumed):	10
Meter Y:	1.00339	Nozzle Dia. (in):	0.8747
Meter Delta H@:	1.7732	K Factor:	
Probe I.D./ Impinger outlet I.D.:	403	Leak Check:	
Probe Length/Type:	4' 12m5	Pre: 0.001 acf 10 in. Hg Vac.	
Pitot Coeff. (Cp):	0.84	Post: 0.001 acf 8 in. Hg Vac.	

T(°F)	K
1125	165.5
1150	162.9
1175	160.2
1200	158.0
1225	155.8

Moisture

Imp.	Initial	Final
1	335.81	347.2
2	353.1	561.8
3	702.6	702.1
4	707.7	707.9
5	626.9	627.7
	932.8 Net Gain	951.7

Pitot: Impact 0 Static 0

Pre: _____ in. H_2O/15 sec.

Post: _____ in. H_2O/15 sec.

DGM Clock Time	Port/Point I.D.	Sample Time (min.)	DGM Reading (DACF)	ΔP (in. H_2O)	ΔH (in. H_2O)	Stack Temp. (F)	Probe Temp. (°F)	Filter Temp. (°F)	Imp. Outlet Temp. (°F)	DGM Temp. (°F)		Vacuum (in. Hg)
1157	1	0	908.202	0.01	1.63	1155	259	242	43	55	55	6
	2	5	912.36	0.01	1.58	1215	264	244	40	58	55	6
	3	10	915.72	0.01	1.56	1228	258	255	40	61	55	6
	4	15	919.18	0.01	1.56	1224	252	259	41	64	56	6
	5	20	922.72	0.01	1.56	1223	249	256	42	67	57	6
	6	25	926.25	0.01	1.56	1218	250	252	42	71	59	6
	7	30	929.77	0.01	1.56	1231	252	254	43	73	60	6
	8	35	933.26	0.01	1.56	1238	253	251	44	76	63	6
	9	40	936.77	0.01	1.58	1212	252	251	45	78	65	6
	10	45	940.36	0.01	1.56	1236	251	251	46	80	67	6
	11	50	943.92	0.01	1.56	1242	247	251	46	81	69	6
	12	55	947.48	0.01	1.56	1235	249	250	46	81	70	7
	1	60	950.03	0.01	1.56	1225	251	248	46	82	71	7
	2	65	954.66	0.01	1.54	1248	253	249	47	83	73	7
	3	70	958.17	0.01	1.54	1245	248	251	48	84	74	7
	4	75	961.77	0.01	1.58	1229	249	250	49	84	75	7
	5	80	965.36	0.01	1.58	1214	255	250	50	84	75	7
	6	85	968.88	0.01	1.56	1239	250	251	51	85	76	7
	7	90	972.40	0.01	1.58	1210	249	249	51	85	76	7
	8	95	975.95	0.01	1.58	1216	256	249	51	86	78	7
	9	100	979.41	0.01	156 ~~1244~~	1249	254	250	52	86	78	7
	10	105	982.91	0.01	1.58	1217	252	250	53	85	77	7
	11	110	986.35	0.01	1.58	1206	247	249	54	85	77	7
	12	115	989.83	0.01	1.56	1218	254	251	56	86	78	7
		120	993.26	0.01	1.56	1222	252	249	56	86	79	7
1404		127	998.087									
		Total Time	Vol. (DACF)	Avg. √ΔP	Avg. ΔH	Avg. t_s				Average DGM Temp.		Max. Vac.

Plant =	SMMI - Pogo Mine	Point Duration (min) =	5
Plant Location =	Delta Junction, AK	Bar. Pres. (in Hg) =	28.45
Source ID =	Incinerator	Static Pres. (in WC) =	0.04
Run No =	I23-4	Nozzle Dia (in WC) =	0.875
Date =	10/02/13	Meter dH @ =	1.7732
Run Time =	1157-1404	Meter Yd =	1.0034
Sample Duration (min) =	127	H2O Mass (ml/g) =	244.2

Moisture		
Initial	Final	Change
335.1	347.2	12.1
353.1	561.8	208.7
702.6	702.1	-0.5
707.7	707.9	-0.5
626.9	627.7	0.2
928.8	951.7	0.8
		22.9

Point No.	DGM Reading (acf)	Sample Volume (acf)	dP (in WC)	dP1/2 (in WC)1/2	dH (in WC)	dH1/2 (in WC)1/2	Stack T (F)	DGM Inlet (F)	DGM Outlet (F)	DGM Ave (F)	velocity (ft/s)	Stack Pres (in Hg)	Meter Pres. (in Hg)
1	908.802	3.558	0.010	0.10	1.63	1.28	1155.0	55.0	55.0	55.0	10.2	28.45	28.57
2	912.360	3.360	0.010	0.10	1.58	1.26	1215.0	58.0	55.0	56.5	10.3	28.45	28.57
3	915.720	3.460	0.010	0.10	1.56	1.25	1228.0	61.0	55.0	58.0	10.4	28.45	28.56
4	919.180	3.540	0.010	0.10	1.56	1.25	1224.0	64.0	56.0	60.0	10.4	28.45	28.56
5	922.720	3.530	0.010	0.10	1.56	1.25	1223.0	67.0	57.0	62.0	10.4	28.45	28.56
6	926.250	3.520	0.010	0.10	1.56	1.25	1218.0	71.0	59.0	65.0	10.4	28.45	28.56
7	929.770	3.490	0.010	0.10	1.56	1.25	1231.0	73.0	60.0	66.5	10.4	28.45	28.56
8	933.260	3.510	0.010	0.10	1.56	1.25	1238.0	76.0	63.0	69.5	10.4	28.45	28.56
9	936.770	3.590	0.010	0.10	1.58	1.26	1212.0	78.0	65.0	71.5	10.3	28.45	28.57
10	940.360	3.560	0.010	0.10	1.56	1.25	1236.0	80.0	67.0	73.5	10.4	28.45	28.56
11	943.920	3.560	0.010	0.10	1.56	1.25	1242.0	81.0	69.0	75.0	10.4	28.45	28.56
12	947.480	3.600	0.010	0.10	1.56	1.25	1235.0	81.0	70.0	75.5	10.4	28.45	28.56
1	951.080	3.580	0.010	0.10	1.56	1.25	1225.0	82.0	71.0	76.5	10.4	28.45	28.56
2	954.660	3.510	0.010	0.10	1.54	1.24	1248.0	83.0	73.0	78.0	10.4	28.45	28.56
3	958.170	3.600	0.010	0.10	1.54	1.24	1245.0	84.0	74.0	79.0	10.4	28.45	28.56
4	961.770	3.590	0.010	0.10	1.58	1.26	1229.0	84.0	75.0	79.5	10.4	28.45	28.57
5	965.360	3.520	0.010	0.10	1.58	1.26	1214.0	84.0	75.0	79.5	10.3	28.45	28.57
6	968.880	3.520	0.010	0.10	1.56	1.25	1239.0	85.0	76.0	80.5	10.4	28.45	28.56
7	972.400	3.550	0.010	0.10	1.58	1.26	1210.0	85.0	76.0	80.5	10.3	28.45	28.57
8	975.950	3.460	0.010	0.10	1.58	1.26	1216.0	86.0	78.0	82.0	10.3	28.45	28.57
9	979.410	3.500	0.010	0.10	1.56	1.25	1249.0	86.0	78.0	82.0	10.4	28.45	28.56
10	982.910	3.470	0.010	0.10	1.58	1.26	1217.0	85.0	77.0	81.0	10.3	28.45	28.57
11	986.380	3.450	0.010	0.10	1.58	1.26	1206.0	85.0	77.0	81.0	10.3	28.45	28.57
12	989.830	3.430	0.010	0.10	1.56	1.25	1218.0	86.0	78.0	82.0	10.4	28.45	28.56
	993.260	4.827	0.010	0.10	1.56	1.25	1222.0	86.0	79.0	82.5	10.4	28.45	28.56
	998.087												
	89.285		0.010	0.10	1.57	1.25	1223.80	77.84	68.72	73.28	10.37	28.45	28.57

T(°F)	K
1125	165.5
1150	162.9
1175	160.4
1200	158.0
1225	155.6

AECOM

ISOKINETIC SAMPLE DATA FORM

#1

Plant:	POGO	Filter ID:	B3
Location:	Delta Junction, AK	Ambient Temp. (°F):	55
Source I.D.:	Incinerator	Baro. Press. (in. Hg):	28.00
Date:	9/29/13	Static Press. (in H_2O):	0.04
Flow Traverse Time:	N/A	O_2 (%):	
Run No.:	I29-1	CO_2 (%):	
Operators:	DB, AW	Duct Dia. (in):	30
Meter Box I.D.:	Black	B_{ws} (assumed):	12
Meter Y:	1.00339	Nozzle Dia. (in):	0.874, 0.874, 0.875 = 0.8743
Meter Delta H@:	1.7732	K Factor:	
Probe I.D./ Impinger outlet I.D.:	403	Leak Check:	
Probe Length/Type:	4' RMS	Pre: 0.001 acf	10 in. Hg Vac.
Pitot Coeff. (Cp):	0.84	Post: acf	in. Hg Vac.

Moisture		
Imp.	Initial	Final
1	712.2	796.1
2	703.7	731.3
3	621.8	625.7
4	706.8	723.8
5	721.9	707.4
890.8	Net Gain	899.0

Pitot:	Impact	Static	
Pre:	0	0	in. H_2O/15 sec.
Post:			in. H_2O/15 sec.

DGM Clock Time	Port/Point I.D.	Sample Time (min.)	DGM Reading (DACF)	ΔP (in. H_2O)	ΔH (in. H_2O)	Stack Temp. (F)	Probe Temp. (°F)	Filter Temp. (°F)	Imp. Outlet Temp. (°F)	DGM Temp. (°F)		Vacuum (in. Hg)
1405	1	0	199.662	0.01	1.66	1121	238	255	44	61	59	4
	2	5	203.34	0.01	1.66	1110	241	255	39	64	59	4
	3	10	206.90	0.01	1.66	1109	246	254	40	70	61	4
	4	15	210.40	0.01	1.66	1103	248	252	44	74	63	4
	5	20	214.05	0.01	1.66	1113	252	252	44	77	65	4
	6	25	217.89	0.01	1.66	1121	249	251	45	79	66	4
	7	30	221.54	0.01	1.66	1128	248	250	46	79	67	5
	8	35	225.16	0.01	1.63	1158	249	250	46	80	68	5
	9	40	228.85	0.01	1.60	1190	248	250	46	80	68	5
	10	45	232.51	0.01	1.58	1190	247	250	47	80	69	5
	11	50	236.11	0.01	1.58	1203	245	249	47	80	68	5
	12	55	239.69	0.01	1.58	1199	244	250	46	79	69	5
1506	1	60	243.287									
	2	65										
	3	70										
	4	75										
	5	80										
	6	85										
	7	90										
	8	95										
	9	100										
	10	105										
	11	110										
	12	115										
		120										
		Total Time	Vol. (DACF)	Avg. √ΔP	Avg. ΔH	Avg. t_s				Average DGM Temp.		Max. Vac.

Plant =	SMMI - Pogo Mine	Point Duration (min) =	5
Plant Location =	Delta Junction, AK	Bar. Pres. (in Hg) =	28
Source ID =	Incinerator	Static Pres. (in WC) =	0.04
Run No =	I29-1	Nozzle Dia (in WC) =	0.8743
Date =	09/29/13	Meter dH @ =	1.7732
Run Time =	1406-1506	Meter Yd =	1.0034
Sample Duration (min) =	60	H2O Mass (ml/g) =	126.1

Moisture		
Initial	Final	Change
712.2	796.1	83.9
703.7	731.3	27.6
621.8	625.7	3.9
706.8	723.8	17.0
721.9	707.4	-14.5
890.8	899	8.2
		0

Point No.	DGM Reading (acf)	Sample Volume (acf)	dP (in WC)	dP1/2 (in WC)1/2	dH (in WC)	dH1/2 (in WC)1/2	Stack T (F)	DGM Inlet (F)	DGM Outlet (F)	DGM Ave (F)	Velocity (ft/s)	Stack Pres (in Hg)	Meter Pres. (in Hg)
1	199.662	3.678	0.01	0.100	1.66	1.288	1121.0	61.0	59.0	60.0	10.2	28.00	28.12
2	203.340	3.560	0.01	0.100	1.66	1.288	1110.0	64.0	59.0	61.5	10.1	28.00	28.12
3	206.900	3.500	0.01	0.100	1.66	1.288	1109.0	70.0	61.0	65.5	10.1	28.00	28.12
4	210.400	3.650	0.01	0.100	1.66	1.288	1103.0	74.0	63.0	68.5	10.1	28.00	28.12
5	214.050	3.840	0.01	0.100	1.66	1.288	1113.0	77.0	65.0	71.0	10.1	28.00	28.12
6	217.890	3.650	0.01	0.100	1.66	1.288	1121.0	79.0	66.0	72.5	10.2	28.00	28.12
7	221.540	3.620	0.01	0.100	1.66	1.288	1128.0	79.0	67.0	73.0	10.2	28.00	28.12
8	225.160	3.690	0.01	0.100	1.63	1.277	1158.0	80.0	68.0	74.0	10.3	28.00	28.12
9	228.850	3.660	0.01	0.100	1.60	1.265	1180.0	80.0	68.0	74.0	10.3	28.00	28.12
10	232.510	3.600	0.01	0.100	1.58	1.257	1190.0	80.0	69.0	74.5	10.4	28.00	28.12
11	236.110	3.580	0.01	0.100	1.58	1.257	1203.0	80.0	68.0	74.0	10.4	28.00	28.12
12	239.690	3.597	0.01	0.100	1.58	1.257	1199.0	79.0	69.0	74.0	10.4	28.00	28.12
	243.287												
	43.625		0.010	0.100	1.633	1.278	1144.583	75.250	65.167	70.208	10.234	28.003	28.120

ISOKINETIC SAMPLE DATA FORM

AECOM

T (°F)	K
1125	165.5
1150	162.9
1175	160.4
1200	158.0
1225	155.6

#1

Plant:	Pogo Mine	Filter ID:	P1
Location:	Delta Junction, AK	Ambient Temp. (°F):	37
Source I.D.:	Incinerator	Baro. Press. (in. Hg):	28.25
Date:	9-30-13	Static Press. (in H_2O):	0.04
Flow Traverse Time:	Not	O_2 (%):	
Run No.:	I29-2	CO_2 (%):	
Operators:	DB, AW	Duct Dia. (in):	30"
Meter Box I.D.:	Black	B_{ws} (assumed):	12
Meter Y:	1.00539	Nozzle Dia. (in):	0.8747
Meter Delta H@:	1.7732	K Factor:	
Probe I.D./ Impinger outlet I.D.:	403	Leak Check:	
Probe Length/Type:	41 12m 5	Pre: 0.000 acf 10 in. Hg Vac.	
Pitot Coeff. (Cp):	0.84	Post: 0.000 acf 7 in. Hg Vac.	

Moisture

Imp.	Initial	Final
1	715.5	850.2
2	704.7	751.9
3	625.9	632.7
4	720.4	725.2
5	708.1	709.0
	899.0 Net Gain	913.4

Pitot:	Impact	Static	
Pre:	0	0	in. H_2O/15 sec.
Post:			in. H_2O/15 sec.

DGM Clock Time	Port/Point I.D.	Sample Time (min.)	DGM Reading (DACF)	ΔP (in. H_2O)	ΔH (in. H_2O)	Stack Temp. (F)	Probe Temp. (°F)	Filter Temp. (°F)	Imp. Outlet Temp. (°F)	DGM Temp. (°F)		Vacuum (in. Hg)
1505	1	0	485.105	0.01	1.66	1120	254	241	41	63	62	5
	2	5	488.75	0.01	1.66	1101	262	254	40	66	62	5
	3	10	492.39	0.01	1.66	1107	255	256	40	69	62	5
	4	15	496.05	0.01	1.66	1098	255	256	40	71	62	5
	5	20	499.68	0.01	1.66	1118	248	253	47	73	63	5
	6	25	503.36	0.01	1.66	1128	250	253	42	74	63	5
	7	30	506.99	0.01	1.66	1118	250	251	43	75	63	5
	8	35	510.64	0.01	1.63	1159	249	251	43	76	64	5
	9	40	514.26	0.01	1.63	1144	251	250	43	77	65	6
	10	45	517.94	0.01	1.66	1131	253	251	44	77	65	6
	11	50	521.63	0.01	1.63	1141	249	251	44	78	66	6
	12	55	525.25	0.01	1.63	1139	249	250	45	78	66	6
	1	60	528.87	0.01	1.66	1113	253	249	46	78	66	6
	2	65	532.51	0.01	1.60	1165	246	250	46	79	67	6
	3	70	536.14	0.01	1.60	1179	250	250	47	79	67	6
	4	75	539.74	0.01	1.58	1200	246	246	47	77	67	7
	5	80	543.35	0.01	1.60	1172	249	250	46	77	67	7
	6	85	546.97	0.01	1.60	1172	254	251	45	76	66	7
	7	90	550.43	0.01	1.63	1150	247	251	46	76	67	7
	8	95	554.13	0.01	1.63	1164	250	249	46	76	66	7
	9	100	557.76	0.01	1.63	1159	249	250	46	76	66	7
	10	105	561.43	0.01	1.60	1172	252	250	45	76	66	7
	11	110	565.10	0.01	1.60	1166	247	252	45	75	65	7
	12	115	568.72	0.01	1.66	1136	254	251	47	76	65	7
		120	572.39	0.01	1.63	1140	251	252	47	76	66	7
1712		127	577.517									
		Total Time	Vol. (DACF)	Avg. √ΔP	Avg. ΔH	Avg. t_s				Average DGM Temp.		Max. Vac.

Plant =	SMMI - Pogo Mine	Point Duration (min) =	5
Plant Location =	Delta Junction, AK	Bar. Pres. (in Hg) =	28.25
Source ID =	Incinerator	Static Pres. (in WC) =	0.04
Run No =	I29-2	Nozzle Dia (in WC) =	0.8747
Date =	09/30/13	Meter dH @ =	1.7732
Run Time =	1505-1712	Meter Yd =	1.0034
Sample Duration (min) =	127	H2O Mass (ml/g) =	206.8

Moisture		
Initial	Final	Change
715.5	850.2	134.7
706.7	751.9	45.2
625.9	632.7	6.8
720.4	725.2	4.8
708.1	709	0.9
899	913.4	14.4
		0.0

Point No.	DGM Reading (acf)	Sample Volume (acf)	dP (in WC)	dP1/2 (in WC)1/2	dH (in WC)	dH1/2 (in WC)1/2	Stack T (F)	DGM Inlet (F)	DGM Outlet (F)	DGM Ave (F)	Velocity (ft/s)	Stack Pres (in Hg)	Meter Pres. (in Hg)
1	485.105	3.645	0.01	0.100	1.66	1.288	1120.0	63.0	62.0	62.5	10.1	28.25	28.37
2	488.750	303.640	0.01	0.100	1.66	1.288	1101.0	66.0	62.0	64.0	10.0	28.25	28.37
3	792.390	-296.340	0.01	0.100	1.66	1.288	1107.0	69.0	62.0	65.5	10.0	28.25	28.37
4	496.050	3.630	0.01	0.100	1.66	1.288	1098.0	71.0	62.0	66.5	10.0	28.25	28.37
5	499.680	3.680	0.01	0.100	1.66	1.288	1118.0	73.0	63.0	68.0	10.1	28.25	28.37
6	503.360	3.630	0.01	0.100	1.66	1.288	1128.0	74.0	63.0	68.5	10.1	28.25	28.37
7	506.990	3.650	0.01	0.100	1.66	1.288	1118.0	75.0	63.0	69.0	10.1	28.25	28.37
8	510.640	3.620	0.01	0.100	1.63	1.277	1159.0	76.0	64.0	70.0	10.2	28.25	28.37
9	514.260	3.680	0.01	0.100	1.63	1.277	1144.0	77.0	65.0	71.0	10.1	28.25	28.37
10	517.940	3.690	0.01	0.100	1.60	1.265	1131.0	77.0	65.0	71.0	10.1	28.25	28.37
11	521.630	3.620	0.01	0.100	1.63	1.277	1141.0	78.0	66.0	72.0	10.1	28.25	28.37
12	525.250	3.620	0.01	0.100	1.63	1.277	1139.0	78.0	66.0	72.0	10.1	28.25	28.37
1	528.870	3.640	0.01	0.100	1.66	1.288	1113.0	78.0	66.0	72.0	10.0	28.25	28.37
2	532.510	3.630	0.01	0.100	1.60	1.265	1165.0	79.0	67.0	73.0	10.2	28.25	28.37
3	536.140	3.600	0.01	0.100	1.60	1.265	1179.0	79.0	67.0	73.0	10.2	28.25	28.37
4	539.740	3.610	0.01	0.100	1.58	1.257	1200.0	77.0	67.0	72.0	10.3	28.25	28.37
5	543.350	3.620	0.01	0.100	1.60	1.265	1172.0	77.0	67.0	72.0	10.2	28.25	28.37
6	546.970	3.460	0.01	0.100	1.60	1.265	1172.0	76.0	66.0	71.0	10.2	28.25	28.37
7	550.430	3.700	0.01	0.100	1.63	1.277	1150.0	76.0	67.0	71.5	10.2	28.25	28.37
8	554.130	3.630	0.01	0.100	1.63	1.277	1164.0	76.0	66.0	71.0	10.2	28.25	28.37
9	557.760	3.670	0.01	0.100	1.63	1.277	1159.0	76.0	66.0	71.0	10.2	28.25	28.37
10	561.430	3.670	0.01	0.100	1.60	1.265	1172.0	76.0	66.0	71.0	10.2	28.25	28.37
11	565.100	4.620	0.01	0.100	1.60	1.265	1166.0	75.0	65.0	70.0	10.2	28.25	28.37
12	569.720	2.670	0.01	0.100	1.66	1.288	1136.0	76.0	65.0	70.5	10.1	28.25	28.37
	572.390	5.127	0.01	0.100	1.63	1.277	1140.0	76.0	66.0	71.0	10.1	28.25	28.37
	577.517												
	92.412		0.010	0.100	1.630	1.277	1143.7	75.0	65.0	69.9	10.1	28.25	28.37

ISOKINETIC SAMPLE DATA FORM

AECOM

#1

T(°F)	K
1125	165.5
1150	162.9
1175	160.4
1200	158.0
1225	155.6

Moisture		
Imp.	Initial	Final
1	715.3	854.6
2	707.8	748.6
3	626.3	630.7
4	721.6	724.7
5	708.2	708.6
	413.4 Net Gain	424.1

Plant:	Pogo Mine	Filter ID:	P5
Location:	Delta Junction, AK	Ambient Temp. (°F):	36
Source I.D.:	Incinerator	Baro. Press. (in. Hg):	28.40
Date:	10-1-13	Static Press. (in H_2O):	0.04
Flow Traverse Time:	N/A	O_2 (%):	
Run No.:	I 29-3	CO_2 (%):	
Operators:	DB, AW	Duct Dia. (in):	30"
Meter Box I.D.:	Black	B_{ws} (assumed):	12
Meter Y:	1.00339	Nozzle Dia. (in):	0.8747
Meter Delta H@:	1.7732	K Factor:	
Probe I.D./ Impinger outlet I.D.:	403	Leak Check:	
Probe Length/Type:	4' Rms	Pre: 0.000 acf 10 in. Hg Vac.	
Pitot Coeff. (Cp):	0.84	Post: 0.000 acf 5 in. Hg Vac.	

Pitot:	Impact	Static	
Pre:	0	0	in. H_2O/15 sec.
Post:			in. H_2O/15 sec.

DGM Clock Time	Port/Point I.D.	Sample Time (min.)	DGM Reading (DACF)	ΔP (in. H_2O)	ΔH (in. H_2O)	Stack Temp. (F)	Probe Temp. (°F)	Filter Temp. (°F)	Imp. Outlet Temp. (°F)	DGM Temp. (°F)		Vacuum (in. Hg)
859	1	0	577.663	0.01	1.66	1110	252	248	38	47	47	5
	2	5	581.25	0.01	1.66	1101	255	250	38	50	45	5
	3	10	584.85	0.01	1.66	1122	250	253	39	53	46	5
	4	15	588.42	0.01	1.66	1123	251	252	39	57	47	5
	5	20	592.01	0.01	1.63	1144	251	250	39	59	48	5
	6	25	595.67	0.01	1.63	1144	251	250	39	63	49	5
	7	30	599.26	0.01	1.66	1134	252	251	39	64	51	5
	8	35	602.88	0.01	1.60	1175	251	251	40	66	52	5
	9	40	606.42	0.01	1.63	1150	248	250	39	67	53	5
	10	45	610.03	0.01	1.63	1138	249	249	39	68	54	5
	11	50	613.64	0.01	1.58	1192	251	245	40	70	56	5
	12	55	617.16	0.01	1.60	1176	250	250	40	71	57	5
	1	60	620.70	0.01	1.63	1147	251	250	40	72	58	5
	2	65	624.29	0.01	1.63	1164	249	250	41	73	59	5
	3	70	627.90	0.01	1.66	1133	251	250	42	73	60	5
	4	75	636.54	0.01	1.63	1143	250	250	42	74	61	5
	5	80	635.27	0.01	1.63	1156	250	250	41	75	62	5
	6	85	638.93	0.01	1.63	1141	252	251	41	75	63	5
	7	90	642.60	0.01	1.63	1158	250	251	43	76	63	5
	8	95	646.24	0.01	1.63	1153	254	250	43	76	63	5
	9	100	649.88	0.01	1.63	1140	248	252	44	76	64	5
	10	105	653.50	0.01	1.63	1153	250	250	44	76	65	5
	11	110	657.13	0.01	1.63	1154	254	250	44	76	65	5
	12	115	660.75	0.01	1.63	1149	248	250	44	76	65	5
		120	664.38	0.01	1.6	1128	250	251	44	76	65	5
1106		127	669.510									
		Total Time	Vol. (DACF)	Avg. √ΔP	Avg. ΔH	Avg. t_s				Average DGM Temp.		Max. Vac.

Plant =	SMMI - Pogo Mine	Point Duration (min) =	5
Plant Location =	Delta Junction, AK	Bar. Pres. (in Hg) =	28.4
Source ID =	Incinerator	Static Pres. (in WC) =	0.04
Run No =	I29-3	Nozzle Dia (in WC) =	0.8747
Date =	10/01/13	Meter dH @ =	1.7732
Run Time =	0859-1106	Meter Yd =	1.0034
Sample Duration (min) =	127	H2O Mass (ml/g) =	198.7

Moisture		
Initial	Final	Change
715.3	854.6	139.3
707.8	748.6	40.8
626.3	630.7	4.4
721.6	724.7	3.1
708.2	708.6	0.4
913.4	924.1	10.7
		0

Point No.	DGM Reading (acf)	Sample Volume (acf)	dP (in WC)	dP1/2 (in WC)1/2	dH (in WC)	dH1/2 (in WC)1/2	Stack T (F)	DGM Inlet (F)	DGM Outlet (F)	DGM Ave (F)	Velocity (ft/s)	Stack Pres (in Hg)	Meter Pres. (in Hg)
1	577.663	3.587	0.010	0.100	1.66	1.288	1110.0	47.0	47.0	47.0	10.0	28.40	28.52
2	581.250	3.600	0.010	0.100	1.66	1.288	1101.0	50.0	45.0	47.5	10.0	28.40	28.52
3	584.850	3.570	0.010	0.100	1.66	1.288	1122.0	53.0	46.0	49.5	10.0	28.40	28.52
4	588.420	3.590	0.010	0.100	1.63	1.277	1123.0	57.0	47.0	52.0	10.0	28.40	28.52
5	592.010	3.660	0.010	0.100	1.63	1.277	1144.0	59.0	48.0	53.5	10.1	28.40	28.52
6	595.670	3.590	0.010	0.100	1.66	1.288	1144.0	63.0	49.0	56.0	10.1	28.40	28.52
7	599.260	3.620	0.010	0.100	1.60	1.265	1134.0	64.0	51.0	57.5	10.1	28.40	28.52
8	602.880	3.540	0.010	0.100	1.63	1.277	1175.0	66.0	52.0	59.0	10.2	28.40	28.52
9	606.420	3.610	0.010	0.100	1.63	1.277	1150.0	67.0	53.0	60.0	10.1	28.40	28.52
10	610.030	3.610	0.010	0.100	1.58	1.257	1138.0	68.0	54.0	61.0	10.1	28.40	28.52
11	613.640	3.520	0.010	0.100	1.60	1.265	1192.0	70.0	56.0	63.0	10.3	28.40	28.52
12	617.160	3.540	0.010	0.100	1.63	1.277	1176.0	71.0	57.0	64.0	10.2	28.40	28.52
1	620.700	3.590	0.010	0.100	1.63	1.277	1147.0	72.0	58.0	65.0	10.1	28.40	28.52
2	624.290	3.610	0.010	0.100	1.66	1.288	1164.0	73.0	59.0	66.0	10.2	28.40	28.52
3	627.900	2.640	0.010	0.100	1.63	1.277	1133.0	73.0	60.0	66.5	10.1	28.40	28.52
4	630.540	4.730	0.010	0.100	1.63	1.277	1143.0	74.0	61.0	67.5	10.1	28.40	28.52
5	635.270	3.660	0.010	0.100	1.63	1.277	1156.0	75.0	62.0	68.5	10.1	28.40	28.52
6	638.930	3.670	0.010	0.100	1.63	1.277	1141.0	75.0	63.0	69.0	10.1	28.40	28.52
7	642.600	3.640	0.010	0.100	1.63	1.277	1158.0	76.0	63.0	69.5	10.2	28.40	28.52
8	646.240	3.640	0.010	0.100	1.63	1.277	1153.0	76.0	63.0	69.5	10.1	28.40	28.52
9	649.880	3.620	0.010	0.100	1.63	1.277	1140.0	76.0	64.0	70.0	10.1	28.40	28.52
10	653.500	3.630	0.010	0.100	1.63	1.277	1153.0	76.0	65.0	70.5	10.1	28.40	28.52
11	657.130	3.620	0.010	0.100	1.63	1.277	1154.0	76.0	65.0	70.5	10.1	28.40	28.52
12	660.750	3.630	0.010	0.100	1.63	1.277	1149.0	76.0	65.0	70.5	10.1	28.40	28.52
	664.380	5.130	0.010	0.100	1.66	1.288	1128.0	76.0	65.0	70.5	10.1	28.40	28.52
	669.510												
	91.847		0.010	0.100	1.633	1.278	1145.1	68.4	56.7	62.5	10.1	28.40	28.52

ISOKINETIC SAMPLE DATA FORM

#1

AECOM

Plant:	Pogo Mine	Filter ID:	P7
Location:	Delta Junction, AK	Ambient Temp. (°F):	34
Source I.D.:	Incinerator	Baro. Press. (in. Hg):	28.45
Date:	10-2-13	Static Press. (in H_2O):	0.04
Flow Traverse Time:	NA	O_2 (%):	
Run No.:	I29-4	CO_2 (%):	
Operators:	DB, AW	Duct Dia. (in):	30"
Meter Box I.D.:	Black	B_{ws} (assumed):	10
Meter Y:	1.00339	Nozzle Dia. (in):	0.8747
Meter Delta H@:	1.7732	K Factor:	
Probe I.D./ Impinger outlet I.D.:	403	Leak Check:	
Probe Length/Type:	4' RM5	Pre: 0.002 acf 10 in. Hg Vac.	
Pitot Coeff. (Cp):	0.84	Post: 0.003 acf 6 in. Hg Vac.	

T (°F)	K
1125	165.5
1150	162.9
1175	160.2
1200	158.0

Moisture

Imp.	Initial	Final
1	709.5	~~933.0~~ 837.7
2	708.9	754.4
3	625.5	630.7
4	722.1	711.0
5	708.1	722.3
	924.1 Net Gain	933.0

Pitot: Impact 0 Static 0 in. H_2O/15 sec.
Pre:
Post: in. H_2O/15 sec.

DGM Clock Time	Port/Point I.D.	Sample Time (min.)	DGM Reading (DACF)	ΔP (in. H_2O)	ΔH (in. H_2O)	Stack Temp. (F)	Probe Temp. (°F)	Filter Temp. (°F)	Imp. Outlet Temp. (°F)	DGM Temp. (°F)		Vacuum (in. Hg)
845	1	0	818.522	0.01	1.68	1073	249	251	35	35	34	5
	2	5	822.03	0.01	1.66	1117	253	251	36	38	34	5
	3	10	825.52	0.01	1.66	1112	249	254	37	42	34	5
	4	15	829.00	0.01	1.68	1096	251	253	36	45	35	5
	5	20	832.54	0.01	1.66	1124	253	251	37	47	36	5
	6	25	836.06	0.01	1.66	1115	249	249	38	49	37	5
	7	30	839.64	0.01	1.66	1131	248	249	38	51	38	5
	8	35	843.23	0.01	1.63	1140	248	249	37	53	39	5
	9	40	846.78	0.01	1.66	1137	251	250	37	54	40	5
	10	45	850.41	0.01	1.68	1100	253	251	37	55	41	5
	11	50	854.04	0.01	1.68	1167	251	251	37	56	41	5
	12	55	857.65	0.01	1.63	1152	250	250	38	57	43	5
	1	60	861.25	0.01	1.66	1122	250	250	38	58	44	5
	2	65	864.85	0.01	1.66	1127	249	250	38	58	45	5
	3	70	868.48	0.01	1.63	1141	252	249	38	59	46	5
	4	75	871.98	0.01	1.63	1157	251	251	38	59	47	5
	5	80	875.57	0.01	1.66	1117	250	250	39	60	47	5
	6	85	879.13	0.01	1.63	1138	252	250	39	60	47	5
	7	90	882.68	0.01	1.66	1115	251	251	39	60	48	5
	8	95	886.28	0.01	1.66	1125	249	256	40	61	49	5
	9	100	889.84	0.01	1.63	1144	256	250	40	62	50	5
	10	105	893.43	0.01	1.63	1144	250	249	40	62	50	5
	11	110	896.96	0.01	1.63	1146	249	248	40	62	50	5
	12	115	900.38	0.01	1.60	1166	248	248	40	65	52	5
		120	903.76	0.01	1.66	1122	250	252	41	65	53	6
		127	908.642									
1052												
		Total Time	Vol. (DACF)	Avg. √ΔP	Avg. ΔH	Avg. t_s				Average DGM Temp.		Max. Vac.

Plant =	SMMI - Pogo Mine	Point Duration (min) =	5
Plant Location =	Delta Junction, AK	Bar. Pres. (in Hg) =	28.45
Source ID =	Incinerator	Static Pres. (in WC) =	0.04
Run No =	I29-4	Nozzle Dia (in WC) =	0.8747
Date =	10/02/13	Meter dH @ =	1.7732
Run Time =	0845-1052	Meter Yd =	1.0034
Sample Duration (min) =	127	H2O Mass (ml/g) =	190.6

Moisture

Initial	Final	Change
709.5	837.3	127.8
708.8	754.4	45.6
625.5	630.7	5.2
722.1	711.0	-11.1
708.1	722.3	14.2
924.1	933	8.9
		0

Point No.	DGM Reading (acf)	Sample Volume (acf)	dP (in WC)	dP1/2 (in WC)1/2	dH (in WC)	dH1/2 (in WC)1/2	Stack T (F)	DGM Inlet (F)	DGM Outlet (F)	DGM Ave (F)	Velocity (ft/s)	Stack Pres (in Hg)	Meter Pres. (in Hg)
1	818.522	3.508	0.010	0.100	1.68	1.296	1023.0	35.0	34.0	34.5	9.7	28.45	28.57
2	822.030	3.490	0.010	0.100	1.66	1.288	1117.0	38.0	34.0	36.0	10.0	28.45	28.57
3	825.520	3.480	0.010	0.100	1.66	1.288	1112.0	42.0	34.0	38.0	10.0	28.45	28.57
4	829.000	3.540	0.010	0.100	1.68	1.296	1096.0	45.0	35.0	40.0	9.9	28.45	28.57
5	832.540	3.520	0.010	0.100	1.66	1.288	1124.0	47.0	36.0	41.5	10.0	28.45	28.57
6	836.060	3.580	0.010	0.100	1.66	1.288	1115.0	49.0	37.0	43.0	10.0	28.45	28.57
7	839.640	3.590	0.010	0.100	1.66	1.288	1131.0	51.0	38.0	44.5	10.1	28.45	28.57
8	843.230	3.550	0.010	0.100	1.63	1.277	1140.0	53.0	39.0	46.0	10.1	28.45	28.57
9	846.780	3.630	0.010	0.100	1.66	1.288	1137.0	54.0	40.0	47.0	10.1	28.45	28.57
10	850.410	3.630	0.010	0.100	1.68	1.296	1100.0	55.0	41.0	48.0	10.0	28.45	28.57
11	854.040	3.610	0.010	0.100	1.63	1.277	1167.0	56.0	41.0	48.5	10.2	28.45	28.57
12	857.650	3.600	0.010	0.100	1.63	1.277	1152.0	57.0	43.0	50.0	10.1	28.45	28.57
1	861.250	3.600	0.010	0.100	1.66	1.288	1122.0	58.0	44.0	51.0	10.0	28.45	28.57
2	864.850	3.630	0.010	0.100	1.66	1.288	1127.0	58.0	45.0	51.5	10.0	28.45	28.57
3	868.480	3.500	0.010	0.100	1.63	1.277	1141.0	59.0	46.0	52.5	10.1	28.45	28.57
4	871.980	3.590	0.010	0.100	1.63	1.277	1157.0	59.0	47.0	53.0	10.1	28.45	28.57
5	875.570	3.560	0.010	0.100	1.66	1.288	1117.0	60.0	47.0	53.5	10.0	28.45	28.57
6	879.130	9.550	0.010	0.100	1.63	1.277	1138.0	60.0	47.0	53.5	10.1	28.45	28.57
7	888.680	-2.400	0.010	0.100	1.66	1.288	1115.0	60.0	48.0	54.0	10.0	28.45	28.57
8	886.280	3.560	0.010	0.100	1.66	1.288	1125.0	61.0	49.0	55.0	10.0	28.45	28.57
9	889.840	3.590	0.010	0.100	1.63	1.277	1144.0	62.0	50.0	56.0	10.1	28.45	28.57
10	893.430	3.530	0.010	0.100	1.63	1.277	1144.0	62.0	50.0	56.0	10.1	28.45	28.57
11	896.960	3.420	0.010	0.100	1.63	1.277	1146.0	62.0	50.0	56.0	10.1	28.45	28.57
12	900.380	3.380	0.010	0.100	1.60	1.265	1166.0	65.0	52.0	58.5	10.2	28.45	28.57
	903.760	4.882	0.010	0.100	1.66	1.288	1122.0	65.0	53.0	59.0	10.0	28.45	28.57
	908.642												
	90.120		0.010	0.100	1.649	1.284	1127.1	54.9	43.2	49.1	10.0	28.45	28.57

Method 22

Date: 09/30/13

Tech: John Rosburg

Source: Pogo Incinerator

Run ID: IS-2

Start Time: 1252

Stop Time: 1352

Elapsed Time: 60 min = 3600 sec

Time of Smoke: 0 sec % smoke of Elapsed Time = 0.0%

Climate = overcast

Bp = 28.30 " Hg

Temp: 37 °F

Wind speed: 0-5 mph N, NW

position: south west of stack

Method 22

Date: 10/01/13

Tech: John Rosburg

Source: Pogo Incinerator

Run ID: I29-3

Start time: 0910 -

Stop time: 1010

Elapsed Time: 60 min = 3600 sec.

Time of Smoke: 0 sec % smoke of Elapsed Time = 0.0 %

Climate:

Sky: mostly cloudy

Bp: 28.45 "Hg

Temp: 29 °F

Wind Speed: 0-5 N, NW

Position: south west of stack

Method 22

Date: 10/01/13

Tech: John Rosburg

Source: Pogo Incinerator

Run ID: I23-3

Start Time: 1208

Stop Time: 1308

Elapsed Time: 60 min = 3600 sec

Time of Smoke: 0 sec. %Smoke of Elapsed Time = 0.0 %

climate

Sky: Mostly Cloudy

Bp: 28.45" Hg

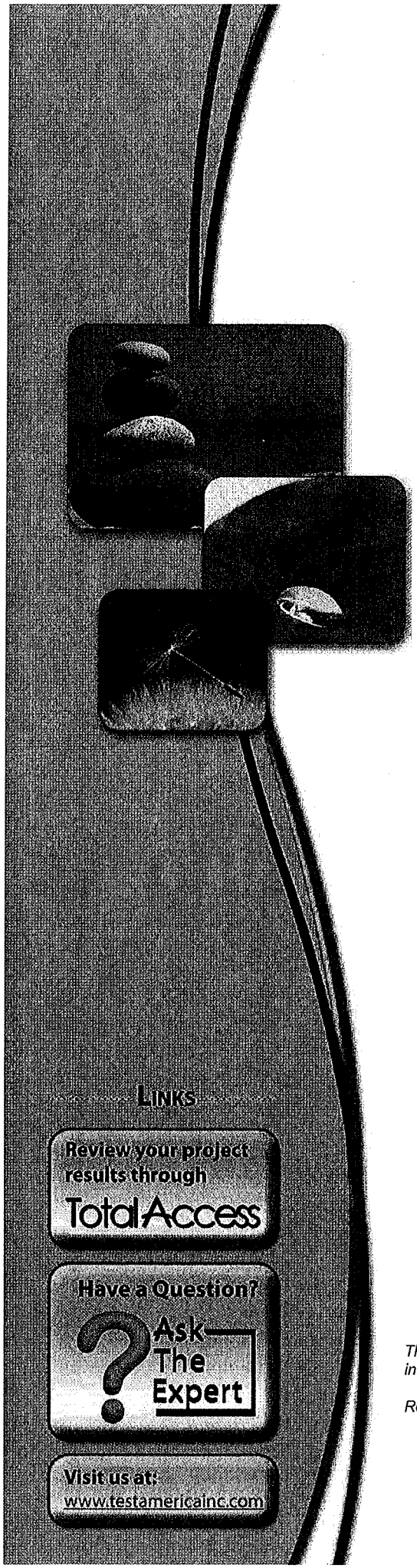
Temp.: 34°F

Wind Speed: 0-5 N, NW

Position: south west of stack

Appendix B

Laboratory Results



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-4473-1
Client Project/Site: SMMI 60284905-2100

For:
AECOM, Inc.
1601 Prospect Parkway
Fort Collins, Colorado 80525

Attn: John Rosburg

Authorized for release by:
10/31/2013 4:12:22 PM

Robert Weidenfeld, Project Manager II
(916)374-4333
robert.weidenfeld@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

1 2 3 4 5 6 7 8 9 10 11 12 13 14

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Definitions/Glossary

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 320-4473-1

Laboratory: TestAmerica Sacramento

Narrative

Job Narrative
320-4473-1

Comments
No additional comments.

Receipt
The samples in this report were received on 10/7/2013 9:00 AM; the samples arrived in good condition. The temperatures of the samples at receipt time were 14.6° C, 14.8° C and 15.1° C.

Metals
Method 29/6020:
The laboratory method blank associated with the audit (impinger) sample is positive for lead slightly above the 0.15 ug reporting limit (RL) at 0.164 ug. The audit sample is positive for this analyte at concentrations greater than 10X the value found in the method blank.

No other analytical or quality issues were noted.

General Chemistry-HCl
Method 0050/26A:
Due to a laboratory oversight, sample I5-1 (320-4473-6) and the associated matrix spike/matrix spike duplicate were analyzed one day outside of the 28 day hold time. The hold time expired on 10/27/13 and the sample was analyzed on 10/28/13.

No other analytical or quality issues were noted.

Detection Summary

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Client Sample ID: I29-1 — Lab Sample ID: 320-4473-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	9.0		0.35	0.026	ug/Sample	1		29/6020	Total/NA
Lead	97	B	0.35	0.023	ug/Sample	1		29/6020	Total/NA
Hg	0.65		0.030	0.0074	ug/Sample	1		29/7470A	Total/NA
Hg	0.59		0.10	0.025	ug/Sample	1		29/7470A	Total/NA
Hg	0.87		0.80	0.20	ug/Sample	1		29/7470A	Total/NA

Client Sample ID: I29-2 — Lab Sample ID: 320-4473-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	13		0.34	0.025	ug/Sample	1		29/6020	Total/NA
Lead	980	B	0.34	0.022	ug/Sample	1		29/6020	Total/NA
Hg	0.077	J	0.21	0.052	ug/Sample	1		29/7470A	Total/NA
Hg	0.17		0.030	0.0074	ug/Sample	1		29/7470A	Total/NA
Hg	0.25		0.10	0.025	ug/Sample	1		29/7470A	Total/NA
Hg	1.2		0.95	0.23	ug/Sample	1		29/7470A	Total/NA

Client Sample ID: I29-3 — Lab Sample ID: 320-4473-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	9.3		0.34	0.025	ug/Sample	1		29/6020	Total/NA
Lead	410	B	0.34	0.022	ug/Sample	1		29/6020	Total/NA
Hg	0.20		0.030	0.0074	ug/Sample	1		29/7470A	Total/NA
Hg	0.28		0.10	0.025	ug/Sample	1		29/7470A	Total/NA

Client Sample ID: I29-4 — Lab Sample ID: 320-4473-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	9.9		0.34	0.025	ug/Sample	1		29/6020	Total/NA
Lead	360	B	0.34	0.022	ug/Sample	1		29/6020	Total/NA
Hg	0.13		0.030	0.0074	ug/Sample	1		29/7470A	Total/NA
Hg	0.34		0.10	0.025	ug/Sample	1		29/7470A	Total/NA

Client Sample ID: BLANK — Lab Sample ID: 320-4473-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.060	J	0.38	0.028	ug/Sample	1		29/6020	Total/NA
Lead	8.5	B	0.38	0.025	ug/Sample	1		29/6020	Total/NA
Hg	0.051	J	0.10	0.025	ug/Sample	1		29/7470A	Total/NA

Client Sample ID: I5-1 — Lab Sample ID: 320-4473-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hydrochloric Acid	350	H	21	11	mg/sample	100		0050/26A	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Particulate Matter	0.0820		0.0005	0.0005	g	1		5	Total/NA
Particulate Matter	0.0235		0.0005	0.0005	g	1		5	Total/NA

Client Sample ID: I5-2 — Lab Sample ID: 320-4473-7

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Client Sample ID: I5-2 (Continued) — Lab Sample ID: 320-4473-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hydrochloric Acid	240		11	5.5	mg/sample	50		0050/26A	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Particulate Matter	0.0532		0.0005	0.0005	g	1		5	Total/NA
Particulate Matter	0.0141		0.0005	0.0005	g	1		5	Total/NA

Client Sample ID: I5-3 — Lab Sample ID: 320-4473-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hydrochloric Acid	230		11	5.4	mg/sample	50		0050/26A	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Particulate Matter	0.0681		0.0005	0.0005	g	1		5	Total/NA
Particulate Matter	0.0165		0.0005	0.0005	g	1		5	Total/NA

Client Sample ID: I5-4 — Lab Sample ID: 320-4473-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hydrochloric Acid	530		41	21	mg/sample	200		0050/26A	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Particulate Matter	0.0922		0.0005	0.0005	g	1		5	Total/NA
Particulate Matter	0.0399		0.0005	0.0005	g	1		5	Total/NA

Client Sample ID: I5-BLANK — Lab Sample ID: 320-4473-10

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Particulate Matter	0.0014		0.0005	0.0005	g	1		5	Total/NA
Particulate Matter	0.0016		0.0005	0.0005	g	1		5	Total/NA

Client Sample ID: PEA1941 — Lab Sample ID: 320-4473-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hydrochloric Acid	38		2.6	1.3	mg/sample	5		0050/26A	Total/NA

Client Sample ID: PEA1945 — Lab Sample ID: 320-4473-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	87		0.15	0.011	ug/Sample	1		29/6020	Total/NA
Lead	74	B	0.15	0.0099	ug/Sample	1		29/6020	Total/NA

Client Sample ID: PEA1947 — Lab Sample ID: 320-4473-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hg	6.0		0.24	0.059	ug/Sample	8		29/7470A	Total/NA

Client Sample ID: PEA1948 — Lab Sample ID: 320-4473-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	27		0.15	0.011	ug/Sample	1		29/6020	Total/NA
Lead	31	B	0.15	0.0099	ug/Sample	1		29/6020	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Client Sample ID: PEA1950 — Lab Sample ID: 320-4473-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hg	160		6.0	1.5	ug/Sample	3		29/7470A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Client Sample ID: I29-1

Lab Sample ID: 320-4473-1

Date Collected: 09/29/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

Method: 29/6020 - Metals (ICPMS), Stationary Source

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	9.0		0.35	0.026	ug/Sample		10/11/13 10:05	10/24/13 11:45	1
Lead	97	B	0.35	0.023	ug/Sample		10/11/13 10:05	10/24/13 11:45	1

Method: 29/7470A - Mercury - Empty

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.20	0.050	ug/Sample		10/10/13 10:31	10/10/13 14:34	1

Method: 29/7470A - Mercury - Front Half

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.65		0.030	0.0074	ug/Sample		10/16/13 09:19	10/16/13 11:29	1

Method: 29/7470A - Mercury - HCl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.59		0.10	0.025	ug/Sample		10/16/13 09:23	10/16/13 12:10	1

Method: 29/7470A - Mercury - KMNO4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.10	0.025	ug/Sample		10/10/13 10:29	10/10/13 13:35	1

Method: 29/7470A - Mercury - Nitric/Peroxide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.87		0.80	0.20	ug/Sample		10/10/13 10:24	10/10/13 13:59	1

Client Sample ID: I29-2

Lab Sample ID: 320-4473-2

Date Collected: 09/30/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

Method: 29/6020 - Metals (ICPMS), Stationary Source

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	13		0.34	0.025	ug/Sample		10/11/13 10:05	10/24/13 11:41	1
Lead	980	B	0.34	0.022	ug/Sample		10/11/13 10:05	10/24/13 11:41	1

Method: 29/7470A - Mercury - Empty

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.077	J	0.21	0.052	ug/Sample		10/10/13 10:31	10/10/13 14:39	1

Method: 29/7470A - Mercury - Front Half

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.17		0.030	0.0074	ug/Sample		10/16/13 09:19	10/16/13 11:31	1

Method: 29/7470A - Mercury - HCl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.25		0.10	0.025	ug/Sample		10/16/13 09:23	10/16/13 12:11	1

Method: 29/7470A - Mercury - KMNO4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.10	0.025	ug/Sample		10/10/13 10:29	10/10/13 13:37	1

Client Sample Results

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Client Sample ID: I29-2

Lab Sample ID: 320-4473-2
Matrix: Air

Date Collected: 09/30/13 00:00
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

Method: 29/7470A - Mercury - Nitric/Peroxide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	1.2		0.95	0.23	ug/Sample		10/10/13 10:24	10/10/13 14:01	1

Client Sample ID: I29-3

Lab Sample ID: 320-4473-3
Matrix: Air

Date Collected: 10/01/13 00:00
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

Method: 29/6020 - Metals (ICPMS), Stationary Source

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	9.3		0.34	0.025	ug/Sample		10/11/13 10:05	10/24/13 11:37	1
Lead	410	B	0.34	0.022	ug/Sample		10/11/13 10:05	10/24/13 11:37	1

Method: 29/7470A - Mercury - Empty

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.21	0.052	ug/Sample		10/10/13 10:31	10/10/13 14:42	1

Method: 29/7470A - Mercury - Front Half

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.20		0.030	0.0074	ug/Sample		10/16/13 09:19	10/16/13 11:38	1

Method: 29/7470A - Mercury - HCl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.28		0.10	0.025	ug/Sample		10/16/13 09:23	10/16/13 12:16	1

Method: 29/7470A - Mercury - KMNO4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.10	0.025	ug/Sample		10/10/13 10:29	10/10/13 13:39	1

Method: 29/7470A - Mercury - Nitric/Peroxide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.95	0.23	ug/Sample		10/10/13 10:25	10/10/13 14:10	1

Client Sample ID: I29-4

Lab Sample ID: 320-4473-4
Matrix: Air

Date Collected: 10/02/13 00:00
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

Method: 29/6020 - Metals (ICPMS), Stationary Source

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	9.9		0.34	0.025	ug/Sample		10/11/13 10:05	10/24/13 11:34	1
Lead	360	B	0.34	0.022	ug/Sample		10/11/13 10:05	10/24/13 11:34	1

Method: 29/7470A - Mercury - Empty

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.20	0.049	ug/Sample		10/10/13 10:31	10/10/13 14:43	1

Method: 29/7470A - Mercury - Front Half

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.13		0.030	0.0074	ug/Sample		10/16/13 09:19	10/16/13 11:39	1

Client Sample ID: I29-4

Lab Sample ID: 320-4473-4

Date Collected: 10/02/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

Method: 29/7470A - Mercury - HCl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.34		0.10	0.025	ug/Sample		10/16/13 09:23	10/16/13 12:18	1

Method: 29/7470A - Mercury - KMNO4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.10	0.025	ug/Sample		10/10/13 10:29	10/10/13 13:41	1

Method: 29/7470A - Mercury - Nitric/Peroxide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.95	0.23	ug/Sample		10/10/13 10:25	10/10/13 14:12	1

Client Sample ID: BLANK

Lab Sample ID: 320-4473-5

Date Collected: 10/02/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

Method: 29/6020 - Metals (ICPMS), Stationary Source

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.060	J	0.38	0.028	ug/Sample		10/11/13 10:05	10/24/13 11:30	1
Lead	8.5	B	0.38	0.025	ug/Sample		10/11/13 10:05	10/24/13 11:30	1

Method: 29/7470A - Mercury - Empty

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.066	0.016	ug/Sample		10/10/13 10:31	10/10/13 14:45	1

Method: 29/7470A - Mercury - Front Half

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.030	0.0074	ug/Sample		10/16/13 09:19	10/16/13 11:41	1

Method: 29/7470A - Mercury - HCl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	0.051	J	0.10	0.025	ug/Sample		10/16/13 09:23	10/16/13 12:20	1

Method: 29/7470A - Mercury - KMNO4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.10	0.025	ug/Sample		10/10/13 10:29	10/10/13 13:46	1

Method: 29/7470A - Mercury - Nitric/Peroxide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.20	0.049	ug/Sample		10/10/13 10:25	10/10/13 14:14	1

Client Sample ID: I5-1

Lab Sample ID: 320-4473-6

Date Collected: 09/29/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

Method: 0050/26A - HCl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hydrochloric Acid	350	H	21	11	mg/sample			10/28/13 21:05	100

Client Sample Results

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Client Sample ID: I5-1

Lab Sample ID: 320-4473-6
Matrix: Air

Date Collected: 09/29/13 00:00
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Particulate Matter	0.0820		0.0005	0.0005	g			10/16/13 18:07	1
Particulate Matter	0.0235		0.0005	0.0005	g			10/21/13 11:37	1

Client Sample ID: I5-2

Lab Sample ID: 320-4473-7
Matrix: Air

Date Collected: 09/30/13 00:00
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

Method: 0050/26A - HCl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hydrochloric Acid	240		11	5.5	mg/sample			10/28/13 22:47	50

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Particulate Matter	0.0532		0.0005	0.0005	g			10/16/13 09:42	1
Particulate Matter	0.0141		0.0005	0.0005	g			10/21/13 11:37	1

Client Sample ID: I5-3

Lab Sample ID: 320-4473-8
Matrix: Air

Date Collected: 10/01/13 00:00
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

Method: 0050/26A - HCl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hydrochloric Acid	230		11	5.4	mg/sample			10/28/13 23:16	50

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Particulate Matter	0.0681		0.0005	0.0005	g			10/16/13 09:43	1
Particulate Matter	0.0165		0.0005	0.0005	g			10/23/13 10:23	1

Client Sample ID: I5-4

Lab Sample ID: 320-4473-9
Matrix: Air

Date Collected: 10/02/13 00:00
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

Method: 0050/26A - HCl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hydrochloric Acid	530		41	21	mg/sample			10/28/13 23:45	200

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Particulate Matter	0.0922		0.0005	0.0005	g			10/16/13 18:08	1
Particulate Matter	0.0399		0.0005	0.0005	g			10/21/13 11:39	1

Client Sample ID: I5-BLANK

Lab Sample ID: 320-4473-10

Date Collected: 10/02/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 500mL - unpreserved

Method: 0050/26A - HCl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hydrochloric Acid	ND		0.43	0.22	mg/sample			10/29/13 02:24	4

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Particulate Matter	0.0014		0.0005	0.0005	g			10/16/13 18:09	1
Particulate Matter	0.0016		0.0005	0.0005	g			10/21/13 11:39	1

Client Sample ID: PEA1941

Lab Sample ID: 320-4473-11

Date Collected: 10/01/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00
Sample Container: Ampule (PT sample)

Method: 0050/26A - Hydrogen Halide and Halogen Emissions/Stationary Sources (Mod)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hydrochloric Acid	38		2.6	1.3	mg/sample			10/29/13 00:14	5

Client Sample ID: PEA1945

Lab Sample ID: 320-4473-12

Date Collected: 10/01/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 125mL - unpreserved

Method: 29/6020 - Metals ICPMS (Front Half)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	87		0.15	0.011	ug/Sample		10/15/13 15:52	10/17/13 19:32	1
Lead	74	B	0.15	0.0099	ug/Sample		10/15/13 15:52	10/17/13 19:32	1

Client Sample ID: PEA1947

Lab Sample ID: 320-4473-13

Date Collected: 10/01/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00
Sample Container: Amber Glass 125mL - unpreserved

Method: 29/7470A - Mercury - Front Half

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	6.0		0.24	0.059	ug/Sample		10/16/13 09:45	10/16/13 11:21	8

Client Sample ID: PEA1948

Lab Sample ID: 320-4473-14

Date Collected: 10/01/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00
Sample Container: Plastic 250ml - unpreserved

Method: 29/6020 - Metals ICPMS (Back Half)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	27		0.15	0.011	ug/Sample		10/11/13 10:02	10/17/13 18:44	1
Lead	31	B	0.15	0.0099	ug/Sample		10/11/13 10:02	10/17/13 18:44	1

Client Sample Results

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Client Sample ID: PEA1950
Date Collected: 10/01/13 00:00
Date Received: 10/07/13 09:00
Sample Container: Ampule (PT sample)

Lab Sample ID: 320-4473-15
Matrix: Air

Method: 29/7470A - Mercury - Nitric/Peroxide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	160		6.0	1.5	ug/Sample		10/10/13 10:25	10/10/13 14:18	3

Method: 0050/26A - HCl

Lab Sample ID: MB 320-28698/10-A — **Client Sample ID: Method Blank**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 28872

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hydrochloric Acid	ND		0.51	0.26	mg/sample			10/29/13 01:26	1

Lab Sample ID: MB 320-28698/1-A — **Client Sample ID: Method Blank**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 28872

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hydrochloric Acid	ND		0.51	0.26	mg/sample			10/28/13 20:07	1

Lab Sample ID: LCS 320-28698/11-A — **Client Sample ID: Lab Control Sample**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 28872

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hydrochloric Acid	10.3	10.6		mg/sample		103	90 - 110

Lab Sample ID: LCS 320-28698/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 28872

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hydrochloric Acid	10.3	10.3		mg/sample		101	90 - 110

Lab Sample ID: 320-4473-6 MS — **Client Sample ID: I5-1**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 28872

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hydrochloric Acid	350	H	211	573		mg/sample		104	75 - 125

Lab Sample ID: 320-4473-6 MSD — **Client Sample ID: I5-1**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 28872

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hydrochloric Acid	350	H	211	573		mg/sample		104	75 - 125	0	20

Method: 29/6020 - Metals ICPMS (Back Half)

Lab Sample ID: MB 320-27318/1-A — **Client Sample ID: Method Blank**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27898 — **Prep Batch: 27318**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.15	0.011	ug/Sample		10/11/13 10:02	10/17/13 18:53	1
Lead	0.164		0.15	0.0099	ug/Sample		10/11/13 10:02	10/17/13 18:53	1

Method: 29/6020 - Metals ICPMS (Back Half) (Continued)

Lab Sample ID: LCS 320-27318/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27898 — **Prep Batch: 27318**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	30.0	27.4		ug/Sample		91	79 - 110
Lead	30.0	31.3		ug/Sample		104	86 - 110

Method: 29/6020 - Metals ICPMS (Front Half)

Lab Sample ID: MB 320-27602/1-A — **Client Sample ID: Method Blank**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27898 — **Prep Batch: 27602**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.15	0.011	ug/Sample		10/15/13 15:52	10/17/13 19:54	1
Lead	0.0111	J	0.15	0.0099	ug/Sample		10/15/13 15:52	10/17/13 19:54	1

Lab Sample ID: LCS 320-27602/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27898 — **Prep Batch: 27602**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	30.0	29.0		ug/Sample		97	79 - 110
Lead	30.0	29.8		ug/Sample		99	86 - 110

Method: 29/6020 - Metals (ICPMS), Stationary Source

Lab Sample ID: MB 320-27320/1-A — **Client Sample ID: Method Blank**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 28474 — **Prep Batch: 27320**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.30	0.022	ug/Sample		10/11/13 10:05	10/24/13 10:05	1
Lead	0.178	J	0.30	0.020	ug/Sample		10/11/13 10:05	10/24/13 10:05	1

Lab Sample ID: LCS 320-27320/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 28474 — **Prep Batch: 27320**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	60.0	56.2		ug/Sample		94	79 - 110
Lead	60.0	61.0		ug/Sample		102	86 - 110

Lab Sample ID: 320-4471-A-1-E DU — **Client Sample ID: Duplicate**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 28474 — **Prep Batch: 27320**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cadmium	0.18	J	0.186	J	ug/Sample		4	20
Lead	1.0	B	1.03		ug/Sample		0.2	20

Method: 29/7470A - Mercury - HCl

Lab Sample ID: MB 320-27212/1-C — **Client Sample ID: Method Blank**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27715 — **Prep Batch: 27639**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.20	0.049	ug/Sample		10/16/13 09:23	10/16/13 11:58	1

Lab Sample ID: LCS 320-27212/2-C — **Client Sample ID: Lab Control Sample**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27715 — **Prep Batch: 27639**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	1.00	0.946		ug/Sample		95	85 - 115

Lab Sample ID: LCSD 320-27212/3-C — **Client Sample ID: Lab Control Sample Dup**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27715 — **Prep Batch: 27639**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hg	1.00	0.930		ug/Sample		93	85 - 115	2	20

Method: 29/7470A - Mercury - Empty

Lab Sample ID: MB 320-27211/1-B — **Client Sample ID: Method Blank**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27274 — **Prep Batch: 27219**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.20	0.049	ug/Sample		10/10/13 10:31	10/10/13 14:24	1

Lab Sample ID: LCS 320-27211/2-B — **Client Sample ID: Lab Control Sample**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27274 — **Prep Batch: 27219**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	1.00	0.968		ug/Sample		97	85 - 115

Lab Sample ID: LCSD 320-27211/3-B — **Client Sample ID: Lab Control Sample Dup**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27274 — **Prep Batch: 27219**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hg	1.00	0.960		ug/Sample		96	85 - 115	1	20

Method: 29/7470A - Mercury - KMNO4

Lab Sample ID: MB 320-27212/1-B — **Client Sample ID: Method Blank**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27274 — **Prep Batch: 27218**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.20	0.049	ug/Sample		10/10/13 10:29	10/10/13 13:25	1

Method: 29/7470A - Mercury - KMNO4 (Continued)

Lab Sample ID: LCS 320-27212/2-B — **Client Sample ID: Lab Control Sample**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27274 — **Prep Batch: 27218**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	1.00	1.00		ug/Sample		100	85 - 115

Lab Sample ID: LCSD 320-27212/3-B — **Client Sample ID: Lab Control Sample Dup**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27274 — **Prep Batch: 27218**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hg	1.00	0.999		ug/Sample		100	85 - 115	0	20

Method: 29/7470A - Mercury - Front Half

Lab Sample ID: MB 320-27208/1-B — **Client Sample ID: Method Blank**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27715 — **Prep Batch: 27637**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.20	0.049	ug/Sample		10/16/13 09:19	10/16/13 11:12	1

Lab Sample ID: LCS 320-27208/2-B — **Client Sample ID: Lab Control Sample**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27715 — **Prep Batch: 27637**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	1.00	0.938		ug/Sample		94	85 - 115

Lab Sample ID: LCSD 320-27208/3-B — **Client Sample ID: Lab Control Sample Dup**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27715 — **Prep Batch: 27637**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hg	1.00	0.970		ug/Sample		97	85 - 115	3	20

Method: 29/7470A - Mercury - Nitric/Peroxide

Lab Sample ID: MB 320-27210/1-B — **Client Sample ID: Method Blank**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27274 — **Prep Batch: 27213**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		2.0	0.49	ug/Sample		10/10/13 10:24	10/10/13 13:49	1

Lab Sample ID: LCS 320-27210/2-B — **Client Sample ID: Lab Control Sample**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27274 — **Prep Batch: 27213**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	10.0	10.0		ug/Sample		100	85 - 115

Method: 29/7470A - Mercury - Nitric/Peroxide (Continued)

Lab Sample ID: 320-4473-2 MS — **Client Sample ID: I29-2**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27274 — **Prep Batch: 27213**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hg	1.2		4.75	5.89		ug/Sample		98	85 - 115

Lab Sample ID: 320-4473-2 MSD — **Client Sample ID: I29-2**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 27274 — **Prep Batch: 27213**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hg	1.2		4.75	5.80		ug/Sample		96	85 - 115	2	20

Method: 5 - Particulate - Acetone

Lab Sample ID: MB 320-28266/6 — **Client Sample ID: Method Blank**
Matrix: Air — **Prep Type: Total/NA**
Analysis Batch: 28266

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Particulate Matter	ND		0.0005	0.0005	g			10/21/13 11:40	1

QC Association Summary

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

HPLC/IC

Pre Prep Batch: 28698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-6	I5-1	Total/NA	Air	Air Train Vol.	
320-4473-6 MS	I5-1	Total/NA	Air	Air Train Vol.	
320-4473-6 MSD	I5-1	Total/NA	Air	Air Train Vol.	
320-4473-7	I5-2	Total/NA	Air	Air Train Vol.	
320-4473-8	I5-3	Total/NA	Air	Air Train Vol.	
320-4473-9	I5-4	Total/NA	Air	Air Train Vol.	
320-4473-10	I5-BLANK	Total/NA	Air	Air Train Vol.	
320-4473-11	PEA1941	Total/NA	Air	Air Train Vol.	
LCS 320-28698/11-A	Lab Control Sample	Total/NA	Air	Air Train Vol.	
LCS 320-28698/2-A	Lab Control Sample	Total/NA	Air	Air Train Vol.	
MB 320-28698/10-A	Method Blank	Total/NA	Air	Air Train Vol.	
MB 320-28698/1-A	Method Blank	Total/NA	Air	Air Train Vol.	

Analysis Batch: 28872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-6	I5-1	Total/NA	Air	0050/26A	28698
320-4473-6 MS	I5-1	Total/NA	Air	0050/26A	28698
320-4473-6 MSD	I5-1	Total/NA	Air	0050/26A	28698
320-4473-7	I5-2	Total/NA	Air	0050/26A	28698
320-4473-8	I5-3	Total/NA	Air	0050/26A	28698
320-4473-9	I5-4	Total/NA	Air	0050/26A	28698
320-4473-10	I5-BLANK	Total/NA	Air	0050/26A	28698
320-4473-11	PEA1941	Total/NA	Air	0050/26A	28698
LCS 320-28698/11-A	Lab Control Sample	Total/NA	Air	0050/26A	28698
LCS 320-28698/2-A	Lab Control Sample	Total/NA	Air	0050/26A	28698
MB 320-28698/10-A	Method Blank	Total/NA	Air	0050/26A	28698
MB 320-28698/1-A	Method Blank	Total/NA	Air	0050/26A	28698

Metals

Pre Prep Batch: 27208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-1	I29-1	Total/NA	Air	Air Train Vol.	
320-4473-2	I29-2	Total/NA	Air	Air Train Vol.	
320-4473-3	I29-3	Total/NA	Air	Air Train Vol.	
320-4473-4	I29-4	Total/NA	Air	Air Train Vol.	
320-4473-5	BLANK	Total/NA	Air	Air Train Vol.	
320-4473-13	PEA1947	Total/NA	Air	Air Train Vol.	
LCS 320-27208/2-B	Lab Control Sample	Total/NA	Air	Air Train Vol.	
LCSD 320-27208/3-B	Lab Control Sample Dup	Total/NA	Air	Air Train Vol.	
MB 320-27208/1-B	Method Blank	Total/NA	Air	Air Train Vol.	

Pre Prep Batch: 27210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-1	I29-1	Total/NA	Air	Air Train Vol.	
320-4473-2	I29-2	Total/NA	Air	Air Train Vol.	
320-4473-2 MS	I29-2	Total/NA	Air	Air Train Vol.	
320-4473-2 MSD	I29-2	Total/NA	Air	Air Train Vol.	
320-4473-3	I29-3	Total/NA	Air	Air Train Vol.	
320-4473-4	I29-4	Total/NA	Air	Air Train Vol.	

Metals (Continued)

Pre Prep Batch: 27210 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-5	BLANK	Total/NA	Air	Air Train Vol.	
320-4473-15	PEA1950	Total/NA	Air	Air Train Vol.	
LCS 320-27210/2-B	Lab Control Sample	Total/NA	Air	Air Train Vol.	
MB 320-27210/1-B	Method Blank	Total/NA	Air	Air Train Vol.	

Pre Prep Batch: 27211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-1	I29-1	Total/NA	Air	Air Train Vol.	
320-4473-2	I29-2	Total/NA	Air	Air Train Vol.	
320-4473-3	I29-3	Total/NA	Air	Air Train Vol.	
320-4473-4	I29-4	Total/NA	Air	Air Train Vol.	
320-4473-5	BLANK	Total/NA	Air	Air Train Vol.	
LCS 320-27211/2-B	Lab Control Sample	Total/NA	Air	Air Train Vol.	
LCSD 320-27211/3-B	Lab Control Sample Dup	Total/NA	Air	Air Train Vol.	
MB 320-27211/1-B	Method Blank	Total/NA	Air	Air Train Vol.	

Pre Prep Batch: 27212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-1	I29-1	Total/NA	Air	Air Train Vol.	
320-4473-2	I29-2	Total/NA	Air	Air Train Vol.	
320-4473-3	I29-3	Total/NA	Air	Air Train Vol.	
320-4473-4	I29-4	Total/NA	Air	Air Train Vol.	
320-4473-5	BLANK	Total/NA	Air	Air Train Vol.	
LCS 320-27212/2-B	Lab Control Sample	Total/NA	Air	Air Train Vol.	
LCS 320-27212/2-C	Lab Control Sample	Total/NA	Air	Air Train Vol.	
LCSD 320-27212/3-B	Lab Control Sample Dup	Total/NA	Air	Air Train Vol.	
LCSD 320-27212/3-C	Lab Control Sample Dup	Total/NA	Air	Air Train Vol.	
MB 320-27212/1-B	Method Blank	Total/NA	Air	Air Train Vol.	
MB 320-27212/1-C	Method Blank	Total/NA	Air	Air Train Vol.	

Prep Batch: 27213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-1	I29-1	Total/NA	Air	AT Prep (BH)	27210
320-4473-2	I29-2	Total/NA	Air	AT Prep (BH)	27210
320-4473-2 MS	I29-2	Total/NA	Air	AT Prep (BH)	27210
320-4473-2 MSD	I29-2	Total/NA	Air	AT Prep (BH)	27210
320-4473-3	I29-3	Total/NA	Air	AT Prep (BH)	27210
320-4473-4	I29-4	Total/NA	Air	AT Prep (BH)	27210
320-4473-5	BLANK	Total/NA	Air	AT Prep (BH)	27210
320-4473-15	PEA1950	Total/NA	Air	AT Prep (BH)	27210
LCS 320-27210/2-B	Lab Control Sample	Total/NA	Air	AT Prep (BH)	27210
MB 320-27210/1-B	Method Blank	Total/NA	Air	AT Prep (BH)	27210

Prep Batch: 27218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-1	I29-1	Total/NA	Air	AT Prep (Per)	27212
320-4473-2	I29-2	Total/NA	Air	AT Prep (Per)	27212
320-4473-3	I29-3	Total/NA	Air	AT Prep (Per)	27212
320-4473-4	I29-4	Total/NA	Air	AT Prep (Per)	27212
320-4473-5	BLANK	Total/NA	Air	AT Prep (Per)	27212
LCS 320-27212/2-B	Lab Control Sample	Total/NA	Air	AT Prep (Per)	27212

QC Association Summary

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Metals (Continued)

Prep Batch: 27218 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 320-27212/3-B	Lab Control Sample Dup	Total/NA	Air	AT Prep (Per)	27212
MB 320-27212/1-B	Method Blank	Total/NA	Air	AT Prep (Per)	27212

Prep Batch: 27219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-1	I29-1	Total/NA	Air	AT Prep (Empty)	27211
320-4473-2	I29-2	Total/NA	Air	AT Prep (Empty)	27211
320-4473-3	I29-3	Total/NA	Air	AT Prep (Empty)	27211
320-4473-4	I29-4	Total/NA	Air	AT Prep (Empty)	27211
320-4473-5	BLANK	Total/NA	Air	AT Prep (Empty)	27211
LCS 320-27211/2-B	Lab Control Sample	Total/NA	Air	AT Prep (Empty)	27211
LCSD 320-27211/3-B	Lab Control Sample Dup	Total/NA	Air	AT Prep (Empty)	27211
MB 320-27211/1-B	Method Blank	Total/NA	Air	AT Prep (Empty)	27211

Analysis Batch: 27274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-1	I29-1	Total/NA	Air	29/7470A	27218
320-4473-1	I29-1	Total/NA	Air	29/7470A	27213
320-4473-1	I29-1	Total/NA	Air	29/7470A	27219
320-4473-2	I29-2	Total/NA	Air	29/7470A	27218
320-4473-2	I29-2	Total/NA	Air	29/7470A	27213
320-4473-2	I29-2	Total/NA	Air	29/7470A	27219
320-4473-2 MS	I29-2	Total/NA	Air	29/7470A	27213
320-4473-2 MSD	I29-2	Total/NA	Air	29/7470A	27213
320-4473-3	I29-3	Total/NA	Air	29/7470A	27218
320-4473-3	I29-3	Total/NA	Air	29/7470A	27213
320-4473-3	I29-3	Total/NA	Air	29/7470A	27219
320-4473-4	I29-4	Total/NA	Air	29/7470A	27218
320-4473-4	I29-4	Total/NA	Air	29/7470A	27213
320-4473-4	I29-4	Total/NA	Air	29/7470A	27219
320-4473-5	BLANK	Total/NA	Air	29/7470A	27218
320-4473-5	BLANK	Total/NA	Air	29/7470A	27213
320-4473-5	BLANK	Total/NA	Air	29/7470A	27219
320-4473-15	PEA1950	Total/NA	Air	29/7470A	27213
LCS 320-27210/2-B	Lab Control Sample	Total/NA	Air	29/7470A	27213
LCS 320-27211/2-B	Lab Control Sample	Total/NA	Air	29/7470A	27219
LCS 320-27212/2-B	Lab Control Sample	Total/NA	Air	29/7470A	27218
LCSD 320-27211/3-B	Lab Control Sample Dup	Total/NA	Air	29/7470A	27219
LCSD 320-27212/3-B	Lab Control Sample Dup	Total/NA	Air	29/7470A	27218
MB 320-27210/1-B	Method Blank	Total/NA	Air	29/7470A	27213
MB 320-27211/1-B	Method Blank	Total/NA	Air	29/7470A	27219
MB 320-27212/1-B	Method Blank	Total/NA	Air	29/7470A	27218

Prep Batch: 27318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-14	PEA1948	Total/NA	Air	Air Train Prep	
LCS 320-27318/2-A	Lab Control Sample	Total/NA	Air	Air Train Prep	
MB 320-27318/1-A	Method Blank	Total/NA	Air	Air Train Prep	

Metals (Continued)

Prep Batch: 27320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4471-A-1-E DU	Duplicate	Total/NA	Air	Air Train Prep	
320-4473-1	I29-1	Total/NA	Air	Air Train Prep	
320-4473-2	I29-2	Total/NA	Air	Air Train Prep	
320-4473-3	I29-3	Total/NA	Air	Air Train Prep	
320-4473-4	I29-4	Total/NA	Air	Air Train Prep	
320-4473-5	BLANK	Total/NA	Air	Air Train Prep	
LCS 320-27320/2-A	Lab Control Sample	Total/NA	Air	Air Train Prep	
MB 320-27320/1-A	Method Blank	Total/NA	Air	Air Train Prep	

Prep Batch: 27602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-12	PEA1945	Total/NA	Air	Air Tain Prep	
LCS 320-27602/2-A	Lab Control Sample	Total/NA	Air	Air Tain Prep	
MB 320-27602/1-A	Method Blank	Total/NA	Air	Air Tain Prep	

Prep Batch: 27637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-1	I29-1	Total/NA	Air	AT Hg Prep (FH)	27208
320-4473-2	I29-2	Total/NA	Air	AT Hg Prep (FH)	27208
320-4473-3	I29-3	Total/NA	Air	AT Hg Prep (FH)	27208
320-4473-4	I29-4	Total/NA	Air	AT Hg Prep (FH)	27208
320-4473-5	BLANK	Total/NA	Air	AT Hg Prep (FH)	27208
320-4473-13	PEA1947	Total/NA	Air	AT Hg Prep (FH)	27208
LCS 320-27208/2-B	Lab Control Sample	Total/NA	Air	AT Hg Prep (FH)	27208
LCSD 320-27208/3-B	Lab Control Sample Dup	Total/NA	Air	AT Hg Prep (FH)	27208
MB 320-27208/1-B	Method Blank	Total/NA	Air	AT Hg Prep (FH)	27208

Prep Batch: 27639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-1	I29-1	Total/NA	Air	AT (HCl)	27212
320-4473-2	I29-2	Total/NA	Air	AT (HCl)	27212
320-4473-3	I29-3	Total/NA	Air	AT (HCl)	27212
320-4473-4	I29-4	Total/NA	Air	AT (HCl)	27212
320-4473-5	BLANK	Total/NA	Air	AT (HCl)	27212
LCS 320-27212/2-C	Lab Control Sample	Total/NA	Air	AT (HCl)	27212
LCSD 320-27212/3-C	Lab Control Sample Dup	Total/NA	Air	AT (HCl)	27212
MB 320-27212/1-C	Method Blank	Total/NA	Air	AT (HCl)	27212

Analysis Batch: 27715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-1	I29-1	Total/NA	Air	29/7470A	27637
320-4473-1	I29-1	Total/NA	Air	29/7470A	27639
320-4473-2	I29-2	Total/NA	Air	29/7470A	27637
320-4473-2	I29-2	Total/NA	Air	29/7470A	27639
320-4473-3	I29-3	Total/NA	Air	29/7470A	27637
320-4473-3	I29-3	Total/NA	Air	29/7470A	27639
320-4473-4	I29-4	Total/NA	Air	29/7470A	27637
320-4473-4	I29-4	Total/NA	Air	29/7470A	27639
320-4473-5	BLANK	Total/NA	Air	29/7470A	27637
320-4473-5	BLANK	Total/NA	Air	29/7470A	27639
320-4473-13	PEA1947	Total/NA	Air	29/7470A	27637

Metals (Continued)

Analysis Batch: 27715 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-27208/2-B	Lab Control Sample	Total/NA	Air	29/7470A	27637
LCS 320-27212/2-C	Lab Control Sample	Total/NA	Air	29/7470A	27639
LCSD 320-27208/3-B	Lab Control Sample Dup	Total/NA	Air	29/7470A	27637
LCSD 320-27212/3-C	Lab Control Sample Dup	Total/NA	Air	29/7470A	27639
MB 320-27208/1-B	Method Blank	Total/NA	Air	29/7470A	27637
MB 320-27212/1-C	Method Blank	Total/NA	Air	29/7470A	27639

Analysis Batch: 27898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-12	PEA1945	Total/NA	Air	29/6020	27602
320-4473-14	PEA1948	Total/NA	Air	29/6020	27318
LCS 320-27318/2-A	Lab Control Sample	Total/NA	Air	29/6020	27318
LCS 320-27602/2-A	Lab Control Sample	Total/NA	Air	29/6020	27602
MB 320-27318/1-A	Method Blank	Total/NA	Air	29/6020	27318
MB 320-27602/1-A	Method Blank	Total/NA	Air	29/6020	27602

Analysis Batch: 28474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4471-A-1-E DU	Duplicate	Total/NA	Air	29/6020	27320
320-4473-1	I29-1	Total/NA	Air	29/6020	27320
320-4473-2	I29-2	Total/NA	Air	29/6020	27320
320-4473-3	I29-3	Total/NA	Air	29/6020	27320
320-4473-4	I29-4	Total/NA	Air	29/6020	27320
320-4473-5	BLANK	Total/NA	Air	29/6020	27320
LCS 320-27320/2-A	Lab Control Sample	Total/NA	Air	29/6020	27320
MB 320-27320/1-A	Method Blank	Total/NA	Air	29/6020	27320

General Chemistry

Analysis Batch: 28259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-6	I5-1	Total/NA	Air	5	
320-4473-7	I5-2	Total/NA	Air	5	
320-4473-8	I5-3	Total/NA	Air	5	
320-4473-9	I5-4	Total/NA	Air	5	
320-4473-10	I5-BLANK	Total/NA	Air	5	

Analysis Batch: 28266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-4473-6	I5-1	Total/NA	Air	5	
320-4473-7	I5-2	Total/NA	Air	5	
320-4473-8	I5-3	Total/NA	Air	5	
320-4473-9	I5-4	Total/NA	Air	5	
320-4473-10	I5-BLANK	Total/NA	Air	5	
MB 320-28266/6	Method Blank	Total/NA	Air	5	

Lab Chronicle

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Client Sample ID: I29-1

Lab Sample ID: 320-4473-1

Date Collected: 09/29/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Pre Prep	Air Train Vol.			1.0 Sample	500 mL	27212	10/10/13 10:20	CV1	TAL SAC
Total/NA	Prep	AT Prep (Per)			30 mL	30 mL	27218	10/10/13 10:29	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27274	10/10/13 13:35	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	402 mL	27210	10/10/13 10:15	CV1	TAL SAC
Total/NA	Prep	AT Prep (BH)			3 mL	30 mL	27213	10/10/13 10:24	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	3 mL	30 mL	27274	10/10/13 13:59	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	102 mL	27211	10/10/13 10:18	CV1	TAL SAC
Total/NA	Prep	AT Prep (Empty)			3 mL	30 mL	27219	10/10/13 10:31	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	3 mL	30 mL	27274	10/10/13 14:34	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	150 mL	27208	10/10/13 10:13	CV1	TAL SAC
Total/NA	Prep	AT Hg Prep (FH)			30 mL	30 mL	27637	10/16/13 09:19	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27715	10/16/13 11:29	CV1	TAL SAC
Total/NA	Prep	AT (HCl)			30 mL	30 mL	27639	10/16/13 09:23	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27715	10/16/13 12:10	CV1	TAL SAC
Total/NA	Prep	Air Train Prep			1 Sample	349.6688741 72185 mL	27320	10/11/13 10:05	CV1	TAL SAC
Total/NA	Analysis	29/6020		1	1 Sample	349.6688741 72185 mL	28474	10/24/13 11:45	SAH	TAL SAC

Client Sample ID: I29-2

Lab Sample ID: 320-4473-2

Date Collected: 09/30/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	AT Prep (Per)			30 mL	30 mL	27218	10/10/13 10:29	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27274	10/10/13 13:37	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	475 mL	27210	10/10/13 10:15	CV1	TAL SAC
Total/NA	Prep	AT Prep (BH)			3 mL	30 mL	27213	10/10/13 10:24	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	3 mL	30 mL	27274	10/10/13 14:01	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	107 mL	27211	10/10/13 10:18	CV1	TAL SAC
Total/NA	Prep	AT Prep (Empty)			3 mL	30 mL	27219	10/10/13 10:31	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	3 mL	30 mL	27274	10/10/13 14:39	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	150 mL	27208	10/10/13 10:13	CV1	TAL SAC
Total/NA	Prep	AT Hg Prep (FH)			30 mL	30 mL	27637	10/16/13 09:19	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27715	10/16/13 11:31	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1.0 Sample	500 mL	27212	10/10/13 10:20	CV1	TAL SAC
Total/NA	Prep	AT (HCl)			30 mL	30 mL	27639	10/16/13 09:23	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27715	10/16/13 12:11	CV1	TAL SAC
Total/NA	Prep	Air Train Prep			1 Sample	340 mL	27320	10/11/13 10:05	CV1	TAL SAC
Total/NA	Analysis	29/6020		1	1 Sample	340 mL	28474	10/24/13 11:41	SAH	TAL SAC

Lab Chronicle

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Client Sample ID: I29-3

Lab Sample ID: 320-4473-3

Date Collected: 10/01/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Pre Prep	Air Train Vol.			1.0 Sample	500 mL	27212	10/10/13 10:20	CV1	TAL SAC
Total/NA	Prep	AT Prep (Per)			30 mL	30 mL	27218	10/10/13 10:29	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27274	10/10/13 13:39	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	475 mL	27210	10/10/13 10:15	CV1	TAL SAC
Total/NA	Prep	AT Prep (BH)			3 mL	30 mL	27213	10/10/13 10:25	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	3 mL	30 mL	27274	10/10/13 14:10	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	107 mL	27211	10/10/13 10:18	CV1	TAL SAC
Total/NA	Prep	AT Prep (Empty)			3 mL	30 mL	27219	10/10/13 10:31	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	3 mL	30 mL	27274	10/10/13 14:42	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	150 mL	27208	10/10/13 10:13	CV1	TAL SAC
Total/NA	Prep	AT Hg Prep (FH)			30 mL	30 mL	27637	10/16/13 09:19	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27715	10/16/13 11:38	CV1	TAL SAC
Total/NA	Prep	AT (HCl)			30 mL	30 mL	27639	10/16/13 09:23	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27715	10/16/13 12:16	CV1	TAL SAC
Total/NA	Prep	Air Train Prep			1 Sample	340 mL	27320	10/11/13 10:05	CV1	TAL SAC
Total/NA	Analysis	29/6020		1	1 Sample	340 mL	28474	10/24/13 11:37	SAH	TAL SAC

Client Sample ID: I29-4

Lab Sample ID: 320-4473-4

Date Collected: 10/02/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	AT Prep (Per)			30 mL	30 mL	27218	10/10/13 10:29	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27274	10/10/13 13:41	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	475 mL	27210	10/10/13 10:15	CV1	TAL SAC
Total/NA	Prep	AT Prep (BH)			3 mL	30 mL	27213	10/10/13 10:25	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	3 mL	30 mL	27274	10/10/13 14:12	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	101 mL	27211	10/10/13 10:18	CV1	TAL SAC
Total/NA	Prep	AT Prep (Empty)			3 mL	30 mL	27219	10/10/13 10:31	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	3 mL	30 mL	27274	10/10/13 14:43	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	150 mL	27208	10/10/13 10:13	CV1	TAL SAC
Total/NA	Prep	AT Hg Prep (FH)			30 mL	30 mL	27637	10/16/13 09:19	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27715	10/16/13 11:39	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1.0 Sample	500 mL	27212	10/10/13 10:20	CV1	TAL SAC
Total/NA	Prep	AT (HCl)			30 mL	30 mL	27639	10/16/13 09:23	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27715	10/16/13 12:18	CV1	TAL SAC
Total/NA	Prep	Air Train Prep			1 Sample	340 mL	27320	10/11/13 10:05	CV1	TAL SAC
Total/NA	Analysis	29/6020		1	1 Sample	340 mL	28474	10/24/13 11:34	SAH	TAL SAC

Lab Chronicle

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Client Sample ID: BLANK — Lab Sample ID: 320-4473-5

Date Collected: 10/02/13 00:00 — **Matrix: Air**
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	AT Prep (Per)			30 mL	30 mL	27218	10/10/13 10:29	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27274	10/10/13 13:46	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	99 mL	27210	10/10/13 10:15	CV1	TAL SAC
Total/NA	Prep	AT Prep (BH)			3 mL	30 mL	27213	10/10/13 10:25	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	3 mL	30 mL	27274	10/10/13 14:14	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	33 mL	27211	10/10/13 10:18	CV1	TAL SAC
Total/NA	Prep	AT Prep (Empty)			3 mL	30 mL	27219	10/10/13 10:31	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	3 mL	30 mL	27274	10/10/13 14:45	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	150 mL	27208	10/10/13 10:13	CV1	TAL SAC
Total/NA	Prep	AT Hg Prep (FH)			30 mL	30 mL	27637	10/16/13 09:19	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27715	10/16/13 11:41	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1.0 Sample	500 mL	27212	10/10/13 10:20	CV1	TAL SAC
Total/NA	Prep	AT (HCl)			30 mL	30 mL	27639	10/16/13 09:23	CV1	TAL SAC
Total/NA	Analysis	29/7470A		1	30 mL	30 mL	27715	10/16/13 12:20	CV1	TAL SAC
Total/NA	Prep	Air Train Prep			1 Sample	375 mL	27320	10/11/13 10:05	CV1	TAL SAC
Total/NA	Analysis	29/6020		1	1 Sample	375 mL	28474	10/24/13 11:30	SAH	TAL SAC

Client Sample ID: I5-1 — Lab Sample ID: 320-4473-6

Date Collected: 09/29/13 00:00 — **Matrix: Air**
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Pre Prep	Air Train Vol.			1 Sample	410 mL	28698	10/18/13 10:30	LW1	TAL SAC
Total/NA	Analysis	0050/26A		100			28872	10/28/13 21:05	JCB	TAL SAC
Total/NA	Analysis	5		1			28259	10/16/13 18:07	SKV	TAL SAC
Total/NA	Analysis	5		1			28266	10/21/13 11:37	SKV	TAL SAC

Client Sample ID: I5-2 — Lab Sample ID: 320-4473-7

Date Collected: 09/30/13 00:00 — **Matrix: Air**
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Pre Prep	Air Train Vol.			1 Sample	430 mL	28698	10/18/13 10:30	LW1	TAL SAC
Total/NA	Analysis	0050/26A		50			28872	10/28/13 22:47	JCB	TAL SAC
Total/NA	Analysis	5		1			28259	10/16/13 09:42	SKV	TAL SAC
Total/NA	Analysis	5		1			28266	10/21/13 11:37	SKV	TAL SAC

Client Sample ID: I5-3 — Lab Sample ID: 320-4473-8

Date Collected: 10/01/13 00:00 — **Matrix: Air**
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Pre Prep	Air Train Vol.			1 Sample	420 mL	28698	10/18/13 10:30	LW1	TAL SAC

Lab Chronicle

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Client Sample ID: I5-3

Lab Sample ID: 320-4473-8
Date Collected: 10/01/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	0050/26A		50			28872	10/28/13 23:16	JCB	TAL SAC
Total/NA	Analysis	5		1			28259	10/16/13 09:43	SKV	TAL SAC
Total/NA	Analysis	5		1			28266	10/23/13 10:23	SKV	TAL SAC

Client Sample ID: I5-4

Lab Sample ID: 320-4473-9
Date Collected: 10/02/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Pre Prep	Air Train Vol.			1 Sample	400 mL	28698	10/18/13 10:30	LW1	TAL SAC
Total/NA	Analysis	0050/26A		200			28872	10/28/13 23:45	JCB	TAL SAC
Total/NA	Analysis	5		1			28259	10/16/13 18:08	SKV	TAL SAC
Total/NA	Analysis	5		1			28266	10/21/13 11:39	SKV	TAL SAC

Client Sample ID: I5-BLANK

Lab Sample ID: 320-4473-10
Date Collected: 10/02/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Pre Prep	Air Train Vol.			1 Sample	210 mL	28698	10/18/13 10:30	LW1	TAL SAC
Total/NA	Analysis	0050/26A		4			28872	10/29/13 02:24	JCB	TAL SAC
Total/NA	Analysis	5		1			28259	10/16/13 18:09	SKV	TAL SAC
Total/NA	Analysis	5		1			28266	10/21/13 11:39	SKV	TAL SAC

Client Sample ID: PEA1941

Lab Sample ID: 320-4473-11
Date Collected: 10/01/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Pre Prep	Air Train Vol.			1 Sample	1000 mL	28698	10/18/13 10:30	LW1	TAL SAC
Total/NA	Analysis	0050/26A		5			28872	10/29/13 00:14	JCB	TAL SAC

Client Sample ID: PEA1945

Lab Sample ID: 320-4473-12
Date Collected: 10/01/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Air Tain Prep			1 Sample	150 mL	27602	10/15/13 15:52	CV1	TAL SAC
Total/NA	Analysis	29/6020		1	1 Sample	150 mL	27898	10/17/13 19:32	AMC	TAL SAC

Lab Chronicle

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Client Sample ID: PEA1947

Lab Sample ID: 320-4473-13

Date Collected: 10/01/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Pre Prep	Air Train Vol.			1 Sample	150 mL	27208	10/14/13 16:18	CV1	TAL SAC
Total/NA	Prep	AT Hg Prep (FH)			30 mL	30 mL	27637	10/16/13 09:45	CV1	TAL SAC
Total/NA	Analysis	29/7470A		8	30 mL	30 mL	27715	10/16/13 11:21	CV1	TAL SAC

Client Sample ID: PEA1948

Lab Sample ID: 320-4473-14

Date Collected: 10/01/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Air Train Prep			1 L	150 mL	27318	10/11/13 10:02	CV1	TAL SAC
Total/NA	Analysis	29/6020		1	1 L	150 mL	27898	10/17/13 18:44	AMC	TAL SAC

Client Sample ID: PEA1950

Lab Sample ID: 320-4473-15

Date Collected: 10/01/13 00:00
Matrix: Air
Date Received: 10/07/13 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	AT Prep (BH)			3 mL	30 mL	27213	10/10/13 10:25	CV1	TAL SAC
Total/NA	Pre Prep	Air Train Vol.			1 Sample	1000 mL	27210	10/10/13 13:18	CV1	TAL SAC
Total/NA	Analysis	29/7470A		3	3 mL	30 mL	27274	10/10/13 14:18	CV1	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	A2LA		NE-OS-22-13	01-31-14
A2LA	DoD ELAP		2928-01	01-31-14
Alaska (UST)	State Program	10	UST-055	12-18-13
Arizona	State Program	9	AZ0708	08-11-14
Arkansas DEQ	State Program	6	88-0691	06-17-14
California	NELAP	9	1119CA	01-31-14
Connecticut	State Program	1	PH-0691	06-30-15
Florida	NELAP	4	E87570	06-30-14
Guam	State Program	9	N/A	08-31-14
Hawaii	State Program	9	N/A	01-31-14
Illinois	NELAP	5	200060	03-17-14
Kansas	NELAP	7	E-10375	10-31-14
Louisiana	NELAP	6	30612	06-30-14
Michigan	State Program	5	9947	01-31-14
Nebraska	State Program	7	NE-OS-22-13	01-31-14
Nevada	State Program	9	CA44	07-31-14
New Jersey	NELAP	2	CA005	06-30-14
New York	NELAP	2	11666	04-01-14
Northern Mariana Islands	State Program	9	MP0007	02-01-14
Oregon	NELAP	10	CA200005	03-28-14
Pennsylvania	NELAP	3	68-01272	03-31-14
South Carolina	State Program	4	87014	06-30-14
Texas	NELAP	6	T104704399-08-TX	05-31-14
US Fish & Wildlife	Federal		LE148388-0	12-31-13
USDA	Federal		P330-11-00436	12-30-14
USEPA UCMR	Federal	1	CA00044	11-06-14
Utah	NELAP	8	QUAN1	01-31-14
Washington	State Program	10	C581	05-05-14
West Virginia	State Program	3	9930C	12-31-13
Wyoming	State Program	8	8TMS-Q	01-31-14

Method Summary

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Method	Method Description	Protocol	Laboratory
0050/26A	HCl	EPA	TAL SAC
0050/26A	Hydrogen Halide and Halogen Emissions/Stationary Sources (Mod)	EPA	TAL SAC
29/6020	Metals (ICPMS), Stationary Source	EPA	TAL SAC
29/6020	Metals ICPMS (Back Half)	EPA	TAL SAC
29/6020	Metals ICPMS (Front Half)	EPA	TAL SAC
29/7470A	Mercury - KMNO4	EPA	TAL SAC
29/7470A	Mercury - Nitric/Peroxide	EPA	TAL SAC
29/7470A	Mercury - Empty	EPA	TAL SAC
29/7470A	Mercury - Front Half	EPA	TAL SAC
29/7470A	Mercury - HCl	EPA	TAL SAC
5	Particulate - Filter	EPA	TAL SAC
5	Particulate - Acetone	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: AECOM, Inc.
Project/Site: SMMI 60284905-2100

TestAmerica Job ID: 320-4473-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-4473-1	I29-1	Air	09/29/13 00:00	10/07/13 09:00
320-4473-2	I29-2	Air	09/30/13 00:00	10/07/13 09:00
320-4473-3	I29-3	Air	10/01/13 00:00	10/07/13 09:00
320-4473-4	I29-4	Air	10/02/13 00:00	10/07/13 09:00
320-4473-5	BLANK	Air	10/02/13 00:00	10/07/13 09:00
320-4473-6	I5-1	Air	09/29/13 00:00	10/07/13 09:00
320-4473-7	I5-2	Air	09/30/13 00:00	10/07/13 09:00
320-4473-8	I5-3	Air	10/01/13 00:00	10/07/13 09:00
320-4473-9	I5-4	Air	10/02/13 00:00	10/07/13 09:00
320-4473-10	I5-BLANK	Air	10/02/13 00:00	10/07/13 09:00
320-4473-11	PEA1941	Air	10/01/13 00:00	10/07/13 09:00
320-4473-12	PEA1945	Air	10/01/13 00:00	10/07/13 09:00
320-4473-13	PEA1947	Air	10/01/13 00:00	10/07/13 09:00
320-4473-14	PEA1948	Air	10/01/13 00:00	10/07/13 09:00
320-4473-15	PEA1950	Air	10/01/13 00:00	10/07/13 09:00

Chain of Custody Record No. 60284905-2100

AECOM Environment
1601 Prospect Parkway, Fort Collins, CO 80525
970) 493-8878 Phone * (970) 493-0213 Fax
www.aecom.com

AECOM

Project Name:	SMMI	Project Number:	60284905-2100
Send Report To:	John Rosburg	Sampler (Print Name):	John Rosburg
Address:	20325 Moss Bend Ct	Sampler (Print Name):	Doug Bopray
	Lutz, FL 33558	Shipment Method:	FED EX
		Airbill Number	
Phone:	(970) 219-4904	Laboratory Receiving:	TestAmerica
Fax:	(813) 948-7333		

Page 1 of 4

Purchase Order No. 49212

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Mercury	Cadmium	Lead									Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
I29-1, Container 1	09/29/13		Filter	1	X	X	X										
I29-1, Container 3	09/29/13		0.1 N HNO_3	1	X	X	X										
I29-1, Container 4	09/29/13		H_2O_2/HNO_3	2	X	X	X										
I29-1, Container 5	09/29/13		0.1 N HNO_3	1	X	X	X										
I29-1, Container 6	09/29/13		Acidified $KMnO_4$	1	X												
I29-2, Container 1	09/30/13		Filter	1	X	X	X										
I29-2, Container 3	09/30/13		0.1 N HNO_3	1	X	X	X										
I29-2, Container 4	09/30/13		H_2O_2/HNO_3	2	X	X	X										
I29-2, Container 5	09/30/13		0.1 N HNO_3	1	X	X	X										
I29-2, Container 6	09/30/13		Acidified $KMnO_4$	1	X												
I29-3, Container 1	10/1/2013		Filter	1	X	X	X										
I29-3, Container 3	10/1/2013		0.1 N HNO_3	1	X	X	X										
I29-3, Container 4	10/1/2013		H_2O_2/HNO_3	2	X	X	X										
I29-3, Container 5	10/1/2013		0.1 N HNO_3	1	X	X	X										
I29-3, Container 6	10/1/2013		Acidified $KMnO_4$	1	X												

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Doug Bopray 10/4/2013 9:00	[signature]	10/7/13	900
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level		Turnaround		Sample Receipt	
Level I	☐	Routine	☐	Total # Containers Received?	
Level II	☐	24 Hour	☐	COC Seals Present?	
Level III	☐	1 Week	☐	COC Seals Intact?	
Other	☐	Other		Received Containers Intact?	
				Temperature?	

White: Lab Copy Yellow: PM Copy Pink: Field Copy Gold: PM/QA/QC Copy

Chain of Custody Record No. 60284905-2100

AECOM Environment
1601 Prospect Parkway, Fort Collins, CO 80525
970) 493-8878 Phone * (970) 493-0213 Fax
www.aecom.com

AECOM

Project Name:	SMMI	Project Number:	60284905-2100
Send Report To:	John Rosburg	Sampler (Print Name):	John Rosburg
Address:	20325 Moss Bend Ct	Sampler (Print Name):	Doug Bopray
	Lutz, FL 33558	Shipment Method:	FED EX
		Airbill Number	
Phone:	(970) 219-4904	Laboratory Receiving:	TestAmerica
Fax:	(813) 948-7333		

Page 2 of 4

Purchase Order No. 49212

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Mercury	Cadmium	Lead		Hydrochloric Acid							Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
I29-4, Container 1	10/02/13		Filter	1	X	X	X										
I29-4, Container 3	10/02/13		0.1 N HNO_3	1	X	X	X										
I29-4, Container 4	10/02/13		H_2O_2/HNO_3	2	X	X	X										
I29-4, Container 5	10/02/13		0.1 N HNO_3	1	X	X	X										
I29-4, Container 6	10/02/13		Acidified $KMnO_4$	1	X												
Blank, Container 8A	10/02/13		0.1 N HNO3	1	X	X	X										
Blank, Container 9	10/02/13		H_2O_2/HNO_3	1	X	X	X										
Blank, Container 10	10/02/13		Acidic $KMnO_4$	1	X	X	X										
Blank, Container 12	10/02/13		Filter	1	X	X	X									P-9, P-10, P-11	
PEA1947	10/02/13		Filter	1	X											Audit Sample	
PEA1950	10/02/13		Impinger Solution	1	X											Audit Sample	
PEA1945	10/02/13		Filter	1		X	X									Audit Sample	
PEA1948	10/02/13		Impinger Solution	1		X	X									Audit Sample	
PEA1941	10/02/13		Impinger Solution	1					X							Audit Sample	

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Doug Bopray 10/4/2013 9:00	[signature]	10/7/13	900
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level		Turnaround		Sample Receipt	
Level I	☐	Routine	☐	Total # Containers Received?	
Level II	☐	24 Hour	☐	COC Seals Present?	
Level III	☐	1 Week	☐	COC Seals Intact?	
Other	☐	Other		Received Containers Intact?	
				Temperature?	

White: Lab Copy Yellow: PM Copy Pink: Field Copy Gold: PM/QA/QC Copy

Chain of Custody Record

No. 60284905-2100

AECOM Environment
1601 Prospect Parkway, Fort Collilns, CO 80525
970) 493-8878 Phone * (970) 493-0213 Fax
www.aecom.com

AECOM

Project Name:	SMMI	Project Number:	60284905-2100
Send Report To:	John Rosburg	Sampler (Print Name):	John Rosburg
Address:	20325 Moss Bend Ct	Sampler (Print Name):	Doug Bopray
	Lutz, FL 33558	Shipment Method:	FED EX
		Airbill Number	
Phone:	(970) 219-4904	Laboratory Receiving:	TestAmerica
Fax:	(813) 948-7333		

Page 3 of 4

Purchase Order No. 49212

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Particulate	Hydrochloric Acid	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
I5-1, Container 1	09/29/13		Filter	1	X			
I5-1, Container 2	09/29/13		Acetone	1	X			
I5-1, Container 3	09/29/13		0.1 N H_2SO_4	2		X		
I5-2, Container 1	09/30/13		Filter	1	X			
I5-2, Container 2	09/30/13		Acetone	1	X			
I5-2, Container 3	09/30/13		0.1 N H_2SO_4	2		X		
I5-3, Container 1	10/01/13		Filter	1	X			
I5-3, Container 2	10/01/13		Acetone	1	X			
I5-3, Container 3	10/01/13		0.1 N H_2SO_4	2		X		
I5-4, Container 1	10/02/13		Filter	1	X			
I5-4, Container 2	10/02/13		Acetone	1	X			
I5-4, Container 3	10/02/13		0.1 N H_2SO_4	2		X		
I5-Blank, Container 1	10/02/13		Filter	1	X			
I5-Blank, Container 2	10/02/13		Acetone	1	X			
I5-Blank, Container 3	10/02/13		0.1 N H_2SO_4	1		X		

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Doug Bopray 10/4/2013 9:00	[signature]	10/7/13	900
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level		Turnaround		Sample Receipt	
Level I	☐	Routine	☐	Total # Containers Received?	
Level II	☐	24 Hour	☐	COC Seals Present?	
Level III	☐	1 Week	☐	COC Seals Intact?	
Other	☐	Other		Received Containers Intact?	
				Temperature?	

White: Lab Copy Yellow: PM Copy Pink: Field Copy Gold: PM/QA/QC Copy

Chain of Custody Record No. 60284905-2100

AECOM Environment
1601 Prospect Parkway, Fort Collins, CO 80525
970) 493-8878 Phone * (970) 493-0213 Fax
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AECOM

Project Name:	SMMI	Project Number:	60284905-2100
Send Report To:	John Rosburg	Sampler (Print Name):	John Rosburg
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Fax:	(813) 948-7333		

Page 4 of 4

Purchase Order No. 49212

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Particulate	Lead (Pb)	Mercury	Full Metals List (Pg 4)								Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
					Analysis Required												

Please provide combined front and back half Method 29 Results.

Cadmium (Cd), Lead (Pb) and Mercury Analysis for samples I29-1, I29-2, I29-3, I29-4. Please combine front half and back half.

Filters: Please weigh filters (2 consecutive weighings within 0.5 mg of each other) for Method 5 particulate analysis.
Filters: Please weigh filters with out petri dishes.
Filters: Tare weights and associated run numbers will be provided on separate weigh sheets.
Filters: The ID of each filter is listed with a sharpie Marker on each petri dish and can be correlated to the tare weight sheet to be provided.

Acetone Fractions: Please provide particulate mass gain per Method 5.

Please provide digital results to John Rosburg at john.rosburg@aecom.com
If you have any questions or concerns regarding the samples or instructions please call John Rosburg at (970) 219-4904 or (970) 420-0602.

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Doug Bopray 10/4/2013 9:00	[signature]	10/7/13	900
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level		Turnaround		Sample Receipt	
Level I	☐	Routine	☑	Total # Containers Received?	
Level II	☐	24 Hour	☐	COC Seals Present?	
Level III	☐	1 Week	☐	COC Seals Intact?	
Other	☐	Other		Received Containers Intact?	
				Temperature?	

White: Lab Copy Yellow: PM Copy Pink: Field Copy Gold: PM/QA/QC Copy

AECOM

PURCHASE ORDER

PURCHASE ORDER NUMBER	REVISION	PAGE
49212ACM	0	1 of 1

This Purchase Order Number must appear on all order acknowledgements, invoices, packing lists, cartons and correspondence.

SUPPLIER NO: 9465

SUPPLIER: TESTAMERICA LABORATORIES INC
P.O. BOX 204290
DALLAS,TX 75320.
United States

BILL TO: 1601 Prospect Pkwy
Fort Collins,CO 80525
United States

DATE OF ORDER	BUYER	REQUESTOR
18-SEP-13	Botterill, Jennifer L	Bopray, Douglas A (Doug)

PAYMENT TERMS	SHIP VIA	F.O.B	FREIGHT TERMS
NET 30 DAYS		DESTINATION	

LINE NUM	ITEM NUMBER/DESCRIPTION	NEED BY DATE	QUANTITY	UOM	UNIT PRICE	EXTENDED PRICE	TAX
	All prices and amounts on this order are in: US dollar This Purchase Order is Subject to the Terms and Conditions of the Continuing Services Agreement on file with AECOM, Inc. for Testamerica Laboratories, Inc. Return Signed Purchase Order To: Doug.Bopray@aecom.com Remit Invoice To: Doug Bopray (Bill To: Address) or Doug.Bopray@aecom.com						
1	Samples 6 Samples Metals by ICPMS/CVAA (Cd, Pb, Hg) @ $400 = $2,400 4 Samples Particulate Matter Filter @ $45 = $180 4 Samples Particulate Matter Acetone @ $45 = $180 5 Samples Method 26A Hydrochloric Acid @ $60 = $300 TestAmerica of West Sacramento will perform analysis of air quality samples upon receipt, following the methods in the description column. Expenditure Type SUBC-Subconsultant Fees Project 60284905 Task 1600			AMT		3,060.00	N

THIS PURCHASE ORDER IS SUBJECT TO THE ATTACHED TERMS AND CONDITIONS

BUYER SIGNATURE 9/18/13 Date

SUPPLIER SIGNATURE 9/18/13 Date

SUB TOTAL $	3,060.00
TAX $	0.00
TOTAL $	3,060.00

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 320-4473-1

Login Number: 4473
List Number: 1
Creator: Hytrek, Cheryl

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

14 October 2013

John Rosburg
AECOM
20325 Moss Benedict
Lutz, FL 33558

Ph.: 970.219.4904
Email: john.rosburg@aecom.com

Subject: Certificate of Results

Dear John;

Attached to this narrative are the analytical results you requested on samples submitted for the determination of polychlorinated dibenzo-*p*-dioxins and dibenzofurans. The insert below summarizes the relevant information pertaining to your project. In particular, QC annotations bring to your attention specific analytical observations and assessments made during the sample handling and data interpretation phases. Results reported relate only to the items tested.

Project Information Summary	When applicable, see QC Annotations for details
Client Project No.	60284905-2100
SGS-AP Project #	**A6007**
Analytical Protocol	Method 23
No. Samples Submitted	5
No. Samples Analyzed	5
No. Laboratory Method Blanks	1
No. OPRs / Batch CS3	1
No. Outstanding Samples	0
Date Received	7-Oct-2013
Condition Received	good
Temperature upon Receipt (C)	23 (Traps & Filters), 9 (Solvents)
Extraction within Holding Time	yes
Analysis within Holding Time	yes
Data meet QA/QC Requirements	See Below
Exceptions	See Below
Analytical Difficulties	See Below

ANALYTICAL PERSPECTIVES IS NOW PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.

QC Annotations:

1. See Appendix A & B for data qualifier, data attribute, and lab identifier information.

Analytical Perspectives Certification IDs

SOUTH CAROLINA	99054
ARKANSAS	88-0628
NEW JERSEY-NELAP SECONDARY	NC005
FLORIDA-NELAP PRIMARY	E87608
LOUISIANA	4024
NORTH CAROLINA	37783
WASHINGTON	C2027
NEW YORK	11988
VIRGINIA	460180
MINNESOTA	037-999-448
OREGON	pending
TEXAS	T104704484-10-1
PENNSYLVANIA-NELAP SECONDARY	68-01849

SGS-Analytical Perspectives remains committed to serving you in the most effective manner. Should you have any questions or need additional information and technical support, please do not hesitate to contact us.

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Sincerely,

Heather Distel

Heather Distel, Ph.D.
Senior Project Scientist/Team Lead

APPENDIX A: DATA QUALIFIERS / DATA ATTRIBUTES	
*	The reported concentration exceeds the calibration range (upper point of the calibration curve).[1]
>	Indicates high recoveries. Shown with the numeric value at the top of the range.[1]
B	The analyte is found in the method blank, at a level that is <=10x the sample concentration.
C	Two or more congeners co-elute. In EDDs C denotes the lowest IUPAC congener in a co-elution group and additional co-eluters for the group are shown with the number of the lowest IUPAC co-eluter.
E	The reported concentration exceeds the calibration range (upper point of the calibration curve).
EMPC	Represents an Estimated Maximum Possible Concentration. EMPC's arise in cases where the signal/noise ratio is not sufficient for peak identification (the determined ion-abundance ratio is outside the allowed theoretical range), where there is a co-eluting interference, or where a single ion is utilized for quantitation due to PFK interference.
ETH	Indicates the presence of a diphenyl ether that appears to interfere with the quantitation of a furan. The reported concentration is the maximum.
H/h	If the standard recovery is below the method or SOP specified value "H" is assigned. If the obtained value is less than half the specified value "h" is assigned.[1]
J	Indicates that an analyte has a concentration below the reporting limit (lowest point of the calibration curve).
ND	Indicates a non-detect.
NR	Indicates a value that is not reportable.
PR	Due to interference, the associated congener is poorly resolved.
QI	Indicates the presence of a quantitative interference.
Ra	The new ratio – [Ra] -- for 2,3,7,8-TCDD following the $^{37}Cl_4$-2,3,7,8-TCDD correction is shown between squared brackets in the DL column.[1]
SI	Denotes "Single Ion Mode" and is utilized for PCBs where the secondary ion trace has a significantly elevated noise level due to background PFK. Responses for such peaks are calculated using an EMPC approach based solely on the primary ion area(s) and may be considered estimates.[1]
U	The analyte was not detected. The estimated detection limit (EDL) may be reported for this analyte.
V	The labeled standard recovery was found to be outside of the method control limits.
X	Indicates results reported from reinjection, refractionation, or repeat analyses.
APPENDIX B: LAB ID IDENTIFIERS	
AR	Indicates use of the archived portion of the sample extract.
CU	Indicates a sample that required additional clean-up prior to MS injection/processing.
D	Indicates a dilution of the sample extract. The number that follows the "D" indicates the dilution factor.
DE	Indicates a dilution performed with the addition of ES (extraction standard) solution.
DUP	Designation for a duplicate sample.
MS	Designation for a matrix spike.
MSD	Designation for a matrix spike duplicate.
RJ	Indicates a reinjection of the sample extract.
S	Indicates a sample split. The number that follows the "S" indicates the split factor.

[1]Denotes data qualifiers/attributes whose use will be phased out over time

A6007 - TEQ

Project ID: 6028 4905-2100

Sample Summary Part 1 SGS ANALYTICAL PERSPECTIVES **Method 23**

Analyte	Method Blank A6007	I5-Blank	I5-1	I5-2	I5-3	I5-4
	pg	pg	pg	pg	pg	pg
2,3,7,8-TCDD	(1.54)	(1.68)	[2.34]	12.2	[6.58]	[6.42]
1,2,3,7,8-PeCDD	(2.17)	(1.7)	[6.45]	86.3	[25.8]	[21.5]
1,2,3,4,7,8-HxCDD	(2.18)	(1.76)	13	148	29.9	25.9
1,2,3,6,7,8-HxCDD	(2.16)	(1.93)	33.9	209	69.1	40.9
1,2,3,7,8,9-HxCDD	(2.32)	(1.94)	18.9	166	44.6	30.4
1,2,3,4,6,7,8-HpCDD	[4.13]	16	316	1670	750	395
OCDD	22.2	30.1	546	2600	1640	989
2,3,7,8-TCDF	(0.927)	(0.9)	21.5	107	39.4	40.2
1,2,3,7,8-PeCDF	(0.996)	(1.05)	18	166	72.6	61.6
2,3,4,7,8-PeCDF	(0.917)	(0.978)	50	450	151	125
1,2,3,4,7,8-HxCDF	(1.29)	(1.41)	33.4	327	146	113
1,2,3,6,7,8-HxCDF	(1.25)	(1.31)	29.2	368	182	123
2,3,4,6,7,8-HxCDF	(1.24)	(1.38)	54.3	830	372	235
1,2,3,7,8,9-HxCDF	(1.5)	(1.72)	(1.71)	(4.95)	(4.76)	(4.22)
1,2,3,4,6,7,8-HpCDF	(1.73)	(1.34)	143	1630	871	574
1,2,3,4,7,8,9-HpCDF	(2.1)	(1.61)	27.6	173	199	102
OCDF	(3.06)	(2.29)	142	546	961	462
ITEF TEQ (ND=0; EMPC=0)	**0.0222**	**0.191**	**51.9**	**542**	**188**	**139**
ITEF TEQ (ND=0; EMPC=EMPC)	**0.0634**	**0.191**	**57.5**	**542**	**208**	**156**
ITEF TEQ (ND=DL/2; EMPC=0)	**2.26**	**2.36**	**53.0**	**542**	**190**	**141**
ITEF TEQ (ND=DL/2; EMPC=EMPC)	**2.29**	**2.36**	**57.5**	**542**	**208**	**156**
ITEF TEQ (ND=DL; EMPC=EMPC)	**4.52**	**4.53**	**57.6**	**543**	**208**	**156**
Checkcode	480-593-ZVM	527-902-CWR	520-615-RKC	996-461-RVQ	800-863-YNS	633-277-HWN
Lab ID	MB1_11406_DF_SDS	A6007_11406_DF_001	A6007_11406_DF_002	A6007_11406_DF_003	A6007_11406_DF_004	A6007_11406_DF_005

( ) = DL
[ ] = EMPC

A6007 - WHO-2005-TEQ

Project ID: 6028 4905-2100

Sample Summary Part 1 SGS ANALYTICAL PERSPECTIVES **Method 23**

Analyte	Method Blank A6007	I5-Blank	I5-1	I5-2	I5-3	I5-4
	pg	pg	pg	pg	pg	pg
2,3,7,8-TCDD	(1.54)	(1.68)	[2.34]	12.2	[6.58]	[6.42]
1,2,3,7,8-PeCDD	(2.17)	(1.7)	[6.45]	86.3	[25.8]	[21.5]
1,2,3,4,7,8-HxCDD	(2.18)	(1.76)	13	148	29.9	25.9
1,2,3,6,7,8-HxCDD	(2.16)	(1.93)	33.9	209	69.1	40.9
1,2,3,7,8,9-HxCDD	(2.32)	(1.94)	18.9	166	44.6	30.4
1,2,3,4,6,7,8-HpCDD	[4.13]	16	316	1670	750	395
OCDD	22.2	30.1	546	2600	1640	989
2,3,7,8-TCDF	(0.927)	(0.9)	21.5	107	39.4	40.2
1,2,3,7,8-PeCDF	(0.996)	(1.05)	18	166	72.6	61.6
2,3,4,7,8-PeCDF	(0.917)	(0.978)	50	450	151	125
1,2,3,4,7,8-HxCDF	(1.29)	(1.41)	33.4	327	146	113
1,2,3,6,7,8-HxCDF	(1.25)	(1.31)	29.2	368	182	123
2,3,4,6,7,8-HxCDF	(1.24)	(1.38)	54.3	830	372	235
1,2,3,7,8,9-HxCDF	(1.5)	(1.72)	(1.71)	(4.95)	(4.76)	(4.22)
1,2,3,4,6,7,8-HpCDF	(1.73)	(1.34)	143	1630	871	574
1,2,3,4,7,8,9-HpCDF	(2.1)	(1.61)	27.6	173	199	102
OCDF	(3.06)	(2.29)	142	546	961	462
WHO-2005 TEQ (ND=0; EMPC=0)	**0.00666**	**0.169**	**41.0**	**490**	**155**	**111**
WHO-2005 TEQ (ND=0; EMPC=EMPC)	**0.0479**	**0.169**	**49.8**	**490**	**187**	**139**
WHO-2005 TEQ (ND=DL/2; EMPC=0)	**2.69**	**2.66**	**42.6**	**490**	**157**	**114**
WHO-2005 TEQ (ND=DL/2; EMPC=EMPC)	**2.71**	**2.66**	**49.9**	**490**	**187**	**140**
WHO-2005 TEQ (ND=DL; EMPC=EMPC)	**5.38**	**5.14**	**50.0**	**490**	**188**	**140**
Checkcode	480-593-ZVM	527-902-CWR	520-615-RKC	996-461-RVQ	800-863-YNS	633-277-HWN
Lab ID	MB1_11406_DF_SDS	A6007_11406_DF_001	A6007_11406_DF_002	A6007_11406_DF_003	A6007_11406_DF_004	A6007_11406_DF_005

( ) = DL
[ ] = EMPC

A6007 - Totals

Project ID: 6028 4905-2100

Sample Summary Part 2 SGS ANALYTICAL PERSPECTIVES **Method 23**

Analyte	Method Blank A6007	I5-Blank	I5-1	I5-2	I5-3	I5-4
	pg	pg	pg	pg	pg	pg
Totals						
TCDDs	2.44	0	99.8	509	144	133
PeCDDs	0	0	210	1520	301	245
HxCDDs	0	0	510	3490	854	516
HpCDDs	0	16	653	3800	1440	845
OCDD	22.2	30.1	546	2600	1640	989
TCDFs	0	0	732	4090	1040	1070
PeCDFs	0	0	419	4740	1500	1290
HxCDFs	0	0	303	4230	1940	1410
HpCDFs	0	0	257	2420	1760	1040
OCDF	0	0	142	546	961	462
Total PCDD/Fs (ND=0; EMPC=0)	**24.6**	**46.1**	**3,870**	**28,000**	**11,600**	**8,010**
Total PCDD/Fs (ND=0; EMPC=EMPC)	**34.1**	**63.0**	**3,890**	**28,000**	**11,700**	**8,060**
Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)	**59.5**	**86.0**	**3,890**	**28,000**	**11,700**	**8,070**
Total 2378s (ND=0; EMPC=0)	**22.2**	**46.1**	**1,450**	**9,490**	**5,530**	**3,320**
Total 2378s (ND=0.5; EMPC=0)	**36.1**	**57.6**	**1,450**	**9,490**	**5,530**	**3,320**
Total 2378s (ND=1; EMPC=0)	**50.0**	**69.1**	**1,450**	**9,490**	**5,540**	**3,330**
Total 2378s (ND=0; EMPC=1)	**26.3**	**46.1**	**1,450**	**9,490**	**5,560**	**3,350**
Total 2378s (ND=0.5; EMPC=1)	**39.0**	**57.6**	**1,460**	**9,490**	**5,570**	**3,350**
Total 2378s (ND=1; EMPC=1)	**51.7**	**69.1**	**1,460**	**9,490**	**5,570**	**3,350**
Checkcode	480-593-ZVM	527-902-CWR	520-615-RKC	996-461-RVQ	800-863-YNS	633-277-HWN
Lab ID	MB1_11406_DF_SDS	A6007_11406_DF_001	A6007_11406_DF_002	A6007_11406_DF_003	A6007_11406_DF_004	A6007_11406_DF_005

( ) = DL
[ ] = EMPC

A6007 - Others

Project ID: 6028 4905-2100

Sample Summary Part 3 SGS Analytical Perspectives **Method 23**

Analyte	Method Blank A6007	I5-Blank	I5-1	I5-2	I5-3	I5-4
	pg	pg	pg	pg	pg	pg
Other PCDD/Fs (ND=0, EMPC=0)						
Other TCDD	2.44	0	99.8	497	144	133
Other PeCDD	0	0	210	1440	301	245
Other HxCDD	0	0	444	2970	711	419
Other HpCDD	0	0	337	2120	690	450
Other TCDF	0	0	710	3990	1000	1030
Other PeCDF	0	0	351	4130	1280	1110
Other HxCDF	0	0	186	2710	1240	937
Other HpCDF	0	0	87.2	624	687	366
Other PCDD/Fs (ND=0, EMPC=EMPC)						
Other TCDD	2.44	1.81	107	516	157	155
Other PeCDD	0	0	214	1440	330	245
Other HxCDD	0	3.7	444	2970	711	419
Other HpCDD	5.39	11.3	337	2120	690	450
Other TCDF	0	0	710	3990	1010	1040
Other PeCDF	0	0	351	4130	1280	1110
Other HxCDF	0	0	186	2710	1240	937
Other HpCDF	0	0	87.2	624	687	366
Checkcode	480-593-ZVM	527-902-CWR	520-615-RKC	996-461-RVQ	800-863-YNS	633-277-HWN
Lab ID	MB1_11406_DF_SDS	A6007_11406_DF_001	A6007_11406_DF_002	A6007_11406_DF_003	A6007_11406_DF_004	A6007_11406_DF_005

( ) = DL
[ ] = EMPC

A6007 - DLs

Project ID: 6028 4905-2100

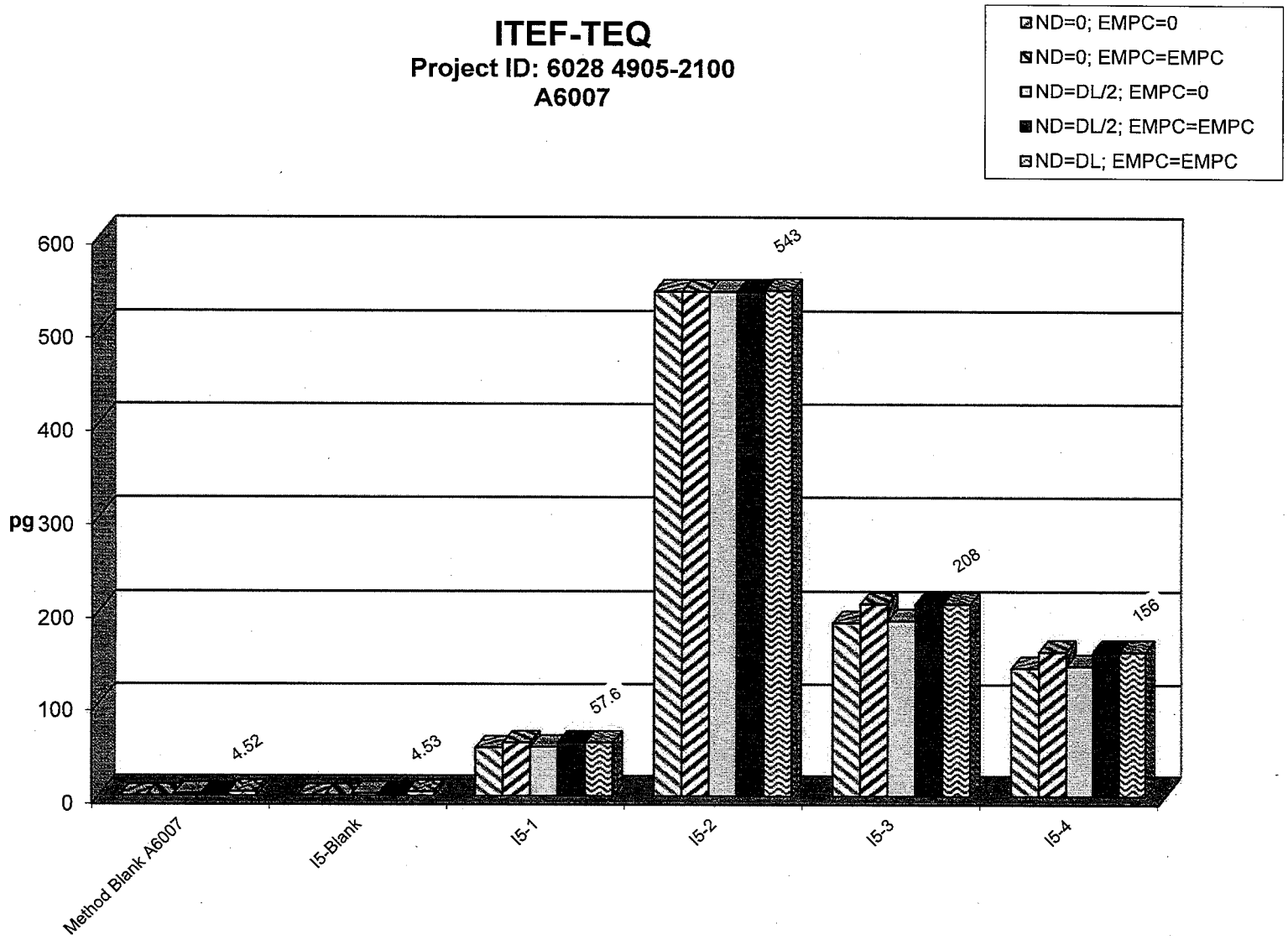
Sample Summary
Part 5 (DLs)

SGS ANALYTICAL PERSPECTIVES

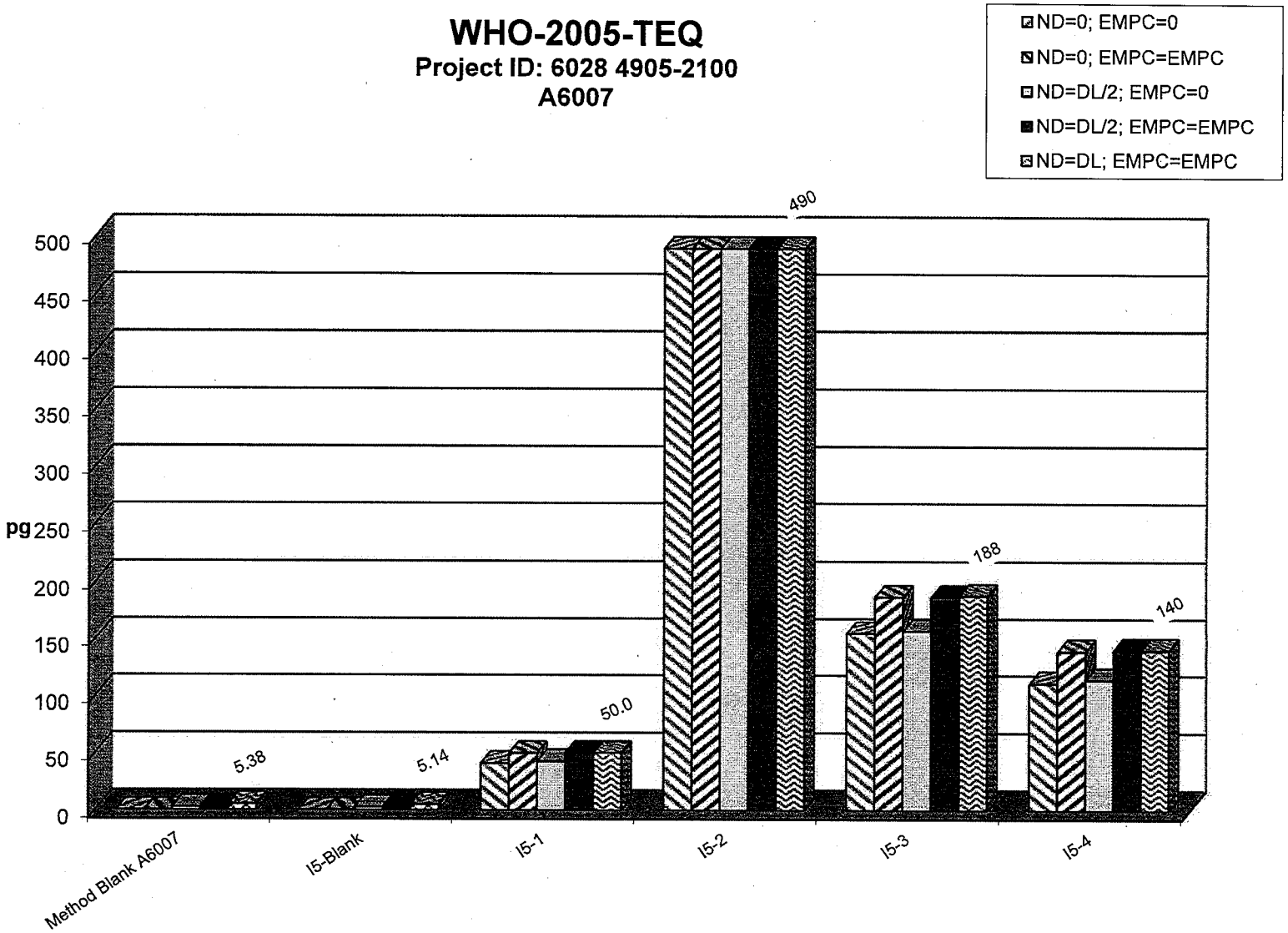
Method 23

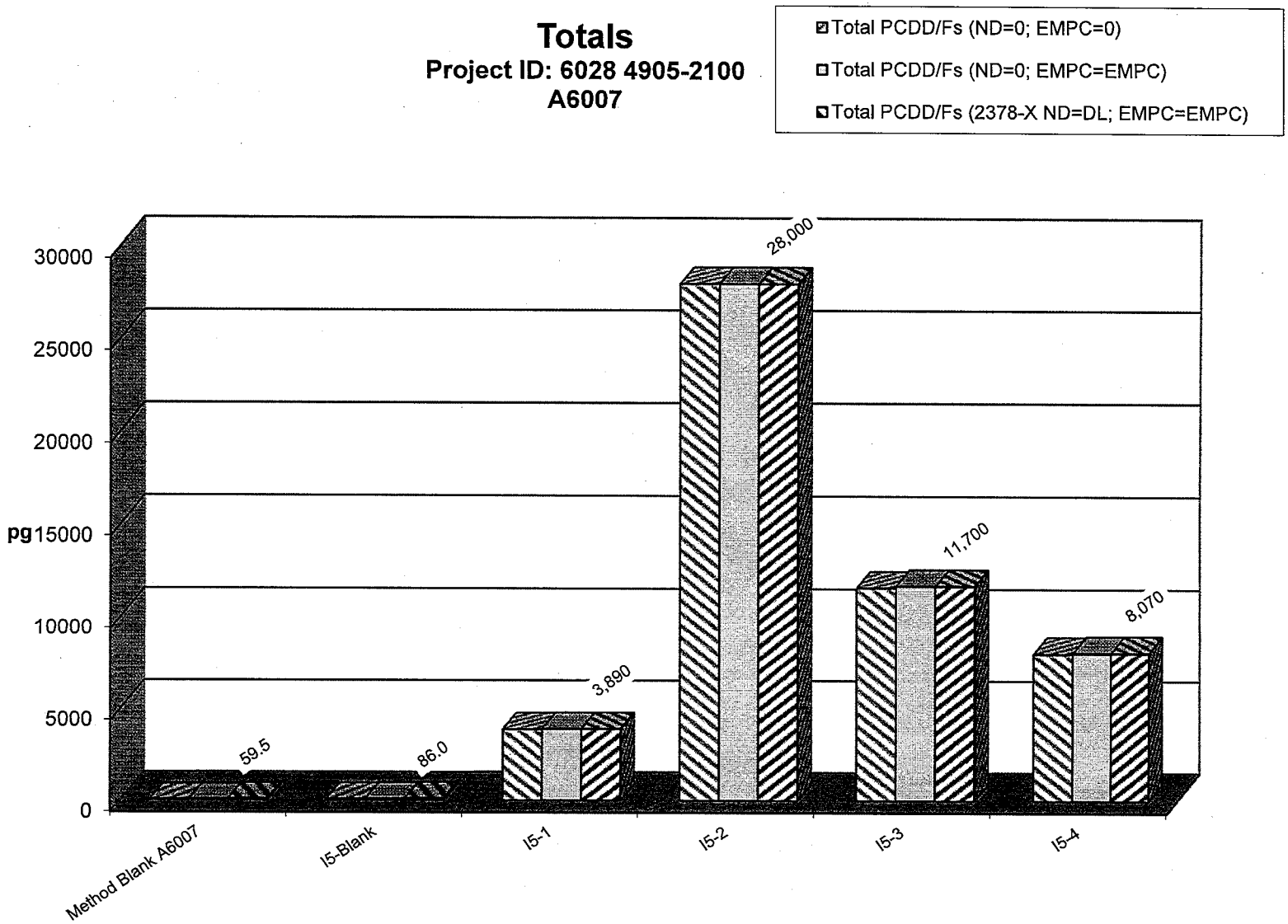
Analyte	Method Blank A6007	I5-Blank	I5-1	I5-2	I5-3	I5-4
	pg	pg	pg	pg	pg	pg
2,3,7,8-TCDD	1.54	1.68	1.25	1.72	1.7	2.32
1,2,3,7,8-PeCDD	2.17	1.7	1.74	2.01	2.53	3.21
1,2,3,4,7,8-HxCDD	2.18	1.76	2	2.21	3.23	3.73
1,2,3,6,7,8-HxCDD	2.16	1.93	2.05	2.28	3.56	3.72
1,2,3,7,8,9-HxCDD	2.32	1.94	2.1	2.37	3.56	3.92
1,2,3,4,6,7,8-HpCDD	2.49	2.47	3.02	3.79	5.22	4.18
OCDD	5.94	4.91	4.15	5.86	6.21	4.62
2,3,7,8-TCDF	0.927	0.9	0.862	1.68	1.19	1.37
1,2,3,7,8-PeCDF	0.996	1.05	1.55	4.69	3.25	2.5
2,3,4,7,8-PeCDF	0.917	0.978	1.4	4.3	3.2	2.42
1,2,3,4,7,8-HxCDF	1.29	1.41	1.46	4.21	3.85	3.26
1,2,3,6,7,8-HxCDF	1.25	1.31	1.43	4.06	3.83	3.17
2,3,4,6,7,8-HxCDF	1.24	1.38	1.48	4.04	4.13	3.37
1,2,3,7,8,9-HxCDF	1.5	1.72	1.71	4.95	4.76	4.22
1,2,3,4,6,7,8-HpCDF	1.73	1.34	1.92	4.2	3.58	3.06
1,2,3,4,7,8,9-HpCDF	2.1	1.61	2.19	4.94	4.36	3.89
OCDF	3.06	2.29	2.13	3.39	3.54	3.63
Total TCDD	1.54	1.68	1.25	1.72	1.7	2.32
Total PeCDD	2.17	1.7	1.74	2.01	2.53	3.21
Total HxCDD	2.21	1.87	2.04	2.28	3.43	3.77
Total HpCDD	2.49	2.47	3.02	3.79	5.22	4.18
Total TCDF	0.927	0.9	0.862	1.68	1.19	1.37
Total PeCDF	0.956	1.01	1.48	4.49	3.23	2.46
Total HxCDF	1.31	1.44	1.51	4.29	4.12	3.48
Total HpCDF	1.9	1.47	2.05	4.55	3.94	3.46
Checkcode	480-593-ZVM	527-902-CWR	520-615-RKC	996-461-RVQ	800-863-YNS	633-277-HWN
Lab ID	MB1_11406_DF_SDS	A6007_11406_DF_001	A6007_11406_DF_002	A6007_11406_DF_003	A6007_11406_DF_004	A6007_11406_DF_005

ITEF-TEQ
Project ID: 6028 4905-2100
A6007

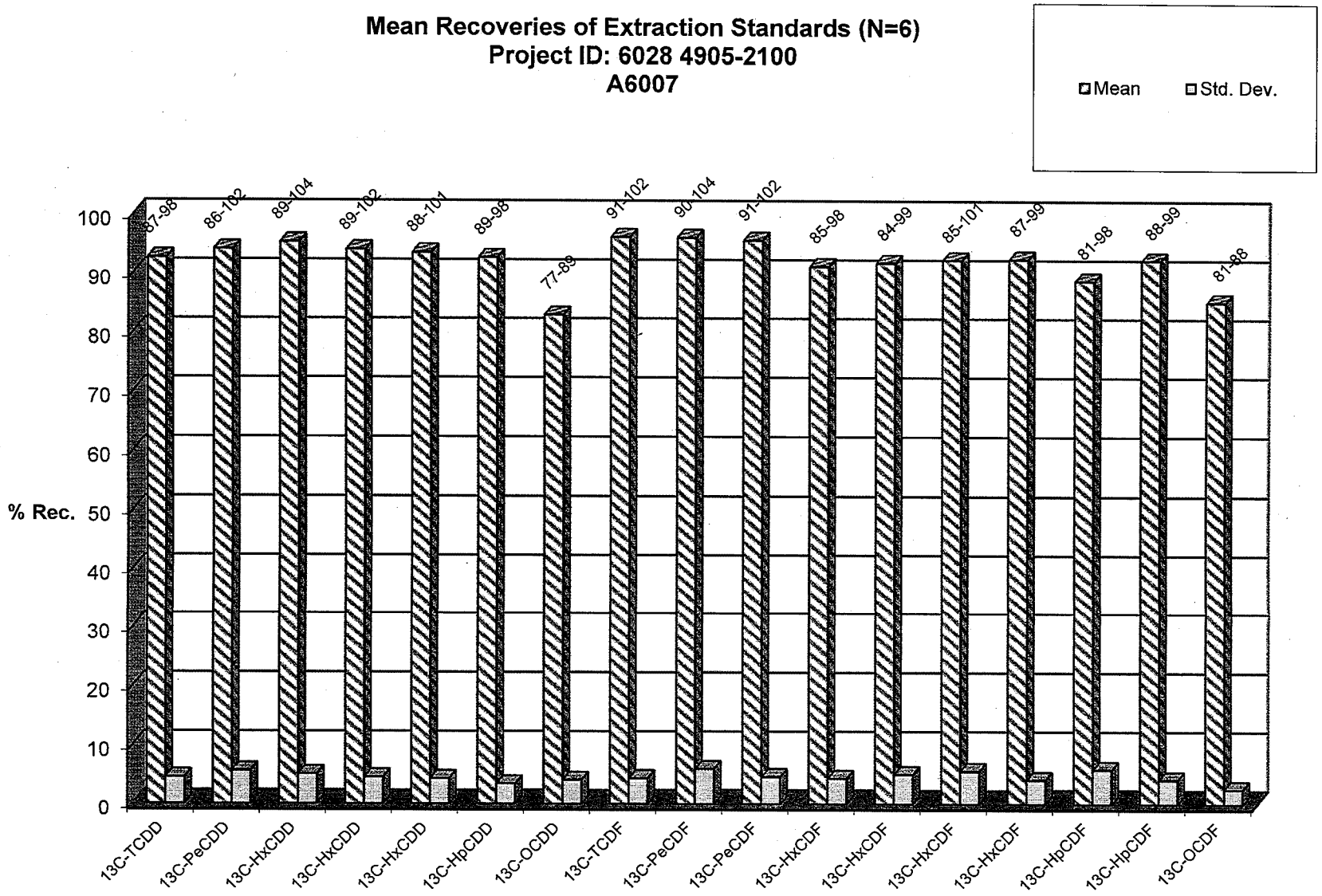


WHO-2005-TEQ
Project ID: 6028 4905-2100
A6007



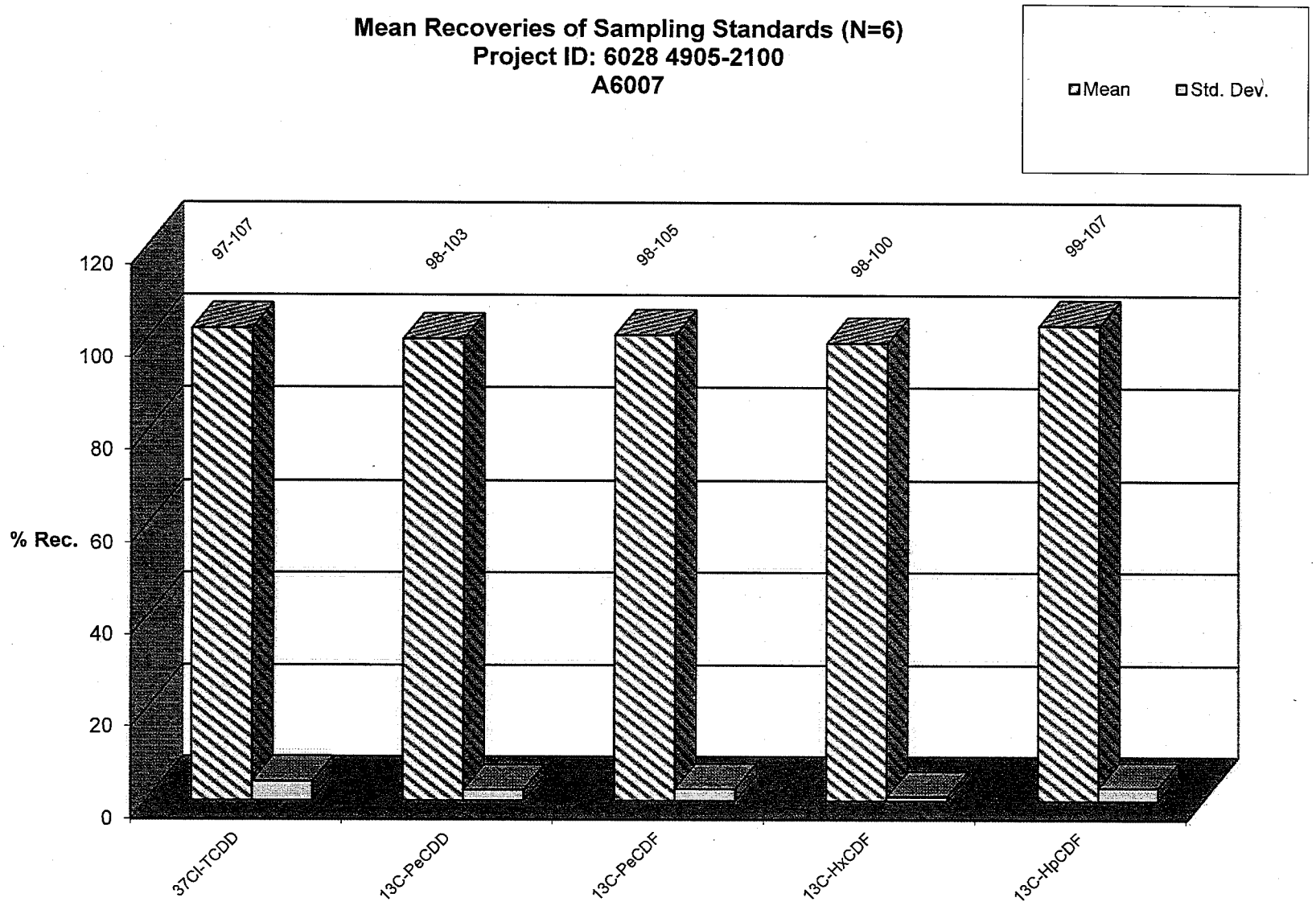

Totals
Project ID: 6028 4905-2100
A6007
Total PCDD/Fs (ND=0; EMPC=0)
Total PCDD/Fs (ND=0; EMPC=EMPC)
Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)
pg
30000
25000
20000
15000
10000
5000
0
59.5
86.0
3,890
28,000
11,700
8,070
Method Blank A6007
I5-Blank
I5-1
I5-2
I5-3
I5-4

Mean Recoveries of Extraction Standards (N=6)
Project ID: 6028 4905-2100
A6007

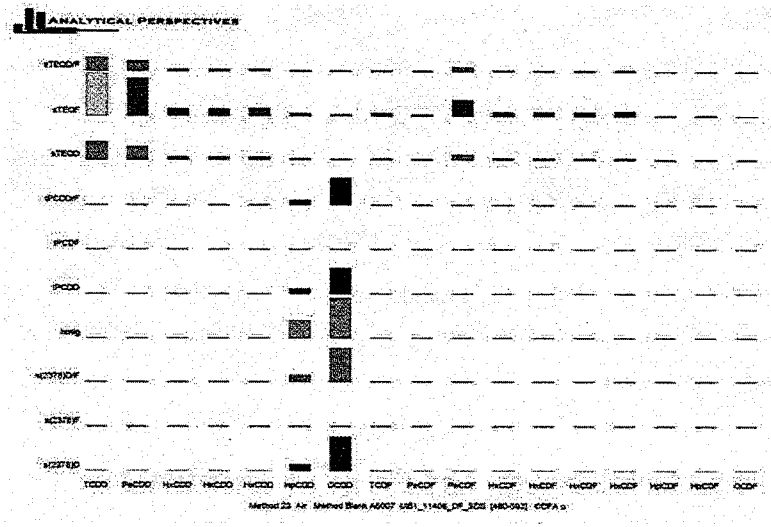


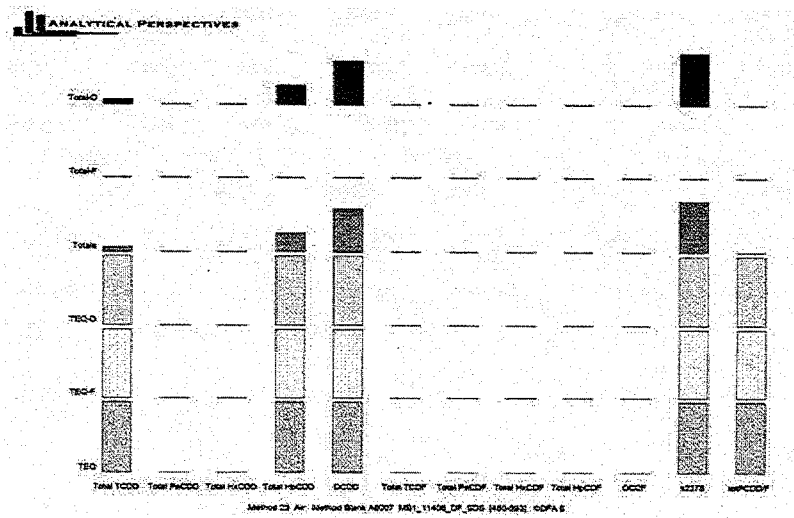
Method Specification Limits: Tetra-Hexa ES: 40-130%, Hepta-Octa ES: 25-130% (F = fail)

Mean Recoveries of Sampling Standards (N=6)
Project ID: 6028 4905-2100
A6007



Method Specification Limits: Tetra-Octa SS: 70-130% (F = fail)


ANALYTICAL PERSPECTIVES
TCDD PeCDD HxCDD HxCDD HxCDD HpCDD OCDD TCDF PeCDF PeCDF HxCDF HxCDF HxCDF HxCDF HpCDF HpCDF OCDF


ANALYTICAL PERSPECTIVES
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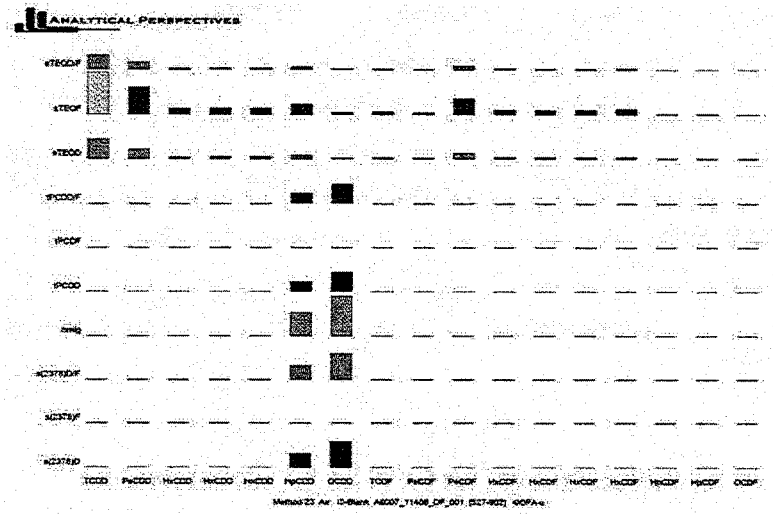
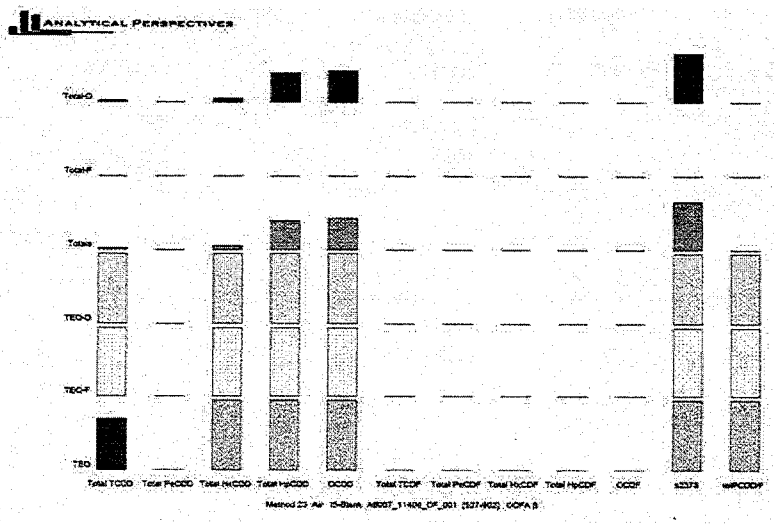

ANALYTICAL PERSPECTIVES
TCDD PeCDD HxCDD HxCDD HxCDD HpCDD OCDD TCDF PeCDF PeCDF HxCDF HxCDF HxCDF HxCDF HpCDF HpCDF OCDF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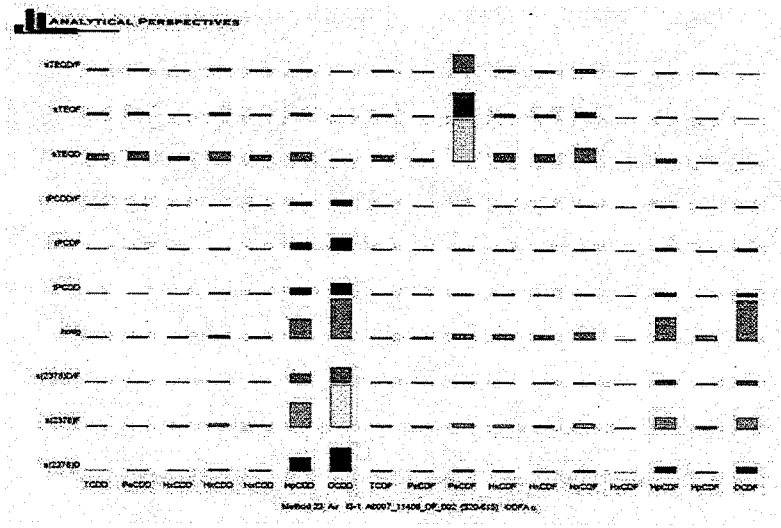
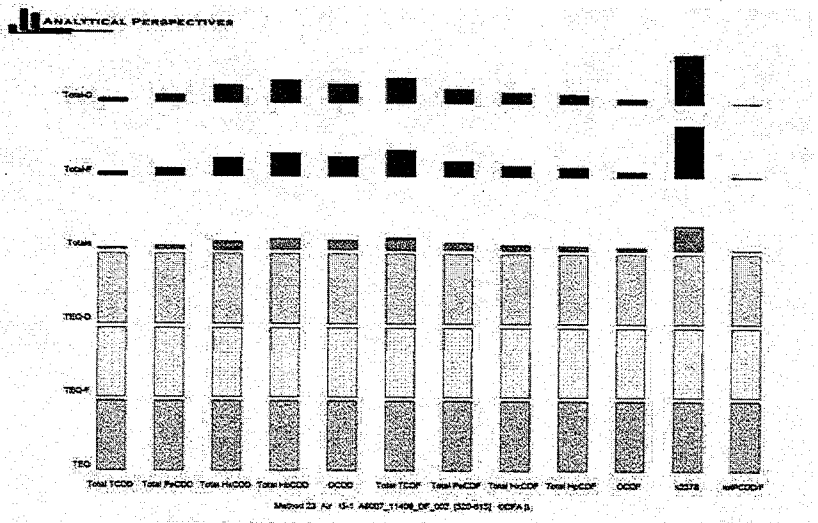
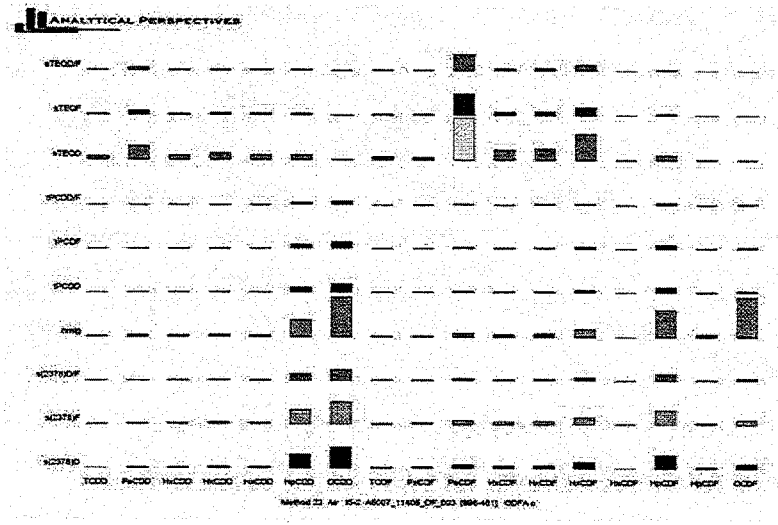
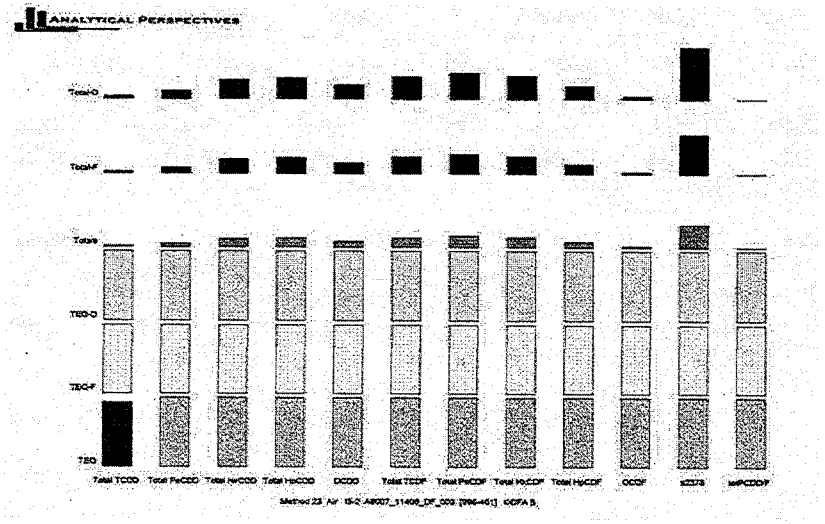
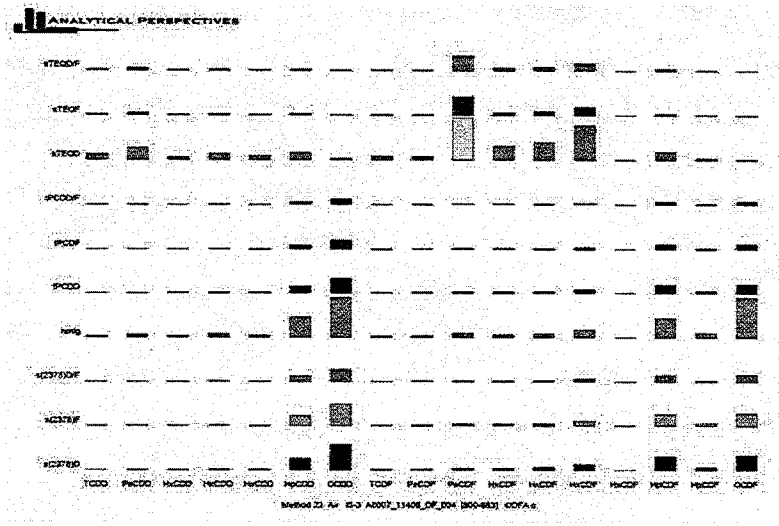
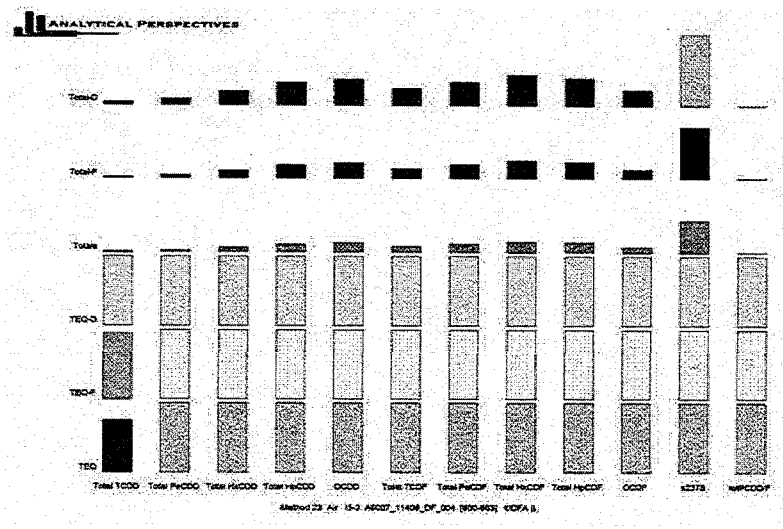

ANALYTICAL PERSPECTIVES
TCDD PeCDD HxCDD HxCDD HxCDD HpCDD OCDD TCDF PeCDF PeCDF HxCDF HxCDF HxCDF HxCDF HpCDF HpCDF OCDF

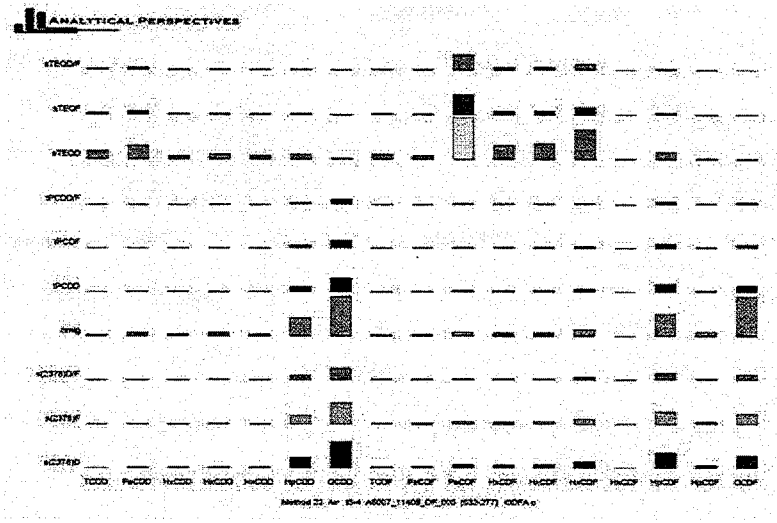

ANALYTICAL PERSPECTIVES
Total TCDD Total PeCDD Total HxCDD Total HxCDD OCDD Total TCDF Total PeCDF Total HxCDF Total HxCDF OCDF

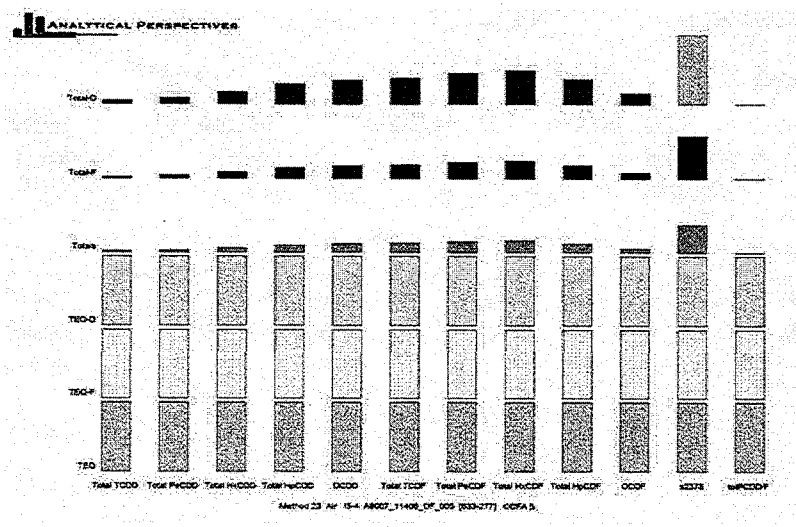

ANALYTICAL PERSPECTIVES
TCDD PeCDD HxCDD HxCDD HxCDD HpCDD OCDD TCDF PeCDF PeCDF HxCDF HxCDF HxCDF HxCDF HpCDF HpCDF OCDF


ANALYTICAL PERSPECTIVES
Total TCDD Total PeCDD Total HxCDD Total HxCDD OCDD Total TCDF Total PeCDF Total HxCDF Total HxCDF OCDF


ANALYTICAL PERSPECTIVES
TCDD PeCDD HxCDD HpCDD OCDD TCDF PeCDF HxCDF HpCDF OCDF


ANALYTICAL PERSPECTIVES
Total TCDD Total PeCDD Total HxCDD Total HpCDD OCDD Total TCDF Total PeCDF Total HxCDF Total HpCDF OCDF


ANALYTICAL PERSPECTIVES
TCDD PeCDD HxCDD HpCDD OCDD TCDF PeCDF HxCDF HpCDF OCDF


ANALYTICAL PERSPECTIVES
Total TCDD Total PeCDD Total HxCDD Total HpCDD OCDD Total TCDF Total PeCDF Total HxCDF Total HpCDF OCDF

Sample ID: Method Blank A6007

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	AECOM	Matrix:	Air	Lab Project ID:	A6007	Date Received:	n/a
Project ID:	6028 4905-2100	Weight/Volume:	1	Lab Sample ID	MB1_11406_DF_SDS	Date Extracted:	08-Oct-2013
Date Collected:	n/a			QC Batch No:	11406	Date Analyzed:	13-Oct-2013
		Split:	2	Dilution:	-	Time Analyzed:	16:03:53

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	1.54			ES 2378-TCDD	98.1	
12378-PeCDD	ND	2.17			ES 12378-PeCDD	102	
123478-HxCDD	ND	2.18			ES 123478-HxCDD	104	
123678-HxCDD	ND	2.16			ES 123678-HxCDD	102	
123789-HxCDD	ND	2.32			ES 123789-HxCDD	101	
1234678-HpCDD	EMPC		4.13	J	ES 1234678-HpCDD	98.2	
OCDD	22.2			J	ES OCDD	89.3	
2378-TCDF	ND	0.927			ES 2378-TCDF	102	
12378-PeCDF	ND	0.996			ES 12378-PeCDF	104	
23478-PeCDF	ND	0.917			ES 23478-PeCDF	102	
123478-HxCDF	ND	1.29			ES 123478-HxCDF	97.6	
123678-HxCDF	ND	1.25			ES 123678-HxCDF	98.6	
234678-HxCDF	ND	1.24			ES 234678-HxCDF	101	
123789-HxCDF	ND	1.5			ES 123789-HxCDF	98.6	
1234678-HpCDF	ND	1.73			ES 1234678-HpCDF	97.9	
1234789-HpCDF	ND	2.1			ES 1234789-HpCDF	98.7	
OCDF	ND	3.06			ES OCDF	88	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	98.9	
Total TCDD	2.44		2.44		SS 12347-PeCDD	98.6	
Total PeCDD	ND	2.17	ND		SS 12346-PeCDF	100	
Total HxCDD	ND	2.21	ND		SS 123469-HxCDF	100	
Total HpCDD	ND		9.51		SS 1234689-HpCDF	104	
					AS 1368-TCDD	105	
Total TCDF	ND	0.927	ND		AS 1368-TCDF	103	
Total PeCDF	ND	0.956	ND				
Total HxCDF	ND	1.31	ND				
Total HpCDF	ND	1.9	ND				
Total PCDD/Fs	**24.6**		**34.1**				
ITEF TEQs							
TEQ: ND=0	0.0222		0.0634				
TEQ: ND=DL/2	2.26	2.24	2.29				
TEQ: ND=DL	4.5	4.49	4.52				

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Sample ID: I5-Blank

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	AECOM	Matrix:	Air	Lab Project ID:	A6007	Date Received:	07-Oct-2013
Project ID:	6028 4905-2100	Weight/Volume:	1	Lab Sample ID	A6007_11406_DF_001	Date Extracted:	08-Oct-2013
Date Collected:	02-Oct-2013			QC Batch No:	11406	Date Analyzed:	13-Oct-2013
		Split:	2	Dilution:	-	Time Analyzed:	16:56:31

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	1.68			ES 2378-TCDD	97.4	
12378-PeCDD	ND	1.7			ES 12378-PeCDD	97.6	
123478-HxCDD	ND	1.76			ES 123478-HxCDD	97.4	
123678-HxCDD	ND	1.93			ES 123678-HxCDD	95.1	
123789-HxCDD	ND	1.94			ES 123789-HxCDD	92.9	
1234678-HpCDD	16			J B	ES 1234678-HpCDD	92.7	
OCDD	30.1			J B	ES OCDD	81.9	
2378-TCDF	ND	0.9			ES 2378-TCDF	100	
12378-PeCDF	ND	1.05			ES 12378-PeCDF	101	
23478-PeCDF	ND	0.978			ES 23478-PeCDF	100	
123478-HxCDF	ND	1.41			ES 123478-HxCDF	93.7	
123678-HxCDF	ND	1.31			ES 123678-HxCDF	93.4	
234678-HxCDF	ND	1.38			ES 234678-HxCDF	94.4	
123789-HxCDF	ND	1.72			ES 123789-HxCDF	93	
1234678-HpCDF	ND	1.34			ES 1234678-HpCDF	90.9	
1234789-HpCDF	ND	1.61			ES 1234789-HpCDF	94.9	
OCDF	ND	2.29			ES OCDF	86.2	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	101	
Total TCDD	ND		1.81		SS 12347-PeCDD	103	
Total PeCDD	ND	1.7	ND		SS 12346-PeCDF	99.4	
Total HxCDD	ND		3.7		SS 123469-HxCDF	99.6	
Total HpCDD	16		27.4		SS 1234689-HpCDF	102	
					AS 1368-TCDD	101	
Total TCDF	ND	0.9	ND		AS 1368-TCDF	97.9	
Total PeCDF	ND	1.01	ND				
Total HxCDF	ND	1.44	ND				
Total HpCDF	ND	1.47	ND				
Total PCDD/Fs	**46.1**		**63**				
ITEF TEQs							
TEQ: ND=0	0.191		0.191				
TEQ: ND=DL/2	2.36	2.18	2.36				
TEQ: ND=DL	4.53	4.37	4.53				

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Sample ID: I5-1

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	AECOM	Matrix:	Air	Lab Project ID:	A6007	Date Received:	07-Oct-2013
Project ID:	6028 4905-2100	Weight/Volume:	1	Lab Sample ID	A6007_11406_DF_002	Date Extracted:	08-Oct-2013
Date Collected:	29-Sep-2013			QC Batch No:	11406	Date Analyzed:	13-Oct-2013
		Split:	2	Dilution:	-	Time Analyzed:	17:48:37

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		2.34	J	ES 2378-TCDD	87.2	
12378-PeCDD	EMPC		6.45	J	ES 12378-PeCDD	86	
123478-HxCDD	13			J	ES 123478-HxCDD	89.4	
123678-HxCDD	33.9			J	ES 123678-HxCDD	90	
123789-HxCDD	18.9			J	ES 123789-HxCDD	88.5	
1234678-HpCDD	316				ES 1234678-HpCDD	88.6	
OCDD	546				ES OCDD	76.7	
2378-TCDF	21.5				ES 2378-TCDF	90.6	
12378-PeCDF	18			J	ES 12378-PeCDF	92.2	
23478-PeCDF	50				ES 23478-PeCDF	91.1	
123478-HxCDF	33.4			J	ES 123478-HxCDF	85.2	
123678-HxCDF	29.2			J	ES 123678-HxCDF	84.3	
234678-HxCDF	54.3				ES 234678-HxCDF	85.2	
123789-HxCDF	ND	1.71			ES 123789-HxCDF	87.3	
1234678-HpCDF	143				ES 1234678-HpCDF	80.8	
1234789-HpCDF	27.6			J	ES 1234789-HpCDF	88.4	
OCDF	142				ES OCDF	81.4	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	107	
Total TCDD	99.8		109		SS 12347-PeCDD	98.1	
Total PeCDD	210		221		SS 12346-PeCDF	99.7	
Total HxCDD	510		510		SS 123469-HxCDF	98.8	
Total HpCDD	653		653		SS 1234689-HpCDF	105	
					AS 1368-TCDD	91	
Total TCDF	732		732		AS 1368-TCDF	92.6	
Total PeCDF	419		419				
Total HxCDF	303		303				
Total HpCDF	257		257				
Total PCDD/Fs	**3870**		**3890**				
ITEF TEQs							
TEQ: ND=0	51.9		57.5				
TEQ: ND=DL/2	53	2.14	57.5				
TEQ: ND=DL	54.2	4.28	57.6				

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Sample ID: I5-2

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	AECOM	Matrix:	Air	Lab Project ID:	A6007	Date Received:	07-Oct-2013
Project ID:	6028 4905-2100	Weight/Volume:	1	Lab Sample ID	A6007_11406_DF_003	Date Extracted:	08-Oct-2013
Date Collected:	30-Sep-2013			QC Batch No:	11406	Date Analyzed:	13-Oct-2013
		Split:	2	Dilution:	-	Time Analyzed:	18:41:14

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	12.2				ES 2378-TCDD	90.9	
12378-PeCDD	86.3				ES 12378-PeCDD	94.1	
123478-HxCDD	148				ES 123478-HxCDD	95.2	
123678-HxCDD	209				ES 123678-HxCDD	94.4	
123789-HxCDD	166				ES 123789-HxCDD	95	
1234678-HpCDD	1670				ES 1234678-HpCDD	94.7	
OCDD	2600				ES OCDD	84.3	
2378-TCDF	107				ES 2378-TCDF	95.5	
12378-PeCDF	166				ES 12378-PeCDF	90.9	
23478-PeCDF	450				ES 23478-PeCDF	93.2	
123478-HxCDF	327				ES 123478-HxCDF	91.1	
123678-HxCDF	368				ES 123678-HxCDF	94	
234678-HxCDF	830				ES 234678-HxCDF	93.9	
123789-HxCDF	ND	4.95			ES 123789-HxCDF	94.9	
1234678-HpCDF	1630				ES 1234678-HpCDF	90.6	
1234789-HpCDF	173				ES 1234789-HpCDF	91.9	
OCDF	546				ES OCDF	87.5	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	103	
Total TCDD	509		528		SS 12347-PeCDD	98.9	
Total PeCDD	1520		1520		SS 12346-PeCDF	103	
Total HxCDD	3490		3490		SS 123469-HxCDF	97.7	
Total HpCDD	3800		3800		SS 1234689-HpCDF	101	
					AS 1368-TCDD	95.8	
Total TCDF	4090		4090		AS 1368-TCDF	94.8	
Total PeCDF	4740		4740				
Total HxCDF	4230		4230				
Total HpCDF	2420		2420				
Total PCDD/Fs	**28000**		**28000**				
ITEF TEQs							
TEQ: ND=0	542		542				
TEQ: ND=DL/2	542	3.92	542				
TEQ: ND=DL	543	7.83	543				

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Sample ID: I5-3

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	AECOM	Matrix:	Air	Lab Project ID:	A6007	Date Received:	07-Oct-2013
Project ID:	6028 4905-2100	Weight/Volume:	1	Lab Sample ID	A6007_11406_DF_004	Date Extracted:	08-Oct-2013
Date Collected:	01-Oct-2013			QC Batch No:	11406	Date Analyzed:	13-Oct-2013
		Split:	2	Dilution:	-	Time Analyzed:	19:33:47

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		6.58	J	ES 2378-TCDD	88.5	
12378-PeCDD	EMPC		25.8	J	ES 12378-PeCDD	89.9	
123478-HxCDD	29.9			J	ES 123478-HxCDD	91.9	
123678-HxCDD	69.1				ES 123678-HxCDD	89.4	
123789-HxCDD	44.6			J	ES 123789-HxCDD	90.5	
1234678-HpCDD	750				ES 1234678-HpCDD	91.7	
OCDD	1640				ES OCDD	83.1	
2378-TCDF	39.4				ES 2378-TCDF	92.3	
12378-PeCDF	72.6				ES 12378-PeCDF	89.6	
23478-PeCDF	151				ES 23478-PeCDF	91.2	
123478-HxCDF	146				ES 123478-HxCDF	87.9	
123678-HxCDF	182				ES 123678-HxCDF	87.9	
234678-HxCDF	372				ES 234678-HxCDF	87.6	
123789-HxCDF	ND	4.76			ES 123789-HxCDF	88.7	
1234678-HpCDF	871				ES 1234678-HpCDF	87.8	
1234789-HpCDF	199				ES 1234789-HpCDF	87.6	
OCDF	961				ES OCDF	83.9	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	97	
Total TCDD	144		164		SS 12347-PeCDD	98.8	
Total PeCDD	301		355		SS 12346-PeCDF	98.3	
Total HxCDD	854		854		SS 123469-HxCDF	99.1	
Total HpCDD	1440		1440		SS 1234689-HpCDF	99.3	
					AS 1368-TCDD	95	
Total TCDF	1040		1050		AS 1368-TCDF	92.3	
Total PeCDF	1500		1500				
Total HxCDF	1940		1940				
Total HpCDF	1760		1760				
Total PCDD/Fs	**11600**		**11700**				
ITEF TEQs							
TEQ: ND=0	188		208				
TEQ: ND=DL/2	190	3.84	208				
TEQ: ND=DL	192	7.68	208				

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Sample ID: I5-4

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	AECOM	Matrix:	Air	Lab Project ID:	A6007	Date Received:	07-Oct-2013
Project ID:	6028 4905-2100	Weight/Volume:	1	Lab Sample ID	A6007_11406_DF_005	Date Extracted:	08-Oct-2013
Date Collected:	02-Oct-2013			QC Batch No:	11406	Date Analyzed:	13-Oct-2013
		Split:	2	Dilution:	-	Time Analyzed:	20:26:26

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		6.42	J	ES 2378-TCDD	93.5	
12378-PeCDD	EMPC		21.5	J	ES 12378-PeCDD	94.8	
123478-HxCDD	25.9			J	ES 123478-HxCDD	93.8	
123678-HxCDD	40.9			J	ES 123678-HxCDD	93.4	
123789-HxCDD	30.4			J	ES 123789-HxCDD	93.4	
1234678-HpCDD	395				ES 1234678-HpCDD	90.2	
OCDD	989				ES OCDD	82.3	
2378-TCDF	40.2				ES 2378-TCDF	96.5	
12378-PeCDF	61.6				ES 12378-PeCDF	98.7	
23478-PeCDF	125				ES 23478-PeCDF	96.2	
123478-HxCDF	113				ES 123478-HxCDF	91.7	
123678-HxCDF	123				ES 123678-HxCDF	92.6	
234678-HxCDF	235				ES 234678-HxCDF	91.7	
123789-HxCDF	ND	4.22			ES 123789-HxCDF	92.3	
1234678-HpCDF	574				ES 1234678-HpCDF	84.8	
1234789-HpCDF	102				ES 1234789-HpCDF	92.2	
OCDF	462				ES OCDF	84.3	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	107	
Total TCDD	133		161		SS 12347-PeCDD	103	
Total PeCDD	245		266		SS 12346-PeCDF	105	
Total HxCDD	516		516		SS 123469-HxCDF	100	
Total HpCDD	845		845		SS 1234689-HpCDF	107	
					AS 1368-TCDD	100	
Total TCDF	1070		1080		AS 1368-TCDF	99	
Total PeCDF	1290		1290				
Total HxCDF	1410		1410				
Total HpCDF	1040		1040				
Total PCDD/Fs	**8010**		**8060**				
ITEF TEQs							
TEQ: ND=0	139		156				
TEQ: ND=DL/2	141	4.03	156				
TEQ: ND=DL	143	8.06	156				

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A6007 - TEQ

Project ID: 6028 4905-2100

Sample Summary Part 1 — SGS Analytical Perspectives — **Method 23**

Analyte	Method Blank A6007	I5-Blank	I5-1	I5-2	I5-3	I5-4
	pg	pg	pg	pg	pg	pg
2,3,7,8-TCDD	(1.54)	(1.68)	[2.34]	12.2	[6.58]	[6.42]
1,2,3,7,8-PeCDD	(2.17)	(1.7)	[6.45]	86.3	[25.8]	[21.5]
1,2,3,4,7,8-HxCDD	(2.18)	(1.76)	13	148	29.9	25.9
1,2,3,6,7,8-HxCDD	(2.16)	(1.93)	33.9	209	69.1	40.9
1,2,3,7,8,9-HxCDD	(2.32)	(1.94)	18.9	166	44.6	30.4
1,2,3,4,6,7,8-HpCDD	[4.13]	16	316	1670	750	395
OCDD	22.2	30.1	546	2600	1640	989
2,3,7,8-TCDF	(0.927)	(0.9)	21.5	107	39.4	40.2
1,2,3,7,8-PeCDF	(0.996)	(1.05)	18	166	72.6	61.6
2,3,4,7,8-PeCDF	(0.917)	(0.978)	50	450	151	125
1,2,3,4,7,8-HxCDF	(1.29)	(1.41)	33.4	327	146	113
1,2,3,6,7,8-HxCDF	(1.25)	(1.31)	29.2	368	182	123
2,3,4,6,7,8-HxCDF	(1.24)	(1.38)	54.3	830	372	235
1,2,3,7,8,9-HxCDF	(1.5)	(1.72)	(1.71)	(4.95)	(4.76)	(4.22)
1,2,3,4,6,7,8-HpCDF	(1.73)	(1.34)	143	1630	871	574
1,2,3,4,7,8,9-HpCDF	(2.1)	(1.61)	27.6	173	199	102
OCDF	(3.06)	(2.29)	142	546	961	462
ITEF TEQ (ND=0; EMPC=0)	**0.0222**	**0.191**	**51.9**	**542**	**188**	**139**
ITEF TEQ (ND=0; EMPC=EMPC)	**0.0634**	**0.191**	**57.5**	**542**	**208**	**156**
ITEF TEQ (ND=DL/2; EMPC=0)	**2.26**	**2.36**	**53.0**	**542**	**190**	**141**
ITEF TEQ (ND=DL/2; EMPC=EMPC)	**2.29**	**2.36**	**57.5**	**542**	**208**	**156**
ITEF TEQ (ND=DL; EMPC=EMPC)	**4.52**	**4.53**	**57.6**	**543**	**208**	**156**
Checkcode	480-593-ZVM	527-902-CWR	520-615-RKC	996-461-RVQ	800-863-YNS	633-277-HWN
Lab ID	MB1_11406_DF_SDS	A6007_11406_DF_001	A6007_11406_DF_002	A6007_11406_DF_003	A6007_11406_DF_004	A6007_11406_DF_005

( ) = DL
[ ] = EMPC

A6007 - WHO-2005-TEQ

Project ID: 6028 4905-2100

Sample Summary Part 1 — SGS — Analytical Perspectives — **Method 23**

Analyte	Method Blank A6007	I5-Blank	I5-1	I5-2	I5-3	I5-4
	pg	pg	pg	pg	pg	pg
2,3,7,8-TCDD	(1.54)	(1.68)	[2.34]	12.2	[6.58]	[6.42]
1,2,3,7,8-PeCDD	(2.17)	(1.7)	[6.45]	86.3	[25.8]	[21.5]
1,2,3,4,7,8-HxCDD	(2.18)	(1.76)	13	148	29.9	25.9
1,2,3,6,7,8-HxCDD	(2.16)	(1.93)	33.9	209	69.1	40.9
1,2,3,7,8,9-HxCDD	(2.32)	(1.94)	18.9	166	44.6	30.4
1,2,3,4,6,7,8-HpCDD	[4.13]	16	316	1670	750	395
OCDD	22.2	30.1	546	2600	1640	989
2,3,7,8-TCDF	(0.927)	(0.9)	21.5	107	39.4	40.2
1,2,3,7,8-PeCDF	(0.996)	(1.05)	18	166	72.6	61.6
2,3,4,7,8-PeCDF	(0.917)	(0.978)	50	450	151	125
1,2,3,4,7,8-HxCDF	(1.29)	(1.41)	33.4	327	146	113
1,2,3,6,7,8-HxCDF	(1.25)	(1.31)	29.2	368	182	123
2,3,4,6,7,8-HxCDF	(1.24)	(1.38)	54.3	830	372	235
1,2,3,7,8,9-HxCDF	(1.5)	(1.72)	(1.71)	(4.95)	(4.76)	(4.22)
1,2,3,4,6,7,8-HpCDF	(1.73)	(1.34)	143	1630	871	574
1,2,3,4,7,8,9-HpCDF	(2.1)	(1.61)	27.6	173	199	102
OCDF	(3.06)	(2.29)	142	546	961	462
WHO-2005 TEQ (ND=0; EMPC=0)	**0.00666**	**0.169**	**41.0**	**490**	**155**	**111**
WHO-2005 TEQ (ND=0; EMPC=EMPC)	**0.0479**	**0.169**	**49.8**	**490**	**187**	**139**
WHO-2005 TEQ (ND=DL/2; EMPC=0)	**2.69**	**2.66**	**42.6**	**490**	**157**	**114**
WHO-2005 TEQ (ND=DL/2; EMPC=EMPC)	**2.71**	**2.66**	**49.9**	**490**	**187**	**140**
WHO-2005 TEQ (ND=DL; EMPC=EMPC)	**5.38**	**5.14**	**50.0**	**490**	**188**	**140**
Checkcode	480-593-ZVM	527-902-CWR	520-615-RKC	996-461-RVQ	800-863-YNS	633-277-HWN
Lab ID	MB1_11406_DF_SDS	A6007_11406_DF_001	A6007_11406_DF_002	A6007_11406_DF_003	A6007_11406_DF_004	A6007_11406_DF_005

( ) = DL
[ ] = EMPC

A6007 - Totals

Project ID: 6028 4905-2100

Sample Summary Part 2 SGS ANALYTICAL PERSPECTIVES **Method 23**

Analyte	Method Blank A6007	I5-Blank	I5-1	I5-2	I5-3	I5-4
	pg	pg	pg	pg	pg	pg
Totals						
TCDDs	2.44	0	99.8	509	144	133
PeCDDs	0	0	210	1520	301	245
HxCDDs	0	0	510	3490	854	516
HpCDDs	0	16	653	3800	1440	845
OCDD	22.2	30.1	546	2600	1640	989
TCDFs	0	0	732	4090	1040	1070
PeCDFs	0	0	419	4740	1500	1290
HxCDFs	0	0	303	4230	1940	1410
HpCDFs	0	0	257	2420	1760	1040
OCDF	0	0	142	546	961	462
Total PCDD/Fs (ND=0; EMPC=0)	**24.6**	**46.1**	**3,870**	**28,000**	**11,600**	**8,010**
Total PCDD/Fs (ND=0; EMPC=EMPC)	**34.1**	**63.0**	**3,890**	**28,000**	**11,700**	**8,060**
Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)	**59.5**	**86.0**	**3,890**	**28,000**	**11,700**	**8,070**
Total 2378s (ND=0; EMPC=0)	**22.2**	**46.1**	**1,450**	**9,490**	**5,530**	**3,320**
Total 2378s (ND=0.5; EMPC=0)	**36.1**	**57.6**	**1,450**	**9,490**	**5,530**	**3,320**
Total 2378s (ND=1; EMPC=0)	**50.0**	**69.1**	**1,450**	**9,490**	**5,540**	**3,330**
Total 2378s (ND=0; EMPC=1)	**26.3**	**46.1**	**1,450**	**9,490**	**5,560**	**3,350**
Total 2378s (ND=0.5; EMPC=1)	**39.0**	**57.6**	**1,460**	**9,490**	**5,570**	**3,350**
Total 2378s (ND=1; EMPC=1)	**51.7**	**69.1**	**1,460**	**9,490**	**5,570**	**3,350**
Checkcode	480-593-ZVM	527-902-CWR	520-615-RKC	996-461-RVQ	800-863-YNS	633-277-HWN
Lab ID	MB1_11406_DF_SDS	A6007_11406_DF_001	A6007_11406_DF_002	A6007_11406_DF_003	A6007_11406_DF_004	A6007_11406_DF_005

( ) = DL
[ ] = EMPC

A6007 - Others

Project ID: 6028 4905-2100

Sample Summary Part 3 — SGS — Analytical Perspectives — **Method 23**

Analyte	Method Blank A6007	I5-Blank	I5-1	I5-2	I5-3	I5-4
	pg	pg	pg	pg	pg	pg
Other PCDD/Fs (ND=0, EMPC=0)						
Other TCDD	2.44	0	99.8	497	144	133
Other PeCDD	0	0	210	1440	301	245
Other HxCDD	0	0	444	2970	711	419
Other HpCDD	0	0	337	2120	690	450
Other TCDF	0	0	710	3990	1000	1030
Other PeCDF	0	0	351	4130	1280	1110
Other HxCDF	0	0	186	2710	1240	937
Other HpCDF	0	0	87.2	624	687	366
Other PCDD/Fs (ND=0, EMPC=EMPC)						
Other TCDD	2.44	1.81	107	516	157	155
Other PeCDD	0	0	214	1440	330	245
Other HxCDD	0	3.7	444	2970	711	419
Other HpCDD	5.39	11.3	337	2120	690	450
Other TCDF	0	0	710	3990	1010	1040
Other PeCDF	0	0	351	4130	1280	1110
Other HxCDF	0	0	186	2710	1240	937
Other HpCDF	0	0	87.2	624	687	366
Checkcode	480-593-ZVM	527-902-CWR	520-615-RKC	996-461-RVQ	800-863-YNS	633-277-HWN
Lab ID	MB1_11406_DF_SDS	A6007_11406_DF_001	A6007_11406_DF_002	A6007_11406_DF_003	A6007_11406_DF_004	A6007_11406_DF_005

( ) = DL
[ ] = EMPC

A6007 - DLs

Project ID: 6028 4905-2100

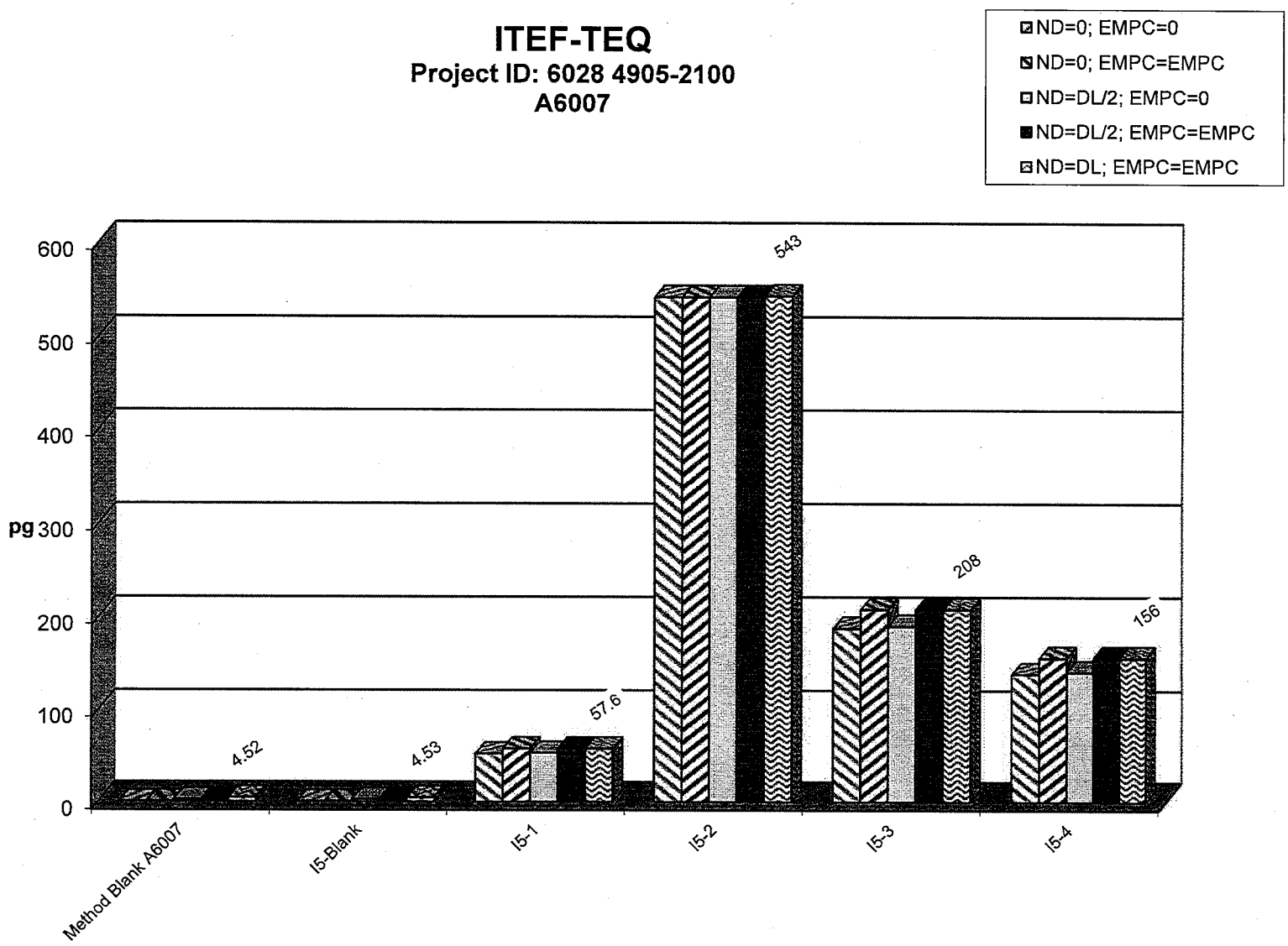
Sample Summary
Part 5 (DLs)

SGS ANALYTICAL PERSPECTIVES

Method 23

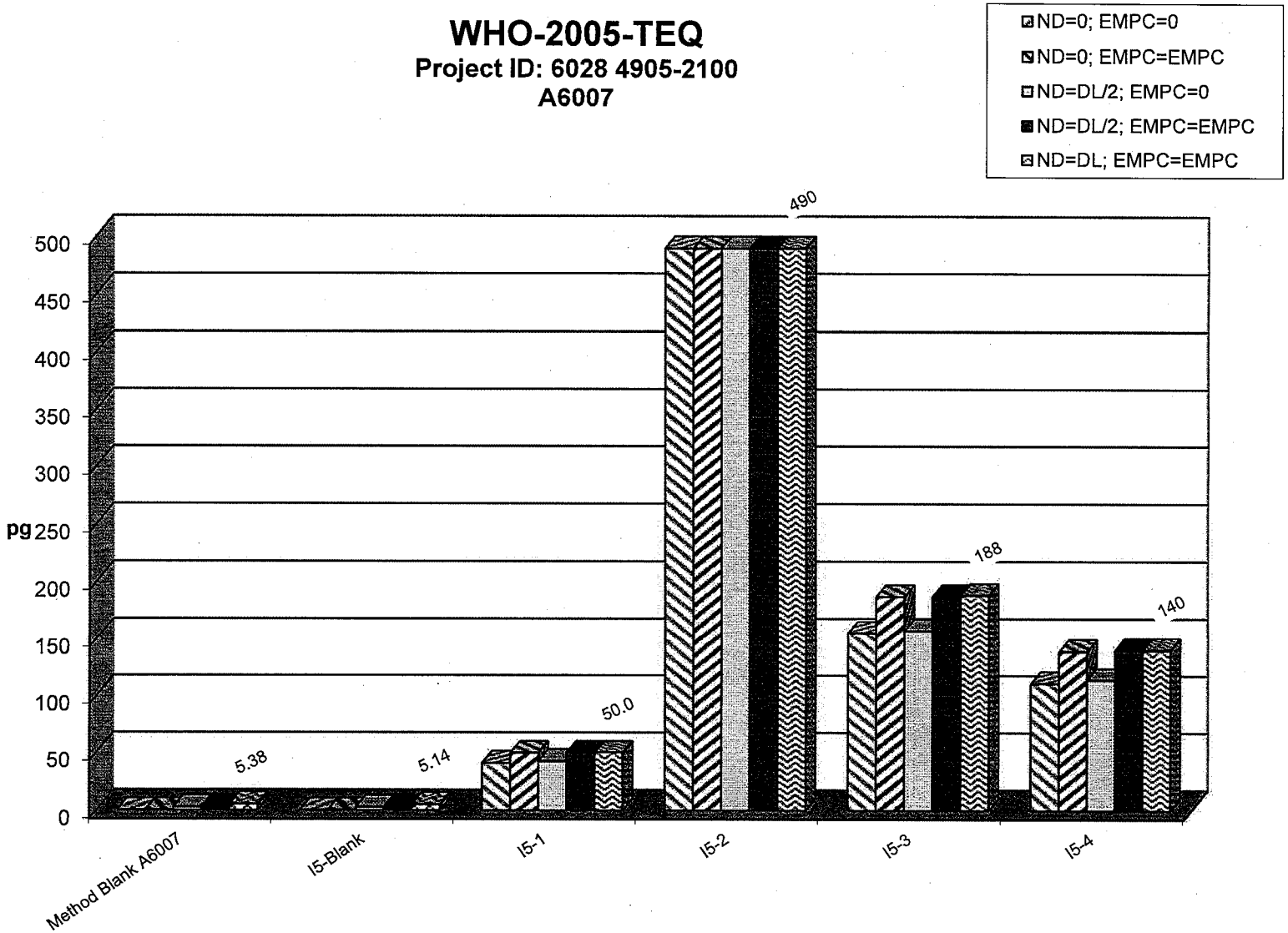
Analyte	Method Blank A6007	I5-Blank	I5-1	I5-2	I5-3	I5-4
	pg	pg	pg	pg	pg	pg
2,3,7,8-TCDD	1.54	1.68	1.25	1.72	1.7	2.32
1,2,3,7,8-PeCDD	2.17	1.7	1.74	2.01	2.53	3.21
1,2,3,4,7,8-HxCDD	2.18	1.76	2	2.21	3.23	3.73
1,2,3,6,7,8-HxCDD	2.16	1.93	2.05	2.28	3.56	3.72
1,2,3,7,8,9-HxCDD	2.32	1.94	2.1	2.37	3.56	3.92
1,2,3,4,6,7,8-HpCDD	2.49	2.47	3.02	3.79	5.22	4.18
OCDD	5.94	4.91	4.15	5.86	6.21	4.62
2,3,7,8-TCDF	0.927	0.9	0.862	1.68	1.19	1.37
1,2,3,7,8-PeCDF	0.996	1.05	1.55	4.69	3.25	2.5
2,3,4,7,8-PeCDF	0.917	0.978	1.4	4.3	3.2	2.42
1,2,3,4,7,8-HxCDF	1.29	1.41	1.46	4.21	3.85	3.26
1,2,3,6,7,8-HxCDF	1.25	1.31	1.43	4.06	3.83	3.17
2,3,4,6,7,8-HxCDF	1.24	1.38	1.48	4.04	4.13	3.37
1,2,3,7,8,9-HxCDF	1.5	1.72	1.71	4.95	4.76	4.22
1,2,3,4,6,7,8-HpCDF	1.73	1.34	1.92	4.2	3.58	3.06
1,2,3,4,7,8,9-HpCDF	2.1	1.61	2.19	4.94	4.36	3.89
OCDF	3.06	2.29	2.13	3.39	3.54	3.63
Total TCDD	1.54	1.68	1.25	1.72	1.7	2.32
Total PeCDD	2.17	1.7	1.74	2.01	2.53	3.21
Total HxCDD	2.21	1.87	2.04	2.28	3.43	3.77
Total HpCDD	2.49	2.47	3.02	3.79	5.22	4.18
Total TCDF	0.927	0.9	0.862	1.68	1.19	1.37
Total PeCDF	0.956	1.01	1.48	4.49	3.23	2.46
Total HxCDF	1.31	1.44	1.51	4.29	4.12	3.48
Total HpCDF	1.9	1.47	2.05	4.55	3.94	3.46
Checkcode	480-593-ZVM	527-902-CWR	520-615-RKC	996-461-RVQ	800-863-YNS	633-277-HWN
Lab ID	MB1_11406_DF_SDS	A6007_11406_DF_001	A6007_11406_DF_002	A6007_11406_DF_003	A6007_11406_DF_004	A6007_11406_DF_005

ITEF-TEQ
Project ID: 6028 4905-2100
A6007



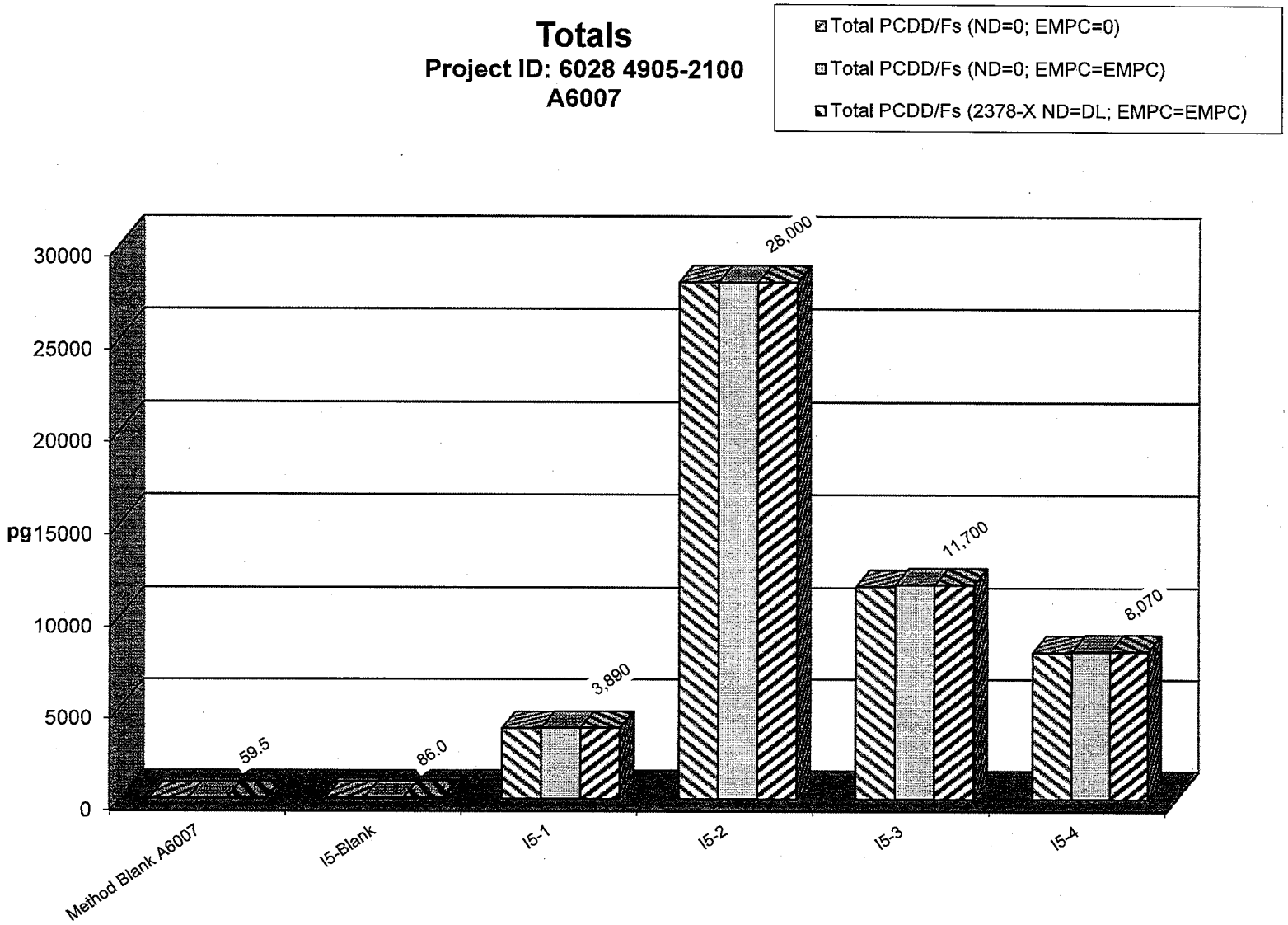
WHO-2005-TEQ

Project ID: 6028 4905-2100
A6007

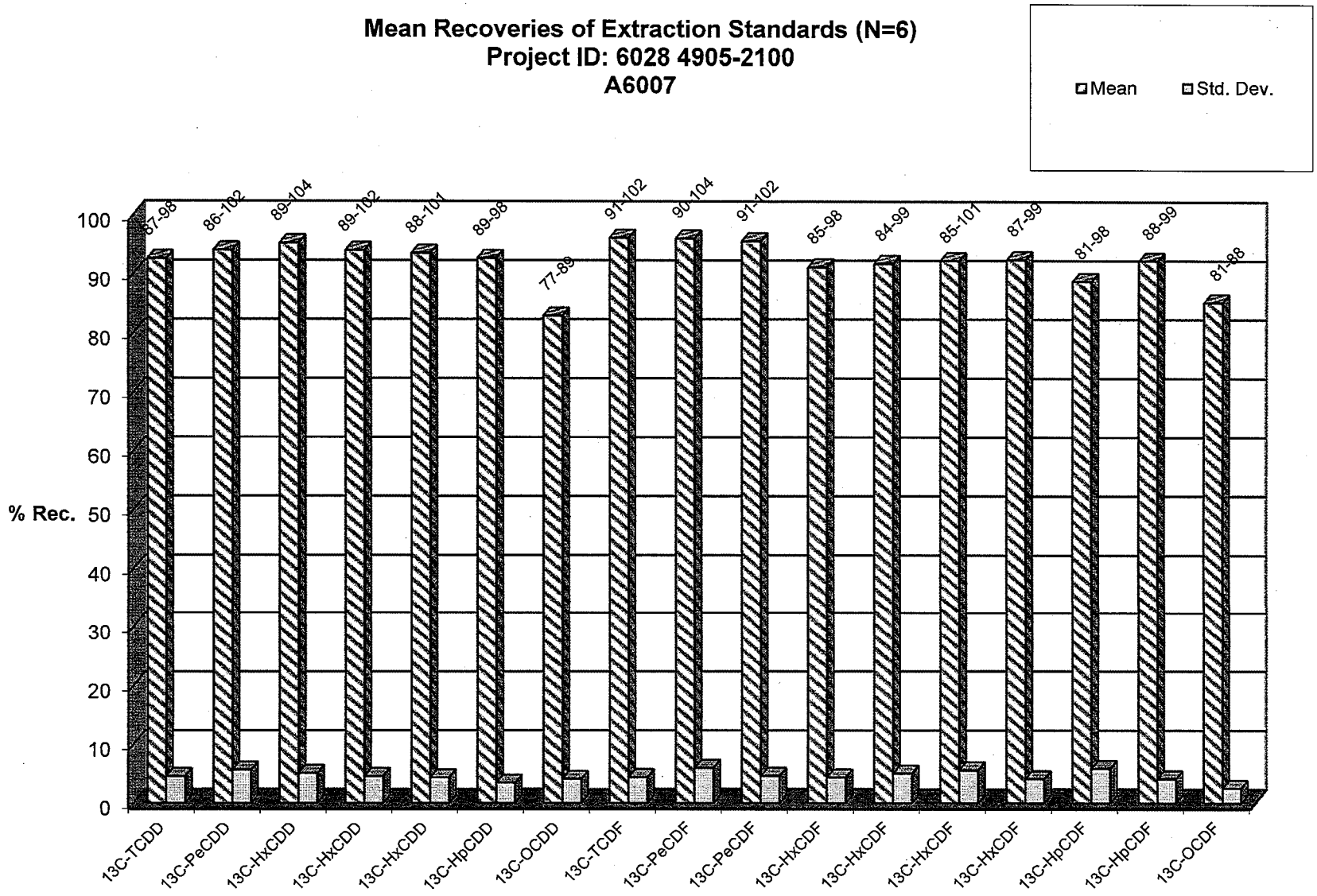


Totals

Project ID: 6028 4905-2100
A6007

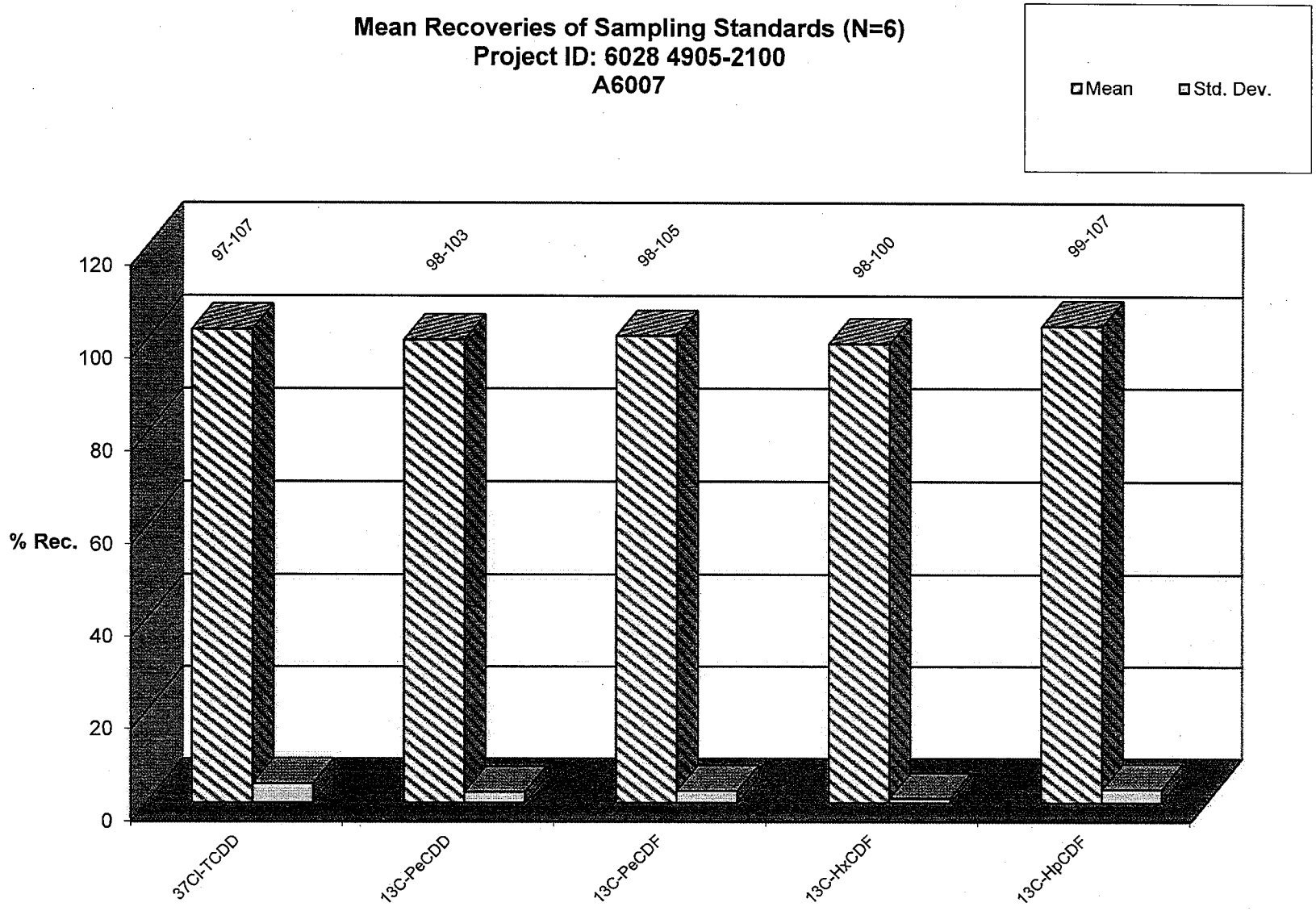


Mean Recoveries of Extraction Standards (N=6)
Project ID: 6028 4905-2100
A6007

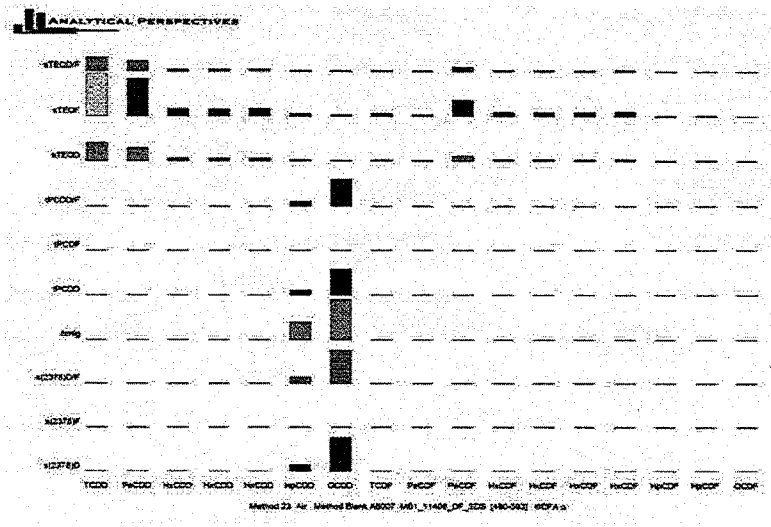


Method Specification Limits: Tetra-Hexa ES: 40-130%, Hepta-Octa ES: 25-130% (F = fail)

Mean Recoveries of Sampling Standards (N=6)
Project ID: 6028 4905-2100
A6007



Method Specification Limits: Tetra-Octa SS: 70-130% (F = fail)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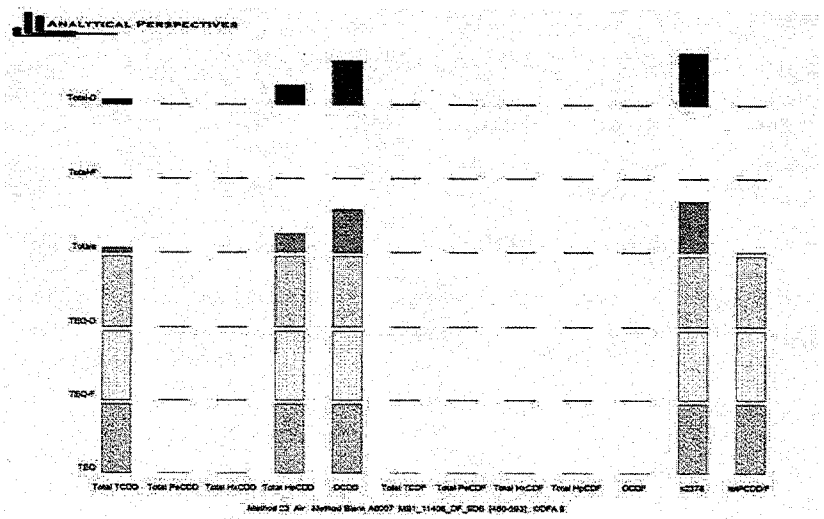
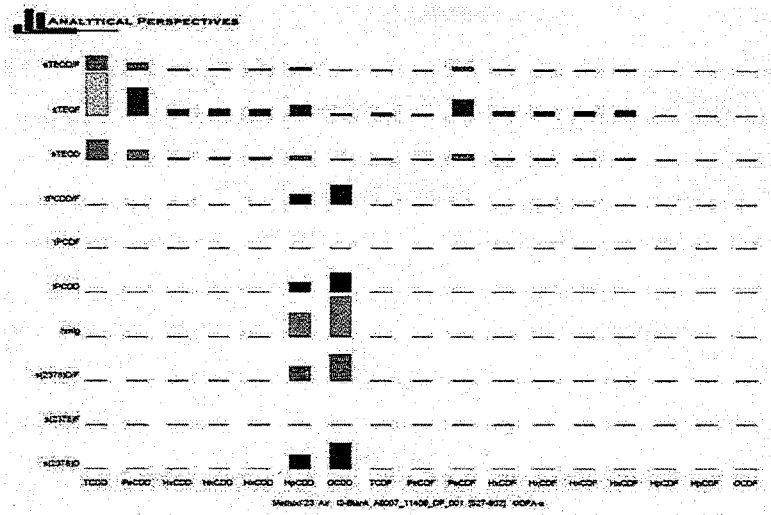

ANALYTICAL PERSPECTIVES
Total-O
Total-F
Totals
TEQ-O
TEQ-F
TEQ
Total TCDD Total PeCDD Total HxCDD Total HpCDD OCDD Total TCDF Total PeCDF Total HxCDF Total HpCDF OCDF 2378 totPCDD/F


ANALYTICAL PERSPECTIVES
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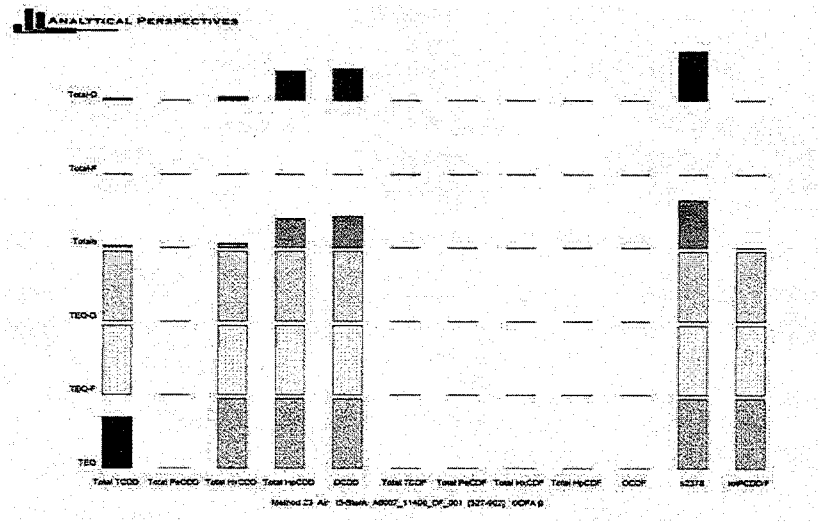
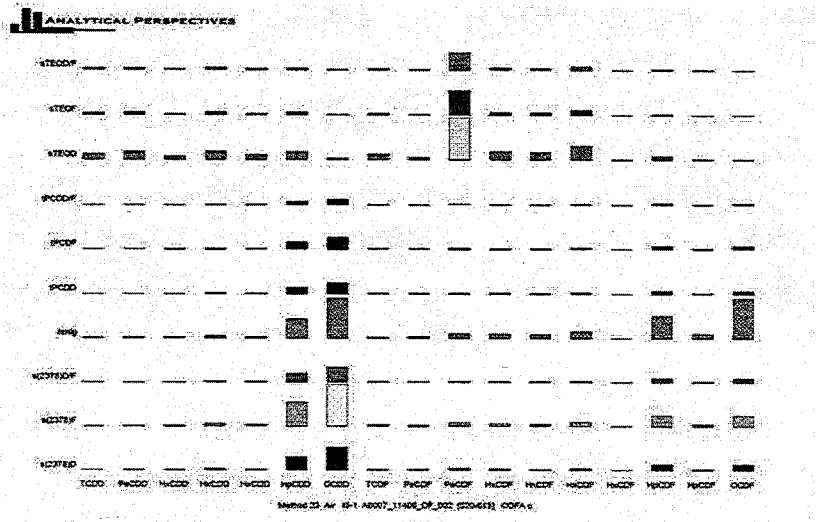
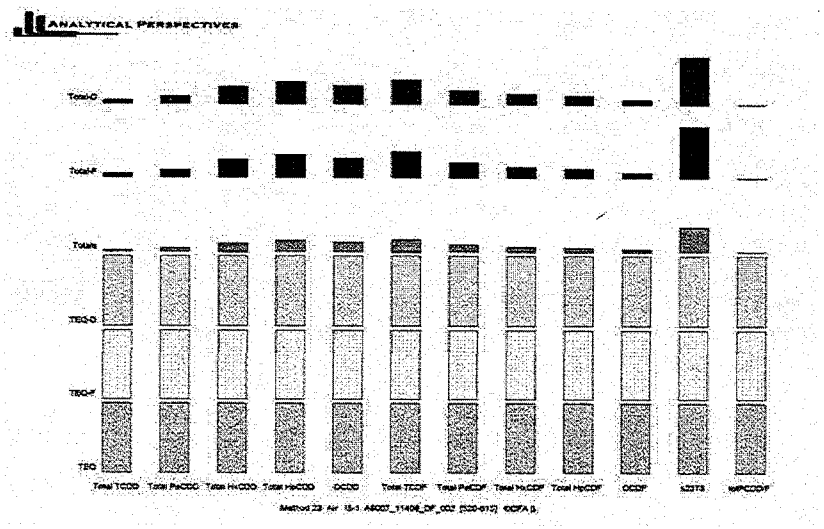

ANALYTICAL PERSPECTIVES
Total-O
Total-F
Totals
TEQ-O
TEQ-F
TEQ
Total TCDD Total PeCDD Total HxCDD Total HpCDD OCDD Total TCDF Total PeCDF Total HxCDF Total HpCDF OCDF 2378 totPCDD/F


ANALYTICAL PERSPECTIVES
TCDD PeCDD HxCDD HxCDD HxCDD HpCDD OCDD TCDF PeCDF PeCDF HxCDF HxCDF HxCDF HpCDF HpCDF HpCDF OCDF


ANALYTICAL PERSPECTIVES
Total-D
Total-F
Totals
TEQ-D
TEQ-F
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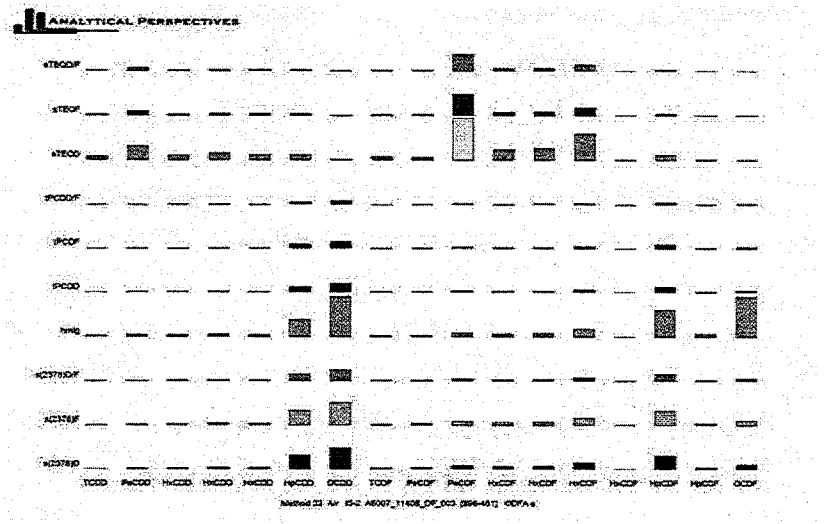
Total TCDD Total PeCDD Total HxCDD Total HxCDD OCDD Total TCDF Total PeCDF Total HxCDF Total HpCDF OCDF 2378 totPCDDF


ANALYTICAL PERSPECTIVES
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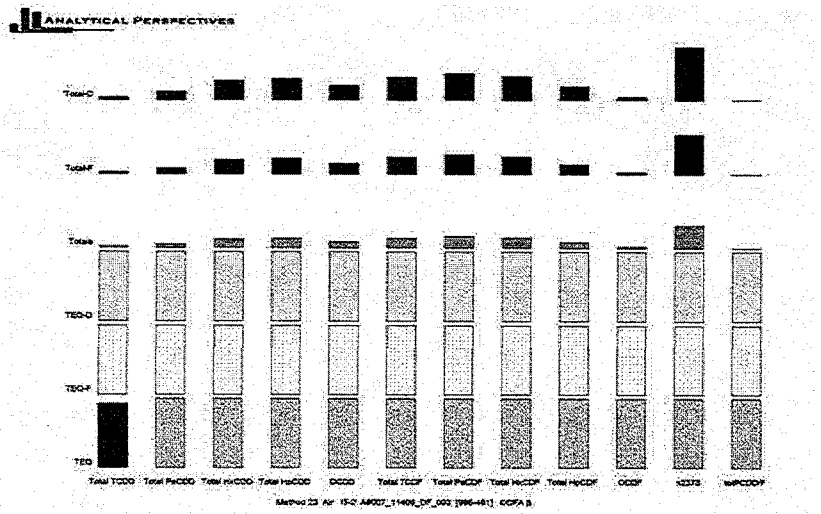
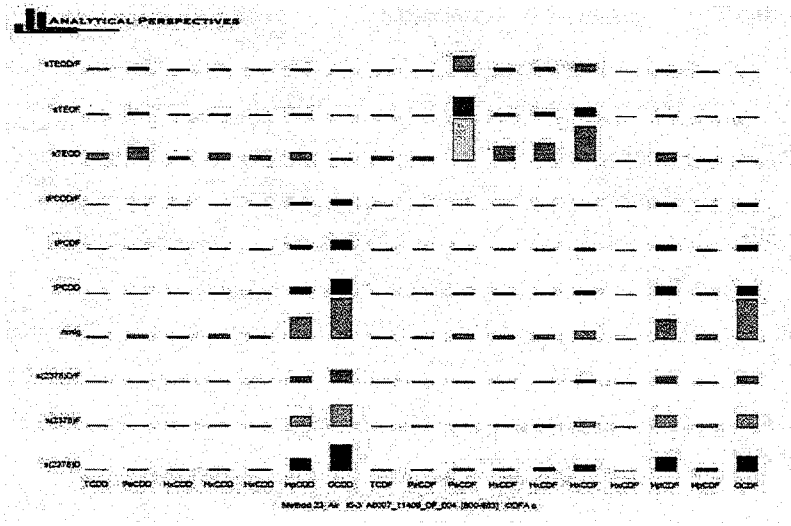
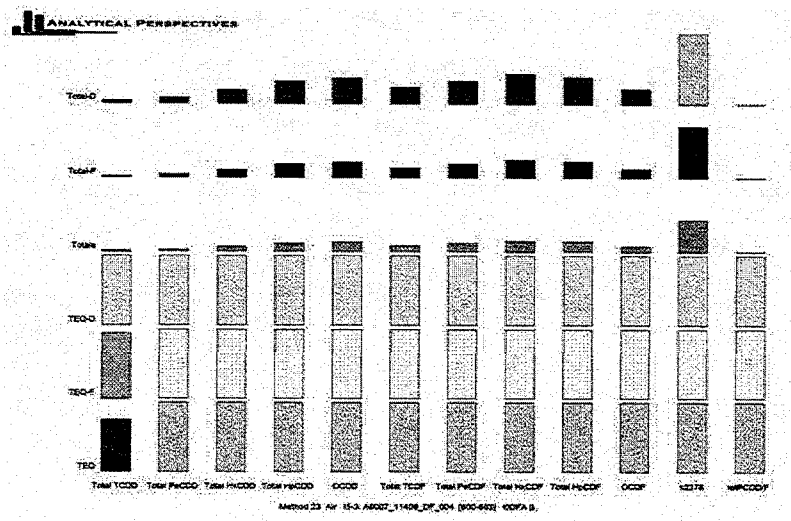
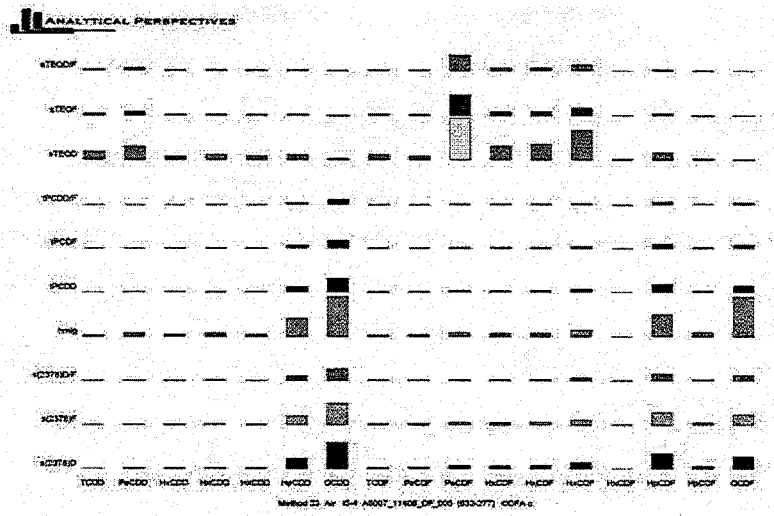
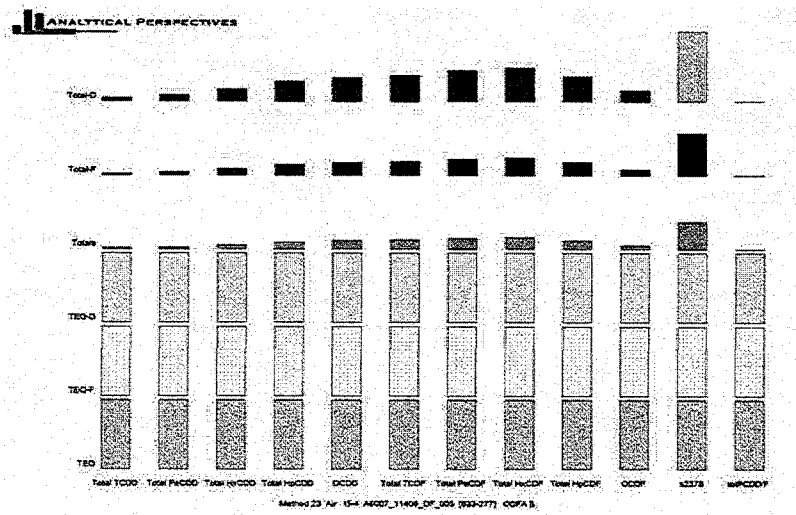

ANALYTICAL PERSPECTIVES
Total-D
Total-F
Totals
TEQ-D
TEQ-F
TEQ
Total TCDD Total PeCDD Total HxCDD Total HxCDD OCDD Total TCDF Total PeCDF Total HxCDF Total HpCDF OCDF 2378 totPCDDF


ANALYTICAL PERSPECTIVES
TCDD PeCDD HxCDD HxCDD HxCDD HpCDD OCDD TCDF PeCDF PeCDF HxCDF HxCDF HxCDF HxCDF HpCDF HpCDF OCDF


ANALYTICAL PERSPECTIVES
Total-D
Total-F
Totals
TEQ-D
TEQ-F
TEQ
Total TCDD Total PeCDD Total HxCDD Total HpCDD OCDD Total TCDF Total PeCDF Total HxCDF Total HpCDF OCDF 2378 totPCDD/F


ANALYTICAL PERSPECTIVES
TCDD PeCDD HxCDD HxCDD HxCDD HpCDD OCDD TCDF PeCDF PeCDF HxCDF HxCDF HxCDF HxCDF HpCDF HpCDF OCDF


ANALYTICAL PERSPECTIVES
Total-D
Total-F
Totals
TEQ-D
TEQ-F
TEQ
Total TCDD Total PeCDD Total HxCDD Total HpCDD OCDD Total TCDF Total PeCDF Total HxCDF Total HpCDF OCDF 2378 totPCDD/F

Sample ID: Method Blank A6007

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	AECOM	Matrix:	Air	Lab Project ID:	A6007	Date Received:	n/a
Project ID:	6028 4905-2100	Weight/Volume:	1	Lab Sample ID	MB1_11406_DF_SDS	Date Extracted:	08-Oct-2013
Date Collected:	n/a			QC Batch No:	11406	Date Analyzed:	13-Oct-2013
		Split:	2	Dilution:	-	Time Analyzed:	16:03:53

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	1.54			ES 2378-TCDD	98.1	
12378-PeCDD	ND	2.17			ES 12378-PeCDD	102	
123478-HxCDD	ND	2.18			ES 123478-HxCDD	104	
123678-HxCDD	ND	2.16			ES 123678-HxCDD	102	
123789-HxCDD	ND	2.32			ES 123789-HxCDD	101	
1234678-HpCDD	EMPC		4.13	J	ES 1234678-HpCDD	98.2	
OCDD	22.2			J	ES OCDD	89.3	
2378-TCDF	ND	0.927			ES 2378-TCDF	102	
12378-PeCDF	ND	0.996			ES 12378-PeCDF	104	
23478-PeCDF	ND	0.917			ES 23478-PeCDF	102	
123478-HxCDF	ND	1.29			ES 123478-HxCDF	97.6	
123678-HxCDF	ND	1.25			ES 123678-HxCDF	98.6	
234678-HxCDF	ND	1.24			ES 234678-HxCDF	101	
123789-HxCDF	ND	1.5			ES 123789-HxCDF	98.6	
1234678-HpCDF	ND	1.73			ES 1234678-HpCDF	97.9	
1234789-HpCDF	ND	2.1			ES 1234789-HpCDF	98.7	
OCDF	ND	3.06			ES OCDF	88	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	98.9	
Total TCDD	2.44		2.44		SS 12347-PeCDD	98.6	
Total PeCDD	ND	2.17	ND		SS 12346-PeCDF	100	
Total HxCDD	ND	2.21	ND		SS 123469-HxCDF	100	
Total HpCDD	ND		9.51		SS 1234689-HpCDF	104	
					AS 1368-TCDD	105	
Total TCDF	ND	0.927	ND		AS 1368-TCDF	103	
Total PeCDF	ND	0.956	ND				
Total HxCDF	ND	1.31	ND				
Total HpCDF	ND	1.9	ND				
Total PCDD/Fs	**24.6**		**34.1**				
ITEF TEQs							
TEQ: ND=0	0.0222		0.0634				
TEQ: ND=DL/2	2.26	2.24	2.29				
TEQ: ND=DL	4.5	4.49	4.52				

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Sample ID: I5-Blank

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	AECOM	Matrix:	Air	Lab Project ID:	A6007	Date Received:	07-Oct-2013
Project ID:	6028 4905-2100	Weight/Volume:	1	Lab Sample ID	A6007_11406_DF_001	Date Extracted:	08-Oct-2013
Date Collected:	02-Oct-2013			QC Batch No:	11406	Date Analyzed:	13-Oct-2013
		Split:	2	Dilution:	-	Time Analyzed:	16:56:31

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	1.68			ES 2378-TCDD	97.4	
12378-PeCDD	ND	1.7			ES 12378-PeCDD	97.6	
123478-HxCDD	ND	1.76			ES 123478-HxCDD	97.4	
123678-HxCDD	ND	1.93			ES 123678-HxCDD	95.1	
123789-HxCDD	ND	1.94			ES 123789-HxCDD	92.9	
1234678-HpCDD	16			J B	ES 1234678-HpCDD	92.7	
OCDD	30.1			J B	ES OCDD	81.9	
2378-TCDF	ND	0.9			ES 2378-TCDF	100	
12378-PeCDF	ND	1.05			ES 12378-PeCDF	101	
23478-PeCDF	ND	0.978			ES 23478-PeCDF	100	
123478-HxCDF	ND	1.41			ES 123478-HxCDF	93.7	
123678-HxCDF	ND	1.31			ES 123678-HxCDF	93.4	
234678-HxCDF	ND	1.38			ES 234678-HxCDF	94.4	
123789-HxCDF	ND	1.72			ES 123789-HxCDF	93	
1234678-HpCDF	ND	1.34			ES 1234678-HpCDF	90.9	
1234789-HpCDF	ND	1.61			ES 1234789-HpCDF	94.9	
OCDF	ND	2.29			ES OCDF	86.2	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	101	
Total TCDD	ND		1.81		SS 12347-PeCDD	103	
Total PeCDD	ND	1.7	ND		SS 12346-PeCDF	99.4	
Total HxCDD	ND		3.7		SS 123469-HxCDF	99.6	
Total HpCDD	16		27.4		SS 1234689-HpCDF	102	
					AS 1368-TCDD	101	
Total TCDF	ND	0.9	ND		AS 1368-TCDF	97.9	
Total PeCDF	ND	1.01	ND				
Total HxCDF	ND	1.44	ND				
Total HpCDF	ND	1.47	ND				
Total PCDD/Fs	**46.1**		**63**				
ITEF TEQs							
TEQ: ND=0	0.191		0.191				
TEQ: ND=DL/2	2.36	2.18	2.36				
TEQ: ND=DL	4.53	4.37	4.53				

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Sample ID: I5-1

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	AECOM	Matrix:	Air	Lab Project ID:	A6007	Date Received:	07-Oct-2013
Project ID:	6028 4905-2100	Weight/Volume:	1	Lab Sample ID	A6007_11406_DF_002	Date Extracted:	08-Oct-2013
Date Collected:	29-Sep-2013			QC Batch No:	11406	Date Analyzed:	13-Oct-2013
		Split:	2	Dilution:	-	Time Analyzed:	17:48:37

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		2.34	J	ES 2378-TCDD	87.2	
12378-PeCDD	EMPC		6.45	J	ES 12378-PeCDD	86	
123478-HxCDD	13			J	ES 123478-HxCDD	89.4	
123678-HxCDD	33.9			J	ES 123678-HxCDD	90	
123789-HxCDD	18.9			J	ES 123789-HxCDD	88.5	
1234678-HpCDD	316				ES 1234678-HpCDD	88.6	
OCDD	546				ES OCDD	76.7	
2378-TCDF	21.5				ES 2378-TCDF	90.6	
12378-PeCDF	18			J	ES 12378-PeCDF	92.2	
23478-PeCDF	50				ES 23478-PeCDF	91.1	
123478-HxCDF	33.4			J	ES 123478-HxCDF	85.2	
123678-HxCDF	29.2			J	ES 123678-HxCDF	84.3	
234678-HxCDF	54.3				ES 234678-HxCDF	85.2	
123789-HxCDF	ND	1.71			ES 123789-HxCDF	87.3	
1234678-HpCDF	143				ES 1234678-HpCDF	80.8	
1234789-HpCDF	27.6			J	ES 1234789-HpCDF	88.4	
OCDF	142				ES OCDF	81.4	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	107	
Total TCDD	99.8		109		SS 12347-PeCDD	98.1	
Total PeCDD	210		221		SS 12346-PeCDF	99.7	
Total HxCDD	510		510		SS 123469-HxCDF	98.8	
Total HpCDD	653		653		SS 1234689-HpCDF	105	
					AS 1368-TCDD	91	
Total TCDF	732		732		AS 1368-TCDF	92.6	
Total PeCDF	419		419				
Total HxCDF	303		303				
Total HpCDF	257		257				
Total PCDD/Fs	**3870**		**3890**				
ITEF TEQs							
TEQ: ND=0	51.9		57.5				
TEQ: ND=DL/2	53	2.14	57.5				
TEQ: ND=DL	54.2	4.28	57.6				

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Sample ID: I5-2

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	AECOM	Matrix:	Air	Lab Project ID:	A6007	Date Received:	07-Oct-2013
Project ID:	6028 4905-2100	Weight/Volume:	1	Lab Sample ID	A6007_11406_DF_003	Date Extracted:	08-Oct-2013
Date Collected:	30-Sep-2013			QC Batch No:	11406	Date Analyzed:	13-Oct-2013
		Split:	2	Dilution:	-	Time Analyzed:	18:41:14

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	12.2				ES 2378-TCDD	90.9	
12378-PeCDD	86.3				ES 12378-PeCDD	94.1	
123478-HxCDD	148				ES 123478-HxCDD	95.2	
123678-HxCDD	209				ES 123678-HxCDD	94.4	
123789-HxCDD	166				ES 123789-HxCDD	95	
1234678-HpCDD	1670				ES 1234678-HpCDD	94.7	
OCDD	2600				ES OCDD	84.3	
2378-TCDF	107				ES 2378-TCDF	95.5	
12378-PeCDF	166				ES 12378-PeCDF	90.9	
23478-PeCDF	450				ES 23478-PeCDF	93.2	
123478-HxCDF	327				ES 123478-HxCDF	91.1	
123678-HxCDF	368				ES 123678-HxCDF	94	
234678-HxCDF	830				ES 234678-HxCDF	93.9	
123789-HxCDF	ND	4.95			ES 123789-HxCDF	94.9	
1234678-HpCDF	1630				ES 1234678-HpCDF	90.6	
1234789-HpCDF	173				ES 1234789-HpCDF	91.9	
OCDF	546				ES OCDF	87.5	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	103	
Total TCDD	509		528		SS 12347-PeCDD	98.9	
Total PeCDD	1520		1520		SS 12346-PeCDF	103	
Total HxCDD	3490		3490		SS 123469-HxCDF	97.7	
Total HpCDD	3800		3800		SS 1234689-HpCDF	101	
					AS 1368-TCDD	95.8	
Total TCDF	4090		4090		AS 1368-TCDF	94.8	
Total PeCDF	4740		4740				
Total HxCDF	4230		4230				
Total HpCDF	2420		2420				
Total PCDD/Fs	**28000**		**28000**				
ITEF TEQs							
TEQ: ND=0	542		542				
TEQ: ND=DL/2	542	3.92	542				
TEQ: ND=DL	543	7.83	543				

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Sample ID: I5-3

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	AECOM	Matrix:	Air	Lab Project ID:	A6007	Date Received:	07-Oct-2013
Project ID:	6028 4905-2100	Weight/Volume:	1	Lab Sample ID	A6007_11406_DF_004	Date Extracted:	08-Oct-2013
Date Collected:	01-Oct-2013			QC Batch No:	11406	Date Analyzed:	13-Oct-2013
		Split:	2	Dilution:	-	Time Analyzed:	19:33:47

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		6.58	J	ES 2378-TCDD	88.5	
12378-PeCDD	EMPC		25.8	J	ES 12378-PeCDD	89.9	
123478-HxCDD	29.9			J	ES 123478-HxCDD	91.9	
123678-HxCDD	69.1				ES 123678-HxCDD	89.4	
123789-HxCDD	44.6			J	ES 123789-HxCDD	90.5	
1234678-HpCDD	750				ES 1234678-HpCDD	91.7	
OCDD	1640				ES OCDD	83.1	
2378-TCDF	39.4				ES 2378-TCDF	92.3	
12378-PeCDF	72.6				ES 12378-PeCDF	89.6	
23478-PeCDF	151				ES 23478-PeCDF	91.2	
123478-HxCDF	146				ES 123478-HxCDF	87.9	
123678-HxCDF	182				ES 123678-HxCDF	87.9	
234678-HxCDF	372				ES 234678-HxCDF	87.6	
123789-HxCDF	ND	4.76			ES 123789-HxCDF	88.7	
1234678-HpCDF	871				ES 1234678-HpCDF	87.8	
1234789-HpCDF	199				ES 1234789-HpCDF	87.6	
OCDF	961				ES OCDF	83.9	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	97	
Total TCDD	144		164		SS 12347-PeCDD	98.8	
Total PeCDD	301		355		SS 12346-PeCDF	98.3	
Total HxCDD	854		854		SS 123469-HxCDF	99.1	
Total HpCDD	1440		1440		SS 1234689-HpCDF	99.3	
					AS 1368-TCDD	95	
Total TCDF	1040		1050		AS 1368-TCDF	92.3	
Total PeCDF	1500		1500				
Total HxCDF	1940		1940				
Total HpCDF	1760		1760				
Total PCDD/Fs	**11600**		**11700**				
ITEF TEQs							
TEQ: ND=0	188		208				
TEQ: ND=DL/2	190	3.84	208				
TEQ: ND=DL	192	7.68	208				

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Sample ID: I5-4

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	AECOM	Matrix:	Air	Lab Project ID:	A6007	Date Received:	07-Oct-2013
Project ID:	6028 4905-2100	Weight/Volume:	1	Lab Sample ID	A6007_11406_DF_005	Date Extracted:	08-Oct-2013
Date Collected:	02-Oct-2013			QC Batch No:	11406	Date Analyzed:	13-Oct-2013
		Split:	2	Dilution:	-	Time Analyzed:	20:26:26

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		6.42	J	ES 2378-TCDD	93.5	
12378-PeCDD	EMPC		21.5	J	ES 12378-PeCDD	94.8	
123478-HxCDD	25.9			J	ES 123478-HxCDD	93.8	
123678-HxCDD	40.9			J	ES 123678-HxCDD	93.4	
123789-HxCDD	30.4			J	ES 123789-HxCDD	93.4	
1234678-HpCDD	395				ES 1234678-HpCDD	90.2	
OCDD	989				ES OCDD	82.3	
2378-TCDF	40.2				ES 2378-TCDF	96.5	
12378-PeCDF	61.6				ES 12378-PeCDF	98.7	
23478-PeCDF	125				ES 23478-PeCDF	96.2	
123478-HxCDF	113				ES 123478-HxCDF	91.7	
123678-HxCDF	123				ES 123678-HxCDF	92.6	
234678-HxCDF	235				ES 234678-HxCDF	91.7	
123789-HxCDF	ND	4.22			ES 123789-HxCDF	92.3	
1234678-HpCDF	574				ES 1234678-HpCDF	84.8	
1234789-HpCDF	102				ES 1234789-HpCDF	92.2	
OCDF	462				ES OCDF	84.3	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	107	
Total TCDD	133		161		SS 12347-PeCDD	103	
Total PeCDD	245		266		SS 12346-PeCDF	105	
Total HxCDD	516		516		SS 123469-HxCDF	100	
Total HpCDD	845		845		SS 1234689-HpCDF	107	
					AS 1368-TCDD	100	
Total TCDF	1070		1080		AS 1368-TCDF	99	
Total PeCDF	1290		1290				
Total HxCDF	1410		1410				
Total HpCDF	1040		1040				
Total PCDD/Fs	**8010**		**8060**				
ITEF TEQs							
TEQ: ND=0	139		156				
TEQ: ND=DL/2	141	4.03	156				
TEQ: ND=DL	143	8.06	156				

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Appendix C

Calibration Data

Clean Air Engineering - Meter Box Full Test Calibration

Client:	AECOM	**Reviewed By:**	R.Redel	**Calibration Signature:**	
ID No:	n/a	**Calibrated By:**	O.Lavrov	**Meter Box Yd:**	1.0034
Dept No:	n/a	**Date of Calibration:**	06/11/13	**Meter Box ΔH@:**	1.7732
Meter Box Serial No:	0028-061113-1	**Due Date of Calibration:**	06/11/14	**Barometer Serial No:**	W12637
Manufacturer Part No:	0028	**Meter Box Vacuum:**	1.0 in. H_2O	**Barometric Pressure:**	28.99 in. Hg

				Standard Meter Gas Volume (ft^3)			Meter Box Gas Volume (ft^3)			Std. Meter Temperature (°F)			Meter Box Temperature (°F)			Time (min.)	Calibration Results	
Q	ΔH	ΔP	Y_{ds}	Initial	Final	V_{ds} Net	Initial	Final	V_d Net	T_{ls} In	T_{os} Out	T_{ds} Avg.	T_i In	T_o Out	T_d Avg.	Θ	Y_d	ΔH@
0.379	0.50	-1.20	1.0000	0.000	5.000	5.000	127.421	132.507	5.086	77.0	77.0	77.00	93.0	90.0	91.50	12.56	1.0053	1.8203
0.380	0.50	-1.20	1.0000	0.000	5.000	5.000	132.507	137.592	5.085	77.0	77.0	77.00	93.0	89.0	91.00	12.54	1.0046	1.8178
0.670	1.50	-1.40	1.0000	0.000	10.000	10.000	103.323	113.533	10.210	77.0	77.0	77.00	100.0	91.0	95.50	14.21	1.0057	1.7443
0.671	1.50	-1.40	1.0000	0.000	10.000	10.000	113.533	123.750	10.217	77.0	77.0	77.00	100.0	91.0	95.50	14.19	1.0051	1.7394
0.944	3.00	-1.80	1.0000	0.000	10.000	10.000	74.405	84.633	10.228	77.0	77.0	77.00	101.0	90.0	95.50	10.09	0.9992	1.7621
0.945	3.00	-1.80	1.0000	0.000	10.000	10.000	84.633	94.866	10.233	77.0	77.0	77.00	102.0	91.0	96.50	10.08	1.0005	1.7554
																Averages	1.00339	1.77321

Nomenclature

P_b	Barometric Pressure (in. Hg)
Q	Flow Rate (cfm)
ΔH	Orifice Pressure differential (in. H_2O)
ΔP	Inlet Pressure Differential (in. H_2O)
V_d	Gas Meter Volume - Dry (ft^3)
V_{ds}	Standard Meter Volume - Dry (ft^3)
T_d	Average Meter Box Temperature (°F)
T_o	Outlet Meter Box Temperature (°F)
T_{ds}	Average Standard Meter Temperature (°F)
Y_d	Meter Correction Factor (unitless), $Y_i \le Y_{avg} \pm 0.02$
Y_{ds}	Standard Meter Correction Factor (unitless)
ΔH@	Orifice Pressure Differential giving 0.75 cfm of air at 68°F and 29.92 in. Hg (in. H_2O) $\Delta H@_i \le \Delta H@_{avg} \pm 0.2$
Θ	Duration of Run (minutes)

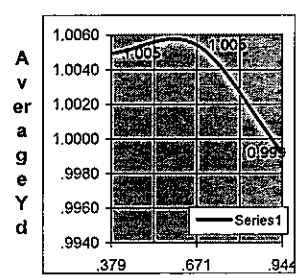
Equations

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

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

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

Average YD vs. Average CFM



Vacuum Gauge

Standard (in.Hg)	Gauge (in.Hg)
4.8	5.0
9.8	10.0
14.9	15.0
20.1	20.0
25.1	25.0

Calibration Reference Information (Standard Meter)

Reference Used:	Wet Test Meter	Serial No:	11AG9
Calibrated By:	Martin Vaquero	Date Calibrated:	7/22/2012
Percent Error:	0.245%	Calibration Due Date:	7/23/2013

Meter Box Pre-Calibration Inspection

Positive Leak Check:	Pass	Electrical Check:	Pass
Negative Leak Check:	Pass	Pyrometer Checl	Pass
Vacuum Gauge Check	Pass	YD Tolerance: ± 2% of 1.0000	Pass

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Meter Box - Pyrometer Calibration Sheet

Meter Box No: 0028-061113-1

Office: Clean Air 80

Calibrated by: O.Lavrov

Client: AECOM

Date: 6/11/13

Job No: N/A

Temperature Scale Used: Fahrenheit

Type of Calibration: Full-Test

Calibration Reference Settings (°F)	Pyrometer Reading for each Channel (°F)						
	1 Stack	2 Probe	3 Filter	4 Imp Out	5 Aux		
50	50	49	50	50	50		
100	100	99	100	100	100		
150	150	149	150	150	150		
200	200	199	200	200	200		
250	250	249	250	250	250		
300	300	299	300	300	300		
350	350	349	350	350	350		
400	400	399	400	400	400		
450	450	449	450	450	450		
500	500	499	500	500	500		
550	550	549	550	550	550		
600	600	599	600	600	600		

Tolerance = ±2°F difference from reference setting.

Calibration Reference Information

Reference Used: Omega CL23A

Serial No: T-279500

Calibrated By: JH Metrology

Date Calibrated: 8/20/2012

Calibration Report No: 1000164078

Calibration Due Date: 8/20/2013

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Alternative RM-5 Post Test Calibration
SMMI - Pogo Mine
Particulate and Hydrogen Chloride Sample Runs
Incinerator
09/29/13

RUN #	METER BOX	RUN TIME (min)	dH@	M_d	P_b (in. Hg)	T_{dm} (°F)	T_{dm} (°R)	V_{dm} (acf)	dH_{avg} (in. H_2O)	$(SQRT\ dH)_{avg}$ SQRT (in. H_2O)	Y_{qa}
I5-1	Hawkeye	81	1.7732	29.63	28.00	60.3	520.3	60.407	1.71	1.31	0.9987
I5-2	Hawkeye	79	1.7732	29.67	28.25	68.7	528.7	57.485	1.63	1.28	1.0054
I5-3	Hawkeye	80	1.7732	29.59	28.40	65.3	525.3	58.110	1.63	1.28	1.0020
										Average	1.0020

Average Y_{dq}	Meter Y_d	% Difference
1.0020	1.0034	0.14%

The difference between the average Yqa for the three runs and the meter box Yd must be within five percent to pass the calibration

Reference: Roger T. Shigehara, P.G. Royals, and E.W. Steward, "Alternative Method 5 Post-Test Calibration", Entropy Inc.

Alternative RM-5 Post Test Calibration
SMMI - Pogo Mine
Dioxin and Furans Sample Runs
Incinerator
09/29/13

RUN #	METER BOX	RUN TIME (min)	dH@	M_d	P_b (in. Hg)	T_{dm} (°F)	T_{dm} (°R)	V_{dm} (acf)	dH_{avg} (in. H_2O)	$(SQRT\ dH)_{avg}$ SQRT (in. H_2O)	Y_{qa}
I23-1	Hawkeye	127	1.7732	29.63	28.05	62.8	522.8	92.252	1.64	1.28	1.0073
I23-2	Hawkeye	127	1.7732	29.68	28.20	55.7	515.7	90.889	1.64	1.28	1.0132
I23-3	Hawkeye	127	1.7732	29.67	28.40	65.2	525.2	90.196	1.62	1.27	1.0194
										Average	1.0133

Average Y_{dq}	Meter Y_d	% Difference
1.0133	1.0034	0.97%

The difference between the average Yqa for the three runs and the meter box Yd must be within five percent to pass the calibration

Reference: Roger T. Shigehara, P.G. Royals, and E.W. Steward, "Alternative Method 5 Post-Test Calibration", Entropy Inc.

Alternative RM-5 Post Test Calibration
SMMI - Pogo Mine
Metals Sample Runs
Incinerator
09/29/13

AECOM

RUN #	METER BOX	RUN TIME (min)	dH@	M_d	P_b (in. Hg)	T_{dm} (°F)	T_{dm} (°R)	V_{dm} (acf)	dH_{avg} (in. H_2O)	$(SQRT\ dH)_{avg}$ SQRT (in. H_2O)	Y_{qa}
I29-1	Hawkeye	60	1.7732	29.69	28.00	70.2	530.2	43.625	1.63	1.28	1.0115
I29-2	Hawkeye	127	1.7732	29.66	28.25	69.9	529.9	92.412	1.63	1.28	1.0058
I29-3	Hawkeye	127	1.7732	29.66	28.40	62.5	522.5	91.847	1.63	1.28	1.0030
										Average	1.0068

Average Y_{dq}	Meter Y_d	% Difference
1.0068	1.0034	0.34%

The difference between the average Yqa for the three runs and the meter box Yd must be within five percent to pass the calibration

Reference: Roger T. Shigehara, P.G. Royals, and E.W. Steward, "Alternative Method 5 Post-Test Calibration", Entropy Inc.

PROBE CALIBRATION FORM

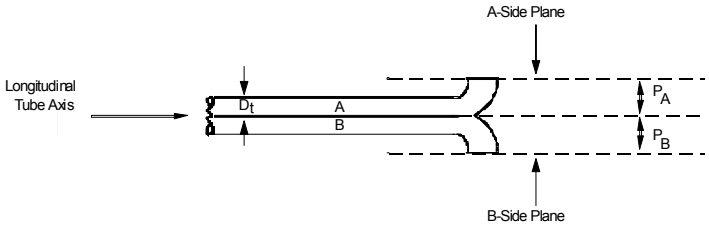
S-TYPE CALIBRATION DATA

Probe ID: 403 **Date:** 8/13/2013 **Technician:** D. Bopray

D_t = 0.375 in. $3/16 \leq D_t \leq 3/8$

P_A = 0.449 in. $1.05D_t \leq P \leq 1.50D_t$

P_B = 0.449 in. $P_A = P_B$

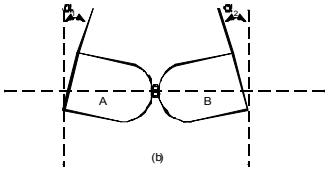


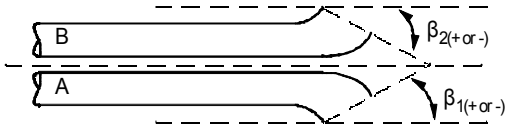
a_1 = 0 ° $a_1 \leq 10^o$

a_2 = 0 ° $a_1 \leq 10^o$

b_1 = 2 ° $b_2 \leq 5^o$

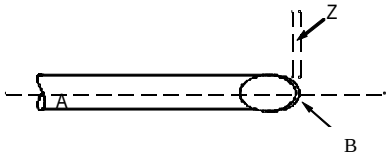
b_2 = 3 ° $b_2 \leq 5^o$

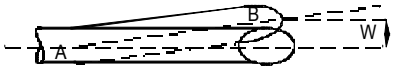




Z = 0.000 in. $Z \leq 0.125"$

W = 0.031 in. $W \leq 0.031"$





THERMOCOUPLE CALIBRATION DATA

Thermocouple ID#: 403 **Standard ID #:** Traceable S/N 111976025

Ambient Temp (F°): 76 **Barometric Pressure (in. Hg):** 25.3

Temperature Reference Point	Source	Reference Temperature R °	Thermocouple Potentiometer Temperature	Temperature Difference (%) ≤ 1.5 %
0 C° (32 F°)	Ice Water	494	493.9	0.02
100 C° (212 F°)	Boiling Water	665	663	0.30
~25° C (~75°F)	Ambient	536	535	0.19
150-250 C° (300-500 F°)	Hot Oil	778	775	0.39

THERMOCOUPLE CALIBRATION FORM

Thermocouple ID IO-021
Date 9/14/2013
Barometric Pressure (in Hg) 25.3
Calibrator D. Bopray

Standard ID Traceable S/N 111976025
Ambient Temp.(^oF) 76

Temperature Reference Point	Source	Reference Temperature (R)	Thermocouple Potentiometer Temperature (R)	Temperature Difference (%)
(32^oF)	Ice Water	492	493	-0.20
(75°F)	Ambient	537	538	-0.19
(212^oF)	Boiling Water	659	658	0.15

R= ^oF+460
Temperature Difference (%) <= 1.5%
Temperature Difference (%) = (Reference Temp.-Thermocouple temp.)/Reference temp.

THERMOCOUPLE CALIBRATION FORM

Thermocouple ID IO-031
Date 8/14/2013
Barometric Pressure (in Hg) 25.3
Calibrator D. Bopray

Standard ID Traceable S/N 111976025
Ambient Temp.(^oF) 76

Temperature Reference Point	Source	Reference Temperature (R)	Thermocouple Potentiometer Temperature (R)	Temperature Difference (%)
(32°F)	Ice Water	493	494	-0.20
(75°F)	Ambient	537	537.3	-0.06
(212°F)	Boiling Water	661	660	0.15

R= ^{o}F+460
Temperature Difference (%) <= 1.5%
Temperature Difference (%) = (Reference Temp.-Thermocouple temp.)/Reference temp.

THERMOCOUPLE CALIBRATION FORM

Thermocouple ID IO-032
Date 8/14/2013
Barometric Pressure (in Hg) 25.3
Calibrator D. Bopray

Standard ID Traceable S/N 111976025
Ambient Temp.(^oF) 76

Temperature Reference Point	Source	Reference Temperature (R)	Thermocouple Potentiometer Temperature (R)	Temperature Difference (%)
(32°F)	Ice Water	494	493.8	0.04
(75°F)	Ambient	537	538	-0.19
(212°F)	Boiling Water	661	659	0.30

R= ^{o}F+460
Temperature Difference (%) <= 1.5%
Temperature Difference (%) = (Reference Temp.-Thermocouple temp.)/Reference temp.

THERMOCOUPLE CALIBRATION FORM

Thermocouple ID IO-033
Date 8/14/2013
Barometric Pressure (in Hg) 25.3
Calibrator D. Bopray

Standard ID Traceable S/N 111976025
Ambient Temp.(^oF) 76

Temperature Reference Point	Source	Reference Temperature (R)	Thermocouple Potentiometer Temperature (R)	Temperature Difference (%)
(32°F)	Ice Water	494	494.5	-0.10
(75°F)	Ambient	536	536	0.00
(212°F)	Boiling Water	660	657	0.45

R= ^{o}F+460
Temperature Difference (%) <= 1.5%
Temperature Difference (%) = (Reference Temp.-Thermocouple temp.)/Reference temp.

Analyzer Calibration

AECOM

Client	SMMI - Pogo	Cylinder #, Supplier, & Conc.	Analyzer	NOx	Model TEI 42C
Location	Delta Junction, AK	cc237902 NOx 46.31 CO 45.39 SO2 44.95	Full Scale	236.5	Serial #
Source ID	Incinerator	cc20720 NOx 92.01 CO 91.66 SO2 90.1	Analyzer	CO	Model TEI 48C
Operator	J Rosburg	xc0094123 NOx 236.5 CO 230.3 SO2 234.9	Full Scale	91.7	Serial #
Date	09/29/13	cc37929 O2 19.98 CO2 19.41	Analyzer		Model
Initial Cal Time	0910-0927	cc255539 O2 10.01 CO2 10.13	Full Scale		Serial #
Final Cal Time	1941-1955		Analyzer	SO2	Model AMETEK 921
			Full Scale	90.1	Serial #
			Analyzer	O2	Model Sevomex1440
			Full Scale	19.98	Serial #
			Analyzer	CO2	Model Sevomex1440
			Full Scale	19.41	Serial #

			Cylinder Value (ppm/%)	Analyzer Response (ppm/%)	Absolute Difference (ppm/%)	Percent Difference (% of span)	Percent Difference (Pass/Fail)
Analyzer NOx		Zero	0.0	0.0	0.0	0.0	Pass
Initial Analyzer Response		Mid-Range	92.0	91.4	0.6	0.3	Pass
		High-Range	236.5	236.9	0.4	0.2	Pass
		Zero	0.0	0.0	0.0	0.0	Pass
Analyzer Response		Mid-Range	92.0	92.0	0.0	0.0	Pass
		High-Range	236.5	238.5	2.0	0.8	Pass
Analyzer CO		Zero	0.0	0.0	0.0	0.0	Pass
Initial Analyzer Response		Mid-Range	45.4	46.4	1.0	1.1	Pass
		High-Range	91.7	92.4	0.7	0.8	Pass
		Zero	0.0	-0.8	0.8	0.9	Pass
Analyzer Response		Mid-Range	45.4	46.5	1.1	1.2	Pass
		High-Range	91.7	93.1	1.4	1.6	Pass
Analyzer SO2		Zero	0.0	0.0	0.0	0.0	Pass
Initial Analyzer Response		Mid-Range	45.0	44.9	0.1	0.1	Pass
		High-Range	90.1	90.7	0.6	0.7	Pass
		Zero	0.0	-1.5	1.5	1.7	Pass
Analyzer Response		Mid-Range	45.0	45.8	0.8	0.9	Pass
		High-Range	90.1	91.5	1.4	1.6	Pass
Analyzer	Predicted	Zero					
Initial Analyzer Response		Mid-Range					
		Mid-Range					
* Cal. through CEM system		High-Range					
	Predicted	Zero					
Analyzer Response		Mid-Range					
		Mid-Range					
* Cal. through CEM system		High-Range					
Analyzer O2		Zero	0.00	0.01	0.0	0.1	Pass
Initial Analyzer Response		Mid-Range	10.01	10.05	0.0	0.2	Pass
		High-Range	19.98	20.08	0.1	0.5	Pass
		Zero	0.00	0.00	0.0	0.0	Pass
Analyzer Response		Mid-Range	10.01	10.07	0.1	0.3	Pass
		High-Range	19.98	20.16	0.2	0.9	Pass
Analyzer CO2		Zero	0.00	0.04	0.0	0.2	Pass
Initial Analyzer Response		Mid-Range	10.13	9.84	0.3	1.5	Pass
		High-Range	19.41	19.39	0.0	0.1	Pass
		Zero	0.00	-0.04	0.0	0.2	Pass
Analyzer Response		Mid-Range	10.13	9.80	0.3	1.7	Pass
		High-Range	19.41	19.43	0.0	0.1	Pass

Cal Error % =abs(CEM-Cylinder) / CS X 100
Allowable Calibration Error % = 2.0 for all analyzers except THC which is 5.0

Analyzer Bias

AECOM

Client:	SMMI - Pogo	Analyzer:	NOx	Span Value:	236.5
Location:	Delta Junction, AK	Analyzer:	CO	Span Value:	91.7
Source ID:	Incinerator	Analyzer:	SO2	Span Value:	90.1
Run Number:	Run I5-1	Analyzer:		Span Value:	
Date:	09/29/13	Analyzer:	O2	Span Value:	19.98
Run Time:	1106-1242	Analyzer:	CO2	Span Value:	19.41

Run No.	Monitor ID	Analyzer Response (ppm)	Initial Values				Final Values				Calibration Drift	
			Initial Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	Final Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	(%)	(Pass/Fail)
Run 1 Zero	NOx	0.0	940	0.0	0.0	Pass	1253	-0.1	0.0	Pass	0.0	Pass
Run 1 Span	NOx	91.4	932	90.4	-0.4	Pass	1246	90.9	-0.2	Pass	0.2	Pass
Run 1 Zero	CO	0.0	940	-0.7	-0.8	Pass	1253	0.1	0.1	Pass	0.9	Pass
Run 1 Span	CO	46.4	935	45.9	-0.5	Pass	1250	45.7	-0.8	Pass	-0.2	Pass
Run 1 Zero	SO2	0.0	940	0.5	0.6	Pass	1253	1.1	1.2	Pass	0.7	Pass
Run 1 Span	SO2	44.9	935	45.5	0.7	Pass	1250	45.6	0.8	Pass	0.1	Pass
Run 1 Zero												
Run 1 Span												
Run 1 Zero	O2	0.01	932	0.07	0.3	Pass	1246	0.07	0.3	Pass	0.0	Pass
Run 1 Span	O2	10.05	940	10.07	0.1	Pass	1253	10.03	-0.1	Pass	-0.2	Pass
Run 1 Zero	CO2	0.04	932	0.02	-0.1	Pass	1246	0.02	-0.1	Pass	0.0	Pass
Run 1 Span	CO2	9.84	940	9.56	-1.4	Pass	1253	9.51	-1.7	Pass	-0.3	Pass

System Cal Bias % = (System Cal Response - Analyzer Response) / CS X 100 % Allowable = 5.0

Calibration Drift = (Final System Response - Initial System Response) / CS X 100 % Allowable = 3.0

Analyzer Bias

AECOM

Client:	SMMI - Pogo	Analyzer:	NOx	Span Value:	236.5
Location:	Delta Junction, AK	Analyzer:	CO	Span Value:	91.7
Source ID:	Incinerator	Analyzer:	SO2	Span Value:	90.1
Run Number:	Run I29-1	Analyzer:		Span Value:	
Date:	09/29/13	Analyzer:	O2	Span Value:	19.98
Run Time:	1406-1506	Analyzer:	CO2	Span Value:	19.41

Run No.	Monitor ID	Analyzer Response (ppm)	Initial Values				Final Values				Calibration Drift	
			Initial Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	Final Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	(%)	(Pass/Fail)
Run 2 Zero	NOx	0.0	1253	-0.1	0.0	Pass	1600	0.0	0.0	Pass	0.0	Pass
Run 2 Span	NOx	91.4	1246	90.9	-0.2	Pass	1554	91.0	-0.2	Pass	0.0	Pass
Run 2 Zero	CO	0.0	1253	0.1	0.1	Pass	1600	-2.2	-2.4	Pass	-2.5	Pass
Run 2 Span	CO	46.4	1250	45.7	-0.8	Pass	1557	44.6	-2.0	Pass	-1.2	Pass
Run 2 Zero	SO2	0.0	1253	1.1	1.2	Pass	1600	0.7	0.8	Pass	-0.4	Pass
Run 2 Span	SO2	44.9	1250	45.6	0.8	Pass	1557	44.5	-0.4	Pass	-1.2	Pass
Run 2 Zero												
Run 2 Span												
Run 2 Zero	O2	0.01	1246	0.07	0.3	Pass	1554	0.06	0.3	Pass	-0.1	Pass
Run 2 Span	O2	10.05	1253	10.03	-0.1	Pass	1600	10.03	-0.1	Pass	0.0	Pass
Run 2 Zero	CO2	0.04	1246	0.02	-0.1	Pass	1554	0.02	-0.1	Pass	0.0	Pass
Run 2 Span	CO2	9.84	1253	9.51	-1.7	Pass	1600	9.49	-1.8	Pass	-0.1	Pass

System Cal Bias % = (System Cal Response - Analyzer Response) / CS X 100 % Allowable = 5.0

Calibration Drift = (Final System Response - Initial System Response) / CS X 100 % Allowable = 3.0

Analyzer Bias

AECOM

Client:	SMMI - Pogo	Analyzer:	NOx	Span Value:	236.5
Location:	Delta Junction, AK	Analyzer:	CO	Span Value:	91.7
Source ID:	Incinerator	Analyzer:	SO2	Span Value:	90.1
Run Number:	Run I23-1	Analyzer:		Span Value:	
Date:	09/29/13	Analyzer:	O2	Span Value:	19.98
Run Time:	1722-1929	Analyzer:	CO2	Span Value:	19.41

Run No.	Monitor ID	Analyzer Response (ppm)	Initial Values				Final Values				Calibration Drift	
			Initial Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	Final Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	(%)	(Pass/Fail)
Run 3 Zero	NOx	0.0	1600	0	0.0	Pass	1940	0.0	0.0	Pass	0.0	Pass
Run 3 Span	NOx	91.4	1554	91	-0.2	Pass	1933	90.5	-0.4	Pass	-0.2	Pass
Run 3 Zero	CO	0.0	1602	0	0.0	Pass	1940	0.1	0.1	Pass	0.1	Pass
Run 3 Span	CO	46.4	1557	44.6	-2.0	Pass	1936	44.9	-1.6	Pass	0.3	Pass
Run 3 Zero	SO2	0.0	1600	0.7	0.8	Pass	1940	-0.4	-0.4	Pass	-1.2	Pass
Run 3 Span	SO2	44.9	1557	44.5	-0.4	Pass	1936	46.8	2.1	Pass	2.6	Pass
Run 3 Zero												
Run 3 Span												
Run 3 Zero	O2	0.01	1554	0.06	0.3	Pass	1933	0.06	0.3	Pass	0.0	Pass
Run 3 Span	O2	10.05	1600	10.03	-0.1	Pass	1940	10.02	-0.2	Pass	-0.1	Pass
Run 3 Zero	CO2	0.04	1554	0.02	-0.1	Pass	1933	0.00	-0.2	Pass	-0.1	Pass
Run 3 Span	CO2	9.84	1600	9.49	-1.8	Pass	1940	9.48	-1.9	Pass	-0.1	Pass

System Cal Bias % = (System Cal Response - Analyzer Response) / CS X 100 % Allowable = 5.0

Calibration Drift = (Final System Response - Initial System Response) / CS X 100 % Allowable = 3.0

Analyzer Calibration

AECOM

Client	SMMI - Pogo	Cylinder #, Supplier, & Conc.	Analyzer	NOx	Model TEI 42C
Location	Delta Junction, AK	cc237902 NOx 46.31 CO 45.39 SO2 44.95	Full Scale	236.5	Serial #
Source ID	Incinerator	cc20720 NOx 92.01 CO 91.66 SO2 90.1	Analyzer	CO	Model TEI 48C
Operator	J Rosburg	xc0094123 NOx 236.5 CO 230.3 SO2 234.9	Full Scale	91.7	Serial #
Date	09/30/13	cc37929 O2 19.98 CO2 19.41	Analyzer		Model
Initial Cal Time	0804-0821	cc255539 O2 10.01 CO2 10.13	Full Scale		Serial #
Final Cal Time	1728-1744		Analyzer	SO2	Model AMETEK 921
			Full Scale	90.1	Serial #
			Analyzer	O2	Model Sevomex1440
			Full Scale	19.98	Serial #
			Analyzer	CO2	Model Sevomex1440
			Full Scale	19.41	Serial #

			Cylinder Value (ppm/%)	Analyzer Response (ppm/%)	Absolute Difference (ppm/%)	Percent Difference (% of span)	Percent Difference (Pass/Fail)
Analyzer NOx		Zero	0.0	0.0	0.0	0.0	Pass
Initial Analyzer Response		Mid-Range	92.0	91.5	0.5	0.2	Pass
		High-Range	236.5	236.9	0.4	0.2	Pass
		Zero	0.0	0.0	0.0	0.0	Pass
Analyzer Response		Mid-Range	92.0	90.4	1.6	0.7	Pass
		High-Range	236.5	235.5	1.0	0.4	Pass
Analyzer CO		Zero	0.0	0.1	0.1	0.1	Pass
Initial Analyzer Response		Mid-Range	45.4	46.4	1.0	1.1	Pass
		High-Range	91.7	92.2	0.5	0.6	Pass
		Zero	0.0	-0.9	0.9	1.0	Pass
Analyzer Response		Mid-Range	45.4	46.7	1.3	1.4	Pass
		High-Range	91.7	91.9	0.2	0.3	Pass
Analyzer SO2		Zero	0.0	0.0	0.0	0.0	Pass
Initial Analyzer Response		Mid-Range	45.0	44.8	0.2	0.2	Pass
		High-Range	90.1	90.6	0.5	0.6	Pass
		Zero	0.0	0.6	0.6	0.7	Pass
Analyzer Response		Mid-Range	45.0	46.3	1.3	1.5	Pass
		High-Range	90.1	91.9	1.8	2.0	Pass
Analyzer	Predicted	Zero					
Initial Analyzer Response		Mid-Range					
		Mid-Range					
* Cal. through CEM system		High-Range					
	Predicted	Zero					
Analyzer Response		Mid-Range					
		Mid-Range					
* Cal. through CEM system		High-Range					
Analyzer O2		Zero	0.00	0.01	0.0	0.1	Pass
Initial Analyzer Response		Mid-Range	10.01	10.09	0.1	0.4	Pass
		High-Range	19.98	20.20	0.2	1.1	Pass
		Zero	0.00				
Analyzer Response		Mid-Range	10.01	10.08	0.1	0.4	Pass
		High-Range	19.98	20.12	0.1	0.7	Pass
Analyzer CO2		Zero	0.00	0.02	0.0	0.1	Pass
Initial Analyzer Response		Mid-Range	10.13	9.79	0.3	1.8	Pass
		High-Range	19.41	19.48	0.1	0.4	Pass
		Zero	0.00				
Analyzer Response		Mid-Range	10.13	9.78	0.4	1.8	Pass
		High-Range	19.41	19.72	0.3	1.6	Pass

Cal Error % =abs(CEM-Cylinder) / CS X 100
Allowable Calibration Error % = 2.0 for all analyzers except THC which is 5.0

Analyzer Bias

AECOM

Client:	SMMI - Pogo	Analyzer:	NOx	Span Value:	236.5
Location:	Delta Junction, AK	Analyzer:	CO	Span Value:	91.7
Source ID:	Incinerator	Analyzer:	SO2	Span Value:	90.1
Run Number:	Run I23-2	Analyzer:		Span Value:	
Date:	09/30/13	Analyzer:	O2	Span Value:	19.98
Run Time:	0923-1129	Analyzer:	CO2	Span Value:	19.41

Run No.	Monitor ID	Analyzer Response (ppm)	Initial Values				Final Values				Calibration Drift	
			Initial Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	Final Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	(%)	(Pass/Fail)
Run 1 Zero	NOx	0.0	912	0.0	0.0	Pass	1133	0.0	0.0	Pass	0.0	Pass
Run 1 Span	NOx	91.5	918	89.5	-0.8	Pass	1137	88.5	-1.3	Pass	-0.4	Pass
Run 1 Zero	CO	0.1	912	0.8	0.8	Pass	1133	-0.5	-0.7	Pass	-1.4	Pass
Run 1 Span	CO	46.4	920	46.1	-0.3	Pass	1140	46.4	0.0	Pass	0.3	Pass
Run 1 Zero	SO2	0.0	912	0.0	0.0	Pass	1133	1.1	1.2	Pass	1.2	Pass
Run 1 Span	SO2	44.8	920	46.7	2.1	Pass	1140	46.9	2.3	Pass	0.2	Pass
Run 1 Zero												
Run 1 Span												
Run 1 Zero	O2	0.01	918	0.07	0.3	Pass	1140	0.06	0.3	Pass	-0.1	Pass
Run 1 Span	O2	10.09	912	10.05	-0.2	Pass	1133	10.03	-0.3	Pass	-0.1	Pass
Run 1 Zero	CO2	0.02	918	0.04	0.1	Pass	1140	0.03	0.1	Pass	-0.1	Pass
Run 1 Span	CO2	9.79	912	9.82	0.2	Pass	1133	9.81	0.1	Pass	-0.1	Pass

System Cal Bias % = (System Cal Response - Analyzer Response) / CS X 100 % Allowable = 5.0

Calibration Drift = (Final System Response - Initial System Response) / CS X 100 % Allowable = 3.0

Analyzer Bias

AECOM

Client:	SMMI - Pogo	Analyzer:	NOx	Span Value:	236.5
Location:	Delta Junction, AK	Analyzer:	CO	Span Value:	91.7
Source ID:	Incinerator	Analyzer:	SO2	Span Value:	90.1
Run Number:	Run I5-2	Analyzer:		Span Value:	
Date:	09/30/13	Analyzer:	O2	Span Value:	19.98
Run Time:	1251-1410	Analyzer:	CO2	Span Value:	19.41

Run No.	Monitor ID	Analyzer Response (ppm)	Initial Values				Final Values				Calibration Drift	
			Initial Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	Final Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	(%)	(Pass/Fail)
Run 2 Zero	NOx	0.0	1133	0	0.0	Pass	1423	0.0	0.0	Pass	0.0	Pass
Run 2 Span	NOx	91.5	1137	88.5	-1.3	Pass	1416	87.9	-1.5	Pass	-0.3	Pass
Run 2 Zero	CO	0.1	1133	-0.5	-0.7	Pass	1423	0.0	-0.1	Pass	0.5	Pass
Run 2 Span	CO	46.4	1140	46.4	0.0	Pass	1420	46.8	0.4	Pass	0.4	Pass
Run 2 Zero	SO2	0.0	1133	1.1	1.2	Pass	1423	1.4	1.6	Pass	0.3	Pass
Run 2 Span	SO2	44.8	1140	46.9	2.3	Pass	1420	46.5	1.9	Pass	-0.4	Pass
Run 2 Zero												
Run 2 Span												
Run 2 Zero	O2	0.01	1140	0.06	0.3	Pass	1416	0.04	0.2	Pass	-0.1	Pass
Run 2 Span	O2	10.09	1133	10.03	-0.3	Pass	1423	10.01	-0.4	Pass	-0.1	Pass
Run 2 Zero	CO2	0.02	1140	0.03	0.1	Pass	1416	0.02	0.0	Pass	-0.1	Pass
Run 2 Span	CO2	9.79	1133	9.81	0.1	Pass	1423	9.82	0.2	Pass	0.1	Pass

System Cal Bias % = (System Cal Response - Analyzer Response) / CS X 100 % Allowable = 5.0

Calibration Drift = (Final System Response - Initial System Response) / CS X 100 % Allowable = 3.0

Analyzer Bias

AECOM

Client:	SMMI - Pogo	Analyzer:	NOx	Span Value:	236.5
Location:	Delta Junction, AK	Analyzer:	CO	Span Value:	91.7
Source ID:	Incinerator	Analyzer:	SO2	Span Value:	90.1
Run Number:	Run I29-2	Analyzer:		Span Value:	
Date:	09/30/13	Analyzer:	O2	Span Value:	19.98
Run Time:	1506-1712	Analyzer:	CO2	Span Value:	19.41

Run No.	Monitor ID	Analyzer Response (ppm)	Initial Values				Final Values				Calibration Drift	
			Initial Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	Final Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	(%)	(Pass/Fail)
Run 3 Zero	NOx	0.0	1423	0	0.0	Pass	1719	0.0	0.0	Pass	0.0	Pass
Run 3 Span	NOx	91.5	1416	87.9	-1.5	Pass	1723	88.9	-1.1	Pass	0.4	Pass
Run 3 Zero	CO	0.1	1423	0	-0.1	Pass	1719	0.1	0.0	Pass	0.1	Pass
Run 3 Span	CO	46.4	1420	46.8	0.4	Pass	1727	46.7	0.3	Pass	-0.1	Pass
Run 3 Zero	SO2	0.0	1423	1.4	1.6	Pass	1719	1.1	1.2	Pass	-0.3	Pass
Run 3 Span	SO2	44.8	1420	46.5	1.9	Pass	1727	46.4	1.8	Pass	-0.1	Pass
Run 3 Zero												
Run 3 Span												
Run 3 Zero	O2	0.01	1416	0.04	0.2	Pass	1723	0.06	0.3	Pass	0.1	Pass
Run 3 Span	O2	10.09	1423	10.01	-0.4	Pass	1719	10.04	-0.3	Pass	0.2	Pass
Run 3 Zero	CO2	0.02	1416	0.02	0.0	Pass	1723	0.04	0.1	Pass	0.1	Pass
Run 3 Span	CO2	9.79	1423	9.82	0.2	Pass	1719	9.85	0.3	Pass	0.2	Pass

System Cal Bias % = (System Cal Response - Analyzer Response) / CS X 100 % Allowable = 5.0

Calibration Drift = (Final System Response - Initial System Response) / CS X 100 % Allowable = 3.0

Analyzer Calibration

AECOM

Client	SMMI - Pogo	Cylinder #, Supplier, & Conc.	Analyzer	NOx	Model TEI 42C
Location	Delta Junction, AK	cc237902 NOx 46.31 CO 45.39 SO2 44.95	Full Scale	236.5	Serial #
Source ID	Incinerator	cc20720 NOx 92.01 CO 91.66 SO2 90.1	Analyzer	CO	Model TEI 48C
Operator	J Rosburg	xc0094123 NOx 236.5 CO 230.3 SO2 234.9	Full Scale	91.7	Serial #
Date	10/01/13	cc37929 O2 19.98 CO2 19.41	Analyzer		Model
Initial Cal Time	0809-0828	cc255539 O2 10.01 CO2 10.13	Full Scale		Serial #
Final Cal Time	1642-1652		Analyzer	SO2	Model AMETEK 921
			Full Scale	90.1	Serial #
			Analyzer	O2	Model Sevomex1440
			Full Scale	19.98	Serial #
			Analyzer	CO2	Model Sevomex1440
			Full Scale	19.41	Serial #

			Cylinder Value (ppm/%)	Analyzer Response (ppm/%)	Absolute Difference (ppm/%)	Percent Difference (% of span)	Percent Difference (Pass/Fail)
Analyzer NOx		Zero	0.0	0.0	0.0	0.0	Pass
Initial Analyzer Response		Mid-Range	92.0	91.8	0.2	0.1	Pass
		High-Range	236.5	238.0	1.5	0.6	Pass
		Zero	0.0	0.0	0.0	0.0	Pass
Analyzer Response		Mid-Range	92.0	91.4	0.6	0.3	Pass
		High-Range	236.5	236.4	0.1	0.0	Pass
Analyzer CO		Zero	0.0	-0.7	0.7	0.8	Pass
Initial Analyzer Response		Mid-Range	45.4	45.0	0.4	0.4	Pass
		High-Range	91.7	90.0	1.7	1.8	Pass
		Zero	0.0	-1.2	1.2	1.3	Pass
Analyzer Response		Mid-Range	45.4	46.7	1.3	1.4	Pass
		High-Range	91.7	92.7	1.0	1.1	Pass
Analyzer SO2		Zero	0.0	0.0	0.0	0.0	Pass
Initial Analyzer Response		Mid-Range	45.0	45.7	0.8	0.8	Pass
		High-Range	90.1	91.2	1.1	1.2	Pass
		Zero	0.0	-0.1	0.1	0.1	Pass
Analyzer Response		Mid-Range	45.0	46.7	1.8	1.9	Pass
		High-Range	90.1	91.9	1.8	2.0	Pass
Analyzer	Predicted	Zero					
Initial Analyzer Response		Mid-Range					
		Mid-Range					
* Cal. through CEM system		High-Range					
	Predicted	Zero					
Analyzer Response		Mid-Range					
		Mid-Range					
* Cal. through CEM system		High-Range					
Analyzer O2		Zero	0.00	-0.02	0.0	0.1	Pass
Initial Analyzer Response		Mid-Range	10.01	10.07	0.1	0.3	Pass
		High-Range	19.98	20.08	0.1	0.5	Pass
		Zero	0.00	-0.02	0.0	0.1	Pass
Analyzer Response		Mid-Range	10.01	10.08	0.1	0.4	Pass
		High-Range	19.98	20.16	0.2	0.9	Pass
Analyzer CO2		Zero	0.00	0.00	0.0	0.0	Pass
Initial Analyzer Response		Mid-Range	10.13	9.85	0.3	1.4	Pass
		High-Range	19.41	19.50	0.1	0.5	Pass
		Zero	0.00	0.00	0.0	0.0	Pass
Analyzer Response		Mid-Range	10.13	9.88	0.3	1.3	Pass
		High-Range	19.41	19.67	0.3	1.3	Pass

Cal Error % =abs(CEM-Cylinder) / CS X 100
Allowable Calibration Error % = 2.0 for all analyzers except THC which is 5.0

Analyzer Bias

AECOM

Client:	SMMI - Pogo	Analyzer:	NOx	Span Value:	236.5
Location:	Delta Junction, AK	Analyzer:	CO	Span Value:	91.7
Source ID:	Incinerator	Analyzer:	SO2	Span Value:	90.1
Run Number:	Run I29-3	Analyzer:		Span Value:	
Date:	10/01/13	Analyzer:	O2	Span Value:	19.98
Run Time:	0859-1106	Analyzer:	CO2	Span Value:	19.41

Run No.	Monitor ID	Analyzer Response (ppm)	Initial Values				Final Values				Calibration Drift	
			Initial Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	Final Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	(%)	(Pass/Fail)
Run 1 Zero	NOx	0.0	834	0.0	0.0	Pass	1113	-0.1	0.0	Pass	0.0	Pass
Run 1 Span	NOx	91.8	838	90.4	-0.6	Pass	1118	89.9	-0.8	Pass	-0.2	Pass
Run 1 Zero	CO	-0.7	834	0.3	1.1	Pass	1113	0.0	0.8	Pass	-0.3	Pass
Run 1 Span	CO	45.0	840	45.9	1.0	Pass	1122	46.1	1.2	Pass	0.2	Pass
Run 1 Zero	SO2	0.0	834	0.0	0.0	Pass	1113	0.8	0.9	Pass	0.9	Pass
Run 1 Span	SO2	45.7	840	45.3	-0.4	Pass	1122	46.1	0.4	Pass	0.9	Pass
Run 1 Zero												
Run 1 Span												
Run 1 Zero	O2	-0.02	838	0.04	0.3	Pass	1118	0.04	0.3	Pass	0.0	Pass
Run 1 Span	O2	10.07	834	10.08	0.1	Pass	1113	10.04	-0.2	Pass	-0.2	Pass
Run 1 Zero	CO2	0.00	838	0.04	0.2	Pass	1118	0.00	0.0	Pass	-0.2	Pass
Run 1 Span	CO2	9.85	834	9.77	-0.4	Pass	1113	9.74	-0.6	Pass	-0.2	Pass

System Cal Bias % = (System Cal Response - Analyzer Response) / CS X 100 % Allowable = 5.0
Calibration Drift = (Final System Response - Initial System Response) / CS X 100 % Allowable = 3.0

Analyzer Bias

AECOM

Client:	SMMI - Pogo	Analyzer:	NOx	Span Value:	236.5
Location:	Delta Junction, AK	Analyzer:	CO	Span Value:	91.7
Source ID:	Incinerator	Analyzer:	SO2	Span Value:	90.1
Run Number:	Run I23-3	Analyzer:		Span Value:	
Date:	10/01/13	Analyzer:	O2	Span Value:	19.98
Run Time:	1159-1406	Analyzer:	CO2	Span Value:	19.41

Run No.	Monitor ID	Analyzer Response (ppm)	Initial Values				Final Values				Calibration Drift	
			Initial Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	Final Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	(%)	(Pass/Fail)
Run 2 Zero	NOx	0.0	1113	-0.1	0.0	Pass	1410	0.0	0.0	Pass	0.0	Pass
Run 2 Span	NOx	91.8	1118	89.9	-0.8	Pass	1414	89.6	-0.9	Pass	-0.1	Pass
Run 2 Zero	CO	-0.7	1113	0	0.8	Pass	1410	0.0	0.8	Pass	0.0	Pass
Run 2 Span	CO	45.0	1122	46.1	1.2	Pass	1417	45.9	1.0	Pass	-0.2	Pass
Run 2 Zero	SO2	0.0	1113	0.8	0.9	Pass	1410	0.9	1.0	Pass	0.1	Pass
Run 2 Span	SO2	45.7	1122	46.1	0.4	Pass	1417	45.9	0.2	Pass	-0.2	Pass
Run 2 Zero												
Run 2 Span												
Run 2 Zero	O2	-0.02	1118	0.04	0.3	Pass	1414	0.03	0.3	Pass	-0.1	Pass
Run 2 Span	O2	10.07	1113	10.04	-0.2	Pass	1410	10.03	-0.2	Pass	-0.1	Pass
Run 2 Zero	CO2	0.00	1118	0	0.0	Pass	1414	0.01	0.1	Pass	0.1	Pass
Run 2 Span	CO2	9.85	1113	9.74	-0.6	Pass	1410	9.74	-0.6	Pass	0.0	Pass

System Cal Bias % = (System Cal Response - Analyzer Response) / CS X 100 % Allowable = 5.0

Calibration Drift = (Final System Response - Initial System Response) / CS X 100 % Allowable = 3.0

Analyzer Bias

AECOM

Client:	SMMI - Pogo	Analyzer:	NOx	Span Value:	236.5
Location:	Delta Junction, AK	Analyzer:	CO	Span Value:	91.7
Source ID:	Incinerator	Analyzer:	SO2	Span Value:	90.1
Run Number:	Run I5-3	Analyzer:		Span Value:	
Date:	10/01/13	Analyzer:	O2	Span Value:	19.98
Run Time:	1506-1626	Analyzer:	CO2	Span Value:	19.41

Run No.	Monitor ID	Analyzer Response (ppm)	Initial Values				Final Values				Calibration Drift	
			Initial Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	Final Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	(%)	(Pass/Fail)
Run 3 Zero	NOx	0.0	1410	0	0.0	Pass	1629	0.0	0.0	Pass	0.0	Pass
Run 3 Span	NOx	91.8	1414	89.6	-0.9	Pass	1635	88.4	-1.4	Pass	-0.5	Pass
Run 3 Zero	CO	-0.7	1410	0	0.8	Pass	1629	-1.4	-0.8	Pass	-1.5	Pass
Run 3 Span	CO	45.0	1417	45.9	1.0	Pass	1637	45.1	0.1	Pass	-0.9	Pass
Run 3 Zero	SO2	0.0	1410	0.9	1.0	Pass	1629	0.5	0.6	Pass	-0.4	Pass
Run 3 Span	SO2	45.7	1417	45.9	0.2	Pass	1637	46.4	0.8	Pass	0.6	Pass
Run 3 Zero												
Run 3 Span												
Run 3 Zero	O2	-0.02	1414	0.03	0.3	Pass	1635	0.12	0.7	Pass	0.5	Pass
Run 3 Span	O2	10.07	1410	10.03	-0.2	Pass	1631	10.06	-0.1	Pass	0.2	Pass
Run 3 Zero	CO2	0.00	1414	0.01	0.1	Pass	1635	0.12	0.6	Pass	0.6	Pass
Run 3 Span	CO2	9.85	1410	9.74	-0.6	Pass	1631	9.80	-0.3	Pass	0.3	Pass

System Cal Bias % = (System Cal Response - Analyzer Response) / CS X 100 % Allowable = 5.0

Calibration Drift = (Final System Response - Initial System Response) / CS X 100 % Allowable = 3.0

Analyzer Calibration

AECOM

Client	SMMI - Pogo	Cylinder #, Supplier, & Conc.	Analyzer	NOx	Model TEI 42C
Location	Delta Junction, AK	cc237902 NOx 46.31 CO 45.39 SO2 44.95	Full Scale	236.5	Serial #
Source ID	Incinerator	cc20720 NOx 92.01 CO 91.66 SO2 90.1	Analyzer	CO	Model TEI 48C
Operator	J Rosburg	xc0094123 NOx 236.5 CO 230.3 SO2 234.9	Full Scale	91.7	Serial #
Date	10/02/13	cc37929 O2 19.98 CO2 19.41	Analyzer		Model
Initial Cal Time	0814-0828	cc255539 O2 10.01 CO2 10.13	Full Scale		Serial #
Final Cal Time			Analyzer	SO2	Model AMETEK 921
			Full Scale	90.1	Serial #
			Analyzer	O2	Model Sevomex1440
			Full Scale	19.98	Serial #
			Analyzer	CO2	Model Sevomex1440
			Full Scale	19.41	Serial #

			Cylinder Value (ppm/%)	Analyzer Response (ppm/%)	Absolute Difference (ppm/%)	Percent Difference (% of span)	Percent Difference (Pass/Fail)
Analyzer NOx		Zero	0.0	0.0	0.0	0.0	Pass
Initial Analyzer Response		Mid-Range	92.0	91.4	0.6	0.3	Pass
		High-Range	236.5	236.9	0.4	0.2	Pass
		Zero	0.0				
Analyzer Response		Mid-Range	92.0				
		High-Range	236.5				
Analyzer CO		Zero	0.0	0.2	0.2	0.2	Pass
Initial Analyzer Response		Mid-Range	45.4	46.6	1.2	1.3	Pass
		High-Range	91.7	92.3	0.6	0.7	Pass
		Zero	0.0				
Analyzer Response		Mid-Range	45.4				
		High-Range	91.7				
Analyzer SO2		Zero	0.0	0.2	0.2	0.2	Pass
Initial Analyzer Response		Mid-Range	45.0	45.1	0.1	0.2	Pass
		High-Range	90.1	90.2	0.1	0.1	Pass
		Zero	0.0				
Analyzer Response		Mid-Range	45.0				
		High-Range	90.1				
Analyzer	Predicted	Zero					
Initial Analyzer Response		Mid-Range					
		Mid-Range					
* Cal. through CEM system		High-Range					
	Predicted	Zero					
Analyzer Response		Mid-Range					
		Mid-Range					
* Cal. through CEM system		High-Range					
Analyzer O2		Zero	0.00	0.01	0.0	0.1	Pass
Initial Analyzer Response		Mid-Range	10.01	10.16	0.2	0.8	Pass
		High-Range	19.98	20.36	0.4	1.9	Pass
		Zero	0.00	-0.03	0.0	0.2	Pass
Analyzer Response		Mid-Range	10.01	10.39	0.4	1.9	Pass
		High-Range	19.98	20.01	0.0	0.2	Pass
Analyzer CO2		Zero	0.00	0.03	0.0	0.2	Pass
Initial Analyzer Response		Mid-Range	10.13	9.85	0.3	1.4	Pass
		High-Range	19.41	19.60	0.2	1.0	Pass
		Zero	0.00	-0.08	0.1	0.4	Pass
Analyzer Response		Mid-Range	10.13	9.98	0.2	0.8	Pass
		High-Range	19.41	19.49	0.1	0.4	Pass

Cal Error % =abs(CEM-Cylinder) / CS X 100
Allowable Calibration Error % = 2.0 for all analyzers except THC which is 5.0

Analyzer Bias

AECOM

Client:	SMMI - Pogo	Analyzer:	NOx	Span Value:	236.5
Location:	Delta Junction, AK	Analyzer:	CO	Span Value:	91.7
Source ID:	Incinerator	Analyzer:	SO2	Span Value:	90.1
Run Number:	Run I29-4	Analyzer:		Span Value:	
Date:	10/02/13	Analyzer:	O2	Span Value:	19.98
Run Time:	0845-0938	Analyzer:	CO2	Span Value:	19.41

Run No.	Monitor ID	Analyzer Response (ppm)	Initial Values				Final Values				Calibration Drift	
			Initial Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	Final Time (military)	System Response (ppm)	Calibration Bias (%)	(Pass/Fail)	(%)	(Pass/Fail)
Run 1 Zero	NOx	0.0	838	0.4	0.2	Pass	838	0.4	0.2	Pass	0.0	Pass
Run 1 Span	NOx	91.4	841	89.9	-0.6	Pass	841	89.9	-0.6	Pass	0.0	Pass
Run 1 Zero	CO	0.2	838	0.0	-0.2	Pass	838	0.0	-0.2	Pass	0.0	Pass
Run 1 Span	CO	46.6	843	46.2	-0.4	Pass	843	46.2	-0.4	Pass	0.0	Pass
Run 1 Zero	SO2	0.2	838	0.0	-0.2	Pass	838	0.0	-0.2	Pass	0.0	Pass
Run 1 Span	SO2	45.1	843	46.3	1.3	Pass	843	46.3	1.3	Pass	0.0	Pass
Run 1 Zero												
Run 1 Span												
Run 1 Zero	O2	0.01	841	0.04	0.2	Pass	841	0.04	0.2	Pass	0.0	Pass
Run 1 Span	O2	10.16	838	10.15	-0.1	Pass	838	10.15	-0.1	Pass	0.0	Pass
Run 1 Zero	CO2	0.03	841	0.05	0.1	Pass	841	0.05	0.1	Pass	0.0	Pass
Run 1 Span	CO2	9.85	838	9.85	0.0	Pass	838	9.85	0.0	Pass	0.0	Pass

System Cal Bias % = (System Cal Response - Analyzer Response) / CS X 100 % Allowable = 5.0

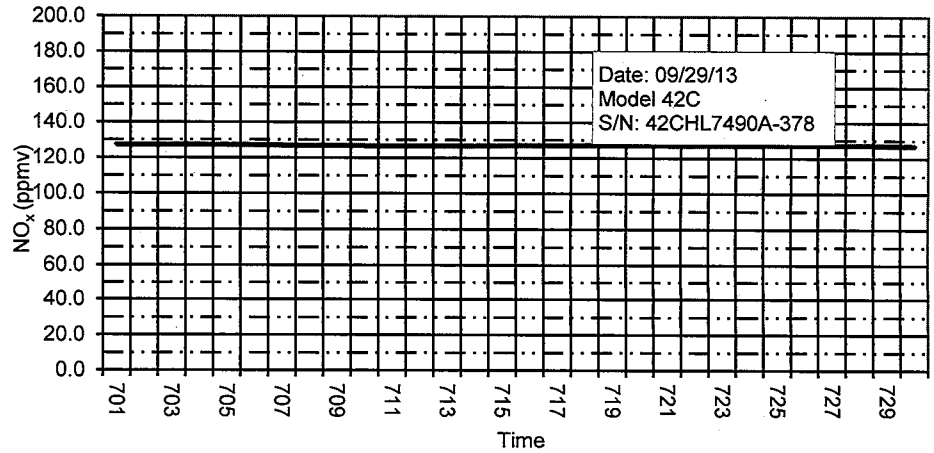
Calibration Drift = (Final System Response - Initial System Response) / CS X 100 % Allowable = 3.0

NO_x Converter Efficiency Check

Plant: SMMI - Pogo Mine
Source: Incinerator
Parameter: NOx

Date: 09/29/13
Model : 42CHL
S/N : 42CHL74490A-378

Julian Day	Time	NO_x (ppmv)	Deviation (%)	Pt No.	
272	701	127.2	0.2%	1	Start of Run
272	702	127.2	0.2%	2	
272	703	127.2	0.2%	3	
272	704	127.4	0.0%	4	
272	705	127.2	0.2%	5	
272	706	126.9	0.4%	6	
272	707	126.8	0.5%	7	
272	708	126.8	0.5%	8	
272	709	126.7	0.5%	9	
272	710	126.6	0.6%	10	
272	711	126.6	0.6%	11	
272	712	126.6	0.6%	12	
272	713	126.6	0.6%	13	
272	714	126.6	0.6%	14	
272	715	126.7	0.5%	15	
272	716	126.9	0.4%	16	
272	717	127.0	0.3%	17	
272	718	127.0	0.3%	18	
272	719	127.1	0.2%	19	
272	720	127.1	0.2%	20	
272	721	127.0	0.3%	21	
272	722	127.0	0.3%	22	
272	723	127.1	0.2%	23	
272	724	127.0	0.3%	24	
272	725	127.3	0.1%	25	
272	726	127.4	0.0%	26	
272	727	127.3	0.1%	27	
272	728	127.3	0.1%	28	
272	729	126.9	0.4%	29	
272	730	126.8	0.5%	30	End of Run
	Peak Value	127.4	0.6%		

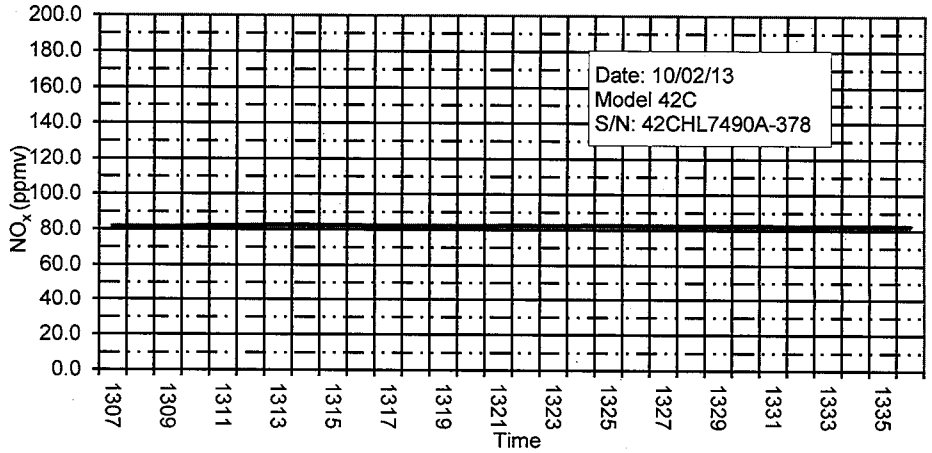


NO_x Converter Efficiency Check

Plant: SMMI - Pogo Mine
Source: Incinerator
Parameter: NOx

Date: 10/02/13
Model : 42CHL
S/N : 42CHL74490A-378

Julian Day	Time	NO_x (ppmv)	Deviation (%)	Pt No.	
275	1307	81.4	1.3%	1	Start of Run
275	1308	81.2	1.6%	2	
275	1309	81.1	1.7%	3	
275	1310	81.6	1.1%	4	
275	1311	81.9	0.7%	5	
275	1312	82.0	0.6%	6	
275	1313	82.3	0.2%	7	
275	1314	82.2	0.4%	8	
275	1315	82.4	0.1%	9	
275	1316	82.1	0.5%	10	
275	1317	82.0	0.6%	11	
275	1318	82.0	0.6%	12	
275	1319	82.2	0.4%	13	
275	1320	82.2	0.4%	14	
275	1321	82.2	0.4%	15	
275	1322	82.4	0.1%	16	
275	1323	82.4	0.1%	17	
275	1324	82.4	0.1%	18	
275	1325	82.5	0.0%	19	
275	1326	82.4	0.1%	20	
275	1327	82.4	0.1%	21	
275	1328	82.3	0.2%	22	
275	1329	82.1	0.5%	23	
275	1330	82.3	0.2%	24	
275	1331	82.1	0.5%	25	
275	1332	82.2	0.4%	26	
275	1333	82.3	0.2%	27	
275	1334	82.4	0.1%	28	
275	1335	82.4	0.1%	29	
275	1336	82.4	0.1%	30	End of Run
	Peak Value	82.5	1.7%		



Response Time Check

AECOM

Plant:	SMMI- Pogo Mine	Date:	09/29/13
Location:	Delta Junction, AK	Check Time:	0740-0810
Source:	Incinerator	Operator:	J. Rosburg

Upscale Response Time

Parameter	Run 1 (seconds)	Run 2 (seconds)	Run 3 (seconds)	Average (seconds)
NO_x	48	49	46	48
SO_2	60	64	70	65
CO	48	56	60	55
O_2	34	40	44	39
CO_2	38	44	46	43

Downscale Response Time

Parameter	Run 1 (seconds)	Run 2 (seconds)	Run 3 (seconds)	Average (seconds)
NO_x	76	80	82	79
SO_2	60	64	70	65
CO	72	74	75	74
O_2	26	28	30	28
CO_2	28	33	35	32

Airgas

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Chicago, IL 60628
(773) 785-3000 Fax: (773) 785-1928
www.airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E03NI60E15A0286	Reference Number:	54-124389359-1
Cylinder Number:	CC337929	Cylinder Volume:	159.6 CF
Laboratory:	ASG - Chicago - IL	Cylinder Pressure:	2015 PSIG
PGVP Number:	B12013	Valve Outlet:	590
Gas Code:	CO2,O2,BALN	Certification Date:	Aug 13, 2013

Expiration Date: Aug 13, 2021

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON DIOXIDE	20.00 %	19.41 %	G1	+/- 1.2% NIST Traceable	08/13/2013
OXYGEN	20.00 %	19.98 %	G1	+/- 0.5% NIST Traceable	08/13/2013
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM/CO2	06120405	CC184974	19.66 % CARBON DIOXIDE/NITROGEN	+/- 0.5%	May 01, 2016
NTRM/O2	09061411	CC268005	22.53 % OXYGEN/NITROGEN	+/- 0.4%	Mar 08, 2019

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
CO2-1 HORIBA VIA-510 V1E3H7P5	NDIR	Aug 10, 2013
O2-1 HORIBA MPA-510 3VUYL9NR	Paramagnetic	Aug 01, 2013

Triad Data Available Upon Request

Notes:

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Chicago, IL 60628
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CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E03NI80E15A0138	Reference Number:	54-124375951-1
Cylinder Number:	CC255539	Cylinder Volume:	150.9 CF
Laboratory:	ASG - Chicago - IL	Cylinder Pressure:	2015 PSIG
PGVP Number:	B12013	Valve Outlet:	590
Gas Code:	CO2,O2,BALN	Certification Date:	May 28, 2013

Expiration Date: May 28, 2021

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON DIOXIDE	10.00 %	10.13 %	G1	+/- 1.0% NIST Traceable	05/28/2013
OXYGEN	10.00 %	10.01 %	G1	+/- 1.0% NIST Traceable	05/28/2013
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM/CO2	06120405	CC184974	19.66 % CARBON DIOXIDE/NITROGEN	+/- 0.5%	May 01, 2016
NTRM/O2	06120211	CC195925	20.90 % OXYGEN/NITROGEN	+/- 0.4%	Dec 01, 2015

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
CO2-1 HORIBA VIA-510 V1E3H7P5	NDIR	May 20, 2013
O2-1 HORIBA MPA-510 3VUYL9NR	Paramagnetic	May 15, 2013

Triad Data Available Upon Request

Notes:

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Chicago, IL 60628
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CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E04NI99E15A0PK6	Reference Number:	54-124389362-1
Cylinder Number:	XC009412B&	Cylinder Volume:	144.4 CF
Laboratory:	ASG - Chicago - IL	Cylinder Pressure:	2015 PSIG
PGVP Number:	B12013	Valve Outlet:	660
Gas Code:	CO,NO,NOX,SO2,BALN	Certification Date:	Aug 22, 2013

Expiration Date: Aug 22, 2021

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	230.0 PPM	236.5 PPM	G1	+/- 0.8% NIST Traceable	08/15/2013, 08/22/2013
CARBON MONOXIDE	230.0 PPM	230.3 PPM	G1	+/- 1.1% NIST Traceable	08/15/2013
NITRIC OXIDE	230.0 PPM	236.5 PPM	G1	+/- 0.8% NIST Traceable	08/15/2013, 08/22/2013
SULFUR DIOXIDE	230.0 PPM	234.9 PPM	G1	+/- 1.0% NIST Traceable	08/15/2013, 08/22/2013
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
CO	12062424	CC366872	487.1 PPM CARBON MONOXIDE/NITROGEN	+/- 0.6%	Jun 22, 2018
NO	12061957	CC367731	250.8 PPM NITRIC OXIDE/NITROGEN	+/- 0.5%	May 14, 2018
NO2	124206889130	CC323209	4.824 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Oct 25, 2015
NTRM/SO2	11060839	CC341872	241.0 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.9%	May 13, 2017

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nexus 470 AEP0000428	FTIR	Jul 21, 2013
Nexus 470 AEP0000428	FTIR	Aug 21, 2013
Nexus 470 AEP0000428	FTIR	Aug 21, 2013
Nexus 470 AEP0000428	FTIR	Aug 21, 2013

Triad Data Available Upon Request

Notes:

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CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E04NI99E15A0443	Reference Number:	54-124389361-1
Cylinder Number:	CC20720	Cylinder Volume:	144.4 CF
Laboratory:	ASG - Chicago - IL	Cylinder Pressure:	2015 PSIG
PGVP Number:	B12013	Valve Outlet:	660
Gas Code:	CO,NO,SO2,BALN	Certification Date:	Aug 23, 2013

Expiration Date: Aug 23, 2021

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	90.00 PPM	92.01 PPM	G1	+/- 1.0% NIST Traceable	08/16/2013, 08/23/2013
CARBON MONOXIDE	90.00 PPM	91.66 PPM	G1	+/- 1.0% NIST Traceable	08/16/2013
NITRIC OXIDE	90.00 PPM	92.01 PPM	G1	+/- 1.0% NIST Traceable	08/16/2013, 08/23/2013
SULFUR DIOXIDE	90.00 PPM	90.10 PPM	G1	+/- 1.0% NIST Traceable	08/16/2013, 08/23/2013
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
CO	12062234	CC365729	97.56 PPM CARBON MONOXIDE/NITROGEN	+/- 0.6%	May 25, 2018
NTRM/NO	11060516	CC331275	101.2 PPM NITRIC OXIDE/NITROGEN	+/- 0.6%	Feb 16, 2017
NO2	124206889130	CC323209	4.824 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Oct 25, 2015
NTRM/SO2	11060839	CC341872	241.0 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.9%	May 13, 2017

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nexus 470 AEP0000428	FTIR	Jul 21, 2013
Nexus 470 AEP0000428	FTIR	Aug 21, 2013
Nexus 470 AEP0000428	FTIR	Aug 21, 2013
Nexus 470 AEP0000428	FTIR	Aug 21, 2013

Triad Data Available Upon Request

Notes:

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CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E04NI99E15A7377	Reference Number:	54-124389373-1
Cylinder Number:	CC237902	Cylinder Volume:	144.4 CF
Laboratory:	ASG - Chicago - IL	Cylinder Pressure:	2015 PSIG
PGVP Number:	B12013	Valve Outlet:	660
Gas Code:	CO,NO,SO2,BALN	Certification Date:	Aug 23, 2013

Expiration Date: Aug 23, 2016

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	45.00 PPM	46.31 PPM	G1	+/- 1.4% NIST Traceable	08/16/2013, 08/23/2013
CARBON MONOXIDE	45.00 PPM	45.39 PPM	G1	+/- 1.0% NIST Traceable	08/16/2013
NITRIC OXIDE	45.00 PPM	46.31 PPM	G1	+/- 1.4% NIST Traceable	08/16/2013, 08/23/2013
SULFUR DIOXIDE	45.00 PPM	44.95 PPM	G1	+/- 1.0% NIST Traceable	08/16/2013, 08/23/2013
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
CO	12060505	CC353897	49.53 PPM CARBON MONOXIDE/NITROGEN	+/- 0.6%	Dec 20, 2017
NTRM	10061122	CC283641	49.95 PPM NITRIC OXIDE/NITROGEN	+/- 0.8%	Dec 16, 2017
NO	10061122	CC283848	49.73 PPM NITRIC OXIDE/NITROGEN	+/- 1.0%	Jul 23, 2016
NO2	124206889130	CC323209	4.824 PPM NITROGEN DIOXIDE/NITROGEN	+/- 2.0%	Oct 25, 2015
NTRM	110602	CC280998	49.67 PPM SULFUR DIOXIDE/NITROGEN	1.2%	May 13, 2017

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nexus 470 AEP0000428	FTIR	Jul 21, 2013
Nexus 470 AEP0000428	FTIR	Aug 21, 2013
Nexus 470 AEP0000428	FTIR	Aug 21, 2013
Nexus 470 AEP0000428	FTIR	Aug 21, 2013

Triad Data Available Upon Request

Notes:

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Appendix D

Process Information

Date	Run #	Run Time Start / End	Start Time Charge	Primary Temp °F Initial	Secondary Temp °F Initial	Primary Temp °F Plus 5 Min	Secondary Temp °F Plus 5 Min	Primary Temp °F Plus 10 Min	Secondary Temp °F Plus 10 Min	Primary Temp °F Plus 15 Min	Secondary Temp °F Plus 15 Min	End Charge (Time)	End Primary °F	End Secondary °F	Type II Waste Dry lbs	Type III Waste Wet lbs	Sludge lbs	Oily Rags lbs
	I5-1	11:06	11:06	__	__	1440	1842	1566	1835	1416	1827	11:21	1405	1814	37			
9/29/2013	I5-1		11:22	1381	1835	1475	1832	1494	1816	1488	1836	11:37	1487	1819			27	15
9/29/2013	I5-1		11:38	1485	1837	1543	1831	1431	1825	1457	1817	11:53	1467	1835	20	30		
9/29/2013	I5-1		11:54	1482	1827	1428	1835	1475	1826	1403	1822	12:10	1386	1815			33	20
9/29/2013	I5-1		12:11	1421	1815	1551	1819	1446	1817	1453	1834	12:26	1468	1818	27	20		
9/29/2013	I5-1	12:42	12:27	1480	1836	1515	1838	1596	1838	1512	1838	12:42	1505	1818			30	32
												Total lbs trash burned for run			84	50	90	67
9/29/2013	I29-1	14:06	14:06	1482	1834	1539	1833	1606	1830	1551	1822	14:21	1549	1838	15	28		
9/29/2013	I29-1		14:22	1533	1834	1590	1827	1625	1819	1574	1817	14:34	1571	1823			29	16
9/29/2013	I29-1		14:38	1542	1833	1590	1826	1516	1817	1453	1816	14:53	1447	1837	19		34	
9/29/2013	I29-1		14:53	1435	1834	1508	1832	1542	1819	1484	1819	15:08	1477	1819			30	17
9/29/2013	I29-1	15:08	15:09	1468	1816	1520	1833	1483	1824						10		35	
												Total lbs trash burned for run			44	28	128	33
9/29/2013	I23-1	17:21	17:21	1391	1836	1464	1832	1434	1819	1400	1821	17:36	1393	1835	14		28	
9/29/2013	I23-1		17:37	1392	1822	1425	1836	1402	1821	1487	1837	17:52	1503	1818	22		29	
9/29/2013	I23-1		17:54	1473	1831	1522	1820	1470	1826	1419	1825	18:09	1417	1836	16		28	
9/29/2013	I23-1		18:10	1418	1827	1427	1833	1409	1819	1443	1831	18:25	1437	1817			28	14
9/29/2013	I23-1		18:26	1419	1824	1423	1835	1480	1836	1418	1817	18:41	1417	1820			29	14
9/29/2013	I23-1		18:42	1412	1838	1474	1821	1480	1821	1472	1837	18:57	1472	1834			28	10
9/29/2013	I23-1		18:58	1470	1821	1553	1825	1491	1834	1468	1822	19:13	1467	1836			30	11
9/29/2013	I23-1	19:29	19:14	1453	1837	1558	1837	1508	1837	1472	1826	19:29	1471	1828		21		12
												Total lbs trash burned for run			52	21	200	61

PROCESS DATA - INCINERATOR SOURCE TEST
SEP / OCT 2013

Date	Run #	Run Time Start / End	Start Time Charge	Primary Temp °F Initial	Secondary Temp °F Initial	Primary Temp °F Plus 5 Min	Secondary Temp °F Plus 5 Min	Primary Temp °F Plus 10 Min	Secondary Temp °F Plus 10 Min	Primary Temp °F Plus 15 Min	Secondary Temp °F Plus 15 Min	End Charge (Time)	End Primary °F	End Secondary °F	Type II Waste Dry (lb)	Type III Waste Wet (lb)	Sludge (lb)	Adsorbs (lb)	Total Charge Wt (lb)
	I5-1	11:06	11:06	__	__	1440	1842	1566	1835	1416	1827	11:21	1405	1814	37				37
9/29/2013	I5-1		11:22	1381	1835	1475	1832	1494	1816	1488	1836	11:37	1487	1819			27	15	42
9/29/2013	I5-1		11:38	1485	1837	1543	1831	1431	1825	1457	1817	11:53	1467	1835	20	30			50
9/29/2013	I5-1		11:54	1482	1827	1428	1835	1475	1826	1403	1822	12:10	1386	1815			33	20	53
9/29/2013	I5-1		12:11	1421	1815	1551	1819	1446	1817	1453	1834	12:26	1468	1818	27	20			47
9/29/2013	I5-1	12:42	12:27	1480	1836	1515	1838	1596	1838	1512	1838	12:42	1505	1818			30	32	62
9/29/2013	I29-1	14:06	14:06	1482	1834	1539	1833	1606	1830	1551	1822	14:21	1549	1838	15	28			43
9/29/2013	I29-1		14:22	1533	1834	1590	1827	1625	1819	1574	1817	14:34	1571	1823			29	16	45
9/29/2013	I29-1		14:38	1542	1833	1590	1826	1516	1817	1453	1816	14:53	1447	1837	19		34		53
9/29/2013	I29-1		14:53	1435	1834	1508	1832	1542	1819	1484	1819	15:08	1477	1819			30	17	47
9/29/2013	I29-1	15:08	15:09	1468	1816	1520	1833	1483	1824						10		35		45
9/29/2013	I23-1	17:21	17:21	1391	1836	1464	1832	1434	1819	1400	1821	17:36	1393	1835	14		28		42
9/29/2013	I23-1		17:37	1392	1822	1425	1836	1402	1821	1487	1837	17:52	1503	1818	22		29		51
9/29/2013	I23-1		17:54	1473	1831	1522	1820	1470	1826	1419	1825	18:09	1417	1836	16		28		44
9/29/2013	I23-1		18:10	1418	1827	1427	1833	1409	1819	1443	1831	18:25	1437	1817			28	14	42
9/29/2013	I23-1		18:26	1419	1824	1423	1835	1480	1836	1418	1817	18:41	1417	1820			29	14	43
9/29/2013	I23-1		18:42	1412	1838	1474	1821	1480	1821	1472	1837	18:57	1472	1834			28	10	38
9/29/2013	I23-1		18:58	1470	1821	1553	1825	1491	1834	1468	1822	19:13	1467	1836			30	11	41
9/29/2013	I23-1	19:29	19:14	1453	1837	1558	1837	1508	1837	1472	1826	19:29	1471	1828		21		12	33
														Total Wt =	180	99	418	161	858
			Average Temp =	1452	1830	1502	1831	1498	1825	1465	1826		1463	1826					

Average Charge Wt =	45

Primary Chamber

Average Temp of 3 Runs =	1480	F
Minimum Temp of 3 Runs =	1381	F

Secondary Chamber

Average Temp of 3 Runs =	1828	F
Minimum Temp of 3 Runs =	1815	F

Waste Composition

MSW*	Sludge	Adsorbs	Total
279	418	161	858
33%	49%	19%	100%

*MSW = Type II + Type III

Date	Run #	Run Time Start / End	Start Time Charge	Primary Temp °F Initial	Secondary Temp °F Initial	Primary Temp °F Plus 5 Min	Secondary Temp °F Plus 5 Min	Primary Temp °F Plus 10 Min	Secondary Temp °F Plus 10 Min	Primary Temp °F Plus 15 Min	Secondary Temp °F Plus 15 Min	End Charge (Time)	End Primary °F	End Secondary °F	Type II Waste Dry lbs	Type III Waste Wet lbs	Sludge lbs	Oily Rags lbs
9/30/2013	I23-2	9:23	9:23	989	1770	806	1521	1106	1758	1151	1779	9:38	1152	1781		34		10
9/30/2013	I23-2		9:40	1129	1775	1287	1833	1485	1815	1387	1814	9:53	1383	1820	18	27		
9/30/2013	I23-2		9:54	1373	1824	1431	1818	1411	1831	1384	1832	10:09	1380	1813		35		18
9/30/2013	I23-2		10:10	1362	1818	1412	1829	1363	1825	1337	1819	10:25	1365	1832	29	16		
9/30/2013	I23-2		10:26	1334	1832	1490	1820	1445	1827	1447	1825	10:41	1451	1818			30	19
9/30/2013	I23-2		10:42	1455	1826	1480	1825	1440	1826	1417	1820	10:57	1415	1826	24	20		
9/30/2013	I23-2		10:58	1412	1819	1476	1826	1483	1824	1479	1875	11:13	1480	1877			28	17
9/30/2013	I23-2	11:29	11:14	1477	1819	1528	1818	1494	1826	1440	1834	11:29	1431	1823			30	16
												Total lbs trash burned for run			71	132	88	80
9/30/2013	I5-2	12:51	12:51	1470	1823	1582	1828	1578	1826	1517	1825	13:06	1515	1836	20	24		
9/30/2013	I5-2		13:07	1507	1825	1577	1830	1501	1832	1445	1819	13:22	1443	1826			28	13
9/30/2013	I5-2		13:23	1432	1835	1442	1828	1406	1834	1504	1835	13:38	1505	1827			28	16
9/30/2013	I5-2		13:39	1405	1822	1522	1834	1455	1820	1405	1819	13:54	1404	1820			29	11
9/30/2013	I5-2	14:10	13:55	1395	1835	1538	1826	1504	1822	1472	1819	14:10	1471	1821			29	13
												Total lbs trash burned for run			20	24	114	53
9/30/2013	I29-2	15:05	15:05	1423	1822	1514	1820	1456	1830	1408	1824	15:20	1407	1818	13		29	
9/30/2013	I29-2		15:21	1400	1825	1546	1821	1535	1836	1523	1820	15:36	1523	1827		29		17
9/30/2013	I29-2		15:37	1519	1823	1618	1826	1654	1821	1622	1828	15:52	1620	1831		24		20
9/30/2013	I29-2		15:53	1618	1851	1679	1822	1621	1820	1576	1820	16:08	1575	1819		36		11
9/30/2013	I29-2		16:09	1571	1834	1597	1819	1540	1825	1512	1833	16:24	1512	1824			29	14
9/30/2013	I29-2		16:25	1511	1826	1541	1836	1583	1824	1553	1820	16:40	1553	1820		29		14
9/30/2013	I29-2		16:41	1551	1838	1477	1834	1469	1836	1440	1833	16:56	1439	1826			28	22
9/30/2013	I29-2	17:12	16:57	1433	1821	1576	1822	1631	1826	1684	1830	17:12	1685	1822			30	20
												Total lbs trash burned for run			13	118	116	118

PROCESS DATA - INCINERATOR SOURCE TEST
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Date	Run #	Run Time Start / End	Start Time Charge	Primary Temp °F Initial	Secondary Temp °F Initial	Primary Temp °F Plus 5 Min	Secondary Temp °F Plus 5 Min	Primary Temp °F Plus 10 Min	Secondary Temp °F Plus 10 Min	Primary Temp °F Plus 15 Min	Secondary Temp °F Plus 15 Min	End Charge (Time)	End Primary °F	End Secondary °F	Type II Waste Dry (lb)	Type III Waste Wet (lb)	Sludge (lb)	Adsorbs (lb)	Total Charge Wt (lb)
9/30/2013	I23-2	9:23	9:23	989	1770	806	1521	1106	1758	1151	1779	9:38	1152	1781		34		10	44
9/30/2013	I23-2		9:40	1129	1775	1287	1833	1485	1815	1387	1814	9:53	1383	1820	18	27			45
9/30/2013	I23-2		9:54	1373	1824	1431	1818	1411	1831	1384	1832	10:09	1380	1813		35		18	53
9/30/2013	I23-2		10:10	1362	1818	1412	1829	1363	1825	1337	1819	10:25	1365	1832	29	16			45
9/30/2013	I23-2		10:26	1334	1832	1490	1820	1445	1827	1447	1825	10:41	1451	1818			30	19	49
9/30/2013	I23-2		10:42	1455	1826	1480	1825	1440	1826	1417	1820	10:57	1415	1826	24	20			44
9/30/2013	I23-2		10:58	1412	1819	1476	1826	1483	1824	1479	1875	11:13	1480	1877			28	17	45
9/30/2013	I23-2	11:29	11:14	1477	1819	1528	1818	1494	1826	1440	1834	11:29	1431	1823			30	16	46
9/30/2013	I5-2	12:51	12:51	1470	1823	1582	1828	1578	1826	1517	1825	13:06	1515	1836	20	24			44
9/30/2013	I5-2		13:07	1507	1825	1577	1830	1501	1832	1445	1819	13:22	1443	1826			28	13	41
9/30/2013	I5-2		13:23	1432	1835	1442	1828	1406	1834	1504	1835	13:38	1505	1827			28	16	44
9/30/2013	I5-2		13:39	1405	1822	1522	1834	1455	1820	1405	1819	13:54	1404	1820			29	11	40
9/30/2013	I5-2	14:10	13:55	1395	1835	1538	1826	1504	1822	1472	1819	14:10	1471	1821			29	13	42
9/30/2013	I29-2	15:05	15:05	1423	1822	1514	1820	1456	1830	1408	1824	15:20	1407	1818	13		29		42
9/30/2013	I29-2		15:21	1400	1825	1546	1821	1535	1836	1523	1820	15:36	1523	1827		29		17	46
9/30/2013	I29-2		15:37	1519	1823	1618	1826	1654	1821	1622	1828	15:52	1620	1831		24		20	44
9/30/2013	I29-2		15:53	1618	1851	1679	1822	1621	1820	1576	1820	16:08	1575	1819		36		11	47
9/30/2013	I29-2		16:09	1571	1834	1597	1819	1540	1825	1512	1833	16:24	1512	1824			29	14	43
9/30/2013	I29-2		16:25	1511	1826	1541	1836	1583	1824	1553	1820	16:40	1553	1820		29		14	43
9/30/2013	I29-2		16:41	1551	1838	1477	1834	1469	1836	1440	1833	16:56	1439	1826			28	22	50
9/30/2013	I29-2	17:12	16:57	1433	1821	1576	1822	1631	1826	1684	1830	17:12	1685	1822			30	20	50
														Total Wt =	104	274	318	251	947
			Average Temp =	1417	1822	1482	1811	1484	1823	1462	1825		1462	1824					

Average Charge Wt = 45

Primary Chamber

Average Temp of 3 Runs =	1461	F
Minimum Temp of 3 Runs =	806	F

Secondary Chamber

Average Temp of 3 Runs =	1820	F
Minimum Temp of 3 Runs =	1521	F

Waste Composition

MSW*	Sludge	Adsorbs	Total
378	318	251	947
40%	34%	27%	100%

*MSW = Type II + Type III

Date	Run #	Run Time Start / End	Start Time Charge	Primary Temp °F Initial	Secondary Temp °F Initial	Primary Temp °F Plus 5 Min	Secondary Temp °F Plus 5 Min	Primary Temp °F Plus 10 Min	Secondary Temp °F Plus 10 Min	Primary Temp °F Plus 15 Min	Secondary Temp °F Plus 15 Min	End Charge (Time)	End Primary °F	End Secondary °F	Type II Waste Dry lbs	Type III Waste Wet lbs	Sludge lbs	Oily Rags lbs
10/1/2013	I29-3	8:58	8:58	1085	1817	1184	1819	1183	1816	1169	1818	9:13	1167	1831	23	38		
10/1/2013	I29-3		9:14	1164	1824	1186	1831	1173	1818	1168	1828	9:29	1167	1821	27	19		
10/1/2013	I29-3		9:30	1166	1825	1360	1820	1339	1830	1311	1827	9:45	1310	1827	26	17		
10/1/2013	I29-3		9:46	1305	1817	1429	1826	1477	1834	1426	1819	10:01	1432	1831	20	26		
10/1/2013	I29-3		10:02	1439	1821	1447	1825	1433	1830	1457	1818	10:17	1457	1829		30		10
10/1/2013	I29-3		10:18	1454	1833	1452	1821	1433	1820	1476	1819	10:33	1476	1828	16	29		
10/1/2013	I29-3		10:34	1476	1834	1410	1819	1441	1822	1461	1823	10:49	1461	1818			30	14
10/1/2013	I29-3	11:05	10:50	1457	1835	1495	1833	1404	1829	1493	1829	11:05	1494	1833	21	24		
												Total lbs trash burned for run			133	183	30	24
10/1/2013	I23-3	11:58	11:58	1400	1817	1588	1838	1529	1822	1438	1835	12:13	1432	1818	25	31		
10/1/2013	I23-3		12:14	1503	1832	1507	1827	1419	1831	1451	1818	12:29	1446	1821		37		10
10/1/2013	I23-3		12:30	1440	1821	1510	1819	1450	1825	1402	1819	12:45	1397	1824			28	16
10/1/2013	I23-3		12:46	1391	1821	1524	1819	1433	1829	1451	1821	13:01	1467	1826	23	27		
10/1/2013	I23-3		13:02	1484	1830	1460	1821	1403	1821	1456	1830	13:17	1452	1822		48		13
10/1/2013	I23-3		13:18	1437	1822	1590	1822	1593	1836	1555	1822	13:33	1548	1828	22	28		
10/1/2013	I23-3		13:34	1531	1825	1658	1837	1633	1836	1587	1824	13:49	1581	1837		33		16
10/1/2013	I23-3	14:05	13:50	1574	1821	1679	1843	1736	1830	1782	1833	14:05	1783	1836			28	25
												Total lbs trash burned for run			70	204	56	80
10/1/2013	I5-3	15:05	15:05	1458	1834	1556	1837	1508	1821	1450	1825	15:20	1430	1842	21	19		
10/1/2013	I5-3		15:22	1433	1819	1539	1833	1478	1823	1430	1828	15:37	1429	1835	10	33		
10/1/2013	I5-3		15:38	1419	1821	1469	1819	1406	1832	1481	1831	15:53	1485	1835	17	30		
10/1/2013	I5-3		15:54	1501	1829	1563	1837	1475	1823	1424	1819	16:09	1422	1824	24	19		
10/1/2013	I5-3	16:25	16:10	1413	1828	1561	1820	1537	1824	1500	1835	16:25	1499	1834			29	21
												Total lbs trash burned for run			72	101	29	21

PROCESS DATA - INCINERATOR SOURCE TEST
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Date	Run #	Run Time Start / End	Start Time Charge	Primary Temp °F Initial	Secondary Temp °F Initial	Primary Temp °F Plus 5 Min	Secondary Temp °F Plus 5 Min	Primary Temp °F Plus 10 Min	Secondary Temp °F Plus 10 Min	Primary Temp °F Plus 15 Min	Secondary Temp °F Plus 15 Min	End Charge (Time)	End Primary °F	End Secondary °F	Type II Waste Dry (lb)	Type III Waste Wet (lb)	Sludge (lb)	Adsorbs (lb)	Total Charge Wt (lb)
10/1/2013	I29-3	8:58	8:58	1085	1817	1184	1819	1183	1816	1169	1818	9:13	1167	1831	23	38			61
10/1/2013	I29-3		9:14	1164	1824	1186	1831	1173	1818	1168	1828	9:29	1167	1821	27	19			46
10/1/2013	I29-3		9:30	1166	1825	1360	1820	1339	1830	1311	1827	9:45	1310	1827	26	17			43
10/1/2013	I29-3		9:46	1305	1817	1429	1826	1477	1834	1426	1819	10:01	1432	1831	20	26			46
10/1/2013	I29-3		10:02	1439	1821	1447	1825	1433	1830	1457	1818	10:17	1457	1829		30		10	40
10/1/2013	I29-3		10:18	1454	1833	1452	1821	1433	1820	1476	1819	10:33	1476	1828	16	29			45
10/1/2013	I29-3		10:34	1476	1834	1410	1819	1441	1822	1461	1823	10:49	1461	1818			30	14	44
10/1/2013	I29-3	11:05	10:50	1457	1835	1495	1833	1404	1829	1493	1829	11:05	1494	1833	21	24			45
10/1/2013	I23-3	11:58	11:58	1400	1817	1588	1838	1529	1822	1438	1835	12:13	1432	1818	25	31			56
10/1/2013	I23-3		12:14	1503	1832	1507	1827	1419	1831	1451	1818	12:29	1446	1821		37		10	47
10/1/2013	I23-3		12:30	1440	1821	1510	1819	1450	1825	1402	1819	12:45	1397	1824			28	16	44
10/1/2013	I23-3		12:46	1391	1821	1524	1819	1433	1829	1451	1821	13:01	1467	1826	23	27			50
10/1/2013	I23-3		13:02	1484	1830	1460	1821	1403	1821	1456	1830	13:17	1452	1822		48		13	61
10/1/2013	I23-3		13:18	1437	1822	1590	1822	1593	1836	1555	1822	13:33	1548	1828	22	28			50
10/1/2013	I23-3		13:34	1531	1825	1658	1837	1633	1836	1587	1824	13:49	1581	1837		33		16	49
10/1/2013	I23-3	14:05	13:50	1574	1821	1679	1843	1736	1830	1782	1833	14:05	1783	1836			28	25	53
10/1/2013	I5-3	15:05	15:05	1458	1834	1556	1837	1508	1821	1450	1825	15:20	1430	1842	21	19			40
10/1/2013	I5-3		15:22	1433	1819	1539	1833	1478	1823	1430	1828	15:37	1429	1835	10	33			43
10/1/2013	I5-3		15:38	1419	1821	1469	1819	1406	1832	1481	1831	15:53	1485	1835	17	30			47
10/1/2013	I5-3		15:54	1501	1829	1563	1837	1475	1823	1424	1819	16:09	1422	1824	24	19			43
10/1/2013	I5-3	16:25	16:10	1413	1828	1561	1820	1537	1824	1500	1835	16:25	1499	1834			29	21	50
														Total Wt =	275	488	115	125	1003
			Average Temp =	1406	1825	1484	1827	1452	1826	1446	1825		1445	1829					

Average Charge Wt = 47

Primary Chamber

Average Temp of 3 Runs =	1447	F
Minimum Temp of 3 Runs =	1085	F

Secondary Chamber

Average Temp of 3 Runs =	1826	F
Minimum Temp of 3 Runs =	1816	F

Waste Composition

MSW*	Sludge	Adsorbs	Total
763	115	125	1003
76%	11%	12%	100%

*MSW = Type II + Type III

Date	Run #	Run Time Start / End	Start Time Charge	Primary Temp °F Initial	Secondary Temp °F Initial	Primary Temp °F Plus 5 Min	Secondary Temp °F Plus 5 Min	Primary Temp °F Plus 10 Min	Secondary Temp °F Plus 10 Min	Primary Temp °F Plus 15 Min	Secondary Temp °F Plus 15 Min	End Charge (Time)	End Primary °F	End Secondary °F	Type II Waste Dry lbs	Type III Waste Wet lbs	Sludge lbs	Oily Rags lbs
10/2/2013	I29-4	8:46	8:46	1028	1810	1300	1842	1347	1814	1236	1829	9:01	1234	1830	37	17		
10/2/2013	I29-4		9:02	1219	1816	1399	1814	1350	1828	1323	1821	9:17	1322	1824	23	17		
10/2/2013	I29-4		9:18	1312	1819	1335	1816	1305	1826	1279	1822	9:33	1278	1825	10	39		
10/2/2013	I29-4		9:34	1272	1816	1449	1833	1392	1825	1345	1823	9:49	1344	1826	22	25		
10/2/2013	I29-4		9:50	1335	1822	1502	1834	1408	1832	1448	1827	10:05	1447	1832	24	19		
10/2/2013	I29-4		10:06	1445	1833	1528	1833	1384	1830	1462	1818	10:21	1463	1821	29	21		
10/2/2013	I29-4		10:22	1466	1827	1461	1821	1418	1820	1468	1832	10:37	1469	1826	42	15		
10/2/2013	I29-4	10:53	10:38	1468	1821	1481	1822	1404	1830	1471	1834	10:53	1467	1833	18	27		
												Total lbs trash burned for run			205	180		
10/2/2013	I23-4	11:57	11:57	1446	1822	1448	1820	1426	1818	1479	1819	12:12	1480	1825	25	18		
10/2/2013	I23-4		12:13	1480	1823	1496	1818	1399	1822	1466	1825	12:28	1468	1834	26	19		
10/2/2013	I23-4		12:29	1471	1820	1450	1819	1414	1818	1439	1824	12:44	1439	1834	32	18		
10/2/2013	I23-4		12:45	1438	1820	1502	1828	1446	1831	1405	1827	13:00	1411	1818	12	34		
10/2/2013	I23-4		13:01	1444	1837	1584	1835	1519	1819	1456	1836	13:16	1453	1822	12	35		
10/2/2013	I23-4		13:17	1444	1827	1550	1835	1482	1821	1434	1830	13:32	1432	1831	27	30		
10/2/2013	I23-4		13:33	1424	1829	1535	1820	1483	1820	1436	1820	13:48	1435	1825	11	42		
10/2/2013	I23-4	14:04	13:49	1427	1826	1405	1820	1469	1834	1421	1831	14:04	1418	1819	21	25		
												Total lbs trash burned for run			166	221		
10/2/2013	I5-4	15:11	15:11	1460	1828	1417	1835	1469	1822	1427	1823	15:26	1424	1818	28	24		
10/2/2013	I5-4		15:27	1386	1836	1500	1833	1399	1823	1504	1819	15:42	1502	1824	14	29		
10/2/2013	I5-4		15:43	1475	1834	1519	1832	1440	1831	1402	1828	15:58	1409	1827	15	26		
10/2/2013	I5-4		15:59	1451	1828	1575	1830	1507	1822	1423	1829	16:14	1419	1825	13	34		
10/2/2013	I5-4	16:30	16:15	1384	1821	1511	1835	1418	1828	1452	1824	16:30	1465	1833	30	27		
												Total lbs trash burned for run			100	140		

PROCESS DATA - INCINERATOR SOURCE TEST
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Date	Run #	Run Time Start / End	Start Time Charge	Primary Temp °F Initial	Secondary Temp °F Initial	Primary Temp °F Plus 5 Min	Secondary Temp °F Plus 5 Min	Primary Temp °F Plus 10 Min	Secondary Temp °F Plus 10 Min	Primary Temp °F Plus 15 Min	Secondary Temp °F Plus 15 Min	End Charge (Time)	End Primary °F	End Secondary °F	Type II Waste Dry (lb)	Type III Waste Wet (lb)	Sludge (lb)	Adsorbs (lb)	Total Charge Wt (lb)
10/2/2013	I29-4	8:46	8:46	1028	1810	1300	1842	1347	1814	1236	1829	9:01	1234	1830	37	17			54
10/2/2013	I29-4		9:02	1219	1816	1399	1814	1350	1828	1323	1821	9:17	1322	1824	23	17			40
10/2/2013	I29-4		9:18	1312	1819	1335	1816	1305	1826	1279	1822	9:33	1278	1825	10	39			49
10/2/2013	I29-4		9:34	1272	1816	1449	1833	1392	1825	1345	1823	9:49	1344	1826	22	25			47
10/2/2013	I29-4		9:50	1335	1822	1502	1834	1408	1832	1448	1827	10:05	1447	1832	24	19			43
10/2/2013	I29-4		10:06	1445	1833	1528	1833	1384	1830	1462	1818	10:21	1463	1821	29	21			50
10/2/2013	I29-4		10:22	1466	1827	1461	1821	1418	1820	1468	1832	10:37	1469	1826	42	15			57
10/2/2013	I29-4	10:53	10:38	1468	1821	1481	1822	1404	1830	1471	1834	10:53	1467	1833	18	27			45
10/2/2013	I23-4	11:57	11:57	1446	1822	1448	1820	1426	1818	1479	1819	12:12	1480	1825	25	18			43
10/2/2013	I23-4		12:13	1480	1823	1496	1818	1399	1822	1466	1825	12:28	1468	1834	26	19			45
10/2/2013	I23-4		12:29	1471	1820	1450	1819	1414	1818	1439	1824	12:44	1439	1834	32	18			50
10/2/2013	I23-4		12:45	1438	1820	1502	1828	1446	1831	1405	1827	13:00	1411	1818	12	34			46
10/2/2013	I23-4		13:01	1444	1837	1584	1835	1519	1819	1456	1836	13:16	1453	1822	12	35			47
10/2/2013	I23-4		13:17	1444	1827	1550	1835	1482	1821	1434	1830	13:32	1432	1831	27	30			57
10/2/2013	I23-4		13:33	1424	1829	1535	1820	1483	1820	1436	1820	13:48	1435	1825	11	42			53
10/2/2013	I23-4	14:04	13:49	1427	1826	1405	1820	1469	1834	1421	1831	14:04	1418	1819	21	25			46
10/2/2013	I5-4	15:11	15:11	1460	1828	1417	1835	1469	1822	1427	1823	15:26	1424	1818	28	24			52
10/2/2013	I5-4		15:27	1386	1836	1500	1833	1399	1823	1504	1819	15:42	1502	1824	14	29			43
10/2/2013	I5-4		15:43	1475	1834	1519	1832	1440	1831	1402	1828	15:58	1409	1827	15	26			41
10/2/2013	I5-4		15:59	1451	1828	1575	1830	1507	1822	1423	1829	16:14	1419	1825	13	34			47
10/2/2013	I5-4	16:30	16:15	1384	1821	1511	1835	1418	1828	1452	1824	16:30	1465	1833	30	27			57
														Total Wt =	471	541	0	0	1012
			Average Temp =	1394	1825	1474	1827	1423	1824	1418	1826		1418	1826					

Average Charge Wt =	48

Primary Chamber

Average Temp of 3 Runs =	1427	F
Minimum Temp of 3 Runs =	1028	F

Secondary Chamber

Average Temp of 3 Runs =	1826	F
Minimum Temp of 3 Runs =	1810	F

Waste Composition

MSW*	Sludge	Adsorbs	Total
1012	0	0	1012
100%	0%	0%	100%

*MSW = Type II + Type III