APPENDIX A

CEMS RATA Reports

Performance Specification Test Results for the CO and Wet O_2 CEMS for Fixed Hearth Unit 2

Prepared for:

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September 2013

Table of Contents

Page

1.0 Introduction 1-1

2.0 Summary of Results 2-1
2.1 Relative Accuracy 2-2

3.0 Test Protocol 3-1
3.1 Relative Accuracy 3-1

4.0 Quality Assurance 4-1

APPENDIX A – Relative Accuracy Spreadsheet and Reference Method Data
APPENDIX B – Reference Method Calibration Results
APPENDIX C – Unit 2 CEMS Relative Accuracy Data
APPENDIX D – Unit 2 Waste Feed Data
APPENDIX E – Reference Method EPA Protocol Gas Certifications

List of Tables

Page

1-1 General Facility and Testing Information 1-2
1-2 CEMS Identification 1-2

2-1 PST Requirements and Acceptance Criteria 2-1
2-2 CO CEMS Relative Accuracy Test Results 2-3
2-3 Wet O_2 CEMS Relative Accuracy Test Results..... 2-4

3-1 Oxygen Correction of Reference Method CO Concentration Results 3-4

1.0 Introduction

Veolia ES Technical Solutions, L.L.C. (Veolia) operates three incinerators at its Sauget, Illinois facility. Two of the incinerators are fixed hearth units (Units 2 and 3), and the third incinerator is a rotary kiln unit (Unit 4). All of the incinerators treat certain wastes that are classified as hazardous under state and/or federal regulations, and are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Hazardous Waste Combustors (Title 40 of the Code of Federal Regulations, Part 63 [40 CFR Part 63], Subpart EEE), (i.e., the HWC MACT). Unit 2 is equipped with a continuous emission monitoring system (CEMS) that consists of an oxygen (O_2) monitor and a carbon monoxide (CO) monitor which are used to monitor the emissions from the stack. The CEMS underwent Relative Accuracy (RA) Testing. This report presents the RA test results for the Unit 2 CO and wet O_2 CEMS. The general information regarding the testing at this facility is summarized in Table 1-1. The RA acceptance criteria are shown in Table 2-1.

The RA test of the Unit 2 CEMS was completed in September of 2013, as the initial step in the 2013 Comprehensive Performance Test of Unit 2. The CEMS were audited according to the RA procedures detailed in 40 CFR 60, Appendix B, Performance Specification 4B, "*Specifications and Test Procedures for Carbon Monoxide and Oxygen Continuous Monitoring Systems in Stationary Sources*" and 40 CFR 63 Subpart EEE, "*National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors*." The CEMS met all the RA criteria outlined in the above-cited references. Section 2.0 presents a detailed summary of these test results. Supporting documentation is located in the appendices.

The analyzer identification numbers and serial numbers for the monitors are presented below in Table 1-2. Veolia operates a CO analyzer, an O_2 analyzer, and a moisture analyzer. The oxygen correction of the plant CO concentrations is performed using a dry basis oxygen, derived from the measured wet basis oxygen concentration and the measured percent moisture. The Ecochem MC3 infrared CO analyzer is designed using a single sample cell equipped with an individual detector system for each of two measurement ranges (0-200 ppmv and 0-3,000 ppmv). The O_2 analyzer is a COSA electrochemical analyzer. Responses from each CEMS are recorded by the Control System (CS). Data printouts from these monitors documenting the CEMS performance are presented in Appendix C of this report. Characterization of waste fed during the RATA testing is included in Appendix D.

Table 1-1. General Facility and Testing Information
Unit 2 CEMS Performance Specification Testing

Facility Name	Veolia ES Technical Solutions, L.L.C.
Contact Person	David Klarich
Telephone Number	618-271-2804, x120
Facility Address	#7 Mobile Avenue Sauget, IL 62201
Types of Process Sampled	Fixed Hearth Incinerator Exhaust Gas
Person Responsible for Conducting Test	Michael Fuchs
Telephone Number	512-454-4797
Company Name	URS Corporation
Address	9400 Amberglen Boulevard Austin, Texas 78729
Person(s) Conducting Tests	Jesse Rocha Meggen DeLollis Megan Bowien Noah Prescott
Test Methods Performed	EPA Method 3A and EPA Method 10
Date of Testing	September 6, 2013

Table 1-2. CEMS Identification
Unit 2 CEMS Performance Specification Testing

Parameter	Manufacturer	Range	Analyzer Tag	Analyzer Serial Number
Carbon Monoxide	Ecochem MC3	0-200 ppmv	AT-288E	132
		0-3,000 ppmv		
Oxygen (Wet)	COSA	0-25%	AT-289	A2A7880T

2.0 Summary of Results

Detailed results are presented in this section. Section 2.1 details the results from the relative accuracy (RA) tests.

All test results were within the acceptance criteria as stated in the RA portion of 40 CFR 60, Appendix B, Performance Specification 4B, "*Specifications and Test Procedures for Carbon Monoxide and Oxygen Continuous Monitoring Systems in Stationary Sources.*" These criteria are shown below in Table 2-1.

All calculations are done with unrounded values, and therefore, it may not be possible to reproduce a calculated value exactly from the data shown in a table.

Table 2-1. PST Requirements and Acceptance Criteria
Unit 2 CEMS Performance Specification Testing

Parameters	CO Monitor		O_2 Monitor
	Low Range (0-200 ppmv)	High Range (0-3,000 ppmv)	Range (0-25%)
Relative Accuracy (RA)	10% of the average Reference Method (RM) value - or - 5% of the applicable standard (5 ppmv CO corrected to 7% O_2)		1.0% O_2

2.1 Relative Accuracy

Relative accuracy (RA) testing was performed by URS personnel on September 6, 2013. The relative accuracy test results are presented in Tables 2-2 and 2-3. RA testing compares the plant CEMS measurement of CO (corrected to 7% oxygen) and O_2 (on a wet basis) to the Reference Method (RM) measured using EPA Method 10 for CO and EPA Method 3A for O_2. Relative accuracy for the CO CEMS is calculated by adding the confidence coefficient to the absolute average difference between plant averages and the RM averages. Relative accuracy for the O_2 CEMS is equivalent to the absolute average difference between plant averages and the RM averages. The acceptance criterion is the greater of either 10% of the average RM or 5% of the applicable standard (5 ppmv CO corrected to 7% oxygen for the CO CEMS and 1.0% O_2 for the wet O_2 CEMS). All CEMS met the prescribed performance criteria.

Hard copies from the RM monitoring system along with hard copies of the relative accuracy calculation spreadsheet can be found in Appendix A. Hard copies of the Veolia Unit 2 CEMS data are presented in Appendix C.

Table 2-2. CO CEMS Relative Accuracy Test Results
Unit 2 CEMS Performance Specification Testing

Run Number	Date	Run Time	Reference Method (RM) CEMS (ppmv CO, corrected to 7% O_2)	Unit 2 CEMS (ppmv CO, corrected to 7% O_2)	Arithmetic Difference (ppmv CO)
1	9/6/2013	08:36-08:57	0.13	0.00	-0.13
2	9/6/2013	09:13-09:34	-0.19	0.00	0.19
3	9/6/2013	09:49-10:10	-0.26	0.00	0.26
4	9/6/2013	10:24-10:45	-0.36	0.00	0.36
5	9/6/2013	11:02-11:23	-0.23	0.00	0.23
6	9/6/2013	11:41-12:02	-0.34	0.00	0.34
7	9/6/2013	12:17-12:38	-0.33	0.00	0.33
8	9/6/2013	12:58-13:19	-0.40	0.00	0.40
9	9/6/2013	13:38-13:59	-0.32	0.00	0.32
10	9/6/2013	14:16-14:37	-0.20	0.00	0.20
				Absolute Average Difference	0.23
				Standard Deviation	0.15
				Confidence Coefficient (CC)	0.11
				Relative Accuracy (ppmv CO)	0.3

Note: Run 8 is not used in the calculation of Relative Accuracy.

Table 2-3. Wet O_2 CEMS Relative Accuracy Test Results
Unit 2 CEMS Performance Specification Testing

Run Number	Date	Run Time	Reference Method (RM) CEMS (% O_2, wet)	Unit 2 CEMS (% O_2, wet)	Arithmetic Difference (% O_2, wet)
1	9/6/2013	08:36-08:57	8.49	8.25	-0.24
2	9/6/2013	09:13-09:34	7.68	7.75	0.07
3	9/6/2013	09:49-10:10	7.10	7.20	0.10
4	9/6/2013	10:24-10:45	7.27	7.62	0.35
5	9/6/2013	11:02-11:23	7.44	7.54	0.10
6	9/6/2013	11:41-12:02	7.00	7.39	0.39
7	9/6/2013	12:17-12:38	7.29	7.68	0.39
8	9/6/2013	12:58-13:19	8.23	8.15	-0.08
9	9/6/2013	13:38-13:59	7.19	7.61	0.42
10	9/6/2013	14:16-14:37	6.92	7.24	0.32
				Absolute Average Difference	0.16
				Standard Deviation	0.22
				Relative Accuracy (% O_2, wet basis)	0.16

Note: Run 9 is not used in the calculation of Relative Accuracy.

3.0 Test Protocol

The carbon monoxide and oxygen monitors located at the Veolia Unit 2 location were audited according to the Relative Accuracy procedures outlined in 40 CFR 60, Appendix B, Performance Specification 4B, "*Specifications and Test Procedures for Carbon Monoxide and Oxygen Continuous Monitoring Systems in Stationary Sources*" and 40 CFR 63 Subpart EEE, "*National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors*."

3.1 Relative Accuracy

URS monitored the emission gas CO and O_2 concentrations from the Unit 2 Exhaust Stack location using mobile continuous emission monitors. A stainless-steel probe was inserted into the stack and used to collect sample gas. A heated Teflon sample line transported sample gas from the probe to the URS monitors located at ground level. The analyzers were kept at a constant temperature inside the mobile laboratory.

For each run, sample gas was collected over 21-minute test periods. Three traverse points across the Unit 2 Exhaust Stack interior diameter were selected according to the procedure outlined in 40 CFR 60, Appendix B, Performance Specification 2, Section 8.1.3.2, and sample gas was extracted at each of three points for seven minutes during the test period. The sampling location met PS 2 criteria by being greater than 2 stack interior diameters downstream from the nearest disturbance and greater than 0.5 stack interior diameters upstream of the stack exhaust orifice. At the mobile laboratory, the stack gas is split between the wet and dry analyzers. The portion of the sample gas that is not sent directly to the wet O_2 analyzer is routed to a condenser and then transported to the dry O_2 and dry CO analyzers for analysis. CO analyses were performed in accordance with EPA Method 10. O_2 analyses were performed in accordance with EPA Method 3A.

URS used a Thermo Model 48C CO analyzer to measure the CO concentration according to EPA Method 10. This analyzer is a gas filter correlation (GFC) analyzer. The analyzer measures CO by comparing infrared absorption of a reference concentration to the absorption of the sample. The Thermo Model 48C CO measurements are not affected by carbon dioxide. For this reason, the CO_2 interference trap was not incorporated into the extraction system. The exclusion of the CO_2 interference trap eliminates the need to correct sample concentration, improving the accuracy of the analyses. URS has demonstrated through in-house testing that CO_2 is not an interferant at typical combustion CO_2 concentration levels by introducing 20% CO_2 calibration standards to a calibrated Thermo 48. The instrument's response to this gas was less than 2 ppmv (1% of scale).

URS measured both dry and wet oxygen concentrations for the duration of the Unit 2 RA test. From these two measurements, URS was able to calculate the moisture percentage and then use the percent moisture to convert the RM wet oxygen concentrations from each run to dry bases. The oxygen corrections of RM CO concentrations were calculated using this dry basis oxygen. Table 3-1 presents the concentration data for the steps of this calculation for all runs.

Dry oxygen was measured using a Servomex Series 1440 O_2 analyzer. This analyzer measures O_2 on the basis of its paramagnetic properties. Wet oxygen was measured using an Ametek RM CEM O_2/IQ analyzer. This analyzer measures O_2 on a wet basis using a zirconium oxide sensor.

The analyzers' electronic output signals were converted to a digital format and stored by a computerized data acquisition system. The system translated this digital signal into the proper units of measurement (ppmv CO, % O_2) and stored them on a hard disk. The system stored the data as ten-second averages.

The analyzers were calibrated prior to initiating testing using appropriately certified standards as specified by EPA Methods 10 and 3A. Both of these methods reference procedures specified in EPA Method 7E for calibration, standardization, calculation, and data analysis. The URS system response was then checked. The total system, which included the probe, sample line, sample pump, and water trap, was incorporated into the system response. A system response time test was performed and documented for each instrument. The system drift was calculated using the pre- and post-test system responses. These checks ensured that the system remained within the tolerance level defined by the above EPA methods. A sampling system calibration bias correction was applied to all RM CO and O_2 data measured during each test run by using equation EPA Method 7E-5:

$$C_{gas} = (C_{avg} - {}_{o})x\frac{C_{ma}}{(C_m - C_o)}$$

Where:

C_{gas} = Effluent gas concentration, dry basis, percent or ppmv;

C_{avg} = Average gas concentration indicated by analyzer, dry basis, percent or ppmv;

C_m = Average of initial and final system calibration bias check responses for the upscale calibration gas, percent or ppmv;

C_{ma} = Actual concentration of the upscale calibration gas, percent or ppmv; and

C_o = Average of initial and final system calibration bias check responses for the zero calibration gas, percent or ppmv.

The data from each 21-minute test period was averaged for each of the RA runs. This averaged data was tabulated as shown in Tables 2-2 and 2-3. The arithmetic differences between the URS reference method (RM) results for the analyte gas concentrations and the Unit 2 CEMS results for the analyte gas concentrations are also tabulated there. Carbon monoxide results for both the RM and the Unit 2 CEMS were corrected to 7% oxygen before calculating arithmetic differences. The absolute average difference, standard deviation (S_d) and confidence coefficient (CC) of the arithmetic differences were calculated using the equations described in 40 CFR 60, Appendix B, PS 2, Section 12. At least nine runs must be used to determine relative accuracy. Ten runs were performed during the September 6, 2013 RA testing. The RA procedures allow, at the tester's discretion, for up to three tests to be rejected from the calculations to determine average difference and standard deviation. After rejecting one unwanted run, the confidence coefficient (CC) was calculated according to the following equation:

$$CC = t_{0.975} x \frac{S_d}{\sqrt{n}}$$

Where:

$t_{0.975}$ = 97.5% Student- t variable (2.306 for nine runs); and

n = Number of tests used (must be ≥ 9).

Relative accuracy for the Unit 2 CO CEMS was calculated in ppmv CO according to 40 CFR 60, Appendix B, PS 4A, Section 13.2, by adding together the absolute value of the average difference between the RM and Unit 2 CEMS and the confidence coefficient applicable to nine test runs. Relative accuracy for the Unit 2 O_2 CEMS was calculated in % O_2 according to 40 CFR 60, Appendix B, PS 3, Section 12.0, and was equivalent to the absolute average difference between the RM and Unit 2 CEMS for nine test runs.

Table 3-1. Oxygen Correction of Reference Method CO Concentration Results
Unit 2 CEMS Performance Specification Testing

Run Number	Date	Run Time	Wet O_2 (%, wet basis)	Dry O_2 (%, dry basis)	Moisture (%)	Wet O_2 (%, dry basis)	CO (ppmv, dry basis)	CO (ppmv, @ 7% O_2)
1	9/6/2013	08:36-08:57	8.49	12.76	33.45	12.76	0.07	0.13
2	9/6/2013	09:13-09:34	7.68	11.91	35.51	11.91	-0.12	-0.19
3	9/6/2013	09:49-10:10	7.10	11.40	37.76	11.40	-0.18	-0.26
4	9/6/2013	10:24-10:45	7.27	11.80	38.41	11.80	-0.23	-0.36
5	9/6/2013	11:02-11:23	7.44	11.97	37.85	11.97	-0.15	-0.23
6	9/6/2013	11:41-12:02	7.00	11.59	39.61	11.59	-0.22	-0.34
7	9/6/2013	12:17-12:38	7.29	11.96	39.00	11.96	-0.21	-0.33
8	9/6/2013	12:58-13:19	8.23	12.56	34.43	12.56	-0.24	-0.40
9	9/6/2013	13:38-13:59	7.19	11.80	39.10	11.80	-0.21	-0.32
10	9/6/2013	14:16-14:37	6.92	11.55	40.06	11.55	-0.13	-0.20

4.0 Quality Assurance

To ensure accurate and defensible results, strict quality assurance and control measures were followed. All testing was performed following standard EPA protocol as outlined in 40 CFR, Part 60, Appendices A and B. All PST testing was performed while the plant was operating under normal conditions with at least 50% load from waste feeds and/or natural gas. Hard copies of incinerator waste feed rate data are included in Appendix D. All test criteria were thoroughly documented and checked for completeness. EPA Protocol gas certification documentation for compressed gas cylinders used during the RA testing is included in Appendix E.

The CO and O_2 analyzers used by URS were operated and calibrated in accordance with the EPA Methods 10 and 3A except that the CO_2 interference trap was not used. The gas filter correlation analyzer used for CO measurement uses the characteristic absorption of infrared light by CO molecules to measure its relative concentration. This is a highly specific method for determining CO and is virtually free of interference from compounds such as water or carbon dioxide. System bias checks were performed before and after each test run to ensure that the measuring systems remained within their performance specifications. All method performance specifications were met. Calibration results are documented in Appendix B.

APPENDIX A

Relative Accuracy Spreadsheet and Reference Method Data

Veolia Sauget Unit 2 RATA
Relative Accuracy Results

		REFERENCE METHOD						STACK ANALYZERS				ARITHMETIC DIFFERENCE			
9/6/2013	TIME	O_2, Wet (%)	O_2, Dry (%)	Moisture (%)	O_2, Dry (%, from Wet)	CO (ppm)	CO (O_2 Corr) (ppm)	O_2, Wet (%)	Use of Run[1]	CO (O_2 Corr) (ppm)	Use of Run[1]	O_2, Wet (%)	Use of Run[1]	CO (O_2 Corr) (ppm)	Use of Run[1]
Run 1	08:36-08:57	8.49	12.76	33.45	12.76	0.07	0.13	8.25		0.00		-0.24		-0.13	
Run 2	09:13-09:34	7.68	11.91	35.51	11.91	-0.12	-0.19	7.75		0.00		0.07		0.19	
Run 3	09:49-10:10	7.10	11.40	37.76	11.40	-0.18	-0.26	7.20		0.00		0.10		0.26	
Run 4	10:24-10:45	7.27	11.80	38.41	11.80	-0.23	-0.36	7.62		0.00		0.35		0.36	
Run 5	11:02-11:23	7.44	11.97	37.85	11.97	-0.15	-0.23	7.54		0.00		0.10		0.23	
Run 6	11:41-12:02	7.00	11.59	39.61	11.59	-0.22	-0.34	7.39		0.00		0.39		0.34	
Run 7	12:17-12:38	7.29	11.96	39.00	11.96	-0.21	-0.33	7.68		0.00		0.39		0.33	
Run 8	12:58-13:19	8.23	12.56	34.43	12.56	-0.24	-0.40	8.15		0.00	X	-0.08		0.40	X
Run 9	13:38-13:59	7.19	11.80	39.10	11.80	-0.21	-0.32	7.61	X	0.00		0.42	X	0.32	
Run 10	14:16-14:37	6.92	11.55	40.06	11.55	-0.13	-0.20	7.24		0.00		0.32		0.20	
										Number of Runs Used in Calculation (n)		9		9	
										Average Difference (d_{AVG})		0.16		0.23	
										Standard Deviation (S_d)		0.22		0.15	
										t-Value ($t_{0.975}$)		2.306		2.306	
										Confidence Coeffient (CC)		0.17		0.11	
										Permit Limit				100	
										Average of Reference Method (RM_{AVG})		7.49		-0.23	
										Relative Accuracy (O_2, CO_2) ($\lvert d_{AVG} \rvert$)		0.16			
										Relative Accuracy (CO, NO_X, SO_2) ($\lvert d_{AVG} \rvert + \lvert CC \rvert$)				0.3	
										Relative Accuracy (% of Permit Limit) (RA)				0.3	

[1] An X in this column denotes a run which is not used in calculation of relative accuracy.

2013 Unit 2 CEMS RATA
Bias Corrected Concentrations
09/06/2013

Veolia Sauget Unit 2 RATA

Uncorrected Concentrations				
6-Sep-13	Time	O_2, Wet (%)	O_2, Dry (%)	CO (ppm)
Run 1	08:36-08:57	8.62	12.63	0.2
Run 2	09:13-09:34	7.83	11.76	-0.1
Run 3	09:49-10:10	7.38	11.26	-0.1
Run 4	10:24-10:45	7.50	11.65	-0.1
Run 5	11:02-11:23	7.62	11.83	0.0
Run 6	11:41-12:02	7.28	11.42	-0.1
Run 7	12:17-12:38	7.52	11.77	-0.1
Run 8	12:58-13:19	8.24	12.38	-0.1
Run 9	13:38-13:59	7.43	11.63	-0.1
Run 10	14:16-14:37	7.23	11.39	0.0

Corrected Wet O_2 Conc.					
6-Sep-13	Time	O_2 (%)	Eq. 7E-5 Factors		Bias Corrected Concentration
			C_O	$C_{MA}/(C_M-C_O)$	
Run 1	08:36-08:57	8.62	1.99	1.28	8.49
Run 2	09:13-09:34	7.83	1.93	1.30	7.68
Run 3	09:49-10:10	7.38	1.94	1.31	7.10
Run 4	10:24-10:45	7.50	1.95	1.31	7.27
Run 5	11:02-11:23	7.62	1.93	1.31	7.44
Run 6	11:41-12:02	7.28	1.89	1.30	7.00
Run 7	12:17-12:38	7.52	1.92	1.30	7.29
Run 8	12:58-13:19	8.24	1.96	1.31	8.23
Run 9	13:38-13:59	7.43	1.95	1.31	7.19
Run 10	14:16-14:37	7.23	1.96	1.31	6.92

Corrected Dry O_2 Conc.					
6-Sep-13	Time	CO_2 (%)	Eq. 7E-5 Factors		Bias Corrected Concentration
			C_O	$C_{MA}/(C_M-C_O)$	
Run 1	08:36-08:57	12.63	0.04	1.01	12.76
Run 2	09:13-09:34	11.76	0.04	1.02	11.91
Run 3	09:49-10:10	11.26	0.04	1.02	11.40
Run 4	10:24-10:45	11.65	0.03	1.02	11.80
Run 5	11:02-11:23	11.83	0.03	1.02	11.97
Run 6	11:41-12:02	11.42	0.19	1.03	11.59
Run 7	12:17-12:38	11.77	0.19	1.03	11.96
Run 8	12:58-13:19	12.38	0.05	1.02	12.56
Run 9	13:38-13:59	11.63	0.06	1.02	11.80
Run 10	14:16-14:37	11.39	0.04	1.02	11.55

Corrected CO Conc.					
6-Sep-13	Time	CO (ppm)	Eq. 7E-5 Factors		Bias Corrected Concentration
			C_O	$C_{MA}/(C_M-C_O)$	
Run 1	08:36-08:57	0.19	0.12	1.03	0.1
Run 2	09:13-09:34	-0.06	0.06	1.03	-0.1
Run 3	09:49-10:10	-0.09	0.08	1.02	-0.2
Run 4	10:24-10:45	-0.10	0.13	1.02	-0.2
Run 5	11:02-11:23	-0.03	0.12	1.03	-0.1
Run 6	11:41-12:02	-0.14	0.08	1.03	-0.2
Run 7	12:17-12:38	-0.13	0.07	1.03	-0.2
Run 8	12:58-13:19	-0.09	0.15	1.03	-0.2
Run 9	13:38-13:59	-0.05	0.15	1.03	-0.2
Run 10	14:16-14:37	-0.03	0.10	1.03	-0.1

Project Name 2013 CPT RATAs	Page 1 of 4
Project Number 40942510	Operator MDD
Facility Veolia Sauget	Condition(s) RATA
Source Unit 2 Stack	Run(s) Runs 1-10
	Date 9/6/13

Calibration Gases

Component(s)[1]	Supplier[2]	Concentration(s)	Cylinder ID
N_2	AG	pure	52-400193157-1A
O_2/CO_2	S	2.07% O_2/20.9% O_2	CC121944
↓	AL	22.5%/19.2%	CC189605
↓	AL	10.1%/10.0%	CC43355
CO	AG	89.80 ppm	CC144436
↓	AL	46.3 ppm	CC215749

[1] Indicate multi-component standards appropriately
[2] Code: AG-Airgas; AL-Air Liquide; S-Scott; P-Praxair

Instrument Identification

Analyte	Manufacturer[3]	Model Number	Serial Number	Instrument Name
O_2 Dry	S	1440	01440D1/4393	Waits
O_2 Wet	Ametek	RM CEM O_2/IQ	10215783-2	Asset #207720
CO	T	48C	48C-76896-384	Iggy
—	Monarch	2000	5724415	Kant

[3] Code: T-Thermo; W-Western; C-California; S-Servomex; O-Omega

Method Performance Checks

Activity	Method	Criterion	Initials
Span Selection	3A, 6C, 7E, 10	Emissions between 20% and 100% of calibration span	MDD
	25A	Span 1.5-2.5 times the emission limit; if no emission limit, span 1.5-2.5 times expected level	—
Calibration Gas Selection	3A, 6C, 7E, 10	Protocol gas; calibration span, 40-60% of calibration span, and <20% of calibration span (or zero gas)	MDD
	25A	Protocol gas: 25-35%, 45-55% and 80-90% of span, zero grade air	—
Calibration Error	3A, 6C, 7E, 10	Span gas within ±2.0% of calibration span	MDD
		Mid-range gas within ±2.0% of calibration span	MDD
		Zero gas within ±2.0% of calibration span	MDD
	25A	Low-range gas within 5% of certified value	—
		Mid-range gas within 5% of certified value	—
		Span gas within 5% of certified value	—
Converter Check	7E	≥90% converter efficiency	—
System Bias Check	3A, 6C, 7E, 10	Gas through system agrees with calibration error value for that gas within ±5.0% of calibration span	MDD
Response Time	3A, 6C, 7E, 10, 25A	No criteria, evaluated to determine duration at sample points	MDD
Sample Flow Rate	3A, 6C, 7E, 10	Stable sample flow rate within 10% of flow rate established during system response time check and bias check	MDD
3 Point Stratification Check[2,3]	3A, 6C, 7E, 10	± 5% of mean at each point – single point ± 5-10% of mean at each point – 3 points > ± 10% of mean at each point 12 points	MDD
Post-Test Calibration Drift Check	3A, 6C, 7E, 10	Selected gas reading within ±3.0% of calibration span of pre-test reading	MDD
		Zero gas within ±3.0% of calibration span of pre-test reading	MDD
	25A	Selected gas reading within ±3% of span of pre-test reading	—
		Zero gas within ±3% of span of previous reading	—

[2] The stratification check criteria do not apply to RATA.
[3] The stratification check is not required for stacks or ducts <4 inches in diameter

Hourly Drift Check (M25A only)

	Okay (initials)					
	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6
Selected gas reading within ±3% of span of initial reading		N/A				
Zero gas within ±3% of span of initial reading						

FDS-01B CEMS Operation
Per EM SOP-016, SOP-027, SOP-028, SOP-029, SOP-037
Revision Date: April 2013

R5-2014-0104710000299

CEMS Operation Log

Project Name 2013 CPT RATAs	**Page** 2 of 4
Project Number 40942510	**Operator** MDD
Facility Veolia Sauget	**Condition(s)** RATA
Source Unit 2 Stack	**Run(s)** Runs 1 & 2
	Date 9/6/13

Time	Activity	Analyzer Response						Sample Flow Rate
		O_2 wet	O_2 dry	CO_2 dry	CO dry			
	Turn on Analyzers [1]	--	--	--	--	--	--	
0716	Cal Error N_2 zero	—	-0.03	0.02	0.38			4 Lpm
0719	22.5% O_2/19.2% CO_2 Span	—	22.48	19.07	—			↓
0721	10.1% O_2/10.0% CO_2 Mid	—	10.09	10.01	—			↓
0724	89.80 ppm CO Span	—	—	—	93.28	need to adj.		↓
0726	46.3 ppm CO Mid	—	—	—	46.83	need to adj.		↓
0738	Cal Bias N_2 zero	0.01	0.07	0.02	0.48			4 Lpm
0741	46.3 ppm CO Mid	—	—	—	46.82			↓
0743	2.07% O_2/2.09% CO_2 Low	2.04	2.06	2.14	—			↓
0744	22.5% O_2/19.2% CO_2 Span				—			↓
0747	10.1% O_2/10.0% CO_2 Mid	10.07	10.05	9.82	—			↓
0748	2.07% O_2/2.09% CO_2 Low	2.06	2.12	2.26	—			↓
0750	10.1% O_2/10.0% CO_2 Mid	10.05	9.98	9.81	—			↓
0752	Cal Error N_2 zero	—	—	—	0.08			4 Lpm
0754	89.80 ppm CO Span	—	—	—	89.37			↓
0756	46.3 ppm CO Mid	—	—	—	45.32			↓
0759	Cal Bias N_2 zero	—	—	—	0.08			4 Lpm
0801	46.3 ppm CO Mid	—	—	—	45.22			↓
0803	Start RT							4 Lpm
0817	End RT							↓
0836	Start RATA Run 1							4 Lpm
0857	End RATA Run 1							↓
0859	Cal Bias N_2 zero	—	0.08	0.10	0.08			4 Lpm
0901	46.3 ppm CO Mid	—	—	—	45.12			↓
0902	2.07% O_2/2.09% CO_2 Low	1.91	—	—	—			↓
0905	10.1% O_2/10.0% CO_2 Mid	9.72	9.99	9.84	—			↓
0913	Start RATA Run 2							4 Lpm
0934	End ~~Start~~ RATA Run 2							↓
0935	Cal Bias N_2 zero	—	0.07	0.11	0.18			4 Lpm
0938	46.3 ppm CO Mid	—	—	—	45.10	MDD 9/6/13		↓
0940	2.07% O_2/2.09% CO_2 Low	1.91	2.06	2.16	—			↓

MDD 9/6/13

Comments

[1] "Turn On Analyzers" is to document sufficient warm-up time. If applicable, "yesterday" is an acceptable entry.

CEMS Operation Log

Project Name 2013 CPT RATAs	**Page** 3 of 4
Project Number 40942510	**Operator** WDD
Facility Veolia Sauget	**Condition(s)** RATA
Source Unit 2 Stack	**Run(s)** Runs 3-7
	Date 9/6/13

Time	Activity	Analyzer Response						Sample Flow Rate
		O_2 wet	O_2 dry	CO_2 dry	CO dry			
	Turn on Analyzers [1]	--	--	--	--	--	--	
0941	10.1% O_2/10.0% CO_2 Mid	9.70	9.96	9.78	—			4 Lpm
0949	Start RATA Run 3							4 Lpm
1010	End RATA Run 3							⊥
1011	Cal Bias N_2 zero	—	0.07	0.13	0.18			4 Lpm
1013	46.3 ppm CO Mid	—	—	—	45.33			⊥
1015	2.07% O_2/2.09% CO_2 Low	1.91	—	—	—			⊥
1017	10.1% O_2/10.0% CO_2 Mid	9.67	9.97	9.80	—			⊥
1024	Start RATA Run 4							4 Lpm
1045	End RATA Run 4							⊥
1046	Cal Bias N_2 zero	—	0.05	0.11	0.18			4 Lpm
1049	46.3 ppm CO Mid	—	—	—	45.12			⊥
1050	2.07% O_2/2.09% CO_2 Low	1.95	—	—	—			⊥
1052	10.1% O_2/10.0% CO_2 Mid	9.66	9.97	9.81	—			⊥
1102	Start RATA Run 5							4 Lpm
1123	End RATA Run 5							⊥
1126	Cal Bias N_2 zero	—	0.08	0.13	0.18			4 Lpm
1128	46.3 ppm CO Mid	—	—	—	45.12			⊥
1130	2.07% O_2/2.09% CO_2 Low	1.89	—	—	—			⊥
1132	10.1% O_2/10.0% CO_2 Mid	9.65	9.96	9.79	—			⊥
1141	Start RATA Run 6							4 Lpm
1202	End RATA Run 6							⊥
1203	N_2 zero (Cal Bias)	—	0.07	0.14	-0.12			4 Lpm
1206	46.3 ppm CO Mid	—	—	—	44.82			⊥
1208	2.07% O_2/2.09% CO_2 Low	1.85	—	—	—			⊥
1209	10.1% O_2/10.0% CO_2 Mid	9.65	9.97	9.79	—			⊥
1217	Start RATA Run 7							4 Lpm
1238	End RATA Run 7							⊥
1240	Cal Bias N_2 zero	—	0.04	0.08	0.08			4 Lpm
1242	46.3 ppm CO Mid	—	—	—	45.02			⊥
1243	2.07% O_2/2.09% CO_2 Low	1.95	—	—	—			⊥

Comments

[1] "Turn On Analyzers" is to document sufficient warm-up time. If applicable, "yesterday" is an acceptable entry.

CEMS Operation Log

Project Name 2013 CPT RATAs	**Page** 4 of 4
Project Number 40942510	**Operator** MDD
Facility Veolia Sauget	**Condition(s)** RATA
Source Unit 2 Stack	**Run(s)** Runs 8-10
	Date 9/6/13

Time	Activity	Analyzer Response						Sample Flow Rate
		O_2 wet	O_2 dry	CO_2 dry	CO dry			
	Turn on Analyzers [1]	--	--	--	--	--	--	
1245	10.1% O_2/10.0% CO_2 Mid	9.64	9.96	9.80	—			4 Lpm
1258	Start RATA Run 8							4 Lpm
1319	End RATA Run 8							⊥
1322	Cal Bias N_2 zero	—	0.07	0.14	0.18			4 Lpm
1325	46.3 ppm CO Mid	—	—	—	44.92			⊥
1326	2.07% O_2/2.09% CO_2 Low	1.94	—	—	—			⊥
1328	10.1% O_2/10.0% CO_2 Mid	9.66	9.94	9.74	—			⊥
1338	Start RATA Run 9							4 Lpm
1359	End RATA Run 9							⊥
1400	Cal Bias N_2 zero	—	0.07	0.13	0.08			4 Lpm
1403	46.3 ppm CO Mid	—	—	—	45.23			⊥
1404	2.07% O_2/2.09% CO_2 Low	1.94	—	—	—			⊥
1405	10.1% O_2/10.0% CO_2 Mid	9.64	9.95	9.75	—			⊥
1416	Start RATA Run 10							4 Lpm
1437	End RATA Run 10							⊥
1440	Cal Bias N_2 zero	—	0.08	0.14	0.21			4 Lpm
1443	46.3 ppm CO Mid	—	—	—	45.12			⊥
1445	2.07% O_2/2.09% CO_2 Low	1.96	—	—	—			⊥
1447	10.1% O_2/10.0% CO_2 Mid	9.65	9.96	9.78	—			⊥

Comments

[1] "Turn On Analyzers" is to document sufficient warm-up time. If applicable, "yesterday" is an acceptable entry.

FDS-01A CEMS Operation
Per EM SOP-016, SOP-027, SOP-028, SOP-029, SOP-037
Revision Date: April 2013

Response Time Determination – EPA Method 7E

Applicable to Performance of EPA Methods 3A, 6C, 7E and 10

Project Name: 2013 CPT RATAs
Project Number: 40942510
Location: Veolia Sauget

Source: Unit 2 Stack
Date: 9/6/13
Time 08:03 - 08:17

Parameter	O_2 wet		O_2 dry		CO	
Analyzer Make and Model	Ametek RM CEM O_2/IQ		Servomex 1440		Thermo 48C	
Analyzer Name	Asset # 207720		Waits		Iggy	
Analyzer Range	0-25%		0-25%		0-100 ppm	
From	Zero	Upscale	Zero	Upscale	Zero	Upscale
To	Upscale	Zero	Upscale	Zero	Upscale	Zero
Start Time (hh:mm)	08:15	08:16	~~08:08~~ 08:10:30	08:12	08:03	08:05
15 sec	2.06	22.72	0.00	22.27	0.38	89.27
30 sec	22.39	2.18	-0.01	22.27	0.18	89.87
45 sec	22.64	2.10	17.08	5.56	0.28	89.77
60 sec	22.74	2.07	22.17	0.16	12.19	63.65
75 sec			22.23	0.07	39.94	33.61
90 sec			22.26	0.05	84.52	3.48
105 sec					88.27	0.88
120 sec					88.97	0.28
135 sec						
150 sec						
165 sec						
180 sec						
195 sec						
Response Time [1]						
Analyzer Response Time [2]						

[1] Time in seconds to reach 95% of final stable value.
[2] Greater of upscale and downscale response time

	Cylinder Number	Actual Value
Upscale	CC189665	22.5% O_2
Upscale	CC 14436	89.80 ppm CO
Upscale	—	—
Zero	52-400193157-1A	0

"zero" CC121944 20.7% O_2

FDS-10 EPA 7E CEM Response Time
Per EM SOP-037
Revision Date: October 2009
Reviewed: August 2012

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 07:08:47	20.2952	20.773	0.682	77.502
09/06/2013 07:08:57	20.1784	20.772	0.682	77.701
09/06/2013 07:09:07	20.2614	20.771	0.583	77.302
09/06/2013 07:09:17	20.3732	20.772	0.682	76.102
09/06/2013 07:09:27	20.2519	20.774	0.682	75.202
09/06/2013 07:09:37	20.2519	20.774	0.682	74.801
09/06/2013 07:09:47	20.3178	20.77	0.583	73.701
09/06/2013 07:09:57	20.3435	20.7781	0.682	73.002
09/06/2013 07:10:07	20.2856	20.7751	0.781	72.802
09/06/2013 07:10:17	20.2781	20.7408	0.583	73.201
09/06/2013 07:10:27	20.272	20.7761	0.583	73.002
09/06/2013 07:10:37	20.2458	20.771	0.885	72.501
09/06/2013 07:10:47	20.3455	20.772	0.484	72.501
09/06/2013 07:10:57	20.1794	20.9065	0.583	71.702
09/06/2013 07:11:07	20.2423	0.3588	0.682	72.102
09/06/2013 07:11:17	20.0998	0.069	0.781	72.602
09/06/2013 07:11:27	20.1663	0.0184	0.984	72.602
09/06/2013 07:11:37	20.1748	0.0125	0.885	73.201
09/06/2013 07:11:47	20.0545	0.0089	0.583	74.101
09/06/2013 07:11:57	20.1602	0.0041	0.385	74.401
09/06/2013 07:12:07	20.1134	-0.003	0.383	75.002
09/06/2013 07:12:17	20.13	1.3991	0.385	75.002
09/06/2013 07:12:27	20.1376	-0.00064	0.583	74.801
09/06/2013 07:12:37	20.1048	-0.0084	6.286	75.502
09/06/2013 07:12:47	20.1733	-0.0102	20.202	75.301
09/06/2013 07:12:57	20.1099	-0.0161	35.217	75.301
09/06/2013 07:13:07	20.129	-0.0197	43.725	75.301
09/06/2013 07:13:17	20.1446	-0.0149	46.329	75.702
09/06/2013 07:13:27	20.0822	6.8158	46.73	75.902
09/06/2013 07:13:37	19.8329	10.0305	45.728	76.102
09/06/2013 07:13:47	20.1653	10.0591	37.821	76.802
09/06/2013 07:13:57	20.1794	10.0579	23.207	77.001
09/06/2013 07:14:07	20.1144	0.3844	11.388	77.701
09/06/2013 07:14:17	20.129	-0.00064	4.783	77.502
09/06/2013 07:14:27	20.1361	-0.0096	1.781	77.102
09/06/2013 07:14:37	20.0711	-0.0114	0.583	76.802
09/06/2013 07:14:47	20.0122	-0.0191	0.383	76.402
09/06/2013 07:14:57	20.0761	-0.0221	0.383	77.001
09/06/2013 07:15:07	20.0208	-0.0227	0.383	77.302
09/06/2013 07:15:17	14.4147	-0.0179	0.284	77.502
09/06/2013 07:15:27	16.8152	-0.0274	0.284	77.701
09/06/2013 07:15:37	22.9478	-0.0304	0.383	77.102
09/06/2013 07:15:47	22.69	-0.0131	0.383	77.102
Calibration Error				
09/06/2013 07:15:57	20.2806	-0.0209	0.383	77.302
09/06/2013 07:16:07	15.8353	-0.0239	0.482	77.302
09/06/2013 07:16:17	14.8265	-0.0268	0.385	77.102
09/06/2013 07:16:27	16.991	-0.0292	0.383	77.001
09/06/2013 07:16:37	17.4028	-0.0292	0.482	76.802
09/06/2013 07:16:47	16.8731	-0.0292	0.484	76.102
09/06/2013 07:16:57	17.067	-0.0316	0.383	75.301
09/06/2013 07:17:07	17.0841	-0.0334	0.383	74.401
09/06/2013 07:17:17	18.2916	-0.0322	0.383	73.201
N2 Zero		**-0.0324**		
09/06/2013 07:17:27	24.7223	0.3642	0.383	72.501
09/06/2013 07:17:37	19.769	22.1749	0.484	72.802
09/06/2013 07:17:47	13.9619	22.3914	0.785	73.701
09/06/2013 07:17:57	19.1199	22.4287	0.785	73.201
09/06/2013 07:18:07	19.9976	22.4382	0.385	72.302
09/06/2013 07:18:17	17.426	22.4423	0.085	72.501
09/06/2013 07:18:27	19.9734	22.4564	-0.113	72.802
09/06/2013 07:18:37	20.122	22.469	-0.212	72.602
09/06/2013 07:18:47	22.2675	22.4619	-0.113	71.702
09/06/2013 07:18:57	15.7668	22.4639	-0.113	72.102
09/06/2013 07:19:07	13.6042	22.469	-0.312	72.802
09/06/2013 07:19:17	15.236	22.4725	-0.212	73.502
09/06/2013 07:19:27	15.4526	22.4765	-0.212	74.302
09/06/2013 07:19:37	13.8208	22.4765	-0.316	75.202
09/06/2013 07:19:47	15.5776	22.4518	-0.113	75.902
22.5% O2 Span		**22.46827**		
09/06/2013 07:19:57	13.9375	12.389	-0.212	75.702
09/06/2013 07:20:07	15.0104	10.1228	-0.415	75.301
09/06/2013 07:20:17	15.5258	10.1002	-0.212	75.902
09/06/2013 07:20:27	13.9029	10.0829	-0.014	75.902
09/06/2013 07:20:37	15.94	10.0907	-0.014	76.102
09/06/2013 07:20:47	14.607	10.0984	-0.014	77.001
09/06/2013 07:20:57	15.5246	10.0942	0.284	76.602
09/06/2013 07:21:07	14.5653	10.0895	0.286	76.202
09/06/2013 07:21:17	15.5526	10.0793	0.184	76.202
09/06/2013 07:21:27	15.5068	10.0734	0.184	76.102
10.1% O2 Mid		**10.08073**		
09/06/2013 07:21:37	14.5677	10.4073	0.085	76.102
09/06/2013 07:21:47	15.114	10.4787	0.184	76.802
09/06/2013 07:21:57	14.4784	10.5233	0.184	76.802
09/06/2013 07:22:07	16.2953	10.5715	0.284	76.802
09/06/2013 07:22:17	14.4832	1.5568	0.184	77.102
09/06/2013 07:22:27	14.2136	0.0041	2.686	77.701
09/06/2013 07:22:37	15.9823	-0.0048	16.494	77.701
09/06/2013 07:22:47	15.0223	-0.0102	45.625	77.502

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 07:22:57	13.7333	-0.0125	71.954	77.001
09/06/2013 07:23:07	15.0164	-0.0197	86.372	77.102
09/06/2013 07:23:17	16.0102	-0.0227	91.277	77.502
09/06/2013 07:23:27	16.6601	-0.0244	92.077	77.102
09/06/2013 07:23:37	14.7891	-0.0268	92.379	76.402
09/06/2013 07:23:47	14.6046	-0.034	92.776	75.502
09/06/2013 07:23:57	15.7174	-0.0268	92.878	74.401
09/06/2013 07:24:07	15.4752	-0.0304	92.578	74.401
09/06/2013 07:24:17	13.8244	-0.0352	92.181	74.101
09/06/2013 07:24:27	15.302	-0.0304	92.883	73.002
09/06/2013 07:24:37	15.7043	-0.0334	93.279	72.802
09/06/2013 07:24:47	14.6998	-0.0369	92.082	72.602
09/06/2013 07:24:57	16.447	-0.0322	91.475	72.501
09/06/2013 07:25:07	14.2654	0.1469	92.478	72.501
09/06/2013 07:25:17	16.0691	-0.003	89.378	72.802
09/06/2013 07:25:27	14.0928	-0.034	78.665	72.302
09/06/2013 07:25:37	15.6103	-0.0369	63.045	71.702
09/06/2013 07:25:47	14.1797	-0.0369	52.138	71.902
09/06/2013 07:25:57	15.4752	-0.0369	47.631	72.501
09/06/2013 07:26:07	14.0904	-0.0334	46.623	72.802
09/06/2013 07:26:17	15.9436	-0.0369	46.524	73.201
09/06/2013 07:26:27	13.8393	-0.0363	46.226	73.502
09/06/2013 07:26:37	15.7549	-0.0411	46.829	74.101
09/06/2013 07:26:47	14.7444	-0.056	46.524	75.002
09/06/2013 07:26:57	15.5401	0.0142	46.825	75.902
09/06/2013 07:27:07	14.3231	20.2227	46.528	75.902
09/06/2013 07:27:17	15.987	20.7036	43.225	76.402
09/06/2013 07:27:27	14.7147	20.7151	32.017	76.402
09/06/2013 07:27:37	14.235	20.5787	16.895	76.402
09/06/2013 07:27:47	15.727	20.7343	7.084	76.402
09/06/2013 07:27:57	14.7623	20.7358	2.682	76.602
09/06/2013 07:28:07	14.4725	20.7378	1.281	77.502
09/06/2013 07:28:17	17.5499	20.7358	0.881	78.002
09/06/2013 07:28:27	16.212	20.7418	0.781	78.802
09/06/2013 07:28:37	14.8974	20.7474	0.682	78.802
09/06/2013 07:28:47	14.9337	20.7514	0.68	78.201
09/06/2013 07:28:57	15.5032	20.7443	0.68	78.601
09/06/2013 07:29:07	17.497	20.7514	0.68	78.901
09/06/2013 07:29:17	20.0605	20.7474	0.68	78.802
09/06/2013 07:29:27	20.0882	20.7433	0.581	78.601
09/06/2013 07:29:37	16.3471	20.7549	0.682	79.101
09/06/2013 07:29:47	16.6143	20.7453	0.781	78.901
09/06/2013 07:29:57	19.2377	20.7514	0.781	79.101
09/06/2013 07:30:07	16.2197	20.7589	0.682	79.303
09/06/2013 07:30:17	19.0404	20.7549	0.682	79.303
09/06/2013 07:30:27	16.6626	20.7494	0.682	79.303
09/06/2013 07:30:37	20.0978	20.7474	0.583	80.002
09/06/2013 07:30:47	20.0832	20.7474	0.682	80.602
09/06/2013 07:30:57	20.0943	20.7443	0.682	80.602
09/06/2013 07:31:07	20.0978	20.7529	0.682	80.702
09/06/2013 07:31:17	20.1335	20.7599	0.682	81.102
09/06/2013 07:31:27	20.1048	20.7187	0.682	81.501
09/06/2013 07:31:37	20.1048	20.7187	0.583	81.501
09/06/2013 07:31:47	20.1265	20.7197	0.583	80.702
09/06/2013 07:31:57	20.0988	18.4356	0.682	80.702
09/06/2013 07:32:07	20.0963	20.7101	0.785	80.902
09/06/2013 07:32:17	20.0797	20.7247	0.984	80.602
09/06/2013 07:32:27	17.285	20.7433	1.087	79.303
09/06/2013 07:32:37	16.0822	20.7559	0.984	78.201
09/06/2013 07:32:47	15.7174	20.7615	0.785	77.102
09/06/2013 07:32:57	16.4589	20.7675	0.682	75.301
09/06/2013 07:33:07	16.5639	20.7504	0.682	74.401
09/06/2013 07:33:17	14.5111	20.7579	0.682	74.401
09/06/2013 07:33:27	20.3929	20.7645	0.682	74.101
09/06/2013 07:33:37	20.412	20.7615	0.785	73.701
09/06/2013 07:33:47	20.4543	20.7388	0.682	73.201
09/06/2013 07:33:57	18.6285	20.7645	0.581	74.101
Calibration Bias				
09/06/2013 07:34:07	20.2504	20.7665	0.682	74.401
09/06/2013 07:34:17	20.4901	20.77	0.682	73.701
09/06/2013 07:34:27	20.5203	20.7665	0.682	73.201
09/06/2013 07:34:37	20.5429	20.7655	0.682	72.802
09/06/2013 07:34:47	20.553	20.7665	0.781	72.302
09/06/2013 07:34:57	20.5409	20.772	0.682	72.602
09/06/2013 07:35:07	20.5938	20.7695	0.583	73.502
09/06/2013 07:35:17	20.5923	20.7655	0.682	73.901
09/06/2013 07:35:27	20.5782	20.7635	0.781	73.901
09/06/2013 07:35:37	20.5409	20.7675	0.682	74.401
09/06/2013 07:35:47	20.5636	20.772	0.682	75.202
09/06/2013 07:35:57	20.5203	20.761	0.885	75.902
09/06/2013 07:36:07	20.5565	20.7665	0.881	75.902
09/06/2013 07:36:17	20.5636	20.77	0.781	76.102
09/06/2013 07:36:27	1.1926	20.7695	0.781	76.402
09/06/2013 07:36:37	0.0857	20.7685	0.881	76.102
09/06/2013 07:36:47	0.0523	9.6384	0.781	76.102
09/06/2013 07:36:57	0.038	0.5486	1.88	76.102
09/06/2013 07:37:07	0.0291	0.1583	4.382	76.102
09/06/2013 07:37:17	0.0232	0.1154	5.481	76.102
09/06/2013 07:37:27	0.0172	0.0886	4.082	75.702

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 07:37:37	0.0125	0.0743	1.884	75.502
09/06/2013 07:37:47	0.0101	0.066	0.881	75.902
09/06/2013 07:37:57	0.0077	0.0565	0.581	75.902
09/06/2013 07:38:07	0.0065	0.0696	0.583	76.102
09/06/2013 07:38:17	0.0029	0.0458	0.482	76.102
09/06/2013 07:38:27	0.0029	0.0333	0.482	76.202
09/06/2013 07:38:37	0.0029	0.0333	0.482	76.602
N2 Zero		**0.037467**		
09/06/2013 07:38:47	-0.00064	0.0333	0.482	77.302
09/06/2013 07:38:57	0.00055	0.0327	0.482	77.302
09/06/2013 07:39:07	-0.0066	0.0315	0.383	77.102
09/06/2013 07:39:17	-0.0018	0.0232	0.581	76.202
09/06/2013 07:39:27	-0.0042	0.0202	1.984	74.601
09/06/2013 07:39:37	-0.0042	0.0238	12.59	74.302
09/06/2013 07:39:47	-0.0054	0.0202	38.317	73.401
09/06/2013 07:39:57	-0.0066	0.0154	60.044	72.802
09/06/2013 07:40:07	-0.0078	0.0136	61.444	72.602
09/06/2013 07:40:17	-0.0078	0.0107	53.736	72.602
09/06/2013 07:40:27	-0.0066	0.019	48.428	72.501
09/06/2013 07:40:37	-0.0042	0.0089	46.825	71.602
09/06/2013 07:40:47	-0.0066	0.0047	46.825	71.702
09/06/2013 07:40:57	-0.009	0.0065	46.825	72.501
09/06/2013 07:41:07	-0.009	0.0077	46.825	72.501
09/06/2013 07:41:17	-0.009	0.0077	46.924	72.802
09/06/2013 07:41:27	-0.0078	0.0047	47.024	72.802
09/06/2013 07:41:37	0.4998	0.0059	46.924	73.002
09/06/2013 07:41:47	2.034	0.0089	46.924	73.701
09/06/2013 07:41:57	2.0364	0.535	47.027	74.101
09/06/2013 07:42:07	2.0412	1.9543	46.726	74.401
09/06/2013 07:42:17	2.0436	2.0477	41.426	75.301
09/06/2013 07:42:27	2.0412	2.0459	28.21	75.702
09/06/2013 07:42:37	2.0436	2.0537	14.092	75.702
09/06/2013 07:42:47	2.0412	2.0525	5.584	75.301
09/06/2013 07:42:57	2.0459	2.0555	1.984	75.202
09/06/2013 07:43:07	2.0424	2.062	0.98	75.002
2.07% O2 Low	**2.043167**			
09/06/2013 07:43:17	2.1435	2.0573	0.984	75.301
09/06/2013 07:43:27	5.45	2.0561	0.781	75.502
09/06/2013 07:43:37	22.5913	3.6242	0.583	75.702
09/06/2013 07:43:47	22.6563	11.2505	0.881	76.602
09/06/2013 07:43:57	22.689	21.0565	0.885	76.802
09/06/2013 07:44:07	22.6996	22.1759	0.885	76.402
09/06/2013 07:44:17	22.7056	22.2227	0.984	76.102
09/06/2013 07:44:27	22.7152	22.2388	0.478	76.102
09/06/2013 07:44:37	22.6935	22.2454	0.367	76.102
22.5% O2 Span	**22.70477**			
09/06/2013 07:44:47	21.121	22.261	0.073	75.902
09/06/2013 07:44:57	13.0501	22.261	-0.113	76.202
09/06/2013 07:45:07	20.7962	21.4951	-0.113	76.802
09/06/2013 07:45:17	20.7091	17.4371	-0.113	76.802
09/06/2013 07:45:27	20.6638	20.1829	-0.012	77.102
09/06/2013 07:45:37	20.6044	20.6834	0.085	77.502
09/06/2013 07:45:47	9.4164	20.7071	0.186	77.302
09/06/2013 07:45:57	10.0544	20.626	0.286	77.001
09/06/2013 07:46:07	10.068	10.2573	0.393	76.802
09/06/2013 07:46:17	10.0591	10.0478	0.587	76.802
09/06/2013 07:46:27	10.074	10.0484	0.676	76.402
09/06/2013 07:46:37	10.0603	10.0365	0.583	76.102
09/06/2013 07:46:47	10.0764	10.0198	0.561	75.502
09/06/2013 07:46:57	10.0669	10.0163	0.363	74.601
09/06/2013 07:47:07	10.0764	10.0085	0.172	74.401
10.1% O2 Mid	**10.07323**	**10.01487**		
09/06/2013 07:47:17	5.2911	10.0121	0.091	74.302
09/06/2013 07:47:27	2.0965	10.0085	0.19	73.002
09/06/2013 07:47:37	2.0787	7.2847	0.284	72.501
09/06/2013 07:47:47	2.0668	2.4369	0.28	72.501
09/06/2013 07:47:57	2.062	2.1346	0.284	72.501
09/06/2013 07:48:07	2.0596	2.1156	0.311	72.501
09/06/2013 07:48:17	2.0573	2.1078	0.591	72.501
09/06/2013 07:48:27	2.0525	2.0906	0.69	72.602
2.07% O2 Low	**2.056467**			
09/06/2013 07:48:37	9.8586	2.0876	0.793	72.501
09/06/2013 07:48:47	6.2736	2.0995	0.871	72.802
09/06/2013 07:48:57	10.027	8.3494	0.781	72.802
09/06/2013 07:49:07	10.0353	6.573	0.781	73.401
09/06/2013 07:49:17	10.0413	9.7794	0.754	74.101
09/06/2013 07:49:27	10.0436	9.9627	0.551	74.101
09/06/2013 07:49:37	10.0484	9.974	0.383	74.101
09/06/2013 07:49:47	10.0603	9.98	0.383	74.801
09/06/2013 07:49:57	10.068	9.9883	0.367	75.002
09/06/2013 07:50:07	10.0657	9.9788	0.284	75.202
10.1% O2 Mid	**10.06467**			
09/06/2013 07:50:17	10.0413	9.6146	0.284	75.301
09/06/2013 07:50:27	20.5288	10.0317	0.297	76.102
Calibration Error				
09/06/2013 07:50:37	20.4699	1.4717	0.393	76.802
09/06/2013 07:50:47	20.4241	0.0184	0.482	77.502
09/06/2013 07:50:57	20.4095	-0.0096	0.466	77.102
09/06/2013 07:51:07	20.3204	-0.0131	0.363	77.001

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 07:51:17	20.2745	-0.0143	0.284	76.802
09/06/2013 07:51:27	20.3335	-0.0197	0.28	76.602
09/06/2013 07:51:37	20.3118	-0.0256	0.293	76.802
09/06/2013 07:51:47	20.342	-0.0244	0.333	77.302
09/06/2013 07:51:57	20.276	-0.0244	0.081	78.401
09/06/2013 07:52:07	20.2962	0.0785	0.081	78.002
09/06/2013 07:52:17	20.3229	0.063	0.051	77.701
N2 Zero			**0.071**	
09/06/2013 07:52:27	20.265	-0.0239	6.403	78.201
09/06/2013 07:52:37	20.276	-0.0286	25.401	78.002
09/06/2013 07:52:47	20.271	-0.0322	55.745	78.201
09/06/2013 07:52:57	20.2806	-0.0304	78.294	78.002
09/06/2013 07:53:07	20.2458	-0.0322	87.321	77.102
09/06/2013 07:53:17	20.2423	-0.034	89.246	76.102
09/06/2013 07:53:27	20.3022	-0.034	89.014	75.202
09/06/2013 07:53:37	20.2856	-0.0292	88.717	75.002
09/06/2013 07:53:47	20.2675	-0.0322	89.054	75.002
09/06/2013 07:53:57	20.2917	-0.0322	89.373	73.901
09/06/2013 07:54:07	20.2745	-0.034	89.274	72.802
89.80 ppm CO Span			**89.23367**	
09/06/2013 07:54:17	20.2529	-0.0369	88.934	73.401
09/06/2013 07:54:27	20.2841	0.5171	89.051	73.002
09/06/2013 07:54:37	20.2327	-0.0316	87.012	72.802
09/06/2013 07:54:47	20.2806	-0.0381	77.945	72.501
09/06/2013 07:54:57	20.3254	-0.0399	64.111	72.302
09/06/2013 07:55:07	20.271	-0.0387	52.52	72.802
09/06/2013 07:55:17	20.2423	-0.0352	46.799	73.502
09/06/2013 07:55:27	20.2146	-0.0363	45.522	73.701
09/06/2013 07:55:37	20.2423	-0.0411	45.526	73.901
09/06/2013 07:55:47	20.2312	-0.0399	45.5	74.101
46.3 ppm CO Mid			**45.516**	
09/06/2013 07:55:57	20.2252	-0.0369	45.397	74.401
09/06/2013 07:56:07	20.201	-0.0363	45.349	75.002
09/06/2013 07:56:17	20.272	0.0041	45.526	75.502
09/06/2013 07:56:27	20.3662	20.1401	45.353	75.902
Calibration Bias				
09/06/2013 07:56:37	0.7349	20.698	41.322	75.902
09/06/2013 07:56:47	0.0833	20.4593	29.736	75.902
09/06/2013 07:56:57	0.0499	5.0691	15.945	75.902
09/06/2013 07:57:07	0.0351	0.2683	8.633	76.202
09/06/2013 07:57:17	0.0267	0.0976	9.912	76.202
09/06/2013 07:57:27	0.022	0.0696	13.116	76.202
09/06/2013 07:57:37	0.0172	0.0499	11.212	76.402
09/06/2013 07:57:47	0.0125	0.038	5.882	76.802
09/06/2013 07:57:57	0.0089	0.0315	1.742	76.602
09/06/2013 07:58:07	0.0065	0.0249	0.418	76.402
09/06/2013 07:58:17	0.0065	0.019	0.25	76.802
09/06/2013 07:58:27	0.0041	0.019	0.151	76.802
09/06/2013 07:58:37	0.0017	0.0136	0.107	77.001
09/06/2013 07:58:47	0.0029	0.0125	0.206	77.102
09/06/2013 07:58:57	0.00055	0.0095	0.258	77.102
09/06/2013 07:59:07	-0.00064	0.0089	0.155	77.901
09/06/2013 07:59:17	-0.0042	0.0089	0.081	78.002
N2 Zero			**0.164667**	
09/06/2013 07:59:27	-0.003	0.0041	0.26	77.502
09/06/2013 07:59:37	-0.003	0.0017	2.053	77.502
09/06/2013 07:59:47	-0.003	-0.000046	10.085	77.901
09/06/2013 07:59:57	-0.003	0.0041	23.493	78.002
09/06/2013 08:00:07	-0.0042	0.0047	35.919	78.002
09/06/2013 08:00:17	-0.0042	0.0011	42.362	77.701
09/06/2013 08:00:27	-0.0066	-0.003	44.534	77.302
09/06/2013 08:00:37	-0.0066	-0.00064	45.143	77.102
09/06/2013 08:00:47	-0.0066	-0.0018	45.397	76.602
09/06/2013 08:00:57	-0.0054	-0.0036	45.294	75.902
09/06/2013 08:01:07	-0.0066	-0.0054	45.312	75.502
46.3 ppm CO Mid			**45.33433**	
09/06/2013 08:01:17	-0.009	-0.0048	45.522	74.101
09/06/2013 08:01:27	-0.0078	-0.003	45.371	72.802
09/06/2013 08:01:37	-0.009	-0.0036	45.022	72.501
09/06/2013 08:01:47	-0.0054	-0.0078	45.143	72.302
09/06/2013 08:01:57	-0.0054	-0.0036	45.456	72.302
09/06/2013 08:02:07	-0.0054	-0.0036	45.161	72.302
09/06/2013 08:02:17	-0.0054	-0.0018	42.102	72.802
09/06/2013 08:02:27	-0.0042	-0.0066	31.801	73.401
09/06/2013 08:02:37	-0.0054	-0.0078	17.744	73.502
Start Response Time				
09/06/2013 08:02:47	-0.0066	-0.0048	7.08	73.901
09/06/2013 08:02:57	-0.0078	-0.0096	2.245	74.101
09/06/2013 08:03:07	-0.0066	-0.0096	0.706	74.401
09/06/2013 08:03:17	-0.0066	-0.0066	0.345	74.601
09/06/2013 08:03:27	-0.0066	-0.0048	0.242	75.002
09/06/2013 08:03:37	-0.0102	-0.0078	0.212	75.202
09/06/2013 08:03:47	-0.0114	-0.0066	0.734	75.202
09/06/2013 08:03:57	-0.0114	-0.0084	5.294	75.301
09/06/2013 08:04:07	-0.0114	-0.0054	21.404	75.502
09/06/2013 08:04:17	-0.0114	-0.0066	49.93	75.902
09/06/2013 08:04:27	-0.0102	-0.0084	73.577	75.902
09/06/2013 08:04:37	-0.0102	-0.0066	85.33	76.202
09/06/2013 08:04:47	-0.0114	-0.0066	88.474	76.202

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 08:04:57	-0.0125	-0.0066	88.853	76.202
09/06/2013 08:05:07	-0.0114	-0.0096	89.095	76.602
09/06/2013 08:05:17	-0.0114	-0.0084	89.397	76.602
09/06/2013 08:05:27	-0.0054	-0.0054	89.694	76.602
09/06/2013 08:05:37	-0.0066	-0.0084	89.83	76.602
09/06/2013 08:05:47	-0.0078	-0.0066	88.01	76.602
09/06/2013 08:05:57	-0.0066	-0.0078	76.681	76.402
09/06/2013 08:06:07	-0.0078	-0.0131	51.636	76.802
09/06/2013 08:06:17	-0.0066	-0.0114	25.242	76.402
09/06/2013 08:06:27	-0.0054	-0.0066	8.546	75.301
09/06/2013 08:06:37	-0.0066	-0.0078	2.311	74.101
09/06/2013 08:06:47	-0.0066	-0.0054	0.654	73.901
09/06/2013 08:06:57	-0.0054	-0.0054	0.379	73.401
09/06/2013 08:07:07	-0.0054	-0.0078	0.379	73.201
09/06/2013 08:07:17	-0.0066	-0.0096	0.379	73.502
09/06/2013 08:07:27	-0.0054	-0.0078	0.422	72.802
09/06/2013 08:07:37	-0.0054	-0.0066	0.434	72.302
09/06/2013 08:07:47	-0.0078	-0.0066	0.289	71.902
09/06/2013 08:07:57	-0.0066	-0.0102	0.224	71.902
09/06/2013 08:08:07	-0.0042	-0.0084	0.323	72.302
09/06/2013 08:08:17	0.0017	-0.0066	0.333	73.002
09/06/2013 08:08:27	20.9176	-0.0078	0.28	73.002
09/06/2013 08:08:37	20.4165	0.9765	0.28	73.502
09/06/2013 08:08:47	20.2927	18.983	0.284	73.701
09/06/2013 08:08:57	20.5646	20.5585	0.284	74.101
09/06/2013 08:09:07	19.6411	20.6356	0.284	74.801
09/06/2013 08:09:17	19.5776	20.6608	0.331	75.202
09/06/2013 08:09:27	19.6572	20.6814	0.383	75.202
09/06/2013 08:09:37	11.1119	20.693	0.383	75.702
09/06/2013 08:09:47	0.1374	20.7151	0.383	76.402
09/06/2013 08:09:57	0.0559	11.6326	0.434	76.802
09/06/2013 08:10:07	0.135	0.9242	0.482	77.102
09/06/2013 08:10:17	0.0351	0.1214	0.482	77.302
09/06/2013 08:10:27	0.0196	0.0666	0.434	77.701
09/06/2013 08:10:37	0.0797	0.0452	0.28	77.302
09/06/2013 08:10:47	0.0464	0.0333	0.18	77.901
09/06/2013 08:10:57	24.613	0.0261	0.18	77.701
09/06/2013 08:11:07	22.5802	0.5552	0.18	77.102
09/06/2013 08:11:17	23.5858	19.6794	0.133	77.001
09/06/2013 08:11:27	22.5792	22.1331	-0.07	76.402
09/06/2013 08:11:37	22.614	22.2162	-0.316	75.502
09/06/2013 08:11:47	22.6779	22.2388	-0.415	74.801
09/06/2013 08:11:57	22.7273	22.2534	-0.474	73.901
09/06/2013 08:12:07	22.6336	22.263	-0.514	73.401
09/06/2013 08:12:17	22.5818	22.2645	-0.514	73.401
09/06/2013 08:12:27	0.2196	22.2726	-0.566	72.802
09/06/2013 08:12:37	0.0702	21.8496	-0.617	72.102
09/06/2013 08:12:47	0.0464	2.9559	-0.569	71.902
09/06/2013 08:12:57	0.0291	0.2118	-0.518	72.602
09/06/2013 08:13:07	0.0196	0.1077	-0.47	73.201
09/06/2013 08:13:17	0.0148	0.0737	-0.268	73.002
09/06/2013 08:13:27	0.0125	0.0535	-0.117	72.802
09/06/2013 08:13:37	0.0077	0.044	-0.117	72.602
09/06/2013 08:13:47	0.2362	0.0363	-0.012	72.802
09/06/2013 08:13:57	0.1523	0.0327	0.135	73.401
09/06/2013 08:14:07	20.4865	1.5883	0.125	74.302
09/06/2013 08:14:17	20.6129	1.8531	0.03	74.601
09/06/2013 08:14:27	20.3768	18.2876	0.036	75.502
09/06/2013 08:14:37	1.7621	20.5555	0.081	76.202
09/06/2013 08:14:47	2.0882	20.6376	0.135	76.102
09/06/2013 08:14:57	2.0751	8.0631	0.234	75.902
09/06/2013 08:15:07	2.0644	2.2792	0.28	76.102
09/06/2013 08:15:17	2.0608	2.1221	0.284	76.402
09/06/2013 08:15:27	21.6039	2.0965	0.341	76.402
09/06/2013 08:15:37	22.6512	2.0852	0.383	76.602
09/06/2013 08:15:47	22.6276	15.8138	0.323	76.802
09/06/2013 08:15:57	22.6553	22.0198	0.161	76.602
09/06/2013 08:16:07	22.7525	22.2076	-0.038	76.602
09/06/2013 08:16:17	22.7298	22.2353	-0.236	77.001
09/06/2013 08:16:27	2.287	22.2524	-0.316	76.602
09/06/2013 08:16:37	2.115	22.1618	-0.379	76.202
09/06/2013 08:16:47	2.0977	5.6684	-0.478	75.002
09/06/2013 08:16:57	2.0822	2.2614	-0.46	74.101
End Response Time				
09/06/2013 08:17:07	2.0727	2.1507	-0.298	74.101
09/06/2013 08:17:17	2.0632	2.1209	-0.099	74.601
09/06/2013 08:17:27	20.1698	2.1043	0.04	74.101
09/06/2013 08:17:37	20.7131	2.0995	0.198	73.002
09/06/2013 08:17:47	20.6623	16.5025	0.284	72.501
09/06/2013 08:17:57	20.5948	20.5278	0.284	71.702
09/06/2013 08:18:07	20.5661	20.6623	0.151	71.602
09/06/2013 08:18:17	20.5253	20.695	0.147	71.902
09/06/2013 08:18:27	20.5117	20.7071	0.311	71.902
09/06/2013 08:18:37	20.4719	20.7187	0.448	72.302
09/06/2013 08:18:47	20.478	20.7247	0.482	73.201
09/06/2013 08:18:57	20.4639	20.7272	0.353	73.201
09/06/2013 08:19:07	20.4815	20.7333	0.284	73.401
09/06/2013 08:19:17	20.4588	20.7358	0.284	74.302
09/06/2013 08:19:27	20.4734	20.7443	0.284	75.502

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 08:19:37	20.4407	20.7408	0.478	75.502
09/06/2013 08:19:47	20.4266	20.7433	0.51	75.301
09/06/2013 08:19:57	20.4659	20.7474	0.482	75.202
09/06/2013 08:20:07	20.4382	20.7514	0.482	75.202
09/06/2013 08:20:17	20.3939	20.7302	0.341	75.502
09/06/2013 08:20:27	20.3335	20.2896	0.284	75.902
09/06/2013 08:20:37	20.2771	20.1925	0.353	75.702
09/06/2013 08:20:47	20.2267	20.2332	0.383	75.902
09/06/2013 08:20:57	20.2433	20.3375	0.452	75.902
09/06/2013 08:21:07	19.2921	20.4508	0.621	76.102
09/06/2013 08:21:17	13.9797	20.4805	0.75	76.802
09/06/2013 08:21:27	12.6431	20.485	0.712	77.001
09/06/2013 08:21:37	12.9335	20.4946	0.754	76.602
09/06/2013 08:21:47	13.0019	20.5117	0.781	76.202
09/06/2013 08:21:57	13.018	20.5288	0.712	76.402
09/06/2013 08:22:07	19.8546	20.69	0.682	76.202
09/06/2013 08:22:17	20.3435	10.2823	0.613	75.702
09/06/2013 08:22:27	20.3375	20.132	0.651	75.002
09/06/2013 08:22:37	20.3999	20.7015	0.682	74.601
09/06/2013 08:22:47	20.2881	20.7121	0.613	74.101
09/06/2013 08:22:57	18.2916	20.7358	0.44	73.401
09/06/2013 08:23:07	11.9873	20.6889	0.311	72.602
09/06/2013 08:23:17	11.6088	19.5726	0.212	71.902
09/06/2013 08:23:27	11.2095	13.2953	0.25	72.501
09/06/2013 08:23:37	10.8792	12.8448	0.492	71.602
09/06/2013 08:23:47	10.5227	12.8127	0.724	71.202
09/06/2013 08:23:57	10.2061	12.7752	0.781	71.602
09/06/2013 08:24:07	9.8026	12.7413	1.006	71.602
09/06/2013 08:24:17	9.4789	12.7056	1.16	71.702
09/06/2013 08:24:27	9.2444	12.6907	1.109	72.501
09/06/2013 08:24:37	9.1647	12.655	1.083	73.002
09/06/2013 08:24:47	9.0361	12.6133	1.006	73.901
09/06/2013 08:24:57	8.8623	12.5943	0.984	74.601
09/06/2013 08:25:07	8.7832	12.6151	0.984	75.002
09/06/2013 08:25:17	8.8975	12.633	1.057	75.002
09/06/2013 08:25:27	9.0444	12.6562	1.006	75.301
09/06/2013 08:25:37	9.0766	12.6717	0.906	75.902
09/06/2013 08:25:47	9.1272	12.6972	0.807	76.802
09/06/2013 08:25:57	9.1599	12.7353	0.781	77.102
09/06/2013 08:26:07	9.1891	12.7556	0.932	77.302
09/06/2013 08:26:17	9.2212	12.7859	1.142	76.802
09/06/2013 08:26:27	9.2224	12.8204	1.186	77.001
09/06/2013 08:26:37	9.2093	12.8514	1.186	77.001
09/06/2013 08:26:47	9.2129	12.8466	1.182	77.001
09/06/2013 08:26:57	9.1837	12.8365	1.345	77.701
09/06/2013 08:27:07	9.1385	12.8085	1.462	78.002
09/06/2013 08:27:17	9.1611	12.7752	1.402	77.701
09/06/2013 08:27:27	9.1647	12.7401	1.303	77.302
09/06/2013 08:27:37	8.8796	12.7294	1.202	76.102
09/06/2013 08:27:47	8.7636	12.7318	1.182	75.301
09/06/2013 08:27:57	8.6207	12.7449	1.103	74.401
09/06/2013 08:28:07	8.6195	12.746	1.083	74.302
09/06/2013 08:28:17	8.7142	12.7335	1.083	73.901
09/06/2013 08:28:27	8.7243	12.7193	1.164	73.201
09/06/2013 08:28:37	8.7326	12.7199	1.182	72.501
09/06/2013 08:28:47	8.7314	12.7324	1.099	71.902
09/06/2013 08:28:57	8.7279	12.7496	1.083	72.102
09/06/2013 08:29:07	8.6398	12.7294	1	72.102
09/06/2013 08:29:17	8.6725	12.7389	0.9	71.702
09/06/2013 08:29:27	8.6689	12.7609	0.885	71.702
09/06/2013 08:29:37	8.7314	12.7794	0.97	72.102
09/06/2013 08:29:47	8.7576	12.7746	0.98	72.602
09/06/2013 08:29:57	8.7915	12.7859	0.984	73.002
09/06/2013 08:30:07	8.835	12.7734	0.984	73.002
09/06/2013 08:30:17	8.9058	12.7895	0.984	73.201
09/06/2013 08:30:27	8.7737	12.8335	1.152	73.701
09/06/2013 08:30:37	8.7975	12.8413	1.267	74.401
09/06/2013 08:30:47	8.8011	12.8002	1.113	74.601
09/06/2013 08:30:57	8.813	12.746	1.083	75.202
09/06/2013 08:31:07	8.7796	12.7038	1.252	75.902
09/06/2013 08:31:17	8.8326	12.6836	1.198	76.102
09/06/2013 08:31:27	8.7951	12.6502	1.014	76.202
09/06/2013 08:31:37	8.7987	12.6925	1.069	76.802
09/06/2013 08:31:47	8.8326	12.7121	1	76.802
09/06/2013 08:31:57	8.7915	12.6895	1.073	77.001
09/06/2013 08:32:07	8.7868	12.655	1.083	77.302
09/06/2013 08:32:17	8.7772	12.6264	1	77.701
09/06/2013 08:32:27	8.7796	12.6121	0.9	77.701
09/06/2013 08:32:37	8.5612	12.6211	0.881	78.002
09/06/2013 08:32:47	8.594	12.6496	0.885	78.601
09/06/2013 08:32:57	8.6713	12.6818	0.881	78.002
09/06/2013 08:33:07	8.6648	12.6895	0.881	76.402
09/06/2013 08:33:17	8.6939	12.6877	0.881	74.801
09/06/2013 08:33:27	8.6904	12.6961	1.061	74.302
09/06/2013 08:33:37	8.6844	12.7121	0.996	74.101
09/06/2013 08:33:47	8.7219	12.7026	0.893	73.502
09/06/2013 08:33:57	8.7505	12.6895	0.974	73.201
09/06/2013 08:34:07	8.735	12.6865	1.073	73.002
09/06/2013 08:34:17	8.7409	12.6877	1.176	72.602

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 08:34:27	8.7023	12.7026	1.091	71.702
09/06/2013 08:34:37	8.6713	12.6859	1.083	71.402
09/06/2013 08:34:47	8.7231	12.6574	1.083	71.402
09/06/2013 08:34:57	8.7951	12.6389	0.893	71.602
09/06/2013 08:35:07	8.8094	12.6865	0.885	71.702
09/06/2013 08:35:17	8.6737	12.7151	0.978	71.702
09/06/2013 08:35:27	8.6713	12.6895	0.984	71.402
09/06/2013 08:35:37	8.6677	12.6562	0.984	72.302
09/06/2013 08:35:47	8.6457	12.6169	0.889	73.002
09/06/2013 08:35:57	8.6576	12.5723	0.885	73.401
Start Run 1				
09/06/2013 08:36:07	8.6868	12.5389	0.69	74.302
09/06/2013 08:36:17	8.7409	12.5157	0.682	75.301
09/06/2013 08:36:27	8.7856	12.5217	0.779	75.502
09/06/2013 08:36:37	8.8564	12.5425	0.879	75.702
09/06/2013 08:36:47	8.86	12.583	0.785	76.102
09/06/2013 08:36:57	8.8397	12.6211	0.781	76.202
09/06/2013 08:37:07	8.8504	12.655	0.781	76.602
09/06/2013 08:37:17	8.9236	12.6818	0.781	77.302
09/06/2013 08:37:27	8.9832	12.7026	0.781	77.502
09/06/2013 08:37:37	8.9796	12.7431	0.881	77.502
09/06/2013 08:37:47	9.0212	12.7698	0.984	77.302
09/06/2013 08:37:57	9.0325	12.8127	0.984	77.502
09/06/2013 08:38:07	9.0337	12.8365	0.984	77.302
09/06/2013 08:38:17	9.0177	12.8252	0.885	77.701
09/06/2013 08:38:27	9.0302	12.8258	0.781	77.901
09/06/2013 08:38:37	9.0212	12.8585	0.781	76.402
09/06/2013 08:38:47	8.9832	12.8871	0.885	75.301
09/06/2013 08:38:57	8.9361	12.8793	0.583	74.401
09/06/2013 08:39:07	8.9129	12.8526	0.284	73.701
09/06/2013 08:39:17	8.8647	12.8109	0.383	73.002
09/06/2013 08:39:27	8.8963	12.777	0.284	72.501
09/06/2013 08:39:37	8.8796	12.7603	0.18	71.902
09/06/2013 08:39:47	8.8844	12.7532	0.184	71.902
09/06/2013 08:39:57	8.8986	12.7562	0.284	71.202
09/06/2013 08:40:07	8.9326	12.7812	0.081	71.202
09/06/2013 08:40:17	8.9962	12.8109	-0.014	70.702
09/06/2013 08:40:27	8.9986	12.8305	0.085	70.702
09/06/2013 08:40:37	8.9915	12.8466	0.081	71.003
09/06/2013 08:40:47	8.954	12.8448	0.184	71.202
09/06/2013 08:40:57	8.9742	12.8401	-0.014	71.202
09/06/2013 08:41:07	9.0093	12.8383	0.085	70.702
09/06/2013 08:41:17	9.0528	12.8555	0.081	71.602
09/06/2013 08:41:27	9.0444	12.8853	-0.014	72.602
09/06/2013 08:41:37	9.0831	12.8805	-0.014	73.701
09/06/2013 08:41:47	9.0915	12.8591	-0.014	74.801
09/06/2013 08:41:57	9.0927	12.846	-0.018	75.002
09/06/2013 08:42:07	9.0962	12.8609	0.081	75.502
09/06/2013 08:42:17	9.0802	12.8585	0.081	75.702
09/06/2013 08:42:27	9.0409	12.8704	0.085	76.102
09/06/2013 08:42:37	8.4666	12.8514	0.081	76.802
09/06/2013 08:42:47	8.4892	12.8079	-0.014	77.001
09/06/2013 08:42:57	8.5148	12.7627	-0.014	77.302
09/06/2013 08:43:07	8.5446	12.7353	0.085	77.302
09/06/2013 08:43:17	8.5999	12.7419	-0.014	77.502
09/06/2013 08:43:27	8.6773	12.7579	-0.014	77.302
09/06/2013 08:43:37	8.6868	12.7936	-0.014	77.001
09/06/2013 08:43:47	8.7142	12.827	-0.014	77.001
09/06/2013 08:43:57	8.7314	12.8419	-0.014	77.302
09/06/2013 08:44:07	8.782	12.8621	-0.014	76.802
09/06/2013 08:44:17	8.8374	12.8859	-0.014	75.502
09/06/2013 08:44:27	8.8421	12.9109	-0.014	75.002
09/06/2013 08:44:37	8.8266	12.9287	0.081	74.302
09/06/2013 08:44:47	8.8231	12.9043	0.081	73.901
09/06/2013 08:44:57	8.7761	12.8805	0.184	73.502
09/06/2013 08:45:07	8.3196	12.8383	0.085	72.602
09/06/2013 08:45:17	8.4011	12.8014	0.085	71.902
09/06/2013 08:45:27	8.5576	12.83	0.085	71.902
09/06/2013 08:45:37	8.6011	12.9061	0.081	71.202
09/06/2013 08:45:47	8.6047	12.9097	0.085	71.003
09/06/2013 08:45:57	8.5797	12.9091	0.085	70.801
09/06/2013 08:46:07	8.5809	12.8651	-0.014	70.801
09/06/2013 08:46:17	8.6255	12.802	0.081	70.801
09/06/2013 08:46:27	8.635	12.7859	0.085	70.702
09/06/2013 08:46:37	8.6612	12.8127	0.085	71.202
09/06/2013 08:46:47	8.6975	12.8097	0.081	71.702
09/06/2013 08:46:57	8.688	12.8276	-0.014	72.602
09/06/2013 08:47:07	8.6963	12.8478	-0.014	72.802
09/06/2013 08:47:17	8.7255	12.8347	0.081	73.401
09/06/2013 08:47:27	8.7154	12.8323	0.085	73.901
09/06/2013 08:47:37	8.7314	12.8657	-0.014	74.601
09/06/2013 08:47:47	8.6963	12.8668	-0.014	75.002
09/06/2013 08:47:57	8.6184	12.8573	0.081	74.801
09/06/2013 08:48:07	8.6011	12.8175	0.184	74.801
09/06/2013 08:48:17	8.6047	12.7335	0.081	75.202
09/06/2013 08:48:27	8.5928	12.6532	0.081	75.301
09/06/2013 08:48:37	8.4952	12.6437	0.081	75.702
09/06/2013 08:48:47	8.4351	12.6163	0.081	75.702
09/06/2013 08:48:57	8.3327	12.5443	0.284	76.202

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 08:49:07	8.2821	12.4532	0.284	76.802
09/06/2013 08:49:17	8.3517	12.3414	0.081	76.802
09/06/2013 08:49:27	8.3446	12.2682	0.284	77.001
09/06/2013 08:49:37	8.3928	12.2973	0.383	76.602
09/06/2013 08:49:47	8.4422	12.3432	0.284	75.502
09/06/2013 08:49:57	8.4386	12.4128	0.482	74.302
09/06/2013 08:50:07	8.4666	12.4794	0.482	72.802
09/06/2013 08:50:17	8.5291	12.4937	0.383	72.802
09/06/2013 08:50:27	8.541	12.5074	0.284	72.501
09/06/2013 08:50:37	8.6059	12.5681	0.184	71.702
09/06/2013 08:50:47	8.6023	12.6199	0.184	71.702
09/06/2013 08:50:57	8.5713	12.658	0.383	71.702
09/06/2013 08:51:07	8.5267	12.702	0.284	71.902
09/06/2013 08:51:17	8.4553	12.6484	0.184	72.102
09/06/2013 08:51:27	8.4083	12.5758	0.184	71.702
09/06/2013 08:51:37	8.3845	12.5229	0.184	71.202
09/06/2013 08:51:47	8.4011	12.4937	0.184	70.801
09/06/2013 08:51:57	8.3291	12.4681	0.085	71.402
09/06/2013 08:52:07	8.3595	12.4396	-0.014	71.902
09/06/2013 08:52:17	8.3267	12.3432	-0.014	72.501
09/06/2013 08:52:27	8.3506	12.264	0.085	71.902
09/06/2013 08:52:37	8.3303	12.2604	0.085	72.302
09/06/2013 08:52:47	8.369	12.2949	0.081	73.002
09/06/2013 08:52:57	8.3642	12.2967	0.081	74.302
09/06/2013 08:53:07	8.3517	12.3366	0.184	74.801
09/06/2013 08:53:17	8.3607	12.3384	0.184	75.702
09/06/2013 08:53:27	8.3988	12.3188	-0.014	75.702
09/06/2013 08:53:37	8.4315	12.3307	-0.014	75.902
09/06/2013 08:53:47	8.541	12.3729	-0.014	75.902
09/06/2013 08:53:57	8.4666	12.4217	-0.014	76.402
09/06/2013 08:54:07	8.4601	12.4836	-0.117	76.202
09/06/2013 08:54:17	8.4279	12.511	-0.212	76.202
09/06/2013 08:54:27	8.3821	12.5217	-0.014	76.602
09/06/2013 08:54:37	8.2964	12.4794	0.085	77.001
09/06/2013 08:54:47	8.2244	12.3806	0.085	77.302
09/06/2013 08:54:57	8.1762	12.2783	0.081	77.502
09/06/2013 08:55:07	8.1798	12.1783	0.184	77.502
09/06/2013 08:55:17	8.194	12.1325	0.085	77.302
09/06/2013 08:55:27	8.1857	12.1753	-0.014	75.702
09/06/2013 08:55:37	8.1726	12.1908	0.081	74.601
09/06/2013 08:55:47	8.1631	12.1724	-0.014	74.302
09/06/2013 08:55:57	8.1976	12.1438	-0.113	73.002
09/06/2013 08:56:07	8.1809	12.1295	-0.014	72.302
09/06/2013 08:56:17	8.194	12.1485	-0.316	72.302
09/06/2013 08:56:27	8.1595	12.1361	-0.316	73.002
09/06/2013 08:56:37	8.1607	12.1146	0.184	72.802
09/06/2013 08:56:47	8.1762	12.0878	0.184	71.702
09/06/2013 08:56:57	8.1821	12.1117	0.085	70.801
End Run 1				
Average	**8.624625**	**12.62833**	**0.194952**	**74.25178**
Maximum	**9.0962**	**12.9287**	**0.984**	**77.901**
Minimum	**8.1595**	**12.0878**	**-0.316**	**70.702**
09/06/2013 08:57:07	8.1988	12.1355	-0.117	70.502
09/06/2013 08:57:17	8.228	12.1676	-0.212	70.301
09/06/2013 08:57:27	8.2785	12.1914	0.081	70.301
09/06/2013 08:57:37	9.5033	12.2384	-0.216	70.502
Calibration Bias				
09/06/2013 08:57:47	0.263	12.3045	-0.117	71.003
09/06/2013 08:57:57	0.0267	12.6639	-0.014	71.902
09/06/2013 08:58:07	0.0136	0.7629	-0.117	72.302
09/06/2013 08:58:17	0.0065	0.11	0.184	72.501
09/06/2013 08:58:27	0.0029	0.0737	0.284	72.802
09/06/2013 08:58:37	0.00055	0.0613	0.081	74.302
09/06/2013 08:58:47	0.00055	0.0523	-0.014	75.002
09/06/2013 08:58:57	0.00055	0.0458	0.081	75.202
09/06/2013 08:59:07	0.00055	0.0404	0.081	75.301
09/06/2013 08:59:17	0.0065	0.0357	0.081	75.902
N2 Zero		**0.040633**	**0.081**	
09/06/2013 08:59:27	0.2422	0.0333	0.081	76.202
09/06/2013 08:59:37	-0.003	0.1077	0.184	76.802
09/06/2013 08:59:47	-0.0042	0.4558	2.583	77.102
09/06/2013 08:59:57	-0.0042	0.044	10.287	77.701
09/06/2013 09:00:07	-0.0042	0.0238	23.001	77.701
09/06/2013 09:00:17	-0.0054	0.0208	35.217	77.701
09/06/2013 09:00:27	-0.0054	0.0172	41.921	78.002
09/06/2013 09:00:37	-0.0066	0.0208	44.221	78.201
09/06/2013 09:00:47	-0.0066	0.0172	44.923	77.901
09/06/2013 09:00:57	-0.0066	0.0154	44.923	76.802
09/06/2013 09:01:07	-0.0066	0.0172	45.125	75.702
09/06/2013 09:01:17	-0.0066	0.0136	45.125	75.202
09/06/2013 09:01:27	-0.0054	0.0125	45.121	73.901
09/06/2013 09:01:37	-0.0054	0.0113	45.224	73.401
46.3 ppm CO Mid			**45.15667**	
09/06/2013 09:01:47	1.821	0.0113	45.224	72.802
09/06/2013 09:01:57	1.8918	0.1815	45.224	72.802
09/06/2013 09:02:07	1.9007	1.7829	43.82	71.902
09/06/2013 09:02:17	1.9103	2.0448	35.82	70.702
09/06/2013 09:02:27	1.9138	2.0608	21.4	70.502

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 09:02:37	1.9186	2.0632	9.288	71.202
09/06/2013 09:02:47	1.9162	2.062	3.186	71.402
2.07% O2 Low	**1.9162**			
09/06/2013 09:02:57	4.7793	2.0584	0.984	71.402
09/06/2013 09:03:07	9.4116	2.0727	0.482	70.801
09/06/2013 09:03:17	9.4825	6.129	0.482	71.402
09/06/2013 09:03:27	9.5551	9.7854	0.583	72.602
09/06/2013 09:03:37	9.5872	9.9502	0.484	72.802
09/06/2013 09:03:47	9.608	9.9645	0.284	72.802
09/06/2013 09:03:57	9.6318	9.974	0.085	73.002
09/06/2013 09:04:07	9.6306	9.9812	-0.014	73.201
09/06/2013 09:04:17	9.655	9.9847	-0.117	73.901
09/06/2013 09:04:27	9.6681	9.9913	-0.216	75.202
09/06/2013 09:04:37	9.6967	9.9925	-0.117	75.902
09/06/2013 09:04:47	9.6967	9.9913	-0.014	76.102
09/06/2013 09:04:57	9.7044	9.9931	-0.117	76.402
10.1% O2 Mid	**9.699267**	**9.9923**		
09/06/2013 09:05:07	10.4709	9.9925	-0.113	76.402
09/06/2013 09:05:17	11.1285	9.996	-0.117	76.202
09/06/2013 09:05:27	10.8542	10.8018	-0.117	76.102
09/06/2013 09:05:37	10.7483	11.8314	0.081	76.402
09/06/2013 09:05:47	10.6578	11.8885	0.081	77.102
09/06/2013 09:05:57	10.5894	11.8444	0.081	77.901
09/06/2013 09:06:07	10.4674	11.8331	0.081	77.701
09/06/2013 09:06:17	10.3144	11.8177	-0.014	77.901
09/06/2013 09:06:27	10.2365	11.779	-0.014	77.302
09/06/2013 09:06:37	10.152	11.7302	0.081	75.902
09/06/2013 09:06:47	10.0496	11.7094	0.081	75.202
09/06/2013 09:06:57	9.9621	11.7129	-0.014	73.901
09/06/2013 09:07:07	9.88	11.71	-0.113	73.401
09/06/2013 09:07:17	9.8586	11.7242	-0.014	73.002
09/06/2013 09:07:27	9.7729	11.779	-0.117	72.802
09/06/2013 09:07:37	9.7836	11.8552	-0.216	72.302
09/06/2013 09:07:47	9.6306	11.8843	-0.117	71.902
09/06/2013 09:07:57	9.5955	11.8932	-0.113	71.902
09/06/2013 09:08:07	9.5598	11.8867	-0.113	71.902
09/06/2013 09:08:17	9.4908	11.8903	-0.014	72.102
09/06/2013 09:08:27	9.4622	11.895	-0.014	71.602
09/06/2013 09:08:37	9.4128	11.9075	-0.014	71.202
09/06/2013 09:08:47	9.3777	11.9093	-0.014	70.502
09/06/2013 09:08:57	9.3307	11.8807	-0.014	70.502
09/06/2013 09:09:07	9.2998	11.8492	-0.014	70.801
09/06/2013 09:09:17	9.3009	11.8081	-0.113	70.801
09/06/2013 09:09:27	9.2444	11.7939	-0.113	71.202
09/06/2013 09:09:37	9.101	11.7903	-0.117	71.902
09/06/2013 09:09:47	8.9576	11.7641	0.085	73.201
09/06/2013 09:09:57	8.9445	11.707	0.085	74.601
09/06/2013 09:10:07	8.8986	11.6516	-0.014	75.502
09/06/2013 09:10:17	8.8409	11.6243	-0.014	75.702
09/06/2013 09:10:27	8.807	11.632	0.081	75.902
09/06/2013 09:10:37	8.8326	11.6403	-0.014	75.902
09/06/2013 09:10:47	8.8165	11.6397	-0.117	76.102
09/06/2013 09:10:57	8.8493	11.6641	-0.113	76.202
09/06/2013 09:11:07	8.8844	11.6778	-0.014	76.202
09/06/2013 09:11:17	8.9082	11.7111	-0.014	76.402
09/06/2013 09:11:27	8.9552	11.7355	-0.014	76.602
09/06/2013 09:11:37	8.9671	11.7671	-0.014	77.001
09/06/2013 09:11:47	8.9671	11.7837	-0.117	77.502
09/06/2013 09:11:57	7.9584	11.7933	-0.113	77.701
09/06/2013 09:12:07	7.7245	11.8462	-0.014	77.701
09/06/2013 09:12:17	7.7007	11.8843	0.081	77.001
09/06/2013 09:12:27	7.762	11.876	-0.014	75.902
09/06/2013 09:12:37	7.9042	11.8367	-0.113	75.202
09/06/2013 09:12:47	8.103	11.8111	-0.113	74.401
09/06/2013 09:12:57	8.253	11.7885	-0.117	73.502
Start Run 2				
09/06/2013 09:13:07	8.3101	11.7623	-0.014	72.802
09/06/2013 09:13:17	8.322	11.7338	-0.113	72.602
09/06/2013 09:13:27	8.3148	11.7189	-0.113	72.302
09/06/2013 09:13:37	8.3773	11.6612	-0.014	72.302
09/06/2013 09:13:47	8.4148	11.629	-0.113	71.702
09/06/2013 09:13:57	8.4702	11.6356	-0.216	71.003
09/06/2013 09:14:07	8.5094	11.6225	-0.212	71.003
09/06/2013 09:14:17	8.5457	11.6356	-0.216	70.801
09/06/2013 09:14:27	8.5737	11.6493	-0.117	71.003
09/06/2013 09:14:37	8.5987	11.6754	-0.117	71.402
09/06/2013 09:14:47	8.7118	11.6927	-0.014	72.102
09/06/2013 09:14:57	8.7808	11.71	-0.117	72.302
09/06/2013 09:15:07	8.7975	11.8349	-0.113	72.501
09/06/2013 09:15:17	8.7279	11.8867	-0.113	73.201
09/06/2013 09:15:27	8.6915	11.8331	-0.117	74.302
09/06/2013 09:15:37	8.6386	11.7873	-0.113	75.301
09/06/2013 09:15:47	8.7106	11.7766	-0.014	75.702
09/06/2013 09:15:57	8.729	11.7796	-0.117	75.502
09/06/2013 09:16:07	8.7142	11.7939	-0.113	75.702
09/06/2013 09:16:17	8.7082	11.7671	-0.212	75.902
09/06/2013 09:16:27	8.7362	11.7129	-0.117	75.902
09/06/2013 09:16:37	8.713	11.6957	-0.014	76.202
09/06/2013 09:16:47	8.5868	11.6832	-0.014	76.402

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 09:16:57	8.5231	11.6748	-0.014	76.602
09/06/2013 09:17:07	8.5749	11.6659	-0.113	76.802
09/06/2013 09:17:17	8.5457	11.6832	-0.014	77.502
09/06/2013 09:17:27	8.5975	11.7064	-0.014	77.502
09/06/2013 09:17:37	8.6445	11.7094	-0.014	77.502
09/06/2013 09:17:47	8.6541	11.7284	-0.014	77.901
09/06/2013 09:17:57	8.6761	11.7385	-0.014	77.901
09/06/2013 09:18:07	8.6999	11.7498	-0.014	76.602
09/06/2013 09:18:17	8.7177	11.7617	-0.113	75.202
09/06/2013 09:18:27	8.7808	11.7701	-0.113	74.302
09/06/2013 09:18:37	8.7552	11.7951	-0.113	73.502
09/06/2013 09:18:47	8.7784	11.832	-0.216	73.002
09/06/2013 09:18:57	8.7457	11.848	-0.216	72.802
09/06/2013 09:19:07	8.735	11.8677	-0.014	72.501
09/06/2013 09:19:17	8.6975	11.8397	-0.014	72.602
09/06/2013 09:19:27	8.6796	11.8171	-0.014	72.302
09/06/2013 09:19:37	8.6184	11.7748	-0.014	72.102
09/06/2013 09:19:47	8.6023	11.7147	-0.113	71.702
09/06/2013 09:19:57	8.5999	11.6635	-0.113	71.702
09/06/2013 09:20:07	8.5999	11.6356	-0.113	72.102
09/06/2013 09:20:17	8.5386	11.6433	-0.117	71.402
09/06/2013 09:20:27	8.4833	11.6231	-0.014	71.003
09/06/2013 09:20:37	8.3738	11.5802	-0.014	71.702
09/06/2013 09:20:47	8.3327	11.5451	-0.117	72.501
09/06/2013 09:20:57	7.9762	11.5106	-0.113	72.602
09/06/2013 09:21:07	6.5783	11.5457	-0.014	72.602
09/06/2013 09:21:17	6.6866	11.5451	0.184	72.802
09/06/2013 09:21:27	6.7783	11.5392	0.085	73.002
09/06/2013 09:21:37	6.8193	11.5606	-0.014	73.401
09/06/2013 09:21:47	6.8842	11.5987	-0.113	74.101
09/06/2013 09:21:57	6.9598	11.5701	-0.117	74.601
09/06/2013 09:22:07	7.0514	11.5528	-0.117	74.601
09/06/2013 09:22:17	7.1228	11.5576	-0.113	74.601
09/06/2013 09:22:27	7.2032	11.6177	-0.117	75.002
09/06/2013 09:22:37	7.2538	11.6594	-0.117	75.202
09/06/2013 09:22:47	7.3514	11.6748	-0.216	75.902
09/06/2013 09:22:57	7.4454	11.6891	-0.216	76.102
09/06/2013 09:23:07	7.5466	11.7236	-0.113	76.202
09/06/2013 09:23:17	7.6067	11.7683	-0.014	76.402
09/06/2013 09:23:27	7.7055	11.7718	-0.117	76.602
09/06/2013 09:23:37	7.7632	11.7718	-0.212	77.102
09/06/2013 09:23:47	7.8102	11.7891	-0.014	77.502
09/06/2013 09:23:57	7.8727	11.7837	-0.113	77.001
09/06/2013 09:24:07	7.8959	11.7921	-0.113	77.102
09/06/2013 09:24:17	7.9197	11.8046	-0.014	76.602
09/06/2013 09:24:27	7.9423	11.7778	-0.014	75.202
09/06/2013 09:24:37	7.9619	11.7427	0.085	73.701
09/06/2013 09:24:47	7.8584	11.7159	0.184	72.802
09/06/2013 09:24:57	7.202	11.7004	0.284	72.802
09/06/2013 09:25:07	7.1395	11.71	0.284	72.602
09/06/2013 09:25:17	7.1324	11.7052	0.184	73.002
09/06/2013 09:25:27	7.1514	11.6659	0.184	73.201
09/06/2013 09:25:37	7.1937	11.6368	-0.014	72.602
09/06/2013 09:25:47	7.2395	11.6445	-0.216	72.501
09/06/2013 09:25:57	7.2645	11.6975	-0.117	72.501
09/06/2013 09:26:07	7.2829	11.7308	-0.117	72.501
09/06/2013 09:26:17	7.2924	11.7415	-0.014	72.102
09/06/2013 09:26:27	7.3222	11.7814	-0.014	72.501
09/06/2013 09:26:37	7.3311	11.8266	-0.117	72.802
09/06/2013 09:26:47	7.3383	11.8206	0.184	73.002
09/06/2013 09:26:57	7.3335	11.8123	0.284	73.002
09/06/2013 09:27:07	7.3645	11.8337	-0.212	73.502
09/06/2013 09:27:17	7.3668	11.8617	-0.316	74.302
09/06/2013 09:27:27	7.3008	11.8647	-0.117	75.301
09/06/2013 09:27:37	7.2734	11.8837	0.081	75.502
09/06/2013 09:27:47	7.2264	11.876	-0.014	75.902
09/06/2013 09:27:57	7.2079	11.8427	-0.014	75.902
09/06/2013 09:28:07	7.2044	11.7891	0.081	76.102
09/06/2013 09:28:17	7.2359	11.7492	-0.014	75.502
09/06/2013 09:28:27	7.2371	11.7302	-0.014	75.702
09/06/2013 09:28:37	7.2383	11.7736	-0.014	76.602
09/06/2013 09:28:47	7.2186	11.7808	-0.113	77.102
09/06/2013 09:28:57	7.2163	11.7427	-0.113	77.502
09/06/2013 09:29:07	7.2008	11.7189	-0.113	77.502
09/06/2013 09:29:17	7.1889	11.7094	-0.113	77.901
09/06/2013 09:29:27	7.1901	11.6778	-0.014	78.201
09/06/2013 09:29:37	7.1722	11.6594	-0.212	77.302
09/06/2013 09:29:47	7.1818	11.6796	-0.216	76.602
09/06/2013 09:29:57	7.1818	11.6731	-0.014	75.902
09/06/2013 09:30:07	7.2746	11.6445	-0.014	74.601
09/06/2013 09:30:17	7.3222	11.7195	-0.014	73.701
09/06/2013 09:30:27	7.3912	11.8379	-0.014	73.401
09/06/2013 09:30:37	7.4371	11.9159	-0.014	73.002
09/06/2013 09:30:47	7.449	12.0123	-0.113	72.802
09/06/2013 09:30:57	7.4138	12.064	-0.113	71.902
09/06/2013 09:31:07	7.2936	12.0533	-0.014	71.202
09/06/2013 09:31:17	7.2561	11.9932	0.081	71.702
09/06/2013 09:31:27	7.277	11.9188	0.284	72.302
09/06/2013 09:31:37	7.2924	11.8986	0.284	71.702

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 09:31:47	7.268	11.9343	-0.014	71.602
09/06/2013 09:31:57	7.3877	11.9647	-0.216	71.402
09/06/2013 09:32:07	7.5668	11.9855	-0.113	71.402
09/06/2013 09:32:17	7.5257	11.9897	-0.113	71.402
09/06/2013 09:32:27	7.4597	11.9474	-0.117	71.702
09/06/2013 09:32:37	7.4561	11.8683	-0.117	72.302
09/06/2013 09:32:47	7.4174	11.8099	-0.014	72.501
09/06/2013 09:32:57	7.4644	11.7885	-0.014	72.302
09/06/2013 09:33:07	7.568	11.7861	-0.014	72.501
09/06/2013 09:33:17	7.6561	11.87	-0.014	73.002
09/06/2013 09:33:27	7.7257	12.02	-0.113	74.601
09/06/2013 09:33:37	7.8524	12.145	-0.113	75.301
09/06/2013 09:33:47	7.9078	12.2824	-0.117	75.502
09/06/2013 09:33:57	7.9631	12.4425	-0.117	75.301
End Run 2				
Average	**7.830845**	**11.76445**	**-0.055905**	**74.06369**
Maximum	**8.7975**	**12.4425**	**0.284**	**78.201**
Minimum	**6.5783**	**11.5106**	**-0.316**	**70.801**
09/06/2013 09:34:07	7.9631	12.5598	-0.113	75.702
09/06/2013 09:34:17	7.9715	12.6163	-0.014	76.102
09/06/2013 09:34:27	7.9102	12.6342	-0.014	76.102
Calibration Bias				
09/06/2013 09:34:37	2.7303	12.6074	-0.014	76.602
09/06/2013 09:34:47	0.0666	12.2491	-0.014	77.302
09/06/2013 09:34:57	0.0136	2.1953	-0.014	76.802
09/06/2013 09:35:07	0.0065	0.1404	0.184	77.302
09/06/2013 09:35:17	0.0053	0.0785	0.184	77.701
09/06/2013 09:35:27	0.0017	0.0613	0.184	77.901
09/06/2013 09:35:37	-0.00064	0.0458	0.081	77.901
09/06/2013 09:35:47	-0.003	0.044	0.081	77.102
09/06/2013 09:35:57	-0.0042	0.0392	0.081	77.102
N2 Zero		**0.043**	**0.081**	
09/06/2013 09:36:07	0.0017	0.0327	-0.014	76.202
09/06/2013 09:36:17	-0.0066	0.0285	0.184	74.801
09/06/2013 09:36:27	-0.0066	0.0267	0.184	74.302
09/06/2013 09:36:37	-0.0066	0.0249	2.583	74.101
09/06/2013 09:36:47	-0.0078	0.0232	11.587	73.401
09/06/2013 09:36:57	-0.0066	0.016	27.01	73.201
09/06/2013 09:37:07	-0.009	0.0136	39.118	71.902
09/06/2013 09:37:17	-0.0078	0.0136	43.824	70.801
09/06/2013 09:37:27	-0.0078	0.0142	45.022	71.602
09/06/2013 09:37:37	-0.0078	0.0095	45.125	72.102
09/06/2013 09:37:47	-0.009	0.0107	45.026	71.602
09/06/2013 09:37:57	-0.009	0.0107	45.323	71.202
09/06/2013 09:38:07	-0.0078	0.0107	45.327	70.801
09/06/2013 09:38:17	-0.0078	0.0095	45.125	70.101
09/06/2013 09:38:27	-0.0078	0.0059	45.224	70.301
09/06/2013 09:38:37	-0.0078	0.0041	45.224	71.003
46.3 ppm CO Mid			**45.191**	
09/06/2013 09:38:47	1.6972	0.0095	45.022	71.003
09/06/2013 09:38:57	1.7692	0.2707	45.125	71.003
09/06/2013 09:39:07	1.7835	1.8496	44.324	71.202
09/06/2013 09:39:17	1.7984	2.0459	36.919	72.102
09/06/2013 09:39:27	1.8513	2.0507	22.803	73.002
09/06/2013 09:39:37	1.8811	2.0543	10.19	73.701
09/06/2013 09:39:47	1.9091	2.0555	3.384	73.901
09/06/2013 09:39:57	1.921	2.0555	0.984	75.202
09/06/2013 09:40:07	1.9293	2.062	0.482	75.902
09/06/2013 09:40:17	1.9388	2.0602	0.583	75.902
09/06/2013 09:40:27	1.9388	2.0561	0.383	76.202
2.07% O2 Low	**1.935633**			
09/06/2013 09:40:37	8.7338	2.059	0.383	77.001
09/06/2013 09:40:47	9.5812	2.3614	0.383	77.502
09/06/2013 09:40:57	9.6283	8.2053	0.284	77.302
09/06/2013 09:41:07	9.6449	9.9026	0.284	77.001
09/06/2013 09:41:17	9.6646	9.9532	0.081	76.802
09/06/2013 09:41:27	9.68	9.9704	0.085	77.302
09/06/2013 09:41:37	9.6884	9.9722	-0.014	77.701
09/06/2013 09:41:47	9.6919	9.9812	-0.113	78.002
09/06/2013 09:41:57	9.6836	9.9877	-0.216	77.102
10.1% O2 Mid	**9.687967**	**9.980367**		
09/06/2013 09:42:07	11.2577	9.9847	-0.113	75.902
09/06/2013 09:42:17	11.0934	9.9978	-0.113	74.601
09/06/2013 09:42:27	11.0166	11.4725	-0.113	73.701
09/06/2013 09:42:37	10.9107	12.1581	-0.113	73.701
09/06/2013 09:42:47	10.8286	12.2307	-0.113	73.701
09/06/2013 09:42:57	10.8494	12.242	-0.113	73.201
09/06/2013 09:43:07	10.7542	12.2705	-0.212	72.501
09/06/2013 09:43:17	10.6542	12.389	-0.212	71.402
09/06/2013 09:43:27	10.5423	12.4776	-0.113	71.202
09/06/2013 09:43:37	10.4626	12.53	0.085	71.602
09/06/2013 09:43:47	10.3293	12.5645	0.184	71.702
09/06/2013 09:43:57	10.2341	12.5443	0.081	71.402
09/06/2013 09:44:07	10.1246	12.4776	-0.117	71.003
09/06/2013 09:44:17	9.9681	12.3556	-0.117	70.301
09/06/2013 09:44:27	9.7693	12.2354	-0.113	69.901
09/06/2013 09:44:37	9.5527	12.139	-0.014	70.502
09/06/2013 09:44:47	9.3694	11.9914	-0.014	70.502

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 09:44:57	9.2611	11.7808	-0.014	70.801
09/06/2013 09:45:07	9.2212	11.61	-0.014	71.902
09/06/2013 09:45:17	9.1635	11.5296	-0.117	72.102
09/06/2013 09:45:27	9.1349	11.4963	-0.117	72.602
09/06/2013 09:45:37	9.0903	11.4457	-0.014	73.901
09/06/2013 09:45:47	8.982	11.4285	-0.014	74.401
09/06/2013 09:45:57	8.8457	11.4166	-0.014	74.302
09/06/2013 09:46:07	8.7737	11.3553	0.085	74.801
09/06/2013 09:46:17	8.7279	11.2672	-0.014	75.202
09/06/2013 09:46:27	8.5481	11.1714	-0.216	75.502
09/06/2013 09:46:37	8.4987	11.1101	-0.113	75.902
09/06/2013 09:46:47	8.4809	11.0827	-0.117	76.102
09/06/2013 09:46:57	8.4243	11.1178	-0.014	76.102
09/06/2013 09:47:07	8.3952	11.1369	0.085	76.602
09/06/2013 09:47:17	8.3809	11.1476	0.085	77.102
09/06/2013 09:47:27	8.3583	11.1559	-0.117	77.502
09/06/2013 09:47:37	8.3446	11.1749	-0.117	77.901
09/06/2013 09:47:47	8.3	11.1452	-0.117	77.901
09/06/2013 09:47:57	8.3047	11.0988	0.085	78.002
09/06/2013 09:48:07	8.4071	11.0637	0.081	77.701
09/06/2013 09:48:17	8.3761	11.094	-0.014	75.702
09/06/2013 09:48:27	8.3035	11.2243	0.081	74.302
09/06/2013 09:48:37	8.2149	11.1952	-0.117	73.502
09/06/2013 09:48:47	8.1988	11.1041	-0.117	73.201
09/06/2013 09:48:57	8.2161	11.0226	-0.113	72.802
Start Run 3				
09/06/2013 09:49:07	8.2666	11.0107	-0.113	72.802
09/06/2013 09:49:17	8.3398	11.0512	-0.113	72.501
09/06/2013 09:49:27	8.3702	11.1285	-0.113	72.102
09/06/2013 09:49:37	8.3583	11.1815	-0.014	72.302
09/06/2013 09:49:47	8.3303	11.1988	-0.014	72.302
09/06/2013 09:49:57	8.322	11.1732	0.085	71.902
09/06/2013 09:50:07	8.3035	11.1607	0.085	71.602
09/06/2013 09:50:17	8.2762	11.1547	0.081	71.902
09/06/2013 09:50:27	8.253	11.1476	-0.014	71.402
09/06/2013 09:50:37	8.253	11.1452	-0.014	71.902
09/06/2013 09:50:47	8.253	11.1446	-0.014	71.402
09/06/2013 09:50:57	8.247	11.1702	-0.113	71.702
09/06/2013 09:51:07	8.2833	11.1654	-0.113	72.302
09/06/2013 09:51:17	8.2916	11.1833	-0.113	72.802
09/06/2013 09:51:27	8.269	11.1988	-0.117	72.602
09/06/2013 09:51:37	8.2904	11.2124	-0.113	72.802
09/06/2013 09:51:47	8.2893	11.2285	-0.113	73.901
09/06/2013 09:51:57	6.5521	11.2731	-0.113	75.002
09/06/2013 09:52:07	6.5545	11.2904	-0.014	75.002
09/06/2013 09:52:17	6.6241	11.3059	-0.014	75.502
09/06/2013 09:52:27	6.6759	11.3362	-0.212	76.102
09/06/2013 09:52:37	6.7134	11.3535	-0.014	76.102
09/06/2013 09:52:47	6.7783	11.3523	0.081	76.402
09/06/2013 09:52:57	6.8169	11.3475	-0.014	76.602
09/06/2013 09:53:07	6.8527	11.3398	-0.014	76.602
09/06/2013 09:53:17	6.8169	11.3428	-0.014	77.102
09/06/2013 09:53:27	6.7747	11.2922	-0.117	77.102
09/06/2013 09:53:37	6.6973	11.213	-0.117	77.102
09/06/2013 09:53:47	6.6194	11.0893	-0.117	77.701
09/06/2013 09:53:57	6.5027	10.9387	-0.014	78.002
09/06/2013 09:54:07	6.5218	10.759	-0.014	77.701
09/06/2013 09:54:17	6.5878	10.6209	0.085	77.302
09/06/2013 09:54:27	6.6557	10.6054	-0.014	76.202
09/06/2013 09:54:37	6.6676	10.6608	-0.113	74.801
09/06/2013 09:54:47	6.7396	10.6816	-0.212	74.302
09/06/2013 09:54:57	6.7592	10.6762	-0.117	74.101
09/06/2013 09:55:07	6.7866	10.7346	-0.014	73.002
09/06/2013 09:55:17	6.8241	10.6953	-0.216	72.501
09/06/2013 09:55:27	6.8937	10.6578	-0.212	72.302
09/06/2013 09:55:37	6.9758	10.6572	-0.212	71.902
09/06/2013 09:55:47	7.0949	10.678	-0.212	71.602
09/06/2013 09:55:57	7.1818	10.7256	-0.113	71.402
09/06/2013 09:56:07	7.2853	10.7971	-0.113	72.102
09/06/2013 09:56:17	7.3406	10.8708	-0.113	72.102
09/06/2013 09:56:27	7.4186	10.947	-0.113	71.402
09/06/2013 09:56:37	6.9336	10.994	-0.113	71.003
09/06/2013 09:56:47	6.9009	11.0595	-0.117	70.101
09/06/2013 09:56:57	6.961	11.1041	-0.113	70.502
09/06/2013 09:57:07	7.0104	11.1404	-0.014	71.003
09/06/2013 09:57:17	7.0008	11.197	-0.014	71.003
09/06/2013 09:57:27	6.9854	11.2047	-0.113	71.003
09/06/2013 09:57:37	6.961	11.1494	-0.117	71.702
09/06/2013 09:57:47	7.002	11.0827	-0.113	71.902
09/06/2013 09:57:57	7.03	11.0262	-0.216	71.902
09/06/2013 09:58:07	7.03	10.9673	-0.113	72.302
09/06/2013 09:58:17	7.049	10.931	-0.113	72.802
09/06/2013 09:58:27	7.1044	10.8714	-0.113	73.401
09/06/2013 09:58:37	7.1645	10.8524	-0.014	74.101
09/06/2013 09:58:47	7.2151	10.8613	-0.113	74.401
09/06/2013 09:58:57	7.2889	10.8833	-0.212	75.702
09/06/2013 09:59:07	7.0312	10.8982	-0.014	76.402
09/06/2013 09:59:17	7.0925	10.9434	-0.113	77.302
09/06/2013 09:59:27	7.1431	10.9964	-0.113	77.701

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 09:59:37	7.177	11.1065	-0.014	77.901
09/06/2013 09:59:47	7.2198	11.1833	-0.014	78.401
09/06/2013 09:59:57	7.1645	11.2618	-0.212	78.802
09/06/2013 10:00:07	7.1972	11.2987	-0.216	79.101
09/06/2013 10:00:17	7.2252	11.2493	-0.113	79.303
09/06/2013 10:00:27	7.2163	11.216	-0.014	79.101
09/06/2013 10:00:37	7.2216	11.1982	-0.014	79.502
09/06/2013 10:00:47	7.2288	11.2035	-0.212	79.502
09/06/2013 10:00:57	7.2008	11.2017	-0.113	78.201
09/06/2013 10:01:07	7.1984	11.1845	-0.113	77.302
09/06/2013 10:01:17	7.2538	11.1619	-0.212	76.402
09/06/2013 10:01:27	7.2526	11.1714	-0.113	75.502
09/06/2013 10:01:37	7.2311	11.2178	-0.014	75.202
09/06/2013 10:01:47	7.2502	11.2303	-0.014	74.302
09/06/2013 10:01:57	7.396	11.2005	0.085	73.701
09/06/2013 10:02:07	7.3502	11.2124	-0.316	73.201
09/06/2013 10:02:17	7.3442	11.238	-0.316	72.802
09/06/2013 10:02:27	7.3418	11.2541	-0.113	72.602
09/06/2013 10:02:37	7.3043	11.2493	-0.113	72.501
09/06/2013 10:02:47	7.3127	11.2553	-0.014	72.501
09/06/2013 10:02:57	7.3091	11.2255	-0.212	72.302
09/06/2013 10:03:07	7.3609	11.2243	-0.212	72.501
09/06/2013 10:03:17	7.3817	11.2428	-0.113	72.302
09/06/2013 10:03:27	7.4043	11.3106	-0.117	72.302
09/06/2013 10:03:37	7.3936	11.3565	-0.014	72.501
09/06/2013 10:03:47	7.3972	11.3838	0.085	71.702
09/06/2013 10:03:57	7.3853	11.3707	0.184	71.003
09/06/2013 10:04:07	7.3395	11.3713	-0.014	70.801
09/06/2013 10:04:17	7.3526	11.344	-0.014	70.702
09/06/2013 10:04:27	7.3264	11.3035	-0.113	70.801
09/06/2013 10:04:37	7.3287	11.2886	-0.212	71.902
09/06/2013 10:04:47	7.3585	11.2916	-0.117	72.302
09/06/2013 10:04:57	7.3585	11.3011	-0.113	72.802
09/06/2013 10:05:07	7.3912	11.3237	-0.014	73.502
09/06/2013 10:05:17	7.4549	11.3505	-0.014	74.601
09/06/2013 10:05:27	7.5055	11.4094	-0.117	74.801
09/06/2013 10:05:37	7.5632	11.4838	-0.113	75.702
09/06/2013 10:05:47	7.6007	11.5469	-0.117	75.902
09/06/2013 10:05:57	7.6453	11.61	-0.216	76.402
09/06/2013 10:06:07	7.6513	11.6748	-0.117	77.001
09/06/2013 10:06:17	7.7114	11.7254	-0.113	77.302
09/06/2013 10:06:27	7.7632	11.7653	-0.113	77.502
09/06/2013 10:06:37	7.7834	11.8569	-0.113	78.201
09/06/2013 10:06:47	7.8042	11.9278	-0.113	79.101
09/06/2013 10:06:57	7.7983	11.9438	-0.117	79.303
09/06/2013 10:07:07	7.8269	11.9539	-0.113	79.502
09/06/2013 10:07:17	7.8197	11.9313	-0.113	79.502
09/06/2013 10:07:27	7.8245	11.9159	-0.113	79.303
09/06/2013 10:07:37	7.7453	11.9105	-0.113	78.802
09/06/2013 10:07:47	7.7114	11.8855	-0.216	77.302
09/06/2013 10:07:57	7.7078	11.8272	-0.113	76.102
09/06/2013 10:08:07	7.7078	11.7689	-0.117	74.401
09/06/2013 10:08:17	7.7209	11.751	-0.117	73.701
09/06/2013 10:08:27	7.7834	11.7242	-0.113	73.201
09/06/2013 10:08:37	7.7066	11.7159	-0.113	72.802
09/06/2013 10:08:47	7.6174	11.7308	-0.113	72.102
09/06/2013 10:08:57	7.6079	11.7718	-0.113	71.003
09/06/2013 10:09:07	7.596	11.7968	-0.014	71.202
09/06/2013 10:09:17	7.637	11.8093	-0.014	71.202
09/06/2013 10:09:27	7.6549	11.8218	-0.113	71.902
09/06/2013 10:09:37	7.6739	11.8605	-0.212	71.902
09/06/2013 10:09:47	7.7055	11.901	-0.212	71.702
09/06/2013 10:09:57	7.7477	11.9438	-0.212	71.702
End Run 3				
Average	**7.37986**	**11.26196**	**-0.093349**	**74.2534**
Maximum	**8.3702**	**11.9539**	**0.184**	**79.502**
Minimum	**6.5027**	**10.6054**	**-0.316**	**70.101**
09/06/2013 10:10:07	7.7679	11.9873	-0.212	71.402
09/06/2013 10:10:17	7.7834	12.0218	-0.216	71.003
09/06/2013 10:10:27	7.8245	12.0325	-0.113	71.402
Calibration Bias				
09/06/2013 10:10:37	6.4075	12.042	-0.113	72.102
09/06/2013 10:10:47	0.0666	12.0426	-0.113	72.802
09/06/2013 10:10:57	0.0125	5.9755	-0.113	72.802
09/06/2013 10:11:07	0.0077	0.2993	-0.117	73.401
09/06/2013 10:11:17	0.0029	0.0821	0.184	74.601
09/06/2013 10:11:27	-0.0018	0.0618	0.18	75.502
09/06/2013 10:11:37	-0.003	0.0476	0.184	75.502
09/06/2013 10:11:47	-0.003	0.0392	0.184	75.902
09/06/2013 10:11:57	-0.0042	0.0363	0.081	77.001
09/06/2013 10:12:07	-0.003	0.0374	0.184	77.302
09/06/2013 10:12:17	-0.0066	0.0309	0.081	77.502
N2 Zero		**0.034867**	**0.115333**	
09/06/2013 10:12:27	-0.0078	0.0261	-0.014	77.502
09/06/2013 10:12:37	-0.0078	0.022	0.583	77.901
09/06/2013 10:12:47	-0.0066	0.0208	5.882	78.401
09/06/2013 10:12:57	-0.0078	0.0202	18.296	78.601
09/06/2013 10:13:07	-0.0066	0.016	32.715	78.401

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 10:13:17	-0.0066	0.0142	41.426	78.802
09/06/2013 10:13:27	-0.0078	0.0136	44.629	78.802
09/06/2013 10:13:37	-0.0078	0.0154	45.125	77.901
09/06/2013 10:13:47	-0.009	0.0107	45.327	77.102
09/06/2013 10:13:57	-0.0078	0.0107	45.728	76.402
09/06/2013 10:14:07	-0.0066	0.0065	45.728	75.702
09/06/2013 10:14:17	-0.0066	0.0047	45.427	74.401
46.3 ppm CO Mid			**45.62767**	
09/06/2013 10:14:27	1.7668	0.0125	45.323	73.502
09/06/2013 10:14:37	1.8656	0.1202	45.327	73.502
09/06/2013 10:14:47	1.893	1.7472	45.026	73.201
09/06/2013 10:14:57	1.9126	2.0412	39.724	72.602
09/06/2013 10:15:07	1.9293	2.0537	26.911	72.602
09/06/2013 10:15:17	1.9412	2.0561	13.09	71.702
09/06/2013 10:15:27	1.9501	2.0573	4.783	71.202
09/06/2013 10:15:37	1.9525	2.0525	1.484	71.202
2.07% O2 Low	**1.947933**			
09/06/2013 10:15:47	5.4583	2.0537	0.482	71.003
09/06/2013 10:15:57	2.0329	2.0602	0.284	70.801
09/06/2013 10:16:07	9.5318	4.3389	0.484	69.901
09/06/2013 10:16:17	9.6425	3.6527	0.583	69.601
09/06/2013 10:16:27	9.6693	9.4009	0.484	70.301
09/06/2013 10:16:37	9.6515	9.9312	0.284	70.702
09/06/2013 10:16:47	9.6634	9.9639	0.085	70.702
09/06/2013 10:16:57	9.6776	9.974	0.184	70.101
09/06/2013 10:17:07	9.6705	9.977	0.184	70.101
09/06/2013 10:17:17	9.6705	9.9859	-0.014	70.801
10.1% O2 Mid	**9.672867**	**9.978967**		
09/06/2013 10:17:27	11.238	9.9865	-0.113	71.402
09/06/2013 10:17:37	11.2249	9.9835	-0.113	71.902
09/06/2013 10:17:47	11.0649	11.1988	-0.014	71.902
09/06/2013 10:17:57	11.025	12.0914	-0.014	72.302
09/06/2013 10:18:07	10.9625	12.1361	-0.113	72.802
09/06/2013 10:18:17	10.9036	12.1563	-0.216	73.701
09/06/2013 10:18:27	10.8929	12.1533	-0.212	75.002
09/06/2013 10:18:37	10.7953	12.1515	-0.113	75.202
09/06/2013 10:18:47	10.6626	12.1831	-0.113	75.301
09/06/2013 10:18:57	10.5364	12.1735	-0.014	75.702
09/06/2013 10:19:07	10.4305	12.1372	-0.113	76.202
09/06/2013 10:19:17	10.3257	12.1003	-0.212	76.802
09/06/2013 10:19:27	10.1871	12.0908	-0.113	77.302
09/06/2013 10:19:37	10.0615	12.0753	-0.113	77.502
09/06/2013 10:19:47	9.946	12.045	-0.113	78.201
09/06/2013 10:19:57	9.8223	12.0093	-0.113	78.601
09/06/2013 10:20:07	9.7461	11.9914	-0.113	78.802
09/06/2013 10:20:17	9.7282	11.9873	-0.117	79.502
09/06/2013 10:20:27	9.6955	11.9944	-0.212	79.702
09/06/2013 10:20:37	9.6705	12.0361	-0.113	79.101
09/06/2013 10:20:47	9.6872	12.0498	-0.113	77.701
09/06/2013 10:20:57	9.6515	12.0753	-0.113	75.702
09/06/2013 10:21:07	9.6788	12.1051	-0.212	74.101
09/06/2013 10:21:17	9.5717	12.1384	-0.113	74.101
09/06/2013 10:21:27	9.6271	12.1497	-0.212	73.701
09/06/2013 10:21:37	9.6824	12.1783	-0.216	72.802
09/06/2013 10:21:47	9.6634	12.2146	-0.113	72.602
09/06/2013 10:21:57	9.633	12.2402	-0.216	72.302
09/06/2013 10:22:07	9.5777	12.2319	-0.212	71.902
09/06/2013 10:22:17	9.5318	12.2372	-0.014	71.702
09/06/2013 10:22:27	9.4622	12.2682	-0.113	71.202
09/06/2013 10:22:37	9.4259	12.2461	-0.216	70.502
09/06/2013 10:22:47	9.3212	12.2033	-0.113	70.702
09/06/2013 10:22:57	9.2492	12.1718	-0.212	70.801
09/06/2013 10:23:07	9.2117	12.1289	-0.113	70.801
09/06/2013 10:23:17	9.1789	12.0926	-0.014	70.702
09/06/2013 10:23:27	9.1742	12.0658	-0.014	70.502
09/06/2013 10:23:37	9.1272	12.0266	-0.113	70.502
09/06/2013 10:23:47	9.0742	11.9914	-0.216	70.702
09/06/2013 10:23:57	9.0694	11.9724	-0.014	71.402
Start Run 4				
09/06/2013 10:24:07	9.1236	11.9397	-0.117	72.102
09/06/2013 10:24:17	9.1694	11.942	-0.216	72.302
09/06/2013 10:24:27	9.2408	11.9534	-0.212	72.802
09/06/2013 10:24:37	9.3033	11.9682	-0.316	73.901
09/06/2013 10:24:47	9.3283	11.9992	-0.216	75.002
09/06/2013 10:24:57	9.3741	12.0456	-0.117	75.502
09/06/2013 10:25:07	9.4235	12.0831	-0.216	75.702
09/06/2013 10:25:17	9.4378	12.1402	-0.014	75.902
09/06/2013 10:25:27	7.7995	12.1962	-0.014	76.202
09/06/2013 10:25:37	7.7525	12.2402	-0.014	77.001
09/06/2013 10:25:47	7.9667	12.2545	-0.014	77.102
09/06/2013 10:25:57	8.1809	12.2277	-0.113	77.302
09/06/2013 10:26:07	8.394	12.1765	-0.113	77.901
09/06/2013 10:26:17	8.4196	12.1325	-0.014	78.401
09/06/2013 10:26:27	8.4725	12.161	-0.014	78.802
09/06/2013 10:26:37	8.5469	12.1724	0.085	79.101
09/06/2013 10:26:47	8.5612	12.2128	-0.014	79.101
09/06/2013 10:26:57	8.5118	12.2735	-0.113	78.901
09/06/2013 10:27:07	8.516	12.2563	-0.014	77.901
09/06/2013 10:27:17	8.494	12.1849	-0.316	76.402

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 10:27:27	8.4868	12.1134	-0.113	75.502
09/06/2013 10:27:37	8.4964	12.0408	-0.014	74.801
09/06/2013 10:27:47	8.5106	11.9867	-0.113	74.101
09/06/2013 10:27:57	8.516	11.9569	-0.212	72.802
09/06/2013 10:28:07	8.5136	11.942	-0.216	72.501
09/06/2013 10:28:17	8.5011	11.9224	-0.212	72.501
09/06/2013 10:28:27	8.5243	11.9034	-0.212	71.902
09/06/2013 10:28:37	8.4975	11.8867	-0.113	71.602
09/06/2013 10:28:47	8.4666	11.8915	-0.113	71.003
09/06/2013 10:28:57	8.422	11.876	-0.113	71.003
09/06/2013 10:29:07	8.4136	11.854	-0.212	71.003
09/06/2013 10:29:17	8.4481	11.7903	-0.212	71.602
09/06/2013 10:29:27	7.5067	11.7427	-0.216	71.003
09/06/2013 10:29:37	7.5114	11.8284	-0.113	70.702
09/06/2013 10:29:47	7.7007	11.9111	-0.113	70.801
09/06/2013 10:29:57	7.8983	11.9855	-0.113	71.003
09/06/2013 10:30:07	8.022	12.0593	-0.212	70.801
09/06/2013 10:30:17	8.1161	12.1182	-0.212	70.702
09/06/2013 10:30:27	8.1845	12.0849	-0.216	70.502
09/06/2013 10:30:37	8.2446	12.0075	-0.216	70.502
09/06/2013 10:30:47	8.2315	11.9516	-0.113	70.502
09/06/2013 10:30:57	8.2303	11.8873	-0.117	70.702
09/06/2013 10:31:07	8.2303	11.8171	-0.113	71.202
09/06/2013 10:31:17	8.2268	11.7332	-0.113	71.402
09/06/2013 10:31:27	8.2446	11.6778	-0.212	71.702
09/06/2013 10:31:37	8.2482	11.6671	-0.316	72.602
09/06/2013 10:31:47	5.053	11.6957	-0.212	72.802
09/06/2013 10:31:57	5.7005	11.7189	-0.216	73.401
09/06/2013 10:32:07	5.9874	11.7736	-0.113	74.801
09/06/2013 10:32:17	6.1992	11.8081	-0.014	75.502
09/06/2013 10:32:27	6.329	11.8302	-0.014	76.602
09/06/2013 10:32:37	6.4879	11.848	-0.113	76.802
09/06/2013 10:32:47	6.6759	11.7986	-0.212	76.602
09/06/2013 10:32:57	7.0348	11.7332	-0.014	76.102
09/06/2013 10:33:07	7.2478	11.6861	-0.014	76.402
09/06/2013 10:33:17	7.3311	11.6296	-0.014	76.802
09/06/2013 10:33:27	7.4162	11.5701	-0.113	77.502
09/06/2013 10:33:37	7.4912	11.5403	-0.212	78.401
09/06/2013 10:33:47	7.5477	11.5957	-0.113	78.401
09/06/2013 10:33:57	7.5704	11.6623	-0.014	78.401
09/06/2013 10:34:07	7.5454	11.7094	-0.014	78.802
09/06/2013 10:34:17	7.5466	11.7302	-0.113	78.601
09/06/2013 10:34:27	7.4585	11.6861	-0.113	78.201
09/06/2013 10:34:37	7.4466	11.6034	-0.014	77.001
09/06/2013 10:34:47	7.5114	11.5469	-0.113	75.702
09/06/2013 10:34:57	7.49	11.5231	-0.216	75.202
09/06/2013 10:35:07	7.421	11.5725	-0.216	74.601
09/06/2013 10:35:17	7.3793	11.5308	-0.113	74.101
09/06/2013 10:35:27	7.3936	11.3981	-0.014	73.401
09/06/2013 10:35:37	7.3841	11.313	-0.014	72.802
09/06/2013 10:35:47	7.2056	11.3237	-0.216	72.102
09/06/2013 10:35:57	7.1669	11.3648	-0.113	72.501
09/06/2013 10:36:07	7.1913	11.4029	-0.014	72.302
09/06/2013 10:36:17	7.1877	11.4219	-0.113	72.501
09/06/2013 10:36:27	7.1889	11.4297	-0.113	72.102
09/06/2013 10:36:37	7.3127	11.4326	-0.113	71.902
09/06/2013 10:36:47	7.2657	11.46	-0.113	71.902
09/06/2013 10:36:57	7.2359	11.463	-0.113	72.102
09/06/2013 10:37:07	7.1972	11.4047	-0.113	71.702
09/06/2013 10:37:17	7.1758	11.3588	-0.113	72.102
09/06/2013 10:37:27	7.2335	11.3106	-0.216	71.702
09/06/2013 10:37:37	7.3347	11.2844	-0.216	71.602
09/06/2013 10:37:47	7.3454	11.3648	-0.014	71.402
09/06/2013 10:37:57	7.4019	11.4523	-0.113	70.702
09/06/2013 10:38:07	7.4359	11.529	-0.212	70.502
09/06/2013 10:38:17	7.4621	11.5957	-0.014	70.502
09/06/2013 10:38:27	7.4382	11.6385	0.085	70.301
09/06/2013 10:38:37	7.4162	11.6576	0.085	70.502
09/06/2013 10:38:47	7.2853	11.6516	0.184	71.602
09/06/2013 10:38:57	7.1032	11.6356	0.081	71.902
09/06/2013 10:39:07	6.9996	11.6385	-0.014	72.102
09/06/2013 10:39:17	7.1335	11.6118	-0.014	72.602
09/06/2013 10:39:27	7.1312	11.507	-0.113	73.401
09/06/2013 10:39:37	7.1395	11.4219	-0.014	74.601
09/06/2013 10:39:47	7.1252	11.4172	0.081	75.702
09/06/2013 10:39:57	7.1216	11.4439	-0.014	76.202
09/06/2013 10:40:07	7.0794	11.4695	-0.014	76.402
09/06/2013 10:40:17	7.0068	11.485	-0.014	76.602
09/06/2013 10:40:27	6.9479	11.4475	-0.113	77.102
09/06/2013 10:40:37	6.8723	11.3678	0.085	77.302
09/06/2013 10:40:47	6.8074	11.2821	0.085	77.901
09/06/2013 10:40:57	6.7699	11.188	-0.117	77.901
09/06/2013 10:41:07	6.7711	11.0976	-0.014	78.002
09/06/2013 10:41:17	6.7676	11.047	0.085	78.401
09/06/2013 10:41:27	6.8158	11.025	0.085	78.901
09/06/2013 10:41:37	6.9122	11.0309	-0.014	79.303
09/06/2013 10:41:47	6.9723	11.1184	-0.113	79.702
09/06/2013 10:41:57	7.0264	11.2481	-0.014	79.101
09/06/2013 10:42:07	7.0949	11.3297	-0.014	77.502

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 10:42:17	4.8977	11.4166	-0.113	75.902
09/06/2013 10:42:27	4.6809	11.4963	-0.113	75.202
09/06/2013 10:42:37	4.327	11.5231	-0.014	74.302
09/06/2013 10:42:47	5.3226	11.5154	-0.113	72.802
09/06/2013 10:42:57	5.7957	11.4856	-0.113	73.002
09/06/2013 10:43:07	6.2242	11.4356	-0.113	72.501
09/06/2013 10:43:17	6.5664	11.3803	-0.212	72.102
09/06/2013 10:43:27	6.7973	11.3517	-0.113	71.902
09/06/2013 10:43:37	6.9586	11.2773	-0.113	71.702
09/06/2013 10:43:47	7.0925	11.1857	-0.212	71.402
09/06/2013 10:43:57	7.2103	11.1369	-0.212	71.003
09/06/2013 10:44:07	7.2924	11.1398	-0.014	70.801
09/06/2013 10:44:17	7.3091	11.1547	-0.014	70.301
09/06/2013 10:44:27	7.3311	11.172	-0.113	70.101
09/06/2013 10:44:37	7.3478	11.1815	-0.113	70.502
09/06/2013 10:44:47	7.3418	11.2285	-0.113	70.301
09/06/2013 10:44:57	7.4067	11.2684	-0.014	69.601
End Run 4				
Average	**7.500305**	**11.65403**	**-0.096437**	**74.06998**
Maximum	**9.4378**	**12.2735**	**0.184**	**79.702**
Minimum	**4.327**	**11.025**	**-0.316**	**69.601**
09/06/2013 10:45:07	7.349	11.294	-0.014	69.401
09/06/2013 10:45:17	6.7063	11.3178	-0.014	69.901
Calibration Bias				
09/06/2013 10:45:27	0.0833	11.36	-0.014	70.301
09/06/2013 10:45:37	0.0125	5.9731	0.085	71.402
09/06/2013 10:45:47	0.0053	0.3255	0.085	72.102
09/06/2013 10:45:57	0.0017	0.0803	0.284	72.602
09/06/2013 10:46:07	0.00055	0.0618	0.284	73.901
09/06/2013 10:46:17	0.00055	0.0523	0.184	75.002
09/06/2013 10:46:27	-0.00064	0.0458	0.184	75.502
09/06/2013 10:46:37	-0.0018	0.0374	0.085	75.502
09/06/2013 10:46:47	-0.003	0.0327	0.184	75.902
09/06/2013 10:46:57	-0.003	0.0285	0.184	76.402
N2 Zero		**0.032867**	**0.151**	
09/06/2013 10:47:07	-0.0042	0.0285	0.081	77.001
09/06/2013 10:47:17	-0.0042	0.0261	-0.014	77.901
09/06/2013 10:47:27	-0.0042	0.022	0.482	78.201
09/06/2013 10:47:37	-0.0042	0.0208	5.481	78.002
09/06/2013 10:47:47	-0.0042	0.0184	17.601	78.401
09/06/2013 10:47:57	-0.00064	0.0249	32.017	78.802
09/06/2013 10:48:07	-0.0042	0.0136	41.124	78.901
09/06/2013 10:48:17	-0.0042	0.016	44.225	79.101
09/06/2013 10:48:27	-0.0054	0.0172	44.828	78.401
09/06/2013 10:48:37	-0.0054	0.0136	45.224	76.802
09/06/2013 10:48:47	-0.0054	0.0113	45.125	76.202
09/06/2013 10:48:57	-0.0042	0.0095	45.323	75.301
09/06/2013 10:49:07	-0.0054	0.0142	45.427	74.601
46.3 ppm CO Mid			**45.29167**	
09/06/2013 10:49:17	5.3637	0.0154	45.526	74.302
09/06/2013 10:49:27	9.4271	0.0077	45.625	73.502
09/06/2013 10:49:37	5.7511	5.9802	45.827	72.602
09/06/2013 10:49:47	1.9704	9.7913	44.125	72.102
09/06/2013 10:49:57	1.946	6.4682	35.022	71.202
09/06/2013 10:50:07	1.946	2.3548	21.202	71.003
09/06/2013 10:50:17	1.946	2.0965	10.488	71.003
09/06/2013 10:50:27	1.9412	2.0781	4.084	71.003
09/06/2013 10:50:37	1.946	2.0763	1.285	71.402
09/06/2013 10:50:47	1.9549	2.0668	0.682	71.003
2.07% O2 Low	**1.947367**			
09/06/2013 10:50:57	7.0901	2.0698	0.583	70.301
09/06/2013 10:51:07	9.6009	2.0656	0.583	70.301
09/06/2013 10:51:17	9.6283	7.0217	0.385	70.101
09/06/2013 10:51:27	9.6354	9.8425	0.385	70.301
09/06/2013 10:51:37	9.6586	9.9579	0.385	70.101
09/06/2013 10:51:47	9.6538	9.974	0.184	70.502
09/06/2013 10:51:57	9.6437	9.98	0.085	71.602
09/06/2013 10:52:07	9.6562	9.9782	0.184	71.702
09/06/2013 10:52:17	9.6657	9.9865	0.085	71.902
10.1% O2 Mid	**9.6552**	**9.981567**		
09/06/2013 10:52:27	10.246	9.9883	-0.014	71.902
09/06/2013 10:52:37	10.2198	9.9895	-0.216	72.302
09/06/2013 10:52:47	10.0377	10.4686	-0.415	73.502
09/06/2013 10:52:57	9.9258	11.1999	-0.113	74.101
09/06/2013 10:53:07	9.7871	11.2725	0.085	75.002
09/06/2013 10:53:17	9.6092	11.2743	-0.212	75.702
09/06/2013 10:53:27	9.4432	11.26	-0.014	75.902
09/06/2013 10:53:37	9.242	11.2255	0.484	76.102
09/06/2013 10:53:47	9.0635	11.2029	0.081	75.902
09/06/2013 10:53:57	8.9165	11.1547	-0.113	76.102
09/06/2013 10:54:07	8.7588	11.1226	-0.014	76.202
09/06/2013 10:54:17	8.6737	11.0922	0.184	77.302
09/06/2013 10:54:27	8.5916	11.0422	0.284	78.401
09/06/2013 10:54:37	8.5106	10.9946	-0.014	78.601
09/06/2013 10:54:47	8.5136	10.953	-0.014	78.802
09/06/2013 10:54:57	8.4702	10.9661	0.081	78.901
09/06/2013 10:55:07	8.416	11.0541	0.081	78.901
09/06/2013 10:55:17	8.4101	11.0464	-0.014	77.901

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 10:55:27	8.3738	11.0196	-0.014	76.402
09/06/2013 10:55:37	8.3976	11.0327	0.085	75.702
09/06/2013 10:55:47	8.4232	11.0702	-0.113	74.601
09/06/2013 10:55:57	8.4928	11.1321	-0.212	73.201
09/06/2013 10:56:07	8.5398	11.191	-0.212	72.602
09/06/2013 10:56:17	8.5725	11.2868	-0.212	72.602
09/06/2013 10:56:27	8.5469	11.3588	-0.113	72.802
09/06/2013 10:56:37	8.5481	11.4059	-0.014	72.302
09/06/2013 10:56:47	8.516	11.4374	0.085	71.902
09/06/2013 10:56:57	8.4458	11.4677	-0.014	71.602
09/06/2013 10:57:07	8.4101	11.4689	0.184	71.602
09/06/2013 10:57:17	8.4172	11.4487	0.184	71.702
09/06/2013 10:57:27	8.3845	11.4154	0.085	71.902
09/06/2013 10:57:37	8.3422	11.4029	0.184	71.402
09/06/2013 10:57:47	8.1988	11.3886	0.184	70.801
09/06/2013 10:57:57	8.1066	11.4029	-0.014	70.702
09/06/2013 10:58:07	8.0572	11.3779	-0.014	70.301
09/06/2013 10:58:17	8.0268	11.3207	-0.113	69.802
09/06/2013 10:58:27	8.05	11.2749	-0.212	69.901
09/06/2013 10:58:37	8.0572	11.2696	-0.113	70.801
09/06/2013 10:58:47	8.103	11.2666	-0.113	70.702
09/06/2013 10:58:57	7.5257	11.2636	-0.113	71.402
09/06/2013 10:59:07	7.2103	11.3255	-0.113	71.702
09/06/2013 10:59:17	7.2782	11.385	-0.014	72.602
09/06/2013 10:59:27	7.3418	11.4219	0.085	72.802
09/06/2013 10:59:37	7.4186	11.4666	-0.216	73.002
09/06/2013 10:59:47	7.4912	11.5076	-0.212	74.101
09/06/2013 10:59:57	7.4853	11.5487	-0.113	75.002
09/06/2013 11:00:07	7.5138	11.5624	-0.212	75.202
09/06/2013 11:00:17	7.5019	11.5612	-0.113	75.502
09/06/2013 11:00:27	7.5138	11.5671	-0.113	75.702
09/06/2013 11:00:37	7.5019	11.5552	-0.113	75.702
09/06/2013 11:00:47	7.4805	11.5403	-0.212	75.902
09/06/2013 11:00:57	7.4549	11.507	-0.113	76.802
09/06/2013 11:01:07	7.4597	11.463	-0.014	77.001
09/06/2013 11:01:17	7.468	11.4374	-0.014	77.001
09/06/2013 11:01:27	7.5019	11.4439	-0.014	77.302
09/06/2013 11:01:37	7.4984	11.4546	0.085	77.901
09/06/2013 11:01:47	7.4924	11.4713	-0.014	77.901
09/06/2013 11:01:57	7.5007	11.5136	-0.014	77.901
Start Run 5				
09/06/2013 11:02:07	7.515	11.5338	-0.014	77.502
09/06/2013 11:02:17	7.5043	11.5249	-0.014	77.001
09/06/2013 11:02:27	7.4912	11.5136	-0.014	75.902
09/06/2013 11:02:37	7.4972	11.529	-0.014	75.301
09/06/2013 11:02:47	7.5198	11.5338	-0.014	74.302
09/06/2013 11:02:57	7.5585	11.5338	-0.113	73.901
09/06/2013 11:03:07	7.5852	11.5689	-0.212	73.502
09/06/2013 11:03:17	7.6031	11.6005	-0.113	73.701
09/06/2013 11:03:27	7.6221	11.6308	-0.014	73.901
09/06/2013 11:03:37	7.6876	11.6528	-0.012	73.701
09/06/2013 11:03:47	7.6912	11.6957	-0.014	73.502
09/06/2013 11:03:57	7.6935	11.7718	-0.113	72.501
09/06/2013 11:04:07	7.7245	11.7986	-0.014	71.902
09/06/2013 11:04:17	7.7269	11.7814	-0.113	71.402
09/06/2013 11:04:27	4.9733	11.7861	-0.113	71.402
09/06/2013 11:04:37	5.4214	11.7808	0.081	71.602
09/06/2013 11:04:47	5.5767	11.7861	0.085	71.602
09/06/2013 11:04:57	5.7077	11.7855	-0.014	71.402
09/06/2013 11:05:07	5.763	11.7528	-0.014	70.702
09/06/2013 11:05:17	5.9725	11.7284	-0.014	70.301
09/06/2013 11:05:27	6.251	11.7302	-0.113	70.502
09/06/2013 11:05:37	6.9265	11.7415	-0.014	69.901
09/06/2013 11:05:47	7.4525	11.7159	0.184	70.301
09/06/2013 11:05:57	7.5727	11.71	0.085	71.003
09/06/2013 11:06:07	7.6055	11.7272	-0.113	71.202
09/06/2013 11:06:17	7.6418	11.7177	0.085	70.702
09/06/2013 11:06:27	7.6572	11.6957	0.085	70.101
09/06/2013 11:06:37	7.6703	11.6784	-0.113	70.101
09/06/2013 11:06:47	7.6983	11.6897	-0.113	71.003
09/06/2013 11:06:57	7.7382	11.7189	0.085	71.402
09/06/2013 11:07:07	7.8161	11.7683	-0.014	71.602
09/06/2013 11:07:17	7.8138	11.798	-0.113	71.602
09/06/2013 11:07:27	7.8536	11.8272	-0.113	71.602
09/06/2013 11:07:37	7.9185	11.8599	-0.216	72.501
09/06/2013 11:07:47	7.9441	11.8998	-0.113	73.002
09/06/2013 11:07:57	7.9584	11.9397	-0.014	74.302
09/06/2013 11:08:07	8.0054	11.9539	-0.014	75.301
09/06/2013 11:08:17	8.0423	11.9635	-0.212	76.102
09/06/2013 11:08:27	8.0572	11.9932	-0.316	76.602
09/06/2013 11:08:37	8.0619	11.9932	-0.216	76.802
09/06/2013 11:08:47	8.103	11.9409	-0.113	77.102
09/06/2013 11:08:57	8.1077	11.9218	0.085	78.201
09/06/2013 11:09:07	8.0994	11.9266	0.085	78.802
09/06/2013 11:09:17	8.0857	11.8998	0.085	79.101
09/06/2013 11:09:27	8.1208	11.8587	-0.014	79.502
09/06/2013 11:09:37	8.0917	11.8361	-0.113	79.502
09/06/2013 11:09:47	8.0822	11.8302	-0.113	79.801
09/06/2013 11:09:57	3.992	11.8552	-0.113	80.402

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 11:10:07	6.6015	11.8415	-0.014	80.002
09/06/2013 11:10:17	7.1205	11.8159	-0.014	78.601
09/06/2013 11:10:27	7.3359	11.8046	-0.113	77.102
09/06/2013 11:10:37	7.4573	11.8081	-0.113	75.702
09/06/2013 11:10:47	7.5513	11.8242	-0.014	74.801
09/06/2013 11:10:57	7.6346	11.8504	-0.113	74.101
09/06/2013 11:11:07	7.7055	11.8581	-0.014	73.701
09/06/2013 11:11:17	7.7352	11.879	-0.113	73.502
09/06/2013 11:11:27	7.7858	11.8915	-0.113	73.701
09/06/2013 11:11:37	7.8399	11.8932	-0.113	73.901
09/06/2013 11:11:47	7.8584	11.9522	-0.014	73.201
09/06/2013 11:11:57	7.8501	11.9873	0.081	72.802
09/06/2013 11:12:07	7.8501	11.976	-0.014	72.501
09/06/2013 11:12:17	7.8489	11.9379	-0.113	72.302
09/06/2013 11:12:27	7.8399	11.9034	-0.014	72.501
09/06/2013 11:12:37	7.8054	11.895	-0.113	72.802
09/06/2013 11:12:47	7.7911	11.901	-0.014	72.302
09/06/2013 11:12:57	7.7608	11.8742	0.085	71.902
09/06/2013 11:13:07	7.7281	11.8712	-0.014	71.702
09/06/2013 11:13:17	7.7007	11.8635	-0.014	71.702
09/06/2013 11:13:27	7.6947	11.8427	-0.113	71.202
09/06/2013 11:13:37	7.6787	11.8331	-0.014	70.301
09/06/2013 11:13:47	7.6935	11.8474	0.085	69.901
09/06/2013 11:13:57	7.7281	11.8349	0.085	70.101
09/06/2013 11:14:07	7.7328	11.8558	-0.113	70.502
09/06/2013 11:14:17	7.7513	11.8885	-0.113	70.702
09/06/2013 11:14:27	7.7548	11.9266	0.081	71.402
09/06/2013 11:14:37	7.7584	11.9676	0.284	71.702
09/06/2013 11:14:47	7.815	11.9563	-0.014	71.902
09/06/2013 11:14:57	7.8417	11.9629	-0.113	72.102
09/06/2013 11:15:07	8.05	12.0164	0.085	72.501
09/06/2013 11:15:17	8.1595	12.0218	-0.014	73.002
09/06/2013 11:15:27	8.203	11.9962	-0.014	73.701
09/06/2013 11:15:37	8.2518	11.9742	0.085	75.002
09/06/2013 11:15:47	8.2631	11.942	0.081	75.902
09/06/2013 11:15:57	8.0423	11.9361	0.184	76.202
09/06/2013 11:16:07	7.8893	11.9254	0.284	76.202
09/06/2013 11:16:17	7.8465	11.8986	0.284	76.202
09/06/2013 11:16:27	7.8584	11.8885	-0.014	76.402
09/06/2013 11:16:37	7.7995	11.8599	-0.117	76.602
09/06/2013 11:16:47	7.7911	11.8242	-0.212	77.102
09/06/2013 11:16:57	7.7572	11.8034	-0.113	77.502
09/06/2013 11:17:07	7.7465	11.7843	-0.014	77.901
09/06/2013 11:17:17	7.7667	11.7546	-0.113	77.901
09/06/2013 11:17:27	7.7834	11.7349	-0.212	78.802
09/06/2013 11:17:37	7.828	11.7718	-0.113	78.901
09/06/2013 11:17:47	7.856	11.8242	-0.113	78.901
09/06/2013 11:17:57	7.8536	11.9075	-0.014	78.802
09/06/2013 11:18:07	7.8477	11.9343	-0.014	77.901
09/06/2013 11:18:17	7.8524	11.9343	-0.113	77.102
09/06/2013 11:18:27	7.8399	11.9313	-0.012	75.301
09/06/2013 11:18:37	7.8269	11.9313	-0.113	74.401
09/06/2013 11:18:47	7.8465	11.9224	-0.212	74.101
09/06/2013 11:18:57	7.8399	11.9301	-0.113	73.701
09/06/2013 11:19:07	7.8245	11.9397	-0.113	73.201
09/06/2013 11:19:17	7.8078	11.9343	-0.014	72.802
09/06/2013 11:19:27	7.7923	11.9218	-0.113	72.501
09/06/2013 11:19:37	7.7935	11.9224	-0.113	72.802
09/06/2013 11:19:47	7.7727	11.9295	-0.212	72.302
09/06/2013 11:19:57	7.7221	11.9254	-0.212	72.802
09/06/2013 11:20:07	7.7185	11.873	-0.014	72.802
09/06/2013 11:20:17	7.6775	11.8177	-0.014	72.501
09/06/2013 11:20:27	7.6477	11.7653	-0.014	72.501
09/06/2013 11:20:37	7.6406	11.7403	-0.113	72.102
09/06/2013 11:20:47	7.6406	11.7004	-0.113	72.102
09/06/2013 11:20:57	7.6489	11.6861	0.085	71.402
09/06/2013 11:21:07	7.6644	11.685	0.184	71.402
09/06/2013 11:21:17	7.6959	11.6945	0.085	71.602
09/06/2013 11:21:27	7.715	11.7147	-0.014	71.902
09/06/2013 11:21:37	7.7233	11.7433	0.286	71.402
09/06/2013 11:21:47	7.8173	11.7558	0.385	70.801
09/06/2013 11:21:57	7.8197	11.7701	0.184	71.702
09/06/2013 11:22:07	7.8715	11.8123	0.284	71.702
09/06/2013 11:22:17	7.9042	11.8629	0.184	71.402
09/06/2013 11:22:27	7.8465	11.8932	-0.113	71.402
09/06/2013 11:22:37	7.8066	11.8748	-0.113	71.602
09/06/2013 11:22:47	7.79	11.8397	-0.014	71.402
09/06/2013 11:22:57	7.7947	11.8052	-0.113	70.801
End Run 5				
Average	**7.622123**	**11.82603**	**-0.027508**	**73.7199**
Maximum	**8.2631**	**12.0218**	**0.385**	**80.402**
Minimum	**3.992**	**11.5136**	**-0.316**	**69.901**
09/06/2013 11:23:07	7.7751	11.7689	-0.014	70.502
09/06/2013 11:23:17	7.7727	11.7522	-0.113	71.402
09/06/2013 11:23:27	7.7114	11.7224	-0.212	70.801
09/06/2013 11:23:37	7.7066	11.6683	-0.113	70.502
09/06/2013 11:23:47	7.7138	11.6481	-0.014	71.602
09/06/2013 11:23:57	7.6834	11.6451	-0.113	72.602

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 11:24:07	7.6739	11.6397	-0.113	72.602
09/06/2013 11:24:17	7.7031	11.6147	-0.113	72.802
09/06/2013 11:24:27	7.6656	11.5945	-0.212	73.401
09/06/2013 11:24:37	7.6525	11.5766	-0.014	74.601
09/06/2013 11:24:47	7.6703	11.5499	-0.014	75.702
09/06/2013 11:24:57	7.6846	11.5403	-0.113	75.902
09/06/2013 11:25:07	7.69	11.5451	-0.216	76.102
09/06/2013 11:25:17	7.7429	11.5677	-0.216	76.202
Calibration Bias				
09/06/2013 11:25:27	1.6103	11.604	-0.212	76.402
09/06/2013 11:25:37	0.0363	11.5469	-0.212	77.102
09/06/2013 11:25:47	0.0172	1.9763	-0.212	78.002
09/06/2013 11:25:57	0.0089	0.1291	-0.014	78.401
09/06/2013 11:26:07	0.0029	0.0755	0.184	78.601
09/06/2013 11:26:17	0.0029	0.0583	0.184	78.802
09/06/2013 11:26:27	-0.0018	0.0499	0.081	78.601
09/06/2013 11:26:37	-0.003	0.0458	-0.014	78.201
09/06/2013 11:26:47	-0.0042	0.0363	0.085	78.002
09/06/2013 11:26:57	0.0017	0.0357	0.085	78.401
09/06/2013 11:27:07	-0.0054	0.0345	0.081	77.901
N2 Zero		**0.0355**	**0.083667**	
09/06/2013 11:27:17	-0.0066	0.0345	-0.014	76.602
09/06/2013 11:27:27	-0.0066	0.0238	0.184	75.902
09/06/2013 11:27:37	-0.0078	0.0232	4.683	75.702
09/06/2013 11:27:47	-0.009	0.0249	16.292	75.502
09/06/2013 11:27:57	-0.0078	0.0208	31.211	75.202
09/06/2013 11:28:07	-0.0078	0.016	40.723	74.401
09/06/2013 11:28:17	-0.0066	0.0125	44.228	73.401
09/06/2013 11:28:27	-0.0078	0.0142	45.125	73.002
09/06/2013 11:28:37	-0.009	0.0136	45.125	72.302
09/06/2013 11:28:47	-0.009	0.0142	45.228	72.102
09/06/2013 11:28:57	-0.009	0.0125	45.228	72.302
46.3 ppm CO Mid			**45.19367**	
09/06/2013 11:29:07	0.3511	0.0107	44.927	71.702
09/06/2013 11:29:17	1.7008	0.0136	44.935	71.602
09/06/2013 11:29:27	1.8055	0.8498	45.107	71.402
09/06/2013 11:29:37	1.8835	1.9793	44.427	71.202
09/06/2013 11:29:47	1.8906	2.0465	38.722	71.202
09/06/2013 11:29:57	1.8966	2.0584	25.411	71.602
09/06/2013 11:30:07	1.8966	2.0608	11.892	71.003
09/06/2013 11:30:17	1.9043	2.0561	4.041	70.101
09/06/2013 11:30:27	1.9067	2.0638	1.285	69.601
09/06/2013 11:30:37	1.9138	2.0561	0.583	69.601
2.07% O2 Low	**1.908267**			
09/06/2013 11:30:47	2.0269	2.0602	0.284	69.802
09/06/2013 11:30:57	8.9189	2.065	0.186	69.802
09/06/2013 11:31:07	9.6044	2.9481	0.284	69.802
09/06/2013 11:31:17	9.6271	8.4541	0.284	69.802
09/06/2013 11:31:27	9.6294	9.9026	0.28	70.301
09/06/2013 11:31:37	9.6461	9.9562	0.176	71.402
09/06/2013 11:31:47	9.6586	9.9669	0.073	71.702
09/06/2013 11:31:57	9.6586	9.9722	-0.113	72.302
09/06/2013 11:32:07	9.6574	9.9817	-0.121	73.002
09/06/2013 11:32:17	9.6598	9.9877	-0.212	73.901
10.1% O2 Mid	**9.6586**	**9.980533**		
09/06/2013 11:32:27	10.6834	9.9883	-0.216	74.401
09/06/2013 11:32:37	10.3977	10.0829	-0.212	75.502
09/06/2013 11:32:47	10.2495	11.1654	-0.216	75.502
09/06/2013 11:32:57	10.2025	11.3029	-0.212	75.702
09/06/2013 11:33:07	10.1174	11.2362	-0.224	75.902
09/06/2013 11:33:17	10.0942	11.2196	-0.316	75.902
09/06/2013 11:33:27	10.1436	11.194	-0.31	76.602
09/06/2013 11:33:37	10.1281	11.2267	-0.206	77.302
09/06/2013 11:33:47	10.0799	11.3398	-0.125	77.302
09/06/2013 11:33:57	10.0139	11.3934	-0.212	78.002
09/06/2013 11:34:07	9.9038	11.4356	-0.212	78.901
09/06/2013 11:34:17	9.7056	11.4648	-0.216	79.101
09/06/2013 11:34:27	9.5259	11.4172	-0.224	79.502
09/06/2013 11:34:37	9.367	11.3202	-0.316	78.601
09/06/2013 11:34:47	9.3432	11.2208	-0.316	77.901
09/06/2013 11:34:57	9.1914	11.1369	-0.298	76.602
09/06/2013 11:35:07	8.9855	11.1595	-0.117	75.902
09/06/2013 11:35:17	8.8951	11.0815	-0.137	75.202
09/06/2013 11:35:27	8.8469	10.9012	-0.286	74.302
09/06/2013 11:35:37	8.8707	10.7905	-0.113	73.901
09/06/2013 11:35:47	8.76	10.7905	-0.133	73.502
09/06/2013 11:35:57	8.8564	10.8405	-0.212	73.201
09/06/2013 11:36:07	8.9611	10.8935	-0.212	73.201
09/06/2013 11:36:17	9.0456	10.9851	-0.199	72.802
09/06/2013 11:36:27	8.876	11.1017	-0.129	72.501
09/06/2013 11:36:37	8.8552	11.1809	-0.212	72.302
09/06/2013 11:36:47	8.854	11.2255	-0.216	71.702
09/06/2013 11:36:57	8.9094	11.2874	-0.212	71.402
09/06/2013 11:37:07	8.9409	11.3059	-0.216	71.202
09/06/2013 11:37:17	8.8951	11.3255	-0.212	70.801
09/06/2013 11:37:27	8.8927	11.3083	-0.212	70.101
09/06/2013 11:37:37	8.8165	11.2559	-0.216	69.802
09/06/2013 11:37:47	8.8647	11.2672	-0.212	69.901
09/06/2013 11:37:57	8.9094	11.3202	-0.212	70.101

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 11:38:07	8.9153	11.3612	-0.195	70.301
09/06/2013 11:38:17	8.8278	11.3856	-0.113	70.301
09/06/2013 11:38:27	8.7433	11.3475	-0.113	69.901
09/06/2013 11:38:37	8.6588	11.2999	-0.113	69.601
09/06/2013 11:38:47	8.5047	11.2362	-0.137	69.901
09/06/2013 11:38:57	8.4987	11.1571	-0.216	69.901
09/06/2013 11:39:07	8.5172	11.0898	-0.216	70.101
09/06/2013 11:39:17	8.4916	11.0512	-0.216	70.801
09/06/2013 11:39:27	8.541	11.0196	-0.195	71.003
09/06/2013 11:39:37	8.6374	11.0101	-0.113	72.102
09/06/2013 11:39:47	8.666	11.094	-0.165	72.602
09/06/2013 11:39:57	8.707	11.2029	-0.316	73.901
09/06/2013 11:40:07	8.7165	11.2648	-0.276	74.601
09/06/2013 11:40:17	8.713	11.3315	-0.137	75.502
09/06/2013 11:40:27	8.7624	11.3981	-0.212	75.902
09/06/2013 11:40:37	8.6749	11.4047	-0.191	75.902
09/06/2013 11:40:47	8.6106	11.4011	-0.113	76.402
09/06/2013 11:40:57	7.9691	11.3678	-0.137	77.001
Start Run 6				
09/06/2013 11:41:07	7.4222	11.3517	-0.212	77.901
09/06/2013 11:41:17	7.4751	11.344	-0.212	78.601
09/06/2013 11:41:27	7.4876	11.3618	-0.216	79.502
09/06/2013 11:41:37	7.5489	11.3392	-0.216	79.801
09/06/2013 11:41:47	7.6198	11.3666	-0.191	79.801
09/06/2013 11:41:57	7.7185	11.4868	-0.113	79.702
09/06/2013 11:42:07	7.8632	11.5868	-0.139	79.702
09/06/2013 11:42:17	7.887	11.6731	-0.212	79.801
09/06/2013 11:42:27	7.9149	11.7474	-0.185	79.101
09/06/2013 11:42:37	7.9173	11.7718	-0.139	78.002
09/06/2013 11:42:47	7.9375	11.7891	-0.238	77.001
09/06/2013 11:42:57	7.95	11.8206	-0.29	75.902
09/06/2013 11:43:07	7.9881	11.8772	-0.191	75.301
09/06/2013 11:43:17	8.0351	11.876	-0.139	74.801
09/06/2013 11:43:27	8.0667	11.9111	-0.212	73.401
09/06/2013 11:43:37	8.1375	11.9492	-0.212	72.802
09/06/2013 11:43:47	8.1702	11.9754	-0.187	73.201
09/06/2013 11:43:57	8.1726	12.0962	-0.113	73.002
09/06/2013 11:44:07	8.2089	12.2098	-0.113	72.102
09/06/2013 11:44:17	8.2065	12.2777	-0.143	71.602
09/06/2013 11:44:27	8.1256	12.3015	-0.212	71.602
09/06/2013 11:44:37	8.0703	12.2955	-0.212	71.602
09/06/2013 11:44:47	7.9477	12.2366	-0.212	71.702
09/06/2013 11:44:57	7.7971	12.148	-0.185	72.602
09/06/2013 11:45:07	7.7007	12.0022	-0.113	72.602
09/06/2013 11:45:17	7.6822	11.8195	-0.056	71.902
09/06/2013 11:45:27	7.6811	11.6969	0.085	71.402
09/06/2013 11:45:37	7.6525	11.6683	0.022	71.402
09/06/2013 11:45:47	7.5995	11.6397	-0.113	70.801
09/06/2013 11:45:57	7.7394	11.5975	-0.113	70.801
09/06/2013 11:46:07	3.6057	11.5213	-0.113	71.202
09/06/2013 11:46:17	5.3649	11.3922	-0.056	71.003
09/06/2013 11:46:27	6.4396	11.219	0.051	71.003
09/06/2013 11:46:37	6.8205	11.1101	-0.044	71.003
09/06/2013 11:46:47	7.0984	11.1494	-0.113	70.801
09/06/2013 11:46:57	7.2794	11.1904	-0.113	70.801
09/06/2013 11:47:07	7.3912	11.2446	-0.113	71.402
09/06/2013 11:47:17	7.4466	11.2481	-0.113	70.801
09/06/2013 11:47:27	7.4864	11.2559	-0.151	70.702
09/06/2013 11:47:37	7.5007	11.2606	-0.143	71.003
09/06/2013 11:47:47	7.4888	11.2714	-0.052	70.801
09/06/2013 11:47:57	7.4751	11.2696	-0.151	70.702
09/06/2013 11:48:07	7.4418	11.2672	-0.181	70.801
09/06/2013 11:48:17	7.4323	11.2476	-0.113	70.702
09/06/2013 11:48:27	7.4174	11.2035	-0.113	70.101
09/06/2013 11:48:37	7.443	11.1767	-0.113	69.901
09/06/2013 11:48:47	7.4359	11.1529	-0.113	69.601
09/06/2013 11:48:57	7.4513	11.1642	-0.113	69.802
09/06/2013 11:49:07	7.4246	11.2077	-0.113	70.101
09/06/2013 11:49:17	7.3912	11.2291	-0.155	70.101
09/06/2013 11:49:27	7.2913	11.2065	-0.212	69.901
09/06/2013 11:49:37	6.8913	11.1738	-0.216	69.601
09/06/2013 11:49:47	6.9854	11.1428	-0.173	70.101
09/06/2013 11:49:57	7.0502	11.1339	-0.155	70.702
09/06/2013 11:50:07	7.0913	11.1666	-0.177	70.702
09/06/2013 11:50:17	7.1181	11.2172	-0.113	71.202
09/06/2013 11:50:27	7.1818	11.2666	-0.113	72.102
09/06/2013 11:50:37	7.2067	11.3094	-0.113	72.501
09/06/2013 11:50:47	7.23	11.3362	-0.195	72.802
09/06/2013 11:50:57	7.2704	11.3803	-0.276	73.901
09/06/2013 11:51:07	7.3043	11.4189	-0.137	74.601
09/06/2013 11:51:17	7.2829	11.4427	-0.056	75.002
09/06/2013 11:51:27	7.2609	11.4761	-0.155	75.301
09/06/2013 11:51:37	7.2609	11.5052	-0.216	75.702
09/06/2013 11:51:47	7.2526	11.5183	-0.216	76.402
09/06/2013 11:51:57	7.2198	11.5213	-0.177	77.001
09/06/2013 11:52:07	7.1829	11.5011	-0.113	77.001
09/06/2013 11:52:17	7.2198	11.46	-0.155	77.302
09/06/2013 11:52:27	7.196	11.4201	-0.212	78.002
09/06/2013 11:52:37	7.202	11.382	-0.212	78.901

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 11:52:47	7.1853	11.3916	-0.177	79.303
09/06/2013 11:52:57	7.1657	11.4112	-0.113	79.702
09/06/2013 11:53:07	7.1538	11.4011	-0.163	79.801
09/06/2013 11:53:17	7.1276	11.3684	-0.169	79.801
09/06/2013 11:53:27	7.1264	11.3541	-0.113	79.101
09/06/2013 11:53:37	7.1633	11.3428	-0.113	77.701
09/06/2013 11:53:47	7.2175	11.3428	-0.117	76.802
09/06/2013 11:53:57	7.2478	11.3773	-0.113	75.502
09/06/2013 11:54:07	7.2722	11.4356	-0.113	74.601
09/06/2013 11:54:17	7.3079	11.488	-0.163	73.502
09/06/2013 11:54:27	7.3162	11.5314	-0.216	73.401
09/06/2013 11:54:37	7.3276	11.5653	-0.216	73.201
09/06/2013 11:54:47	7.3877	11.5814	-0.165	73.002
09/06/2013 11:54:57	7.3704	11.6213	-0.113	73.002
09/06/2013 11:55:07	7.3645	11.7094	-0.113	72.102
09/06/2013 11:55:17	7.296	11.6897	-0.113	72.102
09/06/2013 11:55:27	7.2478	11.6385	-0.165	72.102
09/06/2013 11:55:37	7.2056	11.5772	-0.216	71.702
09/06/2013 11:55:47	7.1526	11.5154	-0.165	70.801
09/06/2013 11:55:57	7.1056	11.4404	-0.113	70.801
09/06/2013 11:56:07	7.0842	11.3743	-0.113	70.801
09/06/2013 11:56:17	7.0621	11.3106	-0.117	70.702
09/06/2013 11:56:27	7.0419	11.2904	-0.117	70.702
09/06/2013 11:56:37	7.0056	11.26	-0.117	70.801
09/06/2013 11:56:47	7.0181	11.2267	-0.113	70.702
09/06/2013 11:56:57	7.008	11.1863	-0.165	69.901
09/06/2013 11:57:07	6.9514	11.1547	-0.212	70.101
09/06/2013 11:57:17	6.9419	11.1178	-0.163	70.702
09/06/2013 11:57:27	6.9735	11.0756	-0.113	70.301
09/06/2013 11:57:37	7.0252	11.0702	-0.169	70.101
09/06/2013 11:57:47	7.0193	11.1023	-0.163	70.702
09/06/2013 11:57:57	7.0169	11.1137	-0.117	71.402
09/06/2013 11:58:07	7.0056	11.091	-0.117	71.402
09/06/2013 11:58:17	7.0633	11.0851	-0.113	71.402
09/06/2013 11:58:27	7.0526	11.0976	-0.113	71.402
09/06/2013 11:58:37	7.0734	11.1571	-0.113	71.402
09/06/2013 11:58:47	7.0984	11.1815	-0.117	71.402
09/06/2013 11:58:57	7.1103	11.2035	-0.228	71.902
09/06/2013 11:59:07	7.1044	11.2398	-0.206	71.902
09/06/2013 11:59:17	7.108	11.2773	-0.173	72.602
09/06/2013 11:59:27	7.1091	11.3065	-0.212	73.502
09/06/2013 11:59:37	7.108	11.3285	-0.155	74.401
09/06/2013 11:59:47	7.1151	11.3219	-0.177	75.002
09/06/2013 11:59:57	7.077	11.3094	-0.155	75.702
09/06/2013 12:00:07	7.0526	11.313	-0.117	76.202
09/06/2013 12:00:17	7.049	11.3011	0.004	77.001
09/06/2013 12:00:27	6.9985	11.3017	0.022	77.001
09/06/2013 12:00:37	6.9384	11.2779	-0.125	77.302
09/06/2013 12:00:47	6.93	11.2095	-0.163	77.901
09/06/2013 12:00:57	6.8937	11.1494	-0.06	78.201
09/06/2013 12:01:07	6.8854	11.1071	-0.074	78.601
09/06/2013 12:01:17	6.9044	11.0613	-0.056	78.901
09/06/2013 12:01:27	6.9134	11.0708	-0.078	79.502
09/06/2013 12:01:37	6.9348	11.1083	-0.173	79.303
09/06/2013 12:01:47	6.9205	11.1351	-0.216	78.901
09/06/2013 12:01:57	6.9782	11.1196	-0.155	77.502
End Run 6				
Average	**7.282308**	**11.41903**	**-0.142833**	**73.74446**
Maximum	**8.2089**	**12.3015**	**0.085**	**79.801**
Minimum	**3.6057**	**11.0613**	**-0.29**	**69.601**
09/06/2013 12:02:07	6.9985	11.1065	-0.113	76.202
09/06/2013 12:02:17	6.9747	11.1351	-0.113	75.702
09/06/2013 12:02:27	6.9675	11.1386	-0.236	75.002
09/06/2013 12:02:37	6.955	11.0898	-0.316	74.401
09/06/2013 12:02:47	6.9628	11.0452	-0.195	74.601
09/06/2013 12:02:57	6.9794	11.0529	-0.177	74.302
Calibration Bias				
09/06/2013 12:03:07	0.3052	11.0541	-0.216	73.401
09/06/2013 12:03:17	0.0279	10.1823	-0.212	73.201
09/06/2013 12:03:27	0.0077	0.8813	-0.038	72.802
09/06/2013 12:03:37	0.0029	0.0952	0.202	71.602
09/06/2013 12:03:47	0.00055	0.0553	0.04	71.402
N2 Zero		**0.343933**	**0.068**	
09/06/2013 12:03:57	0.00055	0.0476	-0.25	71.402
09/06/2013 12:04:07	-0.00064	0.044	-0.254	71.602
09/06/2013 12:04:17	-0.0018	0.0363	-0.151	71.402
09/06/2013 12:04:27	-0.0042	0.0345	-0.052	71.902
09/06/2013 12:04:37	-0.0042	0.0357	0.047	71.902
09/06/2013 12:04:47	-0.0054	0.0309	0.668	71.602
09/06/2013 12:04:57	-0.0054	0.0261	2.803	71.202
09/06/2013 12:05:07	-0.0066	0.0232	8.986	71.902
09/06/2013 12:05:17	-0.0078	0.022	20.706	71.402
09/06/2013 12:05:27	-0.009	0.0238	32.923	70.702
09/06/2013 12:05:37	-0.0078	0.0184	40.819	69.901
09/06/2013 12:05:47	-0.0066	0.016	43.979	70.101
09/06/2013 12:05:57	-0.0066	0.016	44.496	69.901
09/06/2013 12:06:07	-0.0078	0.0172	44.945	69.601
09/06/2013 12:06:17	-0.009	0.0142	45.195	69.901

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 12:06:27	-0.009	0.0095	44.945	70.101
09/06/2013 12:06:37	-0.0078	0.0113	44.824	70.101
09/06/2013 12:06:47	-0.0066	0.0142	44.893	70.101
09/06/2013 12:06:57	-0.0066	0.0095	44.923	69.901
09/06/2013 12:07:07	-0.0078	0.0125	45.062	69.401
46.3 ppm CO Mid			**44.95933**	
09/06/2013 12:07:17	1.6823	0.0095	45.195	69.401
09/06/2013 12:07:27	1.7906	0.0285	45.155	69.901
09/06/2013 12:07:37	1.802	1.7615	43.935	70.801
09/06/2013 12:07:47	1.8139	2.0418	37.399	70.702
09/06/2013 12:07:57	1.8317	2.0543	24.937	70.502
09/06/2013 12:08:07	1.8525	2.0537	12.501	71.003
09/06/2013 12:08:17	1.8632	2.0573	4.856	71.702
09/06/2013 12:08:27	1.8668	2.0543	1.825	72.602
09/06/2013 12:08:37	1.8918	2.0608	0.863	73.701
2.07% O2 Low	**1.873933**			
09/06/2013 12:08:47	8.729	2.0602	0.543	74.601
09/06/2013 12:08:57	9.295	2.3596	0.41	75.301
09/06/2013 12:09:07	9.3491	8.6344	0.383	76.202
09/06/2013 12:09:17	9.4295	9.9199	0.311	77.001
09/06/2013 12:09:27	9.6044	9.9562	0.143	76.602
09/06/2013 12:09:37	9.6788	9.9639	-0.056	76.402
09/06/2013 12:09:47	9.6836	9.9627	-0.117	76.602
09/06/2013 12:09:57	9.6907	9.9734	-0.117	77.001
09/06/2013 12:10:07	9.6824	9.9812	-0.117	77.302
10.1% O2 Mid	**9.685567**	**9.972433**		
09/06/2013 12:10:17	10.6846	9.9829	-0.113	77.302
09/06/2013 12:10:27	11.1238	9.98	-0.113	77.701
09/06/2013 12:10:37	10.9226	10.8595	-0.113	78.002
09/06/2013 12:10:47	10.8179	11.8748	-0.04	78.002
09/06/2013 12:10:57	10.7613	11.9093	-0.165	77.901
09/06/2013 12:11:07	10.6768	11.8962	-0.29	76.602
09/06/2013 12:11:17	10.6298	11.879	-0.238	75.301
09/06/2013 12:11:27	10.5239	11.8433	-0.139	75.301
09/06/2013 12:11:37	10.4352	11.8409	-0.191	74.401
09/06/2013 12:11:47	10.3061	11.8433	-0.139	73.701
09/06/2013 12:11:57	10.174	11.8099	-0.113	73.201
09/06/2013 12:12:07	10.0645	11.7712	-0.195	73.002
09/06/2013 12:12:17	10.0186	11.7367	-0.216	72.102
09/06/2013 12:12:27	9.9389	11.7379	-0.216	72.501
09/06/2013 12:12:37	9.899	11.7635	-0.137	72.302
09/06/2013 12:12:47	9.7598	11.7855	-0.113	71.202
09/06/2013 12:12:57	9.7776	11.7903	-0.113	71.003
09/06/2013 12:13:07	9.7741	11.7718	-0.113	70.702
09/06/2013 12:13:17	9.7657	11.7909	-0.117	70.702
09/06/2013 12:13:27	9.8211	11.8242	-0.199	70.702
09/06/2013 12:13:37	9.8104	11.8665	-0.137	70.301
09/06/2013 12:13:47	9.8788	11.9188	-0.113	70.702
09/06/2013 12:13:57	9.9127	12.0117	-0.113	70.301
09/06/2013 12:14:07	9.8919	12.1009	-0.113	70.502
09/06/2013 12:14:17	9.899	12.1432	-0.113	70.702
09/06/2013 12:14:27	9.9038	12.1783	-0.199	70.502
09/06/2013 12:14:37	9.874	12.2009	-0.216	70.301
09/06/2013 12:14:47	9.8413	12.2116	-0.044	69.601
09/06/2013 12:14:57	9.5943	12.2152	-0.103	69.002
09/06/2013 12:15:07	9.561	12.2705	-0.202	69.202
09/06/2013 12:15:17	9.5366	12.2271	-0.216	69.401
09/06/2013 12:15:27	9.5259	12.1247	-0.133	69.601
09/06/2013 12:15:37	9.4598	12.0373	-0.117	69.601
09/06/2013 12:15:47	9.4033	11.9772	-0.113	69.601
09/06/2013 12:15:57	8.8254	11.9236	-0.113	69.401
09/06/2013 12:16:07	8.2881	11.8843	-0.117	69.802
09/06/2013 12:16:17	8.2809	11.8772	-0.113	70.702
09/06/2013 12:16:27	8.294	11.8629	-0.113	71.003
09/06/2013 12:16:37	8.2821	11.8587	-0.117	71.003
09/06/2013 12:16:47	8.2559	11.8456	-0.03	70.801
09/06/2013 12:16:57	8.2494	11.8337	-0.099	71.902
Start Run 7				
09/06/2013 12:17:07	8.2678	11.8189	-0.206	73.502
09/06/2013 12:17:17	8.2833	11.8111	-0.216	74.801
09/06/2013 12:17:27	8.2666	11.8266	-0.216	75.301
09/06/2013 12:17:37	8.2952	11.8427	-0.125	75.702
09/06/2013 12:17:47	8.3137	11.8349	-0.117	76.602
09/06/2013 12:17:57	8.3398	11.8444	-0.202	77.102
09/06/2013 12:18:07	8.3619	11.8873	-0.212	78.401
09/06/2013 12:18:17	8.3607	11.9248	-0.216	78.601
09/06/2013 12:18:27	8.4035	11.9617	-0.216	78.601
09/06/2013 12:18:37	8.3315	11.9902	-0.129	78.401
09/06/2013 12:18:47	8.2952	12.0075	-0.026	78.002
09/06/2013 12:18:57	8.2785	12.0295	-0.107	78.401
09/06/2013 12:19:07	8.2399	12.0426	-0.117	78.802
09/06/2013 12:19:17	8.1714	12.0486	-0.113	79.502
09/06/2013 12:19:27	8.1268	12.0504	-0.206	78.901
09/06/2013 12:19:37	8.1185	12.0087	-0.216	77.302
09/06/2013 12:19:47	8.0774	11.9682	-0.216	76.202
09/06/2013 12:19:57	8.0435	11.9331	-0.125	75.502
09/06/2013 12:20:07	8.0018	11.8891	-0.113	74.801
09/06/2013 12:20:17	7.9399	11.8569	-0.113	73.502
09/06/2013 12:20:27	7.8881	11.8159	-0.026	73.201

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 12:20:37	7.8536	11.7528	-0.107	73.502
09/06/2013 12:20:47	7.8477	11.7338	-0.206	73.401
09/06/2013 12:20:57	7.8388	11.7195	-0.216	72.802
09/06/2013 12:21:07	7.834	11.7302	-0.026	72.501
09/06/2013 12:21:17	7.8352	11.748	-0.014	71.702
09/06/2013 12:21:27	7.7269	11.773	-0.111	71.602
09/06/2013 12:21:37	5.1308	11.7195	-0.212	71.202
09/06/2013 12:21:47	5.2911	11.6135	-0.117	71.003
09/06/2013 12:21:57	6.5962	11.6909	-0.21	70.702
09/06/2013 12:22:07	7.2597	11.748	-0.212	70.801
09/06/2013 12:22:17	7.5573	11.7861	-0.121	71.003
09/06/2013 12:22:27	7.6477	11.8147	-0.113	71.202
09/06/2013 12:22:37	7.6465	11.8129	-0.113	72.102
09/06/2013 12:22:47	8.347	11.732	-0.21	72.501
09/06/2013 12:22:57	8.2363	11.6493	-0.216	72.302
09/06/2013 12:23:07	8.0459	12.5407	-0.216	72.102
09/06/2013 12:23:17	7.9881	12.3402	-0.121	71.902
09/06/2013 12:23:27	7.7656	12.1009	-0.113	71.702
09/06/2013 12:23:37	7.6608	11.92	-0.113	71.702
09/06/2013 12:23:47	7.6561	11.5844	-0.212	70.801
09/06/2013 12:23:57	7.6114	11.4362	-0.212	70.502
09/06/2013 12:24:07	7.568	11.3743	-0.216	70.801
09/06/2013 12:24:17	7.5162	11.2577	-0.113	71.003
09/06/2013 12:24:27	7.4936	11.1749	-0.113	70.101
09/06/2013 12:24:37	7.4585	11.1101	-0.113	69.401
09/06/2013 12:24:47	7.803	11.0768	-0.113	69.401
09/06/2013 12:24:57	7.6257	11.1339	-0.117	69.802
09/06/2013 12:25:07	7.6031	11.5927	-0.216	70.301
09/06/2013 12:25:17	7.4585	11.4112	-0.113	70.301
09/06/2013 12:25:27	7.4513	11.3761	-0.113	70.101
09/06/2013 12:25:37	7.4728	11.2208	-0.113	70.301
09/06/2013 12:25:47	7.5174	11.2148	-0.113	70.502
09/06/2013 12:25:57	7.5174	11.2952	-0.113	70.702
09/06/2013 12:26:07	7.5103	11.3731	-0.117	70.801
09/06/2013 12:26:17	7.5186	11.3922	-0.014	70.702
09/06/2013 12:26:27	7.496	11.4011	-0.113	70.502
09/06/2013 12:26:37	7.4948	11.4029	-0.216	69.901
09/06/2013 12:26:47	7.4853	11.4059	-0.113	69.601
09/06/2013 12:26:57	4.8521	11.3999	-0.014	69.802
09/06/2013 12:27:07	4.9418	11.3874	-0.014	70.101
09/06/2013 12:27:17	6.3653	11.3981	-0.117	69.901
09/06/2013 12:27:27	6.8961	11.5308	-0.113	69.802
09/06/2013 12:27:37	7.0925	11.5106	-0.113	69.401
09/06/2013 12:27:47	7.1996	11.3571	-0.212	69.802
09/06/2013 12:27:57	7.3103	11.2321	-0.212	69.802
09/06/2013 12:28:07	7.3645	11.2035	-0.216	69.802
09/06/2013 12:28:17	7.4561	11.2333	-0.113	69.601
09/06/2013 12:28:27	7.5067	11.2523	-0.117	69.002
09/06/2013 12:28:37	7.6019	11.2821	-0.113	69.401
09/06/2013 12:28:47	7.6644	11.363	-0.113	69.802
09/06/2013 12:28:57	7.7418	11.4451	-0.113	70.101
09/06/2013 12:29:07	7.8441	11.5564	-0.216	70.301
09/06/2013 12:29:17	7.9006	11.6754	-0.216	71.003
09/06/2013 12:29:27	7.928	11.7748	-0.117	71.402
09/06/2013 12:29:37	7.9798	11.8635	-0.216	71.602
09/06/2013 12:29:47	8.003	11.9284	-0.216	72.302
09/06/2013 12:29:57	8.0185	11.9962	-0.117	73.401
09/06/2013 12:30:07	8.0292	11.998	-0.117	74.601
09/06/2013 12:30:17	8.0185	12.0248	-0.117	75.202
09/06/2013 12:30:27	8.0822	12.0468	-0.113	75.902
09/06/2013 12:30:37	8.1583	12.0694	-0.113	76.402
09/06/2013 12:30:47	8.2065	12.17	-0.117	76.602
09/06/2013 12:30:57	8.2137	12.2586	-0.113	77.102
09/06/2013 12:31:07	8.2583	12.3158	-0.117	77.701
09/06/2013 12:31:17	8.1536	12.3235	-0.113	78.201
09/06/2013 12:31:27	7.8917	12.3681	-0.117	78.401
09/06/2013 12:31:37	7.5293	12.3854	-0.117	78.601
09/06/2013 12:31:47	7.3865	12.2729	-0.113	78.802
09/06/2013 12:31:57	7.3549	12.1259	-0.117	78.901
09/06/2013 12:32:07	7.3323	12.017	-0.117	79.702
09/06/2013 12:32:17	7.2829	11.9825	-0.113	79.101
09/06/2013 12:32:27	7.296	11.9081	-0.014	78.002
09/06/2013 12:32:37	7.3323	11.8444	-0.113	76.602
09/06/2013 12:32:47	7.3454	11.8772	-0.216	75.902
09/06/2013 12:32:57	7.3609	11.9266	-0.117	74.801
09/06/2013 12:33:07	7.3829	11.9444	-0.113	73.701
09/06/2013 12:33:17	7.5138	11.973	-0.113	73.502
09/06/2013 12:33:27	7.443	12.0045	-0.113	73.701
09/06/2013 12:33:37	7.3454	12.0057	-0.113	73.901
09/06/2013 12:33:47	6.8324	11.9712	-0.216	73.701
09/06/2013 12:33:57	6.7997	11.9248	-0.216	72.501
09/06/2013 12:34:07	6.8098	11.8314	-0.212	72.501
09/06/2013 12:34:17	6.789	11.748	-0.216	72.302
09/06/2013 12:34:27	6.7937	11.6683	-0.113	71.902
09/06/2013 12:34:37	6.8854	11.5772	-0.014	71.003
09/06/2013 12:34:47	6.9711	11.6022	-0.113	70.702
09/06/2013 12:34:57	6.9901	11.6832	0.081	70.502
09/06/2013 12:35:07	6.9889	11.7796	0.085	70.801
09/06/2013 12:35:17	6.9949	11.8129	-0.113	71.003

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 12:35:27	6.9866	11.8224	-0.117	71.402
09/06/2013 12:35:37	7.0145	11.8331	-0.014	71.003
09/06/2013 12:35:47	7.0181	11.8427	-0.014	70.801
09/06/2013 12:35:57	7.0276	11.8534	-0.117	70.702
09/06/2013 12:36:07	7.0925	11.8552	-0.216	70.301
09/06/2013 12:36:17	7.0865	11.8683	-0.216	69.901
09/06/2013 12:36:27	7.1597	11.854	-0.113	69.802
09/06/2013 12:36:37	7.2323	11.851	-0.113	69.401
09/06/2013 12:36:47	7.243	11.9171	-0.113	69.802
09/06/2013 12:36:57	7.2335	12.0331	-0.117	69.901
09/06/2013 12:37:07	7.2252	12.0861	-0.014	70.101
09/06/2013 12:37:17	7.2008	12.1105	-0.117	70.301
09/06/2013 12:37:27	7.1818	12.1003	-0.117	69.901
09/06/2013 12:37:37	7.155	12.0498	-0.117	69.802
09/06/2013 12:37:47	7.0865	11.9682	-0.113	69.601
09/06/2013 12:37:57	7.0645	11.8748	-0.113	68.701
End Run 7				
Average	**7.517619**	**11.77226**	**-0.131389**	**72.79683**
Maximum	**8.4035**	**12.5407**	**0.085**	**79.702**
Minimum	**4.8521**	**11.0768**	**-0.216**	**68.701**
09/06/2013 12:38:07	7.0443	11.776	-0.113	69.401
09/06/2013 12:38:17	7.0526	11.7111	-0.117	69.802
Calibration Bias				
09/06/2013 12:38:27	0.87	11.6225	-0.117	69.802
09/06/2013 12:38:37	0.0279	10.8881	-0.014	69.901
09/06/2013 12:38:47	0.0101	1.2372	0.184	70.301
09/06/2013 12:38:57	0.0029	0.1214	0.284	71.202
09/06/2013 12:39:07	0.0017	0.0833	0.383	71.702
09/06/2013 12:39:17	-0.0018	0.0505	0.284	72.501
09/06/2013 12:39:27	-0.00064	0.0488	0.081	73.201
09/06/2013 12:39:37	-0.003	0.0452	0.081	74.302
09/06/2013 12:39:47	-0.0054	0.038	0.081	74.601
09/06/2013 12:39:57	-0.0054	0.0392	0.081	75.301
N2 Zero		**0.0408**	**0.081**	
09/06/2013 12:40:07	-0.0042	0.0345	0.081	75.702
09/06/2013 12:40:17	-0.0042	0.0279	0.081	76.102
09/06/2013 12:40:27	-0.0042	0.0249	-0.014	76.602
09/06/2013 12:40:37	-0.0066	0.0208	-0.014	77.102
09/06/2013 12:40:47	-0.0066	0.0261	-0.014	77.701
09/06/2013 12:40:57	-0.0054	0.0208	1.984	78.002
09/06/2013 12:41:07	-0.0054	0.0202	10.389	78.201
09/06/2013 12:41:17	-0.0066	0.016	25.209	78.601
09/06/2013 12:41:27	-0.0054	0.0154	37.42	78.802
09/06/2013 12:41:37	-0.0042	0.0202	43.026	78.901
09/06/2013 12:41:47	-0.0042	0.0154	44.526	78.601
09/06/2013 12:41:57	-0.0042	0.0089	45.026	77.701
09/06/2013 12:42:07	-0.0042	0.0077	45.125	76.602
09/06/2013 12:42:17	-0.0054	0.0113	45.125	76.102
09/06/2013 12:42:27	-0.0054	0.0107	45.026	75.202
46.3 ppm CO Mid			**45.092**	
09/06/2013 12:42:37	-0.0054	0.0095	45.224	74.401
09/06/2013 12:42:47	1.8656	0.0095	45.327	73.901
09/06/2013 12:42:57	1.9472	0.0726	45.026	73.701
09/06/2013 12:43:07	1.9513	1.8668	43.621	73.401
09/06/2013 12:43:17	1.9501	2.0418	35.518	73.002
09/06/2013 12:43:27	1.9549	2.0584	21.202	72.802
09/06/2013 12:43:37	1.9561	2.0543	9.192	72.802
09/06/2013 12:43:47	1.9573	2.0573	2.987	72.501
2.07% O2 Low	**1.9561**			
09/06/2013 12:43:57	5.2143	2.0561	0.885	71.902
09/06/2013 12:44:07	9.5479	2.0638	0.383	71.902
09/06/2013 12:44:17	9.6033	6.5611	0.383	71.902
09/06/2013 12:44:27	9.6306	9.833	0.383	71.702
09/06/2013 12:44:37	9.6354	9.9437	0.184	71.602
09/06/2013 12:44:47	9.6342	9.9597	0.081	71.602
09/06/2013 12:44:57	9.655	9.9669	-0.014	70.801
09/06/2013 12:45:07	9.6562	9.9716	-0.113	70.301
09/06/2013 12:45:17	9.6634	9.974	-0.113	70.702
09/06/2013 12:45:27	9.6598	9.9782	-0.216	70.502
10.1% O2 Mid	**9.6598**	**9.9746**		
09/06/2013 12:45:37	10.4846	9.98	-0.117	70.101
09/06/2013 12:45:47	10.2989	9.9782	-0.117	70.101
09/06/2013 12:45:57	10.1668	10.8822	-0.216	69.901
09/06/2013 12:46:07	10.0496	11.4183	-0.216	69.601
09/06/2013 12:46:17	10.0246	11.4106	-0.113	70.101
09/06/2013 12:46:27	9.9812	11.4106	-0.216	70.702
09/06/2013 12:46:37	9.9341	11.4666	-0.216	70.702
09/06/2013 12:46:47	9.9002	11.529	-0.117	70.502
09/06/2013 12:46:57	9.8598	11.6052	-0.117	69.901
09/06/2013 12:47:07	9.9246	11.7022	-0.216	69.601
09/06/2013 12:47:17	9.8586	11.8004	-0.216	69.601
09/06/2013 12:47:27	9.8657	11.9248	-0.117	69.401
09/06/2013 12:47:37	9.9306	12.0361	0.184	68.901
09/06/2013 12:47:47	9.8788	12.1117	0.081	69.202
09/06/2013 12:47:57	9.9199	12.2021	-0.117	69.401
09/06/2013 12:48:07	9.9633	12.261	-0.117	69.202
09/06/2013 12:48:17	9.8764	12.2985	-0.117	69.002
09/06/2013 12:48:27	9.8919	12.3348	-0.117	69.002

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 12:48:37	9.908	12.3586	-0.216	69.202
09/06/2013 12:48:47	9.8377	12.386	-0.216	69.601
09/06/2013 12:48:57	9.8246	12.3997	-0.117	69.601
09/06/2013 12:49:07	9.7729	12.3789	-0.117	69.901
09/06/2013 12:49:17	9.6283	12.3586	-0.216	70.101
09/06/2013 12:49:27	9.3985	12.3235	-0.216	71.003
09/06/2013 12:49:37	9.267	12.2824	-0.117	72.302
09/06/2013 12:49:47	9.2361	12.2491	-0.113	73.401
09/06/2013 12:49:57	9.2623	12.2241	-0.113	74.601
09/06/2013 12:50:07	9.3069	12.1914	-0.014	75.301
09/06/2013 12:50:17	9.3045	12.1557	-0.117	76.102
09/06/2013 12:50:27	9.2176	12.1194	-0.117	76.802
09/06/2013 12:50:37	9.2373	12.1134	-0.117	77.701
09/06/2013 12:50:47	9.2504	12.1212	-0.113	78.201
09/06/2013 12:50:57	9.2902	12.1247	-0.113	78.901
09/06/2013 12:51:07	9.348	12.1485	-0.113	79.303
09/06/2013 12:51:17	9.3271	12.1718	-0.014	79.702
09/06/2013 12:51:27	9.0754	12.1771	-0.014	79.502
09/06/2013 12:51:37	9.0778	12.1795	-0.014	79.801
09/06/2013 12:51:47	9.0706	12.1985	-0.014	80.202
09/06/2013 12:51:57	9.0891	12.2069	-0.014	80.202
09/06/2013 12:52:07	9.1385	12.2384	-0.014	79.101
09/06/2013 12:52:17	9.1551	12.3003	-0.014	77.701
09/06/2013 12:52:27	9.1093	12.3366	-0.014	76.202
09/06/2013 12:52:37	9.1117	12.3378	-0.113	74.302
09/06/2013 12:52:47	9.0927	12.3259	-0.212	74.302
09/06/2013 12:52:57	9.0843	12.3223	-0.212	74.601
09/06/2013 12:53:07	9.0623	12.3271	-0.212	74.101
09/06/2013 12:53:17	9.054	12.3253	-0.014	73.502
09/06/2013 12:53:27	8.8963	12.3068	0.081	73.502
09/06/2013 12:53:37	8.3065	12.3116	-0.018	73.401
09/06/2013 12:53:47	8.2821	12.3164	-0.216	72.302
09/06/2013 12:53:57	8.2904	12.3241	-0.216	72.102
09/06/2013 12:54:07	8.2988	12.3063	-0.113	71.702
09/06/2013 12:54:17	8.3077	12.2967	-0.113	71.702
09/06/2013 12:54:27	8.2678	12.2622	-0.216	71.602
09/06/2013 12:54:37	8.2244	12.2271	-0.117	71.003
09/06/2013 12:54:47	8.2077	12.1622	-0.117	70.702
09/06/2013 12:54:57	8.1077	12.0884	-0.113	71.402
09/06/2013 12:55:07	6.7723	12.0379	-0.216	71.202
09/06/2013 12:55:17	6.3903	11.8885	-0.216	71.202
09/06/2013 12:55:27	6.7973	11.7349	-0.216	71.003
09/06/2013 12:55:37	6.9145	11.6129	-0.216	71.202
09/06/2013 12:55:47	7.0312	11.5755	-0.117	71.202
09/06/2013 12:55:57	7.0996	11.5755	-0.117	70.801
09/06/2013 12:56:07	7.0407	11.6225	-0.216	70.101
09/06/2013 12:56:17	6.8158	11.6826	-0.216	69.802
09/06/2013 12:56:27	6.9288	11.7177	-0.216	69.802
09/06/2013 12:56:37	7.077	11.7159	-0.014	69.802
09/06/2013 12:56:47	7.3186	11.732	-0.014	70.101
09/06/2013 12:56:57	7.5335	11.754	-0.216	70.502
09/06/2013 12:57:07	7.6983	11.832	-0.216	70.801
09/06/2013 12:57:17	7.7882	11.832	-0.117	70.702
09/06/2013 12:57:27	7.8269	11.8224	-0.216	70.101
09/06/2013 12:57:37	7.8643	11.8195	-0.117	69.901
09/06/2013 12:57:47	7.8798	11.8266	-0.117	69.901
09/06/2013 12:57:57	7.9114	11.8379	-0.216	70.101
Start Run 8				
09/06/2013 12:58:07	7.9703	11.8177	-0.216	70.101
09/06/2013 12:58:17	8.0536	11.7968	-0.117	70.101
09/06/2013 12:58:27	8.0679	11.8004	-0.113	69.802
09/06/2013 12:58:37	8.1375	11.8189	-0.117	69.401
09/06/2013 12:58:47	8.1387	11.8558	-0.113	69.601
09/06/2013 12:58:57	8.1714	11.942	-0.117	68.901
09/06/2013 12:59:07	8.1774	11.9807	-0.117	68.502
09/06/2013 12:59:17	8.169	12.0182	-0.117	68.901
09/06/2013 12:59:27	8.2244	12.0504	-0.117	69.202
09/06/2013 12:59:37	8.2446	12.0753	-0.113	69.002
09/06/2013 12:59:47	8.2702	12.1134	-0.117	69.202
09/06/2013 12:59:57	8.269	12.1575	-0.113	69.002
09/06/2013 13:00:07	8.2559	12.2003	-0.117	68.901
09/06/2013 13:00:17	8.2339	12.242	-0.216	68.901
09/06/2013 13:00:27	8.2351	12.2336	-0.216	69.002
09/06/2013 13:00:37	8.169	12.2241	-0.216	69.401
09/06/2013 13:00:47	8.0798	12.2206	-0.216	69.002
09/06/2013 13:00:57	7.9387	12.2348	-0.216	69.002
09/06/2013 13:01:07	7.9316	12.2402	-0.117	69.002
09/06/2013 13:01:17	7.9548	12.2563	-0.117	69.002
09/06/2013 13:01:27	7.9102	12.2813	-0.117	69.202
09/06/2013 13:01:37	7.8292	12.3128	-0.113	69.901
09/06/2013 13:01:47	7.7537	12.3241	-0.117	70.101
09/06/2013 13:01:57	7.7221	12.3497	-0.113	70.101
09/06/2013 13:02:07	7.7209	12.3509	-0.014	70.301
09/06/2013 13:02:17	7.7281	12.3509	-0.014	71.402
09/06/2013 13:02:27	7.834	12.3366	-0.117	71.702
09/06/2013 13:02:37	7.8245	12.3318	0.081	72.501
09/06/2013 13:02:47	7.8596	12.3366	0.184	73.701
09/06/2013 13:02:57	7.8774	12.3539	0.085	74.801
09/06/2013 13:03:07	7.9173	12.3967	-0.014	75.301

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 13:03:17	7.9137	12.4509	0.081	75.902
09/06/2013 13:03:27	7.8751	12.4759	0.081	76.802
09/06/2013 13:03:37	7.8185	12.4521	-0.113	77.001
09/06/2013 13:03:47	7.8197	12.4015	-0.117	77.102
09/06/2013 13:03:57	7.8489	12.3765	0.081	77.701
09/06/2013 13:04:07	7.8114	12.3616	0.184	77.701
09/06/2013 13:04:17	7.828	12.3604	0.081	77.701
09/06/2013 13:04:27	7.6822	12.3681	0.081	77.901
09/06/2013 13:04:37	7.6727	12.3717	0.085	78.401
09/06/2013 13:04:47	7.6763	12.3872	-0.216	79.101
09/06/2013 13:04:57	7.7233	12.4223	-0.212	79.101
09/06/2013 13:05:07	7.7525	12.4521	-0.216	77.502
09/06/2013 13:05:17	7.7822	12.4723	-0.216	76.202
09/06/2013 13:05:27	7.7935	12.5026	-0.117	75.502
09/06/2013 13:05:37	7.8352	12.5235	-0.117	75.301
09/06/2013 13:05:47	7.9245	12.536	-0.014	74.601
09/06/2013 13:05:57	8.0459	12.5693	0.085	73.901
09/06/2013 13:06:07	8.1988	12.5866	-0.014	72.802
09/06/2013 13:06:17	8.3857	12.6038	-0.113	73.002
09/06/2013 13:06:27	8.5362	12.6342	-0.113	73.201
09/06/2013 13:06:37	8.6267	12.683	-0.113	72.802
09/06/2013 13:06:47	8.6939	12.6717	-0.117	71.702
09/06/2013 13:06:57	8.5987	12.6401	-0.216	72.102
09/06/2013 13:07:07	8.6023	12.6467	-0.216	71.902
09/06/2013 13:07:17	8.6386	12.6943	-0.216	71.202
09/06/2013 13:07:27	8.6541	12.7085	-0.212	70.801
09/06/2013 13:07:37	8.6552	12.6972	-0.117	70.801
09/06/2013 13:07:47	8.6588	12.6657	-0.117	70.801
09/06/2013 13:07:57	8.6255	12.6407	-0.014	71.003
09/06/2013 13:08:07	8.5892	12.6181	0.081	70.801
09/06/2013 13:08:17	8.56	12.6008	-0.018	70.702
09/06/2013 13:08:27	8.635	12.5758	0.184	70.502
09/06/2013 13:08:37	8.616	12.5633	0.18	70.702
09/06/2013 13:08:47	8.594	12.552	-0.117	70.801
09/06/2013 13:08:57	8.6082	12.5502	-0.014	70.702
09/06/2013 13:09:07	8.5785	12.5467	0.184	70.101
09/06/2013 13:09:17	8.5868	12.5467	0.284	69.901
09/06/2013 13:09:27	8.5565	12.5378	0.081	70.702
09/06/2013 13:09:37	8.5588	12.5348	0.184	69.802
09/06/2013 13:09:47	8.5576	12.5378	0.184	69.202
09/06/2013 13:09:57	8.5701	12.5378	-0.014	69.601
09/06/2013 13:10:07	8.5749	12.5467	-0.117	70.301
09/06/2013 13:10:17	8.5654	12.552	-0.117	70.502
09/06/2013 13:10:27	8.5666	12.5657	-0.216	69.901
09/06/2013 13:10:37	8.5446	12.555	-0.316	69.901
09/06/2013 13:10:47	8.541	12.5538	-0.113	69.802
09/06/2013 13:10:57	8.5422	12.5455	-0.117	70.502
09/06/2013 13:11:07	8.5219	12.5395	-0.316	71.202
09/06/2013 13:11:17	8.5231	12.5342	-0.216	71.702
09/06/2013 13:11:27	8.4833	12.5312	-0.117	71.902
09/06/2013 13:11:37	8.441	12.5348	-0.117	72.501
09/06/2013 13:11:47	8.447	12.5253	-0.014	73.201
09/06/2013 13:11:57	8.4505	12.4979	-0.113	74.302
09/06/2013 13:12:07	8.4785	12.4949	-0.216	75.202
09/06/2013 13:12:17	8.4725	12.4979	-0.117	76.102
09/06/2013 13:12:27	8.4267	12.5229	-0.117	76.202
09/06/2013 13:12:37	8.3988	12.5104	-0.216	77.302
09/06/2013 13:12:47	8.3738	12.4646	-0.216	77.701
09/06/2013 13:12:57	8.3208	12.4205	-0.216	77.901
09/06/2013 13:13:07	8.3327	12.3884	-0.216	78.401
09/06/2013 13:13:17	8.3494	12.3366	-0.117	79.101
09/06/2013 13:13:27	8.3541	12.3336	-0.117	79.801
09/06/2013 13:13:37	8.3351	12.3211	-0.014	80.602
09/06/2013 13:13:47	8.3012	12.314	-0.117	80.702
09/06/2013 13:13:57	8.3	12.314	-0.216	80.702
09/06/2013 13:14:07	8.3	12.3068	-0.113	80.402
09/06/2013 13:14:17	8.3125	12.3098	-0.117	79.303
09/06/2013 13:14:27	8.3035	12.3318	-0.014	77.502
09/06/2013 13:14:37	8.2976	12.3479	-0.113	76.102
09/06/2013 13:14:47	8.3101	12.3318	-0.216	75.202
09/06/2013 13:14:57	8.253	12.3283	-0.113	74.601
09/06/2013 13:15:07	8.2053	12.3497	-0.014	74.601
09/06/2013 13:15:17	8.1619	12.2735	-0.014	74.101
09/06/2013 13:15:27	8.1399	12.2212	-0.113	73.401
09/06/2013 13:15:37	8.1054	12.186	-0.117	72.501
09/06/2013 13:15:47	8.0714	12.139	-0.117	71.702
09/06/2013 13:15:57	8.0363	12.0962	-0.113	72.302
09/06/2013 13:16:07	7.9608	12.0515	-0.113	71.902
09/06/2013 13:16:17	7.9078	12.0313	-0.117	71.702
09/06/2013 13:16:27	8.0304	12.0373	-0.113	71.602
09/06/2013 13:16:37	8.1619	12.0688	-0.216	71.702
09/06/2013 13:16:47	8.2339	12.142	-0.113	71.702
09/06/2013 13:16:57	8.2774	12.2039	0.081	71.702
09/06/2013 13:17:07	8.3113	12.267	-0.014	71.702
09/06/2013 13:17:17	8.369	12.3193	-0.113	71.602
09/06/2013 13:17:27	8.4291	12.3836	-0.117	71.602
09/06/2013 13:17:37	8.4529	12.4699	-0.117	71.202
09/06/2013 13:17:47	8.4987	12.5235	-0.113	69.901
09/06/2013 13:17:57	8.4987	12.5467	-0.113	69.401

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 13:18:07	8.4773	12.5901	-0.113	69.401
09/06/2013 13:18:17	8.5136	12.5913	-0.117	69.901
09/06/2013 13:18:27	8.4928	12.602	-0.014	69.901
09/06/2013 13:18:37	8.4678	12.6276	-0.014	69.802
09/06/2013 13:18:47	8.4493	12.6169	-0.117	69.401
09/06/2013 13:18:57	8.4351	12.5866	-0.113	69.601
End Run 8				
Average	**8.241813**	**12.38369**	**-0.085468**	**72.67377**
Maximum	**8.6939**	**12.7085**	**0.284**	**80.702**
Minimum	**7.6727**	**11.7968**	**-0.316**	**68.502**
09/06/2013 13:19:07	8.3809	12.5538	-0.113	69.401
09/06/2013 13:19:17	8.341	12.5217	-0.113	69.002
09/06/2013 13:19:27	8.3315	12.4824	-0.113	69.202
09/06/2013 13:19:37	8.4761	12.4538	-0.117	69.002
09/06/2013 13:19:47	8.488	12.4271	-0.117	69.202
09/06/2013 13:19:57	8.4618	12.4217	-0.113	69.202
09/06/2013 13:20:07	8.4553	12.4318	-0.014	69.202
09/06/2013 13:20:17	8.4184	12.414	-0.014	69.202
09/06/2013 13:20:27	8.4267	12.4044	-0.113	69.002
09/06/2013 13:20:37	8.4255	12.3872	-0.216	69.601
09/06/2013 13:20:47	8.4505	12.3795	-0.117	69.802
09/06/2013 13:20:57	8.4773	12.3872	-0.216	69.802
09/06/2013 13:21:07	8.4725	12.4062	-0.216	69.802
09/06/2013 13:21:17	8.488	12.4318	-0.113	69.401
09/06/2013 13:21:27	8.4904	12.4425	-0.117	69.401
09/06/2013 13:21:37	8.4702	12.4663	-0.117	69.802
09/06/2013 13:21:47	8.4327	12.4538	-0.117	69.202
Calibration Bias				
09/06/2013 13:21:57	0.4879	12.4217	-0.014	69.002
09/06/2013 13:22:07	0.0291	10.0573	-0.018	69.601
09/06/2013 13:22:17	0.0136	0.729	0.081	69.601
09/06/2013 13:22:27	0.0053	0.1106	0.383	68.901
09/06/2013 13:22:37	0.0017	0.0868	0.383	68.701
09/06/2013 13:22:47	0.00055	0.0642	0.18	68.901
09/06/2013 13:22:57	0.00055	0.0505	0.081	69.202
N2 Zero		**0.067167**	**0.214667**	
09/06/2013 13:23:07	-0.0018	0.0476	-0.018	69.601
09/06/2013 13:23:17	-0.003	0.038	0.081	69.802
09/06/2013 13:23:27	-0.0042	0.0374	0.184	69.601
09/06/2013 13:23:37	-0.0042	0.0309	0.284	69.401
09/06/2013 13:23:47	-0.0054	0.0267	0.383	69.002
09/06/2013 13:23:57	-0.0078	0.0333	0.581	69.802
09/06/2013 13:24:07	-0.0078	0.0249	0.98	70.702
09/06/2013 13:24:17	-0.009	0.022	6.084	70.702
09/06/2013 13:24:27	-0.009	0.019	18.7	70.801
09/06/2013 13:24:37	-0.009	0.0202	33.116	71.602
09/06/2013 13:24:47	-0.0078	0.0184	41.525	72.802
09/06/2013 13:24:57	-0.0066	0.0125	44.423	74.302
09/06/2013 13:25:07	-0.0066	0.0107	44.923	75.502
09/06/2013 13:25:17	-0.0066	0.016	44.923	75.702
09/06/2013 13:25:27	-0.0066	0.0172	45.026	75.502
09/06/2013 13:25:37	-0.0066	0.0142	45.427	75.702
09/06/2013 13:25:47	-0.0054	0.0125	45.327	75.902
46.3 ppm CO Mid			**45.26**	
09/06/2013 13:25:57	0.257	0.0113	44.927	76.402
09/06/2013 13:26:07	1.9222	0.0184	44.927	77.001
09/06/2013 13:26:17	1.9412	0.7748	44.927	77.302
09/06/2013 13:26:27	1.9513	1.9983	42.824	77.502
09/06/2013 13:26:37	1.9561	2.0489	33.021	77.701
09/06/2013 13:26:47	1.962	2.0561	18.399	78.201
2.07% O2 Low	**1.956467**			
09/06/2013 13:26:57	2.819	2.0555	7.486	78.901
09/06/2013 13:27:07	9.4622	2.059	2.186	78.901
09/06/2013 13:27:17	9.6271	3.5349	0.885	78.201
09/06/2013 13:27:27	9.6473	9.461	0.682	76.802
09/06/2013 13:27:37	9.6646	9.921	0.482	75.702
09/06/2013 13:27:47	9.661	9.9532	0.184	75.301
09/06/2013 13:27:57	9.6646	9.9621	0.081	74.401
09/06/2013 13:28:07	9.68	9.9669	-0.014	73.901
09/06/2013 13:28:17	9.6741	9.9722	-0.113	72.802
10.1% O2 Mid	**9.6729**	**9.967067**		
09/06/2013 13:28:27	10.3448	9.9704	-0.216	72.102
09/06/2013 13:28:37	11.4588	9.9734	-0.216	71.602
09/06/2013 13:28:47	11.3047	10.7602	-0.212	71.202
09/06/2013 13:28:57	11.266	12.2003	-0.216	70.801
09/06/2013 13:29:07	11.213	12.2926	-0.316	71.003
09/06/2013 13:29:17	11.1119	12.3318	-0.316	71.003
09/06/2013 13:29:27	11.0107	12.3158	-0.316	71.003
09/06/2013 13:29:37	10.8941	12.3146	-0.316	71.003
09/06/2013 13:29:47	10.7816	12.2753	-0.212	71.003
09/06/2013 13:29:57	10.7036	12.2289	-0.216	70.702
09/06/2013 13:30:07	10.5977	12.1896	-0.216	70.801
09/06/2013 13:30:17	10.5179	12.1926	-0.117	71.003
09/06/2013 13:30:27	10.4376	12.1658	-0.117	70.702
09/06/2013 13:30:37	10.3602	12.1605	-0.216	69.901
09/06/2013 13:30:47	10.3097	12.1724	-0.216	69.901
09/06/2013 13:30:57	10.2002	12.1813	-0.113	70.502
09/06/2013 13:31:07	10.099	12.1795	-0.216	69.901

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 13:31:17	10.0591	12.1515	-0.216	69.802
09/06/2013 13:31:27	9.9294	12.1247	-0.014	69.802
09/06/2013 13:31:37	9.8871	12.1009	-0.113	69.802
09/06/2013 13:31:47	9.827	12.0742	-0.117	69.802
09/06/2013 13:31:57	9.7116	12.017	-0.117	70.301
09/06/2013 13:32:07	9.6681	11.9486	-0.117	69.802
09/06/2013 13:32:17	9.6538	11.9171	-0.113	69.202
09/06/2013 13:32:27	9.6473	11.8742	-0.216	69.401
09/06/2013 13:32:37	9.6461	11.8558	-0.113	69.601
09/06/2013 13:32:47	9.6776	11.9266	-0.014	69.601
09/06/2013 13:32:57	9.6848	11.9914	-0.113	69.601
09/06/2013 13:33:07	9.4271	12.0486	-0.014	69.202
09/06/2013 13:33:17	9.3682	12.0944	-0.014	69.601
09/06/2013 13:33:27	9.2849	12.0926	-0.014	69.601
09/06/2013 13:33:37	9.1926	12.0188	-0.014	69.601
09/06/2013 13:33:47	9.1319	11.9325	-0.014	69.601
09/06/2013 13:33:57	9.1272	11.8677	-0.117	69.901
09/06/2013 13:34:07	9.0766	11.8064	-0.117	69.601
09/06/2013 13:34:17	9.0272	11.7933	0.085	69.601
09/06/2013 13:34:27	8.9766	11.7355	0.184	69.601
09/06/2013 13:34:37	8.9576	11.6784	0.081	69.002
09/06/2013 13:34:47	8.9867	11.6653	0.081	69.002
09/06/2013 13:34:57	9.0468	11.6814	-0.117	69.002
09/06/2013 13:35:07	9.026	11.7492	-0.113	68.901
09/06/2013 13:35:17	8.9939	11.7861	-0.216	68.901
09/06/2013 13:35:27	9.0314	11.8242	-0.216	69.401
09/06/2013 13:35:37	9.0802	11.8599	-0.216	69.401
09/06/2013 13:35:47	9.0421	11.8962	-0.216	69.202
09/06/2013 13:35:57	9.0659	11.9444	-0.117	69.202
09/06/2013 13:36:07	9.1081	11.9046	-0.216	69.401
09/06/2013 13:36:17	9.1825	11.9772	-0.216	69.901
09/06/2013 13:36:27	8.6219	12.0521	-0.216	70.101
09/06/2013 13:36:37	8.6725	12.1652	-0.216	70.101
09/06/2013 13:36:47	8.56	12.3747	-0.117	70.301
09/06/2013 13:36:57	8.5999	12.5247	-0.117	71.202
09/06/2013 13:37:07	8.5713	12.5818	-0.216	72.602
09/06/2013 13:37:17	8.5291	12.6139	-0.216	73.701
09/06/2013 13:37:27	8.4577	12.5568	-0.117	74.401
09/06/2013 13:37:37	8.4059	12.4616	-0.216	75.202
09/06/2013 13:37:47	8.3172	12.3318	-0.117	75.902
09/06/2013 13:37:57	8.2387	12.2146	-0.014	75.902
Start Run 9				
09/06/2013 13:38:07	8.1292	12.0801	-0.117	76.402
09/06/2013 13:38:17	7.9834	11.9266	-0.117	76.802
09/06/2013 13:38:27	7.8917	11.7712	-0.216	77.302
09/06/2013 13:38:37	7.8935	11.6153	-0.212	77.502
09/06/2013 13:38:47	7.8881	11.51	-0.117	77.502
09/06/2013 13:38:57	7.9465	11.482	-0.117	78.002
09/06/2013 13:39:07	7.9423	11.4677	-0.014	78.401
09/06/2013 13:39:17	7.9399	11.4785	-0.014	78.401
09/06/2013 13:39:27	7.9066	11.507	-0.117	77.302
09/06/2013 13:39:37	7.9268	11.529	-0.117	76.102
09/06/2013 13:39:47	7.9233	11.507	-0.216	75.702
09/06/2013 13:39:57	7.9197	11.4933	-0.216	75.202
09/06/2013 13:40:07	7.9304	11.4838	-0.117	74.401
09/06/2013 13:40:17	7.9197	11.485	-0.117	74.101
09/06/2013 13:40:27	7.9786	11.5201	-0.014	73.901
09/06/2013 13:40:37	8.0447	11.5052	-0.113	73.502
09/06/2013 13:40:47	8.0643	11.5868	-0.316	72.802
09/06/2013 13:40:57	8.056	11.6731	-0.113	72.802
09/06/2013 13:41:07	8.0584	11.7129	-0.014	72.501
09/06/2013 13:41:17	8.0703	11.7349	-0.117	72.102
09/06/2013 13:41:27	8.028	11.7641	-0.216	72.501
09/06/2013 13:41:37	7.9959	11.7796	-0.216	72.501
09/06/2013 13:41:47	7.9762	11.754	-0.216	72.302
09/06/2013 13:41:57	7.9572	11.7213	-0.117	72.302
09/06/2013 13:42:07	7.9292	11.6861	-0.117	72.102
09/06/2013 13:42:17	7.8786	11.6445	-0.014	72.102
09/06/2013 13:42:27	7.8465	11.6058	-0.117	71.902
09/06/2013 13:42:37	7.8893	11.529	-0.117	71.003
09/06/2013 13:42:47	7.9054	11.4975	-0.216	70.801
09/06/2013 13:42:57	7.9489	11.5267	-0.117	70.702
09/06/2013 13:43:07	7.9703	11.5725	-0.216	70.702
09/06/2013 13:43:17	7.9536	11.629	-0.014	70.502
09/06/2013 13:43:27	7.975	11.6975	-0.014	70.301
09/06/2013 13:43:37	5.816	11.704	-0.014	70.101
09/06/2013 13:43:47	7.1597	11.7064	0.081	70.502
09/06/2013 13:43:57	7.3127	11.6796	-0.018	70.702
09/06/2013 13:44:07	7.255	11.6415	-0.014	70.801
09/06/2013 13:44:17	7.2502	11.5749	-0.014	70.502
09/06/2013 13:44:27	7.2383	11.5469	-0.014	70.702
09/06/2013 13:44:37	7.5079	11.5386	-0.113	70.801
09/06/2013 13:44:47	7.7858	11.5023	-0.117	70.502
09/06/2013 13:44:57	7.903	11.5308	-0.216	70.502
09/06/2013 13:45:07	7.9655	11.5505	-0.216	70.702
09/06/2013 13:45:17	7.9703	11.5689	-0.014	70.702
09/06/2013 13:45:27	7.9209	11.5868	0.081	70.702
09/06/2013 13:45:37	7.9042	11.582	-0.014	70.301
09/06/2013 13:45:47	7.8477	11.5546	-0.014	70.101

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 13:45:57	7.8042	11.5154	-0.113	69.601
09/06/2013 13:46:07	7.7269	11.4648	-0.117	69.601
09/06/2013 13:46:17	7.7007	11.3951	-0.216	70.101
09/06/2013 13:46:27	7.6525	11.338	-0.117	70.101
09/06/2013 13:46:37	7.6477	11.313	-0.014	69.901
09/06/2013 13:46:47	7.69	11.3047	-0.117	69.601
09/06/2013 13:46:57	7.7126	11.3428	-0.113	69.802
09/06/2013 13:47:07	7.7644	11.3969	-0.014	69.802
09/06/2013 13:47:17	7.781	11.4618	-0.014	69.601
09/06/2013 13:47:27	7.7584	11.5267	-0.212	69.601
09/06/2013 13:47:37	7.756	11.5671	-0.014	70.101
09/06/2013 13:47:47	7.2514	11.5725	0.081	70.301
09/06/2013 13:47:57	5.9415	11.5749	-0.014	70.301
09/06/2013 13:48:07	6.11	11.6165	-0.117	70.101
09/06/2013 13:48:17	6.2546	11.6653	-0.117	69.802
09/06/2013 13:48:27	5.0465	11.6832	-0.014	69.802
09/06/2013 13:48:37	4.5508	11.6683	-0.018	69.901
09/06/2013 13:48:47	5.7934	11.6671	-0.216	70.702
09/06/2013 13:48:57	6.6842	11.7284	-0.014	71.402
09/06/2013 13:49:07	7.5198	11.8076	-0.014	71.402
09/06/2013 13:49:17	7.8608	11.8552	-0.216	71.602
09/06/2013 13:49:27	8.0726	11.898	-0.216	72.302
09/06/2013 13:49:37	8.2315	11.8962	-0.117	73.401
09/06/2013 13:49:47	8.247	11.9295	0.081	74.101
09/06/2013 13:49:57	8.2446	11.9778	-0.018	74.801
09/06/2013 13:50:07	8.2422	11.9629	-0.117	74.801
09/06/2013 13:50:17	8.2268	11.942	-0.014	75.002
09/06/2013 13:50:27	8.2518	11.9325	-0.117	75.301
09/06/2013 13:50:37	8.3035	11.9325	-0.014	76.102
09/06/2013 13:50:47	8.3196	11.9658	-0.014	77.001
09/06/2013 13:50:57	8.3702	11.9819	-0.216	77.502
09/06/2013 13:51:07	8.4184	11.9825	-0.117	78.002
09/06/2013 13:51:17	8.4773	11.9855	-0.014	78.201
09/06/2013 13:51:27	8.5374	12.023	-0.014	78.002
09/06/2013 13:51:37	8.5844	12.0813	-0.014	78.201
09/06/2013 13:51:47	8.6035	12.1372	-0.014	78.802
09/06/2013 13:51:57	8.6047	12.1991	-0.014	78.601
09/06/2013 13:52:07	8.6207	12.2182	-0.014	77.302
09/06/2013 13:52:17	8.5255	12.1878	0.081	76.402
09/06/2013 13:52:27	8.4255	12.1724	0.081	75.502
09/06/2013 13:52:37	8.347	12.1182	-0.014	74.401
09/06/2013 13:52:47	6.9818	11.992	-0.014	74.601
09/06/2013 13:52:57	6.7503	11.9331	-0.014	74.401
09/06/2013 13:53:07	6.2439	11.9325	0.081	74.302
09/06/2013 13:53:17	6.3087	11.9968	0.081	73.901
09/06/2013 13:53:27	5.3018	12.0664	0.184	73.002
09/06/2013 13:53:37	5.4994	12.1087	0.184	72.102
09/06/2013 13:53:47	5.6101	12.1099	0.081	72.302
09/06/2013 13:53:57	5.5827	12.0563	-0.014	72.102
09/06/2013 13:54:07	5.7112	11.9647	-0.014	71.602
09/06/2013 13:54:17	5.9523	11.851	-0.014	71.602
09/06/2013 13:54:27	5.5511	11.726	-0.014	71.202
09/06/2013 13:54:37	5.497	11.6213	-0.014	71.003
09/06/2013 13:54:47	5.638	11.51	-0.018	71.003
09/06/2013 13:54:57	5.6571	11.4314	0.184	70.702
09/06/2013 13:55:07	5.6779	11.4975	0.184	70.502
09/06/2013 13:55:17	5.7273	11.4094	0.184	70.502
09/06/2013 13:55:27	5.7208	11.2952	0.284	70.702
09/06/2013 13:55:37	5.7767	11.2196	0.085	71.003
09/06/2013 13:55:47	5.9267	11.172	-0.014	71.402
09/06/2013 13:55:57	6.3569	11.1321	-0.113	71.202
09/06/2013 13:56:07	6.7455	11.1178	-0.014	70.801
09/06/2013 13:56:17	7.0467	11.1071	-0.113	70.702
09/06/2013 13:56:27	7.1657	11.0976	-0.212	70.702
09/06/2013 13:56:37	7.2901	11.0994	-0.113	70.502
09/06/2013 13:56:47	7.4257	11.1083	-0.113	70.301
09/06/2013 13:56:57	7.4924	11.1357	-0.216	69.802
09/06/2013 13:57:07	7.543	11.1952	-0.014	69.901
09/06/2013 13:57:17	7.5549	11.2464	-0.117	69.802
09/06/2013 13:57:27	7.5811	11.2773	-0.316	69.601
09/06/2013 13:57:37	7.5912	11.3112	-0.014	69.002
09/06/2013 13:57:47	7.5864	11.3475	-0.113	69.202
09/06/2013 13:57:57	7.6305	11.3678	0.085	69.202
09/06/2013 13:58:07	7.6811	11.366	0.284	69.002
09/06/2013 13:58:17	7.7644	11.3666	0.184	68.901
09/06/2013 13:58:27	7.8548	11.3648	0.081	68.901
09/06/2013 13:58:37	7.8632	11.3999	0.085	69.202
09/06/2013 13:58:47	7.8066	11.4279	0.081	69.202
09/06/2013 13:58:57	7.815	11.4314	-0.117	69.901
End Run 9				
Average	**7.429177**	**11.63118**	**-0.053587**	**72.3707**
Maximum	**8.6207**	**12.2182**	**0.284**	**78.802**
Minimum	**4.5508**	**11.0976**	**-0.316**	**68.901**
09/06/2013 13:59:07	7.8233	11.4249	-0.113	69.601
09/06/2013 13:59:17	7.7739	11.4666	-0.014	69.601
09/06/2013 13:59:27	7.6632	11.5005	-0.014	69.901
Calibration Bias				
09/06/2013 13:59:37	0.2844	11.4737	-0.113	70.101

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 13:59:47	0.022	7.8179	-0.117	69.601
09/06/2013 13:59:57	0.0101	0.4838	0.18	69.002
09/06/2013 14:00:07	0.0017	0.0952	0.383	68.701
09/06/2013 14:00:17	0.00055	0.0678	0.184	69.002
09/06/2013 14:00:27	-0.00064	0.0553	0.284	68.502
09/06/2013 14:00:37	-0.003	0.0476	0.081	68.502
09/06/2013 14:00:47	-0.003	0.0488	0.081	68.502
09/06/2013 14:00:57	-0.0042	0.0392	0.081	68.701
N2 Zero		**0.0452**	**0.081**	
09/06/2013 14:01:07	-0.0042	0.0315	-0.014	69.202
09/06/2013 14:01:17	-0.0018	0.0315	0.081	68.901
09/06/2013 14:01:27	-0.0066	0.0297	0.18	68.302
09/06/2013 14:01:37	-0.0078	0.0279	0.081	68.102
09/06/2013 14:01:47	-0.009	0.0202	0.781	68.302
09/06/2013 14:01:57	-0.009	0.0208	6.584	68.701
09/06/2013 14:02:07	-0.0078	0.0202	19.496	68.701
09/06/2013 14:02:17	-0.0054	0.019	33.516	69.202
09/06/2013 14:02:27	-0.0054	0.016	41.628	69.601
09/06/2013 14:02:37	-0.0066	0.016	44.526	69.901
09/06/2013 14:02:47	-0.0066	0.016	45.327	70.101
09/06/2013 14:02:57	-0.0066	0.016	45.228	70.301
09/06/2013 14:03:07	-0.0042	0.0154	45.026	71.702
09/06/2013 14:03:17	-0.0054	0.0107	45.125	73.401
46.3 ppm CO Mid			**45.12633**	
09/06/2013 14:03:27	0.0833	0.0202	45.125	73.701
09/06/2013 14:03:37	1.9174	0.0154	45.228	74.302
09/06/2013 14:03:47	1.9436	0.7718	45.224	74.601
09/06/2013 14:03:57	1.9525	1.9245	43.923	75.202
09/06/2013 14:04:07	1.9513	2.0537	35.919	75.502
09/06/2013 14:04:17	1.9525	2.0561	21.902	76.102
2.07% O2 Low	**1.9521**			
09/06/2013 14:04:27	2.2233	2.0561	9.789	76.602
09/06/2013 14:04:37	9.4188	2.0537	3.384	77.102
09/06/2013 14:04:47	9.5931	3.961	1.083	77.302
09/06/2013 14:04:57	9.6211	9.0415	0.482	77.102
09/06/2013 14:05:07	9.6211	9.9044	0.383	77.701
09/06/2013 14:05:17	9.6306	9.9407	0.284	78.601
09/06/2013 14:05:27	9.6211	9.9544	0.081	78.802
09/06/2013 14:05:37	9.6187	9.9597	-0.014	78.002
09/06/2013 14:05:47	9.633	9.9639	-0.014	77.001
10.1% O2 Mid	**9.624267**	**9.959333**		
09/06/2013 14:05:57	10.4156	9.9627	-0.014	75.702
09/06/2013 14:06:07	11.1732	9.9574	-0.117	75.002
09/06/2013 14:06:17	10.9637	10.7697	-0.113	74.401
09/06/2013 14:06:27	10.7447	12.1057	-0.113	73.701
09/06/2013 14:06:37	10.4894	12.2116	-0.113	72.802
09/06/2013 14:06:47	10.2495	12.0992	-0.113	72.501
09/06/2013 14:06:57	10.1389	11.9426	-0.014	72.102
09/06/2013 14:07:07	10.0073	11.7939	-0.117	72.302
09/06/2013 14:07:17	9.9062	11.7332	-0.014	72.501
09/06/2013 14:07:27	9.7979	11.6844	-0.014	71.902
09/06/2013 14:07:37	9.6657	11.6623	-0.014	71.202
09/06/2013 14:07:47	9.4069	11.6397	0.081	71.202
09/06/2013 14:07:57	9.3152	11.5939	-0.113	71.202
09/06/2013 14:08:07	9.2444	11.5308	-0.117	70.801
09/06/2013 14:08:17	9.295	11.4666	-0.014	70.702
09/06/2013 14:08:27	9.3515	11.4642	-0.014	70.801
09/06/2013 14:08:37	9.2385	11.4802	-0.117	70.801
09/06/2013 14:08:47	8.9867	11.529	-0.117	70.502
09/06/2013 14:08:57	9.0528	11.5058	-0.014	70.502
09/06/2013 14:09:07	9.095	11.4648	-0.113	70.301
09/06/2013 14:09:17	9.167	11.4785	-0.113	70.301
09/06/2013 14:09:27	9.2539	11.5278	-0.117	70.101
09/06/2013 14:09:37	9.148	11.61	-0.117	70.101
09/06/2013 14:09:47	8.9843	11.6945	-0.117	70.101
09/06/2013 14:09:57	8.8046	11.7189	-0.014	69.901
09/06/2013 14:10:07	8.6844	11.704	-0.014	69.901
09/06/2013 14:10:17	8.6255	11.6278	-0.014	69.901
09/06/2013 14:10:27	8.5892	11.5469	-0.014	69.601
09/06/2013 14:10:37	8.5529	11.4886	-0.113	69.901
09/06/2013 14:10:47	8.4845	11.4392	-0.014	69.901
09/06/2013 14:10:57	8.4172	11.36	0.081	69.601
09/06/2013 14:11:07	8.4255	11.2779	0.284	69.202
09/06/2013 14:11:17	8.4565	11.2731	0.383	69.002
09/06/2013 14:11:27	8.488	11.2981	0.383	68.701
09/06/2013 14:11:37	8.5094	11.3368	0.383	68.302
09/06/2013 14:11:47	8.5457	11.4088	-0.014	68.302
09/06/2013 14:11:57	8.3386	11.4546	-0.014	68.502
09/06/2013 14:12:07	8.1595	11.457	0.081	68.502
09/06/2013 14:12:17	8.1196	11.4392	-0.018	68.502
09/06/2013 14:12:27	8.1256	11.4308	-0.216	68.701
09/06/2013 14:12:37	8.1066	11.4076	-0.117	69.202
09/06/2013 14:12:47	8.0679	11.3999	-0.018	69.202
09/06/2013 14:12:57	8.0905	11.3612	0.081	69.401
09/06/2013 14:13:07	8.1399	11.3267	-0.014	68.901
09/06/2013 14:13:17	8.2	11.3636	-0.014	68.502
09/06/2013 14:13:27	8.228	11.438	0.081	68.302
09/06/2013 14:13:37	8.1988	11.5029	0.081	68.502
09/06/2013 14:13:47	8.1845	11.5249	0.081	68.701

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 14:13:57	8.1387	11.4927	0.284	69.002
09/06/2013 14:14:07	8.0762	11.4094	0.284	69.202
09/06/2013 14:14:17	7.9971	11.3422	0.284	69.802
09/06/2013 14:14:27	7.9316	11.2672	0.18	70.301
09/06/2013 14:14:37	7.8983	11.1749	0.184	70.502
09/06/2013 14:14:47	7.8917	11.0928	0.081	71.202
09/06/2013 14:14:57	7.8584	11.0613	-0.014	72.602
09/06/2013 14:15:07	7.8572	11.044	0.184	73.502
09/06/2013 14:15:17	7.8786	10.9946	0.383	74.302
09/06/2013 14:15:27	7.3996	11.0149	0.383	75.002
09/06/2013 14:15:37	7.0782	11.072	0.184	75.902
09/06/2013 14:15:47	7.1312	11.1523	0.284	76.402
09/06/2013 14:15:57	7.1335	11.2095	0.081	77.001
Start Run 10				
09/06/2013 14:16:07	7.1734	11.2702	-0.014	77.001
09/06/2013 14:16:17	7.1829	11.3059	-0.014	78.002
09/06/2013 14:16:27	7.1621	11.3315	0.184	78.401
09/06/2013 14:16:37	7.1984	11.3648	0.284	78.401
09/06/2013 14:16:47	7.3466	11.3565	0.284	79.101
09/06/2013 14:16:57	7.5031	11.4344	0.081	79.101
09/06/2013 14:17:07	7.6727	11.5392	-0.014	79.801
09/06/2013 14:17:17	7.8304	11.6498	-0.014	79.303
09/06/2013 14:17:27	7.981	11.8189	-0.014	78.002
09/06/2013 14:17:37	8.0774	11.9712	-0.014	77.001
09/06/2013 14:17:47	8.0857	12.0646	0.184	76.102
09/06/2013 14:17:57	8.0595	12.1003	0.284	75.202
09/06/2013 14:18:07	8.0054	12.0992	0.081	74.401
09/06/2013 14:18:17	7.9655	12.0533	0.081	74.401
09/06/2013 14:18:27	7.9066	11.9902	0.284	73.901
09/06/2013 14:18:37	7.8126	11.9278	0.184	73.701
09/06/2013 14:18:47	7.7441	11.8266	0.081	73.901
09/06/2013 14:18:57	7.662	11.7082	0.284	73.201
09/06/2013 14:19:07	7.584	11.585	0.482	72.602
09/06/2013 14:19:17	7.5442	11.4689	0.284	71.702
09/06/2013 14:19:27	7.4829	11.4422	0.184	71.202
09/06/2013 14:19:37	7.4299	11.4457	0.085	71.402
09/06/2013 14:19:47	7.343	11.4189	-0.014	71.003
09/06/2013 14:19:57	7.2311	11.3571	-0.014	71.202
09/06/2013 14:20:07	7.1347	11.2725	-0.014	71.003
09/06/2013 14:20:17	7.0865	11.1732	-0.014	70.702
09/06/2013 14:20:27	7.036	11.0738	-0.014	70.301
09/06/2013 14:20:37	7.1008	11.0006	-0.113	70.301
09/06/2013 14:20:47	7.1455	10.947	-0.113	70.502
09/06/2013 14:20:57	7.1758	10.9202	-0.117	70.301
09/06/2013 14:21:07	7.2347	10.8952	-0.117	70.301
09/06/2013 14:21:17	7.3371	10.8976	-0.113	70.502
09/06/2013 14:21:27	7.4019	10.969	-0.117	70.101
09/06/2013 14:21:37	7.4478	11.0756	-0.113	69.802
09/06/2013 14:21:47	6.526	11.1607	-0.216	69.901
09/06/2013 14:21:57	6.7539	11.2267	-0.117	69.802
09/06/2013 14:22:07	7.008	11.3083	-0.117	69.601
09/06/2013 14:22:17	7.0675	11.335	-0.113	69.901
09/06/2013 14:22:27	7.0723	11.3344	-0.014	70.502
09/06/2013 14:22:37	7.03	11.3612	-0.014	70.702
09/06/2013 14:22:47	6.9032	11.3826	-0.014	70.301
09/06/2013 14:22:57	6.7408	11.3523	-0.117	70.301
09/06/2013 14:23:07	6.7664	11.2856	-0.117	70.502
09/06/2013 14:23:17	7.2127	11.2095	-0.117	70.301
09/06/2013 14:23:27	7.3853	11.1797	-0.113	69.802
09/06/2013 14:23:37	7.4793	11.2112	-0.014	69.401
09/06/2013 14:23:47	7.562	11.2362	0.184	68.901
09/06/2013 14:23:57	7.6138	11.2821	0.085	69.601
09/06/2013 14:24:07	7.6328	11.3553	-0.117	69.802
09/06/2013 14:24:17	7.6442	11.3904	-0.113	69.802
09/06/2013 14:24:27	7.6328	11.3969	-0.117	69.901
09/06/2013 14:24:37	7.6233	11.4124	-0.117	69.901
09/06/2013 14:24:47	7.6102	11.4041	-0.117	69.901
09/06/2013 14:24:57	7.6305	11.385	-0.117	70.101
09/06/2013 14:25:07	7.6067	11.3916	-0.113	70.502
09/06/2013 14:25:17	5.3649	11.3951	-0.117	71.003
09/06/2013 14:25:27	6.3992	11.4154	-0.014	71.602
09/06/2013 14:25:37	6.7961	11.5183	-0.014	71.702
09/06/2013 14:25:47	6.9818	11.5891	-0.117	72.501
09/06/2013 14:25:57	7.0711	11.6153	-0.117	73.002
09/06/2013 14:26:07	7.0383	11.6118	-0.117	73.701
09/06/2013 14:26:17	6.9675	11.5641	-0.117	74.801
09/06/2013 14:26:27	6.8515	11.4725	-0.117	75.502
09/06/2013 14:26:37	6.7604	11.3874	-0.117	75.902
09/06/2013 14:26:47	6.5974	11.3029	-0.014	75.902
09/06/2013 14:26:57	6.5628	11.2303	0.085	76.602
09/06/2013 14:27:07	6.5605	11.1494	0.081	77.701
09/06/2013 14:27:17	6.5289	11.1178	-0.014	77.701
09/06/2013 14:27:27	6.4266	11.0881	-0.014	78.401
09/06/2013 14:27:37	6.3688	11.069	0.081	78.601
09/06/2013 14:27:47	6.3397	11.072	0.184	78.201
09/06/2013 14:27:57	6.3313	11.1166	0.081	78.601
09/06/2013 14:28:07	6.3545	11.1511	-0.014	78.802
09/06/2013 14:28:17	6.3605	11.1767	-0.117	79.101
09/06/2013 14:28:27	6.5265	11.197	-0.117	78.201

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 14:28:37	6.9431	11.2172	-0.113	76.802
09/06/2013 14:28:47	7.2936	11.2553	-0.117	75.902
09/06/2013 14:28:57	7.4775	11.3011	-0.117	75.202
09/06/2013 14:29:07	7.5549	11.3428	-0.014	74.801
09/06/2013 14:29:17	7.5864	11.3826	-0.014	74.801
09/06/2013 14:29:27	7.5948	11.4094	-0.014	74.101
09/06/2013 14:29:37	7.5537	11.4326	-0.014	73.401
09/06/2013 14:29:47	7.537	11.4469	-0.117	72.602
09/06/2013 14:29:57	7.49	11.4285	-0.117	72.302
09/06/2013 14:30:07	7.4763	11.4029	-0.113	72.102
09/06/2013 14:30:17	7.4561	11.3695	-0.014	71.902
09/06/2013 14:30:27	7.4716	11.3321	-0.014	71.402
09/06/2013 14:30:37	7.4751	11.319	-0.117	71.702
09/06/2013 14:30:47	7.4668	11.3297	-0.216	72.102
09/06/2013 14:30:57	7.4275	11.3446	-0.216	71.902
09/06/2013 14:31:07	7.2335	11.338	-0.216	71.902
09/06/2013 14:31:17	6.8455	11.3321	-0.113	71.702
09/06/2013 14:31:27	6.4289	11.3303	-0.113	71.202
09/06/2013 14:31:37	6.8289	11.335	-0.113	70.801
09/06/2013 14:31:47	7.3311	11.344	-0.014	70.801
09/06/2013 14:31:57	7.4924	11.3648	-0.014	70.801
09/06/2013 14:32:07	7.5477	11.4064	-0.014	71.003
09/06/2013 14:32:17	7.5829	11.4475	-0.113	71.003
09/06/2013 14:32:27	7.6102	11.5267	-0.117	71.202
09/06/2013 14:32:37	7.6269	11.5677	-0.117	71.202
09/06/2013 14:32:47	7.6328	11.5891	-0.014	70.801
09/06/2013 14:32:57	7.6257	11.5993	0.081	71.003
09/06/2013 14:33:07	7.6114	11.6118	0.081	71.202
09/06/2013 14:33:17	7.6293	11.5993	-0.014	70.702
09/06/2013 14:33:27	7.6394	11.5957	-0.113	70.502
09/06/2013 14:33:37	7.6102	11.6249	0.085	70.301
09/06/2013 14:33:47	7.5358	11.6201	0.085	70.101
09/06/2013 14:33:57	7.4079	11.5927	-0.014	69.901
09/06/2013 14:34:07	7.2359	11.5213	-0.117	69.601
09/06/2013 14:34:17	7.196	11.4535	-0.117	69.002
09/06/2013 14:34:27	7.1478	11.3773	-0.113	69.002
09/06/2013 14:34:37	7.1395	11.319	-0.014	69.002
09/06/2013 14:34:47	7.1431	11.2731	-0.014	69.002
09/06/2013 14:34:57	7.1347	11.2797	-0.113	69.202
09/06/2013 14:35:07	7.0842	11.3315	-0.212	69.202
09/06/2013 14:35:17	7.0794	11.3219	-0.117	69.002
09/06/2013 14:35:27	7.0818	11.2827	-0.113	69.601
09/06/2013 14:35:37	7.1044	11.2809	-0.117	69.202
09/06/2013 14:35:47	7.083	11.3035	-0.113	68.701
09/06/2013 14:35:57	7.036	11.3362	-0.014	68.502
09/06/2013 14:36:07	7.0336	11.3487	-0.113	68.502
09/06/2013 14:36:17	6.9996	11.3505	-0.216	68.901
09/06/2013 14:36:27	6.9526	11.3332	-0.117	69.601
09/06/2013 14:36:37	6.8818	11.2791	-0.113	69.002
09/06/2013 14:36:47	6.8312	11.2196	-0.117	69.002
09/06/2013 14:36:57	6.7961	11.169	-0.113	69.202
End Run 10				
Average	**7.228261**	**11.38505**	**-0.031214**	**72.37461**
Maximum	**8.0857**	**12.1003**	**0.482**	**79.801**
Minimum	**5.3649**	**10.8952**	**-0.216**	**68.502**
09/06/2013 14:37:07	6.7039	11.1208	-0.014	68.901
09/06/2013 14:37:17	6.6206	11.0797	-0.113	68.901
09/06/2013 14:37:27	6.6289	10.9821	-0.117	68.701
09/06/2013 14:37:37	6.6616	10.9202	-0.117	68.302
09/06/2013 14:37:47	6.67	10.9101	-0.014	68.001
09/06/2013 14:37:57	6.6592	10.9155	-0.014	68.102
09/06/2013 14:38:07	6.6819	10.8964	0.085	68.102
09/06/2013 14:38:17	6.7759	10.8429	-0.014	68.502
09/06/2013 14:38:27	6.9889	10.8078	-0.014	69.002
09/06/2013 14:38:37	6.8217	10.7923	-0.014	68.701
09/06/2013 14:38:47	6.7241	10.7828	-0.113	68.302
09/06/2013 14:38:57	6.6759	10.725	-0.113	68.701
09/06/2013 14:39:07	6.6664	10.7381	-0.117	69.002
09/06/2013 14:39:17	6.6289	10.7631	-0.117	68.502
Calibration Bias				
09/06/2013 14:39:27	0.1922	10.7899	0.081	68.502
09/06/2013 14:39:37	0.016	6.4396	0.081	68.701
09/06/2013 14:39:47	0.0053	0.3832	0.081	69.202
09/06/2013 14:39:57	0.00055	0.0916	0.284	69.601
09/06/2013 14:40:07	-0.003	0.0613	0.383	69.202
09/06/2013 14:40:17	-0.0042	0.0476	0.18	69.002
09/06/2013 14:40:27	-0.0018	0.0392	0.184	69.002
09/06/2013 14:40:37	-0.0042	0.0357	0.284	68.701
09/06/2013 14:40:47	-0.0042	0.0327	0.18	69.002
09/06/2013 14:40:57	-0.0042	0.0333	0.081	68.102
09/06/2013 14:41:07	-0.0054	0.0232	0.081	67.802
N2 Zero		**0.029733**	**0.114**	
09/06/2013 14:41:17	-0.0042	0.0261	0.18	68.302
09/06/2013 14:41:27	-0.0054	0.0261	0.18	69.202
09/06/2013 14:41:37	-0.0066	0.0238	0.184	69.802
09/06/2013 14:41:47	-0.0066	0.0184	2.583	70.101
09/06/2013 14:41:57	-0.0066	0.0172	11.388	70.801
09/06/2013 14:42:07	-0.0054	0.016	25.808	71.202

2013 Unit 2 CEMS RATA
URS CEMs Raw Data
09/06/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/06/2013 14:42:17	-0.0066	0.0208	37.52	72.302
09/06/2013 14:42:27	-0.0054	0.0172	43.126	73.401
09/06/2013 14:42:37	-0.0054	0.0113	44.828	74.601
09/06/2013 14:42:47	-0.0054	0.0095	45.026	75.502
09/06/2013 14:42:57	-0.0066	0.016	45.026	75.902
09/06/2013 14:43:07	-0.0066	0.0154	45.129	76.202
09/06/2013 14:43:17	-0.0054	0.0077	45.125	77.001
09/06/2013 14:43:27	-0.0054	0.0089	45.125	76.802
09/06/2013 14:43:37	-0.0054	0.0059	45.026	76.802
09/06/2013 14:43:47	0.31	0.0059	45.125	76.802
09/06/2013 14:43:57	1.6526	0.0136	45.224	77.302
09/06/2013 14:44:07	1.9186	3.7712	45.026	78.002
46.3 ppm CO Mid			**45.125**	
09/06/2013 14:44:17	1.9483	3.0463	44.526	78.201
09/06/2013 14:44:27	1.9597	2.0715	40.025	78.201
09/06/2013 14:44:37	1.9573	2.0608	29.012	78.802
09/06/2013 14:44:47	1.9597	2.0555	15.796	78.401
09/06/2013 14:44:57	1.9597	2.0543	6.485	77.302
09/06/2013 14:45:07	1.9644	2.0555	2.083	75.902
09/06/2013 14:45:17	1.9644	2.0608	0.781	75.002
09/06/2013 14:45:27	1.9632	2.0573	0.482	73.701
09/06/2013 14:45:37	1.9668	2.059	0.383	73.701
2.07% O2 Low	**1.9648**			
09/06/2013 14:45:47	9.3926	2.0573	0.482	73.502
09/06/2013 14:45:57	9.1891	2.0947	0.581	73.401
09/06/2013 14:46:07	9.6033	6.8241	0.482	73.502
09/06/2013 14:46:17	9.6259	9.1004	0.383	73.401
09/06/2013 14:46:27	9.6425	9.9068	0.284	72.802
09/06/2013 14:46:37	9.6461	9.9425	0.18	71.702
09/06/2013 14:46:47	9.639	9.9502	0.081	71.602
09/06/2013 14:46:57	9.6586	9.9544	-0.014	71.402
09/06/2013 14:47:07	9.6598	9.9609	-0.014	70.702
09/06/2013 14:47:17	9.6646	9.9597	-0.117	70.301
09/06/2013 14:47:27	9.655	9.9579	-0.117	70.301
09/06/2013 14:47:37	9.6836	9.9687	-0.113	70.301
09/06/2013 14:47:47	9.686	9.977	-0.113	70.702
10.1% O2 Mid	**9.674867**	**9.967867**		
09/06/2013 14:47:57	10.587	9.9722	-0.018	70.502
09/06/2013 14:48:07	10.3471	10.0686	-0.117	70.101
09/06/2013 14:48:17	10.2859	11.0089	-0.117	70.101
09/06/2013 14:48:27	10.2305	11.194	-0.014	70.101
09/06/2013 14:48:37	10.152	11.2053	-0.014	70.301
09/06/2013 14:48:47	10.0788	11.1904	-0.113	70.502
09/06/2013 14:48:57	10.0085	11.1589	-0.014	70.702
09/06/2013 14:49:07	9.8943	11.0732	-0.117	70.801
09/06/2013 14:49:17	9.7175	10.9869	-0.216	71.402
09/06/2013 14:49:27	9.6271	11.0452	-0.216	71.402
09/06/2013 14:49:37	9.5955	11.0625	-0.117	71.003
09/06/2013 14:49:47	9.5717	11.0589	-0.018	71.003
09/06/2013 14:49:57	9.5812	11.0541	-0.117	70.801
09/06/2013 14:50:07	9.5622	11.0565	-0.117	70.702
09/06/2013 14:50:17	9.5884	11.0625	-0.117	70.502
09/06/2013 14:50:27	9.6068	11.0708	-0.216	70.301
09/06/2013 14:50:37	10.6697	11.0577	-0.216	70.101
09/06/2013 14:50:47	7.1597	11.0541	-0.018	70.301
09/06/2013 14:50:57	9.6175	11.0518	-0.117	70.101
09/06/2013 14:51:07	9.7378	11.0547	-0.117	69.802
09/06/2013 14:51:17	9.5479	11.0559	-0.018	70.502
09/06/2013 14:51:27	9.5426	11.0529	-0.018	70.702
09/06/2013 14:51:37	9.5872	11.0589	0.081	71.003
09/06/2013 14:51:47	9.5896	11.05	0.081	71.202
09/06/2013 14:51:57	9.5836	11.0565	-0.018	71.902
09/06/2013 14:52:07	9.5777	11.0595	-0.018	72.602
09/06/2013 14:52:17	9.5812	11.0613	-0.117	73.701
09/06/2013 14:52:27	9.1647	11.0756	-0.117	73.901
09/06/2013 14:52:37	9.6068	11.0565	-0.117	73.701
09/06/2013 14:52:47	9.5896	11.0702	0.081	74.101
09/06/2013 14:52:57	9.5997	11.0893	0.18	74.302
09/06/2013 14:53:07	4.039	11.0779	0.081	74.601
09/06/2013 14:53:17	-3	11.0845	2.241	75.702
09/06/2013 14:53:27	-3	11.0898	2.241	76.102

APPENDIX B

Reference Method Calibration Results

Project Title	Veolia Sauget Unit 2 RATA
Location	Sauget, IL
Project ID	40942525
Date	9/6/13
Technician	mdd

	Oxygen, Wet	Oxygen, Dry	Carbon Monoxide
Instrument Make/Model:	Ametek RM CEM O2/IQ	Servomex 1440	Thermo 48C
ID Number/Name:	Asset # 207720	Waits	Iggy
Calibration Span Value:	22.5	22.5	89.8
Analyzer Range:	25	25	100
Units:	%	%	ppm

	Calibration Gases Used					
	Oxygen, Wet		Oxygen, Dry		Carbon Monoxide	
	Cylinder #	Value	Cylinder #	Value	Cylinder #	Value
Zero	CC121944	2.1	52-400193157-1A	0.0	52-400193157-1A	0.0
Span	CC189665	22.5	CC189665	22.5	CC14436	89.8
Mid-range	CC43355	10.1	CC43355	10.1	CC215749	46.3
Low-Range						
NO_2 Challenge Gas						

	Limits for Calibration Gas Selection					
	Oxygen, Wet		Oxygen, Dry		Carbon Monoxide	
	Lower	Upper	Lower	Upper	Lower	Upper
Zero	0.00	4.50	0.00	4.50	0.00	17.96
Mid-Range	9.00	13.50	9.00	13.50	35.92	53.88
Low-Range						
Span						

	Does the Calibration Gas Meet the Selection Criteria?					
	Oxygen, Wet		Oxygen, Dry		Carbon Monoxide	
	Calibration Gas Value	Is it Good?	Calibration Gas Value	Is it Good?	Calibration Gas Value	Is it Good?
Zero	2.07	TRUE	0.00	TRUE	0.0	TRUE
Mid-Range	10.10	TRUE	10.10	TRUE	46.3	TRUE
Low-Range						
Span						

	Limits for Direct Calibrationn (At the Instrument)					
	Oxygen, Wet		Oxygen, Dry		Carbon Monoxide	
	Lower	Upper	Lower	Upper	Lower	Upper
Zero	1.62	2.52	-0.45	0.45	-1.8	1.8
Span	22.05	22.95	22.05	22.95	88.0	91.6
Mid-range	9.65	10.55	9.65	10.55	44.5	48.1
Low-range						

Veolia Sauget Unit 2 RATA
Wet O_2 Calibration Data Summary

Project ID: 40942525
Date: 9/6/2013
Instrument Make/Model: Ametek RM CEM O2/IQ
Instrument Name/ID Asset # 207720
Calibration Span Value: 22.50
Analyzer Range: 25
Units: %
Technician(s): mdd

Calibration Error Test Results

	Cylinder ID	Certified Value	Time	CEM Response	Absolute Difference	Cal Error (% of Span) 2.0% Limit
zero gas	CC121944	2.07	07:43	2.04	0.03	0.1%
span gas	CC189665	22.50	07:44	22.70	0.20	0.9%
mid-range	CC43355	10.10	07:47	10.07	0.03	0.1%

CEMS Calibration Bias and Drift Tests

Run No.	Cylinder Value	Cal Error CEMS Response	Time	Pre-Test CEMS Response	Bias (% of Span) 5.0% Limit	Time	Post-Test CEMS Response	Bias (% of Span) 5.0% Limit	Drift (% of Span) 3.0% Limit	Eq. 7E-5
Run 1	2.07	2.04	07:48	2.06	0.1%	09:02	1.92	-0.6%	-0.6%	C_O= 1.986
	10.10	10.07	07:50	10.06	0.0%	09:04	9.70	-1.7%	-1.6%	$C_{MA}/(C_M-C_O)$ 1.279
Run 2	2.07	2.04	09:02	1.92	-0.6%	09:40	1.94	-0.5%	0.1%	C_O= 1.926
	10.10	10.07	09:04	9.70	-1.7%	09:41	9.69	-1.7%	-0.1%	$C_{MA}/(C_M-C_O)$ 1.300
Run 3	2.07	2.04	09:40	1.94	-0.5%	10:15	1.95	-0.4%	0.1%	C_O= 1.942
	10.10	10.07	09:41	9.69	-1.7%	10:17	9.67	-1.8%	-0.1%	$C_{MA}/(C_M-C_O)$ 1.305
Run 4	2.07	2.04	10:15	1.95	-0.4%	10:50	1.95	-0.4%	0.0%	C_O= 1.948
	10.10	10.07	10:17	9.67	-1.8%	10:52	9.66	-1.9%	-0.1%	$C_{MA}/(C_M-C_O)$ 1.309
Run 5	2.07	2.04	10:50	1.95	-0.4%	11:30	1.91	-0.6%	-0.2%	C_O= 1.928
	10.10	10.07	10:52	9.66	-1.9%	11:32	9.66	-1.8%	0.0%	$C_{MA}/(C_M-C_O)$ 1.307
Run 6	2.07	2.04	11:30	1.91	-0.6%	12:08	1.87	-0.8%	-0.2%	C_O= 1.891
	10.10	10.07	11:32	9.66	-1.8%	12:10	9.69	-1.7%	0.1%	$C_{MA}/(C_M-C_O)$ 1.298
Run 7	2.07	2.04	12:08	1.87	-0.8%	12:43	1.96	-0.4%	0.4%	C_O= 1.915
	10.10	10.07	12:10	9.69	-1.7%	12:45	9.66	-1.8%	-0.1%	$C_{MA}/(C_M-C_O)$ 1.302
Run 8	2.07	2.04	12:43	1.96	-0.4%	13:26	1.96	-0.4%	0.0%	C_O= 1.956
	10.10	10.07	12:45	9.66	-1.8%	13:28	9.67	-1.8%	0.1%	$C_{MA}/(C_M-C_O)$ 1.310
Run 9	2.07	2.04	13:26	1.96	-0.4%	14:04	1.95	-0.4%	0.0%	C_O= 1.954
	10.10	10.07	13:28	9.67	-1.8%	14:05	9.62	-2.0%	-0.2%	$C_{MA}/(C_M-C_O)$ 1.313
Run 10	2.07	2.04	14:04	1.95	-0.4%	14:45	1.96	-0.3%	0.1%	C_O= 1.958
	10.10	10.07	14:05	9.62	-2.0%	14:47	9.67	-1.8%	0.2%	$C_{MA}/(C_M-C_O)$ 1.313

Veolia Sauget Unit 2 RATA
Dry O_2 Calibration Data Summary

Project ID: 40942525
Date: 9/6/2013
Instrument Make/Model: Servomex 1440
Instrument Name/ID Waits
Calibration Span Value: 22.50
Analyzer Range: 25
Units: %
Technician(s): mdd

Calibration Error Test Results

	Cylinder ID	Certified Value	Time	CEM Response	Absolute Difference	Cal Error (% of Span) 2.0% Limit
zero gas	52-400193157-1A	0.00	07:17	-0.03	0.03	0.1%
span gas	CC189665	22.50	07:19	22.47	0.03	0.1%
mid-range	CC43355	10.10	07:21	10.08	0.02	0.1%

CEMS Calibration Bias and Drift Tests

Run No.	Cylinder Value	Cal Error CEMS Response	Time	Pre-Test CEMS Response	Bias (% of Span) 5.0% Limit	Time	Post-Test CEMS Response	Bias (% of Span) 5.0% Limit	Drift (% of Span) 3.0% Limit	Eq. 7E-5
Run 1	0.00	-0.03	07:38	0.04	0.3%	08:59	0.04	0.3%	0.0%	c_O= 0.039
	10.10	10.08	07:47	10.01	-0.3%	09:04	9.99	-0.4%	-0.1%	$c_{MA}/(C_M-C_O)$ 1.014
Run 2	0.00	-0.03	08:59	0.04	0.3%	09:35	0.04	0.3%	0.0%	c_O= 0.042
	10.10	10.08	09:04	9.99	-0.4%	09:41	9.98	-0.4%	-0.1%	$c_{MA}/(C_M-C_O)$ 1.016
Run 3	0.00	-0.03	09:35	0.04	0.3%	10:12	0.03	0.3%	0.0%	c_O= 0.039
	10.10	10.08	09:41	9.98	-0.4%	10:17	9.98	-0.5%	0.0%	$c_{MA}/(C_M-C_O)$ 1.016
Run 4	0.00	-0.03	10:12	0.03	0.3%	10:46	0.03	0.3%	0.0%	c_O= 0.034
	10.10	10.08	10:17	9.98	-0.5%	10:52	9.98	-0.4%	0.0%	$c_{MA}/(C_M-C_O)$ 1.015
Run 5	0.00	-0.03	10:46	0.03	0.3%	11:27	0.04	0.3%	0.0%	c_O= 0.034
	10.10	10.08	10:52	9.98	-0.4%	11:32	9.98	-0.4%	0.0%	$c_{MA}/(C_M-C_O)$ 1.015
Run 6	0.00	-0.03	11:27	0.04	0.3%	12:03	0.34	1.7%	1.4%	c_O= 0.190
	10.10	10.08	11:32	9.98	-0.4%	12:10	9.97	-0.5%	0.0%	$c_{MA}/(C_M-C_O)$ 1.032
Run 7	0.00	-0.03	12:03	0.34	1.7%	12:39	0.04	0.3%	-1.3%	c_O= 0.192
	10.10	10.08	12:10	9.97	-0.5%	12:45	9.97	-0.5%	0.0%	$c_{MA}/(C_M-C_O)$ 1.033
Run 8	0.00	-0.03	12:39	0.04	0.3%	13:22	0.07	0.4%	0.1%	c_O= 0.054
	10.10	10.08	12:45	9.97	-0.5%	13:28	9.97	-0.5%	0.0%	$c_{MA}/(C_M-C_O)$ 1.018
Run 9	0.00	-0.03	13:22	0.07	0.4%	14:00	0.05	0.3%	-0.1%	c_O= 0.056
	10.10	10.08	13:28	9.97	-0.5%	14:05	9.96	-0.5%	0.0%	$c_{MA}/(C_M-C_O)$ 1.019
Run 10	0.00	-0.03	14:00	0.05	0.3%	14:41	0.03	0.3%	-0.1%	c_O= 0.037
	10.10	10.08	14:05	9.96	-0.5%	14:47	9.97	-0.5%	0.0%	$c_{MA}/(C_M-C_O)$ 1.018

Veolia Sauget Unit 2 RATA
CO Calibration Data Summary

Project ID: 40942525
Date: 9/6/2013
Instrument Make/Model: Thermo 48C
Instrument Name/ID Iggy
Calibration Span Value: 89.8
Analyzer Range: 100
Units: ppm
Technician(s): mdd

Calibration Error Test Results

	Cylinder ID	Certified Value	Time	CEM Response	Absolute Difference	Cal Error (% of Span) 2.0% Limit
zero gas	52-400193157-1A	0.0	07:52	0.1	0.1	0.1%
span gas	CC14436	89.8	07:54	89.2	0.6	0.6%
mid-range	CC215749	46.3	07:55	45.5	0.8	0.9%

CEMS Calibration Bias and Drift Tests

Run No.	Cylinder Value	Cal Error CEMS Response	Time	Pre-Test CEMS Response	Bias (% of Span) 5.0% Limit	Time	Post-Test CEMS Response	Bias (% of Span) 5.0% Limit	Drift (% of Span) 3.0% Limit	Eq. 7E-5
Run 1	0.0	0.1	07:59	0.2	0.1%	08:59	0.1	0.0%	-0.1%	c_O= 0.123
	46.3	45.5	08:01	45.3	-0.2%	09:01	45.2	-0.4%	-0.2%	$c_{MA}/(c_M-c_O)$ 1.026
Run 2	0.0	0.1	08:59	0.1	0.0%	09:35	0.0	0.0%	0.0%	c_O= 0.062
	46.3	45.5	09:01	45.2	-0.4%	09:38	45.2	-0.4%	0.0%	$c_{MA}/(c_M-c_O)$ 1.026
Run 3	0.0	0.1	09:35	0.0	0.0%	10:12	0.1	0.0%	0.1%	c_O= 0.079
	46.3	45.5	09:38	45.2	-0.4%	10:14	45.6	0.1%	0.5%	$c_{MA}/(c_M-c_O)$ 1.021
Run 4	0.0	0.1	10:12	0.1	0.0%	10:46	0.2	0.1%	0.0%	c_O= 0.133
	46.3	45.5	10:14	45.6	0.1%	10:49	45.3	-0.2%	-0.4%	$c_{MA}/(c_M-c_O)$ 1.021
Run 5	0.0	0.1	10:46	0.2	0.1%	11:27	0.1	0.0%	-0.1%	c_O= 0.117
	46.3	45.5	10:49	45.3	-0.2%	11:28	45.2	-0.4%	-0.1%	$c_{MA}/(c_M-c_O)$ 1.026
Run 6	0.0	0.1	11:27	0.1	0.0%	12:03	0.1	0.0%	0.0%	c_O= 0.076
	46.3	45.5	11:28	45.2	-0.4%	12:07	45.0	-0.6%	-0.3%	$c_{MA}/(c_M-c_O)$ 1.029
Run 7	0.0	0.1	12:03	0.1	0.0%	12:39	0.1	0.0%	0.0%	c_O= 0.075
	46.3	45.5	12:07	45.0	-0.6%	12:42	45.1	-0.5%	0.1%	$c_{MA}/(c_M-c_O)$ 1.030
Run 8	0.0	0.1	12:39	0.1	0.0%	13:22	0.2	0.2%	0.1%	c_O= 0.148
	46.3	45.5	12:42	45.1	-0.5%	13:25	45.3	-0.3%	0.2%	$c_{MA}/(c_M-c_O)$ 1.028
Run 9	0.0	0.1	13:22	0.2	0.2%	14:00	0.1	0.0%	-0.1%	c_O= 0.148
	46.3	45.5	13:25	45.3	-0.3%	14:03	45.1	-0.4%	-0.1%	$c_{MA}/(c_M-c_O)$ 1.028
Run 10	0.0	0.1	14:00	0.1	0.0%	14:41	0.1	0.0%	0.0%	c_O= 0.098
	46.3	45.5	14:03	45.1	-0.4%	14:44	45.1	-0.4%	0.0%	$c_{MA}/(c_M-c_O)$ 1.028

APPENDIX C

Unit 2 CEMS Relative Accuracy Data

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/6/13 8:37 AM	0.00	8.34	12.87	35.23
9/6/13 8:38 AM	0.00	8.36	12.74	34.44
9/6/13 8:39 AM	0.00	8.37	12.87	35.02
9/6/13 8:40 AM	0.00	8.51	13.10	35.16
9/6/13 8:41 AM	0.00	8.55	12.96	33.94
9/6/13 8:42 AM	0.00	8.43	12.78	33.98
9/6/13 8:43 AM	0.00	8.46	13.02	35.01
9/6/13 8:44 AM	0.00	8.58	13.06	34.30
9/6/13 8:45 AM	0.00	8.47	12.75	33.65
9/6/13 8:46 AM	0.00	8.48	13.02	34.79
9/6/13 8:47 AM	0.00	8.57	13.13	34.72
9/6/13 8:48 AM	0.00	8.46	12.79	33.89
9/6/13 8:49 AM	0.00	8.16	12.58	35.13
9/6/13 8:50 AM	0.00	8.14	12.63	35.81
9/6/13 8:51 AM	0.00	8.17	12.60	35.17
9/6/13 8:52 AM	0.00	7.94	12.42	36.00
9/6/13 8:53 AM	0.00	7.92	12.56	36.95
9/6/13 8:54 AM	0.00	8.07	12.65	36.23
9/6/13 8:55 AM	0.00	7.84	12.20	35.66
9/6/13 8:56 AM	0.00	7.70	12.17	36.70
9/6/13 8:57 AM	0.00	7.83	12.43	37.00
Average	0.00	8.25	12.73	35.18

Unit 2 Run 1 09/06/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/6/13 9:14 AM	0.00	7.64	11.84	35.49
9/6/13 9:15 AM	0.00	7.81	11.99	34.87
9/6/13 9:16 AM	0.00	7.75	11.73	33.91
9/6/13 9:17 AM	0.00	7.62	11.66	34.68
9/6/13 9:18 AM	0.00	7.73	11.96	35.40
9/6/13 9:19 AM	0.00	7.87	12.05	34.69
9/6/13 9:20 AM	0.00	7.71	11.66	33.88
9/6/13 9:21 AM	0.00	7.49	11.45	34.60
9/6/13 9:22 AM	0.00	7.58	11.74	35.49
9/6/13 9:23 AM	0.00	7.76	11.91	34.84
9/6/13 9:24 AM	0.00	7.73	11.70	33.99
9/6/13 9:25 AM	0.00	7.65	11.72	34.75
9/6/13 9:26 AM	0.00	7.72	11.87	35.00
9/6/13 9:27 AM	0.00	7.84	11.91	34.12
9/6/13 9:28 AM	0.00	7.75	11.71	33.87
9/6/13 9:29 AM	0.00	7.68	11.81	35.01
9/6/13 9:30 AM	0.00	7.74	11.91	35.10
9/6/13 9:31 AM	0.00	7.94	12.09	34.25
9/6/13 9:32 AM	0.00	7.79	11.82	34.09
9/6/13 9:33 AM	0.00	7.76	11.95	35.14
9/6/13 9:34 AM	0.00	8.23	12.67	34.92
Average	0.00	7.75	11.87	34.67

Unit 2 Run 2 09/06/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/6/13 9:50 AM	0.00	7.20	11.27	36.21
9/6/13 9:51 AM	0.00	7.22	11.28	36.03
9/6/13 9:52 AM	0.00	7.29	11.37	35.79
9/6/13 9:53 AM	0.00	7.31	11.36	35.67
9/6/13 9:54 AM	0.00	7.05	11.04	36.14
9/6/13 9:55 AM	0.00	6.84	10.83	36.81
9/6/13 9:56 AM	0.00	6.88	10.88	36.85
9/6/13 9:57 AM	0.00	7.11	11.17	36.41
9/6/13 9:58 AM	0.00	7.03	11.02	36.21
9/6/13 9:59 AM	0.00	6.87	10.88	36.95
9/6/13 10:00 AM	0.00	7.09	11.33	37.43
9/6/13 10:01 AM	0.00	7.17	11.34	36.80
9/6/13 10:02 AM	0.00	7.21	11.28	36.11
9/6/13 10:03 AM	0.00	7.14	11.17	36.05
9/6/13 10:04 AM	0.00	7.21	11.41	36.73
9/6/13 10:05 AM	0.00	7.28	11.49	36.68
9/6/13 10:06 AM	0.00	7.38	11.57	36.20
9/6/13 10:07 AM	0.00	7.39	11.69	36.82
9/6/13 10:08 AM	0.00	7.38	11.89	37.92
9/6/13 10:09 AM	0.00	7.49	12.01	37.74
9/6/13 10:10 AM	0.00	7.64	12.04	36.53
Average	0.00	7.20	11.35	36.58

Unit 2 Run 3 09/06/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/6/13 10:25 AM	0.00	8.06	12.21	34.09
9/6/13 10:26 AM	0.00	8.03	12.08	33.59
9/6/13 10:27 AM	0.00	8.01	12.20	34.30
9/6/13 10:28 AM	0.00	7.94	12.03	34.13
9/6/13 10:29 AM	0.00	7.84	11.81	33.58
9/6/13 10:30 AM	0.00	7.90	11.96	34.10
9/6/13 10:31 AM	0.00	7.81	11.90	34.39
9/6/13 10:32 AM	0.00	7.67	11.78	34.86
9/6/13 10:33 AM	0.00	7.72	11.86	34.90
9/6/13 10:34 AM	0.00	7.69	11.75	34.58
9/6/13 10:35 AM	0.00	7.64	11.70	34.62
9/6/13 10:36 AM	0.00	7.38	11.37	35.11
9/6/13 10:37 AM	0.00	7.42	11.59	36.11
9/6/13 10:38 AM	0.00	7.50	11.70	35.89
9/6/13 10:39 AM	0.00	7.62	11.69	34.75
9/6/13 10:40 AM	0.00	7.39	11.29	34.65
9/6/13 10:41 AM	0.00	7.30	11.41	36.09
9/6/13 10:42 AM	0.00	7.32	11.43	35.98
9/6/13 10:43 AM	0.00	7.38	11.44	35.53
9/6/13 10:44 AM	0.00	7.13	11.20	36.27
9/6/13 10:45 AM	0.00	7.30	11.59	37.01
Average	0.00	7.62	11.71	34.98

Unit 2 Run 4 09/06/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/6/13 11:03 AM	0.00	7.38	11.74	37.15
9/6/13 11:04 AM	0.00	7.49	11.77	36.29
9/6/13 11:05 AM	0.00	7.41	11.63	36.24
9/6/13 11:06 AM	0.00	7.39	11.73	36.94
9/6/13 11:07 AM	0.00	7.51	11.94	37.09
9/6/13 11:08 AM	0.00	7.61	11.85	35.79
9/6/13 11:09 AM	0.00	7.54	11.77	35.95
9/6/13 11:10 AM	0.00	7.54	11.93	36.80
9/6/13 11:11 AM	0.00	7.64	12.10	36.71
9/6/13 11:12 AM	0.00	7.61	11.91	36.04
9/6/13 11:13 AM	0.00	7.50	11.86	36.72
9/6/13 11:14 AM	0.00	7.59	12.06	37.02
9/6/13 11:15 AM	0.00	7.71	12.06	36.03
9/6/13 11:16 AM	0.00	7.57	11.89	36.31
9/6/13 11:17 AM	0.00	7.49	11.95	37.34
9/6/13 11:18 AM	0.00	7.62	12.05	36.71
9/6/13 11:19 AM	0.00	7.64	11.86	35.65
9/6/13 11:20 AM	0.00	7.53	11.78	36.07
9/6/13 11:21 AM	0.00	7.46	11.92	37.38
9/6/13 11:22 AM	0.00	7.59	12.07	37.06
9/6/13 11:23 AM	0.00	7.53	11.84	36.41
Average	0.00	7.54	11.89	36.56

Unit 2 Run 5 09/06/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/6/13 11:42 AM	0.00	7.39	11.34	34.87
9/6/13 11:43 AM	0.00	7.71	12.00	35.76
9/6/13 11:44 AM	0.00	7.98	12.28	35.00
9/6/13 11:45 AM	0.00	7.92	12.07	34.34
9/6/13 11:46 AM	0.00	7.52	11.62	35.29
9/6/13 11:47 AM	0.00	7.40	11.56	35.89
9/6/13 11:48 AM	0.00	7.38	11.33	34.88
9/6/13 11:49 AM	0.00	7.17	11.10	35.37
9/6/13 11:50 AM	0.00	7.23	11.37	36.47
9/6/13 11:51 AM	0.00	7.42	11.48	35.41
9/6/13 11:52 AM	0.00	7.40	11.26	34.37
9/6/13 11:53 AM	0.00	7.29	11.25	35.25
9/6/13 11:54 AM	0.00	7.40	11.50	35.62
9/6/13 11:55 AM	0.00	7.59	11.71	35.16
9/6/13 11:56 AM	0.00	7.38	11.33	34.83
9/6/13 11:57 AM	0.00	7.18	11.23	36.06
9/6/13 11:58 AM	0.00	7.17	11.22	36.16
9/6/13 11:59 AM	0.00	7.20	11.16	35.47
9/6/13 12:00 PM	0.00	7.20	11.21	35.75
9/6/13 12:01 PM	0.00	7.17	11.20	36.05
9/6/13 12:02 PM	0.00	7.19	11.19	35.70
Average	0.00	7.39	11.45	35.41

Unit 2 Run 6 09/06/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/6/13 12:18 PM	0.00	7.66	12.03	36.35
9/6/13 12:19 PM	0.00	7.66	11.89	35.56
9/6/13 12:20 PM	0.00	7.58	11.88	36.22
9/6/13 12:21 PM	0.00	7.57	11.86	36.23
9/6/13 12:22 PM	0.00	7.56	11.78	35.83
9/6/13 12:23 PM	0.00	7.64	11.68	35.05
9/6/13 12:24 PM	0.00	7.51	11.64	35.46
9/6/13 12:25 PM	0.00	7.37	11.42	35.43
9/6/13 12:26 PM	0.00	7.40	11.37	34.95
9/6/13 12:27 PM	0.00	7.36	11.32	35.02
9/6/13 12:28 PM	0.00	7.41	11.45	35.34
9/6/13 12:29 PM	0.00	7.64	11.69	34.65
9/6/13 12:30 PM	0.00	7.89	11.84	33.33
9/6/13 12:31 PM	0.00	7.97	12.08	34.09
9/6/13 12:32 PM	0.00	8.13	12.44	34.63
9/6/13 12:33 PM	0.00	7.95	12.00	33.85
9/6/13 12:34 PM	0.00	7.83	11.80	33.65
9/6/13 12:35 PM	0.00	7.64	11.72	34.80
9/6/13 12:36 PM	0.00	7.89	12.11	34.91
9/6/13 12:37 PM	0.00	7.90	11.88	33.46
9/6/13 12:38 PM	0.00	7.78	11.77	33.93
Average	0.00	7.68	11.79	34.89

Unit 2 Run 7 09/06/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/6/13 12:59 PM	0.00	7.70	11.79	34.73
9/6/13 1:00 PM	0.00	7.93	12.23	35.16
9/6/13 1:01 PM	0.00	8.09	12.33	34.43
9/6/13 1:02 PM	0.00	8.12	12.23	33.59
9/6/13 1:03 PM	0.00	8.07	12.18	33.72
9/6/13 1:04 PM	0.00	8.15	12.46	34.63
9/6/13 1:05 PM	0.00	8.26	12.63	34.53
9/6/13 1:06 PM	0.00	8.33	12.64	34.02
9/6/13 1:07 PM	0.00	8.30	12.61	34.12
9/6/13 1:08 PM	0.00	8.32	12.71	34.49
9/6/13 1:09 PM	0.00	8.37	12.62	33.75
9/6/13 1:10 PM	0.00	8.32	12.48	33.26
9/6/13 1:11 PM	0.00	8.25	12.44	33.81
9/6/13 1:12 PM	0.00	8.23	12.63	34.85
9/6/13 1:13 PM	0.00	8.24	12.58	34.47
9/6/13 1:14 PM	0.00	8.17	12.35	33.78
9/6/13 1:15 PM	0.00	8.06	12.25	34.22
9/6/13 1:16 PM	0.00	7.86	12.10	35.09
9/6/13 1:17 PM	0.00	7.97	12.29	35.14
9/6/13 1:18 PM	0.00	8.20	12.48	34.32
9/6/13 1:19 PM	0.00	8.14	12.45	34.61
Average	0.00	8.15	12.40	34.32

Unit 2 Run 8 09/06/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/6/13 1:39 PM	0.00	7.63	11.64	34.47
9/6/13 1:40 PM	0.00	7.71	11.78	34.51
9/6/13 1:41 PM	0.00	7.66	11.45	33.19
9/6/13 1:42 PM	0.00	7.66	11.63	34.23
9/6/13 1:43 PM	0.00	7.64	11.76	34.87
9/6/13 1:44 PM	0.00	7.76	11.78	34.11
9/6/13 1:45 PM	0.00	7.51	11.33	33.77
9/6/13 1:46 PM	0.00	7.48	11.45	34.67
9/6/13 1:47 PM	0.00	7.46	11.39	34.55
9/6/13 1:48 PM	0.00	7.67	11.73	34.66
9/6/13 1:49 PM	0.00	7.65	11.70	34.59
9/6/13 1:50 PM	0.00	7.75	12.04	35.70
9/6/13 1:51 PM	0.00	7.85	12.16	35.47
9/6/13 1:52 PM	0.00	8.01	12.12	34.04
9/6/13 1:53 PM	0.00	7.78	11.76	33.96
9/6/13 1:54 PM	0.00	7.80	11.97	34.82
9/6/13 1:55 PM	0.00	7.57	11.56	34.61
9/6/13 1:56 PM	0.00	7.33	11.17	34.31
9/6/13 1:57 PM	0.00	7.23	11.07	34.67
9/6/13 1:58 PM	0.00	7.29	11.35	35.75
9/6/13 1:59 PM	0.00	7.41	11.62	36.23
Average	0.00	7.61	11.64	34.63

Unit 2 Run 9 09/06/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/6/13 2:17 PM	0.00	7.36	11.54	36.17
9/6/13 2:18 PM	0.00	7.67	11.92	35.77
9/6/13 2:19 PM	0.00	7.52	11.66	35.58
9/6/13 2:20 PM	0.00	7.38	11.45	35.58
9/6/13 2:21 PM	0.00	7.01	10.82	35.14
9/6/13 2:22 PM	0.00	7.04	11.21	37.14
9/6/13 2:23 PM	0.00	7.20	11.59	37.87
9/6/13 2:24 PM	0.00	7.21	11.47	37.12
9/6/13 2:25 PM	0.00	7.23	11.40	36.60
9/6/13 2:26 PM	0.00	7.28	11.53	36.82
9/6/13 2:27 PM	0.00	7.12	11.32	37.08
9/6/13 2:28 PM	0.00	7.07	11.22	37.11
9/6/13 2:29 PM	0.00	7.18	11.37	36.90
9/6/13 2:30 PM	0.00	7.19	11.38	36.81
9/6/13 2:31 PM	0.00	7.12	11.36	37.31
9/6/13 2:32 PM	0.00	7.21	11.51	37.31
9/6/13 2:33 PM	0.00	7.40	11.62	36.27
9/6/13 2:34 PM	0.00	7.35	11.38	35.43
9/6/13 2:35 PM	0.00	7.16	11.20	36.09
9/6/13 2:36 PM	0.00	7.21	11.31	36.34
9/6/13 2:37 PM	0.00	7.23	11.28	35.95
Average	0.00	7.24	11.41	36.49

Unit 2 Run 10 09/06/13

APPENDIX D

Unit 2 Waste Feed Characterization Data

Hourly Report

Veolia
Environmental Services
Sauget Illinois

Incinerator	2
Created	9/6/2013 9:01 AM
Period Start	9/6/2013 8:00 AM
Period End	9/6/2013 9:00 AM

CALCULATIONS

Thermodynamic BTU	11.1 mbtu		
Chlorine	78.1 lbs		
Low Volatile	0.028 lbs	Mercury	0.0001 lbs
Semi Volatile	0.002 lbs	Ash	114.3 lbs

WEIGHTS

Weight	1470 lbs		
Solids Weight	210 lbs	Liquid Weight	1260 lbs
Low BTU Weight	503 lbs	Special Feed Weight	231 lbs
High BTU Weight	525 lbs		
Tank 2 Weight	0 lbs	Tank 6 Weight	503 lbs
Tank 4 Weight	525 lbs	Tank 8 Weight	0 lbs
Direct Inject Weight	0 lbs		

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	5091 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	2
Created	9/6/2013 10:01 AM
Period Start	9/6/2013 9:00 AM
Period End	9/6/2013 10:00 AM

CALCULATIONS

Thermodynamic BTU	10.9 mbtu		
Chlorine	85.0 lbs		
Low Volatile	0.029 lbs	Mercury	0.0001 lbs
Semi Volatile	0.002 lbs	Ash	119.3 lbs

WEIGHTS

Weight	1457 lbs		
Solids Weight	210 lbs	Liquid Weight	1247 lbs
Low BTU Weight	497 lbs	Special Feed Weight	225 lbs
High BTU Weight	524 lbs		
Tank 2 Weight	0 lbs	Tank 6 Weight	497 lbs
Tank 4 Weight	524 lbs	Tank 8 Weight	0 lbs
Direct Inject Weight	0 lbs		

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	4111 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	2
Created	9/6/2013 11:01 AM
Period Start	9/6/2013 10:00 AM
Period End	9/6/2013 11:00 AM

CALCULATIONS

Thermodynamic BTU	10.8 mbtu		
Chlorine	86.1 lbs		
Low Volatile	0.027 lbs	Mercury	0.0001 lbs
Semi Volatile	0.002 lbs	Ash	112.6 lbs

WEIGHTS

Weight	1470 lbs		
Solids Weight	218 lbs	Liquid Weight	1252 lbs
Low BTU Weight	501 lbs	Special Feed Weight	226 lbs
High BTU Weight	525 lbs		
Tank 2 Weight	0 lbs	Tank 6 Weight	501 lbs
Tank 4 Weight	525 lbs	Tank 8 Weight	0 lbs
Direct Inject Weight	0 lbs		

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	4298 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	2
Created	9/6/2013 12:01 PM
Period Start	9/6/2013 11:00 AM
Period End	9/6/2013 12:00 PM

CALCULATIONS

Thermodynamic BTU	10.9 mbtu		
Chlorine	84.4 lbs		
Low Volatile	0.025 lbs	Mercury	0.0002 lbs
Semi Volatile	0.002 lbs	Ash	94.5 lbs

WEIGHTS

Weight	1467 lbs		
Solids Weight	217 lbs	Liquid Weight	1249 lbs
Low BTU Weight	487 lbs	Special Feed Weight	238 lbs
High BTU Weight	523 lbs		
Tank 2 Weight	0 lbs	Tank 6 Weight	206 lbs
Tank 4 Weight	523 lbs	Tank 8 Weight	281 lbs
Direct Inject Weight	0 lbs		

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	4180 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	2
Created	9/6/2013 2:01 PM
Period Start	9/6/2013 1:00 PM
Period End	9/6/2013 2:00 PM

CALCULATIONS

Thermodynamic BTU	10.6 mbtu		
Chlorine	82.2 lbs		
Low Volatile	0.062 lbs	Mercury	0.0002 lbs
Semi Volatile	0.017 lbs	Ash	115.2 lbs

WEIGHTS

Weight	1469 lbs		
Solids Weight	241 lbs	Liquid Weight	1227 lbs
Low BTU Weight	499 lbs	Special Feed Weight	229 lbs
High BTU Weight	498 lbs		
Tank 2 Weight	0 lbs	Tank 6 Weight	0 lbs
Tank 4 Weight	498 lbs	Tank 8 Weight	499 lbs
Direct Inject Weight	0 lbs		

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	3707 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	2
Created	9/6/2013 3:01 PM
Period Start	9/6/2013 2:00 PM
Period End	9/6/2013 3:00 PM

CALCULATIONS

Thermodynamic BTU	10.8 mbtu		
Chlorine	80.8 lbs		
Low Volatile	0.029 lbs	Mercury	0.0002 lbs
Semi Volatile	0.004 lbs	Ash	123.6 lbs

WEIGHTS

Weight	1599 lbs		
Solids Weight	216 lbs	Liquid Weight	1382 lbs
Low BTU Weight	646 lbs	Special Feed Weight	237 lbs
High BTU Weight	499 lbs		
Tank 2 Weight	0 lbs	Tank 6 Weight	0 lbs
Tank 4 Weight	499 lbs	Tank 8 Weight	646 lbs
Direct Inject Weight	0 lbs		

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	3705 cf

APPENDIX E

Reference Method EPA Protocol Gas Certifications

Download as...

11426 FAIRMONT PKWY, LA PORTE, TX 77571 Phone: 800-248-1427 Fax: 281-474-8419

RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: Interference Free™ Multi-Component EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A32011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
11426 FAIRMONT PKWY
LA PORTE, TX 77571

P.O. No.: STOCK
Document # : 44094399-001

Customer
URS CORPORATION

9400 AMBERGLEN BLVD
AUSTIN TX 78729
US

ANALYTICAL INFORMATION Gas Type : CO2,O2,BALN

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC189665
Cylinder Pressure*:** 1850 PSIG

Certification Date: 14Dec2011

Exp. Date: 15Dec2019
Batch No: LAP0054691

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON DIOXIDE	19.2 %	+/- 1%	Direct NIST and VSL
OXYGEN	22.5 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1800	01Mar2013	K026135	17.87 %	CARBON DIOXIDE
NTRM 2659	02Oct2012	1D003416	20.85 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//MG-09-149	02Dec2011	FTIR
SERVOMEX/MODEL 244A/701/716	01Dec2011	PARAMAGNETIC

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis
CARBON DIOXIDE
Date: 13Dec2011 Response Unit: %
Z1=-0.00143 R1=17.78329 T1=19.14079
R2=17.78502 Z2=-0.00071 T2=19.14128
Z3=0.00239 T3=19.14149 R3=17.79819
Avg. Concentration: 19.23 %

OXYGEN
Date: 14Dec2011 Response Unit: VOLTS
Z1=0.00000 R1=0.84000 T1=0.90550
R2=0.84000 Z2=0.00000 T2=0.90550
Z3=0.00000 T3=0.90550 R3=0.84000
Avg. Concentration: 22.47 %

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99997E-1
Constants: A=0.00000E+0
B=9.05981E-1 C=1.21380E-2
D=0.00000E+0 E=0.00000E+0

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.9999996
Constants: A=-0.00147786
B=24.85715966 C=
D= E=

Special Notes:
The expiration date has been extended without re-assay per EPA 600/R23-23/542.
URS020 CGA 590 ; DEW PT. 40 DEG. F.

QUALITY ASSURANCE

APPROVED BY: SARAH HERBERT
(signature on file)

AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22012

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 59661-70-65000
Document # : 45935248-042

Customer
CLEAN AIR INSTRUMENT RENTAL

JACK BIONDA
110 TECHNOLOGY DRIVE
RID PARK, FINLAY TOWNSHIP
CORAOPOLIS PA 15108
US

ANALYTICAL INFORMATION Gas Type : OC2

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC43355 **Certification Date:** 16May2012 **Exp. Date:** 16May2015
Cylinder Pressure*:** 2000 PSIG **Batch No:** TR00057923

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
OXYGEN	10.1	%	+/- 1%	Direct NIST and VSL
CARBON DIOXIDE	10.0	%	+/- 1%	Direct NIST and VSL
NITROGEN		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2350 23	04Jan2018	K024582	23.20 %	OXYGEN
NTRM 2300	17Aug2016	K026052	23.04 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
CAI/110P/V03018	07May2012	PARAMAGNETIC
PIR/2000/609015	07May2012	NDIR

ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

First Triad Analysis | **Second Triad Analysis** | **Calibration Curve**

OXYGEN

Date: 14May2012 Response Unit: %

Z1 = 0.00000	R1 = 23.20000	T1 = 10.09000
R2 = 23.20000	Z2 = 0.00000	T2 = 10.08000
Z3 = 0.00000	T3 = 10.08000	R3 = 23.20000

Avg. Concentration: 10.06 %

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999997
Constants: A = -0.04233969
B = 1.001808266 C = 0
D = 0 E = 0

CARBON DIOXIDE

Date: 17May2012 Response Unit: MV

Z1 = 0.00000	R1 = 99.10000	T1 = 60.30000
R2 = 99.10000	Z2 = 0.00000	T2 = 60.30000
Z3 = 0.00000	T3 = 60.30000	R3 = 99.10000

Avg. Concentration: 10.01 %

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999987
Constants: A = -0.00518415
B = 0.136464952 C = -0.0002272
D = 1.23741E-05 E = 0

APPROVED BY: _____
JEFF CROTEAU

E-2

AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22012

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 59933-71-65000
Document # : 47534369-003

Customer
CLEAN AIR ENGINEERING

DON ALLEN
500 WEST WOOD STREET
PALATINE IL 60067
US

ANALYTICAL INFORMATION Gas Type : OC2

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC121944 **Certification Date:** 11Sep2012 **Exp. Date:** 12Sep2020
Cylinder Pressure*:** 2000 PSIG **Batch No:** TRO0065750

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
OXYGEN	2.07 %	+/- 1%	Direct NIST and VSL
CARBON DIOXIDE	2.09 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2350 23	04Jan2018	K024582	23.20 %	OXYGEN
NTRM 2000 K	01Jun2013	K025967	5.006 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
CAI/110P/V03018	28Aug2012	PARAMAGNETIC
PIR/2000/609015	11Sep2012	NDIR

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis | Second Triad Analysis | Calibration Curve

OXYGEN

Date: 11Sep2012 Response Unit: %
Z1=0.00000 R1=23.20000 T1=2.08000
R2=23.20000 Z2=0.00000 T2=2.08000
Z3=0.00000 T3=2.08000 R3=23.20000
Avg. Concentration: 2.068 %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999
Constants: A=-0.01360934
B=1.000705107 C=0
D=0 E=0

CARBON DIOXIDE

Date: 11Sep2012 Response Unit: MV
Z1=0.00000 R1=100.0000 T1=46.70000
R2=100.0000 Z2=0.00000 T2=46.70000
Z3=0.00000 T3=46.70000 R3=100.0000
Avg. Concentration: 2.092 %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999
Constants: A=0.000913103
B=0.041430365 C=5.913E-05
D=2.70796E-07 E=0

APPROVED BY: JEFF CROTEAU

Airgas

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 568-2203 Fax: (323) 567-3686
www.airgas.com

Part Number:	E02NI99E15A0406	Reference Number:	48-124294203-8
Cylinder Number:	CC14436	Cylinder Volume:	144 Cu.Ft.
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32011	Valve Outlet:	350
		Analysis Date:	Dec 16, 2011

Expiration Date: Dec 16, 2014

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. 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 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON MONOXIDE	90.00 PPM	89.80 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	090605	CC286489	98.88PPM CARBON MONOXIDE/NITROGEN	Feb 01, 2013

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801551 CO	FTIR	Dec 08, 2011

Triad Data Available Upon Request

Notes:

Approved for Release

Download as...

11426 FAIRMONT PKWY, LA PORTE, TX 77571 Phone: 800-248-1427 Fax: 281-474-8419

RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A32011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
11426 FAIRMONT PKWY
LA PORTE, TX 77571

P.O. No.: STOCK
Document # : 43751811-001
Folio #:URS012

Customer
URS CORPORATION
9400 AMBERGLEN BLVD
AUSTIN TX 78729
US

ANALYTICAL INFORMATION Gas Type : NONE

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC215749
Cylinder Pressure*:** 2000 PSIG

Certification Date: 15Nov2011

Exp. Date: 16Nov2019
Batch No: LAP0052491

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON MONOXIDE 46.3	PPM	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1678	15Dec2011	KAL004179	48.60 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000929060	20Oct2011	FTIR

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis
CARBON MONOXIDE
Date: 08Nov2011 Response Unit: PPM
Z1=0.04763 R1=1246.779 T1=46.16463
R2=1246.808 Z2=0.05757 T2=46.16727
Z3=0.46298 T3=46.26108 R3=1247.792
Avg. Concentration: 46.26 PPM

Second Triad Analysis
Date: 15Nov2011 Response Unit: PPM
Z1=-0.01497 R1=48.58454 T1=46.16318
R2=48.59487 Z2=0.07493 T2=46.28466
Z3=0.11036 T3=46.33594 R3=48.65816
Avg. Concentration: 46.25 PPM

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99996E-1
Constants: A=0.00000E+0
B=8.39797E-1 C=5.13000E-4
D=1.00000E-6 E=0.00000E+0

Special Notes:
The expiration date has been extended without re-assay per EPA 600/R23-23/542.
Dew Point 40F CGA 350

QUALITY ASSURANCE

APPROVED BY: SARAH HERBERT
(signature on file)

Performance Specification Test Results for the CO and Wet O_2 CEMS for Fixed Hearth Unit 3

Prepared for:

Veolia ES Technical Solutions, L.L.C.
7 Mobile Avenue
Sauget, IL 62201

Prepared by:

URS Corporation
9400 Amberglen Boulevard (78729)
P. O. Box 201088
Austin, Texas 78720-1088

September 2013

Table of Contents

Page

1.0 Introduction 1-1

2.0 Summary of Results 2-1
2.1 Relative Accuracy 2-2

3.0 Test Protocol 3-1
3.1 Relative Accuracy 3-1

4.0 Quality Assurance 4-1

APPENDIX A – Relative Accuracy Spreadsheet and Reference Method Data
APPENDIX B – Reference Method Calibration Results
APPENDIX C – Unit 3 CEMS Relative Accuracy Data
APPENDIX D – Unit 3 Waste Feed Characterization Data
APPENDIX E – Reference Method EPA Protocol Gas Certifications

List of Tables

Page

1-1 General Facility and Testing Information 1-2
1-2 CEMS Identification 1-2

2-1 PST Requirements and Acceptance Criteria 2-1
2-2 CO CEMS Relative Accuracy Test Results 2-3
2-3 Wet O_2 CEMS Relative Accuracy Test Results..... 2-4

3-1 Oxygen Correction of Reference Method CO Concentration Results 3-4

1.0 Introduction

Veolia ES Technical Solutions, L.L.C. (Veolia) operates three incinerators at its Sauget, Illinois facility. Two of the incinerators are fixed hearth units (Units 2 and 3), and the third incinerator is a rotary kiln unit (Unit 4). All of the incinerators treat certain wastes that are classified as hazardous under state and/or federal regulations, and are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Hazardous Waste Combustors (Title 40 of the Code of Federal Regulations, Part 63 [40 CFR Part 63], Subpart EEE), (i.e., the HWC MACT). Unit 3 is equipped with a continuous emission monitoring system (CEMS) that consists of an oxygen (O_2) monitor and a carbon monoxide (CO) monitor which are used to monitor the emissions from the stack. The CEMS underwent Relative Accuracy (RA) Testing. This report presents the RA test results for the Unit 3 CO and wet O_2 CEMS. The general information regarding the testing at this facility is summarized in Table 1-1. The RA acceptance criteria are shown in Table 2-1.

The RA test of the Unit 3 CEMS was completed in September of 2013, as the initial step in the 2013 Comprehensive Performance Test of Unit 3. The CEMS were audited according to the RA procedures detailed in 40 CFR 60, Appendix B, Performance Specification 4B, "*Specifications and Test Procedures for Carbon Monoxide and Oxygen Continuous Monitoring Systems in Stationary Sources*" and 40 CFR 63 Subpart EEE, "*National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors*." The CEMS met all the RA criteria outlined in the above-cited references. Section 2.0 presents a detailed summary of these test results. Supporting documentation is located in the appendices.

The analyzer identification numbers and serial numbers for the monitors are presented below in Table 1-2. Veolia operates a CO analyzer, an O_2 analyzer, and a moisture analyzer. The oxygen correction of the plant CO concentrations is performed using a dry basis oxygen, derived from the measured wet basis oxygen concentration and the measured percent moisture. The Ecochem MC3 infrared CO analyzer is designed using a single sample cell equipped with an individual detector system for each of two measurement ranges (0-200 ppmv and 0-3,000 ppmv). The O_2 analyzer is a COSA electrochemical analyzer. Responses from each CEMS are recorded by the Control System (CS). Data printouts from these monitors documenting the CEMS performance are presented in Appendix C of this report. Characterization of waste fed during the RATA testing is included in Appendix D.

Table 1-1. General Facility and Testing Information
Unit 3 CEMS Performance Specification Testing

Facility Name	Veolia ES Technical Solutions, L.L.C.
Contact Person	David Klarich
Telephone Number	618-271-2804, x120
Facility Address	#7 Mobile Avenue Sauget, IL 62201
Types of Process Sampled	Fixed Hearth Incinerator Exhaust Gas
Person Responsible for Conducting Test	Michael Fuchs
Telephone Number	512-454-4797
Company Name	URS Corporation
Address	9400 Amberglen Boulevard Austin, Texas 78729
Person(s) Conducting Tests	Jesse Rocha Meggen DeLollis Megan Bowien Noah Prescott
Test Methods Performed	EPA Method 3A and EPA Method 10
Date of Testing	September 5, 2013

Table 1-2. CEMS Identification
Unit 3 CEMS Performance Specification Testing

Parameter	Manufacturer	Range	Analyzer Tag	Analyzer Serial Number
Carbon Monoxide	Ecochem MC3	0-200 ppmv	AT-388E	154
		0-3,000 ppmv		
Oxygen (Wet)	COSA	0-25%	AT-389	A6M4273T

2.0 Summary of Results

Detailed results are presented in this section. Section 2.1 details the results from the relative accuracy (RA) tests.

All test results were within the acceptance criteria as stated in the RA portion of 40 CFR 60, Appendix B, Performance Specification 4B, "*Specifications and Test Procedures for Carbon Monoxide and Oxygen Continuous Monitoring Systems in Stationary Sources.*" These criteria are shown below in Table 2-1.

All calculations are done with unrounded values, and therefore, it may not be possible to reproduce a calculated value exactly from the data shown in a table.

Table 2-1. PST Requirements and Acceptance Criteria
Unit 3 CEMS Performance Specification Testing

Parameters	CO Monitor		O_2 Monitor
	Low Range (0-200 ppmv)	High Range (0-3,000 ppmv)	Range (0-25%)
Relative Accuracy (RA)	10% of the average Reference Method (RM) value - or - 5% of the applicable standard (5 ppmv CO corrected to 7% O_2)		1.0% O_2

2.1 Relative Accuracy

Relative accuracy (RA) testing was performed by URS personnel on September 6, 2013. The relative accuracy test results are presented in Tables 2-2 and 2-3. RA testing compares the plant CEMS measurement of CO (corrected to 7% oxygen) and O_2 (on a wet basis) to the Reference Method (RM) measured using EPA Method 10 for CO and EPA Method 3A for O_2. Relative accuracy for the CO CEMS is calculated by adding the confidence coefficient to the absolute average difference between plant averages and the RM averages. Relative accuracy for the O_2 CEMS is equivalent to the absolute average difference between plant averages and the RM averages. The acceptance criterion is the greater of either 10% of the average RM or 5% of the applicable standard (5 ppmv CO corrected to 7% oxygen for the CO CEMS and 1.0% O_2 for the wet O_2 CEMS). All CEMS met the prescribed performance criteria.

Hard copies from the RM monitoring system along with hard copies of the relative accuracy calculation spreadsheet can be found in Appendix A. Hard copies of the Veolia Unit 3 CEMS data are presented in Appendix C.

Table 2-2. CO CEMS Relative Accuracy Test Results
Unit 3 CEMS Performance Specification Testing

Run Number	Date	Run Time	Reference Method (RM) CEMS (ppmv CO, corrected to 7% O_2)	Unit 3 CEMS (ppmv CO, corrected to 7% O_2)	Arithmetic Difference (ppmv CO)
1	9/5/2013	09:03-09:24	0.18	0.00	-0.18
2	9/5/2013	09:52-10:13	-0.50	0.00	0.50
3	9/5/2013	10:29-10:50	0.14	0.00	-0.14
4	9/5/2013	11:07-11:28	-0.29	0.00	0.29
5	9/5/2013	11:45-12:06	0.12	0.00	-0.12
6	9/5/2013	12:25-12:46	-0.63	0.00	0.63
7	9/5/2013	13:07-13:28	0.06	0.00	-0.06
8	9/5/2013	13:45-14:06	-0.30	0.00	0.30
9	9/5/2013	14:24-14:45	-0.97	0.00	0.97
10	9/5/2013	15:20-15:41	1.03	0.00	-1.03
				Absolute Average Difference	0.24
				Standard Deviation	0.40
				Confidence Coefficient (CC)	0.31
				Relative Accuracy (ppmv CO)	0.6

Note: Run 10 is not used in the calculation of Relative Accuracy.

Table 2-3. Wet O_2 CEMS Relative Accuracy Test Results
Unit 3 CEMS Performance Specification Testing

Run Number	Date	Run Time	Reference Method (RM) CEMS (% O_2, wet)	Unit 3 CEMS (% O_2, wet)	Arithmetic Difference (% O_2, wet)
1	9/5/2013	09:03-09:24	8.68	8.60	-0.08
2	9/5/2013	09:52-10:13	8.20	8.66	0.46
3	9/5/2013	10:29-10:50	8.85	8.68	-0.17
4	9/5/2013	11:07-11:28	7.81	8.62	0.81
5	9/5/2013	11:45-12:06	8.19	8.51	0.32
6	9/5/2013	12:25-12:46	8.40	8.58	0.18
7	9/5/2013	13:07-13:28	8.06	8.56	0.50
8	9/5/2013	13:45-14:06	8.44	8.66	0.22
9	9/5/2013	14:24-14:45	8.40	8.80	0.40
10	9/5/2013	15:20-15:41	8.36	8.53	0.17
				Absolute Average Difference	0.22
				Standard Deviation	0.23
				Relative Accuracy (% O_2, wet basis)	0.22

Note: Run 4 is not used in the calculation of Relative Accuracy.

3.0 Test Protocol

The carbon monoxide and oxygen monitors located at the Veolia Unit 3 location were audited according to the Relative Accuracy procedures outlined in 40 CFR 60, Appendix B, Performance Specification 4B, "*Specifications and Test Procedures for Carbon Monoxide and Oxygen Continuous Monitoring Systems in Stationary Sources*" and 40 CFR 63 Subpart EEE, "*National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors*."

3.1 Relative Accuracy

URS monitored the emission gas CO and O_2 concentrations from the Unit 3 Exhaust Stack location using mobile continuous emission monitors. A stainless-steel probe was inserted into the stack and used to collect sample gas. A heated Teflon sample line transported sample gas from the probe to the URS monitors located at ground level. The analyzers were kept at a constant temperature inside the mobile laboratory.

For each run, sample gas was collected over 21-minute test periods. Three traverse points across the Unit 3 Exhaust Stack interior diameter were selected according to the procedure outlined in 40 CFR 60, Appendix B, Performance Specification 2, Section 8.1.3.2, and sample gas was extracted at each of three points for seven minutes during the test period. The sampling location met PS 2 criteria by being greater than 2 stack interior diameters downstream from the nearest disturbance and greater than 0.5 stack interior diameters upstream of the stack exhaust orifice. At the mobile laboratory, the stack gas is split between the wet and dry analyzers. The portion of the sample gas that is not sent directly to the wet O_2 analyzer is routed to a condenser and then transported to the dry O_2 and dry CO analyzers for analysis. CO analyses were performed in accordance with EPA Method 10. O_2 analyses were performed in accordance with EPA Method 3A.

URS used a Thermo Model 48C CO analyzer to measure the CO concentration according to EPA Method 10. This analyzer is a gas filter correlation (GFC) analyzer. The analyzer measures CO by comparing infrared absorption of a reference concentration to the absorption of the sample. The Thermo Model 48C CO measurements are not affected by carbon dioxide. For this reason, the CO_2 interference trap was not incorporated into the extraction system. The exclusion of the CO_2 interference trap eliminates the need to correct sample concentration, improving the accuracy of the analyses. URS has demonstrated through in-house testing that CO_2 is not an interferant at typical combustion CO_2 concentration levels by introducing 20% CO_2 calibration standards to a calibrated Thermo 48. The instrument's response to this gas was less than 2 ppmv (1% of scale).

URS measured both dry and wet oxygen concentrations for the duration of the Unit 3 RA test. From these two measurements, URS was able to calculate the moisture percentage and then use the percent moisture to convert the RM wet oxygen concentrations from each run to dry bases. The oxygen corrections of RM CO concentrations were calculated using this dry basis oxygen. Table 3-1 presents the concentration data for the steps of this calculation for all runs.

Dry oxygen was measured using a Servomex Series 1440 O_2 analyzer. This analyzer measures O_2 on the basis of its paramagnetic properties. Wet oxygen was measured using an Ametek RM CEM O_2/IQ analyzer. This analyzer measures O_2 on a wet basis using a zirconium oxide sensor.

The analyzers' electronic output signals were converted to a digital format and stored by a computerized data acquisition system. The system translated this digital signal into the proper units of measurement (ppmv CO, % O_2) and stored them on a hard disk. The system stored the data as ten-second averages.

The analyzers were calibrated prior to initiating testing using appropriately certified standards as specified by EPA Methods 10 and 3A. Both of these methods reference procedures specified in EPA Method 7E for calibration, standardization, calculation, and data analysis. The URS system response was then checked. The total system, which included the probe, sample line, sample pump, and water trap, was incorporated into the system response. A system response time test was performed and documented for each instrument. The system drift was calculated using the pre- and post-test system responses. These checks ensured that the system remained within the tolerance level defined by the above EPA methods. A sampling system calibration bias correction was applied to all RM CO and O_2 data measured during each test run by using equation EPA Method 7E-5:

$$C_{gas} = (C_{avg} - {}_{o})x\frac{C_{ma}}{(C_m - C_o)}$$

Where:

C_{gas} = Effluent gas concentration, dry basis, percent or ppmv;

C_{avg} = Average gas concentration indicated by analyzer, dry basis, percent or ppmv;

C_m = Average of initial and final system calibration bias check responses for the upscale calibration gas, percent or ppmv;

C_{ma} = Actual concentration of the upscale calibration gas, percent or ppmv; and

C_o = Average of initial and final system calibration bias check responses for the zero calibration gas, percent or ppmv.

The data from each 21-minute test period was averaged for each of the RA runs. This averaged data was tabulated as shown in Tables 2-2 and 2-3. The arithmetic differences between the URS reference method (RM) results for the analyte gas concentrations and the Unit 3 CEMS results for the analyte gas concentrations are also tabulated there. Carbon monoxide results for both the RM and the Unit 3 CEMS were corrected to 7% oxygen before calculating arithmetic differences. The absolute average difference, standard deviation (S_d) and confidence coefficient (CC) of the arithmetic differences were calculated using the equations described in 40 CFR 60, Appendix B, PS 2, Section 12. At least nine runs must be used to determine relative accuracy. Ten runs were performed during the September 6, 2013 RA testing. The RA procedures allow, at the tester's discretion, for up to three tests to be rejected from the calculations to determine average difference and standard deviation. After rejecting one unwanted run, the confidence coefficient (CC) was calculated according to the following equation:

$$CC = t_{0.975} x \frac{S_d}{\sqrt{n}}$$

Where:

$t_{0.975}$ = 97.5% Student- t variable (2.306 for nine runs); and

n = Number of tests used (must be ≥ 9).

Relative accuracy for the Unit 3 CO CEMS was calculated in ppmv CO according to 40 CFR 60, Appendix B, PS 4A, Section 13.2, by adding together the absolute value of the average difference between the RM and Unit 3 CEMS and the confidence coefficient applicable to nine test runs. Relative accuracy for the Unit 3 O_2 CEMS was calculated in % O_2 according to 40 CFR 60, Appendix B, PS 3, Section 12.0, and was equivalent to the absolute average difference between the RM and Unit 3 CEMS for nine test runs.

Table 3-1. Oxygen Correction of Reference Method CO Concentration Results
Unit 3 CEMS Performance Specification Testing

Run Number	Date	Run Time	Wet O_2 (%, wet basis)	Dry O_2 (%, dry basis)	Moisture (%)	Wet O_2 (%, dry basis)	CO (ppmv, dry basis)	CO (ppmv, @ 7% O_2)
1	9/5/2013	09:03-09:24	8.68	12.95	32.96	12.95	0.10	0.18
2	9/5/2013	09:52-10:13	8.20	13.06	37.22	13.06	-0.28	-0.50
3	9/5/2013	10:29-10:50	8.85	13.12	32.55	13.12	0.08	0.14
4	9/5/2013	11:07-11:28	7.81	12.94	39.66	12.94	-0.16	-0.29
5	9/5/2013	11:45-12:06	8.19	12.87	36.39	12.87	0.07	0.12
6	9/5/2013	12:25-12:46	8.40	12.84	34.59	12.84	-0.37	-0.63
7	9/5/2013	13:07-13:28	8.06	12.88	37.39	12.88	0.03	0.06
8	9/5/2013	13:45-14:06	8.44	13.17	35.88	13.17	-0.17	-0.30
9	9/5/2013	14:24-14:45	8.40	13.16	36.18	13.16	-0.54	-0.97
10	9/5/2013	15:20-15:41	8.36	12.73	34.33	12.73	0.60	1.03

4.0 Quality Assurance

To ensure accurate and defensible results, strict quality assurance and control measures were followed. All testing was performed following standard EPA protocol as outlined in 40 CFR, Part 60, Appendices A and B. All PST testing was performed while the plant was operating under normal conditions with at least 50% load from waste feeds and/or natural gas. Hard copies of incinerator waste feed rate data are included in Appendix D. All test criteria were thoroughly documented and checked for completeness. EPA Protocol gas certification documentation for compressed gas cylinders used during the RA testing is included in Appendix E.

The CO and O_2 analyzers used by URS were operated and calibrated in accordance with the EPA Methods 10 and 3A except that the CO_2 interference trap was not used. The gas filter correlation analyzer used for CO measurement uses the characteristic absorption of infrared light by CO molecules to measure its relative concentration. This is a highly specific method for determining CO and is virtually free of interference from compounds such as water or carbon dioxide. System bias checks were performed before and after each test run to ensure that the measuring systems remained within their performance specifications. All method performance specifications were met. Calibration results are documented in Appendix B.

APPENDIX A

Relative Accuracy Spreadsheet and Reference Method Data

Veolia Sauget Unit 3 RATA
Relative Accuracy Results

		REFERENCE METHOD						STACK ANALYZERS				ARITHMETIC DIFFERENCE			
9/5/2013	TIME	O_2, Wet (%)	O_2, Dry (%)	Moisture (%)	O_2, Dry (%, from Wet)	CO (ppm)	CO (O_2 Corr) (ppm)	O_2, Wet (%)	Use of Run[1]	CO (O_2 Corr) (ppm)	Use of Run[1]	O_2, Wet (%)	Use of Run[1]	CO (O_2 Corr) (ppm)	Use of Run[1]
Run 1	09:03-09:24	8.68	12.95	32.96	12.95	0.10	0.18	8.60		0.00		-0.08		-0.18	
Run 2	09:52-10:13	8.20	13.06	37.22	13.06	-0.28	-0.50	8.66		0.00		0.46		0.50	
Run 3	10:29-10:50	8.85	13.12	32.55	13.12	0.08	0.14	8.68		0.00		-0.17		-0.14	
Run 4	11:07-11:28	7.81	12.94	39.66	12.94	-0.16	-0.29	8.62	X	0.00		0.81	X	0.29	
Run 5	11:45-12:06	8.19	12.87	36.39	12.87	0.07	0.12	8.51		0.00		0.32		-0.12	
Run 6	12:25-12:46	8.40	12.84	34.59	12.84	-0.37	-0.63	8.58		0.00		0.18		0.63	
Run 7	13:07-13:28	8.06	12.88	37.39	12.88	0.03	0.06	8.56		0.00		0.50		-0.06	
Run 8	13:45-14:06	8.44	13.17	35.88	13.17	-0.17	-0.30	8.66		0.00		0.22		0.30	
Run 9	14:24-14:45	8.40	13.16	36.18	13.16	-0.54	-0.97	8.80		0.00		0.40		0.97	
Run 10	15:20-15:41	8.36	12.73	34.33	12.73	0.60	1.03	8.53		0.00	X	0.17		-1.03	X
											Number of Runs Used in Calculation (n)	9		9	
											Average Difference (d_{AVG})	0.22		0.24	
											Standard Deviation (S_d)	0.23		0.40	
											t-Value ($t_{0.975}$)	2.306		2.306	
											Confidence Coeffient (CC)	0.18		0.31	
											Permit Limit			100	
											Average of Reference Method (RM_{AVG})	8.40		-0.24	
											Relative Accuracy (O_2, CO_2) ($\lvert d_{AVG} \rvert$)	0.22			
											Relative Accuracy (CO, NO_X, SO_2) ($\lvert d_{AVG} \rvert + \lvert CC \rvert$)			0.6	
											Relative Accuracy (% of Permit Limit) (RA)			0.6	

[1] An X in this column denotes a run which is not used in calculation of relative accuracy.

2013 Unit 3 CEMS RATA
Bias Corrected Concentrations
09/05/2013

Veolia Sauget Unit 3 RATA

Uncorrected Concentrations				
5-Sep-13	Time	O_2, Wet (%)	O_2, Dry (%)	CO (ppm)
Run 1	09:03-09:24	9.00	12.85	0.3
Run 2	09:52-10:13	8.62	12.93	-0.1
Run 3	10:29-10:50	9.14	12.99	0.3
Run 4	11:07-11:28	8.30	12.81	-0.1
Run 5	11:45-12:06	8.60	12.74	-0.2
Run 6	12:25-12:46	8.69	12.72	-0.6
Run 7	13:07-13:28	8.40	12.75	-0.3
Run 8	13:45-14:06	8.75	13.02	-0.5
Run 9	14:24-14:45	8.43	13.01	-1.0
Run 10	15:20-15:41	8.47	12.58	0.4

Corrected Wet O_2 Conc.					
5-Sep-13	Time	O_2 (%)	Eq. 7E-5 Factors		Bias Corrected Concentration
			C_O	$C_{MA}/(C_M-C_O)$	
Run 1	09:03-09:24	9.00	2.02	1.24	8.68
Run 2	09:52-10:13	8.62	2.02	1.24	8.20
Run 3	10:29-10:50	9.14	2.01	1.24	8.85
Run 4	11:07-11:28	8.30	2.01	1.24	7.81
Run 5	11:45-12:06	8.60	2.01	1.24	8.19
Run 6	12:25-12:46	8.69	1.92	1.24	8.40
Run 7	13:07-13:28	8.40	1.92	1.24	8.06
Run 8	13:45-14:06	8.75	2.00	1.25	8.44
Run 9	14:24-14:45	8.43	1.91	1.29	8.40
Run 10	15:20-15:41	8.47	1.93	1.28	8.36

Corrected Dry O_2 Conc.					
5-Sep-13	Time	CO_2 (%)	Eq. 7E-5 Factors		Bias Corrected Concentration
			C_O	$C_{MA}/(C_M-C_O)$	
Run 1	09:03-09:24	12.85	0.01	1.01	12.95
Run 2	09:52-10:13	12.93	0.03	1.01	13.06
Run 3	10:29-10:50	12.99	0.04	1.01	13.12
Run 4	11:07-11:28	12.81	0.04	1.01	12.94
Run 5	11:45-12:06	12.74	0.04	1.01	12.87
Run 6	12:25-12:46	12.72	0.04	1.01	12.84
Run 7	13:07-13:28	12.75	0.04	1.01	12.88
Run 8	13:45-14:06	13.02	0.04	1.01	13.17
Run 9	14:24-14:45	13.01	0.04	1.01	13.16
Run 10	15:20-15:41	12.58	0.03	1.01	12.73

Corrected CO Conc.					
5-Sep-13	Time	CO (ppm)	Eq. 7E-5 Factors		Bias Corrected Concentration
			C_O	$C_{MA}/(C_M-C_O)$	
Run 1	09:03-09:24	0.32	0.21	1.02	0.1
Run 2	09:52-10:13	-0.07	0.20	1.02	-0.3
Run 3	10:29-10:50	0.29	0.22	1.01	0.1
Run 4	11:07-11:28	-0.13	0.03	1.01	-0.2
Run 5	11:45-12:06	-0.25	-0.32	1.02	0.1
Run 6	12:25-12:46	-0.61	-0.25	1.03	-0.4
Run 7	13:07-13:28	-0.27	-0.30	1.03	0.0
Run 8	13:45-14:06	-0.53	-0.37	1.04	-0.2
Run 9	14:24-14:45	-0.98	-0.48	1.07	-0.5
Run 10	15:20-15:41	0.38	-0.20	1.06	0.6

Project Name 2013 CPT RATAs	Page 1 of 4
Project Number 409425~~1625~~ MDD 9/5/13	Operator MDD|MLB|MMP
Facility Veolia Sauget	Condition(s) RATA
Source Unit 3 stack	Run(s)
	Date 9/5/13

Calibration Gases

Component(s)[1]	Supplier[2]	Concentration(s)	Cylinder ID
N_2	AG	Pure	Lot# 52-400143157-1A
O_2|CO_2	S	2.07% O_2 / 2.09 CO_2	CC121944
	AL	22.5% | 19.2%	CC189665
⊥	AL	11.0% O_2 9.47% CO_2	CC157679
CO	AG	89.80 ppm	CC14436
⊥	AL	46.3 ppm	CC215749

MDD 9/5/13

[1] Indicate multi-component standards appropriately
[2] Code: AG-Airgas; AL-Air Liquide; S-Scott; P-Praxair

Instrument Identification

Analyte	Manufacturer[3]	Model Number	Serial Number	Instrument Name
O_2 Dry	S	1440	01440D1|4393	Waits
O_2 Wet	Ametek	RM CEMO2/IO	10215783-2	Asset # 207720
CO	T	48C	48C-76896-384	Iggy
—	Monarch	2000	5724415	Kant

[3] Code: T-Thermo; W-Western; C-California; S-Servomex; O-Omega

Method Performance Checks

Activity	Method	Criterion	Initials
Span Selection	3A, 6C, 7E, 10	Emissions between 20% and 100% of calibration span	MDD
	25A	Span 1.5-2.5 times the emission limit; if no emission limit, span 1.5-2.5 times expected level	—
Calibration Gas Selection	3A, 6C, 7E, 10	Protocol gas; calibration span, 40-60% of calibration span, and <20% of calibration span (or zero gas)	MDD
	25A	Protocol gas: 25-35%, 45-55% and 80-90% of span, zero grade air	—
Calibration Error	3A, 6C, 7E, 10	Span gas within ±2.0% of calibration span	MDD
		Mid-range gas within ±2.0% of calibration span	MDD
		Zero gas within ±2.0% of calibration span	MDD
	25A	Low-range gas within 5% of certified value	—
		Mid-range gas within 5% of certified value	—
		Span gas within 5% of certified value	—
Converter Check	7E	≥90% converter efficiency	—
System Bias Check	3A, 6C, 7E, 10	Gas through system agrees with calibration error value for that gas within ±5.0% of calibration span	MDD
Response Time	3A, 6C, 7E, 10, 25A	No criteria, evaluated to determine duration at sample points	MDD
Sample Flow Rate	3A, 6C, 7E, 10	Stable sample flow rate within 10% of flow rate established during system response time check and bias check	MDD
3 Point Stratification Check[2,3]	3A, 6C, 7E, 10	± 5% of mean at each point – single point ± 5-10% of mean at each point – 3 points > ± 10% of mean at each point 12 points	MDD
Post-Test Calibration Drift Check	3A, 6C, 7E, 10	Selected gas reading within ±3.0% of calibration span of pre-test reading	MDD
		Zero gas within ±3.0% of calibration span of pre-test reading	MDD
	25A	Selected gas reading within ±3% of span of pre-test reading	—
		Zero gas within ±3% of span of previous reading	—

[2] The stratification check criteria do not apply to RATA.
[3] The stratification check is not required for stacks or ducts <4 inches in diameter

Hourly Drift Check (M25A only)

	Okay (initials)					
	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6
Selected gas reading within ±3% of span of initial reading						
Zero gas within ±3% of span of initial reading		NA				

R5-2014-0104710000299

CEMS Operation Log

Project Name 2013 CPT RATAs	**Page** 2 of 4
MDD 9/5/13 **Project Number** 409425~~10~~25	**Operator** MDD/MLB
Facility Veolia Sauget	**Condition(s)** RATA
Source Unit 3 Stack	**Run(s)** Runs 1-3
	Date 9/5/13

Time	Activity	Analyzer Response						Sample Flow Rate
		O_2 wet	O_2 dry	CO_2 dry	CO dry			
	Turn on Analyzers [1]	--	--	--	--	--	--	
MDD 9/5/13 0731	Cal Error N_2 zero	~~0~~	-0.04	0.03	-0.42			4 Lpm
0733	22.5% O_2 / 19.2% CO_2 Span	—	22.68	19.21	—			↓
0734	11.0% O_2 / 9.47% CO_2 Mid	—	11.01	9.56	—			↓
0737	89.80 ppm CO Span	—	—	—	89.77			↓
0738	46.3 ppm CO Mid	—	—	—	45.92			↓
0748	Cal Bias N_2 zero	0.01	-0.02	0.05	-0.02			4 Lpm
0750	46.3 ppm CO Mid	—	—	—	45.52			↓
0755	2.07% O_2 / 2.09% CO_2 Low	2.00	2.04	2.15	—			↓
0757	22.5% O_2 / 19.2% CO_2 Span	22.56	22.38	18.79	—			↓
0800	11.0% O_2 / 9.47% CO_2 Mid	10.86	10.94	9.38	—			↓
0801	2.07% O_2 / 2.09% CO_2 low	2.03	2.10	2.22	—			↓
0803	11.0% O_2 / 9.47% CO_2 mid	10.83	10.93	9.35	—			↓
0807	Start RT							4 Lpm
0822	End RT							↓
0903	Start RATA Run 1							4 Lpm
0924	End RATA Run 1							↓
0926	Cal Bias N_2 zero	—	0.04	0.05	0.68			4 Lpm
0929	46.3 ppm CO mid	—	—	—	45.22			↓
0930	2.07% O_2 / 2.09% CO_2 low	2.01	2.06	2.14	—			↓
0933	11.0% O_2 / 9.47% CO_2 Mid	10.88	10.89	9.31	—			↓
0952	Start RATA Run 2							4 Lpm
1013	End RATA Run 2							↓
1015	Cal Bias N_2 zero	—	0.03	0.06	0.08			4 Lpm
10:18	46.3 ppm CO mid	—	—	—	45.52			↓
10:20	2.07% O_2 / 2.09% CO_2 low	2.01	2.06	2.15	—			↓
10:23	11.0% O_2 / 9.47% CO_2 mid	~~10.89~~	10.91	9.33	—			↓
1029	Start RATA Run 3							4 Lpm
1050	End RATA Run 3							↓
1053	Cal Bias N_2 zero	—	0.05	0.08	0.11			4 Lpm
1056	46.3 ppm CO Mid	—	—	—	46.43			↓

Comments

[1] "Turn On Analyzers" is to document sufficient warm-up time. If applicable, "yesterday" is an acceptable entry.

CEMS Operation Log

Project Name 2013 CPT RATAs	Page 3 of 4
Project Number 409425~~18~~25 (MDD 9/5/13)	Operator MDD/MLB/NMP
Facility Veolia Sauget	Condition(s) RATA
Source Unit 3 Stack	Run(s)
	Date 9/5/13

Time	Activity	Analyzer Response						Sample Flow Rate
		O_2 wet	O_2 dry	CO_2 dry	CO dry			
	Turn on Analyzers [1]	--	--	--	--	--	--	
1058	2.09% O_2 / 2.09% CO_2 Low	2.01	2.05	2.13	—			4 Lpm
1059	11.0% O_2 / 9.47% CO_2 Mid	10.84	10.88	9.29	—			⊥
1107	Start RATA Run 4							4 Lpm
1128	End RATA Run 4							⊥
1130	Cal Bias N_2 zero	—	0.04	0.06	-0.22			4 Lpm
1133	46.3 ppm CO Mid	—	—	—	46.23			⊥
1134	2.07% O_2 / 2.09% CO_2 low	2.01	2.06	2.14	—			⊥
1136	11.0% O_2 / 9.47% CO_2 Mid	10.83	10.88	9.28	—			⊥
1145	Start RATA Run 5							4 Lpm
1206	End RATA Run 5							⊥
1208	Cal Bias N_2 Zero	—	0.05	0.06	-0.51			4 Lpm
1211	46.3 ppm CO Mid	—	—	—	44.92			⊥
1212	2.07% O_2 / 2.09% CO_2 low	2.01	2.06	2.15	—			⊥
1214	11.0% O_2 / 9.47% CO_2 Mid	10.85	10.88	9.29	—			⊥
1225	Start RATA Run 6							4 Lpm
1246	End RATA Run 6							⊥
1251	Cal Bias N_2 Zero	—	0.06	0.08	-0.11			4 Lpm
1253	46.3 ppm CO mid	—	—	—	43.82			⊥
1254	2.07% O_2 / 2.09% CO_2 low	1.80	2.06	2.13	—			⊥
1258	11.0% O_2 / 9.47% CO_2 Mid	10.65	10.91	9.34	—			⊥
1307	Start RATA Run 7							4 Lpm
1328	End RATA Run 7							⊥
1330	Cal Bias N_2 Zero	—	0.06	0.08	-0.32			4 Lpm
1332	46.3 ppm CO mid	—	—	—	44.62			⊥
1333	2.07% O_2 / 2.09% CO_2 low	2.08	2.06	2.14	—			⊥
1335	11.0% O_2 / 9.47% CO_2 Mid	10.80	10.87	9.28	—			⊥
1345	Start RATA Run 8							4 Lpm
1406	End RATA Run 8	NMP 9/5/13						⊥
1409	Cal Bias N_2 zero	~~0.~~ —	0.04	0.07	-1.22			4 LPM
1411	46.3 ppm CO Mid	—	—	—	44.02			⊥

Comments

[1] "Turn On Analyzers" is to document sufficient warm-up time. If applicable, "yesterday" is an acceptable entry.

CEMS Operation Log

NMP
9/5/13

Project Name 2013 CPT RATAs	Page 4 of 4
Project Number 409425~~10~~25	Operator MDD / MLB / NMP
Facility Veolia Sauget	Condition(s) RATA
Source Unit 3 Stack	Run(s)
	Date 9/5/13

Time	Activity	Analyzer Response						Sample Flow Rate
		O_2 Wet	O_2 Dry	CO_2 Dry	CO Dry			
	Turn on Analyzers [1]	--	--	--	--	--	--	
1413	2.07% O_2/2.09% CO_2 Low	2.00	2.06	2.14	—			4 LPM
1415	11.0% O_2/9.47% CO_2 Mid	10.78	10.88	9.27	—			⊥
1424	Start RATA Run 9							4 LPM
1445	End RATA Run 9							⊥
1448	Cal Bias N_2 Zero	—	0.06	0.09	-.83			4 LPM
1451	46.3 ppm CO Mid	—	—	—	42.10			⊥
1452	2.07% O_2/2.09% CO_2 Low	1.80	2.06	2.15	—			⊥
1455	11.0% O_2/9.47% CO_2 Mid	10.12	10.90	9.33	—			⊥
NMP	~~Start RATA Run 10~~							
9/5/13	~~Cal Bias N_2 Zero~~				—			
1517	2.07% O_2/2.09% CO_2 Low	2.05	2.09	2.20	—			4 LPM
1518	11.0% O_2/9.47% CO_2 Mid	10.97	10.86	9.27	—			⊥
1520	Start RATA Run 10							4 LPM
1541	End RATA Run 10							⊥
1545	Cal Bias N_2 Zero	—	0.04	0.08	0.18			4 LPM
1547	46.3 ppm CO Mid	—	—	—	44.83			⊥
1549	2.07% O_2/2.09% CO_2 Low	2.04	2.05	2.16	—			⊥
1550	11.0% O_2/9.47% CO_2 Mid	10.95	10.85	9.26	—			⊥

Not Used
MDD 9/5/13

Comments

[1] "Turn On Analyzers" is to document sufficient warm-up time. If applicable, "yesterday" is an acceptable entry.

Response Time Determination – EPA Method 7E

Applicable to Performance of EPA Methods 3A, 6C, 7E and 10

Project Name: 2013 CPT RATAs
MDD 9/5/13 **Project Number:** 4094251825
Location: Veolia Sauget

Source: Unit 3
Date: 9/5/2013
Time 0807 – 0822

Parameter	Wet O_2		Dry O_2		Dry CO	
Analyzer Make and Model	Ametek RM CEMS O_2 IQ		Servomex 1440		Thermo 48C	
Analyzer Name	Asset # 207720		Waits		Iggy	
Analyzer Range	0 – 25%		0 – 25%		0 – 100 ppm	
From	Zero	Upscale	Zero	Upscale	Zero	Upscale
To	Upscale	Zero	Upscale	Zero	Upscale	Zero
Start Time (hh:mm)	0807	0808	0811	8:12:30	0818 ~~0815~~ mb	0820
15 sec	2.01	21.05	−0.06	22.36	0.40 ~~0.04~~ mb	82.00 ~~28.18~~
30 sec	22.15	2.10	21.24	0.47	0.40 ~~0.04~~ ~~0.47~~ mb	58.76
45 sec	22.29	2.04	22.10	0.05	28.81 ~~0.04~~ mb	24.70
60 sec	22.35	2.02	22.18	0.01	61.14 ~~0.04~~ mb	6.28
75 sec			22.21	−0.01	86.42	0.98
90 sec			22.39	−0.01	92.37	0.52
105 sec					92.38	0.28
120 sec					92.27	
135 sec						
150 sec						
165 sec						
180 sec						
195 sec						
Response Time [1]	30 sec	30 sec	45 sec	30 sec	75 sec	75 sec
Analyzer Response Time [2]	30 sec		45 sec		75 sec	

[1] Time in seconds to reach 95% of final stable value.
[2] Greater of upscale and downscale response time

	Cylinder Number	Actual Value
Upscale	CC189665	22.5% O_2
Upscale	CC14436	89.80 ppm CO
Upscale	—	—
Zero	52-400193157-1A	0

Zero CC121944 2.07% O_2

FDS-10 EPA 7E CEM Response Time
Per EM SOP-037
Revision Date: October 2009
Reviewed: August 2012

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 07:09:28	20.4951	20.9427	-0.272	75.502
09/05/2013 07:09:38	20.4901	20.9417	-0.316	75.301
09/05/2013 07:09:48	20.4901	20.9372	-0.371	75.902
09/05/2013 07:09:58	20.4483	20.9382	-0.199	76.102
09/05/2013 07:10:08	20.5021	20.9392	-0.074	76.102
09/05/2013 07:10:18	20.4936	20.9407	-0.284	76.202
09/05/2013 07:10:28	20.5193	20.9382	-0.268	76.202
09/05/2013 07:10:38	20.5092	20.9382	0.103	76.602
09/05/2013 07:10:48	20.476	20.9392	0.061	75.702
09/05/2013 07:10:58	20.478	20.9372	-0.064	74.101
09/05/2013 07:11:08	20.3904	20.9382	-0.074	73.701
09/05/2013 07:11:18	17.1319	20.9402	-0.064	73.502
09/05/2013 07:11:28	16.2965	20.9382	-0.236	73.201
09/05/2013 07:11:38	20.5152	20.9402	-0.47	73.002
09/05/2013 07:11:48	15.2842	20.9342	-0.078	72.602
09/05/2013 07:11:58	14.7891	20.9322	-0.103	72.501
09/05/2013 07:12:08	16.3613	20.9382	-0.254	72.302
09/05/2013 07:12:18	16.8706	20.9382	-0.008	71.702
09/05/2013 07:12:28	15.2693	20.9382	0.026	71.003
09/05/2013 07:12:38	14.9747	20.9392	-0.129	71.202
09/05/2013 07:12:48	15.2538	20.9427	-0.46	71.402
09/05/2013 07:12:58	15.8376	20.9332	-0.617	71.402
09/05/2013 07:13:08	17.0705	20.9372	-0.379	71.202
09/05/2013 07:13:18	17.3273	20.9382	-0.038	71.702
09/05/2013 07:13:28	17.8414	20.9382	0.081	72.602
09/05/2013 07:13:38	19.1114	20.9417	-0.04	72.602
09/05/2013 07:13:48	20.3747	20.9402	-0.177	72.602
09/05/2013 07:13:58	20.3385	20.9392	-0.216	73.002
09/05/2013 07:14:08	20.27	20.9362	-0.099	73.502
09/05/2013 07:14:18	20.4563	20.9392	-0.078	73.701
09/05/2013 07:14:28	20.5072	20.9402	-0.177	73.701
09/05/2013 07:14:38	20.4901	20.9352	-0.04	73.701
09/05/2013 07:14:48	20.484	20.9342	-0.159	73.901
09/05/2013 07:14:58	20.4855	20.9417	-0.187	73.901
09/05/2013 07:15:08	20.4276	20.9392	-0.445	74.101
09/05/2013 07:15:18	20.4563	20.9407	-0.361	74.401
09/05/2013 07:15:28	20.4901	20.9372	-0.216	74.601
09/05/2013 07:15:38	20.4901	20.9392	-0.026	74.601
09/05/2013 07:15:48	20.4986	20.9382	0.081	75.202
09/05/2013 07:15:58	20.4795	20.9382	0.018	75.301
09/05/2013 07:16:08	20.4528	20.9352	0.043	75.301
09/05/2013 07:16:18	20.483	20.9352	-0.048	75.301
09/05/2013 07:16:28	20.4795	20.9342	-0.185	75.502
09/05/2013 07:16:38	20.4543	20.9402	-0.155	75.702
09/05/2013 07:16:48	20.5021	20.9427	-0.25	76.102
09/05/2013 07:16:58	20.4613	20.9392	-0.577	76.602
09/05/2013 07:17:08	20.4976	20.9392	-0.298	76.802
09/05/2013 07:17:18	20.4936	20.9402	-0.117	76.802
09/05/2013 07:17:28	20.4986	20.9417	0.091	76.802
09/05/2013 07:17:38	20.4734	20.9478	-0.169	76.602
09/05/2013 07:17:48	20.4624	20.9417	0.172	76.202
09/05/2013 07:17:58	20.4875	20.9427	0.034	75.502
09/05/2013 07:18:08	20.5152	20.9392	0.301	74.801
09/05/2013 07:18:18	17.6209	20.9362	-0.22	73.901
09/05/2013 07:18:28	15.9329	20.9372	-0.026	73.502
09/05/2013 07:18:38	16.991	20.9478	0.111	72.802
09/05/2013 07:18:48	15.9013	20.9447	0.081	72.501
09/05/2013 07:18:58	16.3143	20.9437	0.43	72.102
09/05/2013 07:19:08	16.5227	20.9407	0.022	71.902
09/05/2013 07:19:18	15.0515	20.9458	-0.147	71.702
09/05/2013 07:19:28	18.0554	20.9458	-0.187	70.801
09/05/2013 07:19:38	16.7986	20.9498	-0.357	70.502
09/05/2013 07:19:48	20.5213	20.9372	-0.698	70.502
09/05/2013 07:19:58	20.4659	20.9437	-1.448	70.502
09/05/2013 07:20:08	20.4986	20.9447	-0.599	71.003
09/05/2013 07:20:18	20.4613	20.9407	-0.401	71.003
09/05/2013 07:20:28	20.4936	20.9437	-0.448	71.602
09/05/2013 07:20:38	20.4986	20.9437	-0.00015	72.102
09/05/2013 07:20:48	20.5193	20.9392	-0.238	72.501
09/05/2013 07:20:58	20.5132	20.9437	0.069	72.802
09/05/2013 07:21:08	20.5117	20.9427	-0.00015	73.502
09/05/2013 07:21:18	20.4719	20.9427	0.371	73.901
09/05/2013 07:21:28	20.4875	20.9478	-0.048	74.101
09/05/2013 07:21:38	20.5142	20.9437	-0.091	74.302
09/05/2013 07:21:48	20.4961	20.9382	-0.169	74.601
09/05/2013 07:21:58	20.4815	20.9322	-0.294	75.002
09/05/2013 07:22:08	20.478	20.9468	0.133	75.002
09/05/2013 07:22:18	20.5057	20.9553	-0.018	75.002
09/05/2013 07:22:28	20.3843	21.0601	-0.04	75.002
09/05/2013 07:22:38	20.3783	0.9825	0.206	75.301
09/05/2013 07:22:48	20.3445	0.0583	-0.242	75.301
09/05/2013 07:22:58	19.1632	-0.0209	-0.496	75.502
09/05/2013 07:23:08	20.2917	0.0238	-0.367	75.702
09/05/2013 07:23:18	20.3601	-0.0149	-0.544	75.502
09/05/2013 07:23:28	20.3808	-0.0209	-0.466	75.502
09/05/2013 07:23:38	20.3949	-0.0221	-0.569	75.301
09/05/2013 07:23:48	20.3929	-0.0256	-0.617	75.502
09/05/2013 07:23:58	20.3888	-0.0268	0.061	75.502
09/05/2013 07:24:08	20.3853	2.575	0.159	75.502

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 07:24:18	20.4095	22.4896	0.103	75.702
09/05/2013 07:24:28	20.3768	22.6623	0.004	75.902
09/05/2013 07:24:38	15.408	22.7882	-0.177	76.202
09/05/2013 07:24:48	20.3506	22.7892	-0.617	77.001
09/05/2013 07:24:58	20.1099	22.7968	-0.798	77.102
09/05/2013 07:25:08	15.1503	22.7978	-0.738	76.802
09/05/2013 07:25:18	20.3843	22.7998	-0.879	76.802
09/05/2013 07:25:28	15.5008	22.7081	-0.996	77.001
09/05/2013 07:25:38	14.9575	22.611	-0.857	76.802
09/05/2013 07:25:48	15.5936	22.612	-0.655	76.402
09/05/2013 07:25:58	14.3868	22.61	-0.617	76.202
09/05/2013 07:26:08	15.9412	22.6145	-0.617	76.202
09/05/2013 07:26:18	17.3077	22.4659	-0.448	76.202
09/05/2013 07:26:28	14.2053	22.0596	-0.331	76.402
09/05/2013 07:26:38	17.2452	21.9569	-0.401	77.302
09/05/2013 07:26:48	15.3348	21.912	-0.583	77.102
09/05/2013 07:26:58	15.7633	21.8375	-0.617	77.001
09/05/2013 07:27:08	15.8966	0.8337	-0.363	76.802
09/05/2013 07:27:18	14.5724	0.1987	7.334	76.102
09/05/2013 07:27:28	16.5901	0.0136	29.448	75.502
09/05/2013 07:27:38	15.6401	-0.0036	55.065	74.601
09/05/2013 07:27:48	14.8962	-0.0048	73.577	73.901
09/05/2013 07:27:58	16.2679	-0.0114	83.9	73.701
09/05/2013 07:28:08	15.5163	-0.0096	88.331	73.002
09/05/2013 07:28:18	13.769	-0.0179	90.491	72.102
09/05/2013 07:28:28	16.5373	-0.0149	91.795	72.102
09/05/2013 07:28:38	16.253	-0.0197	91.718	72.102
09/05/2013 07:28:48	14.548	-0.0191	91.505	71.003
09/05/2013 07:28:58	16.6143	-0.0191	91.493	70.702
09/05/2013 07:29:08	14.8396	-0.0381	89.734	70.702
09/05/2013 07:29:18	14.4409	3.3106	88.736	71.003
Calibration Error				
09/05/2013 07:29:28	16.1822	-0.0239	84.914	71.202
09/05/2013 07:29:38	16.1037	-0.0221	64.717	71.202
09/05/2013 07:29:48	15.1128	-0.0286	36.928	71.702
09/05/2013 07:29:58	15.2776	-0.0417	15.304	71.702
09/05/2013 07:30:08	16.5242	-0.0465	4.971	71.702
09/05/2013 07:30:18	14.6552	-0.0447	1.47	72.102
09/05/2013 07:30:28	14.2594	-0.0447	0.268	72.302
09/05/2013 07:30:38	16.447	-0.0417	-0.074	72.802
09/05/2013 07:30:48	16.9164	-0.0482	0.059	73.002
09/05/2013 07:30:58	15.455	-0.0429	-0.012	73.002
09/05/2013 07:31:08	14.7468	-0.0459	-0.29	73.201
09/05/2013 07:31:18	15.2973	-0.0411	-0.415	73.701
09/05/2013 07:31:28	16.5302	-0.0542	-0.51	73.701
09/05/2013 07:31:38	16.3893	-0.0465	-0.337	73.701
09/05/2013 07:31:48	14.8385	-0.0387	-0.139	73.701
N2 Zero		**-0.046467**	**-0.328667**	
09/05/2013 07:31:58	14.5677	1.893	-0.117	74.101
09/05/2013 07:32:08	15.5811	22.5994	0.331	74.601
09/05/2013 07:32:18	16.8852	22.6568	0.922	75.502
09/05/2013 07:32:28	17.2901	22.6593	0.712	75.702
09/05/2013 07:32:38	17.2971	22.6593	0.018	75.702
09/05/2013 07:32:48	16.996	22.6855	-0.492	75.702
09/05/2013 07:32:58	16.1977	22.6774	-0.706	75.702
09/05/2013 07:33:08	15.5478	22.688	-0.716	75.702
22.5% O2 Span		**22.68363**		
09/05/2013 07:33:18	14.8021	22.5938	-0.811	75.702
09/05/2013 07:33:28	14.7879	11.0131	-0.724	75.902
09/05/2013 07:33:38	16.5347	11.0042	-0.435	75.902
09/05/2013 07:33:48	16.7699	10.9292	-0.609	76.102
09/05/2013 07:33:58	16.0929	11.0196	-0.617	76.102
09/05/2013 07:34:08	15.0842	11.0309	-0.522	76.102
09/05/2013 07:34:18	16.8625	10.9851	-0.423	75.902
09/05/2013 07:34:28	15.6091	11.0482	-0.514	75.902
09/05/2013 07:34:38	14.5183	11.0042	-0.518	76.202
09/05/2013 07:34:48	17.1536	10.822	-0.232	76.602
09/05/2013 07:34:58	16.9517	10.9976	-0.409	76.602
11.0% O2 Mid		**10.94127**		
09/05/2013 07:35:08	14.8878	11.4856	-0.514	76.202
09/05/2013 07:35:18	16.2834	-0.1524	0.879	76.802
09/05/2013 07:35:28	16.6662	-0.1899	12.487	77.001
09/05/2013 07:35:38	15.9245	-0.2238	40.019	77.102
09/05/2013 07:35:48	14.4492	-0.0655	66.649	77.302
09/05/2013 07:35:58	16.1905	-0.0846	82.064	77.302
09/05/2013 07:36:08	15.4234	-0.0774	88.97	77.001
09/05/2013 07:36:18	15.9436	-0.1012	90.572	75.301
09/05/2013 07:36:28	16.3506	-0.1036	89.573	73.901
09/05/2013 07:36:38	16.1072	-0.0869	89.771	73.901
09/05/2013 07:36:48	16.2328	-0.0905	89.91	74.302
09/05/2013 07:36:58	14.6034	-0.0762	90.171	73.901
89.80 ppm CO Span			**89.95067**	
09/05/2013 07:37:08	16.6541	0.3636	90.473	73.201
09/05/2013 07:37:18	14.5397	-0.1018	87.472	73.002
09/05/2013 07:37:28	16.2138	-0.1018	74.86	72.501
09/05/2013 07:37:38	14.623	-0.1161	59.339	71.902
09/05/2013 07:37:48	14.7385	-0.0923	50.132	71.202
09/05/2013 07:37:58	16.7875	-0.103	46.424	71.602
09/05/2013 07:38:08	15.4395	-0.1107	45.724	71.702

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 07:38:18	15.1384	-0.0982	45.923	71.402
09/05/2013 07:38:28	16.6455	-0.1066	45.621	70.801
09/05/2013 07:38:38	14.7385	-0.1209	46.125	71.402
09/05/2013 07:38:48	15.0467	-0.1048	46.323	71.902
46.3 ppm CO Mid			**46.023**	
09/05/2013 07:38:58	16.6984	0.1565	45.625	71.702
09/05/2013 07:39:08	14.6337	20.6708	45.423	72.802
09/05/2013 07:39:18	16.0644	20.838	38.515	73.201
09/05/2013 07:39:28	14.801	20.8617	24.405	73.201
09/05/2013 07:39:38	11.7123	20.835	11.487	73.701
09/05/2013 07:39:48	15.1372	18.7866	5.278	74.101
09/05/2013 07:39:58	15.9114	20.839	5.179	73.901
09/05/2013 07:40:08	16.0138	20.8637	5.683	73.701
09/05/2013 07:40:18	14.6831	20.8702	3.884	74.101
09/05/2013 07:40:28	16.5373	20.8712	2.083	74.302
09/05/2013 07:40:38	11.4898	20.8743	0.781	74.801
09/05/2013 07:40:48	9.0927	3.2332	0.383	75.502
09/05/2013 07:40:58	8.0066	2.1114	0.482	76.102
09/05/2013 07:41:08	7.8209	2.0584	0.478	76.102
09/05/2013 07:41:18	8.8165	2.0561	0.581	75.702
09/05/2013 07:41:28	7.7971	2.0513	0.383	75.502
09/05/2013 07:41:38	9.1284	2.0132	0.478	74.601
09/05/2013 07:41:48	7.8477	2.0364	0.583	74.302
09/05/2013 07:41:58	13.5584	2.2173	0.482	74.401
09/05/2013 07:42:08	15.6787	14.8105	0.18	73.002
09/05/2013 07:42:18	15.1878	22.1915	0.18	72.102
09/05/2013 07:42:28	16.5841	22.3627	0.482	72.102
09/05/2013 07:42:38	15.0277	22.3688	0.18	72.102
09/05/2013 07:42:48	15.987	22.3904	-0.117	71.702
09/05/2013 07:42:58	18.4311	22.3914	-0.117	71.902
09/05/2013 07:43:08	22.5984	22.3209	-0.216	72.102
09/05/2013 07:43:18	22.5802	22.3975	-0.117	71.602
09/05/2013 07:43:28	22.6115	22.3985	-0.117	70.702
09/05/2013 07:43:38	22.6034	22.4166	-0.018	71.402
09/05/2013 07:43:48	15.0069	22.4166	-0.117	71.602
09/05/2013 07:43:58	2.115	5.9564	-0.117	71.902
09/05/2013 07:44:08	2.0329	2.1328	0.077	71.702
09/05/2013 07:44:18	2.0305	2.0781	0.28	72.602
09/05/2013 07:44:28	2.0281	2.0465	0.18	73.201
09/05/2013 07:44:38	2.234	2.0608	0.28	73.002
09/05/2013 07:44:48	2.0941	2.0459	0.581	73.201
09/05/2013 07:44:58	2.6833	2.0382	0.68	73.401
09/05/2013 07:45:08	19.8979	2.2644	0.779	73.502
09/05/2013 07:45:18	3.8509	20.2906	0.779	73.502
09/05/2013 07:45:28	20.4518	16.2709	0.68	73.701
09/05/2013 07:45:38	20.4951	20.7846	0.581	73.901
09/05/2013 07:45:48	21.2439	20.834	0.68	74.101
09/05/2013 07:45:58	20.2937	20.8521	0.68	74.302
09/05/2013 07:46:08	19.6295	20.8607	0.581	74.302
09/05/2013 07:46:18	20.0711	20.8732	0.581	74.601
Calibration Bias				
09/05/2013 07:46:28	3.7533	20.8687	0.581	74.801
09/05/2013 07:46:38	0.0868	0.8641	0.478	75.202
09/05/2013 07:46:48	0.0535	0.0458	0.28	75.202
09/05/2013 07:46:58	0.016	0.0232	0.478	75.202
09/05/2013 07:47:08	0.0089	-0.0256	0.482	75.202
09/05/2013 07:47:18	0.0267	-0.0292	0.18	75.301
09/05/2013 07:47:28	0.0196	-0.034	-0.018	75.301
09/05/2013 07:47:38	0.0136	-0.0435	-0.018	75.301
09/05/2013 07:47:48	0.6046	-0.0048	-0.018	75.301
09/05/2013 07:47:58	0.4772	-0.0197	0.077	75.301
09/05/2013 07:48:08	0.1065	-0.0143	0.28	75.702
09/05/2013 07:48:18	0.4433	-0.0221	0.081	75.902
N2 Zero		**-0.0187**	**0.146**	
09/05/2013 07:48:28	16.5045	0.3856	-0.018	75.702
09/05/2013 07:48:38	1.9388	15.2759	0.081	75.702
09/05/2013 07:48:48	0.2981	0.0726	0.98	74.801
09/05/2013 07:48:58	0.4362	-0.0179	7.48	74.302
09/05/2013 07:49:08	-0.0042	-0.0143	21.698	73.901
09/05/2013 07:49:18	-0.0066	-0.0173	35.613	73.502
09/05/2013 07:49:28	-0.009	-0.0209	43.318	72.802
09/05/2013 07:49:38	-0.0102	-0.0197	45.621	72.802
09/05/2013 07:49:48	-0.0114	-0.0268	46.022	72.802
09/05/2013 07:49:58	-0.0125	-0.0304	46.026	72.501
09/05/2013 07:50:08	-0.0114	-0.0268	46.022	71.702
09/05/2013 07:50:18	-0.0114	-0.0209	45.423	71.602
09/05/2013 07:50:28	-0.0114	-0.0334	45.419	71.202
09/05/2013 07:50:38	-0.0125	-0.0322	45.823	70.801
09/05/2013 07:50:48	-0.0155	-0.0429	45.518	71.202
46.3 ppm CO Mid			**45.58667**	
09/05/2013 07:50:58	1.3009	-0.0322	45.819	71.702
09/05/2013 07:51:08	1.9942	1.6597	46.323	71.602
09/05/2013 07:51:18	2.0031	2.0251	41.62	71.602
09/05/2013 07:51:28	2.0043	2.0275	28.706	71.602
09/05/2013 07:51:38	2.0031	2.0269	14.088	71.602
09/05/2013 07:51:48	2.0007	2.0382	5.08	72.501
09/05/2013 07:51:58	2.0031	2.0287	1.678	73.201
09/05/2013 07:52:08	6.4795	2.0174	0.879	73.002
09/05/2013 07:52:18	4.5097	2.0334	0.68	72.802

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 07:52:28	4.5603	2.04	0.581	73.002
09/05/2013 07:52:38	5.1816	2.0364	0.581	73.401
09/05/2013 07:52:48	6.4545	2.0394	0.482	73.701
09/05/2013 07:52:58	6.983	2.0221	0.379	74.601
09/05/2013 07:53:08	6.8925	2.0305	0.379	74.801
09/05/2013 07:53:18	6.2474	1.6032	0.379	75.202
09/05/2013 07:53:28	2.0114	2.0317	0.581	75.902
09/05/2013 07:53:38	2.0989	2.043	0.581	76.802
09/05/2013 07:53:48	2.0031	2.0287	0.28	77.701
09/05/2013 07:53:58	2.0007	2.0352	0.379	77.701
09/05/2013 07:54:08	2.0055	2.0418	0.383	78.201
09/05/2013 07:54:18	2.0751	2.0412	0.379	78.201
09/05/2013 07:54:28	2.0007	2.043	0.28	77.701
09/05/2013 07:54:38	2.0019	2.0251	0.482	77.302
09/05/2013 07:54:48	2.0019	2.0317	0.581	78.201
09/05/2013 07:54:58	1.9989	2.0352	0.68	78.601
09/05/2013 07:55:08	1.9989	2.0394	0.881	78.401
09/05/2013 07:55:18	2.0019	2.0162	0.781	77.701
09/05/2013 07:55:28	2.0031	2.0459	0.385	76.402
09/05/2013 07:55:38	2.0055	2.04	0.284	75.202
2.07% O2 Low	**2.0035**			
09/05/2013 07:55:48	2.6232	2.0382	0.284	74.101
09/05/2013 07:55:58	21.5943	5.9999	0.085	73.701
09/05/2013 07:56:08	22.4614	21.8224	-0.014	73.401
09/05/2013 07:56:18	22.4911	22.3134	0.085	72.602
09/05/2013 07:56:28	22.4987	22.3401	0.184	71.902
09/05/2013 07:56:38	22.4876	22.3526	0.085	71.402
09/05/2013 07:56:48	22.5359	22.3667	-0.014	70.702
09/05/2013 07:56:58	22.5551	22.3723	-0.113	70.502
09/05/2013 07:57:08	22.5359	22.3819	-0.212	70.801
09/05/2013 07:57:18	22.5284	22.3924	-0.212	71.003
09/05/2013 07:57:28	22.5022	22.3763	-0.415	71.402
09/05/2013 07:57:38	22.4685	22.3869	-0.415	71.602
09/05/2013 07:57:48	22.4755	22.3879	-0.113	71.202
09/05/2013 07:57:58	22.5057	22.3688	-0.113	72.302
22.5% O2 Span	**22.48323**			
09/05/2013 07:58:08	22.0228	22.3869	-0.411	72.802
09/05/2013 07:58:18	10.9625	19.7352	-0.411	73.401
09/05/2013 07:58:28	10.8756	11.0422	-0.316	74.101
09/05/2013 07:58:38	10.8673	10.9738	-0.415	74.601
09/05/2013 07:58:48	10.8697	10.9631	-0.613	74.401
09/05/2013 07:58:58	10.8554	10.9506	-0.514	74.401
09/05/2013 07:59:08	10.8554	10.9339	-0.216	74.801
09/05/2013 07:59:18	10.8601	10.9458	-0.014	75.002
09/05/2013 07:59:28	10.8554	10.9423	0.085	75.002
09/05/2013 07:59:38	10.8578	10.9387	0.085	75.502
09/05/2013 07:59:48	10.8542	10.9458	-0.014	75.702
09/05/2013 07:59:58	10.853	10.9452	-0.014	75.702
09/05/2013 08:00:08	10.8601	10.9518	0.085	75.902
09/05/2013 08:00:18	10.8506	10.9458	0.085	76.402
11.0% O2 Mid	**10.85457**			
09/05/2013 08:00:28	18.9492	10.9363	0.085	77.001
09/05/2013 08:00:38	20.5842	19.6562	-0.014	76.602
09/05/2013 08:00:48	20.0469	20.7635	0.284	76.202
09/05/2013 08:00:58	2.2245	16.9658	0.081	75.502
09/05/2013 08:01:08	2.0459	2.2441	0.081	74.302
09/05/2013 08:01:18	2.0317	2.1078	0.583	73.901
09/05/2013 08:01:28	2.0198	2.0858	0.682	73.502
09/05/2013 08:01:38	2.0174	2.0709	0.682	73.002
09/05/2013 08:01:48	2.015	2.0638	0.583	72.302
2.07% O2 Low	**2.0174**			
09/05/2013 08:01:58	5.4101	2.0656	0.482	71.702
09/05/2013 08:02:08	10.8095	8.6469	0.482	71.202
09/05/2013 08:02:18	10.8435	10.8851	0.484	70.101
09/05/2013 08:02:28	10.8518	10.9196	0.184	70.502
09/05/2013 08:02:38	10.8494	10.9196	0.085	70.801
09/05/2013 08:02:48	10.8518	10.925	-0.113	71.202
09/05/2013 08:02:58	10.8387	10.9298	-0.216	71.202
09/05/2013 08:03:08	10.8399	10.9345	-0.014	71.402
09/05/2013 08:03:18	10.8423	10.9262	0.085	71.902
09/05/2013 08:03:28	10.8554	10.9327	0.184	72.302
11.0% O2 Mid	**10.84587**	**10.93113**		
09/05/2013 08:03:38	12.3086	10.9387	0.284	72.501
09/05/2013 08:03:48	20.5626	16.3482	0.085	73.002
09/05/2013 08:03:58	20.5852	20.7504	-0.212	73.502
09/05/2013 08:04:08	20.5228	20.7987	-0.113	73.701
09/05/2013 08:04:18	20.4578	20.8158	0.184	73.901
09/05/2013 08:04:28	20.4085	20.842	0.583	74.302
09/05/2013 08:04:38	20.3989	20.8304	0.682	74.101
09/05/2013 08:04:48	20.2443	20.837	0.885	74.302
Start Response Time				
09/05/2013 08:04:58	2.3137	18.6567	0.984	75.202
09/05/2013 08:05:08	2.0448	2.3346	0.781	75.301
09/05/2013 08:05:18	2.0305	2.1281	0.583	75.702
09/05/2013 08:05:28	2.0245	2.1066	0.682	75.902
09/05/2013 08:05:38	2.0198	2.0876	0.682	75.702
09/05/2013 08:05:48	2.0138	2.0781	0.682	75.702
09/05/2013 08:05:58	2.0114	2.0698	0.682	76.202
09/05/2013 08:06:08	2.009	2.0543	0.682	76.202

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 08:06:18	2.0102	2.0686	0.583	75.301
09/05/2013 08:06:28	2.0102	2.0555	0.583	74.101
09/05/2013 08:06:38	2.0114	2.0543	0.682	73.401
09/05/2013 08:06:48	2.0079	2.0477	0.583	73.002
09/05/2013 08:06:58	2.0079	2.0537	0.482	72.501
09/05/2013 08:07:08	2.0079	2.0584	0.385	71.602
09/05/2013 08:07:18	5.206	2.0465	0.284	71.602
09/05/2013 08:07:28	22.1467	15.0128	0.583	71.402
09/05/2013 08:07:38	22.2675	22.0979	0.785	71.202
09/05/2013 08:07:48	22.3144	22.1885	0.284	70.801
09/05/2013 08:07:58	22.3612	22.2368	0.184	70.301
09/05/2013 08:08:08	22.3396	22.2696	-0.014	70.502
09/05/2013 08:08:18	11.8837	22.26	-0.113	71.003
09/05/2013 08:08:28	2.115	9.3325	-0.014	71.202
09/05/2013 08:08:38	2.0495	2.1822	-0.216	71.702
09/05/2013 08:08:48	2.0329	2.1049	-0.216	72.602
09/05/2013 08:08:58	2.0245	2.0793	-0.316	73.002
09/05/2013 08:09:08	2.0198	2.0763	-0.117	73.002
09/05/2013 08:09:18	2.0126	2.0727	-0.014	73.401
09/05/2013 08:09:28	16.6878	2.065	-0.113	73.401
09/05/2013 08:09:38	20.5807	18.7599	-0.014	73.502
09/05/2013 08:09:48	20.5334	20.7418	0.085	74.101
09/05/2013 08:09:58	20.4311	20.8027	-0.014	74.302
09/05/2013 08:10:08	6.5194	20.8264	0.184	74.302
09/05/2013 08:10:18	0.0809	4.6746	0.383	75.002
09/05/2013 08:10:28	0.0255	0.069	0.383	75.301
09/05/2013 08:10:38	0.0113	0.0232	0.284	75.202
09/05/2013 08:10:48	0.0077	0.0065	-0.117	75.202
09/05/2013 08:10:58	0.0029	-0.0084	-0.415	75.301
09/05/2013 08:11:08	0.0017	-0.0227	-0.316	75.502
09/05/2013 08:11:18	7.828	-0.0191	-0.014	76.102
09/05/2013 08:11:28	22.0243	19.3254	0.284	76.402
09/05/2013 08:11:38	22.1648	22.0339	0.284	75.902
09/05/2013 08:11:48	22.2459	22.1522	0.085	75.902
09/05/2013 08:11:58	22.1915	22.1865	-0.113	75.002
09/05/2013 08:12:08	22.2459	22.2142	-0.312	73.901
09/05/2013 08:12:18	22.4926	22.2227	-0.212	73.002
09/05/2013 08:12:28	22.5249	22.401	-0.212	72.802
09/05/2013 08:12:38	22.5022	22.4317	-0.415	72.602
09/05/2013 08:12:48	3.0201	22.4136	-0.613	72.302
09/05/2013 08:12:58	0.0833	1.6728	-0.716	71.602
09/05/2013 08:13:08	0.038	0.0898	-0.415	71.003
09/05/2013 08:13:18	0.0244	0.0238	-0.216	70.702
09/05/2013 08:13:28	0.0148	0.0107	-0.014	70.502
09/05/2013 08:13:38	0.0089	-0.0036	0.081	71.003
09/05/2013 08:13:48	0.0041	-0.0102	0.081	71.602
09/05/2013 08:13:58	0.0017	-0.0036	-0.014	71.402
09/05/2013 08:14:08	0.00055	-0.0173	-0.014	71.602
09/05/2013 08:14:18	0.00055	-0.0125	0.184	72.102
09/05/2013 08:14:28	-0.003	-0.0054	0.284	72.501
09/05/2013 08:14:38	-0.0054	-0.0399	0.383	72.802
09/05/2013 08:14:48	-0.0054	-0.0239	0.383	73.401
09/05/2013 08:14:58	-0.0066	-0.0256	0.383	73.701
09/05/2013 08:15:08	-0.0066	-0.0322	0.383	73.901
09/05/2013 08:15:18	0.5516	-0.0286	0.482	74.401
09/05/2013 08:15:28	-0.0102	0.0993	0.284	74.601
09/05/2013 08:15:38	-0.0114	-0.0173	6.385	74.801
09/05/2013 08:15:48	-0.0114	-0.0363	27.809	75.002
09/05/2013 08:15:58	-0.0114	-0.0494	60.245	75.002
09/05/2013 08:16:08	-0.0125	-0.0387	81.667	75.301
09/05/2013 08:16:18	-0.0137	-0.0369	88.272	75.902
09/05/2013 08:16:28	-0.0137	-0.0304	90.077	75.902
09/05/2013 08:16:38	-0.0114	-0.0369	91.876	75.902
09/05/2013 08:16:48	-0.0102	-0.034	86.77	75.902
09/05/2013 08:16:58	-0.0102	-0.034	63.246	75.702
09/05/2013 08:17:08	-0.0114	-0.0417	33.215	75.502
09/05/2013 08:17:18	-0.0125	-0.0459	11.888	75.502
09/05/2013 08:17:28	-0.0137	-0.0679	2.682	75.502
09/05/2013 08:17:38	-0.0137	-0.0435	0.68	74.801
09/05/2013 08:17:48	-0.0125	-0.081	0.581	73.701
09/05/2013 08:17:58	-0.0102	-0.0435	0.482	72.802
09/05/2013 08:18:08	-0.0102	-0.0387	0.383	72.102
09/05/2013 08:18:18	-0.009	-0.0465	0.482	71.202
09/05/2013 08:18:28	-0.0155	-0.0435	0.482	71.602
09/05/2013 08:18:38	-0.0167	-0.0506	6.984	71.702
09/05/2013 08:18:48	-0.0155	-0.0465	28.809	71.602
09/05/2013 08:18:58	-0.0137	-0.0619	61.145	71.003
09/05/2013 08:19:08	-0.0155	-0.0512	82.765	70.801
09/05/2013 08:19:18	-0.0167	-0.0506	90.877	70.502
09/05/2013 08:19:28	-0.0179	-0.0697	92.376	70.502
09/05/2013 08:19:38	-0.0167	-0.0435	91.678	70.801
09/05/2013 08:19:48	-0.0137	-0.0542	92.379	71.003
09/05/2013 08:19:58	-0.0167	-0.0524	92.277	71.202
09/05/2013 08:20:08	-0.0167	-0.0542	90.476	71.602
09/05/2013 08:20:18	-0.0137	-0.0524	90.976	72.102
09/05/2013 08:20:28	-0.0137	-0.0387	91.574	72.602
09/05/2013 08:20:38	-0.0125	-0.0399	81.266	73.401
09/05/2013 08:20:48	-0.0102	-0.056	53.137	73.701
09/05/2013 08:20:58	-0.0125	-0.0584	24.703	74.601

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 08:21:08	-0.0137	-0.0477	8.085	74.801
09/05/2013 08:21:18	-0.0137	-0.0893	2.083	74.801
09/05/2013 08:21:28	-0.0155	-0.0524	0.98	75.202
09/05/2013 08:21:38	-0.0125	-0.0459	0.68	75.301
09/05/2013 08:21:48	-0.0114	-0.0512	0.28	75.502
09/05/2013 08:21:58	-0.0125	-0.0494	0.284	75.902
09/05/2013 08:22:08	-0.0137	-0.0447	0.482	76.202
09/05/2013 08:22:18	15.846	-0.0465	0.482	76.202
End Response Time				
09/05/2013 08:22:28	20.5419	19.6914	0.482	76.402
09/05/2013 08:22:38	20.5767	20.7569	0.284	76.402
09/05/2013 08:22:48	20.4865	20.7977	-0.014	76.202
09/05/2013 08:22:58	20.4528	20.8189	0.081	75.202
09/05/2013 08:23:08	20.418	20.8229	0.081	75.202
09/05/2013 08:23:18	20.3697	20.8456	0.284	74.401
09/05/2013 08:23:28	20.3732	20.8637	0.184	73.701
09/05/2013 08:23:38	20.3611	20.8702	0.284	73.201
09/05/2013 08:23:48	20.3601	20.8531	0.383	72.802
09/05/2013 08:23:58	20.3591	20.8591	0.383	72.602
09/05/2013 08:24:08	20.3118	20.8627	0.484	71.702
09/05/2013 08:24:18	20.3375	20.8667	0.583	70.801
09/05/2013 08:24:28	20.3611	20.8677	0.482	69.901
09/05/2013 08:24:38	20.3375	20.8712	0.482	69.202
09/05/2013 08:24:48	20.3324	20.8647	0.383	69.202
09/05/2013 08:24:58	20.3143	20.8445	0.482	69.601
09/05/2013 08:25:08	20.201	20.4442	0.583	70.101
09/05/2013 08:25:18	19.7317	20.4488	0.781	70.502
09/05/2013 08:25:28	19.8929	20.5374	0.781	71.202
09/05/2013 08:25:38	19.9341	20.2494	0.781	72.602
09/05/2013 08:25:48	19.0343	20.0349	0.885	73.002
09/05/2013 08:25:58	17.644	20.2277	0.69	73.201
09/05/2013 08:26:08	16.5997	20.4241	0.389	73.502
09/05/2013 08:26:18	15.9823	20.5364	0.284	74.101
09/05/2013 08:26:28	15.4901	20.2705	0.383	74.601
09/05/2013 08:26:38	15.0985	18.1506	0.383	74.601
09/05/2013 08:26:48	14.723	14.9497	0.583	74.401
09/05/2013 08:26:58	14.429	13.359	0.583	74.601
09/05/2013 08:27:08	14.1077	13.2513	0.682	74.801
09/05/2013 08:27:18	19.8989	12.2021	0.885	74.801
09/05/2013 08:27:28	20.3214	20.7962	1.186	75.002
09/05/2013 08:27:38	20.3385	20.8551	1.587	75.502
09/05/2013 08:27:48	20.2771	20.8581	1.682	76.102
09/05/2013 08:27:58	20.2821	20.8743	1.285	77.001
09/05/2013 08:28:08	20.2484	20.6693	0.785	77.502
09/05/2013 08:28:18	20.1829	20.5157	0.682	77.502
09/05/2013 08:28:28	20.1628	20.5812	0.781	77.001
09/05/2013 08:28:38	20.1532	20.5711	0.682	76.202
09/05/2013 08:28:48	20.1074	20.5605	0.682	75.301
09/05/2013 08:28:58	20.1351	20.5812	0.781	74.801
09/05/2013 08:29:08	20.1688	20.5993	0.781	74.401
09/05/2013 08:29:18	20.0978	20.6139	0.785	74.101
09/05/2013 08:29:28	20.1134	20.7292	0.781	73.502
09/05/2013 08:29:38	20.2997	20.9055	0.587	73.002
09/05/2013 08:29:48	20.2891	20.8778	0.785	73.002
09/05/2013 08:29:58	20.2781	20.8808	1.186	72.802
09/05/2013 08:30:08	20.3264	20.7408	1.186	72.302
09/05/2013 08:30:18	20.3637	20.7549	0.936	71.402
09/05/2013 08:30:28	20.2408	20.7368	0.781	71.402
09/05/2013 08:30:38	20.2277	20.7187	0.885	71.602
09/05/2013 08:30:48	20.1748	20.7025	0.885	71.602
09/05/2013 08:30:58	20.1612	20.696	0.781	71.702
09/05/2013 08:31:08	20.1275	20.691	0.781	72.501
09/05/2013 08:31:18	20.1194	20.6718	0.682	73.002
09/05/2013 08:31:28	20.1255	20.6683	0.583	73.201
09/05/2013 08:31:38	20.0963	20.6703	0.682	73.401
09/05/2013 08:31:48	20.194	20.7101	0.785	73.901
09/05/2013 08:31:58	20.2841	20.7806	0.781	74.401
09/05/2013 08:32:08	20.3566	20.7846	0.984	74.401
09/05/2013 08:32:18	20.3732	20.7504	1.531	74.401
09/05/2013 08:32:28	20.2061	20.7358	1.682	74.801
09/05/2013 08:32:38	20.2131	20.7227	1.388	75.002
09/05/2013 08:32:48	20.2071	20.7141	1.285	75.002
09/05/2013 08:32:58	20.1784	20.7101	1.087	75.502
09/05/2013 08:33:08	20.1436	20.7066	0.885	75.502
09/05/2013 08:33:18	20.0807	20.6995	1.083	75.502
09/05/2013 08:33:28	20.0615	20.696	0.984	75.502
09/05/2013 08:33:38	20.052	20.698	0.682	75.702
09/05/2013 08:33:48	20.1109	20.6985	0.246	75.902
09/05/2013 08:33:58	20.3037	20.7207	0.301	76.102
09/05/2013 08:34:08	20.3289	20.6386	0.583	76.202
09/05/2013 08:34:18	20.341	20.7645	0.583	76.202
09/05/2013 08:34:28	20.3637	20.773	0.885	75.702
09/05/2013 08:34:38	20.3566	20.774	0.885	75.002
09/05/2013 08:34:48	20.3214	20.7761	0.284	73.901
09/05/2013 08:34:58	20.3637	20.7826	-0.014	73.401
09/05/2013 08:35:08	13.0841	20.7866	0.385	73.002
09/05/2013 08:35:18	11.8462	20.7846	0.682	72.501
09/05/2013 08:35:28	11.5606	16.4226	0.885	71.702
09/05/2013 08:35:38	11.3083	13.0049	0.885	71.202

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 08:35:48	11.0286	12.8514	0.682	70.801
09/05/2013 08:35:58	10.5941	12.8365	0.484	70.101
09/05/2013 08:36:08	10.3412	12.8288	0.385	69.202
09/05/2013 08:36:18	9.9693	12.8127	0.484	69.002
09/05/2013 08:36:28	9.5801	12.8115	0.682	69.601
09/05/2013 08:36:38	9.1034	12.8133	0.984	70.502
09/05/2013 08:36:48	8.8695	12.7984	0.682	71.003
09/05/2013 08:36:58	8.6517	12.7889	0.484	71.003
09/05/2013 08:37:08	8.6386	12.799	0.482	71.602
09/05/2013 08:37:18	8.6326	12.805	0.385	72.602
09/05/2013 08:37:28	8.6314	12.8038	0.583	73.002
09/05/2013 08:37:38	8.6915	12.8145	0.682	73.901
09/05/2013 08:37:48	8.7761	12.8228	0.682	74.601
09/05/2013 08:37:58	8.854	12.8276	0.682	75.002
09/05/2013 08:38:08	8.9236	12.8383	0.484	75.502
09/05/2013 08:38:18	8.9492	12.8258	0.383	75.902
09/05/2013 08:38:28	8.929	12.8258	0.383	76.102
09/05/2013 08:38:38	8.9153	12.8466	0.383	76.402
09/05/2013 08:38:48	8.8963	12.849	0.284	76.202
09/05/2013 08:38:58	8.8998	12.8413	0.385	76.402
09/05/2013 08:39:08	8.8832	12.821	0.484	76.402
09/05/2013 08:39:18	8.8445	12.8175	0.184	76.202
09/05/2013 08:39:28	8.8374	12.8097	0.184	76.402
09/05/2013 08:39:38	8.8528	12.7984	0.682	76.102
09/05/2013 08:39:48	8.8707	12.8032	0.682	75.202
09/05/2013 08:39:58	8.8552	12.8002	0.583	74.401
09/05/2013 08:40:08	8.8719	12.805	0.484	73.701
09/05/2013 08:40:18	8.8707	12.8067	0.385	73.201
09/05/2013 08:40:28	8.8695	12.802	0.284	72.802
09/05/2013 08:40:38	8.8576	12.7936	0.385	71.702
09/05/2013 08:40:48	8.8635	12.7859	0.482	71.202
09/05/2013 08:40:58	8.8927	12.78	0.383	70.502
09/05/2013 08:41:08	8.9094	12.7859	0.284	70.101
09/05/2013 08:41:18	8.8784	12.7972	0.385	69.802
09/05/2013 08:41:28	8.8867	12.8157	0.583	70.101
09/05/2013 08:41:38	8.8671	12.7841	0.284	70.101
09/05/2013 08:41:48	8.8695	12.7913	0.385	69.601
09/05/2013 08:41:58	8.8719	12.7847	0.184	69.901
09/05/2013 08:42:08	8.86	12.7841	0.085	70.502
09/05/2013 08:42:18	8.8731	12.7704	0.284	70.702
09/05/2013 08:42:28	8.8719	12.7675	0.085	70.801
09/05/2013 08:42:38	8.9022	12.7752	-0.014	70.702
09/05/2013 08:42:48	8.9153	12.7687	0.184	71.402
09/05/2013 08:42:58	8.8951	12.78	0.284	72.802
09/05/2013 08:43:08	8.8856	12.7841	0.284	73.401
09/05/2013 08:43:18	8.9022	12.7746	0.484	74.101
09/05/2013 08:43:28	8.8707	12.7621	0.385	74.401
09/05/2013 08:43:38	8.9082	12.7704	0.383	75.002
09/05/2013 08:43:48	8.8421	12.7657	0.484	75.301
09/05/2013 08:43:58	8.8719	12.7734	0.284	75.702
09/05/2013 08:44:08	8.8326	12.777	0.385	76.202
09/05/2013 08:44:18	8.8362	12.7484	0.482	76.802
09/05/2013 08:44:28	8.8469	12.7508	0.484	76.602
09/05/2013 08:44:38	8.8082	12.7318	0.484	76.602
09/05/2013 08:44:48	8.7939	12.7603	0.383	76.402
09/05/2013 08:44:58	8.7975	12.7413	0.184	76.202
09/05/2013 08:45:08	8.7588	12.7341	-0.014	76.102
09/05/2013 08:45:18	8.4553	12.721	-0.212	76.402
09/05/2013 08:45:28	8.7165	12.7193	0.085	75.902
09/05/2013 08:45:38	8.7927	12.7294	0.484	75.902
09/05/2013 08:45:48	8.8106	12.7449	0.583	75.301
09/05/2013 08:45:58	8.8493	12.7437	0.682	74.101
09/05/2013 08:46:08	8.8659	12.7496	0.686	73.002
09/05/2013 08:46:18	8.8844	12.7621	0.686	72.501
09/05/2013 08:46:28	8.8588	12.7562	0.583	72.102
09/05/2013 08:46:38	8.8481	12.7698	0.383	72.102
09/05/2013 08:46:48	8.8362	12.7591	0.184	71.003
09/05/2013 08:46:58	8.8457	12.7734	-0.014	70.502
09/05/2013 08:47:08	8.8326	12.7752	0.085	70.502
09/05/2013 08:47:18	8.8177	12.7752	-0.014	70.101
09/05/2013 08:47:28	8.813	12.78	0.081	70.301
09/05/2013 08:47:38	8.8338	12.7746	0.184	70.301
09/05/2013 08:47:48	8.8314	12.7669	0.184	70.101
09/05/2013 08:47:58	8.8421	12.7746	0.284	70.502
09/05/2013 08:48:08	8.8374	12.7764	0.383	70.702
09/05/2013 08:48:18	8.8254	12.7829	0.484	70.801
09/05/2013 08:48:28	8.813	12.7764	0.484	71.202
09/05/2013 08:48:38	8.7624	12.7841	0.583	72.102
09/05/2013 08:48:48	8.7832	12.7752	0.682	72.802
09/05/2013 08:48:58	8.7195	12.7657	0.583	73.701
09/05/2013 08:49:08	8.7279	12.7812	0.583	74.101
09/05/2013 08:49:18	8.7576	12.7603	0.583	74.601
09/05/2013 08:49:28	8.7255	12.7669	0.583	74.601
09/05/2013 08:49:38	8.6433	12.7556	0.484	75.002
09/05/2013 08:49:48	8.5374	12.7609	0.284	75.301
09/05/2013 08:49:58	8.6142	12.7734	0.184	75.702
09/05/2013 08:50:08	8.7058	12.7746	0.184	76.102
09/05/2013 08:50:18	8.6892	12.7639	0.184	76.202
09/05/2013 08:50:28	8.7106	12.7627	0.284	76.802

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 08:50:38	8.7505	12.7603	0.385	77.302
09/05/2013 08:50:48	8.7302	12.7544	0.484	77.102
09/05/2013 08:50:58	8.688	12.7556	0.482	77.102
09/05/2013 08:51:08	8.6915	12.7722	0.583	76.602
09/05/2013 08:51:18	8.7046	12.7591	0.682	75.702
09/05/2013 08:51:28	8.713	12.7657	0.682	75.301
09/05/2013 08:51:38	8.7844	12.7609	0.583	74.801
09/05/2013 08:51:48	8.7624	12.7562	0.587	73.701
09/05/2013 08:51:58	8.7999	12.7675	0.484	73.002
09/05/2013 08:52:08	8.729	12.7698	0.081	72.602
09/05/2013 08:52:18	8.754	12.7591	0.085	72.302
09/05/2013 08:52:28	8.7564	12.7573	0.284	71.902
09/05/2013 08:52:38	8.7517	12.7556	0.085	71.402
09/05/2013 08:52:48	8.6915	12.7591	0.482	70.702
09/05/2013 08:52:58	8.666	12.7651	0.482	70.301
09/05/2013 08:53:08	8.6505	12.7526	0.383	70.702
09/05/2013 08:53:18	8.613	12.7484	0.484	70.502
09/05/2013 08:53:28	8.6326	12.7413	0.682	70.502
09/05/2013 08:53:38	8.6362	12.721	0.682	70.801
09/05/2013 08:53:48	8.5999	12.7163	0.484	71.003
09/05/2013 08:53:58	8.5975	12.7199	0.383	72.102
09/05/2013 08:54:08	8.5856	12.7068	0.583	73.201
09/05/2013 08:54:18	8.5434	12.7026	0.682	74.302
09/05/2013 08:54:28	8.5868	12.6943	0.583	75.202
09/05/2013 08:54:38	8.5136	12.6722	0.583	75.502
09/05/2013 08:54:48	8.5279	12.6639	0.484	75.702
09/05/2013 08:54:58	8.4618	12.6056	0.484	75.902
09/05/2013 08:55:08	8.422	12.5883	0.583	75.902
09/05/2013 08:55:18	8.4374	12.511	0.583	76.102
09/05/2013 08:55:28	8.3833	12.4616	0.682	76.802
09/05/2013 08:55:38	8.5469	12.4788	0.484	77.001
09/05/2013 08:55:48	8.6713	12.5627	0.484	77.102
09/05/2013 08:55:58	8.7219	12.6925	0.583	77.102
09/05/2013 08:56:08	8.6844	12.8555	0.385	77.302
09/05/2013 08:56:18	8.6059	12.9162	0.085	77.302
09/05/2013 08:56:28	8.5023	12.8555	0.085	77.302
09/05/2013 08:56:38	8.4714	12.7324	0.184	77.001
09/05/2013 08:56:48	8.4059	12.6026	0.284	76.602
09/05/2013 08:56:58	8.4023	12.489	0.284	75.702
09/05/2013 08:57:08	8.394	12.3717	0.383	74.401
09/05/2013 08:57:18	8.4398	12.2938	0.385	73.401
09/05/2013 08:57:28	8.4737	12.2414	0.284	73.002
09/05/2013 08:57:38	8.4654	12.2384	0.484	72.802
09/05/2013 08:57:48	8.4505	12.264	0.383	72.302
09/05/2013 08:57:58	8.4975	12.2848	0.284	72.302
09/05/2013 08:58:08	8.5172	12.3223	0.385	71.402
09/05/2013 08:58:18	8.5928	12.3568	0.484	71.003
09/05/2013 08:58:28	8.7207	12.3884	0.682	70.702
09/05/2013 08:58:38	8.8266	12.5157	0.385	70.702
09/05/2013 08:58:48	8.9974	12.6895	0.085	70.702
09/05/2013 08:58:58	9.1611	12.8639	0.482	71.202
09/05/2013 08:59:08	9.2212	13.1227	0.583	71.402
09/05/2013 08:59:18	9.3224	13.3429	0.484	71.402
09/05/2013 08:59:28	9.2861	13.4524	0.184	72.102
09/05/2013 08:59:38	9.3307	13.4995	0.184	73.002
09/05/2013 08:59:48	9.2879	13.4995	0.583	74.401
09/05/2013 08:59:58	9.2998	13.503	0.484	74.401
09/05/2013 09:00:08	9.295	13.4762	0.085	74.801
09/05/2013 09:00:18	9.3081	13.4441	0.085	75.301
09/05/2013 09:00:28	9.314	13.4393	0.484	75.902
09/05/2013 09:00:38	9.2575	13.4161	0.583	76.102
09/05/2013 09:00:48	9.1694	13.3894	0.682	75.902
09/05/2013 09:00:58	9.0867	13.3542	0.682	75.902
09/05/2013 09:01:08	9.1611	13.3191	0.583	76.202
09/05/2013 09:01:18	9.0516	13.2531	0.484	77.102
09/05/2013 09:01:28	8.9409	13.2043	0.583	77.001
09/05/2013 09:01:38	8.9986	13.1769	0.583	76.602
09/05/2013 09:01:48	9.142	13.234	0.583	77.102
09/05/2013 09:01:58	9.2926	13.3001	0.583	77.701
09/05/2013 09:02:08	9.3658	13.4346	0.785	76.602
09/05/2013 09:02:18	9.3491	13.5506	0.682	76.202
09/05/2013 09:02:28	9.3212	13.581	0.284	75.502
09/05/2013 09:02:38	9.3164	13.5453	0.184	74.302
09/05/2013 09:02:48	9.2492	13.4685	0.385	73.201
09/05/2013 09:02:58	9.2385	13.3941	0.484	72.802
Start Run 1				
09/05/2013 09:03:08	9.2152	13.337	0.682	72.802
09/05/2013 09:03:18	9.2212	13.281	0.682	72.102
09/05/2013 09:03:28	9.2307	13.2495	0.587	71.402
09/05/2013 09:03:38	9.2022	13.2293	0.385	71.003
09/05/2013 09:03:48	9.1903	13.2245	-0.012	71.003
09/05/2013 09:03:58	9.1409	13.2019	-0.014	71.402
09/05/2013 09:04:08	9.1587	13.1787	0.385	71.202
09/05/2013 09:04:18	9.1319	13.1501	0.385	70.702
09/05/2013 09:04:28	9.1938	13.0942	0.484	70.101
09/05/2013 09:04:38	9.173	13.0722	0.583	70.702
09/05/2013 09:04:48	9.2623	13.1275	0.583	71.402
09/05/2013 09:04:58	9.3259	13.2037	0.587	71.602
09/05/2013 09:05:08	9.2515	13.3162	0.686	71.402

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 09:05:18	9.1272	13.406	0.682	71.402
09/05/2013 09:05:28	8.9611	13.3507	0.484	72.302
09/05/2013 09:05:38	8.788	13.1614	0.583	72.802
09/05/2013 09:05:48	8.5999	12.8793	0.484	73.201
09/05/2013 09:05:58	8.4952	12.6104	0.385	74.302
09/05/2013 09:06:08	8.3845	12.3884	0.583	74.601
09/05/2013 09:06:18	8.3279	12.2039	0.484	75.202
09/05/2013 09:06:28	8.2928	12.0563	0.484	75.202
09/05/2013 09:06:38	8.322	11.9676	0.583	75.502
09/05/2013 09:06:48	8.3023	11.9331	0.583	75.902
09/05/2013 09:06:58	8.3339	11.9599	0.484	76.202
09/05/2013 09:07:08	8.2928	12.0105	0.385	77.102
09/05/2013 09:07:18	8.3267	12.0736	0.587	77.502
09/05/2013 09:07:28	8.3964	12.0962	0.583	77.502
09/05/2013 09:07:38	8.4928	12.1402	0.484	77.502
09/05/2013 09:07:48	8.5975	12.2432	0.385	77.901
09/05/2013 09:07:58	8.7255	12.3997	0.385	78.401
09/05/2013 09:08:08	8.8504	12.5627	0.484	77.502
09/05/2013 09:08:18	8.9433	12.8288	0.385	76.402
09/05/2013 09:08:28	8.9843	12.9811	0.385	75.502
09/05/2013 09:08:38	8.9385	13.0472	0.385	74.302
09/05/2013 09:08:48	8.7939	13.0263	0.286	73.901
09/05/2013 09:08:58	8.76	12.9383	-0.212	73.502
09/05/2013 09:09:08	8.7457	12.8335	-0.514	72.501
09/05/2013 09:09:18	8.7165	12.7401	-0.212	71.402
09/05/2013 09:09:28	8.6904	12.6895	-0.216	71.202
09/05/2013 09:09:38	8.6761	12.633	-0.415	71.402
09/05/2013 09:09:48	8.6231	12.6234	-0.514	71.402
09/05/2013 09:09:58	8.6326	12.6217	-0.514	70.301
09/05/2013 09:10:08	8.5832	12.6181	-0.212	69.601
09/05/2013 09:10:18	8.582	12.6211	-0.316	69.802
09/05/2013 09:10:28	8.5868	12.6008	-0.014	70.301
09/05/2013 09:10:38	8.5469	12.5723	0.286	70.702
09/05/2013 09:10:48	8.6517	12.5586	0.385	71.003
09/05/2013 09:10:58	8.7951	12.6234	0.484	71.402
09/05/2013 09:11:08	8.9314	12.7514	0.484	71.902
09/05/2013 09:11:18	8.9808	12.924	0.385	72.501
09/05/2013 09:11:28	8.9754	13.0787	-0.014	72.501
09/05/2013 09:11:38	8.973	13.1388	-0.113	73.201
09/05/2013 09:11:48	8.8528	13.1406	-0.113	73.901
09/05/2013 09:11:58	8.8266	13.0769	0.184	74.101
09/05/2013 09:12:08	8.7891	12.993	0.682	74.401
09/05/2013 09:12:18	8.7784	12.9192	0.583	74.801
09/05/2013 09:12:28	8.7999	12.8514	0.284	74.801
09/05/2013 09:12:38	8.7255	12.78	0.385	75.202
09/05/2013 09:12:48	8.6552	12.7151	0.484	75.301
09/05/2013 09:12:58	8.6059	12.6669	0.184	75.702
09/05/2013 09:13:08	8.5797	12.6419	0.184	76.102
09/05/2013 09:13:18	8.5457	12.5901	0.184	76.202
09/05/2013 09:13:28	8.5136	12.5598	0.284	76.202
09/05/2013 09:13:38	8.5624	12.4842	0.085	76.202
09/05/2013 09:13:48	8.594	12.4378	-0.014	76.202
09/05/2013 09:13:58	8.7023	12.4818	-0.014	76.102
09/05/2013 09:14:08	8.8671	12.5848	0.184	75.301
09/05/2013 09:14:18	9.0117	12.7341	0.484	74.401
09/05/2013 09:14:28	9.1236	12.9115	0.484	73.701
09/05/2013 09:14:38	9.1397	13.0263	0.284	73.701
09/05/2013 09:14:48	9.1409	13.046	0.385	73.701
09/05/2013 09:14:58	9.0766	13.0168	0.284	73.701
09/05/2013 09:15:08	9.1468	13.0317	-0.212	73.201
09/05/2013 09:15:18	9.1998	13.0138	-0.014	72.802
09/05/2013 09:15:28	9.2045	13.0156	0.484	72.102
09/05/2013 09:15:38	9.1801	13.0281	0.484	72.102
09/05/2013 09:15:48	9.2408	13.0436	0.385	72.102
09/05/2013 09:15:58	9.2551	13.0531	0.484	71.202
09/05/2013 09:16:08	9.2599	13.071	0.484	70.101
09/05/2013 09:16:18	9.2456	13.0745	0.583	69.601
09/05/2013 09:16:28	9.1891	13.0787	0.583	69.802
09/05/2013 09:16:38	9.195	13.0519	0.484	70.101
09/05/2013 09:16:48	9.2575	12.9936	0.583	69.901
09/05/2013 09:16:58	9.3259	12.9728	0.484	71.003
09/05/2013 09:17:08	9.4491	13.0365	0.383	71.202
09/05/2013 09:17:18	9.492	13.1346	0.484	71.702
09/05/2013 09:17:28	9.4622	13.2715	0.583	71.902
09/05/2013 09:17:38	9.3343	13.3983	0.583	72.102
09/05/2013 09:17:48	9.2623	13.4161	0.583	73.002
09/05/2013 09:17:58	9.1789	13.3495	0.583	73.701
09/05/2013 09:18:08	9.1682	13.2453	0.682	74.302
09/05/2013 09:18:18	9.22	13.1537	0.583	74.401
09/05/2013 09:18:28	9.2164	13.0978	0.385	75.202
09/05/2013 09:18:38	9.2045	13.0424	0.583	75.301
09/05/2013 09:18:48	9.2319	12.9984	0.583	75.502
09/05/2013 09:18:58	9.2152	12.9573	0.583	75.702
09/05/2013 09:19:08	9.1563	12.9281	0.383	75.902
09/05/2013 09:19:18	9.1432	12.8996	0.284	76.402
09/05/2013 09:19:28	9.0891	12.8496	0.484	76.602
09/05/2013 09:19:38	9.0635	12.799	0.484	76.402
09/05/2013 09:19:48	9.0516	12.7246	0.484	76.602
09/05/2013 09:19:58	9.1117	12.6847	0.385	77.001

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 09:20:08	9.2176	12.702	0.284	77.302
09/05/2013 09:20:18	9.3307	12.7794	-0.014	77.701
09/05/2013 09:20:28	9.3646	12.9067	-0.014	77.502
09/05/2013 09:20:38	9.3622	13.0632	0.081	76.402
09/05/2013 09:20:48	9.3741	13.1299	0.184	75.702
09/05/2013 09:20:58	9.2801	13.09	-0.014	74.601
09/05/2013 09:21:08	9.289	13.0079	-0.212	74.302
09/05/2013 09:21:18	9.2444	12.9412	-0.113	73.002
09/05/2013 09:21:28	9.2694	12.8889	0.184	71.702
09/05/2013 09:21:38	9.2813	12.8305	0.583	71.202
09/05/2013 09:21:48	9.2754	12.818	0.484	71.602
09/05/2013 09:21:58	9.2938	12.7984	0.385	71.902
09/05/2013 09:22:08	9.3033	12.7877	0.484	71.202
09/05/2013 09:22:18	9.2646	12.7669	0.385	71.003
09/05/2013 09:22:28	9.2373	12.7437	-0.014	71.003
09/05/2013 09:22:38	9.1754	12.7103	0.085	71.003
09/05/2013 09:22:48	9.1492	12.6752	0.286	71.202
09/05/2013 09:22:58	9.2188	12.5996	-0.014	71.202
09/05/2013 09:23:08	9.2563	12.5901	-0.113	71.902
09/05/2013 09:23:18	9.4104	12.6693	0.284	72.302
09/05/2013 09:23:28	9.5128	12.7829	0.583	73.002
09/05/2013 09:23:38	9.5188	12.9662	0.484	73.502
09/05/2013 09:23:48	9.4848	13.1085	0.484	74.101
09/05/2013 09:23:58	9.4729	13.1513	0.383	75.002
End Run 1				
Average	**8.997251**	**12.85032**	**0.31627**	**73.47319**
Maximum	**9.5188**	**13.4161**	**0.686**	**78.401**
Minimum	**8.2928**	**11.9331**	**-0.514**	**69.601**
09/05/2013 09:24:08	9.4188	13.118	0.385	75.502
09/05/2013 09:24:18	9.4188	13.1138	0.284	75.902
09/05/2013 09:24:28	9.4212	13.0698	0.385	76.102
09/05/2013 09:24:38	9.4045	13.0472	0.583	75.902
Calibration Bias				
09/05/2013 09:24:48	0.5832	13.0531	0.482	75.902
09/05/2013 09:24:58	0.038	13.7179	0.383	76.102
09/05/2013 09:25:08	0.0244	2.747	0.383	77.001
09/05/2013 09:25:18	0.0172	0.1898	0.984	77.102
09/05/2013 09:25:28	0.0136	0.1029	1.484	77.502
09/05/2013 09:25:38	0.0125	0.0743	1.285	77.001
09/05/2013 09:25:48	0.0101	0.0553	0.781	76.602
09/05/2013 09:25:58	0.0077	0.0535	0.383	76.402
09/05/2013 09:26:08	0.0065	0.0458	0.484	76.202
09/05/2013 09:26:18	0.0053	0.044	0.682	75.502
09/05/2013 09:26:28	0.0053	0.0363	0.484	74.401
09/05/2013 09:26:38	0.0053	0.0363	0.482	73.002
09/05/2013 09:26:48	0.0041	0.0333	0.482	72.602
09/05/2013 09:26:58	0.0136	0.0327	0.284	72.302
09/05/2013 09:27:08	0.00055	0.0267	0.081	71.702
N2 Zero		**0.0309**	**0.282333**	
09/05/2013 09:27:18	-0.00064	0.0279	-0.014	72.102
09/05/2013 09:27:28	0.00055	0.016	1.285	72.102
09/05/2013 09:27:38	0.0017	0.019	8.387	71.902
09/05/2013 09:27:48	0.00055	0.0172	22.6	71.902
09/05/2013 09:27:58	-0.00064	0.0208	36.018	71.003
09/05/2013 09:28:08	-0.00064	0.0184	42.326	70.502
09/05/2013 09:28:18	-0.00064	0.022	44.022	70.502
09/05/2013 09:28:28	-0.00064	0.0142	45.625	70.702
09/05/2013 09:28:38	-0.00064	0.0142	45.526	71.003
09/05/2013 09:28:48	-0.0018	0.019	45.224	71.202
09/05/2013 09:28:58	-0.00064	0.0172	45.526	71.402
09/05/2013 09:29:08	0.00055	0.0125	45.625	72.102
46.3 ppm CO Mid			**45.45833**	
09/05/2013 09:29:18	0.2196	0.0142	46.127	72.302
09/05/2013 09:29:28	1.993	0.016	46.325	72.802
09/05/2013 09:29:38	2.0079	0.5379	46.825	73.901
09/05/2013 09:29:48	2.0102	1.9144	45.629	74.302
09/05/2013 09:29:58	2.0138	2.0489	38.821	74.801
09/05/2013 09:30:08	2.0162	2.0555	25.705	75.301
09/05/2013 09:30:18	2.0138	2.062	12.793	75.502
09/05/2013 09:30:28	2.0162	2.0632	4.886	75.902
09/05/2013 09:30:38	2.0126	2.062	1.984	76.402
09/05/2013 09:30:48	2.0138	2.0698	1.083	77.001
09/05/2013 09:30:58	2.0174	2.0733	0.885	77.001
09/05/2013 09:31:08	2.0162	2.0686	0.885	77.001
09/05/2013 09:31:18	2.0174	2.0638	0.482	76.802
2.07% O2 Low	**2.017**			
09/05/2013 09:31:28	2.0329	2.062	0.383	77.001
09/05/2013 09:31:38	8.7165	2.0632	0.484	76.802
09/05/2013 09:31:48	10.7941	2.8244	0.781	77.001
09/05/2013 09:31:58	10.831	7.5692	0.682	76.102
09/05/2013 09:32:08	10.8334	10.6905	0.184	75.702
09/05/2013 09:32:18	10.8506	10.8583	-0.113	75.202
09/05/2013 09:32:28	10.8482	10.8697	-0.212	74.601
09/05/2013 09:32:38	10.8613	10.8804	-0.113	73.701
09/05/2013 09:32:48	10.8744	10.8851	-0.113	72.802
09/05/2013 09:32:58	10.8708	10.8899	0.085	73.002
09/05/2013 09:33:08	10.8732	10.8947	-0.014	72.102
09/05/2013 09:33:18	10.8732	10.8935	-0.415	71.402

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 09:33:28	10.872	10.9	-0.014	71.902
11.0% O2 Mid	**10.8728**	**10.89607**		
09/05/2013 09:33:38	12.5967	10.9024	0.085	71.003
09/05/2013 09:33:48	12.3414	10.8994	-0.014	70.702
09/05/2013 09:33:58	11.9236	11.9534	-0.113	70.801
09/05/2013 09:34:08	11.6778	12.9698	-0.316	70.801
09/05/2013 09:34:18	11.4213	13.0186	-0.415	70.702
09/05/2013 09:34:28	11.1779	12.9508	-0.212	70.101
09/05/2013 09:34:38	10.8286	12.8621	-0.014	70.101
09/05/2013 09:34:48	10.5412	12.7812	0.085	70.101
09/05/2013 09:34:58	10.2823	12.7193	0.284	69.901
09/05/2013 09:35:08	10.1014	12.6621	0.383	70.301
09/05/2013 09:35:18	10.0061	12.6139	0.484	71.402
09/05/2013 09:35:28	9.9103	12.5913	0.583	71.602
09/05/2013 09:35:38	9.8187	12.6008	0.284	72.501
09/05/2013 09:35:48	9.6824	12.6068	0.184	73.401
09/05/2013 09:35:58	9.533	12.6104	0.383	73.901
09/05/2013 09:36:08	9.4896	12.6199	0.484	74.401
09/05/2013 09:36:18	9.2248	12.6377	0.583	74.601
09/05/2013 09:36:28	9.2307	12.6717	0.484	74.801
09/05/2013 09:36:38	9.2283	12.7085	0.484	75.002
09/05/2013 09:36:48	9.1903	12.724	0.583	75.702
09/05/2013 09:36:58	9.2295	12.7437	0.484	75.502
09/05/2013 09:37:08	9.2914	12.7306	0.383	75.902
09/05/2013 09:37:18	8.8844	12.7431	0.284	76.802
09/05/2013 09:37:28	9.3117	12.8067	0.284	77.302
09/05/2013 09:37:38	9.5812	12.9353	0.385	77.102
09/05/2013 09:37:48	9.7306	13.0787	0.484	77.102
09/05/2013 09:37:58	9.7378	13.2703	0.385	77.102
09/05/2013 09:38:08	9.7633	13.3554	0.284	76.802
09/05/2013 09:38:18	9.7003	13.3667	0.286	76.202
09/05/2013 09:38:28	9.6634	13.3025	0.385	75.202
09/05/2013 09:38:38	9.6753	13.2513	0.385	73.401
09/05/2013 09:38:48	9.6342	13.1977	0.484	72.501
09/05/2013 09:38:58	9.6884	13.1632	0.583	72.802
09/05/2013 09:39:08	9.6836	13.1293	0.682	72.302
09/05/2013 09:39:18	9.5997	13.1198	0.583	71.702
09/05/2013 09:39:28	9.6283	13.1245	0.484	71.402
09/05/2013 09:39:38	9.5884	13.1275	0.583	70.702
09/05/2013 09:39:48	9.592	13.1549	0.682	70.101
09/05/2013 09:39:58	9.5812	13.1471	0.583	70.101
09/05/2013 09:40:08	9.4973	13.1567	0.583	70.301
09/05/2013 09:40:18	9.4045	13.193	0.583	70.301
09/05/2013 09:40:28	9.3176	13.2084	0.682	70.101
09/05/2013 09:40:38	9.3212	13.1733	0.583	70.101
09/05/2013 09:40:48	9.2468	13.1531	0.583	70.301
09/05/2013 09:40:58	9.1926	13.1454	0.682	70.801
09/05/2013 09:41:08	9.2093	13.09	0.583	71.202
09/05/2013 09:41:18	9.2635	13.0126	0.484	71.402
09/05/2013 09:41:28	9.2492	12.9555	0.583	71.702
09/05/2013 09:41:38	9.3247	12.99	0.583	73.002
09/05/2013 09:41:48	9.3551	13.0269	0.284	73.901
09/05/2013 09:41:58	9.3033	13.1406	0.284	74.302
09/05/2013 09:42:08	9.2646	13.193	0.484	74.801
09/05/2013 09:42:18	9.2504	13.1436	0.484	75.202
09/05/2013 09:42:28	9.2069	13.0281	0.484	75.902
09/05/2013 09:42:38	9.1778	12.9014	0.484	76.102
09/05/2013 09:42:48	9.1801	12.8157	0.286	76.202
09/05/2013 09:42:58	9.1778	12.7621	0.085	76.402
09/05/2013 09:43:08	9.154	12.7401	0.085	76.602
09/05/2013 09:43:18	9.1837	12.7246	0.184	76.802
09/05/2013 09:43:28	9.1307	12.7056	0.184	77.102
09/05/2013 09:43:38	9.1224	12.6961	0.085	77.001
09/05/2013 09:43:48	9.1034	12.705	0.184	76.802
09/05/2013 09:43:58	9.0409	12.6836	0.184	75.902
09/05/2013 09:44:08	9.0212	12.6675	0.184	75.202
09/05/2013 09:44:18	9.0528	12.6425	0.184	74.601
09/05/2013 09:44:28	9.0456	12.6169	0.184	73.901
09/05/2013 09:44:38	8.9974	12.6163	0.085	72.802
09/05/2013 09:44:48	8.8046	12.6169	0.284	71.702
09/05/2013 09:44:58	8.5737	12.5866	0.385	72.102
09/05/2013 09:45:08	8.3184	12.5485	0.186	71.702
09/05/2013 09:45:18	8.228	12.4634	0.186	71.003
09/05/2013 09:45:28	8.1423	12.4217	0.484	70.101
09/05/2013 09:45:38	8.1774	12.4681	0.385	69.901
09/05/2013 09:45:48	8.2518	12.5502	0.286	70.301
09/05/2013 09:45:58	8.2303	12.7056	0.383	70.502
09/05/2013 09:46:08	8.1809	12.8371	0.383	70.101
09/05/2013 09:46:18	8.1679	12.8395	0.484	69.802
09/05/2013 09:46:28	8.1869	12.7365	0.484	69.901
09/05/2013 09:46:38	8.1952	12.5866	0.484	69.901
09/05/2013 09:46:48	8.2821	12.4556	0.284	70.301
09/05/2013 09:46:58	8.3797	12.3789	-0.014	71.202
09/05/2013 09:47:08	8.5106	12.3402	-0.113	71.602
09/05/2013 09:47:18	8.5565	12.3205	0.184	71.902
09/05/2013 09:47:28	8.5975	12.3539	0.385	72.302
09/05/2013 09:47:38	8.6636	12.3931	0.184	73.701
09/05/2013 09:47:48	8.6636	12.4336	-0.014	74.801
09/05/2013 09:47:58	8.7302	12.5104	-0.113	75.301

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 09:48:08	8.729	12.5723	-0.012	75.902
09/05/2013 09:48:18	8.7796	12.6169	0.184	76.102
09/05/2013 09:48:28	8.8058	12.6693	0.284	76.402
09/05/2013 09:48:38	8.7927	12.7318	0.385	76.602
09/05/2013 09:48:48	8.854	12.7859	0.284	77.102
09/05/2013 09:48:58	8.8374	12.7877	0.284	77.102
09/05/2013 09:49:08	8.8034	12.8175	0.583	77.001
09/05/2013 09:49:18	8.6808	12.7865	0.484	77.102
09/05/2013 09:49:28	8.7082	12.7556	0.385	77.901
09/05/2013 09:49:38	8.7999	12.7508	0.284	78.201
09/05/2013 09:49:48	8.9201	12.8288	-0.014	78.002
09/05/2013 09:49:58	8.9951	12.9519	-0.212	76.802
09/05/2013 09:50:08	8.9611	13.1091	-0.113	75.502
09/05/2013 09:50:18	8.8338	13.1567	-0.014	74.801
09/05/2013 09:50:28	8.7505	13.0531	0.085	73.701
09/05/2013 09:50:38	8.6481	12.8651	0.184	73.201
09/05/2013 09:50:48	8.5844	12.6574	0.385	71.702
09/05/2013 09:50:58	8.5398	12.477	0.682	71.202
09/05/2013 09:51:08	8.5576	12.3479	0.383	71.202
09/05/2013 09:51:18	8.5231	12.2848	-0.113	70.702
09/05/2013 09:51:28	8.5469	12.2402	-0.014	70.301
09/05/2013 09:51:38	8.5315	12.2396	0.284	70.301
09/05/2013 09:51:48	8.541	12.2491	0.385	70.301
09/05/2013 09:51:58	8.5809	12.2801	0.284	70.301
Start Run 2				
09/05/2013 09:52:08	8.6529	12.314	0.284	70.301
09/05/2013 09:52:18	8.6749	12.3586	0.284	70.101
09/05/2013 09:52:28	8.7505	12.4003	0.184	69.901
09/05/2013 09:52:38	8.7868	12.4663	0.385	69.802
09/05/2013 09:52:48	8.7963	12.5151	0.184	69.601
09/05/2013 09:52:58	8.8254	12.5675	0.085	69.401
09/05/2013 09:53:08	8.8374	12.6199	-0.014	69.202
09/05/2013 09:53:18	8.8481	12.6621	-0.113	69.202
09/05/2013 09:53:28	8.8808	12.7056	-0.014	68.901
09/05/2013 09:53:38	8.882	12.7526	-0.014	69.202
09/05/2013 09:53:48	8.9373	12.7907	0.184	70.502
09/05/2013 09:53:58	8.9635	12.8061	-0.014	71.003
09/05/2013 09:54:08	8.8683	12.843	-0.316	71.003
09/05/2013 09:54:18	8.735	12.8633	-0.415	71.702
09/05/2013 09:54:28	8.6291	12.8966	-0.212	72.501
09/05/2013 09:54:38	8.6517	12.924	-0.014	73.002
09/05/2013 09:54:48	8.5797	12.9424	-0.514	73.901
09/05/2013 09:54:58	8.5279	12.9472	-0.613	75.202
09/05/2013 09:55:08	8.5386	12.8984	-0.014	75.502
09/05/2013 09:55:18	8.5469	12.8496	0.284	75.502
09/05/2013 09:55:28	8.6303	12.8145	0.081	75.702
09/05/2013 09:55:38	8.6011	12.821	-0.014	76.102
09/05/2013 09:55:48	8.5588	12.83	0.085	76.202
09/05/2013 09:55:58	8.6761	12.8538	0.085	76.602
09/05/2013 09:56:08	8.6856	12.8924	-0.212	77.102
09/05/2013 09:56:18	8.5457	12.8841	-0.312	77.502
09/05/2013 09:56:28	8.5737	12.7371	-0.212	77.502
09/05/2013 09:56:38	8.5892	12.4348	-0.014	77.302
09/05/2013 09:56:48	8.6636	12.4098	0.085	76.802
09/05/2013 09:56:58	8.6469	12.4158	0.184	76.202
09/05/2013 09:57:08	8.6362	12.4646	0.284	75.002
09/05/2013 09:57:18	8.5797	12.4651	0.184	74.302
09/05/2013 09:57:28	8.5374	12.4788	0.085	73.201
09/05/2013 09:57:38	9.054	12.4699	0.085	73.201
09/05/2013 09:57:48	9.8425	12.4651	0.385	72.501
09/05/2013 09:57:58	9.5104	13.0341	-0.014	71.702
09/05/2013 09:58:08	9.2432	14.3249	-0.014	71.602
09/05/2013 09:58:18	9.0248	14.0868	-0.014	71.202
09/05/2013 09:58:28	8.948	13.5738	-0.014	71.003
09/05/2013 09:58:38	8.9213	12.974	-0.014	71.702
09/05/2013 09:58:48	8.9349	12.7056	0.085	71.003
09/05/2013 09:58:58	8.7267	12.6484	-0.212	71.003
09/05/2013 09:59:08	8.1869	12.6812	-0.316	70.702
09/05/2013 09:59:18	7.6935	12.6961	-0.212	70.702
09/05/2013 09:59:28	7.3912	12.7103	-0.117	71.003
09/05/2013 09:59:38	7.3912	12.7419	-0.014	70.801
09/05/2013 09:59:48	7.6668	12.7687	-0.113	71.202
09/05/2013 09:59:58	7.5585	13.0144	-0.113	71.602
09/05/2013 10:00:08	7.5864	13.6881	-0.113	72.802
09/05/2013 10:00:18	7.4537	13.6964	-0.014	74.101
09/05/2013 10:00:28	7.5335	13.6833	0.184	75.202
09/05/2013 10:00:38	7.6031	13.3697	-0.113	75.702
09/05/2013 10:00:48	7.7656	13.1971	-0.316	75.502
09/05/2013 10:00:58	7.8798	13.1483	-0.113	75.502
09/05/2013 10:01:08	8.0524	13.1721	0.284	75.301
09/05/2013 10:01:18	8.0774	13.1198	-0.113	75.502
09/05/2013 10:01:28	8.1173	13.0805	-0.316	76.102
09/05/2013 10:01:38	8.2643	13.0394	-0.014	76.102
09/05/2013 10:01:48	8.3654	12.9668	-0.212	76.202
09/05/2013 10:01:58	8.5118	13.0174	-0.316	76.202
09/05/2013 10:02:08	8.6832	13.1846	-0.216	76.402
09/05/2013 10:02:18	8.8189	13.2864	-0.212	76.802
09/05/2013 10:02:28	8.8939	13.4227	-0.415	77.001
09/05/2013 10:02:38	9.0034	13.5048	-0.212	76.802

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 10:02:48	9.0962	13.5358	-0.113	76.202
09/05/2013 10:02:58	9.2188	13.5429	-0.113	75.502
09/05/2013 10:03:08	9.2849	13.531	-0.014	74.601
09/05/2013 10:03:18	9.3706	13.5108	0.085	74.302
09/05/2013 10:03:28	9.3694	13.4905	-0.014	73.502
09/05/2013 10:03:38	9.289	13.4727	-0.212	72.802
09/05/2013 10:03:48	9.3283	13.4334	-0.212	72.602
09/05/2013 10:03:58	9.3247	13.3638	0.286	72.501
09/05/2013 10:04:08	9.2658	13.315	0.484	71.902
09/05/2013 10:04:18	9.1682	13.2668	-0.014	71.402
09/05/2013 10:04:28	9.1587	13.1948	-0.316	71.202
09/05/2013 10:04:38	9.1397	13.1531	-0.113	71.003
09/05/2013 10:04:48	9.1022	13.1073	0.081	70.502
09/05/2013 10:04:58	8.9962	13.0519	0.184	70.101
09/05/2013 10:05:08	8.9564	12.993	-0.014	69.802
09/05/2013 10:05:18	8.8719	12.9365	-0.113	69.401
09/05/2013 10:05:28	8.7808	12.8782	-0.014	69.601
09/05/2013 10:05:38	8.6106	12.7817	0.184	69.802
09/05/2013 10:05:48	8.4892	12.7008	0.184	70.301
09/05/2013 10:05:58	8.4833	12.6502	-0.014	70.702
09/05/2013 10:06:08	8.4797	12.7026	-0.113	71.003
09/05/2013 10:06:18	8.3761	12.7889	-0.113	72.102
09/05/2013 10:06:28	8.3916	12.9281	0.085	73.401
09/05/2013 10:06:38	8.2988	13.0472	0.184	74.302
09/05/2013 10:06:48	8.1726	13.0787	0.085	75.202
09/05/2013 10:06:58	8.1066	13.0222	-0.014	75.702
09/05/2013 10:07:08	8.0994	12.9698	0.184	75.902
09/05/2013 10:07:18	8.1161	12.9014	0.484	76.102
09/05/2013 10:07:28	8.1845	12.8686	0.484	76.202
09/05/2013 10:07:38	8.2762	12.8353	0.484	76.602
09/05/2013 10:07:48	8.3482	12.7954	-0.014	77.001
09/05/2013 10:07:58	8.3892	12.7936	-0.212	77.102
09/05/2013 10:08:08	8.4773	12.7925	-0.316	77.502
09/05/2013 10:08:18	8.5267	12.7889	-0.316	77.502
09/05/2013 10:08:28	8.5666	12.8085	-0.415	77.701
09/05/2013 10:08:38	8.582	12.818	-0.415	78.002
09/05/2013 10:08:48	8.6761	12.843	-0.212	76.802
09/05/2013 10:08:58	8.6796	12.8448	-0.014	75.902
09/05/2013 10:09:08	8.6612	12.8413	0.184	74.801
09/05/2013 10:09:18	8.6529	12.8508	0.184	73.502
09/05/2013 10:09:28	8.5999	12.8335	-0.014	72.501
09/05/2013 10:09:38	8.5624	12.8175	-0.415	72.302
09/05/2013 10:09:48	8.607	12.7579	-0.316	72.501
09/05/2013 10:09:58	8.6374	12.7097	-0.113	71.602
09/05/2013 10:10:08	8.7398	12.7514	-0.316	71.402
09/05/2013 10:10:18	8.8808	12.8323	-0.617	71.402
09/05/2013 10:10:28	8.9189	12.968	-0.514	70.801
09/05/2013 10:10:38	8.8879	13.1263	-0.212	70.502
09/05/2013 10:10:48	8.8504	13.1626	-0.113	69.601
09/05/2013 10:10:58	8.8647	13.1341	-0.415	69.401
09/05/2013 10:11:08	8.8516	13.0484	-0.815	69.202
09/05/2013 10:11:18	8.8165	12.9883	-0.815	69.401
09/05/2013 10:11:28	8.7671	12.9424	-0.915	69.202
09/05/2013 10:11:38	8.7219	12.8889	-1.018	69.601
09/05/2013 10:11:48	8.6951	12.827	-0.815	69.802
09/05/2013 10:11:58	8.6612	12.7817	-0.617	69.901
09/05/2013 10:12:08	8.6338	12.7353	-0.415	70.301
09/05/2013 10:12:18	8.6047	12.6734	-0.113	70.101
09/05/2013 10:12:28	8.5624	12.6401	0.184	70.101
09/05/2013 10:12:38	8.5701	12.6151	0.383	70.502
09/05/2013 10:12:48	8.582	12.5788	0.583	70.801
09/05/2013 10:12:58	8.5701	12.5752	0.484	72.302
End Run 2				
Average	**8.622963**	**12.93425**	**-0.074929**	**73.01923**
Maximum	**9.8425**	**14.3249**	**0.583**	**78.002**
Minimum	**7.3912**	**12.314**	**-1.018**	**68.901**
09/05/2013 10:13:08	8.5267	12.5616	0.583	73.502
09/05/2013 10:13:18	8.469	12.552	0.583	74.401
09/05/2013 10:13:28	8.3999	12.5205	0.385	75.002
09/05/2013 10:13:38	8.3642	12.4729	0.184	75.502
09/05/2013 10:13:48	8.3595	12.4027	0.284	75.702
09/05/2013 10:13:58	8.4071	12.3378	0.284	75.502
Calibration Bias				
09/05/2013 10:14:08	0.2701	12.3509	0.284	76.102
09/05/2013 10:14:18	0.0255	11.4618	0.284	76.202
09/05/2013 10:14:28	0.0184	1.6579	0.284	76.402
09/05/2013 10:14:38	0.0125	0.1297	0.682	76.802
09/05/2013 10:14:48	0.0089	0.0785	1.488	76.402
09/05/2013 10:14:58	0.0065	0.0678	1.484	76.802
09/05/2013 10:15:08	0.0053	0.0601	0.682	77.001
09/05/2013 10:15:18	0.0053	0.0374	-0.014	77.001
09/05/2013 10:15:28	0.0041	0.0327	-0.113	76.202
09/05/2013 10:15:38	0.0029	0.041	0.184	75.301
09/05/2013 10:15:48	0.0017	0.0404	0.081	74.401
09/05/2013 10:15:58	0.00055	0.0309	0.085	73.701
N2 Zero		**0.037433**	**0.116667**	
09/05/2013 10:16:08	0.00055	0.0267	0.383	72.501
09/05/2013 10:16:18	0.0053	0.0309	0.284	71.902

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 10:16:28	0.0029	0.0208	0.482	71.402
09/05/2013 10:16:38	0.0077	0.022	0.682	71.402
09/05/2013 10:16:48	-0.003	0.0232	0.885	71.202
09/05/2013 10:16:58	-0.00064	0.0279	4.985	71.202
09/05/2013 10:17:08	-0.00064	0.0208	13.39	70.702
09/05/2013 10:17:18	-0.0018	0.022	22.001	69.802
09/05/2013 10:17:28	-0.003	0.0142	29.611	69.401
09/05/2013 10:17:38	-0.0042	0.019	36.316	69.202
09/05/2013 10:17:48	-0.0042	0.016	41.822	68.901
09/05/2013 10:17:58	-0.003	0.0136	44.423	69.401
09/05/2013 10:18:08	-0.003	0.016	44.824	70.101
09/05/2013 10:18:18	-0.0042	0.019	45.427	71.402
09/05/2013 10:18:28	-0.0042	0.0095	45.728	71.902
09/05/2013 10:18:38	-0.0054	0.0095	45.526	71.902
09/05/2013 10:18:48	-0.0054	0.0089	45.827	72.602
09/05/2013 10:18:58	-0.0042	0.0107	46.428	73.201
46.3 ppm CO Mid			**45.927**	
09/05/2013 10:19:08	1.7329	0.0136	46.127	74.101
09/05/2013 10:19:18	2.0019	0.0113	45.323	74.601
09/05/2013 10:19:28	2.009	1.2884	45.526	75.202
09/05/2013 10:19:38	2.0126	2.0251	45.125	75.502
09/05/2013 10:19:48	2.0126	2.0638	37.317	75.702
09/05/2013 10:19:58	2.0126	2.0525	23.104	76.102
09/05/2013 10:20:08	2.0138	2.0656	10.591	76.102
09/05/2013 10:20:18	2.015	2.0632	3.985	76.102
09/05/2013 10:20:28	2.0126	2.068	1.785	75.902
09/05/2013 10:20:38	2.0162	2.0668	0.984	76.102
09/05/2013 10:20:48	2.0162	2.068	0.583	76.402
09/05/2013 10:20:58	2.0162	2.065	0.385	76.402
09/05/2013 10:21:08	2.0174	2.0698	0.484	76.402
2.07% O2 Low	**2.0166**			
09/05/2013 10:21:18	2.015	2.0656	0.682	76.802
09/05/2013 10:21:28	10.7179	2.065	0.682	76.802
09/05/2013 10:21:38	10.8459	2.5982	0.484	74.801
09/05/2013 10:21:48	10.878	9.6538	0.484	73.401
09/05/2013 10:21:58	10.8768	10.825	0.385	73.201
09/05/2013 10:22:08	10.8941	10.8661	0.184	72.802
09/05/2013 10:22:18	10.8952	10.8762	-0.216	71.902
09/05/2013 10:22:28	10.8941	10.8851	-0.415	71.202
09/05/2013 10:22:38	10.8976	10.8881	-0.113	70.801
09/05/2013 10:22:48	10.8941	10.8952	-0.014	70.702
09/05/2013 10:22:58	10.8851	10.9	-0.014	70.702
09/05/2013 10:23:08	10.8988	10.903	0.085	70.301
09/05/2013 10:23:18	10.8905	10.8994	0.184	70.301
09/05/2013 10:23:28	10.8851	10.8964	0.184	69.802
09/05/2013 10:23:38	10.8839	10.8976	-0.014	69.401
09/05/2013 10:23:48	10.8875	10.9089	-0.113	69.401
11.0% O2 Mid	**10.8855**	**10.90097**		
09/05/2013 10:23:58	11.2356	10.906	-0.014	69.202
09/05/2013 10:24:08	10.5822	10.903	-0.113	68.901
09/05/2013 10:24:18	10.0341	11.6701	-0.316	68.701
09/05/2013 10:24:28	9.7955	12.1527	-0.613	69.002
09/05/2013 10:24:38	9.6366	12.1926	-0.617	69.601
09/05/2013 10:24:48	9.4164	12.2164	-0.316	70.301
09/05/2013 10:24:58	9.2504	12.2289	0.085	70.502
09/05/2013 10:25:08	9.0302	12.2539	0.184	71.202
09/05/2013 10:25:18	8.9165	12.3021	0.484	72.302
09/05/2013 10:25:28	8.7671	12.3402	0.686	73.701
09/05/2013 10:25:38	8.2964	12.3592	0.482	75.202
09/05/2013 10:25:48	8.3553	12.3699	0.484	75.902
09/05/2013 10:25:58	8.4279	12.3646	0.085	76.102
09/05/2013 10:26:08	8.5785	12.3634	-0.113	76.402
09/05/2013 10:26:18	8.6648	12.4003	-0.014	76.802
09/05/2013 10:26:28	8.8671	12.5264	-0.316	77.001
09/05/2013 10:26:38	9.0314	12.652	-0.21	77.302
09/05/2013 10:26:48	9.0974	12.8526	-0.111	77.502
09/05/2013 10:26:58	9.1141	12.9871	0.004	77.302
09/05/2013 10:27:08	9.1284	12.9871	0.389	77.701
09/05/2013 10:27:18	9.1248	12.9537	0.456	77.901
09/05/2013 10:27:28	9.1224	12.9162	-0.139	78.201
09/05/2013 10:27:38	9.12	12.8829	-0.609	77.502
09/05/2013 10:27:48	9.1105	12.8776	-0.508	76.202
09/05/2013 10:27:58	9.1046	12.8561	-0.306	75.301
09/05/2013 10:28:08	9.0903	12.8496	-0.107	74.601
09/05/2013 10:28:18	9.0855	12.8668	0.085	73.701
09/05/2013 10:28:28	9.0504	12.8544	0.085	73.002
09/05/2013 10:28:38	9.0564	12.8466	0.073	72.302
09/05/2013 10:28:48	9.0248	12.8353	-0.038	72.302
09/05/2013 10:28:58	9.0433	12.843	-0.224	72.302
Start Run 3				
09/05/2013 10:29:08	9.007	12.843	-0.298	71.602
09/05/2013 10:29:18	8.9903	12.843	-0.095	70.801
09/05/2013 10:29:28	8.9433	12.8395	0.113	70.801
09/05/2013 10:29:38	8.8469	12.8109	0.405	70.502
09/05/2013 10:29:48	8.7695	12.78	0.573	70.502
09/05/2013 10:29:58	8.7552	12.724	0.482	70.502
09/05/2013 10:30:08	8.813	12.6532	0.474	70.301
09/05/2013 10:30:18	8.8213	12.6258	0.363	70.301
09/05/2013 10:30:28	8.9599	12.6883	0.194	69.901

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 10:30:38	8.4868	12.7621	0.286	70.101
09/05/2013 10:30:48	8.4797	12.9139	0.383	70.801
09/05/2013 10:30:58	8.6588	13.0347	0.375	71.402
09/05/2013 10:31:08	8.8153	13.0567	0.284	71.402
09/05/2013 10:31:18	8.8719	13.0061	0.293	71.402
09/05/2013 10:31:28	8.8915	12.9412	0.393	71.602
09/05/2013 10:31:38	8.86	12.8728	0.484	72.602
09/05/2013 10:31:48	8.782	12.8085	0.444	73.002
09/05/2013 10:31:58	8.7624	12.7627	0.081	73.502
09/05/2013 10:32:08	8.7445	12.7276	0.113	74.401
09/05/2013 10:32:18	8.7207	12.702	0.363	75.202
09/05/2013 10:32:28	8.6904	12.6788	0.143	75.502
09/05/2013 10:32:38	8.6868	12.6693	-0.216	75.902
09/05/2013 10:32:48	8.7683	12.6645	-0.224	75.902
09/05/2013 10:32:58	8.7469	12.6657	-0.306	75.902
09/05/2013 10:33:08	8.7046	12.6812	-0.195	76.202
09/05/2013 10:33:18	8.7493	12.6978	-0.034	76.802
09/05/2013 10:33:28	8.7772	12.7216	-0.212	77.102
09/05/2013 10:33:38	8.7528	12.7169	-0.169	77.302
09/05/2013 10:33:48	8.7106	12.7151	0.099	77.701
09/05/2013 10:33:58	8.6915	12.6907	0.184	77.701
09/05/2013 10:34:08	8.7576	12.6324	0.184	77.001
09/05/2013 10:34:18	8.7612	12.5961	0.168	75.902
09/05/2013 10:34:28	8.8903	12.6139	0.081	74.601
09/05/2013 10:34:38	9.0903	12.6877	0.051	74.101
09/05/2013 10:34:48	9.22	12.8175	-0.099	73.201
09/05/2013 10:34:58	9.3057	13.0025	0.014	72.501
09/05/2013 10:35:08	9.3117	13.1394	0.184	71.902
09/05/2013 10:35:18	9.3366	13.2007	0.184	71.602
09/05/2013 10:35:28	9.3295	13.2168	0.184	71.602
09/05/2013 10:35:38	9.342	13.2043	0.202	71.003
09/05/2013 10:35:48	9.3622	13.1989	0.284	70.801
09/05/2013 10:35:58	9.4009	13.1817	0.26	70.801
09/05/2013 10:36:08	9.3164	13.1817	0.161	70.801
09/05/2013 10:36:18	9.3069	13.1977	0.121	71.402
09/05/2013 10:36:28	9.2754	13.19	0.305	71.402
09/05/2013 10:36:38	9.2754	13.1733	0.405	70.801
09/05/2013 10:36:48	9.2563	13.1549	0.504	70.502
09/05/2013 10:36:58	9.2307	13.1596	0.522	70.301
09/05/2013 10:37:08	9.2105	13.1549	0.284	70.301
09/05/2013 10:37:18	8.9623	13.1466	0.301	70.301
09/05/2013 10:37:28	8.882	13.1346	0.405	69.901
09/05/2013 10:37:38	8.9528	13.1156	0.484	70.702
09/05/2013 10:37:48	8.9361	13.0692	0.436	70.702
09/05/2013 10:37:58	8.901	13.0251	0.609	71.003
09/05/2013 10:38:08	8.8748	12.9615	0.656	71.702
09/05/2013 10:38:18	8.9855	12.8859	0.609	72.501
09/05/2013 10:38:28	8.9796	12.8508	0.656	73.002
09/05/2013 10:38:38	9.0938	12.921	0.51	73.502
09/05/2013 10:38:48	9.1825	13.0043	0.284	74.302
09/05/2013 10:38:58	9.173	13.1549	0.284	74.401
09/05/2013 10:39:08	9.0903	13.2924	0.258	74.601
09/05/2013 10:39:18	9.0819	13.3292	0.133	75.002
09/05/2013 10:39:28	9.0962	13.3037	0.012	75.301
09/05/2013 10:39:38	9.1057	13.2495	0.159	75.301
09/05/2013 10:39:48	9.1046	13.2138	0.444	75.502
09/05/2013 10:39:58	9.0998	13.1721	0.555	76.102
09/05/2013 10:40:08	9.1468	13.1281	0.422	76.402
09/05/2013 10:40:18	9.1248	13.093	0.311	76.202
09/05/2013 10:40:28	8.9927	13.0769	0.353	76.802
09/05/2013 10:40:38	8.9742	13.0365	0.284	77.302
09/05/2013 10:40:48	8.9361	13.0216	0.311	77.302
09/05/2013 10:40:58	8.973	13.0061	0.414	77.102
09/05/2013 10:41:08	8.9397	12.9775	0.484	76.102
09/05/2013 10:41:18	8.9433	12.9644	0.484	75.301
09/05/2013 10:41:28	8.7469	12.9615	0.484	74.302
09/05/2013 10:41:38	8.7761	12.9597	0.422	73.701
09/05/2013 10:41:48	8.8516	12.9412	0.284	73.002
09/05/2013 10:41:58	8.86	12.9079	0.375	72.501
09/05/2013 10:42:08	8.8564	12.8924	0.551	71.902
09/05/2013 10:42:18	8.8879	12.8252	0.456	71.602
09/05/2013 10:42:28	8.9796	12.7734	0.414	71.602
09/05/2013 10:42:38	9.0421	12.7889	0.543	70.801
09/05/2013 10:42:48	9.2343	12.8746	0.625	70.502
09/05/2013 10:42:58	9.3527	13.0002	0.393	71.003
09/05/2013 10:43:08	9.4235	13.1799	0.125	71.003
09/05/2013 10:43:18	9.461	13.2876	-0.044	70.301
09/05/2013 10:43:28	9.2926	13.3269	-0.085	70.101
09/05/2013 10:43:38	9.4705	13.3179	0.103	70.702
09/05/2013 10:43:48	9.4741	13.2971	0.414	70.702
09/05/2013 10:43:58	9.4801	13.2751	0.484	70.801
09/05/2013 10:44:08	9.4717	13.2561	0.484	71.602
09/05/2013 10:44:18	9.5104	13.2382	0.448	71.702
09/05/2013 10:44:28	9.5378	13.2138	0.383	72.102
09/05/2013 10:44:38	9.5223	13.2215	0.383	72.802
09/05/2013 10:44:48	9.5378	13.2138	0.315	73.401
09/05/2013 10:44:58	9.4658	13.1989	0.242	74.101
09/05/2013 10:45:08	9.4586	13.1989	0.452	74.101
09/05/2013 10:45:18	9.4212	13.1769	0.583	74.601

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 10:45:28	9.3914	13.1704	0.514	74.801
09/05/2013 10:45:38	9.4152	13.1751	0.418	75.002
09/05/2013 10:45:48	9.3551	13.1471	0.484	75.202
09/05/2013 10:45:58	9.2456	13.1025	0.379	75.702
09/05/2013 10:46:08	9.2456	13.0662	0.224	75.902
09/05/2013 10:46:18	9.2283	12.9823	0.405	75.902
09/05/2013 10:46:28	9.2813	12.9174	0.583	76.202
09/05/2013 10:46:38	9.3837	12.8889	0.508	76.402
09/05/2013 10:46:48	9.5402	12.9502	0.385	77.302
09/05/2013 10:46:58	9.6175	13.0472	0.385	77.502
09/05/2013 10:47:08	9.6473	13.1971	0.385	77.302
09/05/2013 10:47:18	9.608	13.2739	0.305	76.402
09/05/2013 10:47:28	9.6116	13.2721	0.061	75.502
09/05/2013 10:47:38	9.6009	13.2114	-0.078	74.401
09/05/2013 10:47:48	9.586	13.1299	0.107	73.201
09/05/2013 10:47:58	9.5705	13.0579	0.284	72.602
09/05/2013 10:48:08	9.5658	12.9888	0.161	72.602
09/05/2013 10:48:18	9.5836	12.9252	-0.014	71.902
09/05/2013 10:48:28	9.5717	12.8907	0.103	71.003
09/05/2013 10:48:38	9.5479	12.8728	0.405	70.801
09/05/2013 10:48:48	9.5199	12.8448	0.583	71.003
09/05/2013 10:48:58	9.5223	12.827	0.462	70.801
09/05/2013 10:49:08	9.5235	12.8145	0.323	70.702
09/05/2013 10:49:18	9.5479	12.8222	0.422	70.502
09/05/2013 10:49:28	9.5223	12.8061	0.444	70.502
09/05/2013 10:49:38	9.5152	12.8145	0.462	69.802
09/05/2013 10:49:48	9.5069	12.8133	0.543	69.601
09/05/2013 10:49:58	9.4634	12.7859	0.444	69.901
End Run 3				
Average	**9.139715**	**12.98618**	**0.294905**	**73.10248**
Maximum	**9.6473**	**13.3292**	**0.656**	**77.701**
Minimum	**8.4797**	**12.5961**	**-0.306**	**69.601**
09/05/2013 10:50:08	9.3985	12.7687	0.466	70.702
09/05/2013 10:50:18	9.4432	12.727	0.583	71.702
09/05/2013 10:50:28	9.533	12.6597	0.462	72.102
09/05/2013 10:50:38	9.6235	12.6502	0.286	71.902
09/05/2013 10:50:48	9.7622	12.7341	0.327	72.802
09/05/2013 10:50:58	9.8836	12.8353	0.337	74.101
09/05/2013 10:51:08	9.8859	12.9918	0.238	74.601
09/05/2013 10:51:18	9.8907	13.1442	0.139	75.002
09/05/2013 10:51:28	9.7848	13.1834	-0.095	75.502
09/05/2013 10:51:38	9.6116	13.1531	-0.272	75.702
09/05/2013 10:51:48	9.467	13.0995	-0.113	76.102
09/05/2013 10:51:58	9.395	13.0109	-0.195	76.102
Calibration Bias				
09/05/2013 10:52:08	8.2857	12.9555	-0.323	76.402
09/05/2013 10:52:18	0.0809	12.9162	-0.081	76.802
09/05/2013 10:52:28	0.0232	8.5475	0.034	76.402
09/05/2013 10:52:38	0.0148	0.454	0.234	76.202
09/05/2013 10:52:48	0.0101	0.1053	0.482	76.202
09/05/2013 10:52:58	0.0077	0.0755	0.184	76.402
09/05/2013 10:53:08	0.0041	0.0601	-0.066	77.001
09/05/2013 10:53:18	0.0029	0.0499	0.085	76.202
09/05/2013 10:53:28	0.0041	0.0476	0.284	76.202
09/05/2013 10:53:38	0.0029	0.0452	0.383	75.502
09/05/2013 10:53:48	0.0017	0.0327	0.284	74.601
N2 Zero		**0.041833**	**0.317**	
09/05/2013 10:53:58	0.00055	0.0315	0.232	74.401
09/05/2013 10:54:08	-0.00064	0.0345	0.284	74.302
09/05/2013 10:54:18	-0.0018	0.0315	0.331	73.201
09/05/2013 10:54:28	-0.0018	0.0297	0.932	72.501
09/05/2013 10:54:38	-0.0018	0.0249	4.834	72.501
09/05/2013 10:54:48	-0.003	0.0232	15.044	72.102
09/05/2013 10:54:58	-0.0042	0.0232	28.658	71.402
09/05/2013 10:55:08	-0.0042	0.0232	39.279	70.702
09/05/2013 10:55:18	-0.003	0.0202	44.389	69.802
09/05/2013 10:55:28	-0.0042	0.0172	45.206	69.802
09/05/2013 10:55:38	-0.003	0.0172	45.357	69.601
09/05/2013 10:55:48	-0.003	0.0136	46.065	69.601
09/05/2013 10:55:58	-0.003	0.0154	46.208	69.601
09/05/2013 10:56:08	-0.0042	0.0232	46.028	70.101
09/05/2013 10:56:18	-0.0054	0.0125	46.139	70.301
46.3 ppm CO Mid			**46.125**	
09/05/2013 10:56:28	0.0172	0.0125	45.786	70.101
09/05/2013 10:56:38	1.9799	0.0113	45.095	69.601
09/05/2013 10:56:48	2.0031	0.2755	45.379	69.901
09/05/2013 10:56:58	2.0079	1.8751	44.342	70.101
09/05/2013 10:57:08	2.009	2.0412	37.289	70.502
09/05/2013 10:57:18	2.0102	2.0507	24.31	70.801
09/05/2013 10:57:28	2.0102	2.0602	11.051	71.602
09/05/2013 10:57:38	2.0138	2.0608	3.803	72.602
09/05/2013 10:57:48	2.0114	2.0632	1.224	73.502
09/05/2013 10:57:58	2.0138	2.0632	0.781	74.601
2.07% O2 Low	**2.013**			
09/05/2013 10:58:08	2.206	2.0632	0.664	75.002
09/05/2013 10:58:18	10.7352	2.059	0.643	75.301
09/05/2013 10:58:28	10.8298	3.404	0.625	75.502
09/05/2013 10:58:38	10.8191	10.1252	0.462	76.102

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 10:58:48	10.8423	10.8375	0.264	76.802
09/05/2013 10:58:58	10.8334	10.8613	0.061	76.802
09/05/2013 10:59:08	10.8334	10.8804	-0.143	76.402
09/05/2013 10:59:18	10.8542	10.8881	-0.212	76.402
09/05/2013 10:59:28	10.8482	10.8905	-0.411	77.001
09/05/2013 10:59:38	10.8768	10.8952	-0.393	77.001
11.0% O2 Mid	**10.85973**	**10.89127**		
09/05/2013 10:59:48	10.847	10.8982	-0.195	77.102
09/05/2013 10:59:58	12.0063	10.9071	-0.478	76.602
09/05/2013 11:00:08	12.2955	10.8994	-0.595	75.301
09/05/2013 11:00:18	11.9284	11.6975	-0.514	74.302
09/05/2013 11:00:28	11.798	12.8413	-0.694	73.901
09/05/2013 11:00:38	11.6344	12.9603	-0.758	72.602
09/05/2013 11:00:48	11.4487	12.9853	-0.833	72.102
09/05/2013 11:00:58	11.2404	12.9853	-0.738	71.902
09/05/2013 11:01:08	10.8929	12.9984	-0.556	71.902
09/05/2013 11:01:18	10.725	12.9841	-0.456	71.202
09/05/2013 11:01:28	10.5531	12.9537	-0.22	70.801
09/05/2013 11:01:38	10.3638	12.9162	-0.056	70.502
09/05/2013 11:01:48	10.1728	12.8996	-0.014	70.502
09/05/2013 11:01:58	9.9693	12.8395	-0.085	70.502
09/05/2013 11:02:08	9.7883	12.7907	-0.117	70.301
09/05/2013 11:02:18	9.6128	12.6955	-0.246	69.802
09/05/2013 11:02:28	9.5717	12.6181	-0.25	69.601
09/05/2013 11:02:38	9.6211	12.5895	-0.085	69.601
09/05/2013 11:02:48	9.7693	12.6455	0.047	69.601
09/05/2013 11:02:58	9.7943	12.7484	0.085	69.802
09/05/2013 11:03:08	9.7163	12.9031	-0.048	70.101
09/05/2013 11:03:18	9.5884	12.9888	0.014	70.702
09/05/2013 11:03:28	9.5188	12.9793	0.085	71.202
09/05/2013 11:03:38	9.4646	12.9002	-0.048	71.402
09/05/2013 11:03:48	9.3825	12.7972	-0.181	71.602
09/05/2013 11:03:58	9.3599	12.7056	-0.28	72.602
09/05/2013 11:04:08	9.3444	12.6258	-0.107	74.302
09/05/2013 11:04:18	9.3622	12.5758	0.194	75.301
09/05/2013 11:04:28	9.3587	12.5324	0.143	75.502
09/05/2013 11:04:38	9.3938	12.5122	-0.056	75.301
09/05/2013 11:04:48	9.3765	12.4913	-0.113	75.301
09/05/2013 11:04:58	9.3938	12.4806	-0.113	75.702
09/05/2013 11:05:08	9.3896	12.4729	-0.117	75.902
09/05/2013 11:05:18	9.4432	12.4759	-0.185	76.102
09/05/2013 11:05:28	9.4223	12.4836	-0.427	76.202
09/05/2013 11:05:38	9.4539	12.4884	-0.514	76.802
09/05/2013 11:05:48	9.4283	12.5026	-0.375	77.102
09/05/2013 11:05:58	9.3962	12.5044	-0.038	77.701
09/05/2013 11:06:08	9.3176	12.4866	0.309	78.201
09/05/2013 11:06:18	9.273	12.4538	0.234	77.901
09/05/2013 11:06:28	9.2813	12.3729	-0.04	77.001
09/05/2013 11:06:38	9.3444	12.3443	-0.113	76.202
09/05/2013 11:06:48	9.4765	12.3979	-0.04	75.202
09/05/2013 11:06:58	9.5872	12.489	0.133	73.901
Start Run 4				
09/05/2013 11:07:08	9.6092	12.6597	0.333	72.501
09/05/2013 11:07:18	9.6021	12.8585	0.383	72.302
09/05/2013 11:07:28	9.5449	12.943	0.309	71.902
09/05/2013 11:07:38	9.4884	12.9633	0.434	71.602
09/05/2013 11:07:48	9.4093	12.9508	0.333	70.801
09/05/2013 11:07:58	9.3271	12.9281	0.061	70.801
09/05/2013 11:08:08	9.2754	12.8793	-0.165	71.003
09/05/2013 11:08:18	9.2141	12.8514	-0.212	71.202
09/05/2013 11:08:28	9.1682	12.818	-0.139	70.301
09/05/2013 11:08:38	9.2081	12.7954	-0.341	69.901
09/05/2013 11:08:48	8.5797	12.7722	-0.734	70.101
09/05/2013 11:08:58	8.7326	12.7603	-0.815	70.301
09/05/2013 11:09:08	8.6517	12.7562	-0.415	69.601
09/05/2013 11:09:18	8.7624	12.7478	-0.236	69.002
09/05/2013 11:09:28	8.7338	12.7341	-0.375	68.901
09/05/2013 11:09:38	8.6785	12.7216	-0.335	68.302
09/05/2013 11:09:48	8.66	12.7103	-0.236	68.701
09/05/2013 11:09:58	8.5904	12.7056	-0.294	69.601
09/05/2013 11:10:08	8.3315	12.677	-0.236	70.101
09/05/2013 11:10:18	8.075	12.6467	-0.298	70.101
09/05/2013 11:10:28	7.8465	12.577	-0.316	71.003
09/05/2013 11:10:38	7.6382	12.5247	0.085	71.902
09/05/2013 11:10:48	7.568	12.533	-0.07	73.002
09/05/2013 11:10:58	7.5067	12.6163	-0.371	74.401
09/05/2013 11:11:08	7.4573	12.7621	-0.163	75.002
09/05/2013 11:11:18	7.3912	12.9281	-0.03	75.301
09/05/2013 11:11:28	7.3692	13.0049	-0.185	75.902
09/05/2013 11:11:38	7.3829	13.0168	-0.302	76.202
09/05/2013 11:11:48	7.4019	12.9823	-0.228	76.602
09/05/2013 11:11:58	7.5477	12.9383	-0.044	77.001
09/05/2013 11:12:08	7.6418	12.8918	0.155	77.901
09/05/2013 11:12:18	7.7441	12.849	0.184	78.201
09/05/2013 11:12:28	7.8935	12.8252	0.099	78.601
09/05/2013 11:12:38	7.9667	12.7925	0.168	78.201
09/05/2013 11:12:48	8.081	12.7752	0.26	78.401
09/05/2013 11:12:58	8.0786	12.7764	-0.056	78.601
09/05/2013 11:13:08	8.2595	12.7573	-0.284	78.002

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 11:13:18	8.316	12.7716	-0.143	76.602
09/05/2013 11:13:28	8.4196	12.7496	0.139	75.002
09/05/2013 11:13:38	8.4374	12.7365	0.268	73.901
09/05/2013 11:13:48	8.4725	12.7353	0.284	72.802
09/05/2013 11:13:58	8.4928	12.7276	0.198	72.102
09/05/2013 11:14:08	8.3553	12.7181	0.184	72.102
09/05/2013 11:14:18	8.369	12.6836	0.014	71.702
09/05/2013 11:14:28	8.316	12.6264	-0.185	71.702
09/05/2013 11:14:38	8.3047	12.5491	-0.212	71.402
09/05/2013 11:14:48	8.2952	12.5169	0.125	71.402
09/05/2013 11:14:58	8.3327	12.5895	0.353	71.202
09/05/2013 11:15:08	8.2607	12.6913	0.216	70.101
09/05/2013 11:15:18	8.2256	12.8413	-0.177	69.901
09/05/2013 11:15:28	8.1435	12.9603	-0.393	69.901
09/05/2013 11:15:38	8.075	12.965	-0.323	69.802
09/05/2013 11:15:48	8.0423	12.8728	-0.312	69.601
09/05/2013 11:15:58	8.0197	12.7889	-0.677	69.401
09/05/2013 11:16:08	7.9114	12.7258	-0.716	69.202
09/05/2013 11:16:18	7.6799	12.68	-0.357	69.401
09/05/2013 11:16:28	7.4478	12.6264	0.043	69.601
09/05/2013 11:16:38	7.3418	12.5806	0.085	69.601
09/05/2013 11:16:48	7.2984	12.5693	-0.185	70.101
09/05/2013 11:16:58	7.2692	12.558	-0.212	69.802
09/05/2013 11:17:08	7.2645	12.5645	-0.212	70.101
09/05/2013 11:17:18	7.3055	12.5758	-0.312	71.202
09/05/2013 11:17:28	7.3692	12.58	-0.22	72.602
09/05/2013 11:17:38	7.4936	12.58	-0.31	74.101
09/05/2013 11:17:48	7.6031	12.5973	-0.694	74.801
09/05/2013 11:17:58	7.662	12.6074	-0.621	75.502
09/05/2013 11:18:08	7.7418	12.6139	-0.331	75.902
09/05/2013 11:18:18	7.8316	12.5979	-0.316	75.702
09/05/2013 11:18:28	7.8477	12.5467	-0.316	75.702
09/05/2013 11:18:38	7.9173	12.5026	-0.22	76.202
09/05/2013 11:18:48	7.9917	12.4681	-0.31	76.602
09/05/2013 11:18:58	8.1256	12.5199	-0.409	77.001
09/05/2013 11:19:08	8.1952	12.5943	-0.415	77.001
09/05/2013 11:19:18	8.2113	12.7562	-0.129	77.001
09/05/2013 11:19:28	8.1964	12.8651	0.168	77.302
09/05/2013 11:19:38	8.1137	12.8585	0.085	77.901
09/05/2013 11:19:48	8.0667	12.7954	0.085	78.002
09/05/2013 11:19:58	8.0952	12.6312	-0.107	77.502
09/05/2013 11:20:08	8.1679	12.5205	-0.685	76.802
09/05/2013 11:20:18	8.2458	12.4675	-0.905	75.702
09/05/2013 11:20:28	8.3077	12.4318	-0.629	74.302
09/05/2013 11:20:38	8.3928	12.4158	-0.236	73.401
09/05/2013 11:20:48	8.4446	12.4193	-0.121	73.201
09/05/2013 11:20:58	8.4833	12.4336	-0.306	72.302
09/05/2013 11:21:08	8.5493	12.4396	-0.22	71.702
09/05/2013 11:21:18	8.5529	12.4538	-0.212	71.202
09/05/2013 11:21:28	8.5398	12.4806	-0.212	71.402
09/05/2013 11:21:38	8.5446	12.5014	0.085	71.003
09/05/2013 11:21:48	8.5231	12.5151	-0.014	71.402
09/05/2013 11:21:58	8.4821	12.5342	-0.415	70.502
09/05/2013 11:22:08	8.416	12.5473	-0.316	69.901
09/05/2013 11:22:18	8.1857	12.5502	-0.212	69.401
09/05/2013 11:22:28	7.8584	12.5502	-0.212	69.002
09/05/2013 11:22:38	7.6983	12.5026	-0.316	69.202
09/05/2013 11:22:48	7.5269	12.4473	-0.212	69.401
09/05/2013 11:22:58	7.537	12.4693	0.081	69.002
09/05/2013 11:23:08	7.6727	12.5657	0.085	69.202
09/05/2013 11:23:18	7.8233	12.7002	-0.014	69.802
09/05/2013 11:23:28	7.95	12.8871	0.184	70.801
09/05/2013 11:23:38	8.1137	13.0805	0.184	71.202
09/05/2013 11:23:48	8.2244	13.2227	-0.014	71.702
09/05/2013 11:23:58	8.3506	13.3162	0.085	72.501
09/05/2013 11:24:08	8.5196	13.3971	0.085	74.101
09/05/2013 11:24:18	8.6737	13.4631	-0.113	75.002
09/05/2013 11:24:28	8.7362	13.5393	-0.014	75.502
09/05/2013 11:24:38	8.8588	13.5602	0.184	75.702
09/05/2013 11:24:48	8.9129	13.5953	0.286	76.402
09/05/2013 11:24:58	8.9707	13.6387	-0.113	76.602
09/05/2013 11:25:08	8.9998	13.6268	-0.415	76.202
09/05/2013 11:25:18	9.0081	13.628	-0.716	76.802
09/05/2013 11:25:28	9.0022	13.5976	-1.014	77.001
09/05/2013 11:25:38	8.9915	13.5661	-0.815	77.001
09/05/2013 11:25:48	8.9683	13.509	-0.113	77.102
09/05/2013 11:25:58	8.9385	13.4209	0.385	77.001
09/05/2013 11:26:08	8.8879	13.3412	0.385	77.102
09/05/2013 11:26:18	8.8362	13.2436	0.184	77.302
09/05/2013 11:26:28	8.7457	13.1198	0.184	77.701
09/05/2013 11:26:38	8.6648	13.0126	0.385	77.302
09/05/2013 11:26:48	8.7195	12.8853	0.385	76.402
09/05/2013 11:26:58	8.6868	12.7716	0.184	75.502
09/05/2013 11:27:08	8.7338	12.7496	-0.012	74.601
09/05/2013 11:27:18	8.8106	12.7972	-0.113	73.401
09/05/2013 11:27:28	8.8082	12.9091	0.085	73.002
09/05/2013 11:27:38	8.713	13.0251	0.184	73.002
09/05/2013 11:27:48	8.6011	13.0091	-0.113	72.602
09/05/2013 11:27:58	8.5338	12.8972	-0.415	71.602

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
End Run 4				
Average	**8.295146**	**12.80718**	**-0.128889**	**73.21986**
Maximum	**9.6092**	**13.6387**	**0.434**	**78.601**
Minimum	**7.2645**	**12.4158**	**-1.014**	**68.302**
09/05/2013 11:28:08	8.4761	12.7639	-0.212	70.502
09/05/2013 11:28:18	8.4303	12.6324	0.184	69.802
09/05/2013 11:28:28	8.394	12.536	0.284	69.901
09/05/2013 11:28:38	8.3916	12.4818	0.385	71.003
Calibration Bias				
09/05/2013 11:28:48	5.2203	12.4217	0.286	70.801
09/05/2013 11:28:58	0.0499	12.3765	0.383	70.502
09/05/2013 11:29:08	0.0172	5.2744	0.583	70.801
09/05/2013 11:29:18	0.0113	0.291	0.984	70.502
09/05/2013 11:29:28	0.0089	0.0934	1.087	70.101
09/05/2013 11:29:38	0.0077	0.0648	0.383	69.802
09/05/2013 11:29:48	0.0065	0.0553	-0.212	69.601
09/05/2013 11:29:58	0.0041	0.0499	-0.415	69.401
09/05/2013 11:30:08	0.0017	0.038	-0.216	69.802
09/05/2013 11:30:18	0.0017	0.0357	-0.216	69.901
09/05/2013 11:30:28	0.0029	0.0374	-0.316	70.502
N2 Zero		**0.037033**	**-0.249333**	
09/05/2013 11:30:38	0.0041	0.0297	-0.014	71.003
09/05/2013 11:30:48	-0.00064	0.0279	0.184	70.801
09/05/2013 11:30:58	-0.003	0.0285	0.284	71.003
09/05/2013 11:31:08	-0.003	0.0285	1.682	71.003
09/05/2013 11:31:18	-0.0018	0.0142	8.688	71.402
09/05/2013 11:31:28	-0.0018	0.0202	22.6	72.302
09/05/2013 11:31:38	-0.003	0.0184	35.518	73.201
09/05/2013 11:31:48	-0.0042	0.0172	42.425	74.401
09/05/2013 11:31:58	-0.0042	0.0172	45.526	75.502
09/05/2013 11:32:08	-0.0054	0.0107	46.528	75.702
09/05/2013 11:32:18	-0.0042	0.0107	46.23	76.102
09/05/2013 11:32:28	-0.003	0.0125	45.728	76.202
09/05/2013 11:32:38	-0.0042	0.016	45.125	76.402
09/05/2013 11:32:48	-0.0042	0.0154	45.224	76.602
09/05/2013 11:32:58	-0.0042	0.0077	45.728	76.602
46.3 ppm CO Mid			**45.359**	
09/05/2013 11:33:08	1.7752	0.0113	46.127	77.102
09/05/2013 11:33:18	1.9989	0.6861	46.028	77.701
09/05/2013 11:33:28	2.0019	1.9858	45.125	77.701
09/05/2013 11:33:38	2.0067	2.0412	39.426	77.901
09/05/2013 11:33:48	2.0079	2.0632	26.308	77.001
09/05/2013 11:33:58	2.0102	2.0584	12.795	75.902
09/05/2013 11:34:08	2.0102	2.0584	4.886	75.002
09/05/2013 11:34:18	2.0114	2.062	1.587	74.601
2.07% O2 Low	**2.0106**			
09/05/2013 11:34:28	3.8027	2.0656	0.484	73.701
09/05/2013 11:34:38	10.678	2.068	-0.014	72.802
09/05/2013 11:34:48	10.8048	3.6158	0.085	72.602
09/05/2013 11:34:58	10.8345	9.8217	0.184	72.602
09/05/2013 11:35:08	10.8447	10.825	0.184	72.302
09/05/2013 11:35:18	10.8506	10.8697	-0.014	71.402
09/05/2013 11:35:28	10.8601	10.8762	-0.316	71.202
09/05/2013 11:35:38	10.8637	10.8869	-0.415	70.502
09/05/2013 11:35:48	10.8661	10.9	-0.316	69.901
11.0% O2 Mid	**10.8633**	**10.8877**		
09/05/2013 11:35:58	10.9542	10.8976	-0.212	69.901
09/05/2013 11:36:08	11.5451	10.8976	-0.415	70.101
09/05/2013 11:36:18	11.0345	11.0494	-0.514	69.401
09/05/2013 11:36:28	10.6637	12.17	-0.514	69.202
09/05/2013 11:36:38	10.2728	12.5157	-0.613	69.802
09/05/2013 11:36:48	10.0954	12.4818	-0.613	69.601
09/05/2013 11:36:58	9.8413	12.4491	-0.415	69.401
09/05/2013 11:37:08	9.6092	12.439	-0.014	69.202
09/05/2013 11:37:18	9.3503	12.4473	0.085	69.202
09/05/2013 11:37:28	9.026	12.4407	0.081	69.601
09/05/2013 11:37:38	8.8915	12.4366	0.184	69.901
09/05/2013 11:37:48	8.8189	12.4437	0.085	70.101
09/05/2013 11:37:58	8.707	12.4693	-0.212	71.202
09/05/2013 11:38:08	8.66	12.4919	-0.613	72.602
09/05/2013 11:38:18	8.5083	12.4961	-0.915	74.302
09/05/2013 11:38:28	8.3773	12.5092	-0.915	75.702
09/05/2013 11:38:38	8.3482	12.5134	-0.815	76.102
09/05/2013 11:38:48	8.3375	12.5062	-0.815	76.202
09/05/2013 11:38:58	8.4113	12.4413	-0.716	76.402
09/05/2013 11:39:08	8.5011	12.3967	-0.514	76.602
09/05/2013 11:39:18	8.6303	12.4443	-0.415	76.802
09/05/2013 11:39:28	8.7612	12.5485	-0.415	77.502
09/05/2013 11:39:38	8.8433	12.7008	-0.316	78.002
09/05/2013 11:39:48	8.8867	12.8793	-0.316	78.002
09/05/2013 11:39:58	8.9326	12.9692	-0.216	78.002
09/05/2013 11:40:08	8.901	12.9859	-0.014	78.201
09/05/2013 11:40:18	8.9153	12.9978	-0.014	78.201
09/05/2013 11:40:28	8.9201	12.949	0.284	78.002
09/05/2013 11:40:38	8.9361	12.9347	0.385	77.302
09/05/2013 11:40:48	8.9225	12.924	0.284	76.402
09/05/2013 11:40:58	8.9314	12.9079	0.284	75.502
09/05/2013 11:41:08	8.9266	12.9002	0.085	74.101

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 11:41:18	8.9213	12.8823	-0.514	73.502
09/05/2013 11:41:28	8.9338	12.8764	-0.613	73.201
09/05/2013 11:41:38	9.0302	12.8746	-0.316	72.302
09/05/2013 11:41:48	8.8915	12.8853	-0.212	71.402
09/05/2013 11:41:58	8.363	12.8877	-0.316	71.202
09/05/2013 11:42:08	8.3583	12.8698	-0.316	71.003
09/05/2013 11:42:18	8.4761	12.8734	-0.415	70.301
09/05/2013 11:42:28	8.4749	12.8716	-0.316	69.601
09/05/2013 11:42:38	8.4601	12.8478	-0.415	69.802
09/05/2013 11:42:48	8.4565	12.8222	-0.415	70.502
09/05/2013 11:42:58	8.5148	12.7401	-0.212	70.101
09/05/2013 11:43:08	8.5749	12.683	-0.212	69.601
09/05/2013 11:43:18	8.6338	12.6705	-0.316	69.802
09/05/2013 11:43:28	8.6892	12.7419	-0.212	69.802
09/05/2013 11:43:38	8.8266	12.8609	-0.316	69.601
09/05/2013 11:43:48	8.8189	13.0186	-0.316	69.401
09/05/2013 11:43:58	8.7761	13.1043	-0.212	69.802
09/05/2013 11:44:08	8.7374	13.0918	-0.415	70.502
09/05/2013 11:44:18	8.6588	13.0311	-0.415	71.003
09/05/2013 11:44:28	8.5576	12.9281	-0.415	71.402
09/05/2013 11:44:38	8.0703	12.8038	-0.613	72.302
09/05/2013 11:44:48	7.8643	12.6836	-0.316	73.901
09/05/2013 11:44:58	7.8858	12.5961	-0.415	74.801
Start Run 5				
09/05/2013 11:45:08	7.9411	12.4997	-0.514	75.702
09/05/2013 11:45:18	8.1726	12.4283	-0.212	76.102
09/05/2013 11:45:28	8.2762	12.3836	-0.316	76.202
09/05/2013 11:45:38	8.1679	12.3473	-0.113	76.402
09/05/2013 11:45:48	8.2547	12.3348	0.085	77.001
09/05/2013 11:45:58	8.2881	12.3241	0.085	77.001
09/05/2013 11:46:08	8.1845	12.3021	-0.113	77.102
09/05/2013 11:46:18	8.1018	12.2747	-0.415	78.201
09/05/2013 11:46:28	8.0762	12.2253	-0.212	78.802
09/05/2013 11:46:38	8.1292	12.2033	-0.014	78.802
09/05/2013 11:46:48	8.1762	12.2307	-0.014	78.401
09/05/2013 11:46:58	8.2714	12.3354	-0.312	78.201
09/05/2013 11:47:08	8.3089	12.4759	-1.117	77.102
09/05/2013 11:47:18	8.347	12.6449	-1.216	76.102
09/05/2013 11:47:28	8.3892	12.724	-0.712	75.002
09/05/2013 11:47:38	8.3904	12.658	-0.712	74.302
09/05/2013 11:47:48	8.3339	12.53	-0.712	73.701
09/05/2013 11:47:58	8.3148	12.4223	-0.514	73.401
09/05/2013 11:48:08	8.3	12.3491	-0.014	73.002
09/05/2013 11:48:18	8.3434	12.3003	0.085	72.802
09/05/2013 11:48:28	8.3666	12.3045	-0.212	72.302
09/05/2013 11:48:38	8.3845	12.3348	-0.014	71.702
09/05/2013 11:48:48	8.3845	12.3765	0.184	71.202
09/05/2013 11:48:58	8.4565	12.4003	-0.113	70.702
09/05/2013 11:49:08	8.3172	12.3937	-0.113	70.101
09/05/2013 11:49:18	8.2952	12.4033	0.284	69.901
09/05/2013 11:49:28	8.2821	12.3414	0.385	69.901
09/05/2013 11:49:38	8.3565	12.3235	0.385	69.901
09/05/2013 11:49:48	8.416	12.3616	0.284	69.901
09/05/2013 11:49:58	8.5106	12.4646	-0.012	70.101
09/05/2013 11:50:08	8.4434	12.5877	-0.212	69.802
09/05/2013 11:50:18	8.4011	12.7484	0.085	70.801
09/05/2013 11:50:28	8.3035	12.796	0.284	71.202
09/05/2013 11:50:38	8.2149	12.6978	0.284	70.702
09/05/2013 11:50:48	8.1375	12.5324	0.085	69.802
09/05/2013 11:50:58	8.103	12.3574	0.085	69.002
09/05/2013 11:51:08	8.0917	12.2021	0.184	69.202
09/05/2013 11:51:18	8.075	12.1295	0.286	69.601
09/05/2013 11:51:28	8.075	12.1057	0.184	69.802
09/05/2013 11:51:38	8.0929	12.0783	-0.113	69.601
09/05/2013 11:51:48	8.0917	12.0944	-0.012	69.601
09/05/2013 11:51:58	8.1256	12.1259	-0.212	69.601
09/05/2013 11:52:08	8.1524	12.1497	-0.613	69.601
09/05/2013 11:52:18	8.2042	12.1938	-0.514	69.802
09/05/2013 11:52:28	8.2411	12.2747	-0.316	69.901
09/05/2013 11:52:38	8.2988	12.3432	-0.113	70.101
09/05/2013 11:52:48	8.3446	12.4193	-0.113	71.202
09/05/2013 11:52:58	8.3654	12.4937	-0.415	73.002
09/05/2013 11:53:08	8.347	12.5538	-0.316	73.502
09/05/2013 11:53:18	8.3065	12.5979	-0.212	74.401
09/05/2013 11:53:28	8.2893	12.6234	-0.212	74.801
09/05/2013 11:53:38	8.3738	12.6169	-0.212	75.202
09/05/2013 11:53:48	8.4458	12.6258	-0.212	75.502
09/05/2013 11:53:58	8.5446	12.7199	-0.014	76.202
09/05/2013 11:54:08	8.6195	12.843	0.085	76.202
09/05/2013 11:54:18	8.6011	13.0049	-0.012	76.402
09/05/2013 11:54:28	8.5654	13.1102	-0.113	76.802
09/05/2013 11:54:38	8.5588	13.1204	-0.113	77.502
09/05/2013 11:54:48	8.5713	13.0484	-0.113	77.302
09/05/2013 11:54:58	8.6279	12.974	-0.212	77.302
09/05/2013 11:55:08	8.6939	12.902	-0.113	77.701
09/05/2013 11:55:18	8.688	12.8508	-0.212	77.701
09/05/2013 11:55:28	8.7142	12.8401	-0.712	76.602
09/05/2013 11:55:38	8.729	12.818	-0.613	75.002
09/05/2013 11:55:48	8.7207	12.8175	-0.316	73.901

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 11:55:58	8.7362	12.8258	-0.514	73.502
09/05/2013 11:56:08	8.7517	12.8323	-0.915	72.802
09/05/2013 11:56:18	8.76	12.8419	-1.014	72.602
09/05/2013 11:56:28	8.7868	12.8591	-0.716	71.902
09/05/2013 11:56:38	8.8266	12.8561	-0.415	71.602
09/05/2013 11:56:48	8.86	12.8728	-0.312	71.602
09/05/2013 11:56:58	8.901	12.8924	-0.113	70.801
09/05/2013 11:57:08	8.8623	12.9145	-0.014	71.202
09/05/2013 11:57:18	8.8153	12.921	-0.113	70.702
09/05/2013 11:57:28	8.8046	12.927	-0.014	70.702
09/05/2013 11:57:38	8.7915	12.9335	-0.113	70.801
09/05/2013 11:57:48	8.7832	12.9573	-0.212	70.502
09/05/2013 11:57:58	8.7761	12.9644	-0.316	69.901
09/05/2013 11:58:08	8.7808	12.9716	-0.514	69.802
09/05/2013 11:58:18	8.7915	12.9859	-0.415	69.802
09/05/2013 11:58:28	8.7713	12.9835	-0.316	69.802
09/05/2013 11:58:38	8.729	12.9787	-0.312	69.002
09/05/2013 11:58:48	8.7517	12.9978	-0.316	68.502
09/05/2013 11:58:58	8.807	12.9948	-0.212	68.502
09/05/2013 11:59:08	8.8082	13.0079	-0.212	68.701
09/05/2013 11:59:18	8.8469	13.0013	-0.113	69.401
09/05/2013 11:59:28	8.8695	13.0013	-0.113	69.802
09/05/2013 11:59:38	8.829	13.0347	-0.316	70.301
09/05/2013 11:59:48	8.7671	13.0329	-0.514	70.702
09/05/2013 11:59:58	8.8243	13.0501	-0.212	70.801
09/05/2013 12:00:08	8.9058	13.0579	-0.014	72.302
09/05/2013 12:00:18	8.9177	13.0555	-0.113	73.502
09/05/2013 12:00:28	8.9165	13.0728	-0.212	74.801
09/05/2013 12:00:38	8.9469	13.0793	-0.415	75.301
09/05/2013 12:00:48	8.9695	13.0793	-0.415	75.502
09/05/2013 12:00:58	9.0093	13.096	-0.316	75.702
09/05/2013 12:01:08	9.054	13.1037	-0.212	75.902
09/05/2013 12:01:18	9.1528	13.1251	-0.212	76.202
09/05/2013 12:01:28	9.2176	13.1204	-0.514	76.602
09/05/2013 12:01:38	9.32	13.1299	-0.613	77.502
09/05/2013 12:01:48	9.3271	13.1483	-0.613	77.901
09/05/2013 12:01:58	9.3551	13.1549	-0.514	77.901
09/05/2013 12:02:08	9.3997	13.1323	-0.316	77.701
09/05/2013 12:02:18	9.2635	13.1102	0.184	77.901
09/05/2013 12:02:28	9.2248	13.1329	0.385	77.901
09/05/2013 12:02:38	9.1563	13.1293	0.284	77.001
09/05/2013 12:02:48	9.0986	13.1341	-0.113	76.102
09/05/2013 12:02:58	9.0504	13.1168	-0.415	75.202
09/05/2013 12:03:08	8.9718	13.0918	-0.415	74.401
09/05/2013 12:03:18	8.9492	13.0823	-0.415	73.401
09/05/2013 12:03:28	8.8707	13.0501	-0.415	73.002
09/05/2013 12:03:38	8.7868	13.0002	-0.613	72.501
09/05/2013 12:03:48	8.7386	12.9525	-0.716	71.902
09/05/2013 12:03:58	8.6713	12.8793	-0.613	71.902
09/05/2013 12:04:08	8.5951	12.8038	-0.716	71.702
09/05/2013 12:04:18	8.4856	12.7145	-0.716	70.801
09/05/2013 12:04:28	8.5106	12.6312	-0.712	69.802
09/05/2013 12:04:38	8.5047	12.58	-0.613	69.601
09/05/2013 12:04:48	8.5868	12.6514	-0.613	69.202
09/05/2013 12:04:58	8.6939	12.7496	-0.514	69.002
09/05/2013 12:05:08	8.7398	12.9329	-0.312	69.202
09/05/2013 12:05:18	8.7279	13.1227	-0.014	69.202
09/05/2013 12:05:28	8.788	13.2073	-0.113	69.601
09/05/2013 12:05:38	8.8082	13.2305	-0.014	70.101
09/05/2013 12:05:48	8.8457	13.2352	-0.012	69.601
09/05/2013 12:05:58	8.8588	13.2215	-0.415	69.802
End Run 5				
Average	**8.596401**	**12.7369**	**-0.247206**	**72.95875**
Maximum	**9.3997**	**13.2352**	**0.385**	**78.802**
Minimum	**7.9411**	**12.0783**	**-1.216**	**68.502**
09/05/2013 12:06:08	8.8719	13.2138	-0.415	69.802
09/05/2013 12:06:18	8.9189	13.1864	-0.514	69.401
09/05/2013 12:06:28	8.9469	13.1882	-0.613	69.401
09/05/2013 12:06:38	9.0325	13.1942	-0.514	69.202
09/05/2013 12:06:48	8.8891	13.1686	-0.613	69.802
Calibration Bias				
09/05/2013 12:06:58	0.1452	13.1894	-0.613	70.702
09/05/2013 12:07:08	0.0255	10.7346	-0.415	71.003
09/05/2013 12:07:18	0.0172	0.8444	-0.014	71.602
09/05/2013 12:07:28	0.0136	0.1172	0.284	72.102
09/05/2013 12:07:38	0.0077	0.0857	0.482	72.802
09/05/2013 12:07:48	0.0077	0.0648	0.284	74.401
09/05/2013 12:07:58	0.0041	0.0523	-0.316	75.301
09/05/2013 12:08:08	0.0041	0.0488	-0.613	75.902
09/05/2013 12:08:18	0.0029	0.041	-0.716	75.902
09/05/2013 12:08:28	0.0017	0.0333	-0.415	76.202
09/05/2013 12:08:38	0.0065	0.0363	-0.014	77.102
N2 Zero		**0.036867**	**-0.381667**	
09/05/2013 12:08:48	-0.00064	0.0327	-0.316	77.502
09/05/2013 12:08:58	-0.00064	0.0327	-0.613	77.901
09/05/2013 12:09:08	-0.00064	0.0267	1.686	77.901
09/05/2013 12:09:18	-0.00064	0.0154	10.492	78.401
09/05/2013 12:09:28	-0.0018	0.022	25.51	78.401

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 12:09:38	-0.003	0.0202	37.218	78.201
09/05/2013 12:09:48	-0.003	0.022	42.227	77.102
09/05/2013 12:09:58	-0.0018	0.0184	43.522	76.102
09/05/2013 12:10:08	-0.0018	0.0184	44.125	75.301
09/05/2013 12:10:18	-0.0018	0.019	44.828	74.801
09/05/2013 12:10:28	-0.003	0.0154	45.228	74.302
09/05/2013 12:10:38	-0.0042	0.0095	44.927	72.802
09/05/2013 12:10:48	-0.0042	0.0136	44.629	72.302
09/05/2013 12:10:58	-0.003	0.0107	44.427	71.902
46.3 ppm CO Mid			**44.661**	
09/05/2013 12:11:08	1.8139	0.0107	44.026	71.702
09/05/2013 12:11:18	2.0079	0.016	43.923	71.202
09/05/2013 12:11:28	2.0114	1.3639	44.228	70.702
09/05/2013 12:11:38	2.0126	2.0221	40.025	70.702
09/05/2013 12:11:48	2.0102	2.0537	27.809	71.003
09/05/2013 12:11:58	2.0102	2.0584	13.795	70.801
09/05/2013 12:12:08	2.0102	2.059	5.084	70.101
09/05/2013 12:12:18	2.015	2.0555	1.484	69.901
09/05/2013 12:12:28	2.0162	2.059	0.383	69.802
09/05/2013 12:12:38	2.015	2.0638	-0.014	69.401
2.07% O2 Low	**2.0154**			
09/05/2013 12:12:48	7.102	2.0668	-0.113	69.802
09/05/2013 12:12:58	10.7869	2.0632	-0.415	70.101
09/05/2013 12:13:08	10.8215	5.688	-0.212	69.802
09/05/2013 12:13:18	10.8423	10.5406	0.184	69.601
09/05/2013 12:13:28	10.8399	10.8506	0.085	69.802
09/05/2013 12:13:38	10.853	10.8708	-0.014	69.601
09/05/2013 12:13:48	10.8369	10.8792	-0.415	69.202
09/05/2013 12:13:58	10.8435	10.8822	-0.514	69.002
09/05/2013 12:14:08	10.8506	10.8899	-0.613	68.901
09/05/2013 12:14:18	10.8589	10.8982	-0.716	68.502
11.0% O2 Mid	**10.851**	**10.8901**		
09/05/2013 12:14:28	11.798	10.9012	-0.613	68.901
09/05/2013 12:14:38	13.0067	10.903	-0.613	69.202
09/05/2013 12:14:48	12.5913	11.7367	-0.415	69.601
09/05/2013 12:14:58	12.364	13.3096	0.184	69.901
09/05/2013 12:15:08	12.1968	13.4774	-0.113	70.301
09/05/2013 12:15:18	12.0295	13.4649	-0.815	71.003
09/05/2013 12:15:28	11.8897	13.4274	-0.716	71.702
09/05/2013 12:15:38	11.8379	13.3715	-0.514	73.002
09/05/2013 12:15:48	11.5885	13.3292	-0.815	74.401
09/05/2013 12:15:58	11.0286	13.3828	-1.216	74.801
09/05/2013 12:16:08	10.8411	13.4661	-1.216	75.301
09/05/2013 12:16:18	10.5781	13.6173	-0.915	75.301
09/05/2013 12:16:28	10.3341	13.7655	-0.514	75.502
09/05/2013 12:16:38	10.0788	13.8166	-0.113	75.902
09/05/2013 12:16:48	9.9365	13.7881	0.085	75.902
09/05/2013 12:16:58	9.6247	13.7548	-0.113	76.202
09/05/2013 12:17:08	9.5943	13.706	-0.915	76.602
09/05/2013 12:17:18	9.5128	13.6738	-1.518	77.502
09/05/2013 12:17:28	9.4789	13.6548	-1.617	77.901
09/05/2013 12:17:38	9.4319	13.6054	-0.915	77.701
09/05/2013 12:17:48	9.2998	13.5441	-0.613	77.701
09/05/2013 12:17:58	9.2164	13.4441	-0.815	76.802
09/05/2013 12:18:08	9.1837	13.3048	-0.613	75.702
09/05/2013 12:18:18	9.1397	13.1626	-0.613	74.801
09/05/2013 12:18:28	9.1272	13.0644	-0.514	73.701
09/05/2013 12:18:38	9.1069	12.9966	-0.415	72.501
09/05/2013 12:18:48	9.0671	12.9597	-0.514	71.702
09/05/2013 12:18:58	9.0129	12.9329	-0.617	71.602
09/05/2013 12:19:08	8.4434	12.8984	-0.815	71.402
09/05/2013 12:19:18	8.6576	12.8936	-0.613	71.003
09/05/2013 12:19:28	8.8504	12.9763	-0.212	70.502
09/05/2013 12:19:38	9.0165	13.0978	-0.212	70.702
09/05/2013 12:19:48	9.0587	13.2828	-0.316	70.101
09/05/2013 12:19:58	9.0831	13.4489	-0.212	69.401
09/05/2013 12:20:08	9.0611	13.5346	-0.613	69.202
09/05/2013 12:20:18	9.0855	13.5233	-1.014	69.202
09/05/2013 12:20:28	9.0927	13.4614	-0.915	69.802
09/05/2013 12:20:38	9.1117	13.406	-0.716	69.901
09/05/2013 12:20:48	9.1165	13.3447	-0.716	69.802
09/05/2013 12:20:58	9.1319	13.2834	-0.919	69.401
09/05/2013 12:21:08	9.1361	13.2501	-0.915	69.002
09/05/2013 12:21:18	9.1349	13.2322	-0.613	68.901
09/05/2013 12:21:28	9.1349	13.2245	-0.415	68.302
09/05/2013 12:21:38	9.1575	13.2209	-0.415	68.102
09/05/2013 12:21:48	9.167	13.243	-0.716	68.102
09/05/2013 12:21:58	9.2176	13.262	-1.018	68.701
09/05/2013 12:22:08	9.2093	13.2626	-0.815	69.002
09/05/2013 12:22:18	9.1587	13.2691	-1.014	69.802
09/05/2013 12:22:28	9.1165	13.2596	-1.419	70.301
09/05/2013 12:22:38	9.0831	13.1948	-1.216	70.502
09/05/2013 12:22:48	9.0587	13.1466	-1.014	71.402
09/05/2013 12:22:58	9.0314	13.1275	-1.315	72.802
09/05/2013 12:23:08	9.0683	13.1632	-1.117	73.701
09/05/2013 12:23:18	9.0754	13.2102	-0.415	74.801
09/05/2013 12:23:28	9.0409	13.3072	-0.014	75.301
09/05/2013 12:23:38	8.9707	13.359	-0.316	76.102
09/05/2013 12:23:48	8.9189	13.315	-0.316	76.602

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 12:23:58	8.9046	13.2495	-0.212	77.001
09/05/2013 12:24:08	8.9106	13.1561	-0.815	76.602
09/05/2013 12:24:18	8.901	13.0585	-1.216	76.602
09/05/2013 12:24:28	8.9742	12.9668	-0.915	77.001
09/05/2013 12:24:38	9.0189	12.8782	-0.716	77.001
09/05/2013 12:24:48	9.0129	12.7913	-0.815	77.001
09/05/2013 12:24:58	9.0528	12.7056	-0.613	77.102
Start Run 6				
09/05/2013 12:25:08	9.0504	12.6282	-0.915	77.302
09/05/2013 12:25:18	9.0105	12.5901	-1.113	76.602
09/05/2013 12:25:28	8.9927	12.552	-1.216	75.702
09/05/2013 12:25:38	8.9266	12.5253	-1.415	75.202
09/05/2013 12:25:48	8.7713	12.4872	-1.216	74.801
09/05/2013 12:25:58	8.5749	12.4556	-1.117	73.901
09/05/2013 12:26:08	8.4148	12.386	-1.216	73.002
09/05/2013 12:26:18	8.3964	12.3015	-1.216	72.501
09/05/2013 12:26:28	8.4351	12.2949	-1.315	72.302
09/05/2013 12:26:38	8.4678	12.389	-1.216	71.602
09/05/2013 12:26:48	8.3494	12.5122	-0.815	71.402
09/05/2013 12:26:58	8.2559	12.6199	-0.613	71.602
09/05/2013 12:27:08	8.2232	12.6151	-0.613	70.801
09/05/2013 12:27:18	8.2351	12.5425	-0.716	70.702
09/05/2013 12:27:28	8.2559	12.4788	-1.117	70.502
09/05/2013 12:27:38	8.2714	12.4473	-1.315	70.702
09/05/2013 12:27:48	8.3279	12.4598	-1.419	70.702
09/05/2013 12:27:58	8.3351	12.4866	-1.117	70.702
09/05/2013 12:28:08	8.394	12.5586	-0.815	70.101
09/05/2013 12:28:18	8.4868	12.6151	-0.815	69.802
09/05/2013 12:28:28	8.5303	12.6925	-0.514	69.901
09/05/2013 12:28:38	8.6279	12.7746	-0.613	69.401
09/05/2013 12:28:48	8.7433	12.8371	-0.716	68.302
09/05/2013 12:28:58	8.8201	12.9061	-0.716	68.901
09/05/2013 12:29:08	9.0022	12.9508	-0.617	69.802
09/05/2013 12:29:18	9.1319	12.9692	-0.617	69.401
09/05/2013 12:29:28	9.1563	13.0025	-0.716	68.701
09/05/2013 12:29:38	9.1998	13.0025	-0.815	68.701
09/05/2013 12:29:48	9.2986	12.9692	-0.915	69.002
09/05/2013 12:29:58	9.3837	12.9621	-0.919	69.202
09/05/2013 12:30:08	9.514	13.0246	-0.919	68.701
09/05/2013 12:30:18	9.4973	13.1323	-1.117	68.901
09/05/2013 12:30:28	9.4223	13.3001	-1.014	69.002
09/05/2013 12:30:38	9.3164	13.4173	-0.915	70.101
09/05/2013 12:30:48	9.2587	13.4286	-1.014	70.702
09/05/2013 12:30:58	9.22	13.3435	-1.117	70.801
09/05/2013 12:31:08	9.2117	13.2388	-1.216	71.702
09/05/2013 12:31:18	9.1938	13.1608	-1.319	73.002
09/05/2013 12:31:28	9.1022	13.1251	-1.419	74.302
09/05/2013 12:31:38	9.1034	13.0978	-0.915	74.601
09/05/2013 12:31:48	9.0385	13.0722	-1.018	75.202
09/05/2013 12:31:58	8.9683	13.0745	-1.315	75.702
09/05/2013 12:32:08	8.9153	13.0757	-1.518	75.902
09/05/2013 12:32:18	8.8903	13.0775	-1.419	76.202
09/05/2013 12:32:28	8.8528	13.0745	-1.018	76.202
09/05/2013 12:32:38	8.8213	13.0864	-0.915	76.202
09/05/2013 12:32:48	8.7552	13.0942	-0.716	76.402
09/05/2013 12:32:58	8.6636	13.0793	-0.815	76.602
09/05/2013 12:33:08	8.6023	13.0507	-1.117	77.001
09/05/2013 12:33:18	8.5809	13.0043	-0.915	77.102
09/05/2013 12:33:28	8.6773	12.968	-0.815	77.102
09/05/2013 12:33:38	8.8647	13.0002	-1.117	76.402
09/05/2013 12:33:48	9.0409	13.0769	-1.216	75.202
09/05/2013 12:33:58	9.054	13.2162	-1.117	74.302
09/05/2013 12:34:08	8.973	13.3578	-0.716	73.701
09/05/2013 12:34:18	8.882	13.365	-0.514	73.401
09/05/2013 12:34:28	8.8141	13.2876	-0.716	73.201
09/05/2013 12:34:38	8.7856	13.1834	-0.915	72.802
09/05/2013 12:34:48	8.7808	13.0978	-0.613	71.402
09/05/2013 12:34:58	8.7713	13.0501	-0.316	71.202
09/05/2013 12:35:08	8.8022	13.0013	-0.613	71.202
09/05/2013 12:35:18	8.8516	12.9805	-0.617	71.202
09/05/2013 12:35:28	8.9201	12.9883	-0.415	71.202
09/05/2013 12:35:38	8.9855	12.9936	-0.514	71.003
09/05/2013 12:35:48	9.0456	12.9859	-0.613	71.003
09/05/2013 12:35:58	9.0766	12.974	-0.514	70.101
09/05/2013 12:36:08	9.0325	12.9234	-0.212	69.401
09/05/2013 12:36:18	8.9998	12.8621	-0.113	69.601
09/05/2013 12:36:28	8.9373	12.7704	-0.415	70.101
09/05/2013 12:36:38	8.8481	12.6847	-0.514	69.901
09/05/2013 12:36:48	8.7844	12.5502	-0.415	69.601
09/05/2013 12:36:58	8.7975	12.4062	-0.316	69.002
09/05/2013 12:37:08	8.8481	12.3336	-0.212	68.901
09/05/2013 12:37:18	8.8915	12.3795	-0.212	69.601
09/05/2013 12:37:28	8.86	12.4413	-0.212	70.301
09/05/2013 12:37:38	8.7481	12.5169	-0.113	70.502
09/05/2013 12:37:48	8.6303	12.4598	-0.212	70.502
09/05/2013 12:37:58	8.5255	12.3366	-0.212	70.502
09/05/2013 12:38:08	8.4987	12.2039	-0.212	70.702
09/05/2013 12:38:18	8.4785	12.1075	-0.316	71.402
09/05/2013 12:38:28	8.4845	12.0629	-0.415	72.802

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 12:38:38	8.4785	12.0724	-0.415	74.101
09/05/2013 12:38:48	8.4702	12.1164	-0.212	74.601
09/05/2013 12:38:58	8.4601	12.139	-0.316	75.202
09/05/2013 12:39:08	8.4113	12.1313	-0.415	75.301
09/05/2013 12:39:18	8.3089	12.1027	-0.415	75.902
09/05/2013 12:39:28	8.2434	12.0611	-0.514	75.902
09/05/2013 12:39:38	8.1762	12.0408	-0.613	75.902
09/05/2013 12:39:48	8.1101	12.0456	-0.514	76.402
09/05/2013 12:39:58	8.0619	11.998	-0.316	76.602
09/05/2013 12:40:08	8.0078	11.9902	-0.316	77.001
09/05/2013 12:40:18	7.9905	11.9438	-0.316	77.302
09/05/2013 12:40:28	7.9727	11.876	-0.312	77.502
09/05/2013 12:40:38	7.9619	11.8581	-0.316	77.502
09/05/2013 12:40:48	7.975	11.9438	-0.212	77.102
09/05/2013 12:40:58	8.0197	12.0551	-0.216	76.102
09/05/2013 12:41:08	8.05	12.2116	-0.212	75.002
09/05/2013 12:41:18	8.0822	12.3402	-0.014	73.901
09/05/2013 12:41:28	8.103	12.3616	-0.014	72.802
09/05/2013 12:41:38	8.1018	12.2735	-0.014	72.501
09/05/2013 12:41:48	8.0917	12.1724	-0.113	71.902
09/05/2013 12:41:58	8.0857	12.0718	-0.316	71.003
09/05/2013 12:42:08	8.081	11.992	-0.316	70.702
09/05/2013 12:42:18	8.0607	11.9712	-0.316	70.502
09/05/2013 12:42:28	8.0952	11.9998	-0.212	70.702
09/05/2013 12:42:38	8.0917	12.0789	-0.212	70.702
09/05/2013 12:42:48	8.1232	12.189	-0.415	69.901
09/05/2013 12:42:58	8.1667	12.3235	-0.316	69.802
09/05/2013 12:43:08	8.2196	12.4985	-0.212	69.802
09/05/2013 12:43:18	8.2904	12.6895	-0.415	69.601
09/05/2013 12:43:28	8.3797	12.8603	-0.613	69.202
09/05/2013 12:43:38	8.4678	12.9841	-0.613	69.401
09/05/2013 12:43:48	8.5267	13.1227	-0.415	69.202
09/05/2013 12:43:58	8.607	13.1632	-0.212	69.002
09/05/2013 12:44:08	8.6832	13.2025	-0.216	68.502
09/05/2013 12:44:18	8.7624	13.2906	-0.212	69.202
09/05/2013 12:44:28	8.8623	13.4108	0.085	69.901
09/05/2013 12:44:38	8.9659	13.5548	0.385	69.901
09/05/2013 12:44:48	9.0718	13.6786	0.284	69.601
09/05/2013 12:44:58	9.1563	13.7006	-0.014	69.601
09/05/2013 12:45:08	9.2152	13.6042	-0.014	69.901
09/05/2013 12:45:18	9.2706	13.4447	-0.113	70.301
09/05/2013 12:45:28	9.3057	13.3126	-0.212	70.801
09/05/2013 12:45:38	9.3295	13.209	-0.113	71.402
09/05/2013 12:45:48	9.3706	13.1281	-0.113	72.302
09/05/2013 12:45:58	9.4021	13.0853	-0.113	73.201
End Run 7				
Average	**8.685362**	**12.72092**	**-0.606151**	**72.18658**
Maximum	**9.514**	**13.7006**	**0.385**	**77.502**
Minimum	**7.9619**	**11.8581**	**-1.518**	**68.302**
09/05/2013 12:46:08	9.4223	13.046	-0.014	74.302
09/05/2013 12:46:18	9.4694	13.0246	0.085	74.601
09/05/2013 12:46:28	9.4973	13.0293	-0.014	75.301
09/05/2013 12:46:38	9.5211	13.0204	0.085	75.702
09/05/2013 12:46:48	9.5586	13.0079	0.284	76.102
09/05/2013 12:46:58	9.5801	13.0144	0.583	76.102
09/05/2013 12:47:08	9.5967	12.9811	0.583	76.202
09/05/2013 12:47:18	9.6092	12.9508	0.484	76.402
09/05/2013 12:47:28	9.6306	12.8651	0.583	77.302
09/05/2013 12:47:38	9.6527	12.7984	0.484	77.302
09/05/2013 12:47:48	9.6657	12.8032	0.484	77.502
09/05/2013 12:47:58	9.702	12.8948	0.583	77.302
09/05/2013 12:48:08	9.7318	13.0031	0.583	77.302
09/05/2013 12:48:18	9.8092	13.1025	0.484	76.402
09/05/2013 12:48:28	9.8681	13.1394	0.583	75.702
09/05/2013 12:48:38	9.9175	13.0995	0.484	74.801
09/05/2013 12:48:48	9.9544	13.0347	0.484	74.101
09/05/2013 12:48:58	9.9907	12.9567	0.186	73.401
09/05/2013 12:49:08	10.0186	12.8948	-0.316	73.002
09/05/2013 12:49:18	10.0377	12.8704	-0.312	72.602
09/05/2013 12:49:28	10.068	12.8782	-0.113	72.302
09/05/2013 12:49:38	10.0823	12.8984	-0.212	72.302
Calibration Bias				
09/05/2013 12:49:48	9.2879	9.9502	-0.312	71.602
09/05/2013 12:49:58	7.981	0.8039	-0.014	72.102
09/05/2013 12:50:08	6.8348	0.1196	0.184	71.702
09/05/2013 12:50:18	5.8933	0.0821	0.085	70.801
09/05/2013 12:50:28	5.131	0.0666	-0.113	70.101
09/05/2013 12:50:38	4.477	0.0565	-0.113	69.601
09/05/2013 12:50:48	3.914	0.0488	-0.117	69.601
09/05/2013 12:50:58	3.4308	0.0422	-0.014	69.802
09/05/2013 12:51:08	3.0154	0.0357	-0.216	69.601
09/05/2013 12:51:18	2.6553	0.0333	-0.113	69.401
N2 Zero		**0.037067**	**-0.114333**	
09/05/2013 12:51:28	2.3411	0.0285	0.085	69.202
09/05/2013 12:51:38	2.0656	0.038	0.085	69.401
09/05/2013 12:51:48	1.8269	0.0297	1.384	69.802
09/05/2013 12:51:58	1.3104	0.0142	8.085	69.601
09/05/2013 12:52:08	0.2511	0.0315	21.803	69.202

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 12:52:18	0.0749	0.0333	35.22	69.002
09/05/2013 12:52:28	0.0339	0.0249	42.223	69.002
09/05/2013 12:52:38	0.022	0.0261	44.629	69.802
09/05/2013 12:52:48	0.0184	0.0249	44.724	69.601
09/05/2013 12:52:58	0.016	0.0285	43.828	69.601
09/05/2013 12:53:08	0.0136	0.0279	43.824	69.802
09/05/2013 12:53:18	0.0125	0.016	44.526	69.802
09/05/2013 12:53:28	0.0125	0.0232	45.026	69.601
09/05/2013 12:53:38	0.1148	0.0184	45.629	69.802
46.3 ppm CO Mid			**45.06033**	
09/05/2013 12:53:48	1.3562	0.0208	45.829	71.003
09/05/2013 12:53:58	1.7139	1.2485	45.526	72.501
09/05/2013 12:54:08	1.7859	2.0156	42.927	73.701
09/05/2013 12:54:18	1.8091	2.0584	32.715	74.601
09/05/2013 12:54:28	1.8186	2.062	17.8	74.601
09/05/2013 12:54:38	1.8269	2.065	7.086	75.002
09/05/2013 12:54:48	1.8293	2.0715	1.988	75.702
09/05/2013 12:54:58	1.84	2.0668	0.583	75.902
2.07% O2 Low	**1.832067**			
09/05/2013 12:55:08	2.5833	2.0656	0.484	76.402
09/05/2013 12:55:18	8.0714	2.0757	0.383	76.402
09/05/2013 12:55:28	6.6723	7.6977	0.284	76.402
09/05/2013 12:55:38	8.982	9.3378	0.385	76.602
09/05/2013 12:55:48	9.8235	8.6142	0.385	77.102
09/05/2013 12:55:58	10.0472	10.7417	0.184	77.502
09/05/2013 12:56:08	10.1258	10.8774	0.085	77.901
09/05/2013 12:56:18	10.1942	10.8869	0.085	77.102
09/05/2013 12:56:28	10.2835	10.8899	-0.014	76.102
09/05/2013 12:56:38	10.3317	10.8964	-0.316	74.801
09/05/2013 12:56:48	10.3882	10.8982	-0.312	73.502
09/05/2013 12:56:58	10.4227	10.8982	-0.514	73.201
09/05/2013 12:57:08	10.4858	10.9024	-0.815	72.302
09/05/2013 12:57:18	10.534	10.9024	-0.514	71.202
09/05/2013 12:57:28	10.5757	10.9054	-0.613	71.003
09/05/2013 12:57:38	10.6013	10.9107	-0.514	71.003
09/05/2013 12:57:48	10.6423	10.9119	-0.312	71.202
09/05/2013 12:57:58	10.6697	10.9155	-0.514	70.702
09/05/2013 12:58:08	10.6941	10.9101	-0.613	70.702
09/05/2013 12:58:18	10.7077	10.9071	-0.415	70.101
09/05/2013 12:58:28	10.7108	10.9185	-0.514	69.802
11.0% O2 Mid	**10.7042**	**10.9119**		
09/05/2013 12:58:38	11.4826	10.9089	-0.514	69.802
09/05/2013 12:58:48	12.1462	10.9958	-0.312	69.601
09/05/2013 12:58:58	11.9605	12.2039	-0.113	68.901
09/05/2013 12:59:08	11.4862	12.4586	-0.113	69.002
09/05/2013 12:59:18	11.0143	12.2164	-0.014	68.701
09/05/2013 12:59:28	10.5757	11.9188	0.583	68.102
09/05/2013 12:59:38	10.2424	11.6249	0.385	68.102
09/05/2013 12:59:48	10.0038	11.3695	0.284	68.102
09/05/2013 12:59:58	9.7669	11.1529	0.484	68.102
09/05/2013 13:00:08	9.6223	10.9815	0.583	68.102
09/05/2013 13:00:18	9.5295	10.8161	0.583	68.502
09/05/2013 13:00:28	9.5622	10.7447	0.583	68.901
09/05/2013 13:00:38	9.6515	10.7566	0.385	69.002
09/05/2013 13:00:48	9.827	10.8714	0.186	69.002
09/05/2013 13:00:58	9.9895	11.1071	0.682	69.202
09/05/2013 13:01:08	10.1728	11.3297	0.885	70.101
09/05/2013 13:01:18	10.365	11.5546	0.583	71.602
09/05/2013 13:01:28	10.5388	11.8064	0.682	73.002
09/05/2013 13:01:38	10.6792	12.0569	0.785	74.101
09/05/2013 13:01:48	10.8613	12.2575	0.781	74.601
09/05/2013 13:01:58	11.0494	12.4503	0.484	75.301
09/05/2013 13:02:08	11.2624	12.7532	0.484	75.902
09/05/2013 13:02:18	11.479	13.0126	0.984	76.202
09/05/2013 13:02:28	11.604	13.2912	0.885	76.602
09/05/2013 13:02:38	11.6332	13.5477	0.682	77.001
09/05/2013 13:02:48	11.5237	13.6072	0.682	77.001
09/05/2013 13:02:58	11.4005	13.5524	0.484	77.102
09/05/2013 13:03:08	11.3071	13.4132	0.385	77.102
09/05/2013 13:03:18	11.1934	13.2876	0.682	77.302
09/05/2013 13:03:28	11.0518	13.1596	0.484	77.502
09/05/2013 13:03:38	10.9565	13.0317	-0.012	77.302
09/05/2013 13:03:48	10.8447	12.927	-0.514	76.202
09/05/2013 13:03:58	10.784	12.8347	-0.815	75.202
09/05/2013 13:04:08	10.7286	12.7526	-0.716	74.101
09/05/2013 13:04:18	10.6721	12.6907	-0.815	72.802
09/05/2013 13:04:28	10.5281	12.6473	-0.716	72.602
09/05/2013 13:04:38	10.371	12.5949	-0.815	72.302
09/05/2013 13:04:48	10.2835	12.5586	-0.613	71.202
09/05/2013 13:04:58	10.2061	12.5151	-0.415	70.801
09/05/2013 13:05:08	10.1448	12.4681	-0.716	70.702
09/05/2013 13:05:18	10.0966	12.3908	-1.014	70.502
09/05/2013 13:05:28	10.1222	12.3116	-1.014	69.901
09/05/2013 13:05:38	10.1883	12.3176	-1.014	69.601
09/05/2013 13:05:48	10.2543	12.3955	-1.014	69.802
09/05/2013 13:05:58	10.3025	12.4931	-0.915	69.601
09/05/2013 13:06:08	9.8258	12.6086	-0.815	69.802
09/05/2013 13:06:18	9.3283	12.5818	-0.613	69.401
09/05/2013 13:06:28	8.4243	12.4628	-0.316	69.002

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 13:06:38	8.0209	12.3473	-0.113	68.701
09/05/2013 13:06:48	7.9703	12.2705	-0.113	68.901
09/05/2013 13:06:58	7.9834	12.2098	-0.514	68.701
Start Run 7				
09/05/2013 13:07:08	7.9917	12.1813	-1.014	68.701
09/05/2013 13:07:18	8.0304	12.1926	-1.113	68.901
09/05/2013 13:07:28	8.0703	12.186	-0.716	69.401
09/05/2013 13:07:38	8.0994	12.2319	-0.613	69.401
09/05/2013 13:07:48	8.1655	12.264	-0.716	69.401
09/05/2013 13:07:58	8.2595	12.3188	-0.613	69.601
09/05/2013 13:08:08	8.3386	12.3574	-0.716	70.101
09/05/2013 13:08:18	8.4255	12.3919	-0.514	71.402
09/05/2013 13:08:28	8.4565	12.4586	-0.415	71.702
09/05/2013 13:08:38	8.5023	12.5074	-0.712	71.702
09/05/2013 13:08:48	8.516	12.552	-0.514	72.802
09/05/2013 13:08:58	8.4553	12.5616	-0.514	73.701
09/05/2013 13:09:08	8.4113	12.577	-0.613	75.202
09/05/2013 13:09:18	8.388	12.5229	-0.613	75.702
09/05/2013 13:09:28	8.4398	12.4901	-0.514	76.102
09/05/2013 13:09:38	8.5071	12.536	-0.514	77.001
09/05/2013 13:09:48	8.6267	12.6425	-0.415	77.302
09/05/2013 13:09:58	8.6422	12.7865	-0.514	77.502
09/05/2013 13:10:08	8.6338	12.9448	-0.613	77.302
09/05/2013 13:10:18	8.6207	13.0216	-0.613	77.502
09/05/2013 13:10:28	8.5868	13.0341	-0.212	77.502
09/05/2013 13:10:38	8.5541	13.0424	-0.113	77.502
09/05/2013 13:10:48	8.5208	13.0263	-0.316	78.002
09/05/2013 13:10:58	8.4725	13.0002	-0.316	78.802
09/05/2013 13:11:08	8.4458	12.9668	-0.113	78.002
09/05/2013 13:11:18	8.4351	12.9353	-0.014	77.302
09/05/2013 13:11:28	8.4601	12.9317	-0.113	75.902
09/05/2013 13:11:38	8.4541	12.9234	-0.415	74.601
09/05/2013 13:11:48	8.4565	12.9186	-0.514	74.101
09/05/2013 13:11:58	8.4618	12.8841	-0.316	73.201
09/05/2013 13:12:08	8.4702	12.8555	-0.113	72.802
09/05/2013 13:12:18	8.4833	12.8508	-0.014	72.602
09/05/2013 13:12:28	8.4809	12.8317	-0.113	71.602
09/05/2013 13:12:38	8.4666	12.8413	-0.411	71.202
09/05/2013 13:12:48	8.4601	12.818	-0.415	71.003
09/05/2013 13:12:58	8.4785	12.7847	-0.617	71.202
09/05/2013 13:13:08	8.4666	12.7496	-0.514	70.801
09/05/2013 13:13:18	8.4517	12.699	-0.514	70.801
09/05/2013 13:13:28	8.5243	12.6401	-0.415	71.003
09/05/2013 13:13:38	8.6279	12.6169	-0.113	70.502
09/05/2013 13:13:48	8.7398	12.702	-0.113	69.901
09/05/2013 13:13:58	8.8201	12.824	-0.212	69.901
09/05/2013 13:14:08	8.8516	13.0144	-0.415	69.802
09/05/2013 13:14:18	8.8516	13.1454	-0.716	70.301
09/05/2013 13:14:28	8.8552	13.1817	-0.716	71.003
09/05/2013 13:14:38	8.854	13.1733	-0.212	71.003
09/05/2013 13:14:48	8.8201	13.1662	0.184	70.301
09/05/2013 13:14:58	8.7891	13.1299	0.286	69.601
09/05/2013 13:15:08	8.7737	13.1138	0.484	69.401
09/05/2013 13:15:18	8.7671	13.093	0.583	69.601
09/05/2013 13:15:28	8.7832	13.0722	0.583	69.601
09/05/2013 13:15:38	8.7695	13.0698	0.583	69.401
09/05/2013 13:15:48	8.7576	13.0507	0.682	69.401
09/05/2013 13:15:58	8.7481	13.0359	0.682	69.002
09/05/2013 13:16:08	8.7552	13.0251	0.686	69.601
09/05/2013 13:16:18	8.7588	13.0204	0.583	69.202
09/05/2013 13:16:28	8.7612	13.0222	0.583	69.202
09/05/2013 13:16:38	8.7409	13.0204	0.682	69.202
09/05/2013 13:16:48	8.7046	13.0246	0.682	69.901
09/05/2013 13:16:58	8.7023	13.0043	0.583	70.301
09/05/2013 13:17:08	8.6398	12.9716	0.484	71.003
09/05/2013 13:17:18	8.5963	12.9395	-0.113	72.302
09/05/2013 13:17:28	8.5856	12.8758	-0.716	73.201
09/05/2013 13:17:38	8.6255	12.802	-0.915	74.101
09/05/2013 13:17:48	8.7207	12.8448	-0.815	74.801
09/05/2013 13:17:58	8.8094	12.921	-0.613	75.202
09/05/2013 13:18:08	8.8374	13.0436	-0.716	75.301
09/05/2013 13:18:18	8.7808	13.1876	-0.915	75.702
09/05/2013 13:18:28	8.6796	13.2007	-0.915	75.902
09/05/2013 13:18:38	8.5303	13.1102	-0.915	76.402
09/05/2013 13:18:48	8.369	12.9299	-0.514	77.001
09/05/2013 13:18:58	8.1881	12.6895	-0.113	77.001
09/05/2013 13:19:08	8.0244	12.436	-0.316	77.001
09/05/2013 13:19:18	7.8935	12.2069	-0.514	77.302
09/05/2013 13:19:28	7.8102	12.02	-0.415	78.401
09/05/2013 13:19:38	7.7537	11.8867	-0.316	78.002
09/05/2013 13:19:48	7.7513	11.8046	-0.212	77.502
09/05/2013 13:19:58	7.7477	11.7712	-0.113	76.102
09/05/2013 13:20:08	7.803	11.773	-0.113	74.302
09/05/2013 13:20:18	7.8173	11.7956	0.085	73.401
09/05/2013 13:20:28	7.8834	11.8349	-0.014	72.602
09/05/2013 13:20:38	7.9703	11.8819	-0.113	71.602
09/05/2013 13:20:48	8.0197	11.9426	-0.316	71.202
09/05/2013 13:20:58	8.081	12.023	-0.514	71.402
09/05/2013 13:21:08	8.1054	12.0498	-0.415	71.202

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 13:21:18	8.1256	12.1075	-0.316	70.101
09/05/2013 13:21:28	8.1798	12.1087	-0.312	69.202
09/05/2013 13:21:38	8.2547	12.1289	-0.212	69.401
09/05/2013 13:21:48	8.2893	12.2652	-0.312	69.401
09/05/2013 13:21:58	8.3184	12.455	-0.212	69.601
09/05/2013 13:22:08	8.2797	12.6574	0.184	69.601
09/05/2013 13:22:18	8.1869	12.8466	0.385	69.202
09/05/2013 13:22:28	8.1339	12.9192	0.286	69.202
09/05/2013 13:22:38	8.0244	12.8996	-0.113	69.802
09/05/2013 13:22:48	7.9798	12.8526	-0.415	69.002
09/05/2013 13:22:58	7.9548	12.8085	-0.514	68.901
09/05/2013 13:23:08	7.9352	12.7913	-0.613	69.401
09/05/2013 13:23:18	7.9655	12.7859	-0.415	69.601
09/05/2013 13:23:28	8.022	12.7579	-0.113	69.401
09/05/2013 13:23:38	8.0774	12.7847	-0.113	69.202
09/05/2013 13:23:48	8.1536	12.8252	-0.212	68.901
09/05/2013 13:23:58	8.2042	12.8889	-0.316	68.901
09/05/2013 13:24:08	8.294	12.9615	-0.415	68.701
09/05/2013 13:24:18	8.3386	13.0138	-0.312	68.502
09/05/2013 13:24:28	8.375	13.0853	-0.113	69.002
09/05/2013 13:24:38	8.4327	13.1216	-0.113	70.101
09/05/2013 13:24:48	8.4618	13.1406	-0.312	70.101
09/05/2013 13:24:58	8.4904	13.1817	-0.316	70.502
09/05/2013 13:25:08	8.5446	13.2007	-0.514	70.801
09/05/2013 13:25:18	8.5106	13.2102	-0.613	72.501
09/05/2013 13:25:28	8.4714	13.2084	-0.815	73.502
09/05/2013 13:25:38	8.4458	13.209	-0.815	74.302
09/05/2013 13:25:48	8.4303	13.1632	-0.415	75.002
09/05/2013 13:25:58	8.4725	13.1323	-0.212	75.502
09/05/2013 13:26:08	8.535	13.1043	-0.312	75.902
09/05/2013 13:26:18	8.6255	13.1864	-0.415	76.202
09/05/2013 13:26:28	8.6636	13.2739	-0.415	76.802
09/05/2013 13:26:38	8.6059	13.3888	-0.316	77.001
09/05/2013 13:26:48	8.4565	13.4191	-0.212	77.302
09/05/2013 13:26:58	8.322	13.2924	-0.113	77.701
09/05/2013 13:27:08	8.2125	13.0644	-0.113	78.201
09/05/2013 13:27:18	8.1327	12.8365	-0.212	78.601
09/05/2013 13:27:28	8.0976	12.652	-0.212	79.101
09/05/2013 13:27:38	8.0917	12.5247	-0.113	79.101
09/05/2013 13:27:48	8.0994	12.4443	0.085	77.901
09/05/2013 13:27:58	8.0994	12.3979	-0.113	76.102
End Run 7				
Average	**8.39889**	**12.75399**	**-0.266659**	**72.77538**
Maximum	**8.8552**	**13.4191**	**0.686**	**79.101**
Minimum	**7.7477**	**11.7712**	**-1.113**	**68.502**
09/05/2013 13:28:08	8.1512	12.3765	-0.316	74.601
09/05/2013 13:28:18	8.194	12.3622	-0.411	73.401
09/05/2013 13:28:28	8.2244	12.3908	-0.815	72.802
Calibration Bias				
09/05/2013 13:28:38	1.0563	12.4318	-0.712	72.602
09/05/2013 13:28:48	0.0303	11.8046	-0.312	72.102
09/05/2013 13:28:58	0.0113	1.1616	-0.316	71.402
09/05/2013 13:29:08	0.0065	0.1124	0.085	71.202
09/05/2013 13:29:18	0.0053	0.0743	0.385	71.003
09/05/2013 13:29:28	0.0053	0.0553	0.184	70.801
09/05/2013 13:29:38	0.0053	0.0476	-0.316	71.202
09/05/2013 13:29:48	0.0053	0.0458	-0.514	71.003
09/05/2013 13:29:58	0.0041	0.038	-0.617	70.502
09/05/2013 13:30:08	0.016	0.0357	-0.316	70.502
N2 Zero		**0.039833**	**-0.482333**	
09/05/2013 13:30:18	0.00055	0.0345	-0.216	69.802
09/05/2013 13:30:28	0.0017	0.0363	-0.316	69.401
09/05/2013 13:30:38	0.00055	0.0232	1.186	69.601
09/05/2013 13:30:48	0.00055	0.0327	8.688	69.601
09/05/2013 13:30:58	0.0077	0.0285	22.902	69.401
09/05/2013 13:31:08	-0.0018	0.0285	35.22	69.401
09/05/2013 13:31:18	-0.0018	0.0297	42.025	69.802
09/05/2013 13:31:28	-0.0018	0.0184	44.828	70.101
09/05/2013 13:31:38	-0.0018	0.0208	45.228	69.802
09/05/2013 13:31:48	-0.0018	0.0238	44.629	69.002
09/05/2013 13:31:58	-0.00064	0.0154	44.526	68.901
09/05/2013 13:32:08	-0.0018	0.0125	44.629	69.002
46.3 ppm CO Mid			**44.59467**	
09/05/2013 13:32:18	0.3618	0.0184	44.625	69.202
09/05/2013 13:32:28	1.9716	0.0184	44.724	69.601
09/05/2013 13:32:38	1.9894	1.1176	45.026	70.502
09/05/2013 13:32:48	1.9942	2.0126	43.225	70.502
09/05/2013 13:32:58	1.9989	2.0525	34.018	70.502
09/05/2013 13:33:08	2.0043	2.0584	19.9	70.801
09/05/2013 13:33:18	2.0007	2.0632	8.49	71.702
09/05/2013 13:33:28	2.0055	2.0525	2.587	72.302
2.07% O2 Low	**2.0035**			
09/05/2013 13:33:38	2.4518	2.0608	0.682	73.401
09/05/2013 13:33:48	10.6614	2.065	0.383	74.101
09/05/2013 13:33:58	10.7649	5.985	0.385	75.301
09/05/2013 13:34:08	10.7744	10.6304	0.284	75.702
09/05/2013 13:34:18	10.784	10.8429	-0.014	76.202
09/05/2013 13:34:28	10.7965	10.8679	-0.212	76.802

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 13:34:38	10.8107	10.8786	-0.014	77.102
09/05/2013 13:34:48	10.8179	10.8822	-0.014	77.001
09/05/2013 13:34:58	10.8084	10.8887	-0.113	76.802
09/05/2013 13:35:08	10.8179	10.8887	-0.415	77.502
11.0% O2 Mid	**10.81473**	**10.88653**		
09/05/2013 13:35:18	12.477	10.8857	-0.514	78.002
09/05/2013 13:35:28	11.7213	11.2666	-0.613	77.701
09/05/2013 13:35:38	11.2095	12.8924	-0.716	77.001
09/05/2013 13:35:48	10.8459	13.0549	-0.415	75.502
09/05/2013 13:35:58	10.581	12.8805	-0.014	74.801
09/05/2013 13:36:08	10.412	12.699	0.184	74.101
09/05/2013 13:36:18	10.2061	12.5711	0.184	73.401
09/05/2013 13:36:28	9.874	12.4872	-0.113	73.002
09/05/2013 13:36:38	9.6021	12.4027	-0.316	72.501
09/05/2013 13:36:48	9.4527	12.3539	-0.316	72.102
09/05/2013 13:36:58	9.3539	12.3301	-0.212	72.102
09/05/2013 13:37:08	9.2754	12.3443	-0.415	71.602
09/05/2013 13:37:18	9.2551	12.3622	-0.613	71.402
09/05/2013 13:37:28	9.248	12.4062	-0.514	71.202
09/05/2013 13:37:38	9.2361	12.4604	-0.514	71.003
09/05/2013 13:37:48	9.2164	12.5157	-0.514	71.402
09/05/2013 13:37:58	9.1742	12.5645	-0.514	70.801
09/05/2013 13:38:08	9.1153	12.6276	-0.51	70.301
09/05/2013 13:38:18	8.9695	12.6734	-0.716	69.901
09/05/2013 13:38:28	8.8058	12.7169	-0.716	69.901
09/05/2013 13:38:38	8.6892	12.7734	-0.613	69.802
09/05/2013 13:38:48	8.5666	12.7877	-0.716	69.601
09/05/2013 13:38:58	8.463	12.7913	-0.613	69.401
09/05/2013 13:39:08	8.4553	12.7484	-0.514	68.502
09/05/2013 13:39:18	8.5094	12.7383	-0.411	68.102
09/05/2013 13:39:28	8.5773	12.827	-0.514	68.502
09/05/2013 13:39:38	8.6648	12.9347	-0.716	68.302
09/05/2013 13:39:48	8.66	13.071	-0.613	68.302
09/05/2013 13:39:58	8.5725	13.137	-0.415	68.302
09/05/2013 13:40:08	8.4458	13.049	-0.716	67.402
09/05/2013 13:40:18	8.3482	12.8555	-0.815	67.602
09/05/2013 13:40:28	8.2714	12.6544	-0.716	68.302
09/05/2013 13:40:38	8.2422	12.5032	-0.518	68.502
09/05/2013 13:40:48	8.2137	12.3967	-0.415	68.502
09/05/2013 13:40:58	8.2184	12.311	-0.415	68.302
09/05/2013 13:41:08	8.2184	12.2717	-0.212	68.701
09/05/2013 13:41:18	8.2375	12.2527	-0.216	69.601
09/05/2013 13:41:28	8.2583	12.2396	-0.316	70.101
09/05/2013 13:41:38	8.3035	12.2509	-0.815	70.801
09/05/2013 13:41:48	8.3422	12.267	-1.014	71.902
09/05/2013 13:41:58	8.3678	12.2985	-0.613	73.201
09/05/2013 13:42:08	8.3976	12.3336	-0.415	73.901
09/05/2013 13:42:18	8.4232	12.386	-0.514	74.601
09/05/2013 13:42:28	8.4517	12.4158	-0.613	75.301
09/05/2013 13:42:38	8.4845	12.4854	-0.716	76.102
09/05/2013 13:42:48	8.4737	12.5264	-0.815	76.602
09/05/2013 13:42:58	8.488	12.5657	-0.915	77.001
09/05/2013 13:43:08	8.4666	12.5854	-0.919	77.001
09/05/2013 13:43:18	8.4422	12.5931	-1.018	77.001
09/05/2013 13:43:28	8.4071	12.561	-1.018	77.302
09/05/2013 13:43:38	8.4422	12.5407	-1.117	77.701
09/05/2013 13:43:48	8.4642	12.5693	-1.415	77.901
09/05/2013 13:43:58	8.5255	12.6788	-1.518	77.901
09/05/2013 13:44:08	8.4785	12.7889	-0.919	77.901
09/05/2013 13:44:18	8.3386	12.8877	-0.415	77.502
09/05/2013 13:44:28	8.2053	12.7716	-0.415	76.202
09/05/2013 13:44:38	8.0976	12.5437	-0.415	74.801
09/05/2013 13:44:48	8.0232	12.3449	-0.316	73.901
09/05/2013 13:44:58	8.0572	12.2098	-0.316	72.802
Start Run 8				
09/05/2013 13:45:08	8.0316	12.1402	-0.014	72.302
09/05/2013 13:45:18	8.0822	12.148	0.385	71.602
09/05/2013 13:45:28	8.1595	12.1509	0.284	71.003
09/05/2013 13:45:38	8.2161	12.2051	0.385	70.502
09/05/2013 13:45:48	8.3047	12.2908	0.085	69.901
09/05/2013 13:45:58	8.3845	12.3717	-0.316	69.802
09/05/2013 13:46:08	8.4577	12.4836	-0.316	69.901
09/05/2013 13:46:18	8.5267	12.5818	-0.212	70.502
09/05/2013 13:46:28	8.6047	12.6717	-0.415	70.301
09/05/2013 13:46:38	8.6689	12.7675	-0.514	69.601
09/05/2013 13:46:48	8.7106	12.8419	-0.613	69.202
09/05/2013 13:46:58	8.7552	12.9186	-0.514	69.601
09/05/2013 13:47:08	8.8011	12.9793	-0.514	69.802
09/05/2013 13:47:18	8.7999	13.0436	-0.415	70.101
09/05/2013 13:47:28	8.8201	13.0769	-0.514	69.601
09/05/2013 13:47:38	8.7975	13.0853	-0.613	69.401
09/05/2013 13:47:48	8.7903	13.0805	-1.018	69.601
09/05/2013 13:47:58	8.854	13.0531	-1.415	69.601
09/05/2013 13:48:08	8.9314	13.0722	-1.216	69.202
09/05/2013 13:48:18	8.9927	13.1656	-0.915	69.202
09/05/2013 13:48:28	9.1069	13.259	-1.014	69.202
09/05/2013 13:48:38	9.1432	13.4364	-0.915	68.701
09/05/2013 13:48:48	9.1468	13.5715	-0.815	68.502
09/05/2013 13:48:58	9.12	13.6078	-0.915	68.502

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 13:49:08	9.0974	13.5857	-0.815	69.601
09/05/2013 13:49:18	9.0611	13.5488	-0.613	68.901
09/05/2013 13:49:28	9.0349	13.5048	-0.815	69.002
09/05/2013 13:49:38	9.0093	13.478	-0.716	69.901
09/05/2013 13:49:48	9.0129	13.4441	-0.514	70.301
09/05/2013 13:49:58	9.001	13.4268	-0.514	70.801
09/05/2013 13:50:08	8.9879	13.4251	-0.514	71.402
09/05/2013 13:50:18	8.9635	13.4078	-0.716	72.501
09/05/2013 13:50:28	8.8951	13.3763	-0.815	73.701
09/05/2013 13:50:38	8.8784	13.3304	-0.716	74.601
09/05/2013 13:50:48	8.8213	13.2703	-0.514	75.202
09/05/2013 13:50:58	8.7761	13.2531	-0.514	75.702
09/05/2013 13:51:08	8.7314	13.193	-0.716	75.301
09/05/2013 13:51:18	8.6785	13.1358	-0.716	75.301
09/05/2013 13:51:28	8.6338	13.0769	-0.716	75.902
09/05/2013 13:51:38	8.5868	13.0299	-0.613	76.102
09/05/2013 13:51:48	8.569	12.9883	-0.613	76.202
09/05/2013 13:51:58	8.4868	12.9353	-0.613	76.602
09/05/2013 13:52:08	8.4124	12.9002	-0.514	76.802
09/05/2013 13:52:18	8.3964	12.8014	-0.312	77.102
09/05/2013 13:52:28	8.4267	12.7383	-0.514	77.102
09/05/2013 13:52:38	8.4678	12.7609	-0.613	77.302
09/05/2013 13:52:48	8.5856	12.8335	-0.716	77.102
09/05/2013 13:52:58	8.6624	12.9567	-0.915	76.202
09/05/2013 13:53:08	8.6975	13.1204	-0.815	75.301
09/05/2013 13:53:18	8.7011	13.2084	-0.514	74.101
09/05/2013 13:53:28	8.6892	13.2186	-0.613	72.802
09/05/2013 13:53:38	8.6904	13.193	-0.716	71.902
09/05/2013 13:53:48	8.688	13.1596	-0.815	71.402
09/05/2013 13:53:58	8.6892	13.118	-0.514	71.003
09/05/2013 13:54:08	8.7035	13.0775	-0.014	71.003
09/05/2013 13:54:18	8.7612	13.0507	-0.212	70.702
09/05/2013 13:54:28	8.7796	13.0359	-0.514	70.502
09/05/2013 13:54:38	8.835	13.0317	-0.415	70.301
09/05/2013 13:54:48	8.8165	13.0281	-0.514	70.702
09/05/2013 13:54:58	8.8302	13.0293	-0.415	71.003
09/05/2013 13:55:08	8.8504	13.0317	-0.514	70.301
09/05/2013 13:55:18	8.8445	13.0216	-0.716	69.802
09/05/2013 13:55:28	8.8469	13.0174	-0.716	69.802
09/05/2013 13:55:38	8.8552	13.0138	-0.815	69.202
09/05/2013 13:55:48	8.8683	13.0251	-0.716	68.901
09/05/2013 13:55:58	8.8772	13.0216	-0.212	68.502
09/05/2013 13:56:08	8.8772	13.0347	0.284	68.302
09/05/2013 13:56:18	8.8832	13.0246	0.484	68.701
09/05/2013 13:56:28	8.8695	13.0198	0.484	68.502
09/05/2013 13:56:38	8.8772	13.0246	0.484	68.701
09/05/2013 13:56:48	8.8278	13.0246	0.484	68.701
09/05/2013 13:56:58	8.7612	12.9859	0.484	68.502
09/05/2013 13:57:08	8.7118	12.9252	0.484	68.302
09/05/2013 13:57:18	8.6749	12.8496	0.484	68.502
09/05/2013 13:57:28	8.6422	12.8067	0.484	69.002
09/05/2013 13:57:38	8.6303	12.7508	0.484	69.601
09/05/2013 13:57:48	8.607	12.7389	0.383	69.802
09/05/2013 13:57:58	8.5928	12.7324	0.482	70.101
09/05/2013 13:58:08	8.5666	12.6961	0.284	71.202
09/05/2013 13:58:18	8.5904	12.6836	-0.113	72.802
09/05/2013 13:58:28	8.6047	12.6925	-0.514	73.901
09/05/2013 13:58:38	8.5975	12.7228	-0.716	74.601
09/05/2013 13:58:48	8.5785	12.7401	-0.815	75.002
09/05/2013 13:58:58	8.5493	12.7437	-0.815	75.202
09/05/2013 13:59:08	8.5059	12.7228	-0.613	75.301
09/05/2013 13:59:18	8.4987	12.6925	-0.815	75.502
09/05/2013 13:59:28	8.4845	12.674	-0.915	75.702
09/05/2013 13:59:38	8.469	12.6705	-0.613	76.102
09/05/2013 13:59:48	8.4809	12.6752	-0.716	76.602
09/05/2013 13:59:58	8.488	12.6955	-1.014	76.802
09/05/2013 14:00:08	8.494	12.7532	-1.117	77.102
09/05/2013 14:00:18	8.4975	12.8061	-1.018	77.302
09/05/2013 14:00:28	8.5184	12.8419	-0.915	77.302
09/05/2013 14:00:38	8.5576	12.8823	-0.915	77.302
09/05/2013 14:00:48	8.5243	12.9395	-0.815	77.102
09/05/2013 14:00:58	8.5315	12.9585	-0.716	76.202
09/05/2013 14:01:08	8.5565	12.971	-0.915	74.801
09/05/2013 14:01:18	8.5386	12.9871	-0.915	73.901
09/05/2013 14:01:28	8.5196	12.9936	-1.117	73.002
09/05/2013 14:01:38	8.5636	12.94	-1.216	72.602
09/05/2013 14:01:48	8.6749	12.9156	-0.915	72.501
09/05/2013 14:01:58	8.6362	12.9775	-0.915	72.501
09/05/2013 14:02:08	9.7116	13.0692	-0.815	71.602
09/05/2013 14:02:18	13.5875	12.9127	-0.716	71.602
09/05/2013 14:02:28	10.4495	18.4507	-0.712	71.202
09/05/2013 14:02:38	8.613	19.9417	-0.716	69.901
09/05/2013 14:02:48	8.4975	14.4094	-0.712	69.802
09/05/2013 14:02:58	8.441	12.821	-1.014	70.702
09/05/2013 14:03:08	8.3952	12.6627	-0.613	70.502
09/05/2013 14:03:18	8.4035	12.5032	-0.113	70.502
09/05/2013 14:03:28	8.713	12.3449	-0.613	69.901
09/05/2013 14:03:38	9.8425	12.245	-0.514	69.401
09/05/2013 14:03:48	9.6848	13.2477	-0.415	69.202

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 14:03:58	9.2248	14.1785	-0.716	69.601
09/05/2013 14:04:08	8.713	13.6774	-0.514	69.601
09/05/2013 14:04:18	8.4797	12.9156	-0.514	69.002
09/05/2013 14:04:28	8.4529	12.3116	-0.915	69.202
09/05/2013 14:04:38	8.4809	12.1027	-0.815	68.901
09/05/2013 14:04:48	8.4821	12.0896	-0.514	68.502
09/05/2013 14:04:58	8.4642	12.1105	-0.514	68.302
09/05/2013 14:05:08	8.4255	12.145	-0.716	68.502
09/05/2013 14:05:18	8.3148	12.167	-0.915	68.901
09/05/2013 14:05:28	8.388	12.1515	-0.716	68.701
09/05/2013 14:05:38	8.8719	12.0878	-0.514	68.901
09/05/2013 14:05:48	8.8421	12.5455	-0.716	69.601
09/05/2013 14:05:58	8.9338	13.1138	-0.617	70.301
End Run 8				
Average	**8.752391**	**13.01829**	**-0.525151**	**71.67387**
Maximum	**13.5875**	**19.9417**	**0.484**	**77.302**
Minimum	**8.0316**	**12.0878**	**-1.415**	**68.302**
09/05/2013 14:06:08	8.8302	13.1632	-0.617	70.702
09/05/2013 14:06:18	8.7647	13.1924	-0.716	70.801
09/05/2013 14:06:28	8.7326	13.0918	-0.514	71.602
09/05/2013 14:06:38	8.6904	13.0424	-0.514	72.802
09/05/2013 14:06:48	8.6576	13.0186	-0.716	74.101
09/05/2013 14:06:58	8.6374	12.9954	-0.716	75.202
09/05/2013 14:07:08	8.6172	12.9841	-0.716	75.301
Calibration Bias				
09/05/2013 14:07:18	1.8716	12.9668	-0.915	76.102
09/05/2013 14:07:28	0.0702	11.9129	-1.014	76.802
09/05/2013 14:07:38	0.0184	1.2277	-1.117	77.102
09/05/2013 14:07:48	0.0101	0.1136	-0.518	77.001
09/05/2013 14:07:58	0.0053	0.0726	0.184	77.102
09/05/2013 14:08:08	0.0041	0.0642	0.085	77.302
09/05/2013 14:08:18	0.0041	0.0499	0.284	77.102
09/05/2013 14:08:28	0.0029	0.0404	-0.113	77.302
09/05/2013 14:08:38	0.0017	0.0363	-0.915	77.701
N2 Zero		**0.0422**	**-0.248**	
09/05/2013 14:08:48	0.00055	0.0297	-1.216	77.502
09/05/2013 14:08:58	-0.00064	0.0333	-0.915	77.701
09/05/2013 14:09:08	0.0017	0.0267	-0.716	77.302
09/05/2013 14:09:18	0.9926	0.0261	-0.514	76.202
09/05/2013 14:09:28	0.0125	0.3618	-0.316	75.702
09/05/2013 14:09:38	0.00055	0.5677	0.484	74.601
09/05/2013 14:09:48	-0.00064	0.0499	3.086	73.201
09/05/2013 14:09:58	-0.0018	0.0208	9.99	72.802
09/05/2013 14:10:08	-0.00064	0.019	21.803	72.302
09/05/2013 14:10:18	-0.00064	0.0208	33.12	71.602
09/05/2013 14:10:28	-0.00064	0.0154	39.926	71.003
09/05/2013 14:10:38	-0.0018	0.0202	42.725	70.702
09/05/2013 14:10:48	-0.00064	0.016	44.026	70.801
09/05/2013 14:10:58	-0.0018	0.0154	44.629	70.702
09/05/2013 14:11:08	-0.0018	0.0125	43.625	69.901
09/05/2013 14:11:18	-0.0018	0.0041	42.824	69.802
09/05/2013 14:11:28	-0.0018	0.0142	42.824	70.301
09/05/2013 14:11:38	-0.00064	0.0113	43.026	70.301
09/05/2013 14:11:48	-0.0018	0.0113	43.625	69.802
09/05/2013 14:11:58	-0.0018	0.0089	43.225	69.601
46.3 ppm CO Mid			**43.292**	
09/05/2013 14:12:08	0.4017	0.0095	42.626	70.101
09/05/2013 14:12:18	1.9656	0.0095	42.624	69.601
09/05/2013 14:12:28	1.9882	1.2259	42.923	69.202
09/05/2013 14:12:38	1.9942	2.0114	41.826	68.901
09/05/2013 14:12:48	1.9966	2.0459	33.435	68.901
09/05/2013 14:12:58	2.0007	2.0543	19.827	69.202
09/05/2013 14:13:08	1.9966	2.0584	8.573	69.002
09/05/2013 14:13:18	1.9989	2.0602	2.466	68.701
09/05/2013 14:13:28	1.9966	2.059	0.176	68.901
2.07% O2 Low	**1.997367**			
09/05/2013 14:13:38	8.4243	2.0602	0.087	69.601
09/05/2013 14:13:48	10.7072	2.1917	0.159	69.601
09/05/2013 14:13:58	10.7542	9.0444	-0.331	68.701
09/05/2013 14:14:08	10.7637	10.7887	-0.625	68.302
09/05/2013 14:14:18	10.7709	10.8506	-0.827	68.701
09/05/2013 14:14:28	10.7816	10.8697	-1.01	68.701
09/05/2013 14:14:38	10.7732	10.8726	-0.901	68.901
09/05/2013 14:14:48	10.7756	10.8762	-0.635	68.901
09/05/2013 14:14:58	10.7905	10.8839	-1.055	69.002
11.0% O2 Mid	**10.77977**	**10.87757**		
09/05/2013 14:15:08	11.0381	10.8833	-1.407	69.802
09/05/2013 14:15:18	12.2723	10.8929	-1.319	71.402
09/05/2013 14:15:28	11.8653	11.729	-1.303	72.802
09/05/2013 14:15:38	11.5427	12.5294	-1.198	73.201
09/05/2013 14:15:48	11.3874	12.555	-1.018	74.401
09/05/2013 14:15:58	11.272	12.5395	-1.036	75.002
09/05/2013 14:16:08	11.1755	12.5514	-1.268	75.502
09/05/2013 14:16:18	11.0238	12.5663	-1.726	75.301
09/05/2013 14:16:28	10.9	12.5806	-1.785	75.502
09/05/2013 14:16:38	10.778	12.6104	-1.488	76.102
09/05/2013 14:16:48	10.7048	12.6419	-1.198	76.802
09/05/2013 14:16:58	10.6191	12.6836	-1.014	77.001

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 14:17:08	10.5084	12.7038	-1.014	77.302
09/05/2013 14:17:18	10.1704	12.721	-1.032	77.302
09/05/2013 14:17:28	9.8847	12.7276	-1.19	78.002
09/05/2013 14:17:38	9.6979	12.7288	-1.627	78.401
09/05/2013 14:17:48	9.5574	12.7085	-1.686	77.701
09/05/2013 14:17:58	9.5354	12.6693	-1.428	77.001
09/05/2013 14:18:08	9.5479	12.633	-0.885	75.702
09/05/2013 14:18:18	9.608	12.7068	-0.79	74.401
09/05/2013 14:18:28	9.5967	12.7829	-1.23	73.401
09/05/2013 14:18:38	9.3741	12.9192	-1.286	72.501
09/05/2013 14:18:48	9.1153	12.8686	-1.161	71.402
09/05/2013 14:18:58	8.9326	12.5973	-1.375	70.801
09/05/2013 14:19:08	8.8397	12.3176	-1.03	70.502
09/05/2013 14:19:18	8.7683	12.1164	-0.562	70.502
09/05/2013 14:19:28	8.7576	11.9807	-0.907	70.702
09/05/2013 14:19:38	8.7612	11.9426	-1.419	70.301
09/05/2013 14:19:48	8.7927	11.9373	-1.415	70.702
09/05/2013 14:19:58	8.8433	11.9694	-1.478	70.801
09/05/2013 14:20:08	8.86	12.0188	-1.756	70.502
09/05/2013 14:20:18	8.9314	12.0956	-1.841	70.101
09/05/2013 14:20:28	8.9635	12.1801	-1.385	69.802
09/05/2013 14:20:38	8.9986	12.2444	-1.246	69.202
09/05/2013 14:20:48	9.0623	12.3098	-1.401	69.002
09/05/2013 14:20:58	9.1224	12.3908	-1.286	69.002
09/05/2013 14:21:08	9.1551	12.4598	-1.117	68.701
09/05/2013 14:21:18	9.154	12.533	-1.131	68.001
09/05/2013 14:21:28	9.0433	12.6026	-1.202	68.001
09/05/2013 14:21:38	8.3517	12.6294	-1.139	68.302
09/05/2013 14:21:48	7.8245	12.6389	-1.256	68.701
09/05/2013 14:21:58	7.5995	12.633	-1.355	68.701
09/05/2013 14:22:08	7.49	12.6312	-1.087	68.701
09/05/2013 14:22:18	7.4257	12.6734	-1.077	68.901
09/05/2013 14:22:28	7.4079	12.7829	-1.238	68.901
09/05/2013 14:22:38	7.396	12.9049	-0.837	68.901
09/05/2013 14:22:48	7.3585	13.0126	-0.577	68.502
09/05/2013 14:22:58	7.2841	12.943	-0.798	68.901
09/05/2013 14:23:08	7.1865	12.7746	-0.698	69.601
09/05/2013 14:23:18	7.0865	12.5818	-0.655	70.301
09/05/2013 14:23:28	6.9937	12.4027	-0.837	70.502
09/05/2013 14:23:38	6.9348	12.267	-0.94	71.402
09/05/2013 14:23:48	6.8842	12.2164	-1.018	72.602
09/05/2013 14:23:58	6.8652	12.1962	-0.966	73.901
Start Run 9				
09/05/2013 14:24:08	6.8687	12.2336	-0.815	75.002
09/05/2013 14:24:18	6.8878	12.2765	-0.815	75.202
09/05/2013 14:24:28	6.9157	12.3336	-0.815	75.502
09/05/2013 14:24:38	6.9253	12.3931	-0.79	75.502
09/05/2013 14:24:48	6.9455	12.4538	-0.69	75.502
09/05/2013 14:24:58	6.9598	12.536	-0.639	75.902
09/05/2013 14:25:08	6.9723	12.6163	-0.716	76.802
09/05/2013 14:25:18	6.9925	12.6907	-0.768	76.802
09/05/2013 14:25:28	7.008	12.7764	-0.94	77.001
09/05/2013 14:25:38	7.0217	12.83	-0.992	77.502
09/05/2013 14:25:48	7.0181	12.8811	-0.841	77.701
09/05/2013 14:25:58	7.008	12.8889	-0.566	77.502
09/05/2013 14:26:08	7.0008	12.8805	-0.445	76.802
09/05/2013 14:26:18	6.9985	12.8936	-0.514	75.702
09/05/2013 14:26:28	7.036	13.0025	-0.514	74.302
09/05/2013 14:26:38	7.1455	13.1102	-0.607	73.502
09/05/2013 14:26:48	7.1829	13.2715	-0.845	72.802
09/05/2013 14:26:58	7.1937	13.2882	-0.948	72.501
09/05/2013 14:27:08	7.1669	13.1662	-1.014	72.302
09/05/2013 14:27:18	7.13	13.0186	-1.018	71.702
09/05/2013 14:27:28	7.0949	12.8889	-0.956	71.202
09/05/2013 14:27:38	7.0598	12.7782	-0.845	71.702
09/05/2013 14:27:48	7.0419	12.7258	-1.006	71.003
09/05/2013 14:27:58	7.0217	12.6961	-1.125	70.502
09/05/2013 14:28:08	7.0205	12.6788	-0.734	70.101
09/05/2013 14:28:18	7.0229	12.6722	-0.195	69.901
09/05/2013 14:28:28	7.0443	12.6847	0.014	69.901
09/05/2013 14:28:38	7.0633	12.7133	-0.22	69.901
09/05/2013 14:28:48	7.0794	12.7306	-0.522	70.101
09/05/2013 14:28:58	7.1139	12.7413	-0.609	70.101
09/05/2013 14:29:08	7.1359	12.7556	-0.206	69.901
09/05/2013 14:29:18	7.1609	12.7794	0.254	69.202
09/05/2013 14:29:28	7.2032	12.8109	0.176	69.601
09/05/2013 14:29:38	7.23	12.8258	-0.46	69.901
09/05/2013 14:29:48	7.2538	12.8145	-0.988	69.601
09/05/2013 14:29:58	7.2794	12.8115	-1.117	68.901
09/05/2013 14:30:08	7.2972	12.7687	-1.083	69.002
09/05/2013 14:30:18	7.3287	12.7544	-0.984	69.401
09/05/2013 14:30:28	7.3805	12.8127	-0.883	69.601
09/05/2013 14:30:38	7.4525	12.9365	-0.78	69.401
09/05/2013 14:30:48	7.5382	13.0864	-0.716	69.401
09/05/2013 14:30:58	7.6257	13.2352	-0.681	69.802
09/05/2013 14:31:08	7.6811	13.3352	-0.651	69.901
09/05/2013 14:31:18	7.7281	13.3667	-0.786	70.301
09/05/2013 14:31:28	7.7846	13.3572	-0.915	70.502
09/05/2013 14:31:38	7.8221	13.3525	-0.883	71.402

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 14:31:48	7.8679	13.3465	-0.857	73.002
09/05/2013 14:31:58	7.8947	13.3435	-1.055	74.401
09/05/2013 14:32:08	7.9352	13.337	-1.385	75.002
09/05/2013 14:32:18	7.9631	13.337	-1.411	75.702
09/05/2013 14:32:28	7.9798	13.3287	-1.077	76.402
09/05/2013 14:32:38	8.0042	13.315	-0.746	76.202
09/05/2013 14:32:48	8.0351	13.3072	-0.651	76.102
09/05/2013 14:32:58	8.0691	13.3227	-0.75	76.102
09/05/2013 14:33:08	8.1137	13.3144	-0.857	76.102
09/05/2013 14:33:18	8.1423	13.3048	-1.117	76.802
09/05/2013 14:33:28	8.1774	13.3025	-1.496	77.001
09/05/2013 14:33:38	8.2208	13.3037	-1.776	77.102
09/05/2013 14:33:48	8.2327	13.2769	-2.014	77.502
09/05/2013 14:33:58	8.247	13.2495	-1.734	77.901
09/05/2013 14:34:08	8.2654	13.1739	-1.234	77.102
09/05/2013 14:34:18	8.294	13.112	-1.198	76.102
09/05/2013 14:34:28	8.3375	13.1138	-1.198	75.301
09/05/2013 14:34:38	8.4196	13.1864	-0.815	74.302
09/05/2013 14:34:48	8.5219	13.2959	-0.514	73.401
09/05/2013 14:34:58	8.6267	13.4352	-0.603	73.401
09/05/2013 14:35:08	8.7255	13.5155	-0.716	72.802
09/05/2013 14:35:18	8.8177	13.478	-0.76	71.702
09/05/2013 14:35:28	8.8844	13.3905	-1.04	71.202
09/05/2013 14:35:38	8.9492	13.3007	-1.272	71.702
09/05/2013 14:35:48	8.9939	13.212	-1.173	71.202
09/05/2013 14:35:58	9.0421	13.1358	-1.254	71.003
09/05/2013 14:36:08	9.1069	13.1102	-1.415	70.301
09/05/2013 14:36:18	9.167	13.1037	-1.415	69.202
09/05/2013 14:36:28	9.2248	13.0942	-1.415	68.701
09/05/2013 14:36:38	9.2914	13.1061	-1.371	69.002
09/05/2013 14:36:48	9.3503	13.118	-1.173	68.901
09/05/2013 14:36:58	9.3985	13.1251	-1.117	69.002
09/05/2013 14:37:08	9.4467	13.1466	-1.367	68.701
09/05/2013 14:37:18	9.5033	13.1632	-1.514	68.901
09/05/2013 14:37:28	9.5574	13.1787	-1.367	68.701
09/05/2013 14:37:38	9.6021	13.1846	-1.117	68.302
09/05/2013 14:37:48	9.6366	13.1989	-1.117	68.302
09/05/2013 14:37:58	9.6413	13.1721	-1.065	68.701
09/05/2013 14:38:08	9.6622	13.1454	-0.815	68.701
09/05/2013 14:38:18	9.6765	13.1085	-0.716	68.502
09/05/2013 14:38:28	9.6848	13.0805	-0.764	68.502
09/05/2013 14:38:38	9.7092	13.1531	-0.915	68.502
09/05/2013 14:38:48	9.7508	13.2501	-1.014	68.102
09/05/2013 14:38:58	9.8002	13.3751	-0.966	67.802
09/05/2013 14:39:08	9.8449	13.4965	-0.815	68.302
09/05/2013 14:39:18	9.8978	13.5536	-0.815	68.502
09/05/2013 14:39:28	9.9282	13.5114	-1.014	68.502
09/05/2013 14:39:38	9.9389	13.4108	-1.006	68.701
09/05/2013 14:39:48	9.9187	13.3025	-0.867	69.401
09/05/2013 14:39:58	9.899	13.1876	-0.764	69.901
09/05/2013 14:40:08	9.8496	13.0728	-0.815	69.802
09/05/2013 14:40:18	9.8187	12.9549	-1.018	69.901
09/05/2013 14:40:28	9.7717	12.8621	-1.117	70.101
09/05/2013 14:40:38	9.7318	12.8145	-1.065	71.202
09/05/2013 14:40:48	9.686	12.777	-1.165	72.802
09/05/2013 14:40:58	9.6437	12.7484	-1.315	73.901
09/05/2013 14:41:08	9.6056	12.7121	-1.367	74.801
09/05/2013 14:41:18	9.5777	12.7228	-1.367	75.301
09/05/2013 14:41:28	9.5437	12.721	-1.315	75.202
09/05/2013 14:41:38	9.5128	12.7246	-1.518	75.301
09/05/2013 14:41:48	9.4634	12.7449	-1.716	75.502
09/05/2013 14:41:58	9.4479	12.7419	-1.419	75.702
09/05/2013 14:42:08	9.42	12.7419	-1.216	75.902
09/05/2013 14:42:18	9.4009	12.7002	-1.327	76.202
09/05/2013 14:42:28	9.3825	12.6782	-1.307	76.202
09/05/2013 14:42:38	9.3789	12.7508	-0.996	76.402
09/05/2013 14:42:48	9.3706	12.8621	-0.815	77.102
09/05/2013 14:42:58	9.3813	13.0079	-1.036	77.502
09/05/2013 14:43:08	9.4069	13.1537	-1.327	77.001
09/05/2013 14:43:18	9.4307	13.1852	-1.47	76.202
09/05/2013 14:43:28	9.4444	13.1263	-1.635	75.301
09/05/2013 14:43:38	9.4456	13.0281	-1.595	74.302
09/05/2013 14:43:48	9.4283	12.9448	-1.337	73.201
09/05/2013 14:43:58	9.4319	12.868	-1.276	72.501
09/05/2013 14:44:08	9.414	12.8544	-1.135	71.902
09/05/2013 14:44:18	9.4164	12.849	-0.956	71.602
09/05/2013 14:44:28	9.4116	12.8555	-0.915	71.003
09/05/2013 14:44:38	9.4259	12.8746	-0.857	70.502
09/05/2013 14:44:48	9.4247	12.9109	-1.176	70.101
09/05/2013 14:44:58	9.4331	12.9186	-1.536	70.301
End Run 9				
Average	**8.431277**	**13.01252**	**-0.983563**	**72.48576**
Maximum	**9.9389**	**13.5536**	**0.254**	**77.901**
Minimum	**6.8687**	**12.2336**	**-2.014**	**67.802**
09/05/2013 14:45:08	9.4366	12.9347	-1.553	70.301
09/05/2013 14:45:18	9.4432	12.9549	-1.337	70.101
09/05/2013 14:45:28	9.4527	12.9805	-1.095	70.101
09/05/2013 14:45:38	9.4646	12.9918	-0.897	69.901

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 14:45:48	9.4896	13.0156	-0.758	69.601
09/05/2013 14:45:58	9.4705	12.9871	-0.716	69.601
09/05/2013 14:46:08	9.4682	12.9859	-0.716	69.002
09/05/2013 14:46:18	9.4765	12.9317	-0.78	69.202
09/05/2013 14:46:28	9.4634	12.8716	-0.815	69.901
09/05/2013 14:46:38	9.467	12.8901	-1.01	69.802
Calibration Bias				
09/05/2013 14:46:48	8.7552	12.7907	-1.311	69.401
09/05/2013 14:46:58	6.664	2.2507	-1.22	69.401
09/05/2013 14:47:08	4.7888	0.144	-0.857	69.401
09/05/2013 14:47:18	3.3933	0.0803	-0.587	68.901
09/05/2013 14:47:28	2.2822	0.0571	-0.581	68.901
09/05/2013 14:47:38	1.3324	0.0505	-1.073	69.202
09/05/2013 14:47:48	0.7147	0.0422	-1.643	68.901
09/05/2013 14:47:58	0.3993	0.0392	-1.428	68.701
09/05/2013 14:48:08	0.216	0.041	-0.798	69.202
09/05/2013 14:48:18	0.1148	0.0285	-0.831	69.601
09/05/2013 14:48:28	0.0654	0.0232	-0.496	69.802
N2 Zero		**0.0309**	**-0.708333**	
09/05/2013 14:48:38	0.0428	0.0267	4.096	70.301
09/05/2013 14:48:48	0.0315	0.0285	15.096	71.202
09/05/2013 14:48:58	0.0255	0.0249	28.248	72.302
09/05/2013 14:49:08	0.022	0.0238	37.19	73.002
09/05/2013 14:49:18	0.022	0.0202	40.727	73.901
09/05/2013 14:49:28	0.0208	0.0202	41.396	74.801
09/05/2013 14:49:38	0.0196	0.0202	41.36	75.502
09/05/2013 14:49:48	0.0196	0.022	41.392	75.502
09/05/2013 14:49:58	0.016	0.0184	41.749	75.502
09/05/2013 14:50:08	0.0172	0.016	42.12	75.902
09/05/2013 14:50:18	0.0196	0.0142	42.086	76.402
09/05/2013 14:50:28	0.0184	0.0154	42.094	76.402
09/05/2013 14:50:38	0.0172	0.0154	42.267	76.402
09/05/2013 14:50:48	0.0148	0.0142	42.116	76.602
46.3 ppm CO Mid			**42.159**	
09/05/2013 14:50:58	0.0244	0.0184	41.955	77.302
09/05/2013 14:51:08	0.9045	0.0202	42.064	77.302
09/05/2013 14:51:18	1.4865	1.3973	41.356	77.302
09/05/2013 14:51:28	1.6823	2.0192	35.845	77.102
09/05/2013 14:51:38	1.7537	2.0477	24.578	76.602
09/05/2013 14:51:48	1.7859	2.0513	12.436	75.502
09/05/2013 14:51:58	1.7996	2.0668	4.126	74.101
09/05/2013 14:52:08	1.8091	2.059	0.333	73.002
09/05/2013 14:52:18	1.8174	2.0602	-0.698	72.501
09/05/2013 14:52:28	1.8186	2.065	-0.815	72.102
2.07% O2 Low	**1.815033**			
09/05/2013 14:52:38	2.2798	2.0602	-0.893	71.702
09/05/2013 14:52:48	6.8021	2.4215	-0.768	71.202
09/05/2013 14:52:58	8.8141	9.1932	-0.566	70.702
09/05/2013 14:53:08	9.4646	10.7982	-0.587	70.301
09/05/2013 14:53:18	9.7425	10.8524	-0.768	69.901
09/05/2013 14:53:28	9.9026	10.8619	-0.966	69.601
09/05/2013 14:53:38	9.999	10.8714	-1.242	69.601
09/05/2013 14:53:48	10.068	10.8762	-1.393	69.901
09/05/2013 14:53:58	10.1234	10.8935	-1.341	69.901
09/05/2013 14:54:08	10.1234	10.8869	-1.393	70.101
09/05/2013 14:54:18	10.1222	10.8887	-1.194	69.901
09/05/2013 14:54:28	10.127	10.8905	-1.04	69.601
11.0% O2 Mid	**10.1242**	**10.8887**		
09/05/2013 14:54:38	10.1073	10.8964	-1.014	69.002
09/05/2013 14:54:48	10.0966	10.8982	-0.694	68.901
09/05/2013 14:54:58	10.1073	10.8994	-0.294	68.302
09/05/2013 14:55:08	10.1037	10.8952	-0.212	68.502
09/05/2013 14:55:18	10.1073	10.9042	-0.456	68.502
09/05/2013 14:55:28	10.0907	10.9012	-0.595	68.001
09/05/2013 14:55:38	10.1014	10.8952	-0.375	68.102
09/05/2013 14:55:48	10.0978	10.8994	-0.316	68.701
09/05/2013 14:55:58	10.0823	10.9327	-0.397	68.502
09/05/2013 14:56:08	10.0954	12.0087	-0.254	68.102
09/05/2013 14:56:18	10.0966	12.3902	0.022	68.701
09/05/2013 14:56:28	10.099	12.3747	0.161	69.601
09/05/2013 14:56:38	10.0859	12.3919	0.103	69.901
09/05/2013 14:56:48	10.0918	12.4169	0.081	69.901
09/05/2013 14:56:58	10.0871	12.4634	0.168	70.101
09/05/2013 14:57:08	10.0942	12.5122	0.099	70.101
09/05/2013 14:57:18	10.1151	12.5806	-0.085	71.202
09/05/2013 14:57:28	10.1162	12.6306	0.224	72.602
09/05/2013 14:57:38	10.1281	12.677	0.621	74.401
09/05/2013 14:57:48	10.1281	12.7401	0.599	75.202
09/05/2013 14:57:58	10.1305	12.7752	0.668	75.902
09/05/2013 14:58:08	10.1246	12.802	0.682	76.402
09/05/2013 14:58:18	10.1424	12.8466	0.682	76.402
09/05/2013 14:58:28	10.1603	12.8811	0.682	76.802
09/05/2013 14:58:38	10.1531	12.9097	0.599	77.102
09/05/2013 14:58:48	10.1591	12.849	0.583	77.901
09/05/2013 14:58:58	10.1603	12.6818	0.414	78.201
09/05/2013 14:59:08	10.1668	12.5485	-0.155	78.601
09/05/2013 14:59:18	10.1775	12.439	-0.577	78.802
09/05/2013 14:59:28	10.1692	12.3545	-0.534	78.401
09/05/2013 14:59:38	10.165	12.2926	-0.337	77.901

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 14:59:48	10.1883	12.2069	-0.569	76.802
09/05/2013 14:59:58	10.1942	12.1706	-0.617	75.502
09/05/2013 15:00:08	10.1918	12.1384	-0.534	74.401
09/05/2013 15:00:18	10.2073	12.0789	-0.599	73.502
09/05/2013 15:00:28	10.1942	12.017	-0.613	72.602
09/05/2013 15:00:38	10.2025	11.9902	-0.53	72.102
09/05/2013 15:00:48	10.2002	12.0438	-0.603	71.702
09/05/2013 15:00:58	10.2097	12.1259	-0.613	70.801
09/05/2013 15:01:08	10.2144	12.2348	-0.53	70.702
09/05/2013 15:01:18	10.2198	12.3634	-0.514	70.301
09/05/2013 15:01:28	10.2097	12.4872	-0.603	69.802
09/05/2013 15:01:38	10.2109	12.5943	-0.435	69.802
09/05/2013 15:01:48	10.2144	12.7068	-0.415	69.802
09/05/2013 15:01:58	10.2234	12.8204	-0.591	69.601
09/05/2013 15:02:08	10.2305	12.9222	-0.617	69.601
09/05/2013 15:02:18	10.221	13.0079	-0.798	69.601
09/05/2013 15:02:28	10.2198	13.0805	-0.907	69.002
09/05/2013 15:02:38	10.2186	13.1186	-0.915	68.901
09/05/2013 15:02:48	10.221	13.1817	-0.919	68.701
09/05/2013 15:02:58	10.2305	13.2418	-0.643	68.901
09/05/2013 15:03:08	10.2365	13.2971	-0.345	68.701
09/05/2013 15:03:18	10.2472	13.3162	-0.405	68.302
09/05/2013 15:03:28	10.246	13.3292	-0.685	68.102
09/05/2013 15:03:38	10.2305	13.34	-0.621	68.102
09/05/2013 15:03:48	10.2281	13.3334	-0.331	68.701
09/05/2013 15:03:58	10.2269	13.2799	-0.316	68.901
09/05/2013 15:04:08	10.2257	13.2406	-0.411	68.901
09/05/2013 15:04:18	10.2246	13.2638	-0.415	68.901
09/05/2013 15:04:28	10.2329	13.3417	-0.51	69.202
09/05/2013 15:04:38	10.2246	13.4495	-0.514	69.202
09/05/2013 15:04:48	10.2305	13.5697	-0.514	68.502
09/05/2013 15:04:58	10.2341	13.5822	-0.609	68.001
09/05/2013 15:05:08	10.2341	13.5042	-0.522	68.102
09/05/2013 15:05:18	10.2365	13.4019	-0.327	68.901
09/05/2013 15:05:28	10.2388	13.2912	-0.316	69.601
09/05/2013 15:05:38	10.4257	13.1948	-0.518	69.401
09/05/2013 15:05:48	10.6459	13.1198	-0.518	69.401
09/05/2013 15:05:58	10.2751	13.0787	-0.617	69.802
09/05/2013 15:06:08	10.4459	13.0436	-0.815	70.101
09/05/2013 15:06:18	10.6905	13.0174	-0.815	69.901
09/05/2013 15:06:28	10.5108	12.99	-0.815	69.901
09/05/2013 15:06:38	10.5096	12.9835	-0.716	70.101
09/05/2013 15:06:48	10.5769	12.9698	-0.716	70.801
09/05/2013 15:06:58	10.6203	12.9793	-0.518	72.102
09/05/2013 15:07:08	10.6709	12.9906	-0.415	72.802
09/05/2013 15:07:18	10.8399	12.993	-0.415	74.101
09/05/2013 15:07:28	10.7869	13.0061	-0.617	74.801
09/05/2013 15:07:38	10.7143	12.9853	-0.716	76.102
09/05/2013 15:07:48	10.6614	12.9633	-0.716	76.402
09/05/2013 15:07:58	10.7744	12.9031	-0.716	76.802
09/05/2013 15:08:08	10.7435	12.8508	-0.815	77.001
09/05/2013 15:08:18	9.4646	12.7371	-0.716	77.001
09/05/2013 15:08:28	7.155	4.4109	-0.617	77.001
09/05/2013 15:08:38	5.5464	2.2072	-0.419	76.802
09/05/2013 15:08:48	4.5341	2.1305	-0.216	77.102
09/05/2013 15:08:58	3.7837	2.1078	-0.316	77.701
09/05/2013 15:09:08	3.2647	2.1043	-0.617	77.701
09/05/2013 15:09:18	2.9118	2.1013	-1.018	77.001
09/05/2013 15:09:28	2.6738	2.0876	-1.117	76.202
09/05/2013 15:09:38	2.4845	2.0888	-0.919	75.202
09/05/2013 15:09:48	2.3185	2.0906	-1.117	74.101
09/05/2013 15:09:58	2.2435	2.087	-0.919	73.401
09/05/2013 15:10:08	2.0352	2.0822	-0.815	72.802
09/05/2013 15:10:18	1.9763	2.0793	-0.815	72.302
09/05/2013 15:10:28	1.94	2.0793	-0.617	72.501
09/05/2013 15:10:38	1.9115	2.0811	-0.518	72.102
09/05/2013 15:10:48	2.1531	2.0781	0.184	71.702
09/05/2013 15:10:58	6.3474	2.0727	0.781	71.003
09/05/2013 15:11:08	9.6283	7.2472	0.781	70.801
09/05/2013 15:11:18	11.4957	10.7066	0.682	70.301
09/05/2013 15:11:28	11.3416	10.8619	0.482	70.101
09/05/2013 15:11:38	11.9331	10.8708	0.184	69.901
09/05/2013 15:11:48	12.4723	10.8905	-0.216	69.601
09/05/2013 15:11:58	10.1037	10.8857	-0.316	69.401
09/05/2013 15:12:08	9.7538	10.8839	-0.216	69.901
09/05/2013 15:12:18	9.7931	10.8935	-0.014	69.601
09/05/2013 15:12:28	9.8056	10.9024	-0.014	68.901
09/05/2013 15:12:38	9.8907	10.8994	-0.014	69.401
09/05/2013 15:12:48	9.9847	10.8982	-0.014	68.901
09/05/2013 15:12:58	10.074	10.9054	-0.113	68.701
09/05/2013 15:13:08	10.1061	10.9042	-0.014	69.401
09/05/2013 15:13:18	10.0728	10.9089	0.085	69.901
09/05/2013 15:13:28	10.0389	10.903	0.184	69.802
09/05/2013 15:13:38	10.1591	10.8929	0.385	69.601
09/05/2013 15:13:48	10.3471	10.8982	0.081	69.601
09/05/2013 15:13:58	10.4305	10.8976	-0.117	69.401
09/05/2013 15:14:08	10.687	10.8929	-0.117	69.202
09/05/2013 15:14:18	10.8756	10.9	-0.014	69.202
09/05/2013 15:14:28	10.9012	10.8947	0.284	69.401

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 15:14:38	10.9167	10.8947	0.284	69.802
09/05/2013 15:14:48	10.947	10.8982	0.184	69.901
09/05/2013 15:14:58	10.9506	10.8935	0.184	69.901
09/05/2013 15:15:08	2.8446	10.8869	0.081	70.702
09/05/2013 15:15:18	2.087	10.8899	0.085	70.801
09/05/2013 15:15:28	2.068	5.4297	0.184	71.003
09/05/2013 15:15:38	2.0596	2.2929	0.18	71.003
09/05/2013 15:15:48	2.0525	2.1203	0.081	71.202
09/05/2013 15:15:58	2.0471	2.1061	0.383	72.102
09/05/2013 15:16:08	2.0471	2.1031	0.682	73.701
09/05/2013 15:16:18	2.0483	2.0876	0.881	74.401
09/05/2013 15:16:28	2.0495	2.0828	0.984	74.801
09/05/2013 15:16:38	2.0471	2.0811	0.984	75.502
09/05/2013 15:16:48	4.7591	2.0822	0.881	75.702
09/05/2013 15:16:58	10.931	2.0811	0.984	75.902
09/05/2013 15:17:08	10.9286	6.0487	0.885	75.902
09/05/2013 15:17:18	10.9589	10.6197	0.885	76.202
09/05/2013 15:17:28	10.9803	10.8506	0.682	76.402
09/05/2013 15:17:38	10.994	10.8643	0.484	76.402
09/05/2013 15:17:48	10.9756	10.8792	0.284	76.802
09/05/2013 15:17:58	10.9792	10.8649	0.284	77.001
09/05/2013 15:18:08	10.9976	10.8822	0.081	77.502
09/05/2013 15:18:18	11.9754	10.8792	-0.212	77.102
09/05/2013 15:18:28	11.3898	11.025	-0.014	76.402
09/05/2013 15:18:38	11.0155	12.6978	-0.014	75.902
09/05/2013 15:18:48	10.4989	13.1108	-0.014	75.002
09/05/2013 15:18:58	10.1305	13.1013	0.081	74.101
09/05/2013 15:19:08	9.8693	13.0722	0.383	73.502
09/05/2013 15:19:18	9.4973	13.0204	0.482	72.802
09/05/2013 15:19:28	9.1516	12.9888	0.482	72.102
09/05/2013 15:19:38	8.9409	12.9109	0.385	71.602
09/05/2013 15:19:48	8.7255	12.8413	0.484	71.202
09/05/2013 15:19:58	8.7588	12.8335	0.583	70.502
Start Run 10				
09/05/2013 15:20:08	8.8433	12.8972	0.583	70.301
09/05/2013 15:20:18	8.8504	13.0186	0.583	69.802
09/05/2013 15:20:28	8.7421	13.1751	0.583	68.502
09/05/2013 15:20:38	8.6796	13.2513	0.482	68.502
09/05/2013 15:20:48	8.641	13.1864	0.583	69.401
09/05/2013 15:20:58	8.5434	13.0424	0.482	69.202
09/05/2013 15:21:08	8.4291	12.8544	0.482	68.701
09/05/2013 15:21:18	8.3434	12.6592	0.682	68.302
09/05/2013 15:21:28	8.3315	12.4604	0.682	68.502
09/05/2013 15:21:38	8.2702	12.3092	0.682	69.202
09/05/2013 15:21:48	8.1905	12.1956	0.482	69.202
09/05/2013 15:21:58	8.1833	12.1087	0.482	69.002
09/05/2013 15:22:08	8.1595	12.0646	0.484	69.202
09/05/2013 15:22:18	8.0929	12.0426	0.383	69.401
09/05/2013 15:22:28	8.1173	12.0646	0.482	69.401
09/05/2013 15:22:38	8.1702	12.0974	0.583	69.401
09/05/2013 15:22:48	8.1173	12.1105	0.484	69.202
09/05/2013 15:22:58	8.081	12.123	0.383	68.901
09/05/2013 15:23:08	8.0197	12.1152	0.284	68.901
09/05/2013 15:23:18	8.0619	12.1218	0.383	68.701
09/05/2013 15:23:28	8.1714	12.148	0.482	68.701
09/05/2013 15:23:38	8.3047	12.2753	0.484	69.202
09/05/2013 15:23:48	8.4642	12.4187	0.482	69.601
09/05/2013 15:23:58	8.5666	12.602	0.482	69.401
09/05/2013 15:24:08	8.5773	12.7704	0.284	69.601
09/05/2013 15:24:18	8.6541	12.8347	0.184	69.901
09/05/2013 15:24:28	8.5797	12.8097	0.383	71.202
09/05/2013 15:24:38	8.4821	12.7401	0.482	71.902
09/05/2013 15:24:48	8.4059	12.6705	0.583	72.802
09/05/2013 15:24:58	8.3916	12.6008	0.482	73.901
09/05/2013 15:25:08	8.3363	12.5473	0.482	74.101
09/05/2013 15:25:18	8.2643	12.5062	0.482	74.601
09/05/2013 15:25:28	8.2244	12.4651	0.383	74.801
09/05/2013 15:25:38	8.1976	12.436	0.383	74.601
09/05/2013 15:25:48	8.1315	12.4092	0.383	75.202
09/05/2013 15:25:58	8.0703	12.3765	0.284	75.502
09/05/2013 15:26:08	8.0845	12.311	0.184	75.502
09/05/2013 15:26:18	8.1375	12.2801	0.184	75.902
09/05/2013 15:26:28	8.2232	12.3164	0.284	76.102
09/05/2013 15:26:38	8.369	12.4193	0.484	76.102
09/05/2013 15:26:48	8.4833	12.5723	0.583	76.402
09/05/2013 15:26:58	8.5481	12.7085	0.383	76.402
09/05/2013 15:27:08	8.5785	12.7794	0.482	76.402
09/05/2013 15:27:18	8.5565	12.7687	0.583	76.102
09/05/2013 15:27:28	8.56	12.7258	0.583	75.202
09/05/2013 15:27:38	8.6207	12.6752	0.383	74.601
09/05/2013 15:27:48	8.6231	12.6258	0.081	73.901
09/05/2013 15:27:58	8.6267	12.5961	0.184	72.802
09/05/2013 15:28:08	8.6576	12.5883	0.383	72.102
09/05/2013 15:28:18	8.6326	12.5443	0.383	72.302
09/05/2013 15:28:28	8.641	12.5282	0.383	71.902
09/05/2013 15:28:38	8.6184	12.4788	0.482	71.402
09/05/2013 15:28:48	8.6541	12.4586	0.482	71.602
09/05/2013 15:28:58	8.7409	12.4681	0.482	71.402
09/05/2013 15:29:08	8.9046	12.5532	0.383	70.702

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 15:29:18	8.9974	12.6836	0.383	70.301
09/05/2013 15:29:28	8.9236	12.8651	0.383	70.502
09/05/2013 15:29:38	8.7338	12.9537	0.284	70.301
09/05/2013 15:29:48	8.6035	12.9234	0.284	70.301
09/05/2013 15:29:58	8.5243	12.7687	0.383	70.801
09/05/2013 15:30:08	8.5059	12.602	0.383	71.003
09/05/2013 15:30:18	8.5023	12.4794	0.383	70.801
09/05/2013 15:30:28	8.469	12.3836	0.383	70.502
09/05/2013 15:30:38	8.5011	12.3497	0.383	70.101
09/05/2013 15:30:48	8.5267	12.3164	0.184	69.901
09/05/2013 15:30:58	8.5434	12.3223	0.184	69.901
09/05/2013 15:31:08	8.5588	12.3003	0.284	69.901
09/05/2013 15:31:18	8.6142	12.2717	0.284	69.401
09/05/2013 15:31:28	8.7046	12.3033	0.383	69.901
09/05/2013 15:31:38	8.8623	12.4146	0.383	70.502
09/05/2013 15:31:48	8.9117	12.5425	0.383	71.402
09/05/2013 15:31:58	8.876	12.702	0.383	72.302
09/05/2013 15:32:08	8.8243	12.7895	0.383	73.201
09/05/2013 15:32:18	8.8046	12.7431	0.383	74.101
09/05/2013 15:32:28	8.7165	12.6609	0.383	74.601
09/05/2013 15:32:38	8.6725	12.58	0.184	75.002
09/05/2013 15:32:48	8.6338	12.5134	0.081	75.002
09/05/2013 15:32:58	8.3666	12.4788	0.184	75.202
09/05/2013 15:33:08	8.2446	12.4842	0.383	75.202
09/05/2013 15:33:18	8.1208	12.4681	0.583	75.202
09/05/2013 15:33:28	8.0435	12.4485	0.484	75.202
09/05/2013 15:33:38	7.9822	12.4271	0.383	75.502
09/05/2013 15:33:48	8.0929	12.3854	0.482	75.902
09/05/2013 15:33:58	8.0137	12.3664	0.482	76.202
09/05/2013 15:34:08	8.147	12.4628	0.184	76.402
09/05/2013 15:34:18	8.2161	12.5806	0.081	76.602
09/05/2013 15:34:28	8.2833	12.746	0.081	76.802
09/05/2013 15:34:38	8.2518	12.8222	0.081	76.802
09/05/2013 15:34:48	8.253	12.7621	0.383	76.602
09/05/2013 15:34:58	8.2494	12.6306	0.482	75.301
09/05/2013 15:35:08	8.2857	12.5134	0.482	74.401
09/05/2013 15:35:18	7.9387	12.455	0.383	73.901
09/05/2013 15:35:28	7.8524	12.4312	0.385	73.502
09/05/2013 15:35:38	7.8138	12.4378	0.383	73.701
09/05/2013 15:35:48	7.9006	12.439	0.383	73.502
09/05/2013 15:35:58	8.022	12.4407	0.284	72.802
09/05/2013 15:36:08	8.1655	12.4919	0.383	72.501
09/05/2013 15:36:18	8.2196	12.4711	0.484	72.302
09/05/2013 15:36:28	8.2904	12.4723	0.484	71.702
09/05/2013 15:36:38	8.3553	12.5217	0.484	71.003
09/05/2013 15:36:48	8.5208	12.6473	0.383	70.801
09/05/2013 15:36:58	8.594	12.7972	0.284	70.702
09/05/2013 15:37:08	8.5446	12.943	0.284	70.502
09/05/2013 15:37:18	8.4928	12.9644	0.184	70.502
09/05/2013 15:37:28	8.463	12.8609	0.184	70.502
09/05/2013 15:37:38	8.4493	12.7151	0.184	69.901
09/05/2013 15:37:48	8.4434	12.6038	0.184	69.401
09/05/2013 15:37:58	8.4845	12.5395	0.383	69.002
09/05/2013 15:38:08	8.5172	12.5139	0.482	69.401
09/05/2013 15:38:18	8.5481	12.5217	0.284	69.802
09/05/2013 15:38:28	8.6118	12.5378	0.284	70.101
09/05/2013 15:38:38	8.5963	12.5663	0.383	70.702
09/05/2013 15:38:48	8.6374	12.5491	0.383	70.801
09/05/2013 15:38:58	8.7142	12.5312	0.385	71.402
09/05/2013 15:39:08	8.8326	12.552	0.383	71.902
09/05/2013 15:39:18	9.0046	12.6544	0.284	72.302
09/05/2013 15:39:28	9.0819	12.7829	0.284	73.002
09/05/2013 15:39:38	9.0802	12.9621	0.184	73.901
09/05/2013 15:39:48	9.0718	13.0698	0.284	74.401
09/05/2013 15:39:58	9.0153	13.0793	0.383	75.002
09/05/2013 15:40:08	8.9189	13.0442	0.284	75.301
09/05/2013 15:40:18	8.8998	12.9978	0.184	75.301
09/05/2013 15:40:28	8.8022	12.9502	0.184	75.301
09/05/2013 15:40:38	8.6314	12.9043	0.284	75.301
09/05/2013 15:40:48	8.5457	12.8401	0.284	75.902
09/05/2013 15:40:58	8.4398	12.7812	0.284	75.702
End Run 10				
Average	**8.468339**	**12.57954**	**0.376754**	**72.27303**
Maximum	**9.0819**	**13.2513**	**0.682**	**76.802**
Minimum	**7.8138**	**12.0426**	**0.081**	**68.302**
09/05/2013 15:41:08	8.3797	12.6913	0.184	76.102
09/05/2013 15:41:18	8.3148	12.5979	0.284	76.202
09/05/2013 15:41:28	8.1988	12.5009	0.184	76.602
09/05/2013 15:41:38	7.8114	12.4336	0.085	76.602
09/05/2013 15:41:48	7.7911	12.4461	0.383	77.001
09/05/2013 15:41:58	8.034	12.552	0.482	77.102
09/05/2013 15:42:08	8.1964	12.6645	0.383	76.802
09/05/2013 15:42:18	8.2893	12.8002	0.383	76.102
09/05/2013 15:42:28	8.4232	12.8478	0.383	75.301
09/05/2013 15:42:38	8.4856	12.8758	0.383	74.101
09/05/2013 15:42:48	8.5457	12.8555	0.383	73.401
09/05/2013 15:42:58	8.7255	12.8353	0.383	72.802
09/05/2013 15:43:08	8.6338	12.8204	0.383	72.802

2013 Unit 3 CEMS RATA
URS CEMs Raw Data
09/05/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/05/2013 15:43:18	8.6975	12.8276	0.284	72.501
09/05/2013 15:43:28	8.1196	12.8353	0.383	72.102
Calibration Bias				
09/05/2013 15:43:38	0.0785	12.799	0.482	71.702
09/05/2013 15:43:48	0.0279	9.489	0.383	71.702
09/05/2013 15:43:58	0.0113	0.6296	0.781	71.003
09/05/2013 15:44:08	0.0101	0.1148	1.384	70.801
09/05/2013 15:44:18	0.0089	0.069	1.281	71.003
09/05/2013 15:44:28	0.0065	0.0553	0.984	71.003
09/05/2013 15:44:38	0.0041	0.0458	0.482	70.702
09/05/2013 15:44:48	0.0017	0.0476	0.184	71.003
09/05/2013 15:44:58	-0.00064	0.0297	0.284	71.602
09/05/2013 15:45:08	-0.0018	0.0357	0.482	70.502
N2 Zero		**0.037667**	**0.316667**	
09/05/2013 15:45:18	-0.0018	0.0279	0.583	69.601
09/05/2013 15:45:28	-0.003	0.0261	0.583	69.601
09/05/2013 15:45:38	-0.0042	0.0261	0.583	70.101
09/05/2013 15:45:48	-0.0054	0.0113	1.583	70.101
09/05/2013 15:45:58	-0.0066	0.0184	7.986	68.901
09/05/2013 15:46:08	-0.0066	0.0249	21.499	69.002
09/05/2013 15:46:18	-0.0066	0.022	34.919	69.002
09/05/2013 15:46:28	-0.0054	0.0202	42.425	69.002
09/05/2013 15:46:38	-0.0066	0.0142	45.526	69.601
09/05/2013 15:46:48	-0.0078	0.016	46.127	70.101
09/05/2013 15:46:58	-0.0066	0.0095	44.828	70.702
09/05/2013 15:47:08	-0.009	0.0136	44.625	71.402
09/05/2013 15:47:18	-0.009	0.0125	45.327	71.602
09/05/2013 15:47:28	-0.0078	0.0107	45.526	71.702
46.3 ppm CO Mid			**45.15933**	
09/05/2013 15:47:38	1.849	0.0089	46.028	72.302
09/05/2013 15:47:48	2.0305	0.0261	46.23	73.401
09/05/2013 15:47:58	2.0388	1.4538	45.625	74.101
09/05/2013 15:48:08	2.0388	2.0221	39.823	74.401
09/05/2013 15:48:18	2.0376	2.0525	26.712	74.601
09/05/2013 15:48:28	2.0376	2.0507	12.991	75.202
09/05/2013 15:48:38	2.0376	2.059	4.882	75.202
09/05/2013 15:48:48	2.0388	2.059	1.583	75.502
2.07% O2 Low	**2.038**			
09/05/2013 15:48:58	2.2929	2.0555	0.781	75.502
09/05/2013 15:49:08	10.8708	2.0573	0.781	75.702
09/05/2013 15:49:18	10.925	4.9995	0.781	76.102
09/05/2013 15:49:28	10.9381	10.3424	0.781	76.202
09/05/2013 15:49:38	10.9369	10.8286	0.682	76.802
09/05/2013 15:49:48	10.9565	10.8459	0.482	77.001
09/05/2013 15:49:58	10.9434	10.8613	0.383	76.802
09/05/2013 15:50:08	10.9345	10.8726	0.184	76.102
11.0% O2 Mid	**10.9448**	**10.85993**		
09/05/2013 15:50:18	12.4253	10.8714	0.081	75.301
09/05/2013 15:50:28	12.0016	10.8726	0.085	74.801
09/05/2013 15:50:38	11.5683	11.9361	0.284	74.302
09/05/2013 15:50:48	11.4392	12.6449	0.284	73.002
09/05/2013 15:50:58	11.3719	12.6818	0.081	71.902
09/05/2013 15:51:08	11.6308	12.7121	0.184	71.702
09/05/2013 15:51:18	10.7768	12.8288	0.482	71.402
09/05/2013 15:51:28	10.4953	13.3554	0.583	71.402
09/05/2013 15:51:38	14.5302	13.4697	0.484	71.202
09/05/2013 15:51:48	17.6919	14.1011	0.484	71.003
09/05/2013 15:51:58	18.5132	18.7367	0.583	71.003
09/05/2013 15:52:08	19.0993	20.5882	0.383	70.801
09/05/2013 15:52:18	19.6849	20.7111	-0.014	71.202
09/05/2013 15:52:28	19.8521	20.7101	-0.316	71.702
09/05/2013 15:52:38	20.2977	20.7121	-0.113	71.702
09/05/2013 15:52:48	19.768	20.7091	0.081	71.003
09/05/2013 15:52:58	19.6904	20.4679	0.081	71.003
09/05/2013 15:53:08	19.9049	19.8526	0.184	71.202
09/05/2013 15:53:18	19.6391	19.8375	0.482	71.402
09/05/2013 15:53:28	19.5786	19.8375	0.583	71.402
09/05/2013 15:53:38	19.5162	19.8385	0.383	71.202
09/05/2013 15:53:48	19.0766	19.844	0.484	71.602
09/05/2013 15:53:58	18.9694	19.846	0.583	72.102
09/05/2013 15:54:08	19.0222	19.8425	0.682	72.302
09/05/2013 15:54:18	19.1008	19.8375	0.682	72.302
09/05/2013 15:54:28	19.1114	19.8375	0.583	72.501
09/05/2013 15:54:38	19.1824	19.8329	0.482	72.802
09/05/2013 15:54:48	19.2367	19.8299	0.18	72.802
09/05/2013 15:54:58	19.2221	19.8329	0.184	73.002
09/05/2013 15:55:08	19.2161	19.8299	0.081	73.201
09/05/2013 15:55:18	19.131	19.8289	0.284	74.101
09/05/2013 15:55:28	18.985	19.8244	0.781	74.401
09/05/2013 15:55:38	19.0731	19.8319	0.781	75.202
09/05/2013 15:55:48	19.2559	19.8365	0.583	75.301
09/05/2013 15:55:58	19.2438	19.8339	0.583	75.502
09/05/2013 15:56:08	19.2816	19.8365	0.583	75.902
09/05/2013 15:56:18	19.3802	19.8435	0.482	76.202
09/05/2013 15:56:28	19.3667	19.8501	0.482	76.402
09/05/2013 15:56:38	19.3561	19.849	0.284	76.402

APPENDIX B

Reference Method Calibration Results

Project Title	Veolia Sauget Unit 3 RATA
Location	Sauget, IL
Project ID	40942525
Date	9/5/13
Technician	mdd

	Oxygen, Wet	Oxygen, Dry	Carbon Monoxide
Instrument Make/Model:	Ametek RM CEM O2/IQ	Servomex 1440	Thermo 48C
ID Number/Name:	Asset # 207720	Waits	Iggy
Calibration Span Value:	22.5	22.5	89.8
Analyzer Range:	25	25	100
Units:	%	%	ppm

	Calibration Gases Used					
	Oxygen, Wet		Oxygen, Dry		Carbon Monoxide	
	Cylinder #	Value	Cylinder #	Value	Cylinder #	Value
Zero	CC121944	2.1	52-400193157-1A	0.0	52-400193157-1A	0.0
Span	CC189665	22.5	CC189665	22.5	CC14436	89.8
Mid-range	CC157679	11.0	CC157679	11.0	CC215749	46.3
Low-Range						
NO_2 Challenge Gas						

	Limits for Calibration Gas Selection					
	Oxygen, Wet		Oxygen, Dry		Carbon Monoxide	
	Lower	Upper	Lower	Upper	Lower	Upper
Zero	0.00	4.50	0.00	4.50	0.00	17.96
Mid-Range	9.00	13.50	9.00	13.50	35.92	53.88
Low-Range						
Span						

	Does the Calibration Gas Meet the Selection Criteria?					
	Oxygen, Wet		Oxygen, Dry		Carbon Monoxide	
	Calibration Gas Value	Is it Good?	Calibration Gas Value	Is it Good?	Calibration Gas Value	Is it Good?
Zero	2.07	TRUE	0.00	TRUE	0.0	TRUE
Mid-Range	11.00	TRUE	11.00	TRUE	46.3	TRUE
Low-Range						
Span						

	Limits for Direct Calibrationn (At the Instrument)					
	Oxygen, Wet		Oxygen, Dry		Carbon Monoxide	
	Lower	Upper	Lower	Upper	Lower	Upper
Zero	1.62	2.52	-0.45	0.45	-1.8	1.8
Span	22.05	22.95	22.05	22.95	88.0	91.6
Mid-range	10.55	11.45	10.55	11.45	44.5	48.1
Low-range						

Veolia Sauget Unit 3 RATA
Wet O_2 Calibration Data Summary

Project ID: 40942525
Date: 9/5/2013
Instrument Make/Model: Ametek RM CEM O2/IQ
Instrument Name/ID Asset # 207720
Calibration Span Value: 22.50
Analyzer Range: 25
Units: %
Technician(s): mdd

Calibration Error Test Results

	Cylinder ID	Certified Value	Time	CEM Response	Absolute Difference	Cal Error (% of Span) 2.0% Limit
zero gas	CC121944	2.07	07:55	2.00	0.07	0.3%
span gas	CC189665	22.50	07:57	22.48	0.02	0.1%
mid-range	CC157679	11.00	08:00	10.85	0.15	0.6%

CEMS Calibration Bias and Drift Tests

Run No.	Cylinder Value	Cal Error CEMS Response	Time	Pre-Test CEMS Response	Bias (% of Span) 5.0% Limit	Time	Post-Test CEMS Response	Bias (% of Span) 5.0% Limit	Drift (% of Span) 3.0% Limit	Eq. 7E-5
Run 1	2.07	2.00	08:01	2.02	0.1%	09:31	2.02	0.1%	0.0%	C_O= 2.017
	11.00	10.85	08:03	10.85	0.0%	09:33	10.87	0.1%	0.1%	$C_{MA}/(C_M-C_O)$ 1.244
Run 2	2.07	2.00	09:31	2.02	0.1%	10:21	2.02	0.1%	0.0%	C_O= 2.017
	11.00	10.85	09:33	10.87	0.1%	10:23	10.89	0.1%	0.1%	$C_{MA}/(C_M-C_O)$ 1.241
Run 3	2.07	2.00	10:21	2.02	0.1%	10:57	2.01	0.0%	0.0%	C_O= 2.015
	11.00	10.85	10:23	10.89	0.1%	10:59	10.86	0.0%	-0.1%	$C_{MA}/(C_M-C_O)$ 1.242
Run 4	2.07	2.00	10:57	2.01	0.0%	11:34	2.01	0.0%	0.0%	C_O= 2.012
	11.00	10.85	10:59	10.86	0.0%	11:35	10.86	0.0%	0.0%	$C_{MA}/(C_M-C_O)$ 1.243
Run 5	2.07	2.00	11:34	2.01	0.0%	12:12	2.02	0.1%	0.0%	C_O= 2.013
	11.00	10.85	11:35	10.86	0.0%	12:14	10.85	0.0%	-0.1%	$C_{MA}/(C_M-C_O)$ 1.244
Run 6	2.07	2.00	12:12	2.02	0.1%	12:54	1.83	-0.8%	-0.8%	C_O= 1.924
	11.00	10.85	12:14	10.85	0.0%	12:58	10.70	-0.7%	-0.7%	$C_{MA}/(C_M-C_O)$ 1.242
Run 7	2.07	2.00	12:54	1.83	-0.8%	13:33	2.00	0.0%	0.8%	C_O= 1.918
	11.00	10.85	12:58	10.70	-0.7%	13:35	10.81	-0.2%	0.5%	$C_{MA}/(C_M-C_O)$ 1.244
Run 8	2.07	2.00	13:33	2.00	0.0%	14:13	2.00	0.0%	0.0%	C_O= 2.000
	11.00	10.85	13:35	10.81	-0.2%	14:14	10.78	-0.3%	-0.2%	$C_{MA}/(C_M-C_O)$ 1.250
Run 9	2.07	2.00	14:13	2.00	0.0%	14:52	1.82	-0.8%	-0.8%	C_O= 1.906
	11.00	10.85	14:14	10.78	-0.3%	14:54	10.12	-3.2%	-2.9%	$C_{MA}/(C_M-C_O)$ 1.287
Run 10	2.07	2.00	14:52	1.82	-0.8%	15:48	2.04	0.2%	1.0%	C_O= 1.927
	11.00	10.85	14:54	10.12	-3.2%	15:50	10.94	0.4%	3.6%	$C_{MA}/(C_M-C_O)$ 1.278

Veolia Sauget Unit 3 RATA
Dry O_2 Calibration Data Summary

Project ID: 40942525
Date: 9/5/2013
Instrument Make/Model: Servomex 1440
Instrument Name/ID Waits
Calibration Span Value: 22.50
Analyzer Range: 25
Units: %
Technician(s): mdd

Calibration Error Test Results

	Cylinder ID	Certified Value	Time	CEM Response	Absolute Difference	Cal Error (% of Span) 2.0% Limit
zero gas	52-400193157-1A	0.00	07:31	-0.05	0.05	0.2%
span gas	CC189665	22.50	07:33	22.68	0.18	0.8%
mid-range	CC157679	11.00	07:34	10.94	0.06	0.3%

CEMS Calibration Bias and Drift Tests

Run No.	Cylinder Value	Cal Error CEMS Response	Time	Pre-Test CEMS Response	Bias (% of Span) 5.0% Limit	Time	Post-Test CEMS Response	Bias (% of Span) 5.0% Limit	Drift (% of Span) 3.0% Limit	Eq. 7E-5
Run 1	0.00	-0.05	07:48	-0.02	0.1%	09:27	0.03	0.3%	0.2%	c_O= 0.006
	11.00	10.94	08:03	10.93	0.0%	09:33	10.90	-0.2%	-0.2%	$c_{MA}/(C_M-C_O)$ 1.008
Run 2	0.00	-0.05	09:27	0.03	0.3%	10:15	0.04	0.4%	0.0%	c_O= 0.034
	11.00	10.94	09:33	10.90	-0.2%	10:23	10.90	-0.2%	0.0%	$c_{MA}/(C_M-C_O)$ 1.012
Run 3	0.00	-0.05	10:15	0.04	0.4%	10:53	0.04	0.4%	0.0%	c_O= 0.040
	11.00	10.94	10:23	10.90	-0.2%	10:59	10.89	-0.2%	0.0%	$c_{MA}/(C_M-C_O)$ 1.013
Run 4	0.00	-0.05	10:53	0.04	0.4%	11:30	0.04	0.4%	0.0%	c_O= 0.039
	11.00	10.94	10:59	10.89	-0.2%	11:35	10.89	-0.2%	0.0%	$c_{MA}/(C_M-C_O)$ 1.014
Run 5	0.00	-0.05	11:30	0.04	0.4%	12:08	0.04	0.4%	0.0%	c_O= 0.037
	11.00	10.94	11:35	10.89	-0.2%	12:14	10.89	-0.2%	0.0%	$c_{MA}/(C_M-C_O)$ 1.014
Run 6	0.00	-0.05	12:08	0.04	0.4%	12:51	0.04	0.4%	0.0%	c_O= 0.037
	11.00	10.94	12:14	10.89	-0.2%	12:58	10.91	-0.1%	0.1%	$c_{MA}/(C_M-C_O)$ 1.013
Run 7	0.00	-0.05	12:51	0.04	0.4%	13:30	0.04	0.4%	0.0%	c_O= 0.038
	11.00	10.94	12:58	10.91	-0.1%	13:35	10.89	-0.2%	-0.1%	$c_{MA}/(C_M-C_O)$ 1.013
Run 8	0.00	-0.05	13:30	0.04	0.4%	14:08	0.04	0.4%	0.0%	c_O= 0.041
	11.00	10.94	13:35	10.89	-0.2%	14:14	10.88	-0.3%	0.0%	$c_{MA}/(C_M-C_O)$ 1.015
Run 9	0.00	-0.05	14:08	0.04	0.4%	14:48	0.03	0.3%	-0.1%	c_O= 0.037
	11.00	10.94	14:14	10.88	-0.3%	14:54	10.89	-0.2%	0.0%	$c_{MA}/(C_M-C_O)$ 1.014
Run 10	0.00	-0.05	14:48	0.03	0.3%	15:45	0.04	0.4%	0.0%	c_O= 0.034
	11.00	10.94	14:54	10.89	-0.2%	15:50	10.86	-0.4%	-0.1%	$c_{MA}/(C_M-C_O)$ 1.015

Veolia Sauget Unit 3 RATA
CO Calibration Data Summary

Project ID: 40942525
Date: 9/5/2013
Instrument Make/Model: Thermo 48C
Instrument Name/ID Iggy
Calibration Span Value: 89.8
Analyzer Range: 100
Units: ppm
Technician(s): mdd

Calibration Error Test Results

	Cylinder ID	Certified Value	Time	CEM Response	Absolute Difference	Cal Error (% of Span) 2.0% Limit
zero gas	52-400193157-1A	0.0	07:31	-0.3	0.3	0.4%
span gas	CC14436	89.8	07:36	90.0	0.2	0.2%
mid-range	CC215749	46.3	07:38	46.0	0.3	0.3%

CEMS Calibration Bias and Drift Tests

Run No.	Cylinder Value	Cal Error CEMS Response	Time	Pre-Test CEMS Response	Bias (% of Span) 5.0% Limit	Time	Post-Test CEMS Response	Bias (% of Span) 5.0% Limit	Drift (% of Span) 3.0% Limit	Eq. 7E-5
Run 1	0.0	-0.3	07:48	0.1	0.5%	09:27	0.3	0.7%	0.2%	C_O= 0.214
	46.3	46.0	07:50	45.6	-0.5%	09:29	45.5	-0.6%	-0.1%	$C_{MA}/(C_M-C_O)$ 1.022
Run 2	0.0	-0.3	09:27	0.3	0.7%	10:15	0.1	0.5%	-0.2%	C_O= 0.200
	46.3	46.0	09:29	45.5	-0.6%	10:18	45.9	-0.1%	0.5%	$C_{MA}/(C_M-C_O)$ 1.018
Run 3	0.0	-0.3	10:15	0.1	0.5%	10:53	0.3	0.7%	0.2%	C_O= 0.217
	46.3	46.0	10:18	45.9	-0.1%	10:56	46.1	0.1%	0.2%	$C_{MA}/(C_M-C_O)$ 1.011
Run 4	0.0	-0.3	10:53	0.3	0.7%	11:30	-0.2	0.1%	-0.6%	C_O= 0.034
	46.3	46.0	10:56	46.1	0.1%	11:32	45.4	-0.7%	-0.9%	$C_{MA}/(C_M-C_O)$ 1.013
Run 5	0.0	-0.3	11:30	-0.2	0.1%	12:08	-0.4	-0.1%	-0.1%	C_O= -0.316
	46.3	46.0	11:32	45.4	-0.7%	12:10	44.7	-1.5%	-0.8%	$C_{MA}/(C_M-C_O)$ 1.022
Run 6	0.0	-0.3	12:08	-0.4	-0.1%	12:51	-0.1	0.2%	0.3%	C_O= -0.248
	46.3	46.0	12:10	44.7	-1.5%	12:53	45.1	-1.1%	0.4%	$C_{MA}/(C_M-C_O)$ 1.026
Run 7	0.0	-0.3	12:51	-0.1	0.2%	13:30	-0.5	-0.2%	-0.4%	C_O= -0.298
	46.3	46.0	12:53	45.1	-1.1%	13:32	44.6	-1.6%	-0.5%	$C_{MA}/(C_M-C_O)$ 1.026
Run 8	0.0	-0.3	13:30	-0.5	-0.2%	14:08	-0.2	0.1%	0.3%	C_O= -0.365
	46.3	46.0	13:32	44.6	-1.6%	14:11	43.3	-3.0%	-1.5%	$C_{MA}/(C_M-C_O)$ 1.045
Run 9	0.0	-0.3	14:08	-0.2	0.1%	14:48	-0.7	-0.4%	-0.5%	C_O= -0.478
	46.3	46.0	14:11	43.3	-3.0%	14:50	42.2	-4.3%	-1.3%	$C_{MA}/(C_M-C_O)$ 1.072
Run 10	0.0	-0.3	14:48	-0.7	-0.4%	15:45	0.3	0.7%	1.1%	C_O= -0.196
	46.3	46.0	14:50	42.2	-4.3%	15:47	45.2	-1.0%	3.3%	$C_{MA}/(C_M-C_O)$ 1.056

APPENDIX C

Unit 3 CEMS Relative Accuracy Data

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/5/13 9:04 AM	0.00	8.89	13.46	33.97
9/5/13 9:05 AM	0.00	8.88	13.51	34.19
9/5/13 9:06 AM	0.00	8.62	13.12	34.13
9/5/13 9:07 AM	0.00	8.14	12.33	34.05
9/5/13 9:08 AM	0.00	8.25	12.73	34.95
9/5/13 9:09 AM	0.00	8.62	13.30	35.14
9/5/13 9:10 AM	0.00	8.44	12.89	34.62
9/5/13 9:11 AM	0.00	8.42	12.98	35.11
9/5/13 9:12 AM	0.00	8.72	13.47	35.29
9/5/13 9:13 AM	0.00	8.48	12.98	34.67
9/5/13 9:14 AM	0.00	8.35	12.89	35.16
9/5/13 9:15 AM	0.00	8.74	13.48	35.27
9/5/13 9:16 AM	0.00	8.77	13.32	34.24
9/5/13 9:17 AM	0.00	8.74	13.28	34.19
9/5/13 9:18 AM	0.00	8.95	13.65	34.42
9/5/13 9:19 AM	0.00	8.69	13.18	34.04
9/5/13 9:20 AM	0.00	8.51	13.00	34.63
9/5/13 9:21 AM	0.00	8.74	13.50	35.19
9/5/13 9:22 AM	0.00	8.62	13.13	34.33
9/5/13 9:23 AM	0.00	8.41	12.85	34.57
9/5/13 9:24 AM	0.00	8.69	13.46	35.36
Average	0.00	8.60	13.17	34.64

Unit 3 Run 1 09/05/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/5/13 9:53 AM	0.00	8.40	12.94	35.03
9/5/13 9:54 AM	0.00	8.58	13.13	34.72
9/5/13 9:55 AM	0.00	8.65	13.19	34.44
9/5/13 9:56 AM	0.00	8.63	13.14	34.34
9/5/13 9:57 AM	0.00	8.26	12.62	34.58
9/5/13 9:58 AM	0.00	8.83	13.71	35.66
9/5/13 9:59 AM	0.00	8.47	12.95	34.61
9/5/13 10:00 AM	0.00	8.67	13.46	35.27
9/5/13 10:01 AM	0.00	8.89	13.64	34.82
9/5/13 10:02 AM	0.00	8.76	13.29	34.05
9/5/13 10:03 AM	0.00	9.20	13.93	34.10
9/5/13 10:04 AM	0.00	9.07	13.56	33.12
9/5/13 10:05 AM	0.00	8.72	13.12	33.53
9/5/13 10:06 AM	0.00	8.46	13.00	34.84
9/5/13 10:07 AM	0.00	8.74	13.54	35.48
9/5/13 10:08 AM	0.00	8.63	13.11	34.29
9/5/13 10:09 AM	0.00	8.60	13.09	34.24
9/5/13 10:10 AM	0.00	8.52	13.03	34.57
9/5/13 10:11 AM	0.00	8.76	13.50	35.03
9/5/13 10:12 AM	0.00	8.60	13.10	34.36
9/5/13 10:13 AM	0.00	8.43	12.89	34.61
Average	0.00	8.66	13.23	34.56

Unit 3 Run 2 09/05/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/5/13 10:30 AM	0.00	8.46	12.94	34.63
9/5/13 10:31 AM	0.00	8.61	13.31	35.41
9/5/13 10:32 AM	0.00	8.54	13.16	35.03
9/5/13 10:33 AM	0.00	8.46	13.00	34.99
9/5/13 10:34 AM	0.00	8.46	13.04	35.11
9/5/13 10:35 AM	0.00	8.70	13.38	34.96
9/5/13 10:36 AM	0.00	8.89	13.53	34.23
9/5/13 10:37 AM	0.00	8.79	13.27	33.84
9/5/13 10:38 AM	0.00	8.63	13.18	34.55
9/5/13 10:39 AM	0.00	8.72	13.50	35.31
9/5/13 10:40 AM	0.00	8.78	13.50	34.95
9/5/13 10:41 AM	0.00	8.65	13.25	34.69
9/5/13 10:42 AM	0.00	8.60	13.24	34.98
9/5/13 10:43 AM	0.00	8.74	13.44	35.00
9/5/13 10:44 AM	0.00	9.00	13.67	34.28
9/5/13 10:45 AM	0.00	8.87	13.34	33.57
9/5/13 10:46 AM	0.00	8.72	13.24	34.15
9/5/13 10:47 AM	0.00	8.70	13.36	34.99
9/5/13 10:48 AM	0.00	8.76	13.48	34.97
9/5/13 10:49 AM	0.00	8.59	13.15	34.68
9/5/13 10:50 AM	0.00	8.54	13.15	35.08
Average	0.00	8.68	13.29	34.73

Unit 3 Run 3 09/05/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/5/13 11:08 AM	0.00	8.71	13.41	35.16
9/5/13 11:09 AM	0.00	8.58	13.08	34.35
9/5/13 11:10 AM	0.00	8.51	13.09	34.85
9/5/13 11:11 AM	0.00	8.51	13.11	35.10
9/5/13 11:12 AM	0.00	8.76	13.41	34.73
9/5/13 11:13 AM	0.00	8.65	13.08	33.91
9/5/13 11:14 AM	0.00	8.56	13.03	34.32
9/5/13 11:15 AM	0.00	8.47	13.02	34.95
9/5/13 11:16 AM	0.00	8.65	13.33	35.13
9/5/13 11:17 AM	0.00	8.51	12.98	34.51
9/5/13 11:18 AM	0.00	8.47	12.99	34.71
9/5/13 11:19 AM	0.00	8.44	12.97	34.93
9/5/13 11:20 AM	0.00	8.60	13.18	34.84
9/5/13 11:21 AM	0.00	8.35	12.69	34.29
9/5/13 11:22 AM	0.00	8.32	12.80	34.95
9/5/13 11:23 AM	0.00	8.29	12.92	35.67
9/5/13 11:24 AM	0.00	8.90	13.85	35.78
9/5/13 11:25 AM	0.00	9.22	13.96	34.02
9/5/13 11:26 AM	0.00	9.11	13.66	33.21
9/5/13 11:27 AM	0.00	8.71	13.13	33.58
9/5/13 11:28 AM	0.00	8.77	13.34	34.12
Average	0.00	8.62	13.19	34.63

Unit 3 Run 4 09/05/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/5/13 11:46 AM	0.00	8.18	12.55	34.87
9/5/13 11:47 AM	0.00	8.25	12.80	35.58
9/5/13 11:48 AM	0.00	8.38	12.96	35.24
9/5/13 11:49 AM	0.00	8.29	12.66	34.50
9/5/13 11:50 AM	0.00	8.29	12.74	34.92
9/5/13 11:51 AM	0.00	8.30	12.82	35.27
9/5/13 11:52 AM	0.00	8.07	12.46	35.14
9/5/13 11:53 AM	0.00	8.23	12.83	35.78
9/5/13 11:54 AM	0.00	8.42	13.14	35.98
9/5/13 11:55 AM	0.00	8.67	13.47	35.65
9/5/13 11:56 AM	0.00	8.58	13.15	34.71
9/5/13 11:57 AM	0.00	8.57	13.16	34.78
9/5/13 11:58 AM	0.00	8.61	13.25	34.96
9/5/13 11:59 AM	0.00	8.63	13.29	35.04
9/5/13 12:00 PM	0.00	8.66	13.34	35.08
9/5/13 12:01 PM	0.00	8.74	13.47	35.11
9/5/13 12:02 PM	0.00	8.80	13.51	34.89
9/5/13 12:03 PM	0.00	8.81	13.45	34.53
9/5/13 12:04 PM	0.00	8.67	13.22	34.42
9/5/13 12:05 PM	0.00	8.64	13.25	34.73
9/5/13 12:06 PM	0.00	8.95	13.68	34.61
Average	0.00	8.51	13.11	35.04

Unit 3 Run 5 09/05/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/5/13 12:26 PM	0.00	8.51	12.76	33.44
9/5/13 12:27 PM	0.00	8.56	12.99	34.02
9/5/13 12:28 PM	0.00	8.57	12.94	33.85
9/5/13 12:29 PM	0.00	8.67	13.09	33.70
9/5/13 12:30 PM	0.00	8.72	13.23	34.12
9/5/13 12:31 PM	0.00	9.02	13.71	34.28
9/5/13 12:32 PM	0.00	8.88	13.37	33.57
9/5/13 12:33 PM	0.00	8.81	13.29	33.72
9/5/13 12:34 PM	0.00	8.95	13.56	34.02
9/5/13 12:35 PM	0.00	8.98	13.50	33.54
9/5/13 12:36 PM	0.00	8.85	13.19	32.92
9/5/13 12:37 PM	0.00	8.47	12.70	33.34
9/5/13 12:38 PM	0.00	8.31	12.65	34.31
9/5/13 12:39 PM	0.00	8.11	12.42	34.76
9/5/13 12:40 PM	0.00	7.93	12.25	35.22
9/5/13 12:41 PM	0.00	7.95	12.46	36.16
9/5/13 12:42 PM	0.00	8.06	12.68	36.38
9/5/13 12:43 PM	0.00	8.23	12.78	35.63
9/5/13 12:44 PM	0.00	8.69	13.44	35.35
9/5/13 12:45 PM	0.00	9.11	13.97	34.82
9/5/13 12:46 PM	0.00	8.86	13.44	34.06
Average	0.00	8.58	13.07	34.34

Unit 3 Run 6 09/05/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/5/13 1:08 PM	0.00	8.28	12.63	34.53
9/5/13 1:09 PM	0.00	8.38	12.86	34.73
9/5/13 1:10 PM	0.00	8.51	13.07	34.84
9/5/13 1:11 PM	0.00	8.69	13.32	34.82
9/5/13 1:12 PM	0.00	8.56	13.12	34.63
9/5/13 1:13 PM	0.00	8.50	13.14	35.31
9/5/13 1:14 PM	0.00	8.60	13.35	35.52
9/5/13 1:15 PM	0.00	8.89	13.64	34.80
9/5/13 1:16 PM	0.00	8.80	13.32	33.96
9/5/13 1:17 PM	0.00	8.73	13.27	34.24
9/5/13 1:18 PM	0.00	8.66	13.25	34.61
9/5/13 1:19 PM	0.00	8.59	13.19	34.85
9/5/13 1:20 PM	0.00	8.00	12.23	34.59
9/5/13 1:21 PM	0.00	8.03	12.39	35.22
9/5/13 1:22 PM	0.00	8.24	12.78	35.43
9/5/13 1:23 PM	0.00	8.59	13.26	35.26
9/5/13 1:24 PM	0.00	8.61	13.13	34.49
9/5/13 1:25 PM	0.00	8.76	13.42	34.63
9/5/13 1:26 PM	0.00	8.79	13.45	34.61
9/5/13 1:27 PM	0.00	8.98	13.68	34.39
9/5/13 1:28 PM	0.00	8.55	12.84	33.44
Average	0.00	8.56	13.11	34.71

Unit 3 Run 7 09/05/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/5/13 1:46 PM	0.00	8.33	12.74	34.63
9/5/13 1:47 PM	0.00	8.62	13.20	34.74
9/5/13 1:48 PM	0.00	8.71	13.34	34.63
9/5/13 1:49 PM	0.00	9.06	13.86	34.62
9/5/13 1:50 PM	0.00	9.03	13.67	34.02
9/5/13 1:51 PM	0.00	8.84	13.42	34.14
9/5/13 1:52 PM	0.00	8.67	13.27	34.67
9/5/13 1:53 PM	0.00	8.77	13.43	34.71
9/5/13 1:54 PM	0.00	8.94	13.55	33.98
9/5/13 1:55 PM	0.00	8.74	13.13	33.49
9/5/13 1:56 PM	0.00	8.67	13.22	34.42
9/5/13 1:57 PM	0.00	8.63	13.30	35.15
9/5/13 1:58 PM	0.00	8.55	13.24	35.35
9/5/13 1:59 PM	0.00	8.56	13.17	35.01
9/5/13 2:00 PM	0.00	8.58	13.12	34.71
9/5/13 2:01 PM	0.00	8.67	13.22	34.43
9/5/13 2:02 PM	0.00	8.64	13.17	34.39
9/5/13 2:03 PM	0.00	8.47	13.00	34.88
9/5/13 2:04 PM	0.00	8.87	13.70	35.31
9/5/13 2:05 PM	0.00	8.06	12.29	34.43
9/5/13 2:06 PM	0.00	8.50	13.29	35.91
Average	0.00	8.66	13.25	34.65

Unit 3 Run 8 09/05/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/5/13 2:25 PM	0.00	8.47	12.90	34.47
9/5/13 2:26 PM	0.00	8.64	13.16	34.35
9/5/13 2:27 PM	0.00	8.85	13.46	34.29
9/5/13 2:28 PM	0.00	8.61	13.05	34.06
9/5/13 2:29 PM	0.00	8.55	13.04	34.35
9/5/13 2:30 PM	0.00	8.54	13.09	34.74
9/5/13 2:31 PM	0.00	8.81	13.57	35.11
9/5/13 2:32 PM	0.00	8.98	13.70	34.52
9/5/13 2:33 PM	0.00	8.96	13.62	34.19
9/5/13 2:34 PM	0.00	8.90	13.59	34.40
9/5/13 2:35 PM	0.00	9.05	13.79	34.40
9/5/13 2:36 PM	0.00	9.03	13.64	33.83
9/5/13 2:37 PM	0.00	8.94	13.45	33.50
9/5/13 2:38 PM	0.00	8.93	13.49	33.85
9/5/13 2:39 PM	0.00	9.04	13.78	34.23
9/5/13 2:40 PM	0.00	9.03	13.66	34.00
9/5/13 2:41 PM	0.00	8.68	13.11	33.84
9/5/13 2:42 PM	0.00	8.60	13.12	34.42
9/5/13 2:43 PM	0.00	8.76	13.43	34.73
9/5/13 2:44 PM	0.00	8.79	13.38	34.30
9/5/13 2:45 PM	0.00	8.70	13.15	33.92
Average	0.00	8.80	13.39	34.26

Unit 3 Run 9 09/05/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/5/13 3:21 PM	0.00	8.96	13.65	34.30
9/5/13 3:22 PM	0.00	8.45	12.73	33.57
9/5/13 3:23 PM	0.00	8.30	12.58	33.98
9/5/13 3:24 PM	0.00	8.50	12.97	34.47
9/5/13 3:25 PM	0.00	8.59	13.08	34.37
9/5/13 3:26 PM	0.00	8.33	12.69	34.40
9/5/13 3:27 PM	0.00	8.46	13.10	35.48
9/5/13 3:28 PM	0.00	8.58	13.23	35.19
9/5/13 3:29 PM	0.00	8.52	13.00	34.50
9/5/13 3:30 PM	0.00	8.74	13.35	34.58
9/5/13 3:31 PM	0.00	8.44	12.79	33.91
9/5/13 3:32 PM	0.00	8.55	13.02	34.33
9/5/13 3:33 PM	0.00	8.52	12.98	34.35
9/5/13 3:34 PM	0.00	8.37	12.76	34.42
9/5/13 3:35 PM	0.00	8.57	13.19	35.07
9/5/13 3:36 PM	0.00	8.40	12.84	34.60
9/5/13 3:37 PM	0.00	8.55	13.10	34.82
9/5/13 3:38 PM	0.00	8.55	13.12	34.76
9/5/13 3:39 PM	0.00	8.44	12.90	34.49
9/5/13 3:40 PM	0.00	8.73	13.45	35.09
9/5/13 3:41 PM	0.00	8.59	13.16	34.73
Average	0.00	8.53	13.03	34.54

Unit 3 Run 10 09/05/13

APPENDIX D

Unit 3 Waste Feed Characterization Data

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	3
Created	9/5/2013 10:00 AM
Period Start	9/5/2013 9:00 AM
Period End	9/5/2013 10:00 AM

CALCULATIONS

Thermodynamic BTU	12.8 mbtu		
Chlorine	35.2 lbs		
Low Volatile	0.013 lbs	Mercury	0.0001 lbs
Semi Volatile	0.007 lbs	Ash	145.5 lbs

WEIGHTS

Weight	1264 lbs		
Solids Weight	202 lbs	Liquid Weight	1062 lbs
Low BTU Weight	495 lbs	Special Feed Weight	167 lbs
High BTU Weight	399 lbs		
Tank 2 Weight	0 lbs	Tank 6 Weight	495 lbs
Tank 4 Weight	0 lbs	Tank 8 Weight	0 lbs
Direct Inject Weight	399 lbs		

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	8084 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	3
Created	9/5/2013 11:00 AM
Period Start	9/5/2013 10:00 AM
Period End	9/5/2013 11:00 AM

CALCULATIONS

Thermodynamic BTU	12.9 mbtu		
Chlorine	39.2 lbs		
Low Volatile	0.013 lbs	Mercury	0.0000 lbs
Semi Volatile	0.009 lbs	Ash	144.8 lbs

WEIGHTS

Weight	1237 lbs		
Solids Weight	202 lbs	Liquid Weight	1035 lbs
Low BTU Weight	499 lbs	Special Feed Weight	183 lbs
High BTU Weight	352 lbs		
Tank 2 Weight	0 lbs	Tank 6 Weight	499 lbs
Tank 4 Weight	0 lbs	Tank 8 Weight	0 lbs
Direct Inject Weight	352 lbs		

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	9155 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	3
Created	9/5/2013 12:00 PM
Period Start	9/5/2013 11:00 AM
Period End	9/5/2013 12:00 PM

CALCULATIONS

Thermodynamic BTU	13.0 mbtu		
Chlorine	33.7 lbs		
Low Volatile	0.264 lbs	Mercury	0.0001 lbs
Semi Volatile	0.013 lbs	Ash	126.1 lbs

WEIGHTS

Weight	1280 lbs		
Solids Weight	209 lbs	Liquid Weight	1071 lbs
Low BTU Weight	483 lbs	Special Feed Weight	171 lbs
High BTU Weight	415 lbs		
Tank 2 Weight	0 lbs	Tank 6 Weight	188 lbs
Tank 4 Weight	0 lbs	Tank 8 Weight	295 lbs
Direct Inject Weight	415 lbs		

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	8566 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	3
Created	9/5/2013 1:00 PM
Period Start	9/5/2013 12:00 PM
Period End	9/5/2013 1:00 PM

CALCULATIONS

Thermodynamic BTU	12.8 mbtu		
Chlorine	35.6 lbs		
Low Volatile	0.013 lbs	Mercury	0.0001 lbs
Semi Volatile	0.009 lbs	Ash	124.9 lbs

WEIGHTS

Weight	1240 lbs		
Solids Weight	213 lbs	Liquid Weight	1027 lbs
Low BTU Weight	250 lbs	Special Feed Weight	199 lbs
High BTU Weight	577 lbs		
Tank 2 Weight	0 lbs	Tank 6 Weight	0 lbs
Tank 4 Weight	0 lbs	Tank 8 Weight	250 lbs
Direct Inject Weight	577 lbs		

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	7501 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	3
Created	9/5/2013 2:00 PM
Period Start	9/5/2013 1:00 PM
Period End	9/5/2013 2:00 PM

CALCULATIONS

Thermodynamic BTU	13.0 mbtu		
Chlorine	30.3 lbs		
Low Volatile	0.695 lbs	Mercury	0.0001 lbs
Semi Volatile	0.018 lbs	Ash	113.6 lbs

WEIGHTS

Weight	1264 lbs		
Solids Weight	213 lbs	Liquid Weight	1051 lbs
Low BTU Weight	501 lbs	Special Feed Weight	178 lbs
High BTU Weight	370 lbs		
Tank 2 Weight	0 lbs	Tank 6 Weight	0 lbs
Tank 4 Weight	0 lbs	Tank 8 Weight	501 lbs
Direct Inject Weight	370 lbs		

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	7800 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	3
Created	9/5/2013 3:00 PM
Period Start	9/5/2013 2:00 PM
Period End	9/5/2013 3:00 PM

CALCULATIONS

Thermodynamic BTU	12.9	mbtu			
Chlorine	29.5	lbs			
Low Volatile	1.403	lbs	Mercury	0.0001	lbs
Semi Volatile	0.017	lbs	Ash	112.0	lbs

WEIGHTS

Weight	1226	lbs			
Solids Weight	207	lbs	Liquid Weight	1018	lbs
Low BTU Weight	499	lbs	Special Feed Weight	177	lbs
High BTU Weight	342	lbs			
Tank 2 Weight	0	lbs	Tank 6 Weight	0	lbs
Tank 4 Weight	0	lbs	Tank 8 Weight	499	lbs
Direct Inject Weight	342	lbs			

MISCELLANEOUS

Waste Permit Time	0.99	hrs	Natural Gas Flow	7997	cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	3
Created	9/5/2013 4:00 PM
Period Start	9/5/2013 3:00 PM
Period End	9/5/2013 4:00 PM

CALCULATIONS

Thermodynamic BTU	12.9 mbtu		
Chlorine	31.6 lbs		
Low Volatile	1.165 lbs	Mercury	0.0001 lbs
Semi Volatile	0.020 lbs	Ash	109.4 lbs

WEIGHTS

Weight	1225 lbs		
Solids Weight	202 lbs	Liquid Weight	1022 lbs
Low BTU Weight	480 lbs	Special Feed Weight	187 lbs
High BTU Weight	353 lbs		
Tank 2 Weight	0 lbs	Tank 6 Weight	0 lbs
Tank 4 Weight	0 lbs	Tank 8 Weight	480 lbs
Direct Inject Weight	353 lbs		

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	7990 cf

APPENDIX E

Reference Method EPA Protocol Gas Certifications

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11426 FAIRMONT PKWY, LA PORTE, TX 77571 Phone: 800-248-1427 Fax: 281-474-8419

RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: Interference Free™ Multi-Component EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A32011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
11426 FAIRMONT PKWY
LA PORTE, TX 77571

P.O. No.: STOCK
Document # : 44094399-001

Customer
URS CORPORATION

9400 AMBERGLEN BLVD
AUSTIN TX 78729
US

ANALYTICAL INFORMATION Gas Type : CO2,O2,BALN

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC189665
Cylinder Pressure*:** 1850 PSIG

Certification Date: 14Dec2011

Exp. Date: 15Dec2019
Batch No: LAP0054691

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON DIOXIDE	19.2 %	+/- 1%	Direct NIST and VSL
OXYGEN	22.5 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1800	01Mar2013	K026135	17.87 %	CARBON DIOXIDE
NTRM 2659	02Oct2012	1D003416	20.85 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//MG-09-149	02Dec2011	FTIR
SERVOMEX/MODEL 244A/701/716	01Dec2011	PARAMAGNETIC

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis
CARBON DIOXIDE
Date: 13Dec2011 Response Unit: %
Z1=-0.00143 R1=17.78329 T1=19.14079
R2=17.78502 Z2=-0.00071 T2=19.14128
Z3=0.00239 T3=19.14149 R3=17.79819
Avg. Concentration: 19.23 %

OXYGEN
Date: 14Dec2011 Response Unit: VOLTS
Z1=0.00000 R1=0.84000 T1=0.90550
R2=0.84000 Z2=0.00000 T2=0.90550
Z3=0.00000 T3=0.90550 R3=0.84000
Avg. Concentration: 22.47 %

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99997E-1
Constants: A=0.00000E+0
B=9.05981E-1 C=1.21380E-2
D=0.00000E+0 E=0.00000E+0

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.9999996
Constants: A=-0.00147786
B=24.85715966 C=
D= E=

Special Notes:
The expiration date has been extended without re-assay per EPA 600/R23-23/542.
URS020 CGA 590 ; DEW PT. 40 DEG. F.

QUALITY ASSURANCE

APPROVED BY: SARAH HERBERT
(signature on file)

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RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: Interference Free™ Multi-Component EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A32011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
11426 FAIRMONT PKWY
LA PORTE, TX 77571

P.O. No.: STOCK
Document # : 44094434-001

Customer
ALA-CYL-AUSTIN/MANOR (LOC 84128)

12700 BELTEX DR
TRANSFER ACCOUNT
MANOR TX 78653
US

ANALYTICAL INFORMATION Gas Type : CO2,O2,BALN

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC157679
Cylinder Pressure*:** 1950 PSIG

Certification Date: 13Dec2011

Exp. Date: 14Dec2019
Batch No: LAP0054696

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON DIOXIDE	9.47 %	+/- 1%	Direct NIST and VSL
OXYGEN	11.0 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1800	01Mar2013	K026135	17.87 %	CARBON DIOXIDE
NTRM 2659	02Oct2012	1D003416	20.85 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//MG-09-149	02Dec2011	FTIR
SERVOMEX/MODEL 244A/701/716	01Dec2011	PARAMAGNETIC

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis
CARBON DIOXIDE
Date: 13Dec2011 Response Unit: %
Z1=-0.00143 R1=17.78329 T1=9.41356
R2=17.78502 Z2=-0.00071 T2=9.42213
Z3=0.00239 T3=9.43070 R3=17.79819
Avg. Concentration: 9.465 %

OXYGEN
Date: 14Dec2011 Response Unit: VOLTS
Z1=0.00000 R1=0.84000 T1=0.44300
R2=0.84000 Z2=0.00000 T2=0.44300
Z3=0.00000 T3=0.44300 R3=0.84000
Avg. Concentration: 10.99 %

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99997E-1
Constants: A=0.00000E+0
B=9.05981E-1 C=1.21380E-2
D=0.00000E+0 E=0.00000E+0

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.9999996
Constants: A=-0.00147786
B=24.85715966 C=
D= E=

Special Notes:
The expiration date has been extended without re-assay per EPA 600/R23-23/542.
URS019 CGA 590 ; DEW PT. 40 DEG. F.

QUALITY ASSURANCE

APPROVED BY: SARAH HERBERT
(signature on file)

AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22012

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 59933-71-65000
Document # : 47534369-003

Customer
CLEAN AIR ENGINEERING

DON ALLEN
500 WEST WOOD STREET
PALATINE IL 60067
US

ANALYTICAL INFORMATION Gas Type : OC2

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC121944 **Certification Date:** 11Sep2012 **Exp. Date:** 12Sep2020
Cylinder Pressure*:** 2000 PSIG **Batch No:** TRO0065750

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
OXYGEN	2.07 %	+/- 1%	Direct NIST and VSL
CARBON DIOXIDE	2.09 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2350 23	04Jan2018	K024582	23.20 %	OXYGEN
NTRM 2000 K	01Jun2013	K025967	5.006 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
CAI/110P/V03018	28Aug2012	PARAMAGNETIC
PIR/2000/609015	11Sep2012	NDIR

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis | Second Triad Analysis | Calibration Curve

OXYGEN

Date: 11Sep2012 Response Unit: %
Z1=0.00000 R1=23.20000 T1=2.08000
R2=23.20000 Z2=0.00000 T2=2.08000
Z3=0.00000 T3=2.08000 R3=23.20000
Avg. Concentration: 2.068 %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999
Constants: A=-0.01360934
B=1.000705107 C=0
D=0 E=0

CARBON DIOXIDE

Date: 11Sep2012 Response Unit: MV
Z1=0.00000 R1=100.0000 T1=46.70000
R2=100.0000 Z2=0.00000 T2=46.70000
Z3=0.00000 T3=46.70000 R3=100.0000
Avg. Concentration: 2.092 %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999
Constants: A=0.000913103
B=0.041430365 C=5.913E-05
D=2.70796E-07 E=0

APPROVED BY: JEFF CROTEAU

Airgas

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 568-2203 Fax: (323) 567-3686
www.airgas.com

Part Number:	E02NI99E15A0406	Reference Number:	48-124294203-8
Cylinder Number:	CC14436	Cylinder Volume:	144 Cu.Ft.
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32011	Valve Outlet:	350
		Analysis Date:	Dec 16, 2011

Expiration Date: Dec 16, 2014

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. 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 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON MONOXIDE	90.00 PPM	89.80 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	090605	CC286489	98.88PPM CARBON MONOXIDE/NITROGEN	Feb 01, 2013

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801551 CO	FTIR	Dec 08, 2011

Triad Data Available Upon Request

Notes:

Approved for Release

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11426 FAIRMONT PKWY, LA PORTE, TX 77571 Phone: 800-248-1427 Fax: 281-474-8419

RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A32011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
11426 FAIRMONT PKWY
LA PORTE, TX 77571

P.O. No.: STOCK
Document # : 43751811-001
Folio #:URS012

Customer
URS CORPORATION
9400 AMBERGLEN BLVD
AUSTIN TX 78729
US

ANALYTICAL INFORMATION Gas Type : NONE

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC215749
Cylinder Pressure*:** 2000 PSIG

Certification Date: 15Nov2011

Exp. Date: 16Nov2019
Batch No: LAP0052491

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON MONOXIDE 46.3	PPM	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1678	15Dec2011	KAL004179	48.60 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000929060	20Oct2011	FTIR

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis
CARBON MONOXIDE
Date: 08Nov2011 Response Unit: PPM
Z1=0.04763 R1=1246.779 T1=46.16463
R2=1246.808 Z2=0.05757 T2=46.16727
Z3=0.46298 T3=46.26108 R3=1247.792
Avg. Concentration: 46.26 PPM

Second Triad Analysis
Date: 15Nov2011 Response Unit: PPM
Z1=-0.01497 R1=48.58454 T1=46.16318
R2=48.59487 Z2=0.07493 T2=46.28466
Z3=0.11036 T3=46.33594 R3=48.65816
Avg. Concentration: 46.25 PPM

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99996E-1
Constants: A=0.00000E+0
B=8.39797E-1 C=5.13000E-4
D=1.00000E-6 E=0.00000E+0

Special Notes:
The expiration date has been extended without re-assay per EPA 600/R23-23/542.
Dew Point 40F CGA 350

QUALITY ASSURANCE

APPROVED BY: SARAH HERBERT
(signature on file)

Performance Specification Test Results for the CO and Wet O_2 CEMS for Rotary Kiln Incinerator Unit 4

Prepared for:

Veolia ES Technical Solutions, L.L.C.
7 Mobile Avenue
Sauget, IL 62201

Prepared by:

URS Corporation
9400 Amberglen Boulevard (78729)
P. O. Box 201088
Austin, Texas 78720-1088

September 2013

Table of Contents

Page

1.0 Introduction 1-1

2.0 Summary of Results 2-1
2.1 Relative Accuracy 2-2

3.0 Test Protocol 3-1
3.1 Relative Accuracy 3-1

4.0 Quality Assurance 4-1

APPENDIX A – Relative Accuracy Spreadsheet and Reference Method Data
APPENDIX B – Reference Method Calibration Results
APPENDIX C – Unit 4 CEMS Relative Accuracy Data
APPENDIX D – Unit 4 Waste Feed Characterization Data
APPENDIX E – Reference Method EPA Protocol Gas Certifications

List of Tables

Page

1-1 General Facility and Testing Information 1-2
1-2 CEMS Identification 1-2

2-1 PST Requirements and Acceptance Criteria 2-1
2-2 CO CEMS Relative Accuracy Test Results 2-3
2-3 Wet O_2 CEMS Relative Accuracy Test Results 2-4

3-1 Oxygen Correction of Reference Method CO Concentration Results 3-4

1.0 Introduction

Veolia ES Technical Solutions, L.L.C. (Veolia) operates three incinerators at its Sauget, Illinois facility. Two of the incinerators are fixed hearth units (Units 2 and 3), and the third incinerator is a rotary kiln unit (Unit 4). All of the incinerators treat certain wastes that are classified as hazardous under state and/or federal regulations, and are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Hazardous Waste Combustors (Title 40 of the Code of Federal Regulations, Part 63 [40 CFR Part 63], Subpart EEE), (i.e., the HWC MACT). Unit 4 is equipped with a continuous emission monitoring system (CEMS) that consists of an oxygen (O_2) monitor and a carbon monoxide (CO) monitor which are used to monitor the emissions from the stack. The CEMS underwent Relative Accuracy (RA) Testing. This report presents the RA test results for the Unit 4 CO and wet O_2 CEMS. The general information regarding the testing at this facility is summarized in Table 1-1. The RA acceptance criteria are shown in Table 2-1.

The RA test of the Unit 4 CEMS was completed in September of 2013, as the initial step in the 2013 Comprehensive Performance Test of Unit 4. The CEMS were audited according to the RA procedures detailed in 40 CFR 60, Appendix B, Performance Specification 4B, "*Specifications and Test Procedures for Carbon Monoxide and Oxygen Continuous Monitoring Systems in Stationary Sources*" and 40 CFR 63 Subpart EEE, "*National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors*." The CEMS met all the RA criteria outlined in the above-cited references. Section 2.0 presents a detailed summary of these test results. Supporting documentation is located in the appendices.

The analyzer identification numbers and serial numbers for the monitors are presented below in Table 1-2. Veolia operates a CO analyzer, an O_2 analyzer, and a moisture analyzer. The oxygen correction of the plant CO concentrations is performed using a dry basis oxygen, derived from the measured wet basis oxygen concentration and the measured percent moisture. The Ecochem MC3 infrared CO analyzer is designed using a single sample cell equipped with an individual detector system for each of two measurement ranges (0-200 ppmv and 0-3,000 ppmv). The O_2 analyzer is a COSA electrochemical analyzer. Responses from each CEMS are recorded by the Control System (CS). Data printouts from these monitors documenting the CEMS performance are presented in Appendix C of this report. Characterization of waste fed during the RATA testing is included in Appendix D.

Table 1-1. General Facility and Testing Information
Unit 4 CEMS Performance Specification Testing

Facility Name	Veolia ES Technical Solutions, L.L.C.
Contact Person	David Klarich
Telephone Number	618-271-2804, x120
Facility Address	#7 Mobile Avenue Sauget, IL 62201
Types of Process Sampled	Rotary Kiln Incinerator Exhaust Gas
Person Responsible for Conducting Test	Michael Fuchs
Telephone Number	512-454-4797
Company Name	URS Corporation
Address	9400 Amberglen Boulevard Austin, Texas 78729
Person(s) Conducting Tests	Jesse Rocha Meggen DeLollis Megan Bowien Noah Prescott
Test Methods Performed	EPA Method 3A and EPA Method 10
Date of Testing	September 4, 2013

Table 1-2. CEMS Identification
Unit 4 CEMS Performance Specification Testing

Parameter	Manufacturer	Range	Analyzer Tag	Analyzer Serial Number
Carbon Monoxide	Ecochem MC3	0-200 ppmv	AT-556E	107
		0-3,000 ppmv		
Oxygen (Wet)	COSA	0-25%	AT-560B	A2H6894T

2.0 Summary of Results

Detailed results are presented in this section. Section 2.1 details the results from the relative accuracy (RA) tests.

All test results were within the acceptance criteria as stated in the RA portion of 40 CFR 60, Appendix B, Performance Specification 4B, "*Specifications and Test Procedures for Carbon Monoxide and Oxygen Continuous Monitoring Systems in Stationary Sources.*" These criteria are shown below in Table 2-1.

All calculations are done with unrounded values, and therefore, it may not be possible to reproduce a calculated value exactly from the data shown in a table.

Table 2-1. PST Requirements and Acceptance Criteria
Unit 4 CEMS Performance Specification Testing

Parameters	CO Monitor		O_2 Monitor
	Low Range (0-200 ppmv)	High Range (0-3,000 ppmv)	Range (0-25%)
Relative Accuracy (RA)	10% of the average Reference Method (RM) value - or - 5% of the applicable standard (5 ppmv CO corrected to 7% O_2)		1.0% O_2

2.1 Relative Accuracy

Relative accuracy (RA) testing was performed by URS personnel on September 4, 2013. The relative accuracy test results are presented in Tables 2-2 and 2-3. RA testing compares the plant CEMS measurement of CO (corrected to 7% oxygen) and O_2 (on a wet basis) to the Reference Method (RM) measured using EPA Method 10 for CO and EPA Method 3A for O_2. Relative accuracy for the CO CEMS is calculated by adding the confidence coefficient to the absolute average difference between plant averages and the RM averages. Relative accuracy for the O_2 CEMS is equivalent to the absolute average difference between plant averages and the RM averages. The acceptance criterion is the greater of either 10% of the average RM or 5% of the applicable standard (5 ppmv CO corrected to 7% oxygen for the CO CEMS and 1.0% O_2 for the wet O_2 CEMS). All CEMS met the prescribed performance criteria.

Hard copies from the RM monitoring system along with hard copies of the relative accuracy calculation spreadsheet can be found in Appendix A. Hard copies of the Veolia Unit 4 CEMS data are presented in Appendix C.

Table 2-2. CO CEMS Relative Accuracy Test Results
Unit 4 CEMS Performance Specification Testing

Run Number	Date	Run Time	Reference Method (RM) CEMS (ppmv CO, corrected to 7% O_2)	Unit 4 CEMS (ppmv CO, corrected to 7% O_2)	Arithmetic Difference (ppmv CO)
1	9/4/2013	09:05-09:26	0.95	0.07	-0.88
2	9/4/2013	09:54-10:15	1.14	0.10	-1.04
3	9/4/2013	10:29-10:50	0.75	0.08	-0.67
4	9/4/2013	11:00-11:21	0.30	0.11	-0.19
5	9/4/2013	11:31-11:52	0.60	0.13	-0.47
6	9/4/2013	12:03-12:24	1.02	0.10	-0.92
7	9/4/2013	12:36-12:57	0.67	0.09	-0.58
8	9/4/2013	13:09-13:30	0.30	0.23	-0.07
9	9/4/2013	13:43-14:04	0.31	0.07	-0.24
10	9/4/2013	14:17-14:38	0.60	0.34	-0.26
				Absolute Average Difference	0.47
				Standard Deviation	0.31
				Confidence Coefficient (CC)	0.24
				Relative Accuracy (ppmv CO)	0.7

Note: Run 2 is not used in the calculation of Relative Accuracy.

Table 2-3. Wet O_2 CEMS Relative Accuracy Test Results
Unit 4 CEMS Performance Specification Testing

Run Number	Date	Run Time	Reference Method (RM) CEMS (% O_2, wet)	Unit 4 CEMS (% O_2, wet)	Arithmetic Difference (% O_2, wet)
1	9/4/2013	09:05-09:26	8.88	8.58	-0.30
2	9/4/2013	09:54-10:15	9.16	8.94	-0.22
3	9/4/2013	10:29-10:50	8.84	8.70	-0.14
4	9/4/2013	11:00-11:21	9.44	9.15	-0.29
5	9/4/2013	11:31-11:52	9.27	9.03	-0.24
6	9/4/2013	12:03-12:24	9.29	9.04	-0.25
7	9/4/2013	12:36-12:57	9.43	8.89	-0.54
8	9/4/2013	13:09-13:30	9.02	8.70	-0.32
9	9/4/2013	13:43-14:04	9.15	8.96	-0.19
10	9/4/2013	14:17-14:38	8.97	8.75	-0.22
				Absolute Average Difference	0.24
				Standard Deviation	0.06
				Relative Accuracy (% O_2, wet basis)	0.24

Note: Run 7 is not used in the calculation of Relative Accuracy.

3.0 Test Protocol

The carbon monoxide and oxygen monitors located at the Veolia Unit 4 location were audited according to the Relative Accuracy procedures outlined in 40 CFR 60, Appendix B, Performance Specification 4B, "*Specifications and Test Procedures for Carbon Monoxide and Oxygen Continuous Monitoring Systems in Stationary Sources*" and 40 CFR 63 Subpart EEE, "*National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors*."

3.1 Relative Accuracy

URS monitored the emission gas CO and O_2 concentrations from the Unit 4 Exhaust Stack location using mobile continuous emission monitors. A stainless-steel probe was inserted into the stack and used to collect sample gas. A heated Teflon sample line transported sample gas from the probe to the URS monitors located at ground level. The analyzers were kept at a constant temperature inside the mobile laboratory.

For each run, sample gas was collected over 21-minute test periods. Three traverse points across the Unit 4 Exhaust Stack interior diameter were selected according to the procedure outlined in 40 CFR 60, Appendix B, Performance Specification 2, Section 8.1.3.2, and sample gas was extracted at each of three points for seven minutes during the test period. The sampling location met PS 2 criteria by being greater than 2 stack interior diameters downstream from the nearest disturbance and greater than 0.5 stack interior diameters upstream of the stack exhaust orifice. At the mobile laboratory, the stack gas is split between the wet and dry analyzers. The portion of the sample gas that is not sent directly to the wet O_2 analyzer is routed to a condenser and then transported to the dry O_2 and dry CO analyzers for analysis. CO analyses were performed in accordance with EPA Method 10. O_2 analyses were performed in accordance with EPA Method 3A.

URS used a Thermo Model 48C CO analyzer to measure the CO concentration according to EPA Method 10. This analyzer is a gas filter correlation (GFC) analyzer. The analyzer measures CO by comparing infrared absorption of a reference concentration to the absorption of the sample. The Thermo Model 48C CO measurements are not affected by carbon dioxide. For this reason, the CO_2 interference trap was not incorporated into the extraction system. The exclusion of the CO_2 interference trap eliminates the need to correct sample concentration, improving the accuracy of the analyses. URS has demonstrated through in-house testing that CO_2 is not an interferant at typical combustion CO_2 concentration levels by introducing 20% CO_2 calibration standards to a calibrated Thermo 48. The instrument's response to this gas was less than 2 ppmv (1% of scale).

URS measured both dry and wet oxygen concentrations for the duration of the Unit 4 RA test. From these two measurements, URS was able to calculate the moisture percentage and then use the percent moisture to convert the RM wet oxygen concentrations from each run to dry bases. The oxygen corrections of RM CO concentrations were calculated using this dry basis oxygen. Table 3-1 presents the concentration data for the steps of this calculation for all runs.

Dry oxygen was measured using a Servomex Series 1440 O_2 analyzer. This analyzer measures O_2 on the basis of its paramagnetic properties. Wet oxygen was measured using an Ametek RM CEM O_2/IQ analyzer. This analyzer measures O_2 on a wet basis using a zirconium oxide sensor.

The analyzers' electronic output signals were converted to a digital format and stored by a computerized data acquisition system. The system translated this digital signal into the proper units of measurement (ppmv CO, % O_2) and stored them on a hard disk. The system stored the data as ten-second averages.

The analyzers were calibrated prior to initiating testing using appropriately certified standards as specified by EPA Methods 10 and 3A. Both of these methods reference procedures specified in EPA Method 7E for calibration, standardization, calculation, and data analysis. The URS system response was then checked. The total system, which included the probe, sample line, sample pump, and water trap, was incorporated into the system response. A system response time test was performed and documented for each instrument. The system drift was calculated using the pre- and post-test system responses. These checks ensured that the system remained within the tolerance level defined by the above EPA methods. A sampling system calibration bias correction was applied to all RM CO and O_2 data measured during each test run by using equation EPA Method 7E-5:

$$C_{gas} = (C_{avg} - {}_{o})x\frac{C_{ma}}{(C_m - C_o)}$$

Where:

C_{gas} = Effluent gas concentration, dry basis, percent or ppmv;

C_{avg} = Average gas concentration indicated by analyzer, dry basis, percent or ppmv;

C_m = Average of initial and final system calibration bias check responses for the upscale calibration gas, percent or ppmv;

C_{ma} = Actual concentration of the upscale calibration gas, percent or ppmv; and

C_o = Average of initial and final system calibration bias check responses for the zero calibration gas, percent or ppmv.

The data from each 21-minute test period was averaged for each of the RA runs. This averaged data was tabulated as shown in Tables 2-2 and 2-3. The arithmetic differences between the URS reference method (RM) results for the analyte gas concentrations and the Unit 4 CEMS results for the analyte gas concentrations are also tabulated there. Carbon monoxide results for both the RM and the Unit 4 CEMS were corrected to 7% oxygen before calculating arithmetic differences. The absolute average difference, standard deviation (S_d) and confidence coefficient (CC) of the arithmetic differences were calculated using the equations described in 40 CFR 60, Appendix B, PS 2, Section 12. At least nine runs must be used to determine relative accuracy. Ten runs were performed during the September 4, 2013 RA testing. The RA procedures allow, at the tester's discretion, for up to three tests to be rejected from the calculations to determine average difference and standard deviation. After rejecting one unwanted run, the confidence coefficient (CC) was calculated according to the following equation:

$$CC = t_{0.975} x \frac{S_d}{\sqrt{n}}$$

Where:

$t_{0.975}$ = 97.5% Student- t variable (2.306 for nine runs); and

n = Number of tests used (must be ≥ 9).

Relative accuracy for the Unit 4 CO CEMS was calculated in ppmv CO according to 40 CFR 60, Appendix B, PS 4A, Section 13.2, by adding together the absolute value of the average difference between the RM and Unit 4 CEMS and the confidence coefficient applicable to nine test runs. Relative accuracy for the Unit 4 O_2 CEMS was calculated in % O_2 according to 40 CFR 60, Appendix B, PS 3, Section 12.0, and was equivalent to the absolute average difference between the RM and Unit 4 CEMS for nine test runs.

Table 3-1. Oxygen Correction of Reference Method CO Concentration Results
Unit 4 CEMS Performance Specification Testing

Run Number	Date	Run Time	Wet O_2 (%, wet basis)	Dry O_2 (%, dry basis)	Moisture (%)	Wet O_2 (%, dry basis)	CO (ppmv, dry basis)	CO (ppmv, @ 7% O_2)
1	9/4/2013	09:05-09:26	8.88	13.21	32.75	13.21	0.53	0.95
2	9/4/2013	09:54-10:15	9.16	13.70	33.15	13.70	0.59	1.14
3	9/4/2013	10:29-10:50	8.84	13.33	33.65	13.33	0.41	0.75
4	9/4/2013	11:00-11:21	9.44	13.91	32.12	13.91	0.15	0.30
5	9/4/2013	11:31-11:52	9.27	13.83	32.93	13.83	0.30	0.60
6	9/4/2013	12:03-12:24	9.29	13.83	32.83	13.83	0.52	1.02
7	9/4/2013	12:36-12:57	9.43	13.67	31.04	13.67	0.35	0.67
8	9/4/2013	13:09-13:30	9.02	13.41	32.73	13.41	0.16	0.30
9	9/4/2013	13:43-14:04	9.15	13.74	33.44	13.74	0.16	0.31
10	9/4/2013	14:17-14:38	8.97	13.44	33.30	13.44	0.32	0.60

4.0 Quality Assurance

To ensure accurate and defensible results, strict quality assurance and control measures were followed. All testing was performed following standard EPA protocol as outlined in 40 CFR, Part 60, Appendices A and B. All PST testing was performed while the plant was operating under normal conditions with at least 50% load from waste feeds and/or natural gas. Hard copies of incinerator waste feed rate data are included in Appendix D. All test criteria were thoroughly documented and checked for completeness. EPA Protocol gas certification documentation for compressed gas cylinders used during the RA testing is included in Appendix E.

The CO and O_2 analyzers used by URS were operated and calibrated in accordance with the EPA Methods 10 and 3A except that the CO_2 interference trap was not used. The gas filter correlation analyzer used for CO measurement uses the characteristic absorption of infrared light by CO molecules to measure its relative concentration. This is a highly specific method for determining CO and is virtually free of interference from compounds such as water or carbon dioxide. System bias checks were performed before and after each test run to ensure that the measuring systems remained within their performance specifications. All method performance specifications were met. Calibration results are documented in Appendix B.

APPENDIX A

Relative Accuracy Spreadsheet and Reference Method Data

Veolia Sauget Unit 4 RATA
Relative Accuracy Results

		REFERENCE METHOD						STACK ANALYZERS				ARITHMETIC DIFFERENCE			
9/4/2013	TIME	O_2, Wet (%)	O_2, Dry (%)	Moisture (%)	O_2, Dry (%, from Wet)	CO (ppm)	CO (O_2 Corr) (ppm)	O_2, Wet (%)	Use of Run[1]	CO (O_2 Corr) (ppm)	Use of Run[1]	O_2, Wet (%)	Use of Run[1]	CO (O_2 Corr) (ppm)	Use of Run[1]
Run 1	09:05-09:26	8.88	13.21	32.75	13.21	0.53	0.95	8.58		0.07		-0.30		-0.88	
Run 2	09:54-10:15	9.16	13.70	33.15	13.70	0.59	1.14	8.94		0.10	X	-0.22		-1.04	X
Run 3	10:29-10:50	8.84	13.33	33.65	13.33	0.41	0.75	8.70		0.08		-0.14		-0.67	
Run 4	11:00-11:21	9.44	13.91	32.12	13.91	0.15	0.30	9.15		0.11		-0.29		-0.19	
Run 5	11:31-11:52	9.27	13.83	32.93	13.83	0.30	0.60	9.03		0.13		-0.24		-0.47	
Run 6	12:03-12:24	9.29	13.83	32.83	13.83	0.52	1.02	9.04		0.10		-0.25		-0.92	
Run 7	12:36-12:57	9.43	13.67	31.04	13.67	0.35	0.67	8.89	X	0.09		-0.54	X	-0.58	
Run 8	13:09-13:30	9.02	13.41	32.73	13.41	0.16	0.30	8.70		0.23		-0.32		-0.07	
Run 9	13:43-14:04	9.15	13.74	33.44	13.74	0.16	0.31	8.96		0.07		-0.19		-0.24	
Run 10	14:17-14:38	8.97	13.44	33.30	13.44	0.32	0.60	8.75		0.34		-0.22		-0.26	
											Number of Runs Used in Calculation (n)	9		9	
											Average Difference (d_{AVG})	-0.24		-0.47	
											Standard Deviation (S_d)	0.06		0.31	
											t-Value ($t_{0.975}$)	2.306		2.306	
											Confidence Coeffient (CC)	0.04		0.24	
											Permit Limit			100	
											Average of Reference Method (RM_{AVG})	9.11		0.61	
											Relative Accuracy (O_2, CO_2) ($\lvert d_{AVG} \rvert$)	0.24			
											Relative Accuracy (CO, NO_X, SO_2) ($\lvert d_{AVG} \rvert + \lvert CC \rvert$)			0.7	
											Relative Accuracy (% of Permit Limit) (RA)			0.7	

[1] An X in this column denotes a run which is not used in calculation of relative accuracy.

2013 Unit 4 CEMS RATA
Bias Corrected Concentrations
09/04/2013

Veolia Sauget Unit 4 RATA

Uncorrected Concentrations				
4-Sep-13	Time	O_2, Wet (%)	O_2, Dry (%)	CO (ppm)
Run 1	09:05-09:26	9.09	13.21	-0.2
Run 2	09:54-10:15	9.17	13.69	0.0
Run 3	10:29-10:50	9.01	13.32	-0.1
Run 4	11:00-11:21	9.54	13.90	-0.2
Run 5	11:31-11:52	9.40	13.81	0.0
Run 6	12:03-12:24	9.42	13.80	0.0
Run 7	12:36-12:57	9.44	13.65	-0.1
Run 8	13:09-13:30	9.08	13.40	-0.1
Run 9	13:43-14:04	9.29	13.72	-0.3
Run 10	14:17-14:38	9.19	13.43	-0.2

Corrected Wet O_2 Conc.					
4-Sep-13	Time	O_2 (%)	Eq. 7E-5 Factors		Bias Corrected Concentration
			C_O	$C_{MA}/(C_M-C_O)$	
Run 1	09:05-09:26	9.09	1.98	1.25	8.88
Run 2	09:54-10:15	9.17	1.92	1.26	9.16
Run 3	10:29-10:50	9.01	1.94	1.25	8.84
Run 4	11:00-11:21	9.54	1.98	1.25	9.44
Run 5	11:31-11:52	9.40	1.97	1.25	9.27
Run 6	12:03-12:24	9.42	1.97	1.25	9.29
Run 7	12:36-12:57	9.44	1.95	1.26	9.43
Run 8	13:09-13:30	9.08	1.96	1.27	9.02
Run 9	13:43-14:04	9.29	2.00	1.26	9.15
Run 10	14:17-14:38	9.19	2.01	1.25	8.97

Corrected Dry O_2 Conc.					
4-Sep-13	Time	CO_2 (%)	Eq. 7E-5 Factors		Bias Corrected Concentration
			C_O	$C_{MA}/(C_M-C_O)$	
Run 1	09:05-09:26	13.21	0.06	1.00	13.21
Run 2	09:54-10:15	13.69	0.06	1.00	13.70
Run 3	10:29-10:50	13.32	0.06	1.00	13.33
Run 4	11:00-11:21	13.90	0.07	1.01	13.91
Run 5	11:31-11:52	13.81	0.07	1.01	13.83
Run 6	12:03-12:24	13.80	0.06	1.01	13.83
Run 7	12:36-12:57	13.65	0.06	1.01	13.67
Run 8	13:09-13:30	13.40	0.06	1.01	13.41
Run 9	13:43-14:04	13.72	0.06	1.01	13.74
Run 10	14:17-14:38	13.43	0.06	1.01	13.44

Corrected CO Conc.					
4-Sep-13	Time	CO (ppm)	Eq. 7E-5 Factors		Bias Corrected Concentration
			C_O	$C_{MA}/(C_M-C_O)$	
Run 1	09:05-09:26	-0.16	-0.67	1.02	0.5
Run 2	09:54-10:15	0.01	-0.57	1.02	0.6
Run 3	10:29-10:50	-0.10	-0.50	1.01	0.4
Run 4	11:00-11:21	-0.19	-0.34	1.03	0.1
Run 5	11:31-11:52	0.01	-0.29	1.03	0.3
Run 6	12:03-12:24	0.00	-0.50	1.02	0.5
Run 7	12:36-12:57	-0.10	-0.44	1.03	0.3
Run 8	13:09-13:30	-0.09	-0.24	1.03	0.2
Run 9	13:43-14:04	-0.27	-0.43	1.03	0.2
Run 10	14:17-14:38	-0.17	-0.49	1.03	0.3

Project Name 2013 CPT RATAs	Page 1 of 4
Project Number 409425~~1025~~ (MDD 9/6/13)	Operator MDD
Facility Veolia Sauget	Condition(s) RATA
Source Unit 4 Stack	Run(s) Runs 1-10
	Date 9/4/13

Calibration Gases

Component(s)[1]	Supplier[2]	Concentration(s)	Cylinder ID
N_2	AG	pure	Lot # 32-4001195157-1A ~~ECP445~~ (MDD 9/4/13)
O_2|CO_2	S	2.07% O_2 | 2.09% CO_2	CC121944
|	AL	22.5% | 19.2%	CC189665
|	AL	11.1% | 9.74%	AAL18906
CO	AG	89.80 ppm	CC14436
|	AL	46.3 ppm	CC215749

[1] Indicate multi-component standards appropriately
[2] Code: AG-Airgas; AL-Air Liquide; S-Scott; P-Praxair

Instrument Identification

Analyte	Manufacturer[3]	Model Number	Serial Number	Instrument Name
O_2 Dry	S	1440	01440D1/~~01~~4393	Waits (MDD 9/4/13)
O_2 Wet	Ametek	EM CEMO2 | IQ	10215783-2	Asset #207720
CO	T	48C	48C-76896-384	Iggy
—	monarch Ø	2000	5724415	Kant

(MDD 9/4/13)

[3] Code: T-Thermo; W-Western; C-California; S-Servomex; O-Omega

Method Performance Checks

Activity	Method	Criterion	Initials
Span Selection	3A, 6C, 7E, 10	Emissions between 20% and 100% of calibration span	MDD
	25A	Span 1.5-2.5 times the emission limit; if no emission limit, span 1.5-2.5 times expected level	—
Calibration Gas Selection	3A, 6C, 7E, 10	Protocol gas; calibration span, 40-60% of calibration span, and <20% of calibration span (or zero gas)	MDD
	25A	Protocol gas: 25-35%, 45-55% and 80-90% of span, zero grade air	—
Calibration Error	3A, 6C, 7E, 10	Span gas within ±2.0% of calibration span	MDD
		Mid-range gas within ±2.0% of calibration span	MDD
		Zero gas within ±2.0% of calibration span	MDD
	25A	Low-range gas within 5% of certified value	—
		Mid-range gas within 5% of certified value	—
		Span gas within 5% of certified value	—
Converter Check	7E	≥90% converter efficiency	—
System Bias Check	3A, 6C, 7E, 10	Gas through system agrees with calibration error value for that gas within ±5.0% of calibration span	MDD
Response Time	3A, 6C, 7E, 10, 25A	No criteria, evaluated to determine duration at sample points	MDD
Sample Flow Rate	3A, 6C, 7E, 10	Stable sample flow rate within 10% of flow rate established during system response time check and bias check	MDD
3 Point Stratification Check[2,3]	3A, 6C, 7E, 10	± 5% of mean at each point – single point ± 5-10% of mean at each point – 3 points > ± 10% of mean at each point 12 points	MDD
Post-Test Calibration Drift Check	3A, 6C, 7E, 10	Selected gas reading within ±3.0% of calibration span of pre-test reading	MDD
		Zero gas within ±3.0% of calibration span of pre-test reading	MDD
	25A	Selected gas reading within ±3% of span of pre-test reading	—
		Zero gas within ±3% of span of previous reading	—

[2] The stratification check criteria do not apply to RATA.
[3] The stratification check is not required for stacks or ducts <4 Inches in diameter

Hourly Drift Check (M25A only)

	Okay (initials)					
	Hour 1	Hour 2	Hour 3	~~Hour 4~~	Hour 5	Hour 6
Selected gas reading within ±3% of span of initial reading		N/A				
Zero gas within ±3% of span of initial reading						

FDS-01B CEMS Operation
Per EM SOP-016, SOP-027, SOP-028, SOP-029, SOP-037
Revision Date: April 2013

R5-2014-0104710000299

CEMS Operation Log

Project Name 2013 CPT RATAs	Page 2 of 4
Project Number 4094251825 (WDD 9/4/13)	Operator WDD
Facility Veolia Sauget	Condition(s) RATA
Source Unit 4 Stack	Run(s) Runs 1-3
	Date 9/4/13

Time	Activity	Analyzer Response						Sample Flow Rate
		O_2 wet	O_2 dry	CO_2 dry	CO dry			
	Turn on Analyzers [1]	--	--	--	--	--	--	
0738	Cal Error N_2 zero	—	0.06	0.03	-0.45			4 Lpm
0743	22.5% O_2/19.2% CO_2 Span	—	22.65	19.31	—			↓
0746	11.1% O_2/9.74% CO_2 Mid	—	11.22	9.91	—			↓
0751	89.80 ppm CO Span	—	—	—	89.87			↓
0754	46.3 ppm CO Mid	—	—	—	44.63			↓
0759	Cal Bias N_2 zero	—	0.07	0.03	-0.22			4 Lpm
0801	46.3 ppm CO Mid	—	—	—	44.72			↓
0803	11.1% O_2/9.74% CO_2 Mid	—	11.10	9.67	—			↓
(WDD 9/4/13)	~~Cal Error 2.07% O_2 "zero"~~							
0807	2.07% O_2/2.09% CO_2 "zero"	2.00	2.11	2.21	—			↓
0811	22.5% O_2/19.2% CO_2 Span	22.52	22.29	18.97	—			↓
0813	11.1% O_2/9.74% CO_2 Mid	10.98	11.15	9.82	—			↓
0815	2.07% O_2/2.09% CO_2 "zero"	2.01	2.15	2.26	—			↓
0817	~~22.5%~~ 11.1% O_2/9.74% CO_2 Mid	10.98	11.08	9.72	—			↓
~0821	Start RT							4 Lpm
0835	End RT							↓
0905	Start RATA Run 1							4 Lpm
0926	End RATA Run 1							↓
0928	Cal Bias N_2 zero	0.00	0.10	0.08	-0.72			4 Lpm
0931	46.3 ppm CO Mid	—	—	—	44.82			↓
0932	2.07% O_2/2.09% CO_2 Low	1.95	2.09	2.17	—			↓
0934	11.1% O_2/9.74% CO_2 Mid	10.74	11.10	9.72	—			↓
0954	Start RATA Run 2							4 Lpm
1015	End RATA Run 2							↓
1018	Cal Bias 2.07% O_2 Low	1.85	2.14	2.22	—			4 Lpm
1020	N_2 zero	0.00	0.08	0.07	-0.72			↓
1022	11.1% O_2/9.74% CO_2 Mid	10.68	11.10	9.72	—			↓
1025	46.3 ppm CO Mid	—	—	—	45.12			↓
1029	Start RATA Run 3							4 Lpm
1050	End RATA Run 3							↓

Comments

[1] "Turn On Analyzers" is to document sufficient warm-up time. If applicable, "yesterday" is an acceptable entry.

CEMS Operation Log

Project Name 2013 CPT RATAs	Page 3 of 4
MDD 9/4/13 Project Number 4094251025	Operator MDD
Facility Veolia Sauget	Condition(s) RATA
Source Unit 4 Stack	Run(s) Runs 4 -
	Date 9/4/13

Time	Activity	Analyzer Response						Sample Flow Rate
		O_2 wet	O_2 dry	CO_2 dry	CO dry			
	Turn on Analyzers [1]	--	--	--	--	--	--	
1052	Cal Bias N_2 zero	0.00	0.09	0.08	-0.92			4 Lpm
1054	46.3 ppm CO Mid	—	—	—	44.92			↓
1056	2.07% O_2/2.09% CO_2 Low	2.00	2.12	2.23	—			↓
1058	11.1% O_2/9.74% CO_2 Mid	10.96	11.08	9.69	—			↓
1100	Start RATA Run 4							4 Lpm
1121	End RATA Run 4							↓
1123	Cal Bias N_2 zero	0.00	0.09	0.08	-0.32			4 Lpm
1126	46.3 ppm CO Mid	—	—	—	44.12			↓
1127	2.07% O_2/2.09% CO_2 Low	1.95	2.11	2.19	—			↓
1129	11.1% O_2/9.74% CO_2 Mid	10.75	11.09	9.71	—			↓
1131	Start RATA Run 5							4 Lpm
1152	End RATA Run 5							↓
1155	Cal Bias N_2 zero	0.01	0.12	0.12	-0.52			4 Lpm
1157	46.3 ppm CO Mid	—	—	—	45.02			↓
1159	2.07% O_2/2.09% CO_2 Low	1.99	2.13	2.22	—			↓
1201	11.1% O_2/9.74% CO_2 Mid	10.96	11.07	9.68	—			↓
1203	Start RATA Run 6							4 Lpm
MDD 9/4/13 1224	~~Start~~ End RATA Run 6							↓
1226	Cal Bias N_2 zero	0.00	0.08	0.08	-0.82			4 Lpm
1229	46.3 ppm CO Mid	—	—	—	44.62			↓
1231	2.07% O_2/2.09% CO_2 Low	1.95	2.10	2.20	—			↓
1234	11.1% O_2/9.74% CO_2 Mid	10.77	11.05	9.65	—			↓
1236	Start RATA Run 7							4 Lpm
1257	End RATA Run 7							↓
1259	Cal Bias N_2 zero	0.00	0.08	0.08	-0.32			4 Lpm
1302	46.3 ppm CO Mid	—	—	—	44.59			↓
1304	2.07% O_2/2.09% CO_2 Low	1.94	2.09	2.18	—			↓
1306	11.1% O_2/9.74% CO_2 Mid	10.73	11.10	9.74	—			↓
1309	Start RATA Run 8							4 Lpm
1330	End RATA Run 8							↓

Comments

[1] "Turn On Analyzers" is to document sufficient warm-up time. If applicable, "yesterday" is an acceptable entry.

CEMS Operation Log

Project Name 2013 CPT RATAs	Page 4 of 4
Project Number 409425~~10~~25 (MDD 9/4/13)	Operator MDD
Facility Veolia Sauget	Condition(s) RATA
Source Unit 4 Stack	Run(s) Runs 9 & 10
	Date 9/4/13

Time	Activity	Analyzer Response						Sample Flow Rate
		O_2 wet	O_2 dry	CO_2 dry	CO dry			
	Turn on Analyzers [1]	–	–	–	–	–	–	
1333	Cal Bias N_2 zero	0.00	0.06	0.08	-0.12			4 Lpm
1335	46.3 ppm CO Mid	—	—	—	44.72			↓
1337	2.07% O_2 / 2.09% CO_2 Low	—	—	—	—			↓
(MDD 9/4/13)	~~11.1% O_2 / 9.74% CO_2 Mid~~	1.97	2.10	2.19	—			↓
1340	11.1% O_2 / 9.74% CO_2 Mid	10.72	11.09	9.72	—			↓
1343	Start RATA Run 9							4 Lpm
1404	End RATA Run 9							↓
1406	Cal Bias N_2 zero	0.01	0.14	0.13	-0.32			4 Lpm
1410	46.3 ppm CO Mid	—	—	—	44.76			↓
1412	2.07% O_2 / 2.09% CO_2 Low	2.03	2.10	2.20	—			4 Lpm
1414	11.1% O_2 / 9.74% CO_2 Mid	11.00	11.08	9.70	—			↓
1417	Start RATA Run 10							4 Lpm
1438	End RATA Run 10							↓
1440	Cal Bias N_2 zero	0.00	0.07	0.08	-0.52			4 Lpm
1444	46.3 ppm CO Mid	—	—	—	44.12			↓
1447	2.07% O_2 / 2.09% CO_2 Low	1.99	2.10	2.19	—			↓
1450	11.1% O_2 / 9.74% CO_2 Mid	10.82	11.09	9.74	—			↓

not used MDD 9/4/13

Comments

[1] "Turn On Analyzers" is to document sufficient warm-up time. If applicable, "yesterday" is an acceptable entry.

Response Time Determination – EPA Method 7E

Applicable to Performance of EPA Methods 3A, 6C, 7E and 10

Project Name: 2013 CPT RATAs
Project Number: 4094251025 (uspd 9/4/13)
Location: Veolia Sauget

Source: Unit 4 Stack
Date: 9/4/13
Time 08:21 – 08:34:30

Parameter	Wet O_2		Dry O_2		Dry CO	
Analyzer Make and Model	Ametek RM CEMS O_2/IQ		Servomex 1440		Thermo 48C	
Analyzer Name	Asset # 207720		Waits		Iggy	
Analyzer Range	0-25%		0-25%		0-100 ppm	
From	Zero	Upscale	Zero	Upscale	Zero	Upscale
To	Upscale	Zero	Upscale	Zero	Upscale	Zero
Start Time (hh:mm) (uspd 9/4/13)	08:~~20~~ 21	08:22:30	08:26:30	08:28	08:30	08:32:30
15 sec	2.00	22.44	0.07	22.42	-0.20	90.37
30 sec	22.20	2.08	0.06	22.41	-0.42	87.97
45 sec	22.51	2.03	0.29	15.83	-0.01	87.57
60 sec	22.56	2.02	20.01	0.50	26.20	60.34
75 sec	22.60		22.35	0.13	61.84	24.45
90 sec	22.53		22.42	0.11	85.77	2.28
105 sec					87.47	0.08
120 sec					88.57	-0.32
135 sec					88.87	
150 sec					88.97	
165 sec						
180 sec						
195 sec						
Response Time [1]	30 sec	30 sec	75 sec	60 sec	90 sec	90 sec
Analyzer Response Time [2]	30 sec		75 sec		90 sec	

[1] Time in seconds to reach 95% of final stable value.
[2] Greater of upscale and downscale response time

	Cylinder Number	Actual Value
Upscale	CC189665	22.5% O_2
Upscale	CC144436	89.80 ppm CO
Upscale	—	—
Zero	52-400193157-1A	0
Zero	CC121944	2.07% O_2

FDS-10 EPA 7E CEM Response Time
Per EM SOP-037
Revision Date: October 2009
Reviewed: August 2012

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)	
09/04/2013 07:31:03	20.4503	20.9266	-0.518	76.202	
09/04/2013 07:31:13	20.4578	20.9231	-0.617	75.502	
09/04/2013 07:31:23	20.4145	20.9181	-0.716	74.401	
09/04/2013 07:31:33	20.4407	20.9256	-0.72	73.502	
09/04/2013 07:31:43	20.476	20.9266	-1.22	72.602	
09/04/2013 07:31:53	20.4699	20.9402	-0.216	72.302	
09/04/2013 07:32:03	20.4105	21.0288	0.081	71.402	
09/04/2013 07:32:13	20.3324	20.8571	-0.117	71.003	
Calibration Error					
09/04/2013 07:32:23	20.3506	0.7891	-0.216	71.003	
09/04/2013 07:32:33	20.3506	0.0714	-0.018	71.602	*
09/04/2013 07:32:43	20.3264	0.0601	-0.72	71.602	
09/04/2013 07:32:53	20.2987	0.0505	-1.022	71.602	
09/04/2013 07:33:03	20.3098	0.0476	-1.121	71.702	
09/04/2013 07:33:13	20.3158	0.0363	-0.72	71.902	
09/04/2013 07:33:23	20.3058	0.0357	-0.617	72.501	
09/04/2013 07:33:33	20.3058	0.0993	-0.819	72.501	
09/04/2013 07:33:43	20.2937	0.0404	-0.32	72.802	
09/04/2013 07:33:53	20.2937	0.0422	-0.216	73.502	
09/04/2013 07:34:03	20.2831	0.0333	-0.018	73.901	
09/04/2013 07:34:13	20.2952	0.0154	-0.72	73.701	
09/04/2013 07:34:23	20.2987	0.0345	-1.018	73.502	
09/04/2013 07:34:33	20.2977	0.0279	-0.919	73.502	
09/04/2013 07:34:43	20.2962	0.0261	-0.919	73.701	
09/04/2013 07:34:53	20.2977	0.0297	-0.72	74.302	
09/04/2013 07:35:03	20.3083	0.0279	-0.419	75.301	
09/04/2013 07:35:13	20.3168	0.0404	-0.819	76.202	
09/04/2013 07:35:23	20.2997	0.0309	-0.518	76.202	
09/04/2013 07:35:33	20.3083	0.0297	-0.518	76.102	
09/04/2013 07:35:43	20.2962	0.0267	-0.819	76.202	
09/04/2013 07:35:53	20.3047	0.0249	-0.919	76.402	
09/04/2013 07:36:03	20.3133	0.0238	-0.518	76.402	
09/04/2013 07:36:13	20.2781	0.0232	-0.518	76.802	
09/04/2013 07:36:23	20.3118	0.0202	-0.72	76.802	
09/04/2013 07:36:33	20.2468	0.0208	-0.518	75.502	
09/04/2013 07:36:43	20.2856	0.0232	-0.522	74.302	
09/04/2013 07:36:53	20.3375	0.0125	-1.522	73.502	
09/04/2013 07:37:03	20.3254	0.0154	-0.819	73.002	
09/04/2013 07:37:13	20.3229	0.0202	-0.72	72.802	
09/04/2013 07:37:23	20.3229	0.0172	-1.121	72.302	
09/04/2013 07:37:33	20.3168	0.0202	-0.919	71.902	
09/04/2013 07:37:43	20.3506	0.0238	-0.819	71.602	
09/04/2013 07:37:53	20.3214	0.0422	-1.22	70.702	
09/04/2013 07:38:03	20.2927	0.0476	-0.32	71.602	
09/04/2013 07:38:13	20.336	0.0523	-0.621	71.702	
09/04/2013 07:38:23	20.2856	0.069	-0.522	71.702	
N2 Zero		**0.0563**	**-0.487667**		
09/04/2013 07:38:33	20.2997	0.0791	-0.72	72.102	
09/04/2013 07:38:43	20.3012	0.1106	-0.819	72.102	
09/04/2013 07:38:53	20.2484	0.1749	-0.518	72.302	
09/04/2013 07:39:03	20.3012	0.2499	-0.419	72.802	
09/04/2013 07:39:13	20.2866	0.3427	-0.419	73.502	
09/04/2013 07:39:23	20.2821	0.429	-0.518	73.901	
09/04/2013 07:39:33	20.2952	0.5189	-0.518	73.901	
09/04/2013 07:39:43	20.3314	0.5885	-0.72	74.601	
09/04/2013 07:39:53	20.3012	0.6486	-0.32	74.601	
09/04/2013 07:40:03	20.2952	1.6097	-0.32	74.601	
09/04/2013 07:40:13	20.2977	22.0264	-0.518	75.002	
09/04/2013 07:40:23	20.3143	22.5782	-0.819	76.102	
09/04/2013 07:40:33	20.3254	22.6014	-0.72	77.001	
09/04/2013 07:40:43	20.3194	22.61	-0.716	77.001	
09/04/2013 07:40:53	20.3098	22.6205	-0.815	76.802	
09/04/2013 07:41:03	20.2841	22.6205	-0.919	76.202	
09/04/2013 07:41:13	20.2806	22.6241	-1.018	76.602	
09/04/2013 07:41:23	20.3058	22.6301	-1.018	76.802	
09/04/2013 07:41:33	20.3083	22.6346	-0.919	77.102	
09/04/2013 07:41:43	20.3204	22.6346	-0.919	78.002	
09/04/2013 07:41:53	20.3254	22.6336	-0.919	78.601	
09/04/2013 07:42:03	20.2977	22.6407	-0.919	78.802	
09/04/2013 07:42:13	20.2962	22.6472	-0.815	79.303	
09/04/2013 07:42:23	20.2987	22.6492	-0.919	79.101	
09/04/2013 07:42:33	20.3098	22.6538	-1.018	77.302	
09/04/2013 07:42:43	20.3445	22.6462	-1.018	75.301	
09/04/2013 07:42:53	20.3022	22.6366	-0.919	74.401	
09/04/2013 07:43:03	20.2856	22.6507	-0.915	73.502	
09/04/2013 07:43:13	20.3158	22.6558	-1.117	73.201	
09/04/2013 07:43:23	20.335	22.6558	-1.018	73.002	
09/04/2013 07:43:33	20.3506	22.6376	-1.018	73.002	
22.5% O2 Span		**22.64973**			
09/04/2013 07:43:43	20.3239	16.4214	-1.22	72.501	
09/04/2013 07:43:53	20.3385	10.9863	-1.319	71.602	
09/04/2013 07:44:03	20.3335	11.2267	-0.919	71.602	
09/04/2013 07:44:13	20.336	11.2291	-0.716	71.003	
09/04/2013 07:44:23	20.3047	11.2285	-0.819	71.202	
09/04/2013 07:44:33	20.3274	11.2208	-0.815	71.402	
09/04/2013 07:44:43	20.3214	11.222	-0.716	71.602	
09/04/2013 07:44:53	20.3239	11.2273	-0.716	71.602	
09/04/2013 07:45:03	20.3037	11.222	-0.716	72.501	
09/04/2013 07:45:13	20.3168	11.2178	-0.617	73.002	

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 07:45:23	20.3022	11.2285	-0.716	73.401
09/04/2013 07:45:33	20.3058	11.2172	-0.617	73.701
09/04/2013 07:45:43	20.3073	11.222	-0.518	74.101
09/04/2013 07:45:53	20.2927	11.2148	-0.617	74.401
09/04/2013 07:46:03	20.2891	11.2226	-0.716	74.101
09/04/2013 07:46:13	20.3229	11.2196	-0.617	74.601
09/04/2013 07:46:23	20.3073	11.222	-0.617	74.601
11.1% O2 Mid		**11.2214**		
09/04/2013 07:46:33	20.3098	7.0883	-0.518	74.801
09/04/2013 07:46:43	20.3012	6.4456	6.481	75.702
09/04/2013 07:46:53	20.2821	6.1582	19.097	76.802
09/04/2013 07:47:03	20.2927	6.0183	30.011	77.001
09/04/2013 07:47:13	20.3264	5.9677	36.216	77.001
09/04/2013 07:47:23	20.3239	5.9029	39.321	76.802
09/04/2013 07:47:33	20.2841	5.7636	39.218	76.802
09/04/2013 07:47:43	20.3194	0.1297	41.62	77.102
09/04/2013 07:47:53	20.3143	0.0422	55.937	77.102
09/04/2013 07:48:03	20.3037	0.0327	72.453	75.702
09/04/2013 07:48:13	20.3229	0.0261	82.666	73.901
09/04/2013 07:48:23	20.3385	0.0232	87.274	73.502
09/04/2013 07:48:33	20.3516	0.016	89.373	72.802
09/04/2013 07:48:43	20.3108	0.0125	88.97	72.802
09/04/2013 07:48:53	20.3168	0.0113	88.871	71.902
09/04/2013 07:49:03	20.3239	0.0089	88.569	71.702
09/04/2013 07:49:13	20.3204	0.022	87.97	71.602
09/04/2013 07:49:23	20.3299	0.0499	84.966	71.602
09/04/2013 07:49:33	20.3566	0.0238	87.07	71.202
09/04/2013 07:49:43	20.2796	0.0279	87.769	71.402
09/04/2013 07:49:53	20.3168	0.0202	89.771	71.402
09/04/2013 07:50:03	20.2901	0.0202	88.668	71.202
09/04/2013 07:50:13	20.3098	0.0184	87.97	71.402
09/04/2013 07:50:23	20.3158	0.019	90.072	71.902
09/04/2013 07:50:33	20.3158	0.0208	88.17	72.602
09/04/2013 07:50:43	20.3108	0.016	88.871	73.002
89.80 ppm CO Span			**89.03767**	
09/04/2013 07:50:53	20.3264	0.0113	87.169	73.201
09/04/2013 07:51:03	20.3143	0.0136	88.569	73.701
09/04/2013 07:51:13	20.3168	0.0142	86.468	74.401
09/04/2013 07:51:23	20.3168	0.0172	89.87	74.401
09/04/2013 07:51:33	20.3098	0.0047	87.269	74.801
09/04/2013 07:51:43	20.3229	0.0107	86.471	75.502
09/04/2013 07:51:53	20.3531	0.0249	82.265	75.502
09/04/2013 07:52:03	20.2917	0.2683	84.57	75.502
09/04/2013 07:52:13	20.2962	0.019	75.058	75.902
09/04/2013 07:52:23	20.3214	0.0327	59.54	76.802
09/04/2013 07:52:33	20.2901	0.0125	49.93	77.102
09/04/2013 07:52:43	20.3022	0.0095	44.423	77.102
09/04/2013 07:52:53	20.2841	0.0113	45.724	77.001
09/04/2013 07:53:03	20.3012	0.0113	44.018	77.302
09/04/2013 07:53:13	20.3047	0.0047	45.823	76.802
09/04/2013 07:53:23	20.3264	0.0065	44.022	75.002
09/04/2013 07:53:33	20.2977	0.0059	45.522	74.101
09/04/2013 07:53:43	20.3314	0.0107	44.423	73.901
09/04/2013 07:53:53	20.3214	0.0077	44.522	73.401
09/04/2013 07:54:03	20.3335	0.0065	44.824	72.802
09/04/2013 07:54:13	20.3385	0.0089	44.82	71.602
46.3 ppm CO Mid			**44.722**	
09/04/2013 07:54:23	20.3289	0.0047	44.32	70.801
09/04/2013 07:54:33	20.3108	0.0065	44.121	70.702
09/04/2013 07:54:43	20.3178	0.0047	43.919	71.003
09/04/2013 07:54:53	20.3229	0.0041	44.32	71.003
09/04/2013 07:55:03	20.3229	0.0077	44.621	71.402
09/04/2013 07:55:13	20.2917	0.0059	44.522	71.602
09/04/2013 07:55:23	20.3929	17.3016	44.824	72.501
09/04/2013 07:55:33	20.3999	20.8063	37.117	73.002
09/04/2013 07:55:43	20.3627	20.8647	21.095	72.602
09/04/2013 07:55:53	20.3455	20.8657	8.081	72.102
09/04/2013 07:56:03	20.3818	20.8788	2.079	72.501
09/04/2013 07:56:13	0.7409	17.6304	0.379	73.401
09/04/2013 07:56:23	0.2148	9.5604	0.077	73.701
Calibration Bias				
09/04/2013 07:56:33	20.272	9.6193	0.478	73.401
09/04/2013 07:56:43	20.4543	9.3027	-0.32	73.401
09/04/2013 07:56:53	20.4034	5.841	0.577	73.901
09/04/2013 07:57:03	20.4286	9.2063	1.88	74.401
09/04/2013 07:57:13	0.3195	16.9517	2.583	74.601
09/04/2013 07:57:23	0.0571	20.5797	2.38	75.002
09/04/2013 07:57:33	0.0339	13.6917	1.381	75.202
09/04/2013 07:57:43	0.0244	1.8424	0.478	75.902
09/04/2013 07:57:53	0.0172	0.2356	0.379	76.202
09/04/2013 07:58:03	0.0113	0.1315	-0.121	76.202
09/04/2013 07:58:13	0.0065	0.1041	-0.22	75.902
09/04/2013 07:58:23	0.0041	0.0904	0.077	75.902
09/04/2013 07:58:33	0.0017	0.0785	-0.22	75.902
09/04/2013 07:58:43	0.0017	0.0737	-0.22	75.301
09/04/2013 07:58:53	0.00055	0.0613	-0.32	75.002
09/04/2013 07:59:03	-0.0018	0.0708	-0.621	74.302
09/04/2013 07:59:13	-0.003	0.0505	-0.72	73.401
09/04/2013 07:59:23	-0.0054	0.0505	-0.72	71.902

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 07:59:33	0.0113	0.0476	-0.72	71.702
N2 Zero		**0.049533**	**-0.72**	
09/04/2013 07:59:43	-0.0066	0.0452	-0.522	71.402
09/04/2013 07:59:53	-0.0078	0.044	-0.22	71.003
09/04/2013 08:00:03	-0.009	0.0452	0.379	71.003
09/04/2013 08:00:13	-0.0102	0.0428	8.784	71.003
09/04/2013 08:00:23	-0.009	0.0357	24.001	71.202
09/04/2013 08:00:33	-0.0042	0.0363	36.915	71.402
09/04/2013 08:00:43	-0.0102	0.0363	42.12	71.702
09/04/2013 08:00:53	-0.0114	0.0363	44.324	72.302
09/04/2013 08:01:03	-0.0114	0.0357	45.022	72.302
09/04/2013 08:01:13	-0.0125	0.0374	44.919	72.501
09/04/2013 08:01:23	-0.0114	0.0357	43.621	72.501
09/04/2013 08:01:33	-0.0102	0.0315	44.72	72.802
09/04/2013 08:01:43	-0.0114	0.0392	44.824	73.201
09/04/2013 08:01:53	-0.0125	0.0309	45.022	73.502
09/04/2013 08:02:03	-0.0125	0.0345	44.221	74.401
09/04/2013 08:02:13	0.0148	-0.000046	44.221	75.202
46.3 ppm CO Mid			**44.488**	
09/04/2013 08:02:23	20.3073	0.0297	43.82	75.502
09/04/2013 08:02:33	20.619	0.0374	44.022	75.202
09/04/2013 08:02:43	11.4779	9.6592	44.522	75.702
09/04/2013 08:02:53	10.9345	19.7242	39.821	76.102
09/04/2013 08:03:03	10.9482	17.0287	26.002	76.102
09/04/2013 08:03:13	10.9661	11.6969	13.89	76.102
09/04/2013 08:03:23	10.9708	11.1148	8.284	76.402
09/04/2013 08:03:33	10.9768	11.1053	4.981	76.802
09/04/2013 08:03:43	10.9952	11.0958	2.182	77.001
09/04/2013 08:03:53	10.9827	11.1006	0.28	77.901
09/04/2013 08:04:03	10.9482	11.1017	-0.216	78.201
09/04/2013 08:04:13	10.9839	11.0988	-0.32	77.901
09/04/2013 08:04:23	10.9792	11.1006	-0.419	76.602
09/04/2013 08:04:33	10.9851	11.1023	-0.419	75.301
09/04/2013 08:04:43	10.9744	11.1065	-0.419	74.801
09/04/2013 08:04:53	10.978	11.1089	-0.522	74.302
09/04/2013 08:05:03	10.9768	11.1065	-0.522	73.201
09/04/2013 08:05:13	10.759	11.1053	-0.518	72.802
11.1% O2 Mid		**11.1069**		
09/04/2013 08:05:23	2.1328	11.1035	-0.518	72.602
09/04/2013 08:05:33	2.0257	11.1023	-0.522	71.902
09/04/2013 08:05:43	2.0138	6.9497	-0.819	71.402
09/04/2013 08:05:53	2.0079	2.7	-0.32	70.502
09/04/2013 08:06:03	2.0055	2.1888	-0.419	70.801
09/04/2013 08:06:13	2.0007	2.1519	-0.419	71.202
09/04/2013 08:06:23	1.9966	2.1441	-0.121	70.502
09/04/2013 08:06:33	2.0019	2.1287	0.077	71.003
2.07% O2 Low	**1.999733**			
09/04/2013 08:06:43	1.9966	2.1287	0.077	71.602
09/04/2013 08:06:53	1.9954	2.1233	0.077	71.902
09/04/2013 08:07:03	1.9977	2.1138	-0.121	72.602
09/04/2013 08:07:13	1.9977	2.1114	0.18	73.502
09/04/2013 08:07:23	1.9989	2.1108	-0.018	74.302
09/04/2013 08:07:33	1.993	2.1043	-0.22	74.401
09/04/2013 08:07:43	1.993	2.1049	0.077	74.302
09/04/2013 08:07:53	2.2519	2.1114	-0.018	73.901
09/04/2013 08:08:03	10.5542	2.109	0.18	74.302
09/04/2013 08:08:13	21.8592	2.1108	-0.22	75.002
09/04/2013 08:08:23	22.112	11.7701	-0.22	76.102
09/04/2013 08:08:33	22.1804	13.4019	0.077	76.202
09/04/2013 08:08:43	22.189	21.2937	0.28	76.102
09/04/2013 08:08:53	22.1819	22.0586	0.081	76.602
09/04/2013 08:09:03	22.2383	22.115	-0.216	77.901
09/04/2013 08:09:13	22.2298	22.1311	-0.419	78.201
09/04/2013 08:09:23	22.2288	22.1522	-0.617	78.601
09/04/2013 08:09:33	22.1986	22.1653	-0.72	78.401
09/04/2013 08:09:43	22.2132	22.1789	-1.121	78.401
09/04/2013 08:09:53	22.2288	22.1875	-1.018	76.802
09/04/2013 08:10:03	22.2081	22.193	-1.22	75.002
09/04/2013 08:10:13	22.2973	22.196	-0.919	74.302
09/04/2013 08:10:23	22.543	22.1981	-0.919	73.901
09/04/2013 08:10:33	22.5505	22.2056	-0.819	73.401
09/04/2013 08:10:43	22.5505	22.3698	-0.819	73.201
09/04/2013 08:10:53	22.5697	22.4544	-1.018	72.501
09/04/2013 08:11:03	22.5515	22.4564	-0.919	71.902
09/04/2013 08:11:13	22.5863	22.4619	-0.919	71.402
09/04/2013 08:11:23	22.5974	22.4584	-1.22	71.402
09/04/2013 08:11:33	22.543	22.4574	-1.319	71.602
09/04/2013 08:11:43	22.5395	22.4604	-1.121	71.902
09/04/2013 08:11:53	22.5455	22.4639	-1.319	72.302
22.5% O2 Span	**22.54267**			
09/04/2013 08:12:03	20.9392	22.4619	-1.319	72.802
09/04/2013 08:12:13	11.0768	22.4619	-1.319	72.602
09/04/2013 08:12:23	10.9988	22.2303	-1.22	72.501
09/04/2013 08:12:33	10.9839	16.9048	-0.919	73.002
09/04/2013 08:12:43	10.9851	11.6213	-0.819	73.401
09/04/2013 08:12:53	10.978	11.2148	-0.819	73.401
09/04/2013 08:13:03	10.9768	11.1749	-0.617	73.901
09/04/2013 08:13:13	10.9803	11.1607	-0.518	74.101
09/04/2013 08:13:23	10.9744	11.1541	-0.522	74.101

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 08:13:33	10.9803	11.1357	-0.522	74.401
09/04/2013 08:13:43	10.9792	11.1464	-0.621	75.002
09/04/2013 08:13:53	10.9827	11.1416	-0.621	75.202
09/04/2013 08:14:03	10.9649	11.1434	-0.522	76.102
11.1% O2 Mid	**10.9756**			
09/04/2013 08:14:13	10.2341	11.1386	-0.617	76.202
09/04/2013 08:14:23	2.0894	11.1386	-0.419	76.802
09/04/2013 08:14:33	2.0352	11.1256	-0.32	77.001
09/04/2013 08:14:43	2.0221	6.3379	-0.621	76.602
09/04/2013 08:14:53	2.015	2.5363	-0.522	76.602
09/04/2013 08:15:03	2.0126	2.206	-0.419	77.001
09/04/2013 08:15:13	2.0138	2.1739	-0.32	75.902
09/04/2013 08:15:23	2.009	2.1614	-0.22	75.002
09/04/2013 08:15:33	2.0079	2.1489	-0.518	74.601
09/04/2013 08:15:43	2.0019	2.1441	-0.419	73.701
09/04/2013 08:15:53	2.0031	2.1376	-0.216	72.802
09/04/2013 08:16:03	2.0007	2.1328	-0.32	72.102
09/04/2013 08:16:13	2.0043	2.1305	-0.32	71.602
2.07% O2 Low	**2.0027**			
09/04/2013 08:16:23	4.4157	2.1233	-0.22	71.402
09/04/2013 08:16:33	10.9333	2.1281	-0.22	71.602
09/04/2013 08:16:43	10.953	2.1382	-0.117	71.202
09/04/2013 08:16:53	10.9887	8.2506	-0.018	71.202
09/04/2013 08:17:03	10.9851	10.925	-0.32	71.602
09/04/2013 08:17:13	10.947	11.0684	-0.32	71.702
09/04/2013 08:17:23	10.9506	11.0875	-0.72	72.102
09/04/2013 08:17:33	10.9815	11.0946	-0.518	72.102
09/04/2013 08:17:43	10.9708	11.1065	-0.617	72.602
09/04/2013 08:17:53	10.9827	11.1166	-0.518	72.802
09/04/2013 08:18:03	10.9768	11.1006	-0.419	72.802
09/04/2013 08:18:13	10.9613	11.1119	-0.522	73.502
11.1% O2 Mid	**10.9736**			
09/04/2013 08:18:23	2.1459	11.1089	-0.72	73.901
09/04/2013 08:18:33	2.0329	11.1119	-0.819	74.101
09/04/2013 08:18:43	2.0198	8.0238	-0.617	74.601
09/04/2013 08:18:53	2.0138	2.7773	-0.419	74.601
09/04/2013 08:19:03	2.0079	2.1965	-0.419	75.202
09/04/2013 08:19:13	2.0055	2.1584	-0.22	75.902
09/04/2013 08:19:23	2.0067	2.1412	-0.32	76.102
09/04/2013 08:19:33	2.0019	2.1394	-0.22	76.202
09/04/2013 08:19:43	2.0043	2.1316	-0.419	76.202
09/04/2013 08:19:53	1.9989	2.1281	-0.22	76.202
09/04/2013 08:20:03	1.9966	2.1257	-0.22	75.902
09/04/2013 08:20:13	2.0019	2.1251	-0.216	76.102
09/04/2013 08:20:23	20.059	2.1203	-0.018	76.102
09/04/2013 08:20:33	18.8792	2.1126	-0.216	75.301
Start Response Time				
09/04/2013 08:20:43	2.1013	6.6331	-0.018	75.002
09/04/2013 08:20:53	2.0174	19.2186	0.077	74.601
09/04/2013 08:21:03	2.0102	10.4626	-0.018	74.101
09/04/2013 08:21:13	2.0007	2.7184	0.081	73.002
09/04/2013 08:21:23	11.4053	2.1822	-0.216	73.201
09/04/2013 08:21:33	22.4418	2.1429	-0.121	72.802
09/04/2013 08:21:43	22.5007	2.2786	-0.018	71.702
09/04/2013 08:21:53	22.5913	17.5096	0.284	71.602
09/04/2013 08:22:03	22.5561	22.1376	-0.216	71.202
09/04/2013 08:22:13	22.5551	22.3713	-0.518	70.702
09/04/2013 08:22:23	22.5767	22.3965	-0.518	71.202
09/04/2013 08:22:33	22.5153	22.4156	-0.716	72.102
09/04/2013 08:22:43	22.5465	22.4297	-0.819	72.501
09/04/2013 08:22:53	2.306	22.4327	-0.819	72.602
09/04/2013 08:23:03	2.0537	22.4423	-0.72	73.002
09/04/2013 08:23:13	2.0364	16.6274	-0.72	73.201
09/04/2013 08:23:23	2.0245	4.1324	-0.617	73.201
09/04/2013 08:23:33	2.0186	2.334	-0.617	73.701
09/04/2013 08:23:43	2.0102	2.2144	-0.419	74.101
09/04/2013 08:23:53	2.0126	2.1822	-0.32	73.901
09/04/2013 08:24:03	5.3601	2.1662	-0.419	74.302
09/04/2013 08:24:13	20.4865	2.1519	-0.216	74.601
09/04/2013 08:24:23	20.5394	2.1917	-0.121	75.002
09/04/2013 08:24:33	20.4875	14.2314	-0.22	75.702
09/04/2013 08:24:43	20.4684	20.3642	-0.22	76.102
09/04/2013 08:24:53	1.727	20.761	-0.121	76.602
09/04/2013 08:25:03	20.3516	20.7997	-0.22	77.701
09/04/2013 08:25:13	1.0783	18.1123	-0.121	77.701
09/04/2013 08:25:23	0.0571	13.1388	-0.117	77.901
09/04/2013 08:25:33	0.0279	17.4693	0.077	77.901
09/04/2013 08:25:43	0.0184	3.1588	-0.117	77.701
09/04/2013 08:25:53	0.0125	0.3082	-0.22	76.202
09/04/2013 08:26:03	0.0077	0.1404	-0.22	74.601
09/04/2013 08:26:13	0.0017	0.1089	-0.22	73.201
09/04/2013 08:26:23	-0.0018	0.0904	-0.22	72.602
09/04/2013 08:26:33	-0.0018	0.0791	-0.216	72.302
09/04/2013 08:26:43	-0.003	0.069	-0.121	71.902
09/04/2013 08:26:53	0.8516	0.0618	-0.419	72.302
09/04/2013 08:27:03	22.3013	0.0595	-0.518	72.501
09/04/2013 08:27:13	22.478	0.066	-0.32	72.302
09/04/2013 08:27:23	22.5264	14.3445	-0.316	71.202
09/04/2013 08:27:33	22.5863	21.9569	-0.316	71.003

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 08:27:43	22.5455	22.3431	-0.518	71.003
09/04/2013 08:27:53	22.5515	22.3879	-0.617	71.602
09/04/2013 08:28:03	22.5672	22.4095	-0.72	71.902
09/04/2013 08:28:13	22.5526	22.4181	-0.819	72.302
09/04/2013 08:28:23	0.5219	22.4287	-1.22	72.302
09/04/2013 08:28:33	0.0666	22.4382	-1.121	72.302
09/04/2013 08:28:43	0.0351	18.0781	-1.419	72.802
09/04/2013 08:28:53	0.0232	3.2177	-1.022	73.002
09/04/2013 08:29:03	0.016	0.3493	-0.923	73.401
09/04/2013 08:29:13	0.0113	0.1565	-0.923	73.002
09/04/2013 08:29:23	0.0077	0.1202	-1.022	73.201
09/04/2013 08:29:33	0.0041	0.1089	-0.522	74.302
09/04/2013 08:29:43	0.00055	0.0898	-0.323	74.801
09/04/2013 08:29:53	-0.0018	0.0833	-0.32	75.002
09/04/2013 08:30:03	-0.003	0.0809	-0.22	75.002
09/04/2013 08:30:13	-0.003	0.0666	-0.419	75.502
09/04/2013 08:30:23	0.0029	0.0613	-0.121	76.402
09/04/2013 08:30:33	-0.0078	0.0571	-0.419	76.202
09/04/2013 08:30:43	-0.0102	0.1172	-0.423	76.402
09/04/2013 08:30:53	-0.0114	0.0696	3.678	76.602
09/04/2013 08:31:03	-0.0114	0.0523	26.205	76.402
09/04/2013 08:31:13	-0.0114	0.0499	57.538	76.802
09/04/2013 08:31:23	-0.0102	0.0458	79.062	76.802
09/04/2013 08:31:33	-0.0114	0.0428	85.77	76.202
09/04/2013 08:31:43	-0.0125	0.0458	87.472	75.002
09/04/2013 08:31:53	-0.0137	0.0422	87.472	74.302
09/04/2013 08:32:03	-0.0137	0.041	88.569	73.201
09/04/2013 08:32:13	-0.0125	0.038	88.47	73.002
09/04/2013 08:32:23	-0.0125	0.038	91.174	72.602
09/04/2013 08:32:33	-0.0125	0.0404	88.97	72.302
09/04/2013 08:32:43	-0.0155	0.038	89.37	72.501
09/04/2013 08:32:53	-0.0102	0.038	90.37	72.102
09/04/2013 08:33:03	-0.0102	0.038	87.97	72.102
09/04/2013 08:33:13	-0.0102	0.0374	88.269	72.102
09/04/2013 08:33:23	-0.0114	0.038	85.469	71.902
09/04/2013 08:33:33	-0.0125	0.0363	60.341	71.202
09/04/2013 08:33:43	-0.0125	0.0333	30.007	71.402
09/04/2013 08:33:53	-0.0114	0.0333	9.383	71.902
09/04/2013 08:34:03	-0.0102	0.0315	2.277	72.602
09/04/2013 08:34:13	-0.0102	0.0315	0.077	73.002
09/04/2013 08:34:23	-0.0114	0.0297	0.077	73.502
09/04/2013 08:34:33	-0.0125	0.0238	-0.121	74.302
09/04/2013 08:34:43	-0.0137	0.0327	-0.32	74.801
09/04/2013 08:34:53	-0.0125	0.0309	-0.121	75.301
09/04/2013 08:35:03	-0.0114	0.0279	-0.22	75.502
End Response Time				
09/04/2013 08:35:13	20.0147	0.0357	0.077	75.702
09/04/2013 08:35:23	20.5767	0.0249	-0.22	75.702
09/04/2013 08:35:33	20.6023	4.6531	-0.22	76.202
09/04/2013 08:35:43	20.5238	19.063	-0.22	76.602
09/04/2013 08:35:53	20.5021	20.6718	-0.923	77.001
09/04/2013 08:36:03	20.4553	20.7816	-0.522	76.802
09/04/2013 08:36:13	20.476	20.8123	-0.32	76.402
09/04/2013 08:36:23	20.4321	20.833	-0.32	76.602
09/04/2013 08:36:33	20.412	20.842	0.077	77.302
09/04/2013 08:36:43	20.4191	20.8541	-0.522	76.402
09/04/2013 08:36:53	20.4311	20.8667	0.184	75.502
09/04/2013 08:37:03	20.4251	20.8712	-0.32	74.601
09/04/2013 08:37:13	20.4362	20.8692	-0.522	73.502
09/04/2013 08:37:23	20.4145	20.8763	-0.518	73.401
09/04/2013 08:37:33	20.3757	20.8778	-0.22	73.002
09/04/2013 08:37:43	13.2852	20.8848	0.077	72.602
09/04/2013 08:37:53	12.7722	20.8637	0.081	71.702
09/04/2013 08:38:03	12.7675	20.1779	0.383	71.402
09/04/2013 08:38:13	12.6841	14.4463	-0.018	71.003
09/04/2013 08:38:23	12.5889	13.5423	0.081	70.801
09/04/2013 08:38:33	12.558	13.5661	0.18	70.702
09/04/2013 08:38:43	12.5062	13.5328	0.478	70.502
09/04/2013 08:38:53	12.2979	13.4685	-0.117	70.502
09/04/2013 08:39:03	12.0908	13.4733	-0.32	70.801
09/04/2013 08:39:13	12.0206	13.4971	-0.518	71.402
09/04/2013 08:39:23	12.0087	13.4066	0.28	71.602
09/04/2013 08:39:33	12.0462	13.334	0.28	71.702
09/04/2013 08:39:43	11.9766	13.3269	0.383	72.602
09/04/2013 08:39:53	11.8861	13.3971	0.478	72.802
09/04/2013 08:40:03	11.8677	13.4822	0.379	73.701
09/04/2013 08:40:13	11.7921	13.5185	0.379	74.401
09/04/2013 08:40:23	11.6487	13.5125	0.28	75.301
09/04/2013 08:40:33	11.4921	13.5334	0.28	76.202
09/04/2013 08:40:43	11.3178	13.5298	0.581	76.402
09/04/2013 08:40:53	11.2023	13.5114	0.383	75.902
09/04/2013 08:41:03	10.9875	13.4727	0.28	75.902
09/04/2013 08:41:13	10.7518	13.4352	0.482	75.902
09/04/2013 08:41:23	10.659	13.4364	-0.117	75.902
09/04/2013 08:41:33	10.465	13.337	0.379	75.702
09/04/2013 08:41:43	10.2484	13.2715	-0.018	76.602
09/04/2013 08:41:53	10.0246	13.2543	0.379	77.502
09/04/2013 08:42:03	9.786	13.1567	-0.216	78.002
09/04/2013 08:42:13	9.5152	13.0442	0.081	77.701

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 08:42:23	9.3527	12.9395	0.28	76.202
09/04/2013 08:42:33	9.2468	12.7627	-0.117	75.301
09/04/2013 08:42:43	9.1373	12.5729	-0.216	74.601
09/04/2013 08:42:53	8.9939	12.4931	-0.518	74.101
09/04/2013 08:43:03	8.8986	12.433	-0.117	73.502
09/04/2013 08:43:13	8.9201	12.3711	0.081	73.002
09/04/2013 08:43:23	8.9361	12.3188	0.081	73.201
09/04/2013 08:43:33	8.9599	12.3348	0.081	72.602
09/04/2013 08:43:43	8.9213	12.433	0.081	71.702
09/04/2013 08:43:53	8.8141	12.5372	0.081	71.602
09/04/2013 08:44:03	8.641	12.6199	-0.018	71.202
09/04/2013 08:44:13	8.5975	12.6562	0.081	71.402
09/04/2013 08:44:23	8.682	12.5901	0.081	71.602
09/04/2013 08:44:33	8.6374	12.4729	0.18	71.602
09/04/2013 08:44:43	8.594	12.4901	0.18	70.801
09/04/2013 08:44:53	8.5636	12.5973	0.18	70.101
09/04/2013 08:45:03	8.5118	12.6086	-0.018	70.301
09/04/2013 08:45:13	8.4999	12.5711	0.28	70.101
09/04/2013 08:45:23	8.5868	12.5342	0.077	70.502
09/04/2013 08:45:33	8.6737	12.5014	0.081	70.801
09/04/2013 08:45:43	8.7576	12.5264	-0.121	71.402
09/04/2013 08:45:53	8.688	12.6312	0.077	72.302
09/04/2013 08:46:03	8.6326	12.7698	-0.018	72.602
09/04/2013 08:46:13	8.6422	12.8633	-0.32	72.501
09/04/2013 08:46:23	8.6279	12.8258	-0.32	73.201
09/04/2013 08:46:33	8.6023	12.7675	-0.018	73.901
09/04/2013 08:46:43	8.6362	12.7734	0.28	73.901
09/04/2013 08:46:53	8.6255	12.7603	0.081	74.101
09/04/2013 08:47:03	8.6386	12.7627	0.18	74.302
09/04/2013 08:47:13	8.6677	12.818	-0.018	74.401
09/04/2013 08:47:23	8.7058	12.8651	0.28	74.601
09/04/2013 08:47:33	8.7772	12.9002	0.18	75.301
09/04/2013 08:47:43	8.7528	12.9805	0.18	75.902
09/04/2013 08:47:53	8.8254	13.0519	-0.018	76.402
09/04/2013 08:48:03	8.7915	13.0805	0.18	77.001
09/04/2013 08:48:13	8.7142	13.115	0.081	77.302
09/04/2013 08:48:23	8.6493	13.1799	0.18	77.302
09/04/2013 08:48:33	8.6398	13.1424	0.081	77.701
09/04/2013 08:48:43	8.56	13.0585	-0.32	76.602
09/04/2013 08:48:53	8.4386	13.0406	-0.216	75.301
09/04/2013 08:49:03	8.4398	13.0109	0.081	74.302
09/04/2013 08:49:13	8.5148	12.8829	0.18	74.101
09/04/2013 08:49:23	8.613	12.7704	0.18	73.201
09/04/2013 08:49:33	8.6398	12.8192	-0.018	72.501
09/04/2013 08:49:43	8.7421	12.9091	0.081	72.102
09/04/2013 08:49:53	8.8683	12.9888	0.18	71.902
09/04/2013 08:50:03	8.8338	13.0519	0.284	71.402
09/04/2013 08:50:13	8.8695	13.1829	-0.018	71.003
09/04/2013 08:50:23	8.8421	13.2781	-0.018	71.202
09/04/2013 08:50:33	8.7493	13.3096	-0.117	71.003
09/04/2013 08:50:43	8.6856	13.3322	0.18	70.801
09/04/2013 08:50:53	8.6529	13.262	-0.018	71.202
09/04/2013 08:51:03	8.588	13.1519	0.18	71.602
09/04/2013 08:51:13	8.6011	13.0436	0.081	72.102
09/04/2013 08:51:23	8.7505	12.965	0.383	72.102
09/04/2013 08:51:33	8.7772	12.8918	-0.018	71.702
09/04/2013 08:51:43	8.782	12.9412	0.482	72.102
09/04/2013 08:51:53	8.854	13.0739	-0.32	72.602
09/04/2013 08:52:03	8.854	13.1513	0.081	73.701
09/04/2013 08:52:13	8.8409	13.1709	0.18	74.101
09/04/2013 08:52:23	8.7481	13.2007	-0.72	74.401
09/04/2013 08:52:33	8.7576	13.2215	0.18	74.401
09/04/2013 08:52:43	8.7647	13.1948	-0.117	74.302
09/04/2013 08:52:53	8.8975	13.1454	-0.518	74.601
09/04/2013 08:53:03	8.9469	13.1323	0.18	75.202
09/04/2013 08:53:13	8.8731	13.1674	-0.117	75.301
09/04/2013 08:53:23	8.8165	13.2561	-0.518	75.502
09/04/2013 08:53:33	8.7761	13.2953	-0.216	76.102
09/04/2013 08:53:43	8.7975	13.1989	0.28	76.202
09/04/2013 08:53:53	8.8986	13.1108	-0.216	76.402
09/04/2013 08:54:03	9.0552	13.0293	-0.32	76.602
09/04/2013 08:54:13	9.1504	13.0519	-0.32	76.402
09/04/2013 08:54:23	9.1165	13.1799	0.081	77.001
09/04/2013 08:54:33	9.2801	13.3638	-0.018	76.602
09/04/2013 08:54:43	9.3801	13.5256	-0.117	75.902
09/04/2013 08:54:53	9.4527	13.5173	-0.117	75.202
09/04/2013 08:55:03	9.6247	13.6691	-0.32	74.302
09/04/2013 08:55:13	9.6515	13.7958	0.28	74.101
09/04/2013 08:55:23	9.6449	13.9238	-0.117	73.901
09/04/2013 08:55:33	9.7128	14.0648	-0.216	73.002
09/04/2013 08:55:43	9.6449	14.0916	-0.117	72.501
09/04/2013 08:55:53	9.4836	14.0969	-0.518	72.102
09/04/2013 08:56:03	9.439	14.1017	-0.518	71.702
09/04/2013 08:56:13	9.4033	13.9684	-0.419	71.402
09/04/2013 08:56:23	9.3694	13.778	-0.117	70.702
09/04/2013 08:56:33	9.4104	13.625	-0.216	69.802
09/04/2013 08:56:43	9.4366	13.5125	-0.316	70.101
09/04/2013 08:56:53	9.5069	13.4155	0.18	70.702
09/04/2013 08:57:03	9.4563	13.406	-0.617	70.702

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 08:57:13	9.4825	13.4078	-0.32	70.702
09/04/2013 08:57:23	9.4765	13.4382	-0.018	70.801
09/04/2013 08:57:33	9.5426	13.481	-0.018	71.202
09/04/2013 08:57:43	9.5717	13.4935	-0.617	71.702
09/04/2013 08:57:53	9.5307	13.5506	-0.117	71.202
09/04/2013 08:58:03	9.6657	13.6173	-0.018	72.102
09/04/2013 08:58:13	9.6461	13.65	-0.518	73.002
09/04/2013 08:58:23	9.7586	13.6798	0.18	73.502
09/04/2013 08:58:33	9.7163	13.7548	-0.32	74.101
09/04/2013 08:58:43	9.6717	13.8428	0.18	74.302
09/04/2013 08:58:53	9.7354	13.8303	-0.32	74.401
09/04/2013 08:59:03	9.7092	13.7833	-0.117	75.002
09/04/2013 08:59:13	9.6586	13.797	0.081	75.301
09/04/2013 08:59:23	9.6515	13.8381	-0.216	75.702
09/04/2013 08:59:33	9.6033	13.8321	-0.117	76.102
09/04/2013 08:59:43	9.5753	13.794	0.18	76.202
09/04/2013 08:59:53	9.5211	13.7922	-0.216	76.202
09/04/2013 09:00:03	10.6637	13.7786	-0.216	76.802
09/04/2013 09:00:13	9.5765	13.6964	-0.819	76.402
09/04/2013 09:00:23	9.3646	13.6375	-0.518	76.202
09/04/2013 09:00:33	9.3926	14.6379	0.081	76.802
09/04/2013 09:00:43	9.5116	13.7131	-0.518	77.001
09/04/2013 09:00:53	9.5437	13.362	-0.216	76.202
09/04/2013 09:01:03	9.5967	13.3828	0.482	75.902
09/04/2013 09:01:13	9.6884	13.5191	0.482	75.202
09/04/2013 09:01:23	9.5985	13.5887	-0.018	74.302
09/04/2013 09:01:33	9.4985	13.7226	-0.22	73.901
09/04/2013 09:01:43	9.5765	13.7845	-0.117	73.201
09/04/2013 09:01:53	9.586	13.6012	0.482	72.302
09/04/2013 09:02:03	9.6247	13.5715	0.081	71.602
09/04/2013 09:02:13	9.5176	13.6345	0.081	72.102
09/04/2013 09:02:23	9.3753	13.6661	-0.018	72.102
09/04/2013 09:02:33	9.1611	13.6625	-0.117	72.102
09/04/2013 09:02:43	9.0694	13.5596	-0.32	71.702
09/04/2013 09:02:53	8.9695	13.2644	-0.117	71.602
09/04/2013 09:03:03	8.8939	13.0174	-0.419	71.402
09/04/2013 09:03:13	8.8784	12.8907	-0.216	71.202
09/04/2013 09:03:23	8.8986	12.8192	-0.216	70.801
09/04/2013 09:03:33	8.901	12.6955	-0.32	70.702
09/04/2013 09:03:43	8.9189	12.7074	-0.32	71.202
09/04/2013 09:03:53	9.026	12.7294	-0.22	71.602
09/04/2013 09:04:03	8.9879	12.7365	-0.018	72.102
09/04/2013 09:04:13	8.9361	12.8633	-0.018	72.302
09/04/2013 09:04:23	9.0754	12.9966	0.184	72.302
09/04/2013 09:04:33	8.9564	13.0031	0.18	73.901
09/04/2013 09:04:43	8.8927	12.9823	-0.22	74.601
09/04/2013 09:04:53	8.7784	13.0632	-0.117	75.202
Start Run 1				
09/04/2013 09:05:03	8.6915	12.9871	-0.216	75.902
09/04/2013 09:05:13	8.6529	12.8496	-0.32	75.902
09/04/2013 09:05:23	8.7035	12.7526	-0.018	75.502
09/04/2013 09:05:33	8.7421	12.6389	0.18	75.301
09/04/2013 09:05:43	8.7207	12.5514	0.081	75.902
09/04/2013 09:05:53	8.6725	12.6026	-0.018	76.102
09/04/2013 09:06:03	8.6987	12.6943	-0.32	76.202
09/04/2013 09:06:13	8.6314	12.746	-0.419	76.402
09/04/2013 09:06:23	8.5612	12.7276	0.081	76.802
09/04/2013 09:06:33	8.569	12.6883	-0.216	77.102
09/04/2013 09:06:43	8.494	12.5473	0.081	77.302
09/04/2013 09:06:53	8.5469	12.4556	-0.117	77.502
09/04/2013 09:07:03	8.5951	12.4741	-0.018	77.502
09/04/2013 09:07:13	8.5184	12.4663	-0.216	75.902
09/04/2013 09:07:23	8.2774	12.4949	-0.419	75.502
09/04/2013 09:07:33	8.1833	12.5139	-0.32	74.801
09/04/2013 09:07:43	8.2125	12.4241	0.383	73.901
09/04/2013 09:07:53	8.3065	12.2009	0.18	73.401
09/04/2013 09:08:03	8.275	12.1039	-0.32	73.401
09/04/2013 09:08:13	8.1798	12.1843	-0.216	72.602
09/04/2013 09:08:23	8.1161	12.2539	-0.518	72.102
09/04/2013 09:08:33	8.1833	12.1962	-0.216	71.202
09/04/2013 09:08:43	8.2506	12.1122	-0.216	71.003
09/04/2013 09:08:53	8.2351	12.0831	-0.32	70.702
09/04/2013 09:09:03	8.2964	12.1468	-0.419	70.301
09/04/2013 09:09:13	8.3184	12.2289	-0.419	71.003
09/04/2013 09:09:23	8.3303	12.2848	-0.32	71.202
09/04/2013 09:09:33	8.1976	12.3491	-0.819	71.003
09/04/2013 09:09:43	8.1583	12.3354	-0.419	71.003
09/04/2013 09:09:53	8.1631	12.2563	-0.121	71.202
09/04/2013 09:10:03	8.2714	12.0884	-0.32	70.801
09/04/2013 09:10:13	8.3654	12.0283	-0.216	70.502
09/04/2013 09:10:23	8.4565	12.1515	-0.216	69.901
09/04/2013 09:10:33	8.9516	12.2729	-0.32	70.301
09/04/2013 09:10:43	9.5955	12.3949	-0.316	70.801
09/04/2013 09:10:53	10.0026	12.6657	-0.419	71.402
09/04/2013 09:11:03	10.2144	13.5334	-0.216	72.102
09/04/2013 09:11:13	10.1329	14.3909	0.18	72.602
09/04/2013 09:11:23	9.9728	14.8557	0.18	73.201
09/04/2013 09:11:33	9.4527	15.0045	0.18	73.701
09/04/2013 09:11:43	8.9998	14.9432	0.164	74.101

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 09:11:53	8.6529	14.62	-0.133	74.101
09/04/2013 09:12:03	8.541	13.9077	-0.411	74.401
09/04/2013 09:12:13	8.5208	13.2168	-0.316	75.301
09/04/2013 09:12:23	8.3482	12.7913	-0.32	75.902
09/04/2013 09:12:33	8.3398	12.6639	-0.306	76.402
09/04/2013 09:12:43	8.3738	12.5979	-0.014	76.802
09/04/2013 09:12:53	8.2172	12.4651	0.077	77.001
09/04/2013 09:13:03	8.0256	12.4503	0.085	77.102
09/04/2013 09:13:13	8.0833	12.458	0.172	77.502
09/04/2013 09:13:23	8.2809	12.3979	0.095	78.201
09/04/2013 09:13:33	8.4398	12.2765	0.353	77.502
09/04/2013 09:13:43	8.6386	12.4217	-0.187	76.402
09/04/2013 09:13:53	8.907	12.7133	0.349	75.301
09/04/2013 09:14:03	9.1105	12.9002	-0.195	75.301
09/04/2013 09:14:13	9.2081	13.2084	0.258	75.002
09/04/2013 09:14:23	9.2938	13.5881	-0.187	73.701
09/04/2013 09:14:33	9.3164	13.8321	0.069	72.501
09/04/2013 09:14:43	9.2307	13.9666	-0.008	72.102
09/04/2013 09:14:53	9.2801	14.0083	0.059	72.501
09/04/2013 09:15:03	9.3777	13.997	-0.087	72.302
09/04/2013 09:15:13	9.6538	14.0202	0.168	71.602
09/04/2013 09:15:23	9.7824	14.0517	0.087	71.402
09/04/2013 09:15:33	9.6259	14.0886	0.18	71.602
09/04/2013 09:15:43	9.6681	14.5028	0.168	71.402
09/04/2013 09:15:53	9.7342	14.4713	-0.022	70.702
09/04/2013 09:16:03	9.9657	14.2499	-0.113	70.801
09/04/2013 09:16:13	10.0175	14.2297	-0.004	71.702
09/04/2013 09:16:23	10.0472	14.3624	0.04	71.902
09/04/2013 09:16:33	9.8669	14.5778	-0.363	72.302
09/04/2013 09:16:43	9.7848	14.6694	-0.651	72.602
09/04/2013 09:16:53	9.7538	14.5129	-0.889	72.602
09/04/2013 09:17:03	9.78	14.2844	-0.617	72.802
09/04/2013 09:17:13	9.933	14.1142	-0.633	73.002
09/04/2013 09:17:23	9.8461	14.0345	-0.69	73.401
09/04/2013 09:17:33	9.9246	14.0065	-0.431	73.701
09/04/2013 09:17:43	9.9484	14.0202	-0.53	73.901
09/04/2013 09:17:53	10.093	13.9047	-0.607	74.302
09/04/2013 09:18:03	10.3281	13.8369	-0.5	74.601
09/04/2013 09:18:13	10.3085	13.9172	-0.349	75.202
09/04/2013 09:18:23	10.1472	14.0583	-0.504	75.301
09/04/2013 09:18:33	9.9847	14.1612	-0.389	75.702
09/04/2013 09:18:43	9.8449	14.2314	-0.117	75.902
09/04/2013 09:18:53	9.6259	14.2439	-0.187	75.702
09/04/2013 09:19:03	9.4444	14.2576	-0.698	76.202
09/04/2013 09:19:13	9.3551	14.2053	-0.187	76.802
09/04/2013 09:19:23	9.3057	14.0321	-0.004	77.001
09/04/2013 09:19:33	9.2319	13.8512	0.081	77.102
09/04/2013 09:19:43	9.1867	13.747	0.081	77.302
09/04/2013 09:19:53	9.1516	13.7012	0.004	77.001
09/04/2013 09:20:03	9.195	13.6339	-0.389	76.202
09/04/2013 09:20:13	9.1718	13.5619	-0.25	75.702
09/04/2013 09:20:23	9.1141	13.5566	-0.478	75.202
09/04/2013 09:20:33	9.0986	13.5506	-0.772	73.901
09/04/2013 09:20:43	9.0819	13.5316	-0.419	73.502
09/04/2013 09:20:53	9.2539	13.4536	0.004	73.002
09/04/2013 09:21:03	9.1587	13.3751	-0.018	72.302
09/04/2013 09:21:13	9.1248	13.3638	-0.357	72.102
09/04/2013 09:21:23	9.1319	13.3531	-0.159	71.702
09/04/2013 09:21:33	9.1248	13.2501	-0.28	71.702
09/04/2013 09:21:43	9.1409	13.1686	-0.181	71.702
09/04/2013 09:21:53	9.3117	13.1007	-0.379	71.402
09/04/2013 09:22:03	9.22	13.0519	-0.238	70.801
09/04/2013 09:22:13	9.12	13.0531	-0.357	70.502
09/04/2013 09:22:23	9.101	13.1055	-0.435	69.601
09/04/2013 09:22:33	9.226	12.968	-0.117	69.601
09/04/2013 09:22:43	9.4467	12.7942	-0.099	69.601
09/04/2013 09:22:53	9.4551	12.6818	0.004	69.601
09/04/2013 09:23:03	9.4872	12.7752	0.059	69.802
09/04/2013 09:23:13	9.5646	12.9031	-0.018	69.601
09/04/2013 09:23:23	9.586	12.9549	-0.018	68.901
09/04/2013 09:23:33	9.5045	12.9758	-0.044	69.202
09/04/2013 09:23:43	9.4247	13.0692	-0.07	69.802
09/04/2013 09:23:53	9.2837	13.049	0.103	70.502
09/04/2013 09:24:03	9.2504	12.9537	0.133	71.602
09/04/2013 09:24:13	9.1962	12.8371	-0.018	72.102
09/04/2013 09:24:23	9.273	12.7752	0.081	72.302
09/04/2013 09:24:33	9.2539	12.7859	0.258	72.501
09/04/2013 09:24:43	9.3456	12.8109	-0.091	72.802
09/04/2013 09:24:53	9.4378	12.8573	-0.018	73.502
09/04/2013 09:25:03	9.2789	12.9567	0.008	73.701
09/04/2013 09:25:13	9.2361	13.1055	0.077	74.101
09/04/2013 09:25:23	9.1349	13.1769	0.081	75.002
09/04/2013 09:25:33	9.0647	13.1216	0.022	75.202
09/04/2013 09:25:43	8.9784	13.0347	-0.117	75.002
09/04/2013 09:25:53	8.9718	12.9537	-0.117	75.502
End Run 1				
Average	**9.088673**	**13.20759**	**-0.160357**	**73.5017**
Maximum	**10.3281**	**15.0045**	**0.383**	**78.201**
Minimum	**8.0256**	**12.0283**	**-0.889**	**68.901**

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 09:26:03	9.1914	12.8561	-0.087	76.202
09/04/2013 09:26:13	9.4467	12.796	0.012	76.402
09/04/2013 09:26:23	9.6527	12.8573	0.081	76.202
09/04/2013 09:26:33	6.2933	13.1329	0.051	76.402
Calibration Bias				
09/04/2013 09:26:43	0.0464	13.4792	-0.111	77.001
09/04/2013 09:26:53	0.0136	13.6173	-0.29	76.802
09/04/2013 09:27:03	0.0065	5.1131	-0.159	76.102
09/04/2013 09:27:13	0.0017	0.388	0.012	75.702
09/04/2013 09:27:23	-0.00064	0.1362	0.081	75.502
09/04/2013 09:27:33	-0.0018	0.1011	-0.07	75.202
09/04/2013 09:27:43	-0.0042	0.0976	-0.51	74.101
09/04/2013 09:27:53	-0.0066	0.0821	-0.75	73.401
09/04/2013 09:28:03	-0.0066	0.0857	-0.76	73.002
09/04/2013 09:28:13	-0.0054	0.0761	-0.738	72.802
09/04/2013 09:28:23	-0.0066	0.0737	-0.931	72.501
09/04/2013 09:28:33	-0.0042	0.0547	-0.603	72.102
09/04/2013 09:28:43	-0.0078	0.0565	-0.349	71.702
N2 Zero		**0.061633**	**-0.627667**	
09/04/2013 09:28:53	-0.0125	0.0726	-0.331	71.402
09/04/2013 09:29:03	-0.0102	0.0642	2.519	71.003
09/04/2013 09:29:13	-0.0114	0.0583	12.854	71.202
09/04/2013 09:29:23	-0.0102	0.0523	23.901	70.801
09/04/2013 09:29:33	-0.0114	0.0553	34.096	70.801
09/04/2013 09:29:43	-0.0114	0.0523	40.094	70.801
09/04/2013 09:29:53	-0.0137	0.047	43.637	71.003
09/04/2013 09:30:03	-0.0125	0.0458	44.361	70.801
09/04/2013 09:30:13	-0.0114	0.0488	44.691	71.003
09/04/2013 09:30:23	-0.0114	0.0452	44.79	71.702
09/04/2013 09:30:33	-0.0114	0.0458	44.474	71.902
46.3 ppm CO Mid			**44.65167**	
09/04/2013 09:30:43	-0.0125	0.0499	43.949	72.102
09/04/2013 09:30:53	-0.009	0.0404	43.574	72.602
09/04/2013 09:31:03	-0.0102	0.038	43.366	73.502
09/04/2013 09:31:13	1.6764	0.0428	43.887	73.701
09/04/2013 09:31:23	1.9376	0.044	44.405	74.302
09/04/2013 09:31:33	1.9436	0.2273	44.57	74.401
09/04/2013 09:31:43	1.9472	1.8103	40.715	74.401
09/04/2013 09:31:53	1.9472	2.0822	30.408	74.801
09/04/2013 09:32:03	1.9501	2.0953	16.693	75.202
09/04/2013 09:32:13	1.9513	2.0995	6.502	75.301
09/04/2013 09:32:23	1.9537	2.1049	1.561	75.702
09/04/2013 09:32:33	1.9501	2.1049	0.059	75.702
09/04/2013 09:32:43	1.9525	2.1031	-0.117	75.702
2.07% O2 Low	**1.9521**			
09/04/2013 09:32:53	11.4249	2.1066	-0.28	75.702
09/04/2013 09:33:03	10.4483	2.1061	-0.522	76.402
09/04/2013 09:33:13	10.6637	5.7761	-0.56	76.402
09/04/2013 09:33:23	10.6905	9.0623	-0.379	75.902
09/04/2013 09:33:33	10.7155	10.8357	-0.018	75.502
09/04/2013 09:33:43	10.7239	11.066	-0.298	75.202
09/04/2013 09:33:53	10.7155	11.0827	-0.958	74.302
09/04/2013 09:34:03	10.7399	11.0922	-1.04	73.701
09/04/2013 09:34:13	10.7459	11.097	-0.617	73.502
09/04/2013 09:34:23	10.7334	11.1131	-0.617	73.002
09/04/2013 09:34:33	10.753	11.1006	-0.661	72.501
09/04/2013 09:34:43	10.7697	11.1113	-0.764	72.501
11.1% O2 Mid	**10.75203**	**11.10833**		
09/04/2013 09:34:53	11.2202	11.1131	-1.044	72.602
09/04/2013 09:35:03	11.6332	11.1137	-1.319	72.602
09/04/2013 09:35:13	11.5802	11.1214	-1.139	72.802
09/04/2013 09:35:23	11.5451	11.9944	-1.01	71.702
09/04/2013 09:35:33	11.5403	12.4913	-0.76	71.003
09/04/2013 09:35:43	11.4969	12.6008	-0.363	70.702
09/04/2013 09:35:53	11.5029	12.6657	-0.331	69.802
09/04/2013 09:36:03	11.579	12.7365	-0.129	69.601
09/04/2013 09:36:13	11.6213	12.7782	0.081	69.802
09/04/2013 09:36:23	11.6213	12.8877	0.03	69.901
09/04/2013 09:36:33	11.4886	12.9978	-0.07	69.901
09/04/2013 09:36:43	10.825	13.096	-0.018	70.502
09/04/2013 09:36:53	10.2472	13.1876	-0.07	70.502
09/04/2013 09:37:03	9.8151	13.2263	-0.117	70.702
09/04/2013 09:37:13	9.633	13.2388	-0.117	71.003
09/04/2013 09:37:23	9.4789	13.1692	-0.117	71.902
09/04/2013 09:37:33	9.4331	13.0823	-0.169	72.102
09/04/2013 09:37:43	9.3057	13.0942	-0.117	72.501
09/04/2013 09:37:53	9.2129	13.19	-0.018	73.401
09/04/2013 09:38:03	9.2373	13.2067	-0.32	73.901
09/04/2013 09:38:13	9.2164	13.1686	-0.569	74.302
09/04/2013 09:38:23	9.2623	13.2067	-0.833	75.002
09/04/2013 09:38:33	9.2635	13.2578	-1.121	75.202
09/04/2013 09:38:43	9.267	13.3096	-0.919	75.502
09/04/2013 09:38:53	9.2902	13.3364	-0.72	75.902
09/04/2013 09:39:03	9.3741	13.3608	-0.518	76.202
09/04/2013 09:39:13	9.5104	13.4173	-0.419	77.102
09/04/2013 09:39:23	9.5009	13.4917	-0.419	77.102
09/04/2013 09:39:33	9.4456	13.5834	-0.518	77.901
09/04/2013 09:39:43	9.6283	13.6988	-0.518	78.601

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 09:39:53	9.5741	13.7452	-0.268	78.401
09/04/2013 09:40:03	9.6271	13.775	-0.22	78.601
09/04/2013 09:40:13	9.4765	13.8732	-0.32	77.302
09/04/2013 09:40:23	9.5009	13.9315	-0.47	76.202
09/04/2013 09:40:33	9.533	13.8875	-0.367	75.502
09/04/2013 09:40:43	9.5152	13.7089	-0.272	74.401
09/04/2013 09:40:53	9.5092	13.5935	-0.419	73.901
09/04/2013 09:41:03	9.3634	13.5268	-0.363	73.201
09/04/2013 09:41:13	9.2396	13.4792	-0.21	72.302
09/04/2013 09:41:23	9.2212	13.3495	-0.284	71.202
09/04/2013 09:41:33	9.1891	13.137	-0.53	71.602
09/04/2013 09:41:43	9.0879	13.0144	-0.345	71.902
09/04/2013 09:41:53	8.9058	12.9192	-0.117	71.902
09/04/2013 09:42:03	8.7987	12.8145	-0.012	71.402
09/04/2013 09:42:13	8.7362	12.6496	0.081	70.801
09/04/2013 09:42:23	8.8879	12.4788	0.135	70.502
09/04/2013 09:42:33	8.9998	12.4062	0.125	70.702
09/04/2013 09:42:43	9.0855	12.4729	0.081	70.702
09/04/2013 09:42:53	9.1224	12.5883	0.022	70.801
09/04/2013 09:43:03	9.0456	12.7817	-0.139	71.202
09/04/2013 09:43:13	9.1432	13.0144	-0.28	70.801
09/04/2013 09:43:23	9.1069	13.1489	-0.199	70.702
09/04/2013 09:43:33	8.9599	13.2596	-0.06	70.702
09/04/2013 09:43:43	8.8695	13.4209	-0.379	70.801
09/04/2013 09:43:53	8.8082	13.4126	-0.681	71.402
09/04/2013 09:44:03	8.7421	13.2543	-0.659	71.602
09/04/2013 09:44:13	8.7326	13.0864	-0.802	71.602
09/04/2013 09:44:23	8.7011	12.9335	-0.5	71.402
09/04/2013 09:44:33	8.7564	12.8413	-0.337	71.702
09/04/2013 09:44:43	8.7505	12.7335	-0.419	73.002
09/04/2013 09:44:53	8.8635	12.5943	-0.482	73.701
09/04/2013 09:45:03	8.9338	12.5848	-0.581	74.101
09/04/2013 09:45:13	8.9766	12.6592	-0.496	74.101
09/04/2013 09:45:23	9.0177	12.7544	-0.224	74.801
09/04/2013 09:45:33	9.007	12.8163	-0.056	75.202
09/04/2013 09:45:43	9.1373	12.8401	-0.28	75.702
09/04/2013 09:45:53	8.9766	12.8764	-0.548	75.902
09/04/2013 09:46:03	8.9213	12.9383	-0.556	76.102
09/04/2013 09:46:13	8.8576	12.9252	-0.456	76.102
09/04/2013 09:46:23	8.8082	12.8401	-0.361	76.602
09/04/2013 09:46:33	8.8707	12.7877	-0.191	77.102
09/04/2013 09:46:43	8.8302	12.6865	-0.00015	78.002
09/04/2013 09:46:53	8.7761	12.6961	-0.246	78.401
09/04/2013 09:47:03	8.8879	12.8305	-0.22	78.802
09/04/2013 09:47:13	9.0694	12.9377	-0.258	78.401
09/04/2013 09:47:23	9.12	12.9948	-0.254	77.302
09/04/2013 09:47:33	9.0819	13.2114	-0.431	76.202
09/04/2013 09:47:43	9.2152	13.4572	-0.31	75.202
09/04/2013 09:47:53	9.2081	13.5994	-0.216	74.401
09/04/2013 09:48:03	9.2962	13.6339	0.04	74.101
09/04/2013 09:48:13	9.3694	13.7851	0.319	73.401
09/04/2013 09:48:23	9.4539	13.8672	0.121	72.802
09/04/2013 09:48:33	9.5884	13.9619	0.051	72.802
09/04/2013 09:48:43	9.6538	14.1202	0.405	72.802
09/04/2013 09:48:53	9.5836	14.2487	0.125	72.302
09/04/2013 09:49:03	9.5378	14.3052	-0.819	71.902
09/04/2013 09:49:13	9.3295	14.3463	-1.329	71.702
09/04/2013 09:49:23	9.3295	14.2154	-0.72	71.702
09/04/2013 09:49:33	9.2718	13.9791	-0.139	71.402
09/04/2013 09:49:43	9.1272	13.75	0.043	70.801
09/04/2013 09:49:53	9.1444	13.5744	-0.621	71.003
09/04/2013 09:50:03	9.0802	13.3828	-1.131	70.801
09/04/2013 09:50:13	9.0081	13.2305	-1.081	70.801
09/04/2013 09:50:23	8.9879	13.2102	-0.879	70.502
09/04/2013 09:50:33	8.8118	13.2073	-0.609	70.301
09/04/2013 09:50:43	8.8457	13.1251	-0.518	70.301
09/04/2013 09:50:53	8.754	13.0614	-0.31	70.502
09/04/2013 09:51:03	8.9165	13.0079	-0.078	70.301
09/04/2013 09:51:13	8.9433	12.993	-0.018	70.101
09/04/2013 09:51:23	8.954	13.0204	-0.087	70.301
09/04/2013 09:51:33	9.0349	13.1073	-0.117	71.202
09/04/2013 09:51:43	9.1212	13.259	-0.195	71.402
09/04/2013 09:51:53	9.2271	13.3703	0.004	71.602
09/04/2013 09:52:03	9.2164	13.459	-0.143	71.902
09/04/2013 09:52:13	9.3081	13.5619	0.081	73.002
09/04/2013 09:52:23	9.2319	13.6768	0.034	73.502
09/04/2013 09:52:33	9.1432	13.7893	-0.018	74.302
09/04/2013 09:52:43	9.1176	13.7845	-0.768	74.801
09/04/2013 09:52:53	9.048	13.7292	-0.794	75.202
09/04/2013 09:53:03	8.9385	13.6851	0.03	75.502
09/04/2013 09:53:13	9.7681	13.6149	0.357	75.902
09/04/2013 09:53:23	9.0974	13.5078	0.232	76.202
09/04/2013 09:53:33	9.0778	14.1142	-0.496	76.402
09/04/2013 09:52:43	9.1176	13.7845	-0.768	74.801
09/04/2013 09:52:53	9.048	13.7292	-0.794	75.202
09/04/2013 09:53:03	8.9385	13.6851	0.03	75.502
09/04/2013 09:53:13	9.7681	13.6149	0.357	75.902
09/04/2013 09:53:23	9.0974	13.5078	0.232	76.202
09/04/2013 09:53:33	9.0778	14.1142	-0.496	76.402

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 09:53:43	9.1599	14.2576	-0.268	76.602
09/04/2013 09:53:53	9.3021	13.6185	-0.28	76.602
Start Run 2				
09/04/2013 09:54:03	9.4503	13.5096	-0.078	76.602
09/04/2013 09:54:13	9.5967	13.6078	-0.018	76.802
09/04/2013 09:54:23	9.6717	13.8303	-0.258	76.802
09/04/2013 09:54:33	9.5503	14.0095	-0.159	77.102
09/04/2013 09:54:43	9.714	14.166	-0.361	77.102
09/04/2013 09:54:53	9.9091	14.2058	-0.419	76.602
09/04/2013 09:55:03	9.9645	14.1428	-0.022	76.202
09/04/2013 09:55:13	9.921	14.2689	0.081	75.202
09/04/2013 09:55:23	9.9532	14.4189	-0.081	73.901
09/04/2013 09:55:33	9.946	14.4808	-0.199	73.901
09/04/2013 09:55:43	9.9871	14.4903	-0.46	73.502
09/04/2013 09:55:53	9.8871	14.5082	-0.04	73.201
09/04/2013 09:56:03	9.833	14.4653	-0.32	72.802
09/04/2013 09:56:13	9.752	14.3987	-0.5	72.501
09/04/2013 09:56:23	9.8883	14.2773	-0.349	71.702
09/04/2013 09:56:33	9.9776	14.1957	-0.066	71.702
09/04/2013 09:56:43	9.908	14.1737	0.234	71.402
09/04/2013 09:56:53	9.752	14.207	-0.228	70.801
09/04/2013 09:57:03	9.5574	14.2201	-0.236	71.202
09/04/2013 09:57:13	9.4908	14.1547	-0.137	71.202
09/04/2013 09:57:23	9.3813	13.9196	-0.29	70.702
09/04/2013 09:57:33	9.2938	13.7006	-0.151	70.801
09/04/2013 09:57:43	9.2765	13.6125	-0.117	70.702
09/04/2013 09:57:53	9.2307	13.5137	-0.117	69.901
09/04/2013 09:58:03	9.1706	13.4382	-0.034	70.301
09/04/2013 09:58:13	9.1867	13.3697	-0.103	70.702
09/04/2013 09:58:23	9.1926	13.3048	0.133	70.502
09/04/2013 09:58:33	9.1385	13.2691	-0.074	70.502
09/04/2013 09:58:43	9.2105	13.2245	-0.117	70.502
09/04/2013 09:58:53	9.1504	13.1531	0.135	70.301
09/04/2013 09:59:03	9.0433	13.065	-0.074	71.003
09/04/2013 09:59:13	8.9385	13.0567	0.22	71.402
09/04/2013 09:59:23	8.8528	12.9954	-0.06	72.102
09/04/2013 09:59:33	8.7963	12.8984	-0.034	72.302
09/04/2013 09:59:43	8.788	12.7877	-0.103	72.802
09/04/2013 09:59:53	8.8409	12.6407	-0.117	73.401
09/04/2013 10:00:03	8.8374	12.536	0.047	74.302
09/04/2013 10:00:13	8.8374	12.5324	-0.087	74.401
09/04/2013 10:00:23	9.1962	12.5437	-0.202	74.801
09/04/2013 10:00:33	9.3706	12.533	-0.216	75.702
09/04/2013 10:00:43	9.3283	12.7056	-0.137	76.802
09/04/2013 10:00:53	9.4021	13.0722	-0.03	78.002
09/04/2013 10:01:03	9.2444	13.259	-0.018	78.601
09/04/2013 10:01:13	9.0754	13.2876	0.159	78.601
09/04/2013 10:01:23	8.8832	13.2685	0.091	77.901
09/04/2013 10:01:33	8.8141	13.1323	0.077	77.302
09/04/2013 10:01:43	8.8213	12.9317	-0.371	77.701
09/04/2013 10:01:53	8.8094	12.7341	0.03	78.401
09/04/2013 10:02:03	8.7784	12.6693	0.081	78.401
09/04/2013 10:02:13	8.8374	12.7913	-0.187	77.302
09/04/2013 10:02:23	8.9659	12.9305	-0.31	76.802
09/04/2013 10:02:33	9.1349	13.0109	0.246	76.102
09/04/2013 10:02:43	9.0998	13.1614	-0.383	75.301
09/04/2013 10:02:53	8.9647	13.4286	-0.133	74.801
09/04/2013 10:03:03	8.8879	13.6042	0.164	73.502
09/04/2013 10:03:13	8.9385	13.6054	-0.294	73.002
09/04/2013 10:03:23	9.0034	13.603	0.059	72.602
09/04/2013 10:03:33	8.9647	13.6232	0.363	72.102
09/04/2013 10:03:43	8.9998	13.6613	0.284	71.902
09/04/2013 10:03:53	9.0117	13.7089	0.184	71.402
09/04/2013 10:04:03	8.9951	13.6964	0.18	71.402
09/04/2013 10:04:13	8.9421	13.706	0.276	71.602
09/04/2013 10:04:23	8.8231	13.7149	0.565	71.202
09/04/2013 10:04:33	8.8058	13.6726	0.293	71.402
09/04/2013 10:04:43	8.7939	13.5905	0.28	71.202
09/04/2013 10:04:53	8.7671	13.5066	0.184	71.202
09/04/2013 10:05:03	8.7761	13.4013	0.18	70.702
09/04/2013 10:05:13	8.7011	13.4447	0.081	69.901
09/04/2013 10:05:23	8.7951	13.484	-0.018	69.901
09/04/2013 10:05:33	8.8504	13.4887	0.081	70.101
09/04/2013 10:05:43	8.9106	13.5048	-0.419	70.101
09/04/2013 10:05:53	8.9361	13.5286	-0.32	69.901
09/04/2013 10:06:03	8.9951	13.5548	0.284	69.601
09/04/2013 10:06:13	8.9326	13.6726	0.18	69.401
09/04/2013 10:06:23	9.0201	13.794	0.18	69.401
09/04/2013 10:06:33	9.0201	13.7922	0.18	69.401
09/04/2013 10:06:43	8.9094	13.7797	0.28	69.802
09/04/2013 10:06:53	8.8963	13.7452	0.28	70.702
09/04/2013 10:07:03	8.9915	13.7548	0.28	71.003
09/04/2013 10:07:13	9.0272	13.8196	0.383	71.402
09/04/2013 10:07:23	9.7461	13.9077	-0.216	72.501
09/04/2013 10:07:33	9.2539	13.9494	0.18	73.502
09/04/2013 10:07:43	9.2611	14.5361	0.284	74.101
09/04/2013 10:07:53	9.3247	14.6468	0.482	74.601
09/04/2013 10:08:03	9.6116	14.2386	-0.617	75.301
09/04/2013 10:08:13	9.8187	14.2249	-0.117	75.502

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 10:08:23	9.7883	14.3749	-0.121	75.902
09/04/2013 10:08:33	9.8377	14.5635	-0.018	76.102
09/04/2013 10:08:43	9.7354	14.6855	0.383	76.102
09/04/2013 10:08:53	9.5884	14.7837	0.18	76.602
09/04/2013 10:09:03	9.4414	14.7331	-0.32	77.001
09/04/2013 10:09:13	9.348	14.5052	0.28	76.802
09/04/2013 10:09:23	9.2444	14.2785	0.18	77.102
09/04/2013 10:09:33	9.3009	14.063	0.077	77.001
09/04/2013 10:09:43	9.2105	13.9339	0.081	77.302
09/04/2013 10:09:53	9.1307	13.8827	-0.117	77.701
09/04/2013 10:10:03	9.1057	13.9095	0.081	77.001
09/04/2013 10:10:13	9.1224	13.938	0.18	75.902
09/04/2013 10:10:23	9.0201	13.9333	0.081	75.002
09/04/2013 10:10:33	8.9695	13.9113	0.184	74.401
09/04/2013 10:10:43	8.9695	13.8387	0.28	73.401
09/04/2013 10:10:53	8.8082	13.7893	0.081	73.701
09/04/2013 10:11:03	8.7903	13.7756	0.18	73.701
09/04/2013 10:11:13	8.788	13.7452	0.18	73.401
09/04/2013 10:11:23	8.7528	13.6768	-0.117	73.201
09/04/2013 10:11:33	8.7695	13.6244	0.081	72.602
09/04/2013 10:11:43	8.7671	13.5506	0.081	72.501
09/04/2013 10:11:53	8.8034	13.5161	0.18	72.501
09/04/2013 10:12:03	8.8772	13.5488	0.18	72.302
09/04/2013 10:12:13	8.9236	13.5738	0.184	71.902
09/04/2013 10:12:23	8.9469	13.6435	-0.216	71.702
09/04/2013 10:12:33	8.9314	13.7595	-0.216	71.702
09/04/2013 10:12:43	8.8891	13.8559	-0.117	70.801
09/04/2013 10:12:53	8.9094	13.9386	-0.014	70.502
09/04/2013 10:13:03	8.9492	13.9476	0.081	70.502
09/04/2013 10:13:13	9.0385	13.9321	0.28	70.801
09/04/2013 10:13:23	9.1117	13.9196	0.284	70.301
09/04/2013 10:13:33	8.9695	13.9226	0.28	70.801
09/04/2013 10:13:43	8.9986	13.9315	0.18	71.003
09/04/2013 10:13:53	9.0165	13.8988	0.081	71.003
09/04/2013 10:14:03	8.9766	13.8274	0.081	71.402
09/04/2013 10:14:13	9.0177	13.769	0.081	71.902
09/04/2013 10:14:23	9.0165	13.6929	-0.216	72.302
09/04/2013 10:14:33	9.1224	13.6488	-0.22	72.802
09/04/2013 10:14:43	9.2224	13.6697	0.081	73.901
09/04/2013 10:14:53	9.3259	13.7309	0.081	74.302
End Run 2				
Average	**9.173402**	**13.69361**	**0.009968**	**73.28259**
Maximum	**9.9871**	**14.7837**	**0.565**	**78.601**
Minimum	**8.7011**	**12.5324**	**-0.617**	**69.401**
09/04/2013 10:15:03	9.4378	13.8595	0.081	74.801
09/04/2013 10:15:13	9.4598	13.9857	-0.117	75.502
09/04/2013 10:15:23	9.5402	14.0773	-0.216	75.902
09/04/2013 10:15:33	9.5188	14.169	0.18	76.402
09/04/2013 10:15:43	9.5342	14.2612	0.28	76.602
Calibration Bias				
09/04/2013 10:15:53	6.7854	14.285	0.28	77.502
09/04/2013 10:16:03	1.4693	14.3058	0.383	78.002
09/04/2013 10:16:13	1.4961	14.1517	0.081	77.901
09/04/2013 10:16:23	1.5395	5.0995	0.28	78.201
09/04/2013 10:16:33	1.6091	2.3387	0.68	78.201
09/04/2013 10:16:43	1.6811	2.2031	0.28	78.601
09/04/2013 10:16:53	1.7222	2.1804	0.28	79.101
09/04/2013 10:17:03	1.7656	2.1709	0.077	78.401
09/04/2013 10:17:13	1.7918	2.1596	0.081	77.302
09/04/2013 10:17:23	1.8174	2.1537	-0.018	76.602
09/04/2013 10:17:33	1.8377	2.1477	0.081	75.902
09/04/2013 10:17:43	1.8537	2.1382	0.081	75.002
09/04/2013 10:17:53	1.8668	2.1346	-0.216	74.601
09/04/2013 10:18:03	1.8811	2.1316	-0.32	74.401
09/04/2013 10:18:13	1.8984	2.1299	-0.117	74.101
2.07% O2 Low	**1.8821**			
09/04/2013 10:18:23	6.4301	2.1305	-0.419	73.401
09/04/2013 10:18:33	1.9329	2.1287	-0.518	72.501
09/04/2013 10:18:43	12.1319	3.2082	-0.518	72.501
09/04/2013 10:18:53	12.0087	3.3742	-0.621	72.102
09/04/2013 10:19:03	11.2803	7.5019	-0.819	71.902
09/04/2013 10:19:13	0.135	13.3412	-0.518	71.702
09/04/2013 10:19:23	0.0291	13.769	-0.216	71.702
09/04/2013 10:19:33	0.016	5.788	-0.316	71.602
09/04/2013 10:19:43	0.0101	0.5058	-0.621	70.702
09/04/2013 10:19:53	0.0065	0.1214	-0.018	70.101
09/04/2013 10:20:03	0.0029	0.0928	-0.819	70.301
09/04/2013 10:20:13	0.0041	0.0773	-0.72	70.101
09/04/2013 10:20:23	0.0017	0.0737	-0.819	70.101
09/04/2013 10:20:33	-0.00064	0.0601	-0.518	69.802
09/04/2013 10:20:43	-0.0018	0.0583	-0.216	69.802
N2 Zero		**0.064033**	**-0.517667**	
09/04/2013 10:20:53	0.1702	0.0547	-0.32	69.901
09/04/2013 10:21:03	4.5847	0.0499	-0.32	69.901
09/04/2013 10:21:13	10.5822	0.0851	-0.216	69.802
09/04/2013 10:21:23	10.6215	0.357	3.682	70.101
09/04/2013 10:21:33	10.6179	9.0813	14.79	70.301
09/04/2013 10:21:43	10.6399	10.9815	16.193	70.101

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 10:21:53	10.6673	11.0643	9.986	70.301
09/04/2013 10:22:03	10.6578	11.0702	3.983	70.502
09/04/2013 10:22:13	10.6733	11.0922	0.383	71.003
09/04/2013 10:22:23	10.6578	11.1017	-0.716	71.202
09/04/2013 10:22:33	10.6709	11.1041	-1.018	71.602
09/04/2013 10:22:43	10.6834	11.1131	-0.518	71.602
09/04/2013 10:22:53	10.6709	11.1137	-0.419	72.802
11.1% O2 Mid	**10.67507**	**11.1103**		
09/04/2013 10:23:03	0.451	11.1113	-0.819	73.502
09/04/2013 10:23:13	0.0452	11.1178	-0.518	74.302
09/04/2013 10:23:23	0.0255	8.3464	-0.22	74.801
09/04/2013 10:23:33	0.0148	1.0682	5.683	75.002
09/04/2013 10:23:43	0.0089	0.1624	19.395	75.002
09/04/2013 10:23:53	0.0065	0.1041	33.112	75.002
09/04/2013 10:24:03	0.0041	0.0791	41.219	75.502
09/04/2013 10:24:13	0.0017	0.0726	44.522	76.202
09/04/2013 10:24:23	-0.00064	0.066	45.121	76.202
09/04/2013 10:24:33	-0.003	0.0618	44.72	76.602
09/04/2013 10:24:43	-0.003	0.0553	45.22	76.802
09/04/2013 10:24:53	-0.003	0.0565	45.423	77.001
09/04/2013 10:25:03	-0.003	0.0476	45.522	77.102
46.3 ppm CO Mid			**45.38833**	
09/04/2013 10:25:13	5.5125	0.0458	45.022	77.701
09/04/2013 10:25:23	13.0466	0.0499	45.22	77.701
09/04/2013 10:25:33	12.8758	0.2588	45.022	77.001
09/04/2013 10:25:43	12.7419	10.7125	41.921	75.902
09/04/2013 10:25:53	12.6699	14.2927	29.511	75.202
09/04/2013 10:26:03	12.477	14.457	15.092	74.801
09/04/2013 10:26:13	12.1087	14.4731	5.985	74.801
09/04/2013 10:26:23	11.5029	14.4951	1.88	74.101
09/04/2013 10:26:33	11.0381	14.4147	0.68	73.502
09/04/2013 10:26:43	10.3192	14.191	0.383	73.201
09/04/2013 10:26:53	10.0603	13.9619	0.28	72.802
09/04/2013 10:27:03	9.908	13.8184	0.28	71.902
09/04/2013 10:27:13	9.6943	13.7833	0.383	71.702
09/04/2013 10:27:23	9.4331	13.7827	0.383	72.102
09/04/2013 10:27:33	9.2129	13.7131	0.482	72.102
09/04/2013 10:27:43	9.1659	13.6107	0.28	71.602
09/04/2013 10:27:53	9.126	13.4923	0.28	71.202
09/04/2013 10:28:03	9.0706	13.3638	0.081	70.801
09/04/2013 10:28:13	8.9962	13.3435	-0.518	71.003
09/04/2013 10:28:23	9.007	13.3173	0.18	71.003
09/04/2013 10:28:33	8.9974	13.2465	0.081	71.003
09/04/2013 10:28:43	9.0236	13.1959	0.18	71.003
09/04/2013 10:28:53	9.0046	13.2073	0.081	69.901
Start Run 3				
09/04/2013 10:29:03	8.9635	13.2685	0.18	69.401
09/04/2013 10:29:13	8.8963	13.3257	-0.518	69.401
09/04/2013 10:29:23	8.9528	13.3382	0.081	69.601
09/04/2013 10:29:33	8.9177	13.2531	0.18	69.802
09/04/2013 10:29:43	8.7796	13.1995	0.28	69.901
09/04/2013 10:29:53	8.9177	13.2834	-0.018	70.301
09/04/2013 10:30:03	9.0046	13.3245	-0.216	69.901
09/04/2013 10:30:13	9.1397	13.3245	0.081	70.101
09/04/2013 10:30:23	9.073	13.3721	0.18	70.702
09/04/2013 10:30:33	9.0778	13.4191	0.081	71.202
09/04/2013 10:30:43	9.101	13.4322	-0.216	71.902
09/04/2013 10:30:53	9.1117	13.3941	0.18	72.102
09/04/2013 10:31:03	9.0938	13.3846	0.081	72.602
09/04/2013 10:31:13	9.1563	13.4126	0.081	74.601
09/04/2013 10:31:23	8.9832	13.4209	0.28	76.202
09/04/2013 10:31:33	8.9707	13.4298	0.081	77.302
09/04/2013 10:31:43	9.0046	13.4614	-0.32	77.302
09/04/2013 10:31:53	9.1069	13.4132	0.081	77.502
09/04/2013 10:32:03	9.0903	13.4602	0.379	78.201
09/04/2013 10:32:13	9.0694	13.5209	0.18	79.101
09/04/2013 10:32:23	9.007	13.5358	-0.018	79.502
09/04/2013 10:32:33	8.9141	13.4971	0.482	79.702
09/04/2013 10:32:43	8.9349	13.4334	0.081	79.801
09/04/2013 10:32:53	8.9492	13.3554	0.18	80.002
09/04/2013 10:33:03	9.0236	13.3275	0.28	79.801
09/04/2013 10:33:13	8.9266	13.3316	0.081	80.002
09/04/2013 10:33:23	8.9445	13.3412	0.482	79.702
09/04/2013 10:33:33	8.9338	13.3626	-0.018	79.801
09/04/2013 10:33:43	8.829	13.4322	0.081	78.802
09/04/2013 10:33:53	8.9784	13.4251	-0.117	77.901
09/04/2013 10:34:03	8.9469	13.3287	-0.113	76.602
09/04/2013 10:34:13	8.9201	13.2186	0.18	75.301
09/04/2013 10:34:23	8.9189	13.2215	0.18	74.601
09/04/2013 10:34:33	9.0718	13.234	0.081	73.901
09/04/2013 10:34:43	9.0986	13.2382	0.18	73.502
09/04/2013 10:34:53	9.2307	13.2787	0.081	73.401
09/04/2013 10:35:03	9.1224	13.3019	-0.018	73.201
09/04/2013 10:35:13	9.2129	13.3447	0.18	72.802
09/04/2013 10:35:23	9.0659	13.3656	0.18	72.102
09/04/2013 10:35:33	9.0105	13.2971	-0.117	71.402
09/04/2013 10:35:43	9.1212	13.3447	-0.117	71.602
09/04/2013 10:35:53	9.0349	13.3102	-0.216	71.602
09/04/2013 10:36:03	8.9635	13.337	0.18	71.602

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 10:36:13	9.0058	13.4602	0.383	71.402
09/04/2013 10:36:23	9.0093	13.4935	-0.117	71.602
09/04/2013 10:36:33	8.907	13.4905	-0.216	71.402
09/04/2013 10:36:43	8.8385	13.4346	0.18	71.003
09/04/2013 10:36:53	8.7695	13.4084	0.28	70.301
09/04/2013 10:37:03	8.682	13.218	0.18	70.301
09/04/2013 10:37:13	8.7939	13.0388	-0.018	70.702
09/04/2013 10:37:23	9.0671	12.9281	0.077	71.202
09/04/2013 10:37:33	9.3849	12.9109	-0.419	71.202
09/04/2013 10:37:43	9.5985	13.1656	0.28	71.202
09/04/2013 10:37:53	9.6574	13.5137	-0.018	71.003
09/04/2013 10:38:03	9.5176	13.7655	-0.32	70.301
09/04/2013 10:38:13	9.4152	13.9303	-0.32	70.301
09/04/2013 10:38:23	9.4378	14.0422	-0.32	70.301
09/04/2013 10:38:33	9.4045	14.0297	0.28	70.101
09/04/2013 10:38:43	9.2718	13.9321	0.081	69.901
09/04/2013 10:38:53	9.0754	13.797	0.081	69.401
09/04/2013 10:39:03	9.1296	13.7083	0.18	69.601
09/04/2013 10:39:13	9.1349	13.6387	0.28	69.601
09/04/2013 10:39:23	9.1891	13.5822	0.581	69.601
09/04/2013 10:39:33	9.1117	13.5423	-0.018	69.802
09/04/2013 10:39:43	9.0349	13.4923	0.081	70.502
09/04/2013 10:39:53	8.9504	13.4465	-0.018	70.801
09/04/2013 10:40:03	8.8731	13.4393	0.081	71.202
09/04/2013 10:40:13	8.854	13.5143	0.081	71.702
09/04/2013 10:40:23	8.7963	13.5792	0.184	71.902
09/04/2013 10:40:33	8.9106	13.5857	-0.216	73.901
09/04/2013 10:40:43	8.835	13.5506	0.077	75.702
09/04/2013 10:40:53	8.9469	13.531	-0.419	76.602
09/04/2013 10:41:03	8.9951	13.4917	-0.518	77.502
09/04/2013 10:41:13	9.0718	13.4554	0.18	77.901
09/04/2013 10:41:23	9.0706	13.5643	-0.117	77.901
09/04/2013 10:41:33	9.073	13.6125	-0.216	78.802
09/04/2013 10:41:43	9.001	13.6405	0.081	79.101
09/04/2013 10:41:53	8.8695	13.6488	-0.216	79.101
09/04/2013 10:42:03	8.7011	13.6268	0.081	79.502
09/04/2013 10:42:13	8.782	13.5506	-0.919	79.502
09/04/2013 10:42:23	8.7939	13.3465	-0.32	79.502
09/04/2013 10:42:33	8.9635	13.1216	-0.117	79.303
09/04/2013 10:42:43	9.0236	13.1311	-0.117	79.502
09/04/2013 10:42:53	9.0742	13.1596	-0.617	79.702
09/04/2013 10:43:03	9.0337	13.1709	-0.617	78.601
09/04/2013 10:43:13	9.1046	13.1733	-0.316	77.001
09/04/2013 10:43:23	8.8915	13.1073	-0.216	75.902
09/04/2013 10:43:33	8.9141	13.0263	-0.518	75.301
09/04/2013 10:43:43	8.8986	12.993	-0.617	75.002
09/04/2013 10:43:53	8.8635	12.9002	-0.018	74.401
09/04/2013 10:44:03	8.8278	12.7794	-0.018	73.401
09/04/2013 10:44:13	8.7868	12.6705	-0.117	73.201
09/04/2013 10:44:23	8.7267	12.6675	-0.014	72.802
09/04/2013 10:44:33	8.6374	12.7466	0.28	72.802
09/04/2013 10:44:43	8.6314	12.821	-0.216	72.802
09/04/2013 10:44:53	8.6624	12.8853	-0.018	72.501
09/04/2013 10:45:03	8.6624	12.9139	0.081	71.702
09/04/2013 10:45:13	8.5701	12.9603	-0.014	71.702
09/04/2013 10:45:23	8.5434	12.9871	-0.716	71.402
09/04/2013 10:45:33	8.4279	12.9758	-0.518	71.402
09/04/2013 10:45:43	8.4458	12.9192	-0.216	71.702
09/04/2013 10:45:53	8.2583	12.868	-0.419	71.702
09/04/2013 10:46:03	8.1786	12.7859	0.18	71.402
09/04/2013 10:46:13	8.388	12.721	-0.018	71.003
09/04/2013 10:46:23	8.8939	12.6639	-0.419	70.502
09/04/2013 10:46:33	8.3892	12.6377	-0.617	70.301
09/04/2013 10:46:43	8.3506	13.6964	-0.919	70.101
09/04/2013 10:46:53	8.3339	13.4251	-1.018	69.901
09/04/2013 10:47:03	8.4315	12.8698	0.18	69.601
09/04/2013 10:47:13	8.5279	12.6675	0.081	69.202
09/04/2013 10:47:23	8.5481	12.5752	0.081	69.202
09/04/2013 10:47:33	8.4422	12.6859	-0.919	69.401
09/04/2013 10:47:43	8.4892	12.7621	-0.919	69.601
09/04/2013 10:47:53	8.7808	12.7365	-0.617	69.401
09/04/2013 10:48:03	8.9974	12.5979	-0.018	69.601
09/04/2013 10:48:13	8.9469	12.602	-0.419	69.601
09/04/2013 10:48:23	9.1766	12.9805	-0.216	69.202
09/04/2013 10:48:33	9.514	13.1037	-0.316	69.401
09/04/2013 10:48:43	9.899	13.0864	-0.518	69.601
09/04/2013 10:48:53	10.1151	13.378	-0.22	69.601
09/04/2013 10:49:03	10.2353	13.8904	-0.117	69.802
09/04/2013 10:49:13	10.2002	14.3195	-0.32	69.901
09/04/2013 10:49:23	10.199	14.5445	-0.32	70.702
09/04/2013 10:49:33	10.3555	14.5046	-0.518	71.402
09/04/2013 10:49:43	10.4566	14.498	-0.716	71.702
09/04/2013 10:49:53	10.4495	14.5986	-0.919	72.102
End Run 3				
Average	**9.014106**	**13.32315**	**-0.097794**	**73.16825**
Maximum	**10.4566**	**14.5986**	**0.581**	**80.002**
Minimum	**8.1786**	**12.5752**	**-1.018**	**69.202**
09/04/2013 10:50:03	10.4025	14.7307	-0.518	72.501

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 10:50:13	10.3293	14.8313	-0.415	73.201
09/04/2013 10:50:23	9.9847	14.8039	-0.32	74.302
09/04/2013 10:50:33	9.8907	14.6962	-0.216	75.202
Calibration Bias				
09/04/2013 10:50:43	2.5845	14.4838	-0.117	76.202
09/04/2013 10:50:53	0.0428	14.1475	-0.32	76.402
09/04/2013 10:51:03	0.0196	13.0365	-0.32	76.202
09/04/2013 10:51:13	0.0077	2.0953	1.682	76.402
09/04/2013 10:51:23	0.0065	0.2225	3.578	76.402
09/04/2013 10:51:33	0.0065	0.1243	3.682	76.402
09/04/2013 10:51:43	0.0053	0.1023	1.281	76.602
09/04/2013 10:51:53	0.0041	0.0898	-0.919	76.602
09/04/2013 10:52:03	0.0017	0.0821	-0.819	77.302
09/04/2013 10:52:13	-0.00064	0.0851	-1.121	77.701
09/04/2013 10:52:23	-0.0018	0.0678	-0.522	77.502
09/04/2013 10:52:33	-0.0018	0.0642	-0.518	77.001
09/04/2013 10:52:43	-0.003	0.0666	-0.32	76.202
09/04/2013 10:52:53	0.00055	0.0595	-0.72	75.902
09/04/2013 10:53:03	-0.0066	0.0553	-0.419	75.702
N2 Zero		**0.060467**	**-0.486333**	
09/04/2013 10:53:13	-0.0066	0.0553	5.782	74.401
09/04/2013 10:53:23	-0.0066	0.0523	13.09	74.101
09/04/2013 10:53:33	-0.0066	0.0476	22.898	73.701
09/04/2013 10:53:43	-0.0054	0.047	33.31	73.401
09/04/2013 10:53:53	-0.0054	0.0499	41.62	73.002
09/04/2013 10:54:03	-0.0066	0.038	44.724	72.501
09/04/2013 10:54:13	-0.0066	0.0458	44.923	71.702
09/04/2013 10:54:23	-0.0078	0.0458	44.923	71.602
09/04/2013 10:54:33	-0.0078	0.044	44.824	71.202
09/04/2013 10:54:43	-0.0066	0.0392	45.121	71.003
09/04/2013 10:54:53	-0.0066	0.0404	45.32	70.702
46.3 ppm CO Mid			**45.08833**	
09/04/2013 10:55:03	4.2461	0.0422	45.32	71.003
09/04/2013 10:55:13	10.8357	0.0363	44.824	71.003
09/04/2013 10:55:23	9.5812	0.2654	43.124	70.702
09/04/2013 10:55:33	2.0495	8.9248	42.624	70.502
09/04/2013 10:55:43	2.0126	10.906	30.813	70.301
09/04/2013 10:55:53	2.0019	5.2125	16.092	69.901
09/04/2013 10:56:03	2.0019	2.3108	6.385	69.901
09/04/2013 10:56:13	2.0007	2.1376	1.583	69.901
09/04/2013 10:56:23	1.9989	2.1239	0.379	69.901
09/04/2013 10:56:33	1.9989	2.1209	0.18	69.901
09/04/2013 10:56:43	1.9989	2.1156	-0.216	70.301
09/04/2013 10:56:53	1.9989	2.1156	-0.32	69.802
2.07% O2 Low	**1.9989**			
09/04/2013 10:57:03	6.2689	2.109	-0.121	70.101
09/04/2013 10:57:13	10.9131	2.1078	-0.32	70.101
09/04/2013 10:57:23	10.9369	2.3405	-0.522	70.101
09/04/2013 10:57:33	10.9405	9.3593	-0.32	70.702
09/04/2013 10:57:43	10.9482	11.0012	-0.919	71.202
09/04/2013 10:57:53	10.9637	11.075	-2.022	71.702
09/04/2013 10:58:03	10.9554	11.0863	-1.419	71.202
09/04/2013 10:58:13	10.9577	11.0988	-2.121	71.902
09/04/2013 10:58:23	10.9506	11.1035	-2.319	72.501
09/04/2013 10:58:33	10.9839	11.1071	-1.419	73.401
09/04/2013 10:58:43	10.9625	11.1053	-1.022	73.701
11.1% O2 Mid	**10.96567**	**11.1053**		
09/04/2013 10:58:53	12.1111	11.1137	-1.121	73.901
09/04/2013 10:59:03	11.7344	11.1166	-0.919	74.302
09/04/2013 10:59:13	11.6153	11.7034	-1.022	74.801
09/04/2013 10:59:23	11.5439	12.4634	-0.819	75.702
09/04/2013 10:59:33	11.585	12.4711	-0.518	76.202
09/04/2013 10:59:43	11.6427	12.5205	-0.518	76.602
09/04/2013 10:59:53	10.7826	12.5562	-0.32	76.602
Start Run 4				
09/04/2013 11:00:03	10.8849	12.6818	-0.419	77.001
09/04/2013 11:00:13	10.9426	12.9192	-0.72	77.901
09/04/2013 11:00:23	10.9236	13.1787	-0.919	78.901
09/04/2013 11:00:33	11.1653	13.3656	-0.716	79.502
09/04/2013 11:00:43	11.3945	13.4203	-0.32	79.101
09/04/2013 11:00:53	11.4898	13.4173	-0.117	78.002
09/04/2013 11:01:03	10.7744	13.3965	-0.32	76.802
09/04/2013 11:01:13	10.3192	13.4013	-0.621	75.301
09/04/2013 11:01:23	10.0413	13.4227	-0.621	74.601
09/04/2013 11:01:33	9.8413	13.4983	-0.32	73.502
09/04/2013 11:01:43	9.6598	13.5947	-0.117	73.002
09/04/2013 11:01:53	9.4479	13.6488	-0.018	72.802
09/04/2013 11:02:03	9.4527	13.6625	0.18	72.501
09/04/2013 11:02:13	9.5681	13.6613	-0.117	71.902
09/04/2013 11:02:23	9.6235	13.6744	-0.32	71.402
09/04/2013 11:02:33	9.5777	13.7464	-0.117	71.003
09/04/2013 11:02:43	9.3765	13.8452	-0.32	70.702
09/04/2013 11:02:53	9.3295	13.9101	-0.617	71.003
09/04/2013 11:03:03	9.3343	13.8399	-0.018	71.003
09/04/2013 11:03:13	9.3765	13.744	-0.018	71.402
09/04/2013 11:03:23	9.4378	13.7107	-0.518	71.202
09/04/2013 11:03:33	9.4997	13.7232	-0.518	71.402
09/04/2013 11:03:43	9.4551	13.7732	-0.518	71.003
09/04/2013 11:03:53	9.4378	13.8637	-0.419	70.801

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 11:04:03	9.5598	13.9095	-0.32	70.801
09/04/2013 11:04:13	9.6294	13.9208	-1.522	71.003
09/04/2013 11:04:23	9.7044	13.9273	-0.419	71.202
09/04/2013 11:04:33	9.7282	13.9773	-0.617	70.801
09/04/2013 11:04:43	9.8294	14.0047	-0.018	70.801
09/04/2013 11:04:53	9.8401	14.0505	-0.018	70.801
09/04/2013 11:05:03	9.9544	14.1981	0.081	70.801
09/04/2013 11:05:13	9.8598	14.3296	0.28	70.502
09/04/2013 11:05:23	9.8824	14.3588	0.077	70.801
09/04/2013 11:05:33	9.946	14.3975	-0.117	71.003
09/04/2013 11:05:43	9.8705	14.3308	-0.32	71.003
09/04/2013 11:05:53	9.7032	14.3784	0.081	71.202
09/04/2013 11:06:03	9.7425	14.3641	0.28	71.402
09/04/2013 11:06:13	9.8294	14.2279	0.081	71.402
09/04/2013 11:06:23	9.8413	14.1154	0.081	71.402
09/04/2013 11:06:33	9.8931	14.0981	0.18	71.602
09/04/2013 11:06:43	10.0127	14.1535	0.28	71.602
09/04/2013 11:06:53	10.0811	14.2076	-0.121	71.702
09/04/2013 11:07:03	9.9556	14.285	-0.018	72.302
09/04/2013 11:07:13	10.1281	14.332	0.18	73.201
09/04/2013 11:07:23	10.0127	14.354	0.28	74.302
09/04/2013 11:07:33	10.0871	14.3249	0.081	74.801
09/04/2013 11:07:43	10.0799	14.3576	-0.018	76.102
09/04/2013 11:07:53	10.0317	14.4397	-0.117	76.602
09/04/2013 11:08:03	10.0799	14.4689	0.18	77.001
09/04/2013 11:08:13	10.0085	14.4433	0.077	77.701
09/04/2013 11:08:23	9.9693	14.4016	0.081	78.201
09/04/2013 11:08:33	9.927	14.3653	0.081	79.101
09/04/2013 11:08:43	9.7907	14.2963	0.077	78.901
09/04/2013 11:08:53	9.7175	14.2767	-0.621	78.901
09/04/2013 11:09:03	9.68	14.1832	-0.018	79.801
09/04/2013 11:09:13	9.655	14.0838	0.28	80.202
09/04/2013 11:09:23	9.3753	14.0351	-0.117	80.402
09/04/2013 11:09:33	9.3962	13.9743	-0.018	79.801
09/04/2013 11:09:43	9.3646	13.8875	-0.018	78.401
09/04/2013 11:09:53	9.2706	13.7482	-0.32	77.302
09/04/2013 11:10:03	9.0766	13.6578	-0.014	75.902
09/04/2013 11:10:13	8.7279	13.5976	-0.216	75.002
09/04/2013 11:10:23	8.594	13.4858	-0.216	74.401
09/04/2013 11:10:33	8.5654	13.3132	-0.117	74.101
09/04/2013 11:10:43	8.5434	13.2668	-0.117	73.701
09/04/2013 11:10:53	8.5999	13.1739	-0.419	72.802
09/04/2013 11:11:03	8.7713	13.1769	0.081	72.602
09/04/2013 11:11:13	8.8683	13.1501	-0.518	72.802
09/04/2013 11:11:23	8.8844	13.193	-0.518	72.302
09/04/2013 11:11:33	8.9106	13.3531	-0.32	72.102
09/04/2013 11:11:43	9.0564	13.5256	-0.518	71.402
09/04/2013 11:11:53	9.1659	13.5965	-0.819	71.402
09/04/2013 11:12:03	9.0986	13.6863	-0.32	71.602
09/04/2013 11:12:13	9.0552	13.8476	0.28	71.202
09/04/2013 11:12:23	8.9659	13.9226	-0.216	71.402
09/04/2013 11:12:33	8.9611	13.8476	-0.216	71.202
09/04/2013 11:12:43	9.0236	13.7542	-0.018	71.003
09/04/2013 11:12:53	9.1224	13.6964	-0.32	71.202
09/04/2013 11:13:03	9.0986	13.6899	-0.22	70.502
09/04/2013 11:13:13	8.9915	13.7559	-0.018	70.301
09/04/2013 11:13:23	9.0397	13.797	0.081	70.502
09/04/2013 11:13:33	8.9647	13.7559	0.081	70.301
09/04/2013 11:13:43	8.9236	13.6845	0.077	70.502
09/04/2013 11:13:53	8.9599	13.6357	0.081	71.003
09/04/2013 11:14:03	9.0444	13.503	0.081	71.003
09/04/2013 11:14:13	9.1504	13.3935	0.18	70.301
09/04/2013 11:14:23	9.1718	13.4709	0.18	69.901
09/04/2013 11:14:33	9.3527	13.6125	0.081	70.101
09/04/2013 11:14:43	9.5247	13.7327	0.081	69.901
09/04/2013 11:14:53	9.6646	13.8149	-0.018	69.802
09/04/2013 11:15:03	9.68	13.9416	-0.117	69.901
09/04/2013 11:15:13	9.5729	14.163	-0.216	70.502
09/04/2013 11:15:23	9.5437	14.2957	-0.018	70.502
09/04/2013 11:15:33	9.4271	14.3183	0.081	70.101
09/04/2013 11:15:43	9.4717	14.2642	0.081	70.702
09/04/2013 11:15:53	9.4896	14.207	0.081	70.502
09/04/2013 11:16:03	9.5479	14.1356	0.081	70.502
09/04/2013 11:16:13	9.514	14.1297	0.383	70.502
09/04/2013 11:16:23	9.5426	14.2023	0.081	70.801
09/04/2013 11:16:33	9.6437	14.2546	-0.419	71.202
09/04/2013 11:16:43	9.6485	14.2267	-0.72	71.402
09/04/2013 11:16:53	9.614	14.2088	-0.518	71.902
09/04/2013 11:17:03	9.5765	14.2594	-0.72	72.302
09/04/2013 11:17:13	9.4997	14.3153	-0.621	73.002
09/04/2013 11:17:23	9.4848	14.3261	-0.617	74.101
09/04/2013 11:17:33	9.4247	14.3463	-0.518	75.202
09/04/2013 11:17:43	9.4694	14.2725	-0.72	75.202
09/04/2013 11:17:53	9.5765	14.1755	-0.72	75.202
09/04/2013 11:18:03	9.5366	14.1487	-0.22	75.502
09/04/2013 11:18:13	9.5943	14.2154	-0.72	76.102
09/04/2013 11:18:23	9.6009	14.3499	-0.419	76.802
09/04/2013 11:18:33	9.5211	14.4272	-0.216	77.901
09/04/2013 11:18:43	9.4247	14.4475	0.081	78.802

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 11:18:53	9.2141	14.3874	-0.32	78.802
09/04/2013 11:19:03	9.1468	14.2362	-0.32	78.401
09/04/2013 11:19:13	9.0504	14.0589	-0.216	78.201
09/04/2013 11:19:23	9.1093	13.9125	-0.117	77.701
09/04/2013 11:19:33	9.1718	13.7893	0.081	76.802
09/04/2013 11:19:43	9.148	13.7309	-0.121	76.602
09/04/2013 11:19:53	9.0248	13.7613	-0.018	76.102
09/04/2013 11:20:03	8.9903	13.7518	-0.72	75.301
09/04/2013 11:20:13	8.9754	13.7083	-1.018	74.302
09/04/2013 11:20:23	9.0587	13.6625	-0.518	73.401
09/04/2013 11:20:33	9.1867	13.6405	0.18	73.002
09/04/2013 11:20:43	9.22	13.606	0.081	73.002
09/04/2013 11:20:53	9.0962	13.6738	-0.018	72.802
End Run 4				
Average	**9.535445**	**13.89642**	**-0.191071**	**73.47554**
Maximum	**11.4898**	**14.4689**	**0.383**	**80.402**
Minimum	**8.5434**	**12.6818**	**-1.522**	**69.802**
09/04/2013 11:21:03	9.0302	13.7054	-0.216	72.501
09/04/2013 11:21:13	9.0397	13.7226	-0.419	71.902
09/04/2013 11:21:23	9.1516	13.7387	-0.32	71.702
09/04/2013 11:21:33	9.2902	13.7179	-0.415	71.402
Calibration Bias				
09/04/2013 11:21:43	0.388	13.7274	-0.216	71.602
09/04/2013 11:21:53	0.0339	13.7863	0.18	71.402
09/04/2013 11:22:03	0.0184	10.1805	0.28	71.202
09/04/2013 11:22:13	0.0125	0.9795	0.482	70.702
09/04/2013 11:22:23	0.0089	0.1821	0.581	71.003
09/04/2013 11:22:33	0.0077	0.1214	-0.018	70.702
09/04/2013 11:22:43	0.0053	0.1106	-0.117	70.101
09/04/2013 11:22:53	0.0029	0.0934	-0.22	70.101
09/04/2013 11:23:03	0.0017	0.0839	-0.32	69.901
09/04/2013 11:23:13	0.0017	0.0833	-0.018	69.601
09/04/2013 11:23:23	0.00055	0.0761	-0.22	69.802
N2 Zero		**0.0811**	**-0.186**	
09/04/2013 11:23:33	-0.00064	0.0708	-0.617	69.401
09/04/2013 11:23:43	3.1356	0.0696	-0.32	69.802
09/04/2013 11:23:53	0.0065	0.069	-0.22	69.802
09/04/2013 11:24:03	-0.0018	1.2991	-0.32	69.401
09/04/2013 11:24:13	-0.0042	0.8896	0.379	69.601
09/04/2013 11:24:23	-0.0042	0.0952	8.482	69.802
09/04/2013 11:24:33	-0.0042	0.066	17.692	69.802
09/04/2013 11:24:43	-0.0054	0.0565	27.807	69.802
09/04/2013 11:24:53	-0.0066	0.0499	35.712	69.901
09/04/2013 11:25:03	-0.0078	0.0499	40.819	70.101
09/04/2013 11:25:13	-0.0066	0.047	43.223	70.101
09/04/2013 11:25:23	-0.0054	0.047	44.121	70.702
09/04/2013 11:25:33	-0.0066	0.0422	44.018	70.801
09/04/2013 11:25:43	-0.0066	0.047	44.423	71.402
09/04/2013 11:25:53	-0.0078	0.0458	44.221	72.302
09/04/2013 11:26:03	-0.009	0.0499	44.522	72.802
09/04/2013 11:26:13	-0.0078	0.0428	44.824	73.401
46.3 ppm CO Mid			**44.52233**	
09/04/2013 11:26:23	1.6609	0.044	45.022	73.901
09/04/2013 11:26:33	1.9305	0.0404	43.82	74.401
09/04/2013 11:26:43	1.9329	0.3951	45.022	75.002
09/04/2013 11:26:53	1.9376	1.8751	42.219	75.502
09/04/2013 11:27:03	1.9353	2.0876	28.809	75.902
09/04/2013 11:27:13	1.9424	2.1043	13.89	76.402
09/04/2013 11:27:23	1.9448	2.1078	4.481	76.402
09/04/2013 11:27:33	1.946	2.1049	0.98	76.402
09/04/2013 11:27:43	1.9501	2.1019	-0.018	76.802
09/04/2013 11:27:53	1.9513	2.1061	-0.018	77.302
09/04/2013 11:28:03	1.9537	2.1114	-0.22	77.701
09/04/2013 11:28:13	1.9549	2.1138	-0.018	78.002
2.07% O2 Low	**1.9533**			
09/04/2013 11:28:23	10.1615	2.1078	-0.216	79.101
09/04/2013 11:28:33	10.6649	2.1066	-0.22	78.401
09/04/2013 11:28:43	10.6941	4.324	-0.117	76.802
09/04/2013 11:28:53	10.7298	10.5638	-0.117	75.902
09/04/2013 11:29:03	10.7423	11.0452	-0.117	75.301
09/04/2013 11:29:13	10.7411	11.0732	-0.117	75.301
09/04/2013 11:29:23	10.7506	11.0922	-0.518	75.202
09/04/2013 11:29:33	10.7542	11.0881	-0.819	74.401
09/04/2013 11:29:43	10.7732	11.1023	-0.72	73.701
09/04/2013 11:29:53	10.7673	11.116	-0.419	73.901
09/04/2013 11:30:03	10.7602	11.1101	-0.419	73.401
11.1% O2 Mid	**10.7669**	**11.10947**		
09/04/2013 11:30:13	11.144	11.1065	-0.617	72.802
09/04/2013 11:30:23	13.1864	11.1113	-0.819	72.802
09/04/2013 11:30:33	13.037	11.1226	-0.919	72.802
09/04/2013 11:30:43	12.9936	13.1216	-0.716	71.702
09/04/2013 11:30:53	12.8395	14.4719	-0.617	71.202
Start Run 5				
09/04/2013 11:31:03	11.7133	14.6331	-0.32	70.301
09/04/2013 11:31:13	11.477	14.6807	-0.316	70.301
09/04/2013 11:31:23	11.2075	14.6682	-0.216	70.301
09/04/2013 11:31:33	10.8688	14.6724	-0.216	71.003
09/04/2013 11:31:43	10.6403	14.6534	-0.018	71.003

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 11:31:53	10.5439	14.6534	0.081	71.003
09/04/2013 11:32:03	10.3463	14.6397	0.28	70.702
09/04/2013 11:32:13	9.9167	14.6141	0.28	70.502
09/04/2013 11:32:23	9.7227	14.6379	0.081	69.901
09/04/2013 11:32:33	10.2787	14.6563	0.18	69.901
09/04/2013 11:32:43	9.7967	14.6177	0.18	69.901
09/04/2013 11:32:53	9.8389	14.5254	0.18	69.601
09/04/2013 11:33:03	9.7211	14.4141	0.18	69.202
09/04/2013 11:33:13	9.6425	14.3671	0.081	69.002
09/04/2013 11:33:23	9.6354	14.3433	0.081	69.202
09/04/2013 11:33:33	9.6211	14.332	-0.018	69.002
09/04/2013 11:33:43	9.586	14.3415	-0.419	69.202
09/04/2013 11:33:53	9.514	14.3249	-0.216	69.401
09/04/2013 11:34:03	9.5437	14.3011	-0.32	69.802
09/04/2013 11:34:13	9.5402	14.1737	-0.117	69.601
09/04/2013 11:34:23	9.3849	14.0874	-0.117	69.802
09/04/2013 11:34:33	9.2271	14.0779	-0.117	69.802
09/04/2013 11:34:43	9.0421	14.0303	0.081	69.802
09/04/2013 11:34:53	8.8844	13.8119	-0.018	70.301
09/04/2013 11:35:03	8.8189	13.5554	-0.018	70.502
09/04/2013 11:35:13	8.8433	13.3602	-0.018	71.202
09/04/2013 11:35:23	9.0248	13.262	-0.018	71.702
09/04/2013 11:35:33	9.0962	13.2037	-0.216	72.302
09/04/2013 11:35:43	9.0915	13.2799	-0.117	73.002
09/04/2013 11:35:53	9.007	13.4298	-0.117	73.502
09/04/2013 11:36:03	8.9671	13.5536	-0.216	73.901
09/04/2013 11:36:13	9.0105	13.5786	-0.216	74.601
09/04/2013 11:36:23	9.0962	13.5191	-0.22	75.002
09/04/2013 11:36:33	9.1801	13.4572	-0.117	75.301
09/04/2013 11:36:43	9.273	13.4542	-0.018	75.902
09/04/2013 11:36:53	9.2974	13.5536	0.18	76.102
09/04/2013 11:37:03	9.142	13.6578	0.081	76.102
09/04/2013 11:37:13	9.0528	13.7875	0.081	76.402
09/04/2013 11:37:23	9.1456	13.7803	-0.117	77.102
09/04/2013 11:37:33	9.1706	13.7214	-0.018	77.502
09/04/2013 11:37:43	9.1551	13.7423	0.081	77.701
09/04/2013 11:37:53	9.0421	13.7994	0.18	78.201
09/04/2013 11:38:03	9.048	13.7417	0.18	78.201
09/04/2013 11:38:13	8.9504	13.6197	-0.018	77.302
09/04/2013 11:38:23	8.9599	13.5286	-0.32	76.102
09/04/2013 11:38:33	10.1133	13.5108	-0.419	75.202
09/04/2013 11:38:43	9.2117	13.5137	0.077	74.601
09/04/2013 11:38:53	9.0778	13.9142	0.18	74.101
09/04/2013 11:39:03	9.1587	14.5159	-0.117	73.701
09/04/2013 11:39:13	9.1385	13.7345	-0.117	73.901
09/04/2013 11:39:23	9.1611	13.5851	-0.316	73.502
09/04/2013 11:39:33	9.2682	13.6673	-0.117	73.002
09/04/2013 11:39:43	9.22	13.7417	0.18	73.002
09/04/2013 11:39:53	9.0373	13.7565	0.284	72.802
09/04/2013 11:40:03	9.0867	13.744	0.18	72.302
09/04/2013 11:40:13	9.1635	13.6911	-0.117	71.602
09/04/2013 11:40:23	9.2492	13.4364	-0.018	70.801
09/04/2013 11:40:33	9.3081	13.4084	-0.32	71.003
09/04/2013 11:40:43	9.1432	13.4566	-0.216	71.602
09/04/2013 11:40:53	8.8516	13.5477	0.18	71.003
09/04/2013 11:41:03	8.8659	13.622	-0.117	70.702
09/04/2013 11:41:13	8.9153	13.609	-0.117	70.502
09/04/2013 11:41:23	8.9742	13.5405	0.18	70.502
09/04/2013 11:41:33	8.8564	13.5477	0.18	70.702
09/04/2013 11:41:43	8.8034	13.5649	0.18	70.801
09/04/2013 11:41:53	8.9213	13.5744	0.081	71.202
09/04/2013 11:42:03	9.1236	13.5375	0.081	70.801
09/04/2013 11:42:13	9.2563	13.5203	0.081	70.502
09/04/2013 11:42:23	9.201	13.6435	-0.018	70.702
09/04/2013 11:42:33	9.0117	13.8434	-0.117	70.702
09/04/2013 11:42:43	8.8409	13.9244	0.081	70.301
09/04/2013 11:42:53	8.8552	13.7786	-0.117	70.301
09/04/2013 11:43:03	8.9046	13.5233	-0.316	69.802
09/04/2013 11:43:13	9.1069	13.3334	-0.018	69.601
09/04/2013 11:43:23	9.2902	13.3066	-0.117	70.101
09/04/2013 11:43:33	9.4729	13.4447	-0.32	70.301
09/04/2013 11:43:43	9.6175	13.6292	-0.216	70.301
09/04/2013 11:43:53	9.6681	13.8476	-0.018	70.301
09/04/2013 11:44:03	9.6128	14.0517	-0.22	70.301
09/04/2013 11:44:13	9.6693	14.191	-0.014	69.901
09/04/2013 11:44:23	9.6991	14.2326	0.081	69.601
09/04/2013 11:44:33	9.7645	14.2166	-0.018	68.901
09/04/2013 11:44:43	9.8115	14.1993	0.081	68.901
09/04/2013 11:44:53	9.7812	14.2499	0.18	69.002
09/04/2013 11:45:03	9.7378	14.3034	0.18	69.601
09/04/2013 11:45:13	9.7259	14.3493	0.18	69.802
09/04/2013 11:45:23	9.7717	14.3005	0.077	70.101
09/04/2013 11:45:33	9.7318	14.2439	0.18	70.502
09/04/2013 11:45:43	9.8199	14.1725	0.28	70.702
09/04/2013 11:45:53	9.7633	14.1725	0.28	71.402
09/04/2013 11:46:03	9.755	14.182	-0.018	72.602
09/04/2013 11:46:13	9.8163	14.0886	0.18	73.701
09/04/2013 11:46:23	9.6634	14.0017	-0.018	73.901
09/04/2013 11:46:33	9.5199	13.9845	0.28	74.302

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 11:46:43	9.3622	14.0333	0.18	74.601
09/04/2013 11:46:53	9.3319	14.0273	0.18	74.601
09/04/2013 11:47:03	9.1682	14.0107	0.18	75.202
09/04/2013 11:47:13	9.2611	13.8714	0.18	75.902
09/04/2013 11:47:23	9.2587	13.7369	0.18	75.902
09/04/2013 11:47:33	8.9469	13.6988	0.077	75.902
09/04/2013 11:47:43	8.6172	13.7119	-0.117	76.402
09/04/2013 11:47:53	8.5636	13.5715	0.081	76.802
09/04/2013 11:48:03	8.5678	13.3257	0.18	76.802
09/04/2013 11:48:13	8.5654	13.1037	-0.018	77.001
09/04/2013 11:48:23	8.4529	12.8936	-0.018	77.502
09/04/2013 11:48:33	8.4136	12.7478	-0.018	78.401
09/04/2013 11:48:43	8.4642	12.6246	-0.018	77.302
09/04/2013 11:48:53	8.6493	12.4913	0.081	76.402
09/04/2013 11:49:03	9.0456	12.433	-0.216	75.702
09/04/2013 11:49:13	9.2777	12.5086	-0.32	75.301
09/04/2013 11:49:23	9.4176	12.7514	0.081	74.601
09/04/2013 11:49:33	9.6366	13.1757	-0.117	74.101
09/04/2013 11:49:43	9.6824	13.5631	-0.018	73.502
09/04/2013 11:49:53	9.8437	13.8428	-0.018	72.802
09/04/2013 11:50:03	9.8473	14.0172	0.081	72.602
09/04/2013 11:50:13	9.6919	14.0743	0.28	72.302
09/04/2013 11:50:23	9.6991	14.0487	0.28	71.902
09/04/2013 11:50:33	9.714	13.9482	0.28	71.402
09/04/2013 11:50:43	9.9544	13.8321	-0.018	70.801
09/04/2013 11:50:53	9.7741	13.8274	-0.018	70.502
09/04/2013 11:51:03	9.639	13.8857	0.18	70.502
09/04/2013 11:51:13	9.6425	13.9714	0.18	70.502
09/04/2013 11:51:23	9.7669	13.6708	0.28	70.301
09/04/2013 11:51:33	9.5033	13.6149	0.28	69.802
09/04/2013 11:51:43	9.633	13.7298	0.081	70.101
09/04/2013 11:51:53	9.6765	13.9113	-0.018	70.502
End Run 5				
Average	**9.402001**	**13.81312**	**0.008365**	**72.3461**
Maximum	**11.7133**	**14.6807**	**0.284**	**78.401**
Minimum	**8.4136**	**12.433**	**-0.419**	**68.901**
09/04/2013 11:52:03	9.7586	14.0172	-0.018	70.301
09/04/2013 11:52:13	9.8401	14.0827	-0.117	70.301
09/04/2013 11:52:23	9.6693	14.1713	0.081	69.601
09/04/2013 11:52:33	9.5658	14.3088	0.081	69.401
09/04/2013 11:52:43	9.4872	14.3296	0.081	69.202
09/04/2013 11:52:53	9.3849	14.2362	-0.117	69.002
09/04/2013 11:53:03	9.3587	14.1582	-0.117	69.002
09/04/2013 11:53:13	9.295	14.0666	0.081	69.601
09/04/2013 11:53:23	9.3456	13.9624	0.081	70.101
09/04/2013 11:53:33	9.32	13.9238	0.28	70.502
09/04/2013 11:53:43	9.3456	13.8321	-0.018	70.801
09/04/2013 11:53:53	9.4366	13.8333	-0.018	71.202
09/04/2013 11:54:03	9.4694	13.797	-0.117	71.602
Calibration Bias				
09/04/2013 11:54:13	0.2904	13.7684	0.081	72.102
09/04/2013 11:54:23	0.0315	13.794	-0.216	72.602
09/04/2013 11:54:33	0.0148	9.1843	-0.117	73.401
09/04/2013 11:54:43	0.0125	0.7629	0.28	73.901
09/04/2013 11:54:53	0.0125	0.1696	0.28	74.302
09/04/2013 11:55:03	0.0101	0.122	0.077	74.601
09/04/2013 11:55:13	0.0065	0.1071	-0.518	74.801
09/04/2013 11:55:23	0.0041	0.0898	-0.419	75.301
09/04/2013 11:55:33	0.0041	0.0791	-0.32	75.702
09/04/2013 11:55:43	0.0017	0.0761	-0.216	75.902
09/04/2013 11:55:53	-0.00064	0.0785	-0.117	76.102
09/04/2013 11:56:03	-0.0042	0.0618	-0.621	76.202
09/04/2013 11:56:13	-0.0042	0.0648	-0.419	76.402
N2 Zero		**0.068367**	**-0.385667**	
09/04/2013 11:56:23	-0.0042	0.0648	2.38	76.802
09/04/2013 11:56:33	-0.0042	0.0618	14.092	77.102
09/04/2013 11:56:43	-0.0042	0.0595	29.309	78.201
09/04/2013 11:56:53	-0.0054	0.069	40.118	78.802
09/04/2013 11:57:03	-0.0066	0.0517	43.124	77.901
09/04/2013 11:57:13	-0.0066	0.0523	43.721	76.602
09/04/2013 11:57:23	-0.0066	0.0523	45.022	75.902
09/04/2013 11:57:33	-0.0054	0.0499	44.423	75.002
09/04/2013 11:57:43	-0.0054	0.0476	44.621	73.901
09/04/2013 11:57:53	-0.0066	0.0422	45.022	73.002
46.3 ppm CO Mid			**44.68867**	
09/04/2013 11:58:03	3.598	0.0505	44.824	72.501
09/04/2013 11:58:13	9.8377	0.041	44.625	72.102
09/04/2013 11:58:23	2.0352	0.2892	44.522	71.602
09/04/2013 11:58:33	1.9954	8.6612	43.322	71.602
09/04/2013 11:58:43	1.9835	5.1691	35.018	71.602
09/04/2013 11:58:53	1.993	2.306	20.599	71.202
09/04/2013 11:59:03	1.9894	2.1287	8.482	71.402
09/04/2013 11:59:13	1.9894	2.1185	1.98	71.402
09/04/2013 11:59:23	1.9942	2.1144	0.28	71.202
09/04/2013 11:59:33	1.993	2.1078	-0.117	71.003
2.07% O2 Low	**1.9922**			
09/04/2013 11:59:43	5.2274	2.1138	0.18	71.003
09/04/2013 11:59:53	10.0389	2.1114	0.18	70.702

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 12:00:03	10.9071	3.6682	-0.518	69.901
09/04/2013 12:00:13	10.9434	4.7335	0.081	69.601
09/04/2013 12:00:23	10.9333	10.3471	-0.617	69.802
09/04/2013 12:00:33	10.9458	11.044	0.081	69.401
09/04/2013 12:00:43	10.9393	11.0768	-0.018	69.202
09/04/2013 12:00:53	10.9637	11.0898	-0.819	69.202
09/04/2013 12:01:03	10.953	11.0946	-0.32	69.002
09/04/2013 12:01:13	10.9684	11.1035	-0.617	69.202
11.1% O2 Mid	**10.9617**	**11.09597**		
09/04/2013 12:01:23	11.1321	11.1071	-0.32	69.401
09/04/2013 12:01:33	13.0573	11.1083	-0.919	69.601
09/04/2013 12:01:43	12.6782	11.116	-0.72	69.202
09/04/2013 12:01:53	12.4532	12.5378	-1.018	69.002
09/04/2013 12:02:03	12.2884	13.5042	-0.919	69.401
09/04/2013 12:02:13	12.2402	13.5161	-0.22	70.301
09/04/2013 12:02:23	12.2087	13.4905	-0.216	70.801
09/04/2013 12:02:33	12.2664	13.4679	-0.117	71.003
09/04/2013 12:02:43	12.2783	13.4774	-0.018	71.602
09/04/2013 12:02:53	11.2884	13.5905	-0.419	72.302
Start Run 6				
09/04/2013 12:03:03	11.2664	13.7232	-0.419	73.401
09/04/2013 12:03:13	11.1051	13.8208	-0.32	74.101
09/04/2013 12:03:23	11.8379	13.8857	-0.32	74.801
09/04/2013 12:03:33	11.0518	13.8732	-0.117	75.002
09/04/2013 12:03:43	10.3894	13.7327	0.28	75.202
09/04/2013 12:03:53	9.9609	13.5524	-0.117	75.502
09/04/2013 12:04:03	9.6598	13.4239	-0.216	75.702
09/04/2013 12:04:13	9.4682	13.3364	0.18	76.102
09/04/2013 12:04:23	9.2432	13.2638	-0.018	76.602
09/04/2013 12:04:33	9.0516	13.1501	-0.018	76.602
09/04/2013 12:04:43	9.2385	13.1227	0.482	76.802
09/04/2013 12:04:53	9.3259	13.1132	0.18	77.701
09/04/2013 12:05:03	9.3236	13.2067	0.18	78.201
09/04/2013 12:05:13	9.3974	13.3792	0.081	78.002
09/04/2013 12:05:23	9.4872	13.5471	0.081	77.701
09/04/2013 12:05:33	9.5586	13.6268	-0.32	77.001
09/04/2013 12:05:43	9.533	13.7083	-0.117	76.102
09/04/2013 12:05:53	9.5717	13.8702	0.081	75.202
09/04/2013 12:06:03	9.6259	13.9797	0.081	74.401
09/04/2013 12:06:13	9.5211	14.0017	0.081	74.302
09/04/2013 12:06:23	9.486	13.9648	-0.316	73.401
09/04/2013 12:06:33	9.5318	13.897	-0.018	72.802
09/04/2013 12:06:43	9.5836	13.8285	-0.117	72.302
09/04/2013 12:06:53	9.6473	13.7988	-0.117	72.501
09/04/2013 12:07:03	9.6449	13.8309	-0.216	72.501
09/04/2013 12:07:13	9.786	13.8684	-0.216	72.102
09/04/2013 12:07:23	9.7128	13.8768	-0.018	72.302
09/04/2013 12:07:33	9.639	13.9	-0.216	72.302
09/04/2013 12:07:43	9.655	13.9303	-0.32	71.602
09/04/2013 12:07:53	9.7883	13.9494	-0.32	71.702
09/04/2013 12:08:03	9.8484	13.9446	-0.32	72.102
09/04/2013 12:08:13	9.9472	14.0315	-0.018	71.402
09/04/2013 12:08:23	9.9175	14.1077	-0.518	71.402
09/04/2013 12:08:33	9.9633	14.1916	-0.32	71.202
09/04/2013 12:08:43	10.0436	14.2594	0.18	70.702
09/04/2013 12:08:53	9.952	14.2481	-0.117	69.901
09/04/2013 12:09:03	10.1341	14.2785	0.081	69.901
09/04/2013 12:09:13	10.1222	14.2773	0.18	69.601
09/04/2013 12:09:23	10.1133	14.2939	0.077	69.901
09/04/2013 12:09:33	10.0859	14.3606	-0.018	70.101
09/04/2013 12:09:43	10.1484	14.404	-0.117	70.101
09/04/2013 12:09:53	10.0532	14.4492	-0.117	69.901
09/04/2013 12:10:03	10.1353	14.4481	0.081	69.601
09/04/2013 12:10:13	10.0496	14.4082	0.18	69.202
09/04/2013 12:10:23	9.9597	14.3612	-0.018	68.701
09/04/2013 12:10:33	9.8645	14.3499	0.081	69.002
09/04/2013 12:10:43	9.7705	14.3213	0.18	69.601
09/04/2013 12:10:53	9.655	14.2701	0.18	69.601
09/04/2013 12:11:03	9.4223	14.2362	0.18	69.401
09/04/2013 12:11:13	9.3081	14.1582	-0.117	69.601
09/04/2013 12:11:23	9.2926	13.9987	0.081	69.202
09/04/2013 12:11:33	9.2938	13.8399	0.081	69.002
09/04/2013 12:11:43	9.3033	13.8024	0.081	69.401
09/04/2013 12:11:53	9.289	13.8643	0.081	69.601
09/04/2013 12:12:03	9.2658	13.8988	0.18	70.301
09/04/2013 12:12:13	9.2706	13.8827	-0.117	71.402
09/04/2013 12:12:23	9.2825	13.8988	0.081	72.102
09/04/2013 12:12:33	9.3456	13.9529	0.18	72.302
09/04/2013 12:12:43	9.395	14.0249	-0.117	72.802
09/04/2013 12:12:53	9.4128	14.0791	0.081	73.401
09/04/2013 12:13:03	9.4586	14.1041	0.081	74.302
09/04/2013 12:13:13	9.3777	14.1065	-0.117	75.002
09/04/2013 12:13:23	9.3069	14.1213	0.18	75.902
09/04/2013 12:13:33	9.4045	14.1154	-0.018	76.102
09/04/2013 12:13:43	9.3515	14.0731	0.081	77.001
09/04/2013 12:13:53	9.3849	14.0636	-0.018	77.302
09/04/2013 12:14:03	9.367	14.0874	0.081	77.901
09/04/2013 12:14:13	9.4057	14.1106	-0.117	78.401
09/04/2013 12:14:23	9.4104	14.1124	0.18	79.101

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 12:14:33	9.4515	14.1666	0.284	79.702
09/04/2013 12:14:43	9.3741	14.2231	-0.216	79.702
09/04/2013 12:14:53	9.3563	14.2421	-0.117	79.702
09/04/2013 12:15:03	9.2658	14.207	-0.32	79.801
09/04/2013 12:15:13	9.2849	14.1088	-0.419	78.802
09/04/2013 12:15:23	9.2926	14.0362	-0.32	77.302
09/04/2013 12:15:33	9.2682	13.9922	-0.419	76.402
09/04/2013 12:15:43	9.273	13.9589	-0.018	75.902
09/04/2013 12:15:53	9.2813	13.8892	0.18	74.801
09/04/2013 12:16:03	9.2861	13.8434	0.18	74.401
09/04/2013 12:16:13	9.289	13.8714	0.18	73.901
09/04/2013 12:16:23	9.3378	13.891	0.184	73.002
09/04/2013 12:16:33	9.3563	13.9303	0.184	72.302
09/04/2013 12:16:43	9.4116	13.9559	0.482	71.902
09/04/2013 12:16:53	9.373	13.9868	0.081	71.602
09/04/2013 12:17:03	9.2718	14.0083	0.18	71.402
09/04/2013 12:17:13	9.2152	14.0303	0.081	71.602
09/04/2013 12:17:23	9.1468	13.997	0.081	71.702
09/04/2013 12:17:33	9.0599	13.9273	0.18	71.202
09/04/2013 12:17:43	8.9808	13.8404	0.18	70.801
09/04/2013 12:17:53	8.835	13.6691	0.284	70.801
09/04/2013 12:18:03	8.8963	13.4792	-0.018	71.202
09/04/2013 12:18:13	8.907	13.3513	-0.014	70.801
09/04/2013 12:18:23	8.9766	13.218	-0.316	70.502
09/04/2013 12:18:33	9.0468	13.2763	0.18	70.101
09/04/2013 12:18:43	9.0564	13.3025	0.18	70.101
09/04/2013 12:18:53	8.9683	13.365	0.18	69.802
09/04/2013 12:19:03	8.8516	13.4286	0.081	69.901
09/04/2013 12:19:13	8.9177	13.4417	-0.018	69.802
09/04/2013 12:19:23	8.9695	13.4001	0.18	69.601
09/04/2013 12:19:33	9.079	13.2912	0.18	70.101
09/04/2013 12:19:43	9.1129	13.3572	0.081	70.101
09/04/2013 12:19:53	9.1468	13.4507	0.18	69.601
09/04/2013 12:20:03	9.0504	13.5381	0.18	69.601
09/04/2013 12:20:13	8.9623	13.6214	-0.216	69.601
09/04/2013 12:20:23	9.0302	13.625	-0.32	69.802
09/04/2013 12:20:33	9.0373	13.459	0.18	70.301
09/04/2013 12:20:43	9.0236	13.3626	-0.117	70.301
09/04/2013 12:20:53	9.0153	13.3703	0.081	70.502
09/04/2013 12:21:03	8.9951	13.403	-0.014	70.101
09/04/2013 12:21:13	9.026	13.4019	-0.32	69.202
09/04/2013 12:21:23	9.0468	13.4155	-0.419	69.601
09/04/2013 12:21:33	9.001	13.3888	-0.316	70.301
09/04/2013 12:21:43	8.8772	13.3382	-0.32	70.702
09/04/2013 12:21:53	8.8998	13.3792	-0.216	71.202
09/04/2013 12:22:03	8.9213	13.4322	0.28	71.402
09/04/2013 12:22:13	9.1081	13.4507	0.284	72.302
09/04/2013 12:22:23	9.0314	13.478	-0.014	72.802
09/04/2013 12:22:33	8.9915	13.4995	0.18	73.502
09/04/2013 12:22:43	9.0325	13.5173	0.081	74.101
09/04/2013 12:22:53	9.0236	13.5298	0.081	74.801
09/04/2013 12:23:03	9.0361	13.5441	0.18	75.202
09/04/2013 12:23:13	8.9867	13.5851	0.18	75.702
09/04/2013 12:23:23	8.8504	13.6042	0.18	76.802
09/04/2013 12:23:33	8.6035	13.6078	0.081	77.001
09/04/2013 12:23:43	8.6422	13.506	0.081	77.502
09/04/2013 12:23:53	8.7255	13.3084	0.184	77.102
End Run 6				
Average	**9.424301**	**13.80319**	**0.002103**	**72.946**
Maximum	**11.8379**	**14.4492**	**0.482**	**79.801**
Minimum	**8.6035**	**13.1132**	**-0.518**	**68.701**
09/04/2013 12:24:03	8.8421	13.0329	-0.018	77.001
09/04/2013 12:24:13	9.007	13.0263	0.081	77.102
09/04/2013 12:24:23	9.1296	13.0864	0.081	77.302
09/04/2013 12:24:33	9.1914	13.2763	-0.32	77.502
09/04/2013 12:24:43	9.201	13.5346	0.081	78.201
09/04/2013 12:24:53	9.2742	13.7565	0.18	77.701
09/04/2013 12:25:03	9.2754	13.8452	0.081	77.102
Calibration Bias				
09/04/2013 12:25:13	0.1279	13.922	0.18	76.402
09/04/2013 12:25:23	0.0232	13.9892	0.18	75.702
09/04/2013 12:25:33	0.0125	6.6813	-0.32	74.601
09/04/2013 12:25:43	0.0089	0.5409	-0.117	73.701
09/04/2013 12:25:53	0.0077	0.1577	-0.32	73.002
09/04/2013 12:26:03	0.0053	0.1214	-0.72	73.002
09/04/2013 12:26:13	0.0041	0.0981	-0.819	72.802
09/04/2013 12:26:23	0.0017	0.088	-0.72	72.102
09/04/2013 12:26:33	-0.0018	0.0809	-0.819	71.702
09/04/2013 12:26:43	-0.0018	0.0678	-0.117	71.402
09/04/2013 12:26:53	-0.0018	0.0696	-0.919	71.003
09/04/2013 12:27:03	-0.0018	0.0642	-0.72	70.502
09/04/2013 12:27:13	-0.003	0.063	-1.018	70.502
09/04/2013 12:27:23	0.2076	0.0553	-0.518	70.702
09/04/2013 12:27:33	-0.0054	0.0535	-0.32	70.801
N2 Zero		**0.057267**	**-0.618667**	
09/04/2013 12:27:43	-0.0078	1.1658	-0.621	70.301
09/04/2013 12:27:53	-0.0066	0.2059	0.28	69.802
09/04/2013 12:28:03	-0.009	0.0678	9.486	69.601

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 12:28:13	-0.0078	0.0458	25.304	69.202
09/04/2013 12:28:23	-0.0078	0.0553	37.916	69.401
09/04/2013 12:28:33	-0.009	0.047	42.719	69.601
09/04/2013 12:28:43	-0.009	0.047	44.522	69.601
09/04/2013 12:28:53	-0.009	0.0517	44.621	69.601
09/04/2013 12:29:03	-0.009	0.0458	44.824	69.401
09/04/2013 12:29:13	-0.009	0.044	44.72	68.901
09/04/2013 12:29:23	-0.009	0.0476	44.419	68.901
46.3 ppm CO Mid			**44.65433**	
09/04/2013 12:29:33	0.5123	0.0422	44.621	69.401
09/04/2013 12:29:43	1.9007	0.038	44.522	69.202
09/04/2013 12:29:53	1.9174	0.0714	44.919	69.202
09/04/2013 12:30:03	1.9234	1.6389	45.022	69.002
09/04/2013 12:30:13	1.9269	2.0775	37.315	69.002
09/04/2013 12:30:23	1.9305	2.0947	22.199	69.401
09/04/2013 12:30:33	1.9234	2.0995	8.986	69.802
09/04/2013 12:30:43	1.9269	2.1031	2.38	70.502
09/04/2013 12:30:53	1.9341	2.0995	0.68	71.202
09/04/2013 12:31:03	1.9424	2.1013	0.081	71.602
09/04/2013 12:31:13	1.9501	2.1049	0.18	71.902
09/04/2013 12:31:23	1.9513	2.1019	0.077	72.802
09/04/2013 12:31:33	1.9513	2.1078	-0.216	73.401
2.07% O2 Low	**1.9509**			
09/04/2013 12:31:43	1.9388	2.1061	-0.32	74.801
09/04/2013 12:31:53	6.4349	2.1126	-0.32	75.202
09/04/2013 12:32:03	1.9846	2.1043	-0.117	75.301
09/04/2013 12:32:13	0.063	3.942	-0.621	75.702
09/04/2013 12:32:23	0.00055	3.4939	1.682	75.902
09/04/2013 12:32:33	-0.0066	1.4336	3.781	76.402
09/04/2013 12:32:43	-0.0066	0.1803	5.282	77.102
09/04/2013 12:32:53	-0.0066	0.0613	15.493	77.001
09/04/2013 12:33:03	-0.0078	0.0452	29.511	77.102
09/04/2013 12:33:13	-0.0066	0.0428	40.118	77.001
09/04/2013 12:33:23	9.946	0.038	43.721	77.502
09/04/2013 12:33:33	10.6989	0.0392	44.423	78.002
09/04/2013 12:33:43	10.7423	2.9559	44.423	77.102
09/04/2013 12:33:53	10.7625	10.4168	42.223	76.202
09/04/2013 12:34:03	10.7732	11.0214	31.112	75.002
09/04/2013 12:34:13	10.7744	11.0577	16.391	74.302
09/04/2013 12:34:23	10.7851	11.0756	6.984	73.502
09/04/2013 12:34:33	10.7816	11.0833	1.88	73.502
09/04/2013 12:34:43	10.7941	11.0803	-0.819	73.401
09/04/2013 12:34:53	10.7953	11.094	-0.72	73.002
09/04/2013 12:35:03	10.8012	11.0976	-0.72	72.501
11.1% O2 Mid	**10.79687**	**11.09063**		
09/04/2013 12:35:13	11.832	11.1017	-0.919	72.102
09/04/2013 12:35:23	11.485	11.1035	-1.121	71.602
09/04/2013 12:35:33	11.338	11.5457	-0.518	71.402
09/04/2013 12:35:43	11.1958	12.683	-0.518	71.003
09/04/2013 12:35:53	10.1321	12.7556	-0.518	70.702
Start Run 7				
09/04/2013 12:36:03	10.1035	12.6972	-0.617	70.502
09/04/2013 12:36:13	9.9179	12.6931	-0.32	70.101
09/04/2013 12:36:23	9.6286	12.824	-0.419	70.502
09/04/2013 12:36:33	10.4025	12.9597	-0.018	69.901
09/04/2013 12:36:43	10.2448	12.9234	-0.018	69.601
09/04/2013 12:36:53	10.0567	12.8918	-0.518	69.401
09/04/2013 12:37:03	9.6729	12.9383	-0.419	69.802
09/04/2013 12:37:13	9.2914	13.0454	-0.117	69.401
09/04/2013 12:37:23	9.3319	13.1751	-0.32	69.202
09/04/2013 12:37:33	9.3105	13.1323	-0.419	69.901
09/04/2013 12:37:43	9.5967	13.0246	-0.419	70.301
09/04/2013 12:37:53	9.533	13.0835	-0.117	69.601
09/04/2013 12:38:03	9.4331	13.3144	-0.117	69.202
09/04/2013 12:38:13	9.4777	13.5726	-0.018	68.901
09/04/2013 12:38:23	9.4491	13.8149	-0.018	68.701
09/04/2013 12:38:33	9.3938	13.8589	0.081	68.901
09/04/2013 12:38:43	9.395	13.7673	0.081	69.002
09/04/2013 12:38:53	9.4973	13.6833	0.081	69.601
09/04/2013 12:39:03	9.5467	13.622	0.081	69.601
09/04/2013 12:39:13	9.6598	13.6458	-0.117	69.601
09/04/2013 12:39:23	9.7104	13.7321	0.081	69.601
09/04/2013 12:39:33	9.8115	13.8416	0.081	69.401
09/04/2013 12:39:43	9.7294	14.019	-0.121	68.901
09/04/2013 12:39:53	9.6413	14.1957	0.081	68.502
09/04/2013 12:40:03	9.5378	14.2898	0.081	68.502
09/04/2013 12:40:13	9.3849	14.2356	0.081	69.202
09/04/2013 12:40:23	9.242	14.1422	-0.117	69.802
09/04/2013 12:40:33	9.1706	14.016	0.081	70.101
09/04/2013 12:40:43	9.1837	13.7673	-0.117	71.003
09/04/2013 12:40:53	9.2176	13.5726	-0.518	71.202
09/04/2013 12:41:03	9.267	13.478	-0.419	71.003
09/04/2013 12:41:13	9.3646	13.4858	-0.32	71.902
09/04/2013 12:41:23	9.3974	13.5584	-0.018	72.802
09/04/2013 12:41:33	9.3551	13.6583	-0.018	73.701
09/04/2013 12:41:43	9.4176	13.7797	-0.018	75.202
09/04/2013 12:41:53	9.3408	13.9077	-0.018	76.202
09/04/2013 12:42:03	9.3283	13.9868	-0.117	77.001
09/04/2013 12:42:13	9.3378	14.0351	-0.117	77.001

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 12:42:23	9.3057	13.9791	-0.018	77.001
09/04/2013 12:42:33	9.3128	13.9148	0.081	77.102
09/04/2013 12:42:43	9.2879	13.8524	-0.117	77.302
09/04/2013 12:42:53	9.2587	13.8333	-0.018	77.901
09/04/2013 12:43:03	9.1926	13.7881	-0.018	77.901
09/04/2013 12:43:13	9.2057	13.7423	-0.018	77.901
09/04/2013 12:43:23	9.142	13.7119	-0.117	78.401
09/04/2013 12:43:33	9.4271	13.6851	0.28	78.601
09/04/2013 12:43:43	9.2825	13.728	-0.117	78.002
09/04/2013 12:43:53	9.2706	13.9172	-0.117	77.001
09/04/2013 12:44:03	9.3503	14.1594	-0.117	75.902
09/04/2013 12:44:13	9.4295	13.9714	-0.117	75.502
09/04/2013 12:44:23	9.561	13.8607	-0.018	74.601
09/04/2013 12:44:33	9.5634	13.8637	0.081	73.901
09/04/2013 12:44:43	9.4985	13.9892	0.081	73.502
09/04/2013 12:44:53	9.5223	14.0969	-0.014	73.002
09/04/2013 12:45:03	9.3926	14.0868	-0.018	72.501
09/04/2013 12:45:13	9.1623	14.0285	-0.117	72.302
09/04/2013 12:45:23	9.1081	13.9029	-0.018	72.102
09/04/2013 12:45:33	9.1623	13.775	0.081	71.902
09/04/2013 12:45:43	9.2141	13.628	-0.117	71.602
09/04/2013 12:45:53	9.3093	13.5584	-0.32	71.402
09/04/2013 12:46:03	9.4259	13.5566	-0.018	71.003
09/04/2013 12:46:13	9.5318	13.6869	0.081	70.702
09/04/2013 12:46:23	9.42	13.8196	-0.117	70.502
09/04/2013 12:46:33	9.4503	13.9256	-0.018	70.702
09/04/2013 12:46:43	9.4354	13.9678	-0.018	70.801
09/04/2013 12:46:53	9.5033	13.9523	-0.018	70.702
09/04/2013 12:47:03	9.6021	13.9476	-0.117	70.301
09/04/2013 12:47:13	9.614	13.9607	-0.216	69.901
09/04/2013 12:47:23	9.3212	13.9964	-0.117	69.901
09/04/2013 12:47:33	9.1742	14.0714	-0.117	69.601
09/04/2013 12:47:43	9.12	14.0446	-0.216	70.301
09/04/2013 12:47:53	9.0938	13.8904	-0.117	70.702
09/04/2013 12:48:03	9.0778	13.8244	-0.32	70.101
09/04/2013 12:48:13	9.0492	13.7803	-0.419	69.802
09/04/2013 12:48:23	8.9516	13.706	-0.018	69.601
09/04/2013 12:48:33	8.9177	13.603	-0.018	69.601
09/04/2013 12:48:43	8.9022	13.5143	0.081	69.401
09/04/2013 12:48:53	8.8671	13.4066	-0.117	68.901
09/04/2013 12:49:03	8.8998	13.3513	-0.216	69.601
09/04/2013 12:49:13	8.9397	13.243	-0.216	69.901
09/04/2013 12:49:23	8.9326	13.1674	-0.014	70.101
09/04/2013 12:49:33	8.8469	13.2578	0.081	69.901
09/04/2013 12:49:43	8.9189	13.2578	-0.518	69.802
09/04/2013 12:49:53	8.9326	13.1852	-0.419	69.202
09/04/2013 12:50:03	9.0599	13.1007	-0.518	69.401
09/04/2013 12:50:13	9.0766	13.0978	-0.117	69.401
09/04/2013 12:50:23	9.0564	13.1442	-0.117	69.601
09/04/2013 12:50:33	9.0081	13.2025	-0.216	69.601
09/04/2013 12:50:43	8.8998	13.2257	-0.216	69.901
09/04/2013 12:50:53	9.0671	13.2483	-0.018	70.502
09/04/2013 12:51:03	9.289	13.281	-0.018	70.702
09/04/2013 12:51:13	9.3985	13.3894	-0.117	70.702
09/04/2013 12:51:23	9.5033	13.581	0.081	71.202
09/04/2013 12:51:33	9.6681	13.7196	0.081	71.902
09/04/2013 12:51:43	9.5342	13.8083	-0.018	72.802
09/04/2013 12:51:53	9.561	13.8875	-0.117	74.101
09/04/2013 12:52:03	9.508	13.8922	-0.014	74.601
09/04/2013 12:52:13	9.5539	13.8053	-0.018	75.202
09/04/2013 12:52:23	9.5705	13.8137	0.081	75.502
09/04/2013 12:52:33	9.5931	13.8196	0.081	75.301
09/04/2013 12:52:43	9.6116	13.8607	0.081	75.902
09/04/2013 12:52:53	9.6586	13.8857	0.18	76.802
09/04/2013 12:53:03	9.6729	13.8684	0.081	77.502
09/04/2013 12:53:13	9.655	13.7928	-0.117	77.901
09/04/2013 12:53:23	9.5997	13.7196	-0.018	78.601
09/04/2013 12:53:33	9.3152	13.7339	0.081	78.601
09/04/2013 12:53:43	9.2646	13.7405	0.081	79.303
09/04/2013 12:53:53	9.4307	13.6863	-0.014	79.303
09/04/2013 12:54:03	9.4908	13.4679	-0.316	78.901
09/04/2013 12:54:13	9.6175	13.3066	-0.32	78.002
09/04/2013 12:54:23	9.6354	13.3269	-0.419	76.802
09/04/2013 12:54:33	9.7705	13.3846	-0.018	75.301
09/04/2013 12:54:43	9.9556	13.4542	-0.216	74.601
09/04/2013 12:54:53	10.0038	13.5358	0.081	73.701
09/04/2013 12:55:03	10.0038	13.6	0.18	73.502
09/04/2013 12:55:13	9.9484	13.6536	-0.018	73.002
09/04/2013 12:55:23	9.9931	13.7512	-0.117	72.602
09/04/2013 12:55:33	9.8199	13.8101	-0.014	72.102
09/04/2013 12:55:43	10.0127	13.8309	-0.018	71.702
09/04/2013 12:55:53	9.8728	13.8184	0.081	71.602
09/04/2013 12:56:03	9.7187	13.8071	-0.117	71.402
09/04/2013 12:56:13	9.655	13.8291	-0.21	71.202
09/04/2013 12:56:23	9.7003	13.8285	-0.038	71.402
09/04/2013 12:56:33	9.633	13.8036	-0.423	71.202
09/04/2013 12:56:43	9.708	13.7928	-0.518	70.502
09/04/2013 12:56:53	9.6574	13.7881	-0.216	70.301

End Run 7

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
Average	**9.436671**	**13.64804**	**-0.098992**	**72.31187**
Maximum	**10.4025**	**14.2898**	**0.28**	**79.303**
Minimum	**8.8469**	**12.6931**	**-0.617**	**68.502**
09/04/2013 12:57:03	9.633	13.7708	0.081	69.901
09/04/2013 12:57:13	9.5342	13.7803	-0.014	69.901
09/04/2013 12:57:23	9.6092	13.7006	-0.32	70.101
09/04/2013 12:57:33	9.4116	13.6899	-0.216	70.301
09/04/2013 12:57:43	9.3551	13.6339	0.081	70.301
Calibration Bias				
09/04/2013 12:57:53	1.6365	13.506	0.077	70.502
09/04/2013 12:58:03	0.0363	13.2876	-0.018	70.301
09/04/2013 12:58:13	0.0136	9.6092	-0.008	70.301
09/04/2013 12:58:23	0.0077	1.3009	0.194	70.101
09/04/2013 12:58:33	0.0065	0.194	0.456	70.101
09/04/2013 12:58:43	0.0053	0.1172	-0.044	69.901
09/04/2013 12:58:53	0.0029	0.1005	-0.53	69.601
09/04/2013 12:59:03	0.00055	0.0916	-0.72	69.401
09/04/2013 12:59:13	-0.00064	0.0934	-0.698	69.401
09/04/2013 12:59:23	-0.00064	0.0773	-0.32	68.701
09/04/2013 12:59:33	-0.00064	0.0678	-0.316	68.302
09/04/2013 12:59:43	-0.0018	0.0678	-0.32	68.302
09/04/2013 12:59:53	-0.003	0.0565	-0.323	68.502
09/04/2013 13:00:03	-0.0018	0.0595	-0.411	69.202
09/04/2013 13:00:13	-0.0078	0.0565	-0.21	68.901
09/04/2013 13:00:23	-0.0078	0.0571	-0.139	68.302
N2 Zero		**0.0577**	**-0.253333**	
09/04/2013 13:00:33	-0.009	0.0523	0.008	68.302
09/04/2013 13:00:43	-0.009	0.0499	4.354	69.202
09/04/2013 13:00:53	-0.009	0.0458	18.159	69.202
09/04/2013 13:01:03	-0.0078	0.0488	32.281	69.601
09/04/2013 13:01:13	-0.0078	0.044	41.263	69.901
09/04/2013 13:01:23	-0.009	0.0452	43.542	70.702
09/04/2013 13:01:33	-0.0102	0.0458	44.633	70.801
09/04/2013 13:01:43	-0.0102	0.0374	44.713	71.402
09/04/2013 13:01:53	-0.0102	0.038	44.562	72.602
46.3 ppm CO Mid			**44.636**	
09/04/2013 13:02:03	-0.0102	0.0357	44	73.701
09/04/2013 13:02:13	-0.0102	0.0422	43.842	74.601
09/04/2013 13:02:23	-0.0102	0.038	44.078	74.801
09/04/2013 13:02:33	1.7478	0.0327	44.508	75.702
09/04/2013 13:02:43	1.9245	0.038	44.379	75.702
09/04/2013 13:02:53	1.9281	0.4939	44.034	75.202
09/04/2013 13:03:03	1.9341	1.9573	42.08	75.502
09/04/2013 13:03:13	1.9376	2.0852	31.602	75.902
09/04/2013 13:03:23	1.9388	2.09	17.333	76.102
09/04/2013 13:03:33	1.9376	2.1001	6.102	76.402
09/04/2013 13:03:43	1.94	2.0983	1.488	77.001
09/04/2013 13:03:53	1.94	2.1001	0.319	77.302
09/04/2013 13:04:03	1.9412	2.1013	-0.004	77.901
09/04/2013 13:04:13	1.9376	2.0936	0.081	77.901
2.07% O2 Low	**1.9396**			
09/04/2013 13:04:23	1.7656	2.0983	0.059	76.402
09/04/2013 13:04:33	1.9632	2.1001	-0.00015	75.301
09/04/2013 13:04:43	10.0294	1.9983	0.139	75.002
09/04/2013 13:04:53	10.6756	2.0442	0.603	74.302
09/04/2013 13:05:03	10.6989	4.3931	1.462	73.502
09/04/2013 13:05:13	10.6893	10.4418	1.303	73.401
09/04/2013 13:05:23	10.7096	11.0309	0.833	73.201
09/04/2013 13:05:33	10.7411	11.066	-0.137	72.802
09/04/2013 13:05:43	10.6989	11.0779	-0.617	72.602
09/04/2013 13:05:53	10.7167	11.0779	-0.659	72.102
09/04/2013 13:06:03	10.7375	11.094	-0.772	71.902
09/04/2013 13:06:13	10.7411	11.0994	-0.56	71.402
09/04/2013 13:06:23	10.7298	11.094	-0.758	71.402
09/04/2013 13:06:33	10.7423	11.0922	-0.978	71.402
09/04/2013 13:06:43	10.7399	11.1065	-1.25	71.202
11.1% O2 Mid	**10.73733**	**11.09757**		
09/04/2013 13:06:53	10.7167	11.1101	-1.401	71.602
09/04/2013 13:07:03	11.5671	11.0994	-1.242	70.801
09/04/2013 13:07:13	12.2533	11.1083	-0.919	70.301
09/04/2013 13:07:23	12.0688	11.1642	-0.879	70.101
09/04/2013 13:07:33	12.0295	12.6592	-0.659	69.901
09/04/2013 13:07:43	11.9194	13.2953	-0.437	69.601
09/04/2013 13:07:53	11.9206	13.365	-0.617	69.002
09/04/2013 13:08:03	11.9182	13.3191	-0.901	69.002
09/04/2013 13:08:13	11.8861	13.259	-0.478	69.401
09/04/2013 13:08:23	11.8248	13.2828	-0.617	68.901
09/04/2013 13:08:33	11.7826	13.3132	-0.216	68.701
09/04/2013 13:08:43	10.7189	13.3763	-0.238	68.901
09/04/2013 13:08:53	10.6969	13.3983	-0.32	69.202
Start Run 8				
09/04/2013 13:09:03	9.9814	13.3769	-0.341	69.401
09/04/2013 13:09:13	9.5534	13.362	-0.419	69.601
09/04/2013 13:09:23	9.4945	13.3715	-0.341	69.601
09/04/2013 13:09:33	9.7953	13.4227	-0.07	69.401
09/04/2013 13:09:43	10.3317	13.531	-0.018	69.601
09/04/2013 13:09:53	10.2168	13.6506	-0.316	69.202
09/04/2013 13:10:03	10.1293	13.7768	-0.32	69.601

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 13:10:13	9.9681	13.8351	-0.268	69.901
09/04/2013 13:10:23	9.9472	13.8404	-0.07	70.301
09/04/2013 13:10:33	9.8705	13.8892	0.081	71.003
09/04/2013 13:10:43	9.9508	13.9482	0.055	71.202
09/04/2013 13:10:53	9.9657	13.997	0.012	71.602
09/04/2013 13:11:03	9.8907	14.0505	0.051	72.501
09/04/2013 13:11:13	9.9222	14.06	-0.014	73.502
09/04/2013 13:11:23	9.8943	14.0475	-0.018	74.801
09/04/2013 13:11:33	9.8907	14.0708	-0.014	75.902
09/04/2013 13:11:43	9.8705	14.0761	-0.018	76.202
09/04/2013 13:11:53	9.8139	14.0541	0.012	76.402
09/04/2013 13:12:03	9.7931	13.9904	0.051	76.802
09/04/2013 13:12:13	9.8199	13.9654	0.043	77.001
09/04/2013 13:12:23	9.7413	13.916	0.151	77.901
09/04/2013 13:12:33	9.8425	13.9125	0.018	78.401
09/04/2013 13:12:43	9.9597	13.8244	-0.06	78.401
09/04/2013 13:12:53	10.0603	13.7512	0.022	78.201
09/04/2013 13:13:03	10.021	13.8643	-0.21	78.201
09/04/2013 13:13:13	9.8282	14.0666	-0.419	78.601
09/04/2013 13:13:23	9.8199	14.1487	-0.508	78.601
09/04/2013 13:13:33	9.7116	14.1499	-0.79	78.802
09/04/2013 13:13:43	9.6693	14.1065	-0.815	77.502
09/04/2013 13:13:53	9.7485	14.044	-0.478	75.902
09/04/2013 13:14:03	9.6538	13.9773	-0.185	75.002
09/04/2013 13:14:13	9.5449	13.9553	-0.117	73.701
09/04/2013 13:14:23	9.4586	13.8875	-0.081	73.401
09/04/2013 13:14:33	9.4598	13.8149	-0.018	73.002
09/04/2013 13:14:43	9.4033	13.6929	-0.018	71.902
09/04/2013 13:14:53	9.2765	13.6078	0.014	71.702
09/04/2013 13:15:03	9.2176	13.5631	0.081	72.302
09/04/2013 13:15:13	8.9879	13.4411	0.081	71.602
09/04/2013 13:15:23	8.9433	13.2733	0.051	71.202
09/04/2013 13:15:33	8.8153	13.1358	0.022	71.202
09/04/2013 13:15:43	8.7421	12.9871	0.04	70.801
09/04/2013 13:15:53	8.6808	12.8698	-0.018	70.801
09/04/2013 13:16:03	8.5975	12.7734	0.022	70.801
09/04/2013 13:16:13	8.6808	12.683	-0.04	71.402
09/04/2013 13:16:23	8.7761	12.6258	-0.216	71.003
09/04/2013 13:16:33	8.9718	12.602	-0.298	70.702
09/04/2013 13:16:43	9.1081	12.721	-0.419	71.003
09/04/2013 13:16:53	9.2033	12.9793	-0.337	71.003
09/04/2013 13:17:03	9.367	13.2751	-0.216	70.301
09/04/2013 13:17:13	9.3634	13.4953	-0.147	70.801
09/04/2013 13:17:23	9.3343	13.6756	-0.159	70.502
09/04/2013 13:17:33	9.1296	13.8137	-0.216	70.502
09/04/2013 13:17:43	9.0373	13.9208	-0.04	70.301
09/04/2013 13:17:53	8.8998	13.9077	-0.139	70.101
09/04/2013 13:18:03	8.8481	13.6423	0.061	69.901
09/04/2013 13:18:13	8.8975	13.55	0.099	69.401
09/04/2013 13:18:23	8.9986	13.4221	0.061	68.701
09/04/2013 13:18:33	9.1057	13.3816	0.18	68.502
09/04/2013 13:18:43	9.0915	13.5471	0.103	68.502
09/04/2013 13:18:53	8.5565	13.7083	-0.018	69.202
09/04/2013 13:19:03	8.7695	13.8184	-0.177	69.401
09/04/2013 13:19:13	8.8659	13.8113	-0.379	69.401
09/04/2013 13:19:23	8.8588	13.5857	-0.199	69.002
09/04/2013 13:19:33	8.7386	13.4584	-0.018	69.401
09/04/2013 13:19:43	8.6939	13.4495	-0.177	69.202
09/04/2013 13:19:53	8.6832	13.3578	-0.262	69.002
09/04/2013 13:20:03	8.6279	13.2102	-0.018	68.701
09/04/2013 13:20:13	8.613	13.1227	-0.064	68.302
09/04/2013 13:20:23	8.7624	13.096	-0.074	68.701
09/04/2013 13:20:33	9.0272	13.0501	-0.064	69.002
09/04/2013 13:20:43	9.1337	13.0174	-0.03	69.002
09/04/2013 13:20:53	9.1236	13.2358	-0.008	69.202
09/04/2013 13:21:03	9.2033	13.5393	-0.03	69.401
09/04/2013 13:21:13	9.2283	13.6786	0.081	69.401
09/04/2013 13:21:23	9.2093	13.7512	-0.012	69.802
09/04/2013 13:21:33	9.1337	13.7851	-0.117	69.901
09/04/2013 13:21:43	9.095	13.8071	-0.03	70.502
09/04/2013 13:21:53	9.101	13.8041	0.081	70.801
09/04/2013 13:22:03	9.1349	13.6833	0.03	71.702
09/04/2013 13:22:13	9.1153	13.6387	-0.018	72.802
09/04/2013 13:22:23	8.9742	13.6679	-0.117	73.701
09/04/2013 13:22:33	8.7647	13.7012	-0.22	74.401
09/04/2013 13:22:43	8.5172	13.6649	-0.117	75.301
09/04/2013 13:22:53	8.347	13.5453	-0.268	75.502
09/04/2013 13:23:03	8.3363	13.2596	-0.466	75.902
09/04/2013 13:23:13	9.6056	12.8793	-0.316	76.202
09/04/2013 13:23:23	8.5422	12.6312	-0.268	77.001
09/04/2013 13:23:33	8.3291	12.7496	-0.216	77.302
09/04/2013 13:23:43	8.3375	13.7893	-0.216	77.701
09/04/2013 13:23:53	8.4458	12.827	-0.216	77.901
09/04/2013 13:24:03	8.5951	12.5723	-0.07	78.002
09/04/2013 13:24:13	8.6832	12.633	0.081	78.401
09/04/2013 13:24:23	8.7624	12.796	0.125	79.101
09/04/2013 13:24:33	8.6999	13.0002	0.081	78.802
09/04/2013 13:24:43	8.607	13.1251	-0.07	76.602
09/04/2013 13:24:53	8.6689	13.2685	-0.268	75.902

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 13:25:03	8.7433	13.0728	-0.32	74.601
09/04/2013 13:25:13	8.7737	12.946	-0.169	73.701
09/04/2013 13:25:23	8.6939	13.0329	-0.018	73.502
09/04/2013 13:25:33	8.6785	13.1168	-0.018	73.002
09/04/2013 13:25:43	8.5999	13.137	-0.117	73.201
09/04/2013 13:25:53	8.4868	13.0388	-0.165	73.002
09/04/2013 13:26:03	8.3797	12.9787	-0.018	71.902
09/04/2013 13:26:13	8.2607	12.8924	0.081	71.902
09/04/2013 13:26:23	8.3446	12.6657	0.034	71.702
09/04/2013 13:26:33	8.316	12.5056	-0.018	71.602
09/04/2013 13:26:43	8.4071	12.5282	0.036	71.202
09/04/2013 13:26:53	8.4011	12.6407	0.026	70.801
09/04/2013 13:27:03	8.4458	12.7199	0.036	70.801
09/04/2013 13:27:13	8.5951	12.7716	-0.03	71.003
09/04/2013 13:27:23	8.6785	12.7895	-0.012	71.003
09/04/2013 13:27:33	8.7493	12.9222	0.139	70.801
09/04/2013 13:27:43	8.7612	13.1608	0.073	71.003
09/04/2013 13:27:53	8.7725	13.2781	0.036	70.702
09/04/2013 13:28:03	8.7713	13.2763	-0.03	70.101
09/04/2013 13:28:13	8.6963	13.2406	-0.00015	70.502
09/04/2013 13:28:23	8.5904	13.2483	0.081	70.502
09/04/2013 13:28:33	8.6207	13.2132	0.022	69.802
09/04/2013 13:28:43	8.6231	13.1216	-0.018	69.601
09/04/2013 13:28:53	8.6142	13.0424	-0.014	69.401
09/04/2013 13:29:03	8.6118	13.0507	0.04	69.401
09/04/2013 13:29:13	8.66	13.0376	0.022	69.601
09/04/2013 13:29:23	8.7118	13.0769	0.04	69.802
09/04/2013 13:29:33	8.6999	13.0841	0.081	69.901
09/04/2013 13:29:43	8.6529	13.1293	0.081	70.101
09/04/2013 13:29:53	8.6773	13.1805	0.081	69.601
End Run 8				
Average	**9.079406**	**13.39635**	**-0.086842**	**72.28094**
Maximum	**10.3317**	**14.1499**	**0.18**	**79.101**
Minimum	**8.2607**	**12.5056**	**-0.815**	**68.302**
09/04/2013 13:30:03	8.6844	13.1995	0.139	69.802
09/04/2013 13:30:13	8.7219	13.1739	0.121	70.502
09/04/2013 13:30:23	8.8231	13.1704	0.081	70.301
09/04/2013 13:30:33	8.8213	13.2215	0.022	69.901
09/04/2013 13:30:43	8.8552	13.3114	-0.018	70.801
Calibration Bias				
09/04/2013 13:30:53	3.4082	13.3733	-0.018	71.402
09/04/2013 13:31:03	0.0416	13.4286	0.043	71.702
09/04/2013 13:31:13	0.016	12.7817	0.21	71.902
09/04/2013 13:31:23	0.0101	2.1953	0.151	72.102
09/04/2013 13:31:33	0.0041	0.2368	0.014	73.002
09/04/2013 13:31:43	0.0029	0.1279	-0.151	74.302
09/04/2013 13:31:53	0.0029	0.1077	-0.155	75.502
09/04/2013 13:32:03	0.00055	0.0904	-0.25	75.502
09/04/2013 13:32:13	-0.00064	0.0821	-0.254	76.102
09/04/2013 13:32:23	-0.0018	0.0773	-0.22	76.202
09/04/2013 13:32:33	-0.003	0.0737	-0.286	76.402
09/04/2013 13:32:43	-0.0018	0.0648	-0.32	76.602
09/04/2013 13:32:53	-0.0018	0.0613	-0.25	77.102
09/04/2013 13:33:03	-0.0042	0.0517	-0.151	77.302
09/04/2013 13:33:13	-0.0042	0.0553	-0.117	78.002
09/04/2013 13:33:23	-0.0054	0.0523	-0.262	78.002
09/04/2013 13:33:33	-0.0054	0.0523	-0.32	78.401
N2 Zero		**0.0533**	**-0.233**	
09/04/2013 13:33:43	-0.0054	0.0505	-0.46	78.802
09/04/2013 13:33:53	1.2056	0.0488	-0.379	78.002
09/04/2013 13:34:03	-0.003	0.0499	-0.32	77.102
09/04/2013 13:34:13	-0.009	0.2922	-0.25	76.102
09/04/2013 13:34:23	-0.009	0.3291	1.462	75.202
09/04/2013 13:34:33	-0.0102	0.0613	10.658	74.801
09/04/2013 13:34:43	-0.009	0.0333	25.294	74.302
09/04/2013 13:34:53	-0.009	0.0428	37.17	73.502
09/04/2013 13:35:03	-0.009	0.044	42.292	72.802
09/04/2013 13:35:13	-0.0114	0.041	44.121	72.302
09/04/2013 13:35:23	-0.0102	0.038	44.637	71.702
09/04/2013 13:35:33	-0.0102	0.0392	44.371	71.602
09/04/2013 13:35:43	-0.009	0.0505	44.643	71.602
09/04/2013 13:35:53	-0.0102	0.0363	44.893	71.202
09/04/2013 13:36:03	-0.0114	0.0363	45.062	72.102
46.3 ppm CO Mid			**44.866**	
09/04/2013 13:36:13	1.0795	0.0327	44.633	72.102
09/04/2013 13:36:23	1.9585	0.0333	44.633	71.602
09/04/2013 13:36:33	1.968	0.1868	44.798	71.202
09/04/2013 13:36:43	1.962	1.7109	40.83	71.202
09/04/2013 13:36:53	1.968	2.0763	29.099	71.402
09/04/2013 13:37:03	1.9704	2.0918	14.923	71.202
09/04/2013 13:37:13	1.9668	2.0965	5.294	70.502
09/04/2013 13:37:23	1.962	2.0918	1.371	70.101
09/04/2013 13:37:33	1.968	2.1001	0.327	70.502
09/04/2013 13:37:43	1.9739	2.0971	0.18	70.101
09/04/2013 13:37:53	1.9656	2.0953	0.107	70.801
09/04/2013 13:38:03	1.9644	2.1019	0.081	71.202
09/04/2013 13:38:13	1.9704	2.1013	0.008	71.202
09/04/2013 13:38:23	1.9692	2.1013	-0.095	70.801

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 13:38:33	1.9739	2.0983	-0.121	70.801
09/04/2013 13:38:43	1.9751	2.0924	-0.044	70.801
09/04/2013 13:38:53	1.9716	2.0965	0.055	70.301
2.07% O2 Low	**1.973533**			
09/04/2013 13:39:03	10.2906	2.0995	0.008	70.101
09/04/2013 13:39:13	10.6471	2.1061	-0.018	69.901
09/04/2013 13:39:23	10.6929	5.1054	-0.018	69.601
09/04/2013 13:39:33	10.6893	10.5846	-0.095	69.401
09/04/2013 13:39:43	10.6929	11.0345	-0.357	69.601
09/04/2013 13:39:53	10.6905	11.0684	-0.496	69.802
09/04/2013 13:40:03	10.7179	11.0768	-0.681	70.101
09/04/2013 13:40:13	10.7155	11.0851	-0.639	70.301
09/04/2013 13:40:23	10.7167	11.0922	-0.54	70.702
09/04/2013 13:40:33	10.6917	11.094	-0.599	71.003
09/04/2013 13:40:43	10.6941	11.0988	-0.617	71.402
11.1% O2 Mid	**10.70083**	**11.095**		
09/04/2013 13:40:53	11.873	11.0958	-0.617	72.102
09/04/2013 13:41:03	12.9746	11.1006	-0.536	72.802
09/04/2013 13:41:13	12.902	11.1714	-0.599	73.401
09/04/2013 13:41:23	12.9145	13.2924	-0.54	73.901
09/04/2013 13:41:33	12.7157	14.2297	-0.437	73.901
09/04/2013 13:41:43	12.4955	14.3993	-0.335	74.101
09/04/2013 13:41:53	12.2229	14.4855	-0.147	74.401
09/04/2013 13:42:03	12.1122	14.4195	0.135	74.601
09/04/2013 13:42:13	11.8909	14.3308	-0.159	74.801
09/04/2013 13:42:23	11.7284	14.2868	-0.385	75.301
09/04/2013 13:42:33	11.4558	14.354	-0.163	75.502
09/04/2013 13:42:43	11.172	14.4147	0.051	76.402
09/04/2013 13:42:53	10.6167	14.4272	-0.258	77.001
Start Run 9				
09/04/2013 13:43:03	10.2704	14.41	-0.232	77.302
09/04/2013 13:43:13	9.9978	14.307	-0.216	77.901
09/04/2013 13:43:23	9.7693	14.1648	-0.302	78.201
09/04/2013 13:43:33	9.5128	14.038	-0.32	78.201
09/04/2013 13:43:43	9.3271	13.9648	0.018	78.201
09/04/2013 13:43:53	9.1825	13.8339	0.081	77.502
09/04/2013 13:44:03	9.2879	13.6911	0.081	76.402
09/04/2013 13:44:13	9.3396	13.525	0.168	75.902
09/04/2013 13:44:23	9.4295	13.4685	0.18	75.002
09/04/2013 13:44:33	9.3914	13.6	0.184	73.701
09/04/2013 13:44:43	9.4563	13.7946	0.18	73.002
09/04/2013 13:44:53	9.4188	13.8607	-0.074	72.602
09/04/2013 13:45:03	9.3658	13.8589	-0.117	72.602
09/04/2013 13:45:13	9.3753	13.872	-0.034	72.302
09/04/2013 13:45:23	9.4033	13.8244	-0.53	71.702
09/04/2013 13:45:33	9.3444	13.7393	-0.617	72.302
09/04/2013 13:45:43	9.273	13.6756	-0.448	71.902
09/04/2013 13:45:53	9.2456	13.6393	-0.504	71.602
09/04/2013 13:46:03	9.1647	13.5506	-0.69	71.902
09/04/2013 13:46:13	9.1575	13.4542	-1.081	71.902
09/04/2013 13:46:23	9.1659	13.3554	-0.581	71.702
09/04/2013 13:46:33	9.0314	13.2477	-0.698	71.602
09/04/2013 13:46:43	8.9671	13.2685	-0.357	71.702
09/04/2013 13:46:53	8.9951	13.2263	-0.409	71.702
09/04/2013 13:47:03	8.8927	13.1138	-0.331	70.801
09/04/2013 13:47:13	8.7772	13.0269	-0.681	70.702
09/04/2013 13:47:23	8.7659	13.0186	-0.629	71.003
09/04/2013 13:47:33	8.9165	12.9353	-0.078	70.801
09/04/2013 13:47:43	9.1516	12.8585	-0.199	70.502
09/04/2013 13:47:53	9.2408	12.9573	-0.397	69.802
09/04/2013 13:48:03	9.3515	13.2257	-0.419	69.802
09/04/2013 13:48:13	9.3515	13.5459	-0.599	69.901
09/04/2013 13:48:23	9.2926	13.725	-0.526	69.802
09/04/2013 13:48:33	9.1093	13.8339	-0.708	70.502
09/04/2013 13:48:43	9.1837	13.8166	-0.625	70.502
09/04/2013 13:48:53	9.0635	13.7542	-0.522	70.702
09/04/2013 13:49:03	8.7207	13.7655	-0.901	71.003
09/04/2013 13:49:13	8.494	13.744	-0.254	70.101
09/04/2013 13:49:23	8.5184	13.4649	-0.121	69.901
09/04/2013 13:49:33	8.594	13.0537	-0.117	69.901
09/04/2013 13:49:43	8.66	12.8657	-0.117	70.101
09/04/2013 13:49:53	8.7975	12.9234	-0.022	69.002
09/04/2013 13:50:03	8.8552	13.0406	-0.018	68.901
09/04/2013 13:50:13	8.8683	13.2138	-0.21	69.401
09/04/2013 13:50:23	8.782	13.3191	-0.125	69.401
09/04/2013 13:50:33	8.641	13.3572	-0.117	69.202
09/04/2013 13:50:43	8.4446	13.3197	-0.117	69.202
09/04/2013 13:50:53	8.4654	13.1585	-0.117	69.802
09/04/2013 13:51:03	8.6094	12.9442	-0.022	69.601
09/04/2013 13:51:13	8.6785	12.7437	-0.018	69.601
09/04/2013 13:51:23	8.807	12.8061	-0.117	69.601
09/04/2013 13:51:33	8.8683	12.965	-0.018	69.802
09/04/2013 13:51:43	8.8951	13.1531	-0.018	69.802
09/04/2013 13:51:53	8.9671	13.3245	-0.216	69.002
09/04/2013 13:52:03	8.9469	13.4459	-0.117	69.002
09/04/2013 13:52:13	9.048	13.4399	-0.72	69.601
09/04/2013 13:52:23	9.126	13.4507	-0.617	70.502
09/04/2013 13:52:33	9.2271	13.503	-0.617	71.003
09/04/2013 13:52:43	9.3045	13.6214	-0.518	71.202

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 13:52:53	9.3527	13.7482	-0.72	72.102
09/04/2013 13:53:03	9.3432	13.8452	-0.819	73.502
09/04/2013 13:53:13	9.395	13.9386	-0.919	74.101
09/04/2013 13:53:23	9.3236	13.9619	-0.919	74.401
09/04/2013 13:53:33	9.4283	13.9726	-0.518	75.202
09/04/2013 13:53:43	9.4176	13.9732	-0.419	75.301
09/04/2013 13:53:53	9.3587	13.9952	-0.72	75.902
09/04/2013 13:54:03	9.5247	14.0493	-0.617	76.102
09/04/2013 13:54:13	9.6538	14.022	-0.716	76.402
09/04/2013 13:54:23	9.6812	14.0678	-1.018	76.602
09/04/2013 13:54:33	9.7068	14.2166	-0.919	77.102
09/04/2013 13:54:43	9.7681	14.3755	-0.32	77.502
09/04/2013 13:54:53	9.8068	14.4379	-0.216	77.701
09/04/2013 13:55:03	9.8669	14.4933	-0.117	77.901
09/04/2013 13:55:13	9.9175	14.5433	-0.216	78.401
09/04/2013 13:55:23	9.9484	14.5843	-0.216	77.901
09/04/2013 13:55:33	9.9091	14.601	-0.22	77.102
09/04/2013 13:55:43	9.8235	14.6724	-0.216	75.902
09/04/2013 13:55:53	9.8496	14.7087	-0.316	75.202
09/04/2013 13:56:03	9.8151	14.6093	-0.216	74.302
09/04/2013 13:56:13	9.8693	14.4873	-0.018	73.701
09/04/2013 13:56:23	9.9258	14.4356	-0.117	73.401
09/04/2013 13:56:33	9.755	14.4243	-0.117	73.401
09/04/2013 13:56:43	9.4432	14.451	-0.117	73.002
09/04/2013 13:56:53	9.2938	14.435	-0.018	72.501
09/04/2013 13:57:03	9.3307	14.2279	-0.018	71.902
09/04/2013 13:57:13	9.2998	13.9333	-0.117	71.202
09/04/2013 13:57:23	9.314	13.8416	-0.117	71.202
09/04/2013 13:57:33	9.3706	13.8863	-0.518	71.902
09/04/2013 13:57:43	9.3444	13.9339	0.18	71.602
09/04/2013 13:57:53	9.4069	13.9874	-0.72	71.003
09/04/2013 13:58:03	9.3718	14.0684	-0.216	70.801
09/04/2013 13:58:13	9.3587	14.1261	-0.617	70.801
09/04/2013 13:58:23	9.342	14.1803	-0.716	70.702
09/04/2013 13:58:33	9.2331	14.1975	-0.415	71.003
09/04/2013 13:58:43	9.1754	14.1475	-0.518	71.003
09/04/2013 13:58:53	9.2295	14.0535	-0.216	69.802
09/04/2013 13:59:03	9.1998	13.8922	0.184	69.802
09/04/2013 13:59:13	9.2813	13.7565	-0.216	69.601
09/04/2013 13:59:23	9.3837	13.6673	-0.018	69.202
09/04/2013 13:59:33	9.461	13.65	0.18	69.202
09/04/2013 13:59:43	9.5259	13.6946	-0.018	69.202
09/04/2013 13:59:53	9.5295	13.7661	-0.117	69.202
09/04/2013 14:00:03	9.4188	13.8303	-0.216	69.601
09/04/2013 14:00:13	9.3081	13.8547	-0.216	69.202
09/04/2013 14:00:23	9.289	13.797	-0.117	69.002
09/04/2013 14:00:33	9.2045	13.6167	0.383	69.401
09/04/2013 14:00:43	9.2575	13.4875	0.081	69.802
09/04/2013 14:00:53	9.2444	13.3828	0.18	69.802
09/04/2013 14:01:03	9.3069	13.2715	-0.216	69.601
09/04/2013 14:01:13	9.3706	13.2513	0.081	69.002
09/04/2013 14:01:23	9.4402	13.3209	-0.117	68.502
09/04/2013 14:01:33	9.314	13.4155	0.18	68.302
09/04/2013 14:01:43	9.4319	13.5316	-0.216	68.302
09/04/2013 14:01:53	9.4295	13.5584	-0.419	68.001
09/04/2013 14:02:03	9.4491	13.5947	-0.117	68.502
09/04/2013 14:02:13	9.3753	13.65	-0.617	68.901
09/04/2013 14:02:23	9.3343	13.6548	-0.117	69.202
09/04/2013 14:02:33	9.3355	13.6328	0.28	70.101
09/04/2013 14:02:43	9.2718	13.6339	-0.419	70.801
09/04/2013 14:02:53	9.1998	13.5881	0.18	71.003
09/04/2013 14:03:03	9.289	13.5661	-0.819	71.602
09/04/2013 14:03:13	9.4575	13.5881	-0.216	72.302
09/04/2013 14:03:23	9.4765	13.6851	0.081	72.802
09/04/2013 14:03:33	9.5271	13.8452	-0.117	73.701
09/04/2013 14:03:43	9.5318	13.9386	0.18	73.901
09/04/2013 14:03:53	9.6128	13.9494	0.18	74.302
End Run 9				
Average	**9.289683**	**13.71834**	**-0.271079**	**71.95013**
Maximum	**10.2704**	**14.7087**	**0.383**	**78.401**
Minimum	**8.4446**	**12.7437**	**-1.081**	**68.001**
09/04/2013 14:04:03	9.467	13.9047	-0.216	75.202
09/04/2013 14:04:13	9.4973	13.8416	0.28	75.702
09/04/2013 14:04:23	9.5247	13.7369	-0.415	75.902
09/04/2013 14:04:33	9.5437	13.6298	-0.216	76.202
09/04/2013 14:04:43	9.508	13.6078	-0.018	77.001
09/04/2013 14:04:53	9.4414	13.6244	0.081	77.302
09/04/2013 14:05:03	9.3408	13.5756	0.081	77.701
09/04/2013 14:05:13	9.4045	13.5477	-0.32	78.401
Calibration Bias				
09/04/2013 14:05:23	8.6999	13.4524	-0.216	78.901
09/04/2013 14:05:33	0.0993	13.406	-0.121	78.401
09/04/2013 14:05:43	0.0255	13.3364	0.081	77.502
09/04/2013 14:05:53	0.016	5.0179	-0.018	76.602
09/04/2013 14:06:03	0.0125	0.4237	-0.216	75.702
09/04/2013 14:06:13	0.0089	0.1452	-0.419	74.801
09/04/2013 14:06:23	0.0065	0.1106	-0.32	73.502
09/04/2013 14:06:33	0.0053	0.0952	-0.419	72.602

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 14:06:43	0.0053	0.0857	-0.617	72.501
09/04/2013 14:06:53	0.0029	0.0803	-0.819	72.302
09/04/2013 14:07:03	0.0017	0.0708	-0.518	72.302
09/04/2013 14:07:13	-0.00064	0.0696	-0.72	72.302
09/04/2013 14:07:23	-0.0018	0.0601	-0.419	71.702
09/04/2013 14:07:33	-0.00064	0.0571	-0.72	71.202
N2 Zero		**0.062267**	**-0.619667**	
09/04/2013 14:07:43	0.00055	0.0517	-0.819	71.402
09/04/2013 14:07:53	-0.003	0.0565	-0.819	70.801
09/04/2013 14:08:03	-0.0054	0.0547	-0.419	71.202
09/04/2013 14:08:13	-0.0066	0.0571	2.479	71.202
09/04/2013 14:08:23	-0.0054	0.0458	9.986	71.003
09/04/2013 14:08:33	-0.0066	0.0499	23.302	70.801
09/04/2013 14:08:43	-0.0066	0.0523	34.617	71.003
09/04/2013 14:08:53	-0.0066	0.0476	40.723	71.202
09/04/2013 14:09:03	-0.0066	0.0476	42.322	71.202
09/04/2013 14:09:13	-0.009	0.041	43.923	70.801
09/04/2013 14:09:23	-0.009	0.0452	44.824	70.801
09/04/2013 14:09:33	-0.0078	0.0428	44.724	70.702
09/04/2013 14:09:43	-0.0078	0.0404	44.225	70.101
09/04/2013 14:09:53	-0.0078	0.038	44.022	70.801
46.3 ppm CO Mid			**44.32367**	
09/04/2013 14:10:03	-0.009	0.038	43.522	71.202
09/04/2013 14:10:13	-0.009	0.0374	43.923	71.202
09/04/2013 14:10:23	-0.0102	0.041	44.022	70.801
09/04/2013 14:10:33	-0.0102	0.0363	43.621	70.801
09/04/2013 14:10:43	1.7032	0.041	44.724	69.901
09/04/2013 14:10:53	2.0174	0.0374	44.423	69.901
09/04/2013 14:11:03	2.0198	0.4528	43.721	70.101
09/04/2013 14:11:13	2.0186	1.8751	37.218	70.702
09/04/2013 14:11:23	2.0269	2.0852	23.001	71.003
09/04/2013 14:11:33	2.0257	2.0918	9.887	71.402
09/04/2013 14:11:43	2.0198	2.0924	2.483	72.501
09/04/2013 14:11:53	2.0198	2.0947	0.18	72.802
09/04/2013 14:12:03	2.0257	2.0983	-0.117	73.201
09/04/2013 14:12:13	2.0317	2.0971	-0.216	73.901
09/04/2013 14:12:23	2.0305	2.0995	-0.32	74.302
09/04/2013 14:12:33	2.0305	2.1031	-0.22	74.401
09/04/2013 14:12:43	2.0317	2.0995	-0.117	74.601
09/04/2013 14:12:53	2.0281	2.0953	-0.018	75.002
09/04/2013 14:13:03	2.0293	2.1013	-0.419	75.702
2.07% O2 Low	**2.0297**			
09/04/2013 14:13:13	7.715	2.0965	-0.32	75.902
09/04/2013 14:13:23	10.9214	2.1013	-0.018	75.902
09/04/2013 14:13:33	10.9768	2.6964	-0.216	75.902
09/04/2013 14:13:43	10.9976	9.7223	-0.621	75.902
09/04/2013 14:13:53	10.9952	10.9994	-0.216	76.402
09/04/2013 14:14:03	11.0345	11.0625	-0.32	76.802
09/04/2013 14:14:13	11.0036	11.0738	-0.72	77.102
09/04/2013 14:14:23	10.9976	11.0815	-0.617	77.302
09/04/2013 14:14:33	10.994	11.0863	-0.617	76.602
09/04/2013 14:14:43	10.9875	11.0875	-0.72	75.702
09/04/2013 14:14:53	10.9922	11.091	-0.819	75.702
11.1% O2 Mid	**10.99123**	**11.08827**		
09/04/2013 14:15:03	12.3193	11.0922	-1.319	75.202
09/04/2013 14:15:13	12.0652	11.0988	-1.018	74.601
09/04/2013 14:15:23	11.82	11.3219	-1.018	74.401
09/04/2013 14:15:33	11.6439	12.455	-1.121	73.701
09/04/2013 14:15:43	11.5064	12.6276	-0.72	73.401
09/04/2013 14:15:53	11.2285	12.6401	-0.518	72.602
09/04/2013 14:16:03	11.1333	12.683	-1.22	72.501
09/04/2013 14:16:13	11.1381	12.5443	-0.518	72.302
09/04/2013 14:16:23	11.0286	12.4015	-0.419	71.602
09/04/2013 14:16:33	10.919	12.3812	-0.117	71.202
09/04/2013 14:16:43	10.7744	12.4003	-0.018	71.003
09/04/2013 14:16:53	10.6013	12.3711	-0.018	71.202
Start Run 10				
09/04/2013 14:17:03	10.1918	12.3223	-0.117	71.202
09/04/2013 14:17:13	9.3188	12.2938	0.081	71.003
09/04/2013 14:17:23	8.8201	12.2348	-0.117	71.003
09/04/2013 14:17:33	9.1188	12.1652	-0.018	70.702
09/04/2013 14:17:43	9.367	11.8123	0.18	70.801
09/04/2013 14:17:53	9.5539	11.9301	0.18	70.702
09/04/2013 14:18:03	9.5259	12.6324	-0.117	70.702
09/04/2013 14:18:13	9.4586	13.2834	0.28	69.901
09/04/2013 14:18:23	9.5069	13.6435	0.18	69.802
09/04/2013 14:18:33	9.6009	13.8131	-0.018	69.802
09/04/2013 14:18:43	9.5527	13.9065	-0.216	69.802
09/04/2013 14:18:53	9.6354	13.9333	-0.621	70.101
09/04/2013 14:19:03	9.6247	13.9434	0.081	70.801
09/04/2013 14:19:13	9.655	13.941	-0.216	70.101
09/04/2013 14:19:23	9.6021	13.9333	-0.815	69.901
09/04/2013 14:19:33	9.5562	13.8857	-0.32	69.802
09/04/2013 14:19:43	9.4789	13.8952	-0.617	69.802
09/04/2013 14:19:53	9.1998	13.8559	-0.216	69.901
09/04/2013 14:20:03	9.9871	13.7845	-0.018	69.901
09/04/2013 14:20:13	9.0587	13.6125	-0.216	70.301
09/04/2013 14:20:23	9.1307	13.7881	-0.32	69.901
09/04/2013 14:20:33	9.3224	13.9321	-0.117	69.601

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 14:20:43	9.5491	13.2406	-0.216	69.401
09/04/2013 14:20:53	9.7622	13.3638	-0.117	70.101
09/04/2013 14:21:03	9.8966	13.7089	-0.018	70.502
09/04/2013 14:21:13	9.8681	14.0107	0.18	70.801
09/04/2013 14:21:23	9.5997	14.2356	-0.121	71.702
09/04/2013 14:21:33	9.6306	14.3368	-0.32	71.702
09/04/2013 14:21:43	9.5092	14.2844	-0.617	72.102
09/04/2013 14:21:53	9.3105	14.0226	-1.121	72.802
09/04/2013 14:22:03	8.8695	13.9559	-1.422	73.002
09/04/2013 14:22:13	8.275	13.7345	-1.022	73.401
09/04/2013 14:22:23	8.2411	13.3239	-0.919	73.502
09/04/2013 14:22:33	8.7975	12.5657	-1.323	73.701
09/04/2013 14:22:43	9.1926	11.8921	-1.018	74.302
09/04/2013 14:22:53	9.3884	12.1593	-0.72	74.601
09/04/2013 14:23:03	9.4271	12.9186	-0.72	75.301
09/04/2013 14:23:13	9.4813	13.3971	-0.617	76.402
09/04/2013 14:23:23	9.508	13.584	-0.621	77.502
09/04/2013 14:23:33	9.5997	13.6649	-0.819	77.302
09/04/2013 14:23:43	9.5967	13.7797	-0.518	77.502
09/04/2013 14:23:53	9.5997	13.9035	-0.419	77.701
09/04/2013 14:24:03	9.6211	14.0017	-0.216	78.002
09/04/2013 14:24:13	9.68	13.9999	-0.419	78.002
09/04/2013 14:24:23	9.6021	13.9892	-0.22	77.302
09/04/2013 14:24:33	9.6503	14.0107	-0.419	75.202
09/04/2013 14:24:43	9.5551	14.063	-0.117	74.302
09/04/2013 14:24:53	9.5586	14.0333	0.081	73.901
09/04/2013 14:25:03	9.6056	13.9892	-0.121	73.002
09/04/2013 14:25:13	9.6669	13.894	0.18	72.501
09/04/2013 14:25:23	9.7354	13.8333	0.081	72.501
09/04/2013 14:25:33	9.7282	13.8559	-0.018	72.302
09/04/2013 14:25:43	9.6741	13.9077	0.081	71.702
09/04/2013 14:25:53	9.5414	13.9559	0.081	71.402
09/04/2013 14:26:03	9.5449	13.9238	0.081	71.402
09/04/2013 14:26:13	9.5985	13.8036	-0.018	71.602
09/04/2013 14:26:23	9.5188	13.6726	0.081	71.202
09/04/2013 14:26:33	9.5943	13.6173	0.081	71.402
09/04/2013 14:26:43	9.5884	13.6185	-0.117	71.602
09/04/2013 14:26:53	9.6223	13.6756	0.18	70.801
09/04/2013 14:27:03	9.6033	13.7119	-0.117	70.702
09/04/2013 14:27:13	9.633	13.744	0.18	70.301
09/04/2013 14:27:23	9.6378	13.7452	-0.018	69.901
09/04/2013 14:27:33	9.5414	13.7244	-0.018	69.802
09/04/2013 14:27:43	9.4539	13.7185	-0.018	70.101
09/04/2013 14:27:53	9.4212	13.6988	-0.018	70.502
09/04/2013 14:28:03	9.3872	13.6506	-0.018	70.301
09/04/2013 14:28:13	9.148	13.6125	-0.018	69.601
09/04/2013 14:28:23	8.9611	13.5953	0.081	69.601
09/04/2013 14:28:33	8.8748	13.484	0.081	69.802
09/04/2013 14:28:43	8.7832	13.2465	-0.117	69.901
09/04/2013 14:28:53	8.7576	12.9936	-0.018	70.301
09/04/2013 14:29:03	8.6963	12.8621	0.077	69.802
09/04/2013 14:29:13	8.8058	12.7895	-0.018	69.401
09/04/2013 14:29:23	8.7314	12.7228	-0.018	69.802
09/04/2013 14:29:33	8.6648	12.6877	0.18	70.502
09/04/2013 14:29:43	8.5725	12.7115	0.081	70.702
09/04/2013 14:29:53	8.5832	12.7002	0.18	70.301
09/04/2013 14:30:03	8.713	12.6496	-0.018	69.601
09/04/2013 14:30:13	8.7517	12.6181	0.081	70.101
09/04/2013 14:30:23	8.7058	12.727	-0.018	70.502
09/04/2013 14:30:33	8.5999	12.9061	0.081	70.801
09/04/2013 14:30:43	8.6106	12.9698	-0.117	71.602
09/04/2013 14:30:53	8.4601	12.9145	-0.32	71.702
09/04/2013 14:31:03	8.2518	12.8698	-0.117	72.302
09/04/2013 14:31:13	7.934	12.8585	-0.419	72.802
09/04/2013 14:31:23	7.8185	12.7478	-0.621	73.701
09/04/2013 14:31:33	7.7656	12.314	-0.216	73.901
09/04/2013 14:31:43	7.887	11.8569	-0.32	74.302
09/04/2013 14:31:53	8.0774	11.7129	-0.419	74.302
09/04/2013 14:32:03	8.7118	11.7284	-0.518	74.302
09/04/2013 14:32:13	9.4033	11.8129	-0.32	74.401
09/04/2013 14:32:23	9.9163	12.2777	-0.121	75.202
09/04/2013 14:32:33	10.1692	13.2691	-0.216	75.301
09/04/2013 14:32:43	10.2835	14.1862	-0.018	75.902
09/04/2013 14:32:53	10.8804	14.848	-0.117	76.402
09/04/2013 14:33:03	10.0186	15.2205	0.081	77.102
09/04/2013 14:33:13	9.3884	15.6978	0.077	77.302
09/04/2013 14:33:23	9.079	15.8704	0.077	77.701
09/04/2013 14:33:33	9.0046	14.7992	-0.018	77.102
09/04/2013 14:33:43	9.0718	13.9839	-0.018	76.402
09/04/2013 14:33:53	9.1057	13.6101	-0.018	75.301
09/04/2013 14:34:03	9.1129	13.484	-0.018	74.801
09/04/2013 14:34:13	9.1718	13.509	-0.216	74.401
09/04/2013 14:34:23	9.1456	13.5554	-0.216	73.701
09/04/2013 14:34:33	9.1176	13.6149	-0.419	73.401
09/04/2013 14:34:43	9.0284	13.6941	-0.419	73.201
09/04/2013 14:34:53	9.0314	13.7327	-0.018	72.802
09/04/2013 14:35:03	9.007	13.7119	-0.018	72.302
09/04/2013 14:35:13	8.9659	13.65	0.077	71.702
09/04/2013 14:35:23	8.9034	13.6101	0.081	71.003

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 14:35:33	8.9141	13.5715	-0.121	70.301
09/04/2013 14:35:43	8.7398	13.5209	0.081	69.802
09/04/2013 14:35:53	8.9361	13.5185	0.18	69.901
09/04/2013 14:36:03	8.9266	13.5161	-0.22	70.301
09/04/2013 14:36:13	8.9165	13.4995	-0.018	70.801
09/04/2013 14:36:23	8.8326	13.4667	-0.018	71.003
09/04/2013 14:36:33	8.7844	13.4143	-0.518	71.402
09/04/2013 14:36:43	8.7255	13.3352	-0.216	71.402
09/04/2013 14:36:53	8.7445	13.1971	-0.32	71.402
09/04/2013 14:37:03	8.6892	13.093	-0.316	71.402
09/04/2013 14:37:13	8.5892	13.0882	-0.018	71.202
09/04/2013 14:37:23	8.5255	13.065	-0.117	71.003
09/04/2013 14:37:33	8.4749	12.9698	0.18	70.801
09/04/2013 14:37:43	8.4565	12.8716	-0.018	70.502
09/04/2013 14:37:53	8.4761	12.8014	0.081	69.802
End Run 10				
Average	**9.194722**	**13.42706**	**-0.174246**	**72.1802**
Maximum	**10.8804**	**15.8704**	**0.28**	**78.002**
Minimum	**7.7656**	**11.7129**	**-1.422**	**69.401**
09/04/2013 14:38:03	8.4809	12.7782	0.081	69.901
09/04/2013 14:38:13	8.4458	12.7895	-0.117	69.601
09/04/2013 14:38:23	8.4315	12.8192	-0.216	69.802
09/04/2013 14:38:33	8.4124	12.8228	-0.121	70.301
09/04/2013 14:38:43	8.8493	12.777	0.081	70.502
Calibration Bias				
09/04/2013 14:38:53	0.2666	12.7318	0.081	69.802
09/04/2013 14:39:03	0.0279	12.9508	0.081	69.601
09/04/2013 14:39:13	0.0136	8.5446	0.077	69.401
09/04/2013 14:39:23	0.0065	0.7891	-0.018	69.401
09/04/2013 14:39:33	0.0041	0.1594	-0.32	69.601
09/04/2013 14:39:43	0.0029	0.1148	-0.117	70.301
09/04/2013 14:39:53	0.0029	0.0928	-0.419	70.801
09/04/2013 14:40:03	0.0017	0.0833	-0.32	71.003
09/04/2013 14:40:13	-0.00064	0.0726	-0.522	71.003
09/04/2013 14:40:23	-0.0042	0.066	-0.423	71.003
09/04/2013 14:40:33	-0.003	0.069	-0.32	71.702
09/04/2013 14:40:43	-0.0018	0.0535	-0.32	72.802
09/04/2013 14:40:53	-0.0018	0.0547	-0.32	73.701
09/04/2013 14:41:03	-0.003	0.0517	-0.419	74.101
N2 Zero		**0.0533**	**-0.353**	
09/04/2013 14:41:13	0.6653	0.0553	-0.22	74.801
09/04/2013 14:41:23	0.0065	0.0505	-0.423	75.301
09/04/2013 14:41:33	-0.0078	0.122	-0.522	75.502
09/04/2013 14:41:43	-0.0066	0.4796	-0.121	75.502
09/04/2013 14:41:53	-0.009	0.0773	7.685	75.502
09/04/2013 14:42:03	-0.009	0.0357	23.302	75.902
09/04/2013 14:42:13	-0.0078	0.0452	35.613	76.402
09/04/2013 14:42:23	-0.009	0.063	42.12	77.001
09/04/2013 14:42:33	-0.009	0.0422	45.022	77.502
09/04/2013 14:42:43	-0.0066	0.0392	43.721	77.901
09/04/2013 14:42:53	-0.009	0.0374	44.324	77.901
09/04/2013 14:43:03	-0.0078	0.0333	44.32	77.302
09/04/2013 14:43:13	-0.009	0.0363	44.824	76.102
09/04/2013 14:43:23	-0.009	0.038	44.724	75.002
09/04/2013 14:43:33	-0.0102	0.0404	43.721	74.801
09/04/2013 14:43:43	-0.009	0.0333	43.621	74.401
09/04/2013 14:43:53	-0.0102	0.0357	44.522	73.401
09/04/2013 14:44:03	-0.0102	0.0357	43.421	72.501
09/04/2013 14:44:13	-0.0102	0.0363	43.923	71.902
09/04/2013 14:44:23	-0.0114	0.0357	44.824	71.003
09/04/2013 14:44:33	-0.0066	0.0315	44.625	70.801
46.3 ppm CO Mid			**44.45733**	
09/04/2013 14:44:43	1.9424	0.0309	44.724	71.602
09/04/2013 14:44:53	1.9716	0.0357	44.824	72.102
09/04/2013 14:45:03	1.9799	1.1313	44.522	71.402
09/04/2013 14:45:13	1.9811	2.0174	35.415	71.202
09/04/2013 14:45:23	1.9763	2.0852	20.297	71.003
09/04/2013 14:45:33	1.9858	2.09	8.185	71.202
09/04/2013 14:45:43	1.9811	2.0876	1.777	70.702
09/04/2013 14:45:53	1.9823	2.0918	0.28	70.502
09/04/2013 14:46:03	1.9918	2.0953	-0.018	70.801
09/04/2013 14:46:13	1.9918	2.0971	-0.419	71.402
09/04/2013 14:46:23	1.9882	2.0924	-0.419	71.402
09/04/2013 14:46:33	1.9918	2.0906	0.077	71.202
09/04/2013 14:46:43	1.993	2.0965	0.18	70.801
09/04/2013 14:46:53	1.987	2.0995	-0.117	70.801
09/04/2013 14:47:03	1.9894	2.1049	-0.22	71.003
09/04/2013 14:47:13	1.993	2.1019	-0.117	71.202
09/04/2013 14:47:23	1.9942	2.0924	-0.121	71.003
09/04/2013 14:47:33	1.9882	2.0965	-0.121	71.402
2.07% O2 Low	**1.9918**			
09/04/2013 14:47:43	10.2882	2.0983	-0.117	70.801
09/04/2013 14:47:53	10.7108	2.0953	-0.018	70.301
09/04/2013 14:48:03	10.7298	4.912	-0.117	70.101
09/04/2013 14:48:13	10.7578	10.5656	-0.216	70.502
09/04/2013 14:48:23	10.7673	11.0309	-0.32	70.702
09/04/2013 14:48:33	10.7542	11.0577	-0.32	70.702
09/04/2013 14:48:43	10.759	11.072	-0.617	70.502

2013 Unit 4 CEMS RATA
URS CEMs Raw Data
09/04/2013

24 hour time	O2 WET (%)	O2 DRY (%)	CO DRY (PPM)	RACK (°F)
09/04/2013 14:48:53	10.7851	11.0768	-0.72	70.702
09/04/2013 14:49:03	10.7709	11.0851	-0.72	70.702
09/04/2013 14:49:13	10.7709	11.0881	-0.518	70.502
09/04/2013 14:49:23	10.7804	11.0898	-1.022	70.502
09/04/2013 14:49:33	10.7697	11.0946	-0.72	70.502
09/04/2013 14:49:43	10.7637	11.097	-0.419	70.801
09/04/2013 14:49:53	10.7673	11.0851	-0.621	71.003
09/04/2013 14:50:03	10.7804	11.0922	-0.419	71.003
09/04/2013 14:50:13	10.8179	11.0988	-0.419	71.003
09/04/2013 14:50:23	10.825	11.1089	-0.617	70.702
09/04/2013 14:50:33	10.8036	11.1017	-0.621	70.502
11.1% O2 Mid	**10.8155**	**11.10313**		
09/04/2013 14:50:43	12.1027	11.0988	-0.621	70.301
09/04/2013 14:50:53	12.8829	11.0994	-1.018	70.801
09/04/2013 14:51:03	12.6407	11.1797	-0.617	71.602
09/04/2013 14:51:13	12.4967	13.3572	-0.518	72.102
09/04/2013 14:51:23	12.2229	14.1059	-0.72	72.602
09/04/2013 14:51:33	11.8147	14.0714	-0.419	73.502
09/04/2013 14:51:43	11.3791	13.9886	-0.018	73.701
09/04/2013 14:51:53	10.9155	13.8291	-0.018	74.101
09/04/2013 14:52:03	10.559	13.5209	-0.018	74.101
09/04/2013 14:52:13	10.2591	13.2168	-0.018	74.601
09/04/2013 14:52:23	10.0764	12.9996	-0.018	75.002
09/04/2013 14:52:33	9.7586	12.8109	-0.018	75.902
09/04/2013 14:52:43	9.4586	12.6865	-0.018	76.602
09/04/2013 14:52:53	9.3319	12.5294	-0.32	77.302
09/04/2013 14:53:03	9.3837	12.4074	-0.22	77.701
09/04/2013 14:53:13	9.2057	12.3836	-0.117	77.701
09/04/2013 14:53:23	8.8457	12.4271	-0.819	77.701
09/04/2013 14:53:33	8.7588	12.4663	-0.216	78.201
09/04/2013 14:53:43	8.7433	12.5217	-0.518	79.303
09/04/2013 14:53:53	8.7243	12.4634	-0.72	78.601
09/04/2013 14:54:03	10.3013	12.4866	-0.419	77.502
09/04/2013 14:54:13	10.6507	12.5062	-0.22	76.202
09/04/2013 14:54:23	10.6507	12.5062	-0.22	76.202

APPENDIX B

Reference Method Calibration Results

Project Title	Veolia Sauget Unit 4 RATA
Location	Sauget, IL
Project ID	40942525
Date	9/4/13
Technician	mdd

	Oxygen, Wet	Oxygen, Dry	Carbon Monoxide
Instrument Make/Model:	Ametek RM CEM O2/IQ	Servomex 1440	Thermo 48C
ID Number/Name:	Asset # 207720	Waits	Iggy
Calibration Span Value:	22.5	22.5	89.8
Analyzer Range:	25	25	100
Units:	%	%	ppm

	Calibration Gases Used					
	Oxygen, Wet		Oxygen, Dry		Carbon Monoxide	
	Cylinder #	Value	Cylinder #	Value	Cylinder #	Value
Zero	CC121944	2.1	52-400193157-1A	0.0	52-400193157-1A	0.0
Span	CC189665	22.5	CC189665	22.5	CC14436	89.8
Mid-range	AAL18906	11.1	AAL18906	11.1	CC215749	46.3
Low-Range						
NO_2 Challenge Gas						

	Limits for Calibration Gas Selection					
	Oxygen, Wet		Oxygen, Dry		Carbon Monoxide	
	Lower	Upper	Lower	Upper	Lower	Upper
Zero	0.00	4.50	0.00	4.50	0.00	17.96
Mid-Range	9.00	13.50	9.00	13.50	35.92	53.88
Low-Range						
Span						

	Does the Calibration Gas Meet the Selection Criteria?					
	Oxygen, Wet		Oxygen, Dry		Carbon Monoxide	
	Calibration Gas Value	Is it Good?	Calibration Gas Value	Is it Good?	Calibration Gas Value	Is it Good?
Zero	2.07	TRUE	0.00	TRUE	0.0	TRUE
Mid-Range	11.10	TRUE	11.10	TRUE	46.3	TRUE
Low-Range						
Span						

	Limits for Direct Calibrationn (At the Instrument)					
	Oxygen, Wet		Oxygen, Dry		Carbon Monoxide	
	Lower	Upper	Lower	Upper	Lower	Upper
Zero	1.62	2.52	-0.45	0.45	-1.8	1.8
Span	22.05	22.95	22.05	22.95	88.0	91.6
Mid-range	10.65	11.55	10.65	11.55	44.5	48.1
Low-range						

Veolia Sauget Unit 4 RATA
Wet O_2 Calibration Data Summary

Project ID: 40942525
Date: 9/4/2013
Instrument Make/Model: Ametek RM CEM O2/IQ
Instrument Name/ID Asset # 207720
Calibration Span Value: 22.50
Analyzer Range: 25
Units: %
Technician(s): mdd

Calibration Error Test Results

	Cylinder ID	Certified Value	Time	CEM Response	Absolute Difference	Cal Error (% of Span) 2.0% Limit
zero gas	CC121944	2.07	08:06	2.00	0.07	0.3%
span gas	CC189665	22.50	08:11	22.54	0.04	0.2%
mid-range	AAL18906	11.10	08:14	10.98	0.12	0.6%

CEMS Calibration Bias and Drift Tests

Run No.	Cylinder Value	Cal Error CEMS Response	Time	Pre-Test CEMS Response	Bias (% of Span) 5.0% Limit	Time	Post-Test CEMS Response	Bias (% of Span) 5.0% Limit	Drift (% of Span) 3.0% Limit	Eq. 7E-5
Run 1	2.07	2.00	08:16	2.00	0.0%	09:32	1.95	-0.2%	-0.2%	C_O= 1.977
	11.10	10.98	08:18	10.97	0.0%	09:34	10.75	-1.0%	-1.0%	$C_{MA}/(C_M-C_O)$ 1.249
Run 2	2.07	2.00	09:32	1.95	-0.2%	10:18	1.88	-0.5%	-0.3%	C_O= 1.917
	11.10	10.98	09:34	10.75	-1.0%	10:22	10.68	-1.3%	-0.3%	$C_{MA}/(C_M-C_O)$ 1.262
Run 3	2.07	2.00	10:18	1.88	-0.5%	10:56	2.00	0.0%	0.5%	C_O= 1.941
	11.10	10.98	10:22	10.68	-1.3%	10:58	10.97	0.0%	1.3%	$C_{MA}/(C_M-C_O)$ 1.250
Run 4	2.07	2.00	10:56	2.00	0.0%	11:28	1.95	-0.2%	-0.2%	C_O= 1.976
	11.10	10.98	10:58	10.97	0.0%	11:30	10.77	-0.9%	-0.9%	$C_{MA}/(C_M-C_O)$ 1.249
Run 5	2.07	2.00	11:28	1.95	-0.2%	11:59	1.99	0.0%	0.2%	C_O= 1.973
	11.10	10.98	11:30	10.77	-0.9%	12:01	10.96	-0.1%	0.9%	$C_{MA}/(C_M-C_O)$ 1.248
Run 6	2.07	2.00	11:59	1.99	0.0%	12:31	1.95	-0.2%	-0.2%	C_O= 1.972
	11.10	10.98	12:01	10.96	-0.1%	12:35	10.80	-0.8%	-0.7%	$C_{MA}/(C_M-C_O)$ 1.246
Run 7	2.07	2.00	12:31	1.95	-0.2%	13:04	1.94	-0.3%	-0.1%	C_O= 1.945
	11.10	10.98	12:35	10.80	-0.8%	13:06	10.74	-1.1%	-0.3%	$C_{MA}/(C_M-C_O)$ 1.258
Run 8	2.07	2.00	13:04	1.94	-0.3%	13:38	1.97	-0.1%	0.2%	C_O= 1.957
	11.10	10.98	13:06	10.74	-1.1%	13:40	10.70	-1.2%	-0.2%	$C_{MA}/(C_M-C_O)$ 1.267
Run 9	2.07	2.00	13:38	1.97	-0.1%	14:13	2.03	0.1%	0.2%	C_O= 2.002
	11.10	10.98	13:40	10.70	-1.2%	14:14	10.99	0.1%	1.3%	$C_{MA}/(C_M-C_O)$ 1.255
Run 10	2.07	2.00	14:13	2.03	0.1%	14:47	1.99	0.0%	-0.2%	C_O= 2.011
	11.10	10.98	14:14	10.99	0.1%	14:50	10.82	-0.7%	-0.8%	$C_{MA}/(C_M-C_O)$ 1.248

Veolia Sauget Unit 4 RATA
Dry O_2 Calibration Data Summary

Project ID: 40942525
Date: 9/4/2013
Instrument Make/Model: Servomex 1440
Instrument Name/ID Waits
Calibration Span Value: 22.50
Analyzer Range: 25
Units: %
Technician(s): mdd

Calibration Error Test Results

	Cylinder ID	Certified Value	Time	CEM Response	Absolute Difference	Cal Error (% of Span) 2.0% Limit
zero gas	52-400193157-1A	0.00	07:38	0.06	0.06	0.3%
span gas	CC189665	22.50	07:43	22.65	0.15	0.7%
mid-range	AAL18906	11.10	07:46	11.22	0.12	0.5%

CEMS Calibration Bias and Drift Tests

Run No.	Cylinder Value	Cal Error CEMS Response	Time	Pre-Test CEMS Response	Bias (% of Span) 5.0% Limit	Time	Post-Test CEMS Response	Bias (% of Span) 5.0% Limit	Drift (% of Span) 3.0% Limit	Eq. 7E-5
Run 1	0.00	0.06	07:59	0.05	0.0%	09:28	0.06	0.0%	0.1%	c_O= 0.056
	11.10	11.22	08:05	11.11	-0.5%	09:34	11.11	-0.5%	0.0%	$c_{MA}/(c_M-c_O)$ 1.004
Run 2	0.00	0.06	09:28	0.06	0.0%	10:20	0.06	0.0%	0.0%	c_O= 0.063
	11.10	11.22	09:34	11.11	-0.5%	10:22	11.11	-0.5%	0.0%	$c_{MA}/(c_M-c_O)$ 1.005
Run 3	0.00	0.06	10:20	0.06	0.0%	10:53	0.06	0.0%	0.0%	c_O= 0.062
	11.10	11.22	10:22	11.11	-0.5%	10:58	11.11	-0.5%	0.0%	$c_{MA}/(c_M-c_O)$ 1.005
Run 4	0.00	0.06	10:53	0.06	0.0%	11:23	0.08	0.1%	0.1%	c_O= 0.071
	11.10	11.22	10:58	11.11	-0.5%	11:30	11.11	-0.5%	0.0%	$c_{MA}/(c_M-c_O)$ 1.006
Run 5	0.00	0.06	11:23	0.08	0.1%	11:56	0.07	0.1%	-0.1%	c_O= 0.075
	11.10	11.22	11:30	11.11	-0.5%	12:01	11.10	-0.6%	-0.1%	$c_{MA}/(c_M-c_O)$ 1.007
Run 6	0.00	0.06	11:56	0.07	0.1%	12:27	0.06	0.0%	0.0%	c_O= 0.063
	11.10	11.22	12:01	11.10	-0.6%	12:35	11.09	-0.6%	0.0%	$c_{MA}/(c_M-c_O)$ 1.006
Run 7	0.00	0.06	12:27	0.06	0.0%	13:00	0.06	0.0%	0.0%	c_O= 0.057
	11.10	11.22	12:35	11.09	-0.6%	13:06	11.10	-0.6%	0.0%	$c_{MA}/(c_M-c_O)$ 1.006
Run 8	0.00	0.06	13:00	0.06	0.0%	13:33	0.05	0.0%	0.0%	c_O= 0.056
	11.10	11.22	13:06	11.10	-0.6%	13:40	11.10	-0.6%	0.0%	$c_{MA}/(c_M-c_O)$ 1.005
Run 9	0.00	0.06	13:33	0.05	0.0%	14:07	0.06	0.0%	0.0%	c_O= 0.058
	11.10	11.22	13:40	11.10	-0.6%	14:14	11.09	-0.6%	0.0%	$c_{MA}/(c_M-c_O)$ 1.006
Run 10	0.00	0.06	14:07	0.06	0.0%	14:41	0.05	0.0%	0.0%	c_O= 0.058
	11.10	11.22	14:14	11.09	-0.6%	14:50	11.10	-0.5%	0.1%	$c_{MA}/(c_M-c_O)$ 1.006

Veolia Sauget Unit 4 RATA
CO Calibration Data Summary

Project ID: 40942525
Date: 9/4/2013
Instrument Make/Model: Thermo 48C
Instrument Name/ID Iggy
Calibration Span Value: 89.8
Analyzer Range: 100
Units: ppm
Technician(s): mdd

Calibration Error Test Results

	Cylinder ID	Certified Value	Time	CEM Response	Absolute Difference	Cal Error (% of Span) 2.0% Limit
zero gas	52-400193157-1A	0.0	07:38	-0.5	0.5	0.5%
span gas	CC14436	89.8	07:50	89.0	0.8	0.8%
mid-range	CC215749	46.3	07:54	44.7	1.6	1.8%

CEMS Calibration Bias and Drift Tests

Run No.	Cylinder Value	Cal Error CEMS Response	Time	Pre-Test CEMS Response	Bias (% of Span) 5.0% Limit	Time	Post-Test CEMS Response	Bias (% of Span) 5.0% Limit	Drift (% of Span) 3.0% Limit	Eq. 7E-5
Run 1	0.0	-0.5	07:59	-0.7	-0.3%	09:28	-0.6	-0.2%	0.1%	c_0= -0.674
	46.3	44.7	08:02	44.5	-0.3%	09:30	44.7	-0.1%	0.2%	$c_{MA}/(c_M-c_0)$ 1.023
Run 2	0.0	-0.5	09:28	-0.6	-0.2%	10:20	-0.5	0.0%	0.1%	c_0= -0.573
	46.3	44.7	09:30	44.7	-0.1%	10:25	45.4	0.7%	0.8%	$c_{MA}/(c_M-c_0)$ 1.016
Run 3	0.0	-0.5	10:20	-0.5	0.0%	10:53	-0.5	0.0%	0.0%	c_0= -0.502
	46.3	44.7	10:25	45.4	0.7%	10:54	45.1	0.4%	-0.3%	$c_{MA}/(c_M-c_0)$ 1.012
Run 4	0.0	-0.5	10:53	-0.5	0.0%	11:23	-0.2	0.3%	0.3%	c_0= -0.336
	46.3	44.7	10:54	45.1	0.4%	11:26	44.5	-0.2%	-0.6%	$c_{MA}/(c_M-c_0)$ 1.026
Run 5	0.0	-0.5	11:23	-0.2	0.3%	11:56	-0.4	0.1%	-0.2%	c_0= -0.286
	46.3	44.7	11:26	44.5	-0.2%	11:57	44.7	0.0%	0.2%	$c_{MA}/(c_M-c_0)$ 1.031
Run 6	0.0	-0.5	11:56	-0.4	0.1%	12:27	-0.6	-0.1%	-0.3%	c_0= -0.502
	46.3	44.7	11:57	44.7	0.0%	12:29	44.7	-0.1%	0.0%	$c_{MA}/(c_M-c_0)$ 1.025
Run 7	0.0	-0.5	12:27	-0.6	-0.1%	13:00	-0.3	0.3%	0.4%	c_0= -0.436
	46.3	44.7	12:29	44.7	-0.1%	13:01	44.6	-0.1%	0.0%	$c_{MA}/(c_M-c_0)$ 1.027
Run 8	0.0	-0.5	13:00	-0.3	0.3%	13:33	-0.2	0.3%	0.0%	c_0= -0.243
	46.3	44.7	13:01	44.6	-0.1%	13:36	44.9	0.2%	0.3%	$c_{MA}/(c_M-c_0)$ 1.029
Run 9	0.0	-0.5	13:33	-0.2	0.3%	14:07	-0.6	-0.1%	-0.4%	c_0= -0.426
	46.3	44.7	13:36	44.9	0.2%	14:09	44.3	-0.4%	-0.6%	$c_{MA}/(c_M-c_0)$ 1.028
Run 10	0.0	-0.5	14:07	-0.6	-0.1%	14:41	-0.4	0.1%	0.3%	c_0= -0.486
	46.3	44.7	14:09	44.3	-0.4%	14:44	44.5	-0.3%	0.1%	$c_{MA}/(c_M-c_0)$ 1.032

APPENDIX C

Unit 4 CEMS Relative Accuracy Data

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/4/13 9:06 AM	0.12	8.28	12.58	34.16
9/4/13 9:07 AM	0.19	8.16	12.40	34.24
9/4/13 9:08 AM	0.11	7.95	12.19	34.73
9/4/13 9:09 AM	0.00	7.84	12.10	35.20
9/4/13 9:10 AM	0.11	7.82	12.10	35.38
9/4/13 9:11 AM	0.00	8.59	13.36	35.69
9/4/13 9:12 AM	0.00	8.92	13.77	35.25
9/4/13 9:13 AM	0.11	8.05	12.38	34.95
9/4/13 9:14 AM	0.04	8.28	12.92	35.91
9/4/13 9:15 AM	0.00	8.98	13.88	35.32
9/4/13 9:16 AM	0.09	9.31	14.12	34.10
9/4/13 9:17 AM	0.15	9.40	14.20	33.83
9/4/13 9:18 AM	0.00	9.16	13.82	33.69
9/4/13 9:19 AM	0.19	9.27	14.04	33.96
9/4/13 9:20 AM	0.13	8.98	13.62	34.10
9/4/13 9:21 AM	0.04	8.79	13.39	34.36
9/4/13 9:22 AM	0.04	8.58	13.11	34.55
9/4/13 9:23 AM	0.04	8.44	12.95	34.79
9/4/13 9:24 AM	0.00	8.49	12.98	34.57
9/4/13 9:25 AM	0.04	8.45	12.89	34.46
9/4/13 9:26 AM	0.12	8.40	12.92	34.99
Average	0.07	8.58	13.13	34.68

Unit 4 Run 1 09/04/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/4/13 9:55 AM	0.24	9.26	14.07	34.19
9/4/13 9:56 AM	0.10	9.40	14.26	34.07
9/4/13 9:57 AM	0.00	9.23	13.99	33.99
9/4/13 9:58 AM	0.04	8.84	13.40	34.04
9/4/13 9:59 AM	0.08	8.63	13.14	34.34
9/4/13 10:00 AM	0.08	8.25	12.63	34.71
9/4/13 10:01 AM	0.04	8.53	13.15	35.11
9/4/13 10:02 AM	0.16	8.34	12.84	35.01
9/4/13 10:03 AM	0.13	8.69	13.41	35.21
9/4/13 10:04 AM	0.05	8.85	13.64	35.10
9/4/13 10:05 AM	0.13	8.76	13.50	35.08
9/4/13 10:06 AM	0.09	8.82	13.57	35.00
9/4/13 10:07 AM	0.18	8.94	13.70	34.76
9/4/13 10:08 AM	0.24	9.37	14.26	34.29
9/4/13 10:09 AM	0.10	9.48	14.34	33.92
9/4/13 10:10 AM	0.05	9.17	13.94	34.24
9/4/13 10:11 AM	0.09	9.03	13.72	34.18
9/4/13 10:12 AM	0.00	8.93	13.60	34.29
9/4/13 10:13 AM	0.00	9.12	13.87	34.23
9/4/13 10:14 AM	0.13	9.06	13.77	34.19
9/4/13 10:15 AM	0.14	9.11	13.85	34.20
Average	0.10	8.94	13.65	34.48

Unit 4 Run 2 09/04/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/4/13 10:30 AM	0.08	8.71	13.25	34.23
9/4/13 10:31 AM	0.13	8.79	13.39	34.40
9/4/13 10:32 AM	0.04	8.81	13.44	34.40
9/4/13 10:33 AM	0.17	8.71	13.26	34.28
9/4/13 10:34 AM	0.17	8.69	13.25	34.44
9/4/13 10:35 AM	0.13	8.65	13.25	34.73
9/4/13 10:36 AM	0.17	8.70	13.39	35.03
9/4/13 10:37 AM	0.04	8.63	13.21	34.65
9/4/13 10:38 AM	0.09	8.91	13.47	33.83
9/4/13 10:39 AM	0.04	8.95	13.46	33.50
9/4/13 10:40 AM	0.04	8.78	13.25	33.71
9/4/13 10:41 AM	0.13	8.77	13.37	34.41
9/4/13 10:42 AM	0.05	8.82	13.58	35.09
9/4/13 10:43 AM	0.00	8.53	13.09	34.85
9/4/13 10:44 AM	0.08	8.31	12.82	35.22
9/4/13 10:45 AM	0.00	8.32	12.90	35.52
9/4/13 10:46 AM	0.04	8.22	12.72	35.39
9/4/13 10:47 AM	0.00	8.53	13.17	35.25
9/4/13 10:48 AM	0.12	8.31	12.76	34.84
9/4/13 10:49 AM	0.10	8.95	13.74	34.88
9/4/13 10:50 AM	0.05	9.52	14.47	34.22
Average	0.08	8.70	13.30	34.61

Unit 4 Run 3 09/04/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/4/13 11:01 AM	0.18	8.77	13.48	35.00
9/4/13 11:02 AM	0.13	8.91	13.61	34.53
9/4/13 11:03 AM	0.18	9.00	13.71	34.37
9/4/13 11:04 AM	0.05	9.04	13.76	34.31
9/4/13 11:05 AM	0.10	9.34	14.22	34.35
9/4/13 11:06 AM	0.19	9.45	14.26	33.75
9/4/13 11:07 AM	0.14	9.41	14.11	33.28
9/4/13 11:08 AM	0.05	9.45	14.24	33.66
9/4/13 11:09 AM	0.09	9.31	14.09	33.90
9/4/13 11:10 AM	0.09	8.95	13.63	34.32
9/4/13 11:11 AM	0.00	8.68	13.29	34.69
9/4/13 11:12 AM	0.00	9.06	13.89	34.73
9/4/13 11:13 AM	0.09	9.05	13.65	33.71
9/4/13 11:14 AM	0.04	8.92	13.49	33.83
9/4/13 11:15 AM	0.14	9.22	13.99	34.07
9/4/13 11:16 AM	0.09	9.34	14.12	33.84
9/4/13 11:17 AM	0.09	9.40	14.23	33.94
9/4/13 11:18 AM	0.19	9.43	14.31	34.13
9/4/13 11:19 AM	0.19	9.39	14.23	33.98
9/4/13 11:20 AM	0.13	9.08	13.77	34.10
9/4/13 11:21 AM	0.13	9.00	13.71	34.35
Average	0.11	9.15	13.89	34.13

Unit 4 Run 4 09/04/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/4/13 11:32 AM	0.15	9.66	14.62	33.90
9/4/13 11:33 AM	0.05	9.52	14.48	34.25
9/4/13 11:34 AM	0.15	9.38	14.30	34.46
9/4/13 11:35 AM	0.00	8.89	13.62	34.70
9/4/13 11:36 AM	0.09	8.75	13.58	35.53
9/4/13 11:37 AM	0.05	8.86	13.81	35.86
9/4/13 11:38 AM	0.05	8.90	13.86	35.82
9/4/13 11:39 AM	0.67	9.13	14.15	35.48
9/4/13 11:40 AM	0.72	8.97	13.66	34.35
9/4/13 11:41 AM	0.04	8.89	13.52	34.23
9/4/13 11:42 AM	0.04	8.92	13.56	34.18
9/4/13 11:43 AM	0.04	8.90	13.50	34.08
9/4/13 11:44 AM	0.13	9.17	13.92	34.11
9/4/13 11:45 AM	0.19	9.33	14.14	33.97
9/4/13 11:46 AM	0.00	9.25	14.01	33.97
9/4/13 11:47 AM	0.09	9.11	13.86	34.27
9/4/13 11:48 AM	0.04	8.71	13.35	34.74
9/4/13 11:49 AM	0.04	8.23	12.71	35.22
9/4/13 11:50 AM	0.04	8.96	13.87	35.44
9/4/13 11:51 AM	0.18	8.99	13.79	34.82
9/4/13 11:52 AM	0.05	9.13	14.00	34.79
Average	0.13	9.03	13.82	34.67

Unit 4 Run 5 09/04/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/4/13 12:04 PM	0.00	8.82	13.51	34.69
9/4/13 12:05 PM	0.05	8.72	13.42	34.97
9/4/13 12:06 PM	0.14	9.11	13.96	34.73
9/4/13 12:07 PM	0.05	9.08	13.78	34.10
9/4/13 12:08 PM	0.05	9.19	13.97	34.23
9/4/13 12:09 PM	0.10	9.38	14.26	34.24
9/4/13 12:10 PM	0.10	9.44	14.32	34.05
9/4/13 12:11 PM	0.00	9.34	14.19	34.15
9/4/13 12:12 PM	0.05	9.15	13.94	34.37
9/4/13 12:13 PM	0.00	9.30	14.19	34.48
9/4/13 12:14 PM	0.24	9.33	14.20	34.29
9/4/13 12:15 PM	0.05	9.34	14.19	34.17
9/4/13 12:16 PM	0.14	9.14	13.93	34.35
9/4/13 12:17 PM	0.19	9.18	14.04	34.61
9/4/13 12:18 PM	0.09	8.88	13.58	34.64
9/4/13 12:19 PM	0.22	8.76	13.44	34.85
9/4/13 12:20 PM	0.09	8.83	13.52	34.69
9/4/13 12:21 PM	0.13	8.75	13.35	34.50
9/4/13 12:22 PM	0.17	8.72	13.39	34.82
9/4/13 12:23 PM	0.13	8.80	13.53	34.99
9/4/13 12:24 PM	0.09	8.59	13.22	35.05
Average	0.10	9.04	13.81	34.52

Unit 4 Run 6 09/04/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/4/13 12:37 PM	0.04	8.45	13.03	35.16
9/4/13 12:38 PM	0.13	8.72	13.45	35.14
9/4/13 12:39 PM	0.09	8.95	13.71	34.72
9/4/13 12:40 PM	0.28	9.21	13.99	34.15
9/4/13 12:41 PM	0.13	8.81	13.39	34.21
9/4/13 12:42 PM	0.09	8.97	13.82	35.11
9/4/13 12:43 PM	0.09	8.87	13.71	35.33
9/4/13 12:44 PM	0.05	9.01	14.00	35.64
9/4/13 12:45 PM	0.00	9.15	14.10	35.14
9/4/13 12:46 PM	0.09	8.93	13.68	34.72
9/4/13 12:47 PM	0.05	9.08	13.93	34.82
9/4/13 12:48 PM	0.09	9.04	13.91	34.98
9/4/13 12:49 PM	0.00	8.72	13.43	35.05
9/4/13 12:50 PM	0.09	8.59	13.30	35.48
9/4/13 12:51 PM	0.09	8.67	13.51	35.84
9/4/13 12:52 PM	0.05	9.02	14.00	35.56
9/4/13 12:53 PM	0.14	9.00	13.84	34.97
9/4/13 12:54 PM	0.00	8.82	13.56	35.01
9/4/13 12:55 PM	0.05	8.84	13.63	35.13
9/4/13 12:56 PM	0.09	8.98	13.81	34.99
9/4/13 12:57 PM	0.18	8.97	13.76	34.80
Average	0.09	8.89	13.69	35.05

Unit 4 Run 7 09/04/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/4/13 1:10 PM	0.00	8.93	13.81	35.35
9/4/13 1:11 PM	0.05	9.09	14.04	35.25
9/4/13 1:12 PM	0.09	9.12	14.01	34.90
9/4/13 1:13 PM	0.05	9.10	13.96	34.80
9/4/13 1:14 PM	0.05	9.18	13.98	34.33
9/4/13 1:15 PM	0.00	8.81	13.34	34.01
9/4/13 1:16 PM	0.04	8.31	12.73	34.73
9/4/13 1:17 PM	0.00	8.56	13.23	35.27
9/4/13 1:18 PM	0.00	8.86	13.63	35.02
9/4/13 1:19 PM	0.05	8.90	13.64	34.77
9/4/13 1:20 PM	0.04	8.57	13.10	34.58
9/4/13 1:21 PM	0.22	8.68	13.44	35.42
9/4/13 1:22 PM	0.09	8.89	13.71	35.17
9/4/13 1:23 PM	0.08	8.56	13.16	34.91
9/4/13 1:24 PM	1.04	8.54	13.15	35.06
9/4/13 1:25 PM	2.50	8.52	13.09	34.93
9/4/13 1:26 PM	0.12	8.33	12.86	35.19
9/4/13 1:27 PM	0.04	8.22	12.77	35.63
9/4/13 1:28 PM	0.17	8.55	13.29	35.66
9/4/13 1:29 PM	0.04	8.39	13.00	35.41
9/4/13 1:30 PM	0.09	8.49	13.21	35.73
Average	0.23	8.70	13.39	35.05

Unit 4 Run 8 09/04/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/4/13 1:44 PM	0.00	9.01	13.74	34.40
9/4/13 1:45 PM	0.00	9.03	13.87	34.89
9/4/13 1:46 PM	0.04	8.83	13.59	35.04
9/4/13 1:47 PM	0.13	8.58	13.26	35.32
9/4/13 1:48 PM	0.00	8.70	13.48	35.50
9/4/13 1:49 PM	0.18	8.90	13.70	35.02
9/4/13 1:50 PM	0.08	8.52	13.12	35.08
9/4/13 1:51 PM	0.00	8.46	13.11	35.42
9/4/13 1:52 PM	0.04	8.62	13.36	35.44
9/4/13 1:53 PM	0.00	8.90	13.76	35.29
9/4/13 1:54 PM	0.09	9.14	14.04	34.95
9/4/13 1:55 PM	0.15	9.55	14.50	34.10
9/4/13 1:56 PM	0.14	9.60	14.41	33.37
9/4/13 1:57 PM	0.05	9.33	14.06	33.63
9/4/13 1:58 PM	0.05	9.26	14.04	34.04
9/4/13 1:59 PM	0.04	9.15	13.89	34.12
9/4/13 2:00 PM	0.00	9.04	13.77	34.33
9/4/13 2:01 PM	0.04	8.77	13.41	34.59
9/4/13 2:02 PM	0.18	8.88	13.62	34.78
9/4/13 2:03 PM	0.13	8.89	13.63	34.74
9/4/13 2:04 PM	0.14	9.03	13.83	34.74
Average	0.07	8.96	13.72	34.70

Unit 4 Run 9 09/04/13

Time_Stamp	CO DryCorr	O2 Wet	O2 Dry	H2O
9/4/13 2:18 PM	0.00	8.18	12.73	35.77
9/4/13 2:19 PM	0.19	8.96	13.84	35.27
9/4/13 2:20 PM	0.10	9.11	13.89	34.39
9/4/13 2:21 PM	0.44	9.03	13.73	34.24
9/4/13 2:22 PM	3.13	9.04	13.68	33.89
9/4/13 2:23 PM	1.03	8.37	12.78	34.48
9/4/13 2:24 PM	0.09	9.03	13.91	35.09
9/4/13 2:25 PM	0.09	9.08	13.92	34.80
9/4/13 2:26 PM	0.09	9.04	13.84	34.69
9/4/13 2:27 PM	0.09	8.93	13.63	34.53
9/4/13 2:28 PM	0.18	8.93	13.64	34.53
9/4/13 2:29 PM	0.08	8.43	12.89	34.61
9/4/13 2:30 PM	0.04	8.22	12.70	35.30
9/4/13 2:31 PM	0.12	8.25	12.80	35.58
9/4/13 2:32 PM	0.11	7.73	12.04	35.82
9/4/13 2:33 PM	0.29	9.62	15.04	36.08
9/4/13 2:34 PM	0.13	8.95	13.60	34.19
9/4/13 2:35 PM	0.53	8.98	13.67	34.35
9/4/13 2:36 PM	0.09	8.86	13.51	34.46
9/4/13 2:37 PM	0.13	8.60	13.17	34.72
9/4/13 2:38 PM	0.12	8.34	12.87	35.19
Average	0.34	8.75	13.42	34.86

Unit 4 Run 10 09/04/13

APPENDIX D

Unit 4 Waste Feed Characterization Data

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	4
Created	9/4/2013 10:01 AM
Period Start	9/4/2013 9:00 AM
Period End	9/4/2013 10:00 AM

CALCULATIONS

BTU	29.05 mbtu		
PCC BTU	22.33 mbtu	Main Line BTU	0.000000 mbtu
SCC BTU	6.71 mbtu	Aux Feed BTU	6.761200 mbtu
Chlorine	93.2 lbs		
Low Volatile	0.147 lbs	Mercury	0.0002 lbs
Semi Volatile	0.942 lbs	Ash	663.0 lbs

WEIGHTS

Weight	3146 lbs		
Solids Weight	1847 lbs	PCC Liquid Weight	1299 lbs
Shredded Weight	1325 lbs	X10 Weight	399 lbs
Containerized Weight	522 lbs	X11 Weight	899 lbs
Main Line Weight	0 lbs	X12 Weight	0 lbs
Aux Feed Weight	522 lbs	X22 Weight	782 lbs
Pit 1 Weight	0 lbs	Tank 300 Weight	899 lbs
Pit 2 Weight	1325 lbs	Tank 302 Weight	0 lbs
Pit 3 Weight	0 lbs	Tank 304 Weight	0 lbs
Pit 4 Weight	0 lbs	Tank 306 Weight	0 lbs
		Tank 308 Weight	0 lbs
Direct Inject Weight	399 lbs	Tank 310 Weight	782 lbs
Special Feeds Weight	0 lbs	Tank 312 Weight	0 lbs
		Tank 314 Weight	0 lbs

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	10420 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	4
Created	9/4/2013 11:01 AM
Period Start	9/4/2013 10:00 AM
Period End	9/4/2013 11:00 AM

CALCULATIONS

BTU	26.58 mbtu		
PCC BTU	19.72 mbtu	Main Line BTU	0.000000 mbtu
SCC BTU	6.85 mbtu	Aux Feed BTU	6.342600 mbtu
Chlorine	84.5 lbs		
Low Volatile	3.265 lbs	Mercury	0.0003 lbs
Semi Volatile	3.030 lbs	Ash	737.1 lbs

WEIGHTS

Weight	3323 lbs		
Solids Weight	2027 lbs	PCC Liquid Weight	1296 lbs
Shredded Weight	1551 lbs	X10 Weight	397 lbs
Containerized Weight	476 lbs	X11 Weight	899 lbs
Main Line Weight	0 lbs	X12 Weight	0 lbs
Aux Feed Weight	476 lbs	X22 Weight	799 lbs
Pit 1 Weight	0 lbs	Tank 300 Weight	899 lbs
Pit 2 Weight	745 lbs	Tank 302 Weight	0 lbs
Pit 3 Weight	806 lbs	Tank 304 Weight	0 lbs
Pit 4 Weight	0 lbs	Tank 306 Weight	0 lbs
		Tank 308 Weight	0 lbs
Direct Inject Weight	397 lbs	Tank 310 Weight	799 lbs
Special Feeds Weight	0 lbs	Tank 312 Weight	0 lbs
		Tank 314 Weight	0 lbs

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	12176 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	4
Created	9/4/2013 12:01 PM
Period Start	9/4/2013 11:00 AM
Period End	9/4/2013 12:00 PM

CALCULATIONS

BTU	28.87 mbtu		
PCC BTU	22.02 mbtu	Main Line BTU	0.000000 mbtu
SCC BTU	6.85 mbtu	Aux Feed BTU	6.306200 mbtu
Chlorine	91.4 lbs		
Low Volatile	1.759 lbs	Mercury	0.0003 lbs
Semi Volatile	2.373 lbs	Ash	836.2 lbs

WEIGHTS

Weight	3621 lbs		
Solids Weight	2325 lbs	PCC Liquid Weight	1296 lbs
Shredded Weight	1857 lbs	X10 Weight	395 lbs
Containerized Weight	468 lbs	X11 Weight	901 lbs
Main Line Weight	0 lbs	X12 Weight	0 lbs
Aux Feed Weight	468 lbs	X22 Weight	798 lbs
Pit 1 Weight	0 lbs	Tank 300 Weight	901 lbs
Pit 2 Weight	1034 lbs	Tank 302 Weight	0 lbs
Pit 3 Weight	823 lbs	Tank 304 Weight	0 lbs
Pit 4 Weight	0 lbs	Tank 306 Weight	0 lbs
		Tank 308 Weight	0 lbs
Direct Inject Weight	395 lbs	Tank 310 Weight	798 lbs
Special Feeds Weight	0 lbs	Tank 312 Weight	0 lbs
		Tank 314 Weight	0 lbs

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	12553 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	4
Created	9/4/2013 1:01 PM
Period Start	9/4/2013 12:00 PM
Period End	9/4/2013 1:00 PM

CALCULATIONS

BTU	27.74 mbtu		
PCC BTU	20.97 mbtu	Main Line BTU	0.000000 mbtu
SCC BTU	6.77 mbtu	Aux Feed BTU	7.959000 mbtu
Chlorine	81.1 lbs		
Low Volatile	0.502 lbs	Mercury	0.0003 lbs
Semi Volatile	1.432 lbs	Ash	828.5 lbs

WEIGHTS

Weight	3553 lbs		
Solids Weight	2293 lbs	PCC Liquid Weight	1260 lbs
Shredded Weight	1804 lbs	X10 Weight	389 lbs
Containerized Weight	489 lbs	X11 Weight	871 lbs
Main Line Weight	0 lbs	X12 Weight	0 lbs
Aux Feed Weight	489 lbs	X22 Weight	789 lbs
Pit 1 Weight	0 lbs	Tank 300 Weight	475 lbs
Pit 2 Weight	949 lbs	Tank 302 Weight	395 lbs
Pit 3 Weight	855 lbs	Tank 304 Weight	0 lbs
Pit 4 Weight	0 lbs	Tank 306 Weight	0 lbs
		Tank 308 Weight	0 lbs
Direct Inject Weight	389 lbs	Tank 310 Weight	789 lbs
Special Feeds Weight	0 lbs	Tank 312 Weight	0 lbs
		Tank 314 Weight	0 lbs

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	13516 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	4
Created	9/4/2013 2:01 PM
Period Start	9/4/2013 1:00 PM
Period End	9/4/2013 2:00 PM

CALCULATIONS

BTU	23.78 mbtu		
PCC BTU	16.92 mbtu	Main Line BTU	0.000000 mbtu
SCC BTU	6.85 mbtu	Aux Feed BTU	6.752700 mbtu
Chlorine	74.6 lbs		
Low Volatile	0.981 lbs	Mercury	0.0002 lbs
Semi Volatile	0.921 lbs	Ash	799.1 lbs

WEIGHTS

Weight	3455 lbs		
Solids Weight	2169 lbs	PCC Liquid Weight	1286 lbs
Shredded Weight	1716 lbs	X10 Weight	388 lbs
Containerized Weight	453 lbs	X11 Weight	898 lbs
Main Line Weight	0 lbs	X12 Weight	0 lbs
Aux Feed Weight	453 lbs	X22 Weight	799 lbs
Pit 1 Weight	0 lbs	Tank 300 Weight	0 lbs
Pit 2 Weight	899 lbs	Tank 302 Weight	898 lbs
Pit 3 Weight	817 lbs	Tank 304 Weight	0 lbs
Pit 4 Weight	0 lbs	Tank 306 Weight	0 lbs
		Tank 308 Weight	0 lbs
Direct Inject Weight	388 lbs	Tank 310 Weight	799 lbs
Special Feeds Weight	0 lbs	Tank 312 Weight	0 lbs
		Tank 314 Weight	0 lbs

MISCELLANEOUS

Waste Permit Time	0.99 hrs	Natural Gas Flow	13607 cf

Hourly Report
Veolia
Environmental Services
Sauget Illinois

Incinerator	4
Created	9/4/2013 3:01 PM
Period Start	9/4/2013 2:00 PM
Period End	9/4/2013 3:00 PM

CALCULATIONS

BTU	18.64 mbtu		
PCC BTU	14.28 mbtu	Main Line BTU	0.000000 mbtu
SCC BTU	4.35 mbtu	Aux Feed BTU	5.569700 mbtu
Chlorine	58.6 lbs		
Low Volatile	4.307 lbs	Mercury	0.0002 lbs
Semi Volatile	0.910 lbs	Ash	693.6 lbs

WEIGHTS

Weight	2839 lbs		
Solids Weight	1912 lbs	PCC Liquid Weight	927 lbs
Shredded Weight	1545 lbs	X10 Weight	277 lbs
Containerized Weight	367 lbs	X11 Weight	649 lbs
Main Line Weight	0 lbs	X12 Weight	0 lbs
Aux Feed Weight	367 lbs	X22 Weight	507 lbs
Pit 1 Weight	0 lbs	Tank 300 Weight	0 lbs
Pit 2 Weight	746 lbs	Tank 302 Weight	649 lbs
Pit 3 Weight	799 lbs	Tank 304 Weight	0 lbs
Pit 4 Weight	0 lbs	Tank 306 Weight	0 lbs
		Tank 308 Weight	0 lbs
Direct Inject Weight	277 lbs	Tank 310 Weight	507 lbs
Special Feeds Weight	0 lbs	Tank 312 Weight	0 lbs
		Tank 314 Weight	0 lbs

MISCELLANEOUS

Waste Permit Time	0.98 hrs	Natural Gas Flow	16679 cf

APPENDIX E

Reference Method EPA Protocol Gas Certifications

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11426 FAIRMONT PKWY, LA PORTE, TX 77571 Phone: 800-248-1427 Fax: 281-474-8419

RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: Interference Free™ Multi-Component EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A32011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
11426 FAIRMONT PKWY
LA PORTE, TX 77571

P.O. No.: STOCK
Document # : 44094399-001

Customer
URS CORPORATION

9400 AMBERGLEN BLVD
AUSTIN TX 78729
US

ANALYTICAL INFORMATION Gas Type : CO2,O2,BALN

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC189665
Cylinder Pressure*:** 1850 PSIG

Certification Date: 14Dec2011

Exp. Date: 15Dec2019
Batch No: LAP0054691

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON DIOXIDE	19.2 %	+/- 1%	Direct NIST and VSL
OXYGEN	22.5 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1800	01Mar2013	K026135	17.87 %	CARBON DIOXIDE
NTRM 2659	02Oct2012	1D003416	20.85 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//MG-09-149	02Dec2011	FTIR
SERVOMEX/MODEL 244A/701/716	01Dec2011	PARAMAGNETIC

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis
CARBON DIOXIDE
Date: 13Dec2011 Response Unit: %
Z1=-0.00143 R1=17.78329 T1=19.14079
R2=17.78502 Z2=-0.00071 T2=19.14128
Z3=0.00239 T3=19.14149 R3=17.79819
Avg. Concentration: 19.23 %

OXYGEN
Date: 14Dec2011 Response Unit: VOLTS
Z1=0.00000 R1=0.84000 T1=0.90550
R2=0.84000 Z2=0.00000 T2=0.90550
Z3=0.00000 T3=0.90550 R3=0.84000
Avg. Concentration: 22.47 %

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99997E-1
Constants: A=0.00000E+0
B=9.05981E-1 C=1.21380E-2
D=0.00000E+0 E=0.00000E+0

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.9999996
Constants: A=-0.00147786
B=24.85715966 C=
D= E=

Special Notes:
The expiration date has been extended without re-assay per EPA 600/R23-23/542.
URS020 CGA 590 ; DEW PT. 40 DEG. F.

QUALITY ASSURANCE

APPROVED BY: SARAH HERBERT
(signature on file)

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RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: Interference Free™ Multi-Component EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A32011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
11426 FAIRMONT PKWY
LA PORTE, TX 77571

P.O. No.: URS
Document # : 41468291-001

Customer
URS CORPORATION

9400 AMBERGLEN BLVD
AUSTIN TX 78729
US

ANALYTICAL INFORMATION Gas Type : OC2

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: AAL18906
Cylinder Pressure*:** 2000 PSIG

Certification Date: 04May2011

Exp. Date: 04May2014
Batch No: LAP0040411

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON DIOXIDE	9.74 %	+/- 1%	Direct NIST and VSL
OXYGEN	11.1 %	+/- 1%	
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1674	03Feb2016	K009587	7.016 %	CARBON DIOXIDE
NTRM 2350	01May2013	K026427	23.50 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000929060	07Apr2011	FTIR
SERVOMEX/MODEL 244A/701/716	25Apr2011	PARAMAGNETIC

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis
CARBON DIOXIDE
Date: 03May2011 Response Unit: %
Z1=-0.00033 R1=7.02439 T1=9.75268
R2=7.03593 Z2=-0.00002 T2=9.75641
Z3=0.00283 T3=9.76354 R3=7.03728
Avg. Concentration: 9.735 %

OXYGEN
Date: 04May2011 Response Unit: VOLTS
Z1=0.00000 R1=0.94000 T1=0.44530
R2=0.94000 Z2=0.00000 T2=0.44550
Z3=0.00000 T3=0.44550 R3=0.94000
Avg. Concentration: 11.13 %

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99996E-1
Constants: A=0.00000E+0
B=9.04836E-1 C=1.20230E-2
D=0.00000E+0 E=0.00000E+0

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.9999987
Constants: A=0.000249421
B=24.9768807 C=
D= E=

Special Notes:
URS019 CO2 RANGE 8-11% O2 RANGE 10-12.5% CGA 590 ; DEW PT. 40 DEG. F.

QUALITY ASSURANCE

APPROVED BY: DAVID KELLY
(signature on file)

AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22012

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 59933-71-65000
Document # : 47534369-003

Customer
CLEAN AIR ENGINEERING

DON ALLEN
500 WEST WOOD STREET
PALATINE IL 60067
US

ANALYTICAL INFORMATION Gas Type : OC2

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC121944 **Certification Date:** 11Sep2012 **Exp. Date:** 12Sep2020
Cylinder Pressure*:** 2000 PSIG **Batch No:** TRO0065750

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
OXYGEN	2.07 %	+/- 1%	Direct NIST and VSL
CARBON DIOXIDE	2.09 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2350 23	04Jan2018	K024582	23.20 %	OXYGEN
NTRM 2000 K	01Jun2013	K025967	5.006 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
CAI/110P/V03018	28Aug2012	PARAMAGNETIC
PIR/2000/609015	11Sep2012	NDIR

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis	Second Triad Analysis	Calibration Curve

OXYGEN

Date: 11Sep2012 Response Unit: %
Z1=0.00000 R1=23.20000 T1=2.08000
R2=23.20000 Z2=0.00000 T2=2.08000
Z3=0.00000 T3=2.08000 R3=23.20000
Avg. Concentration: 2.068 %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999
Constants: A=-0.01360934
B=1.000705107 C=0
D=0 E=0

CARBON DIOXIDE

Date: 11Sep2012 Response Unit: MV
Z1=0.00000 R1=100.0000 T1=46.70000
R2=100.0000 Z2=0.00000 T2=46.70000
Z3=0.00000 T3=46.70000 R3=100.0000
Avg. Concentration: 2.092 %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999
Constants: A=0.000913103
B=0.041430365 C=5.913E-05
D=2.70796E-07 E=0

APPROVED BY: JEFF CROTEAU

Airgas

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 568-2203 Fax: (323) 567-3686
www.airgas.com

Part Number:	E02NI99E15A0406	Reference Number:	48-124294203-8
Cylinder Number:	CC14436	Cylinder Volume:	144 Cu.Ft.
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32011	Valve Outlet:	350
		Analysis Date:	Dec 16, 2011

Expiration Date: Dec 16, 2014

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. 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 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON MONOXIDE	90.00 PPM	89.80 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	090605	CC286489	98.88PPM CARBON MONOXIDE/NITROGEN	Feb 01, 2013

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801551 CO	FTIR	Dec 08, 2011

Triad Data Available Upon Request

Notes:

Approved for Release

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RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A32011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
11426 FAIRMONT PKWY
LA PORTE, TX 77571

P.O. No.: STOCK
Document # : 43751811-001
Folio #:URS012

Customer
URS CORPORATION
9400 AMBERGLEN BLVD
AUSTIN TX 78729
US

ANALYTICAL INFORMATION Gas Type : NONE

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC215749
Cylinder Pressure*:** 2000 PSIG

Certification Date: 15Nov2011

Exp. Date: 16Nov2019
Batch No: LAP0052491

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON MONOXIDE 46.3	PPM	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1678	15Dec2011	KAL004179	48.60 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000929060	20Oct2011	FTIR

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis
CARBON MONOXIDE
Date: 08Nov2011 Response Unit: PPM
Z1=0.04763 R1=1246.779 T1=46.16463
R2=1246.808 Z2=0.05757 T2=46.16727
Z3=0.46298 T3=46.26108 R3=1247.792
Avg. Concentration: 46.26 PPM

Second Triad Analysis
Date: 15Nov2011 Response Unit: PPM
Z1=-0.01497 R1=48.58454 T1=46.16318
R2=48.59487 Z2=0.07493 T2=46.28466
Z3=0.11036 T3=46.33594 R3=48.65816
Avg. Concentration: 46.25 PPM

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99996E-1
Constants: A=0.00000E+0
B=8.39797E-1 C=5.13000E-4
D=1.00000E-6 E=0.00000E+0

Special Notes:
The expiration date has been extended without re-assay per EPA 600/R23-23/542.
Dew Point 40F CGA 350

QUALITY ASSURANCE

APPROVED BY: SARAH HERBERT
(signature on file)

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11426 FAIRMONT PKWY, LA PORTE, TX 77571 Phone: 800-248-1427 Fax: 281-474-8419

RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: Interference Free™ Multi-Component EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A32011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
11426 FAIRMONT PKWY
LA PORTE, TX 77571

P.O. No.: URS
Document # : 41468291-001

Customer
URS CORPORATION

9400 AMBERGLEN BLVD
AUSTIN TX 78729
US

ANALYTICAL INFORMATION Gas Type : OC2

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: AAL18906
Cylinder Pressure*:** 2000 PSIG

Certification Date: 04May2011

Exp. Date: 04May2014
Batch No: LAP0040411

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON DIOXIDE	9.74 %	+/- 1%	Direct NIST and VSL
OXYGEN	11.1 %	+/- 1%	
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1674	03Feb2016	K009587	7.016 %	CARBON DIOXIDE
NTRM 2350	01May2013	K026427	23.50 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000929060	07Apr2011	FTIR
SERVOMEX/MODEL 244A/701/716	25Apr2011	PARAMAGNETIC

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis	Second Triad Analysis	Calibration Curve
CARBON DIOXIDE		
Date: 03May2011 Response Unit: %		Concentration=A+Bx+Cx2+Dx3+Ex4
Z1=-0.00033 R1=7.02439 T1=9.75268		r=9.99996E-1
R2=7.03593 Z2=-0.00002 T2=9.75641		Constants: A=0.00000E+0
Z3=0.00283 T3=9.76354 R3=7.03728		B=9.04836E-1 C=1.20230E-2
Avg. Concentration: 9.735 %		D=0.00000E+0 E=0.00000E+0
OXYGEN		
Date: 04May2011 Response Unit: VOLTS		Concentration=A+Bx+Cx2+Dx3+Ex4
Z1=0.00000 R1=0.94000 T1=0.44530		r=0.9999987
R2=0.94000 Z2=0.00000 T2=0.44550		Constants: A=0.000249421
Z3=0.00000 T3=0.44550 R3=0.94000		B=24.9768807 C=
Avg. Concentration: 11.13 %		D= E=

Special Notes:
URS019 CO2 RANGE 8-11% O2 RANGE 10-12.5% CGA 590 ; DEW PT. 40 DEG. F.

QUALITY ASSURANCE

APPROVED BY: DAVID KELLY
(signature on file)

AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22012

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 59933-71-65000
Document # : 47534369-003

Customer
CLEAN AIR ENGINEERING

DON ALLEN
500 WEST WOOD STREET
PALATINE IL 60067
US

ANALYTICAL INFORMATION Gas Type : OC2

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC121944 **Certification Date:** 11Sep2012 **Exp. Date:** 12Sep2020
Cylinder Pressure*:** 2000 PSIG **Batch No:** TRO0065750

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
OXYGEN	2.07 %	+/- 1%	Direct NIST and VSL
CARBON DIOXIDE	2.09 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2350 23	04Jan2018	K024582	23.20 %	OXYGEN
NTRM 2000 K	01Jun2013	K025967	5.006 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
CAI/110P/V03018	28Aug2012	PARAMAGNETIC
PIR/2000/609015	11Sep2012	NDIR

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis	Second Triad Analysis	Calibration Curve

OXYGEN

Date: 11Sep2012 Response Unit: %
Z1=0.00000 R1=23.20000 T1=2.08000
R2=23.20000 Z2=0.00000 T2=2.08000
Z3=0.00000 T3=2.08000 R3=23.20000
Avg. Concentration: 2.068 %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999
Constants: A=-0.01360934
B=1.000705107 C=0
D=0 E=0

CARBON DIOXIDE

Date: 11Sep2012 Response Unit: MV
Z1=0.00000 R1=100.0000 T1=46.70000
R2=100.0000 Z2=0.00000 T2=46.70000
Z3=0.00000 T3=46.70000 R3=100.0000
Avg. Concentration: 2.092 %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999
Constants: A=0.000913103
B=0.041430365 C=5.913E-05
D=2.70796E-07 E=0

APPROVED BY: JEFF CROTEAU

Airgas

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 South Alameda Street
Los Angeles, CA 90059
(323) 568-2203 Fax: (323) 567-3686
www.airgas.com

Part Number:	E02NI99E15A0406	Reference Number:	48-124294203-8
Cylinder Number:	CC14436	Cylinder Volume:	144 Cu.Ft.
Laboratory:	ASG - Los Angeles - CA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B32011	Valve Outlet:	350
		Analysis Date:	Dec 16, 2011

Expiration Date: Dec 16, 2014

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. 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 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON MONOXIDE	90.00 PPM	89.80 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	090605	CC286489	98.88PPM CARBON MONOXIDE/NITROGEN	Feb 01, 2013

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801551 CO	FTIR	Dec 08, 2011

Triad Data Available Upon Request

Notes:

Approved for Release

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11426 FAIRMONT PKWY, LA PORTE, TX 77571 Phone: 800-248-1427 Fax: 281-474-8419

RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: Interference Free™ Multi-Component EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A32011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
11426 FAIRMONT PKWY
LA PORTE, TX 77571

P.O. No.: STOCK
Document # : 44094434-001

Customer
ALA-CYL-AUSTIN/MANOR (LOC 84128)

12700 BELTEX DR
TRANSFER ACCOUNT
MANOR TX 78653
US

ANALYTICAL INFORMATION Gas Type : CO2,O2,BALN

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC157679
Cylinder Pressure*:** 1950 PSIG

Certification Date: 13Dec2011

Exp. Date: 14Dec2019
Batch No: LAP0054696

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON DIOXIDE	9.47 %	+/- 1%	Direct NIST and VSL
OXYGEN	11.0 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1800	01Mar2013	K026135	17.87 %	CARBON DIOXIDE
NTRM 2659	02Oct2012	1D003416	20.85 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//MG-09-149	02Dec2011	FTIR
SERVOMEX/MODEL 244A/701/716	01Dec2011	PARAMAGNETIC

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis	Second Triad Analysis	Calibration Curve
CARBON DIOXIDE		
Date: 13Dec2011 Response Unit: %		Concentration=A+Bx+Cx2+Dx3+Ex4
Z1=-0.00143 R1=17.78329 T1=9.41356		r=9.99997E-1
R2=17.78502 Z2=-0.00071 T2=9.42213		Constants: A=0.00000E+0
Z3=0.00239 T3=9.43070 R3=17.79819		B=9.05981E-1 C=1.21380E-2
Avg. Concentration: 9.465 %		D=0.00000E+0 E=0.00000E+0
OXYGEN		
Date: 14Dec2011 Response Unit: VOLTS		Concentration=A+Bx+Cx2+Dx3+Ex4
Z1=0.00000 R1=0.84000 T1=0.44300		r=0.9999996
R2=0.84000 Z2=0.00000 T2=0.44300		Constants: A=-0.00147786
Z3=0.00000 T3=0.44300 R3=0.84000		B=24.85715966 C=
Avg. Concentration: 10.99 %		D= E=

Special Notes:
The expiration date has been extended without re-assay per EPA 600/R23-23/542.
URS019 CGA 590 ; DEW PT. 40 DEG. F.

QUALITY ASSURANCE

APPROVED BY: SARAH HERBERT
(signature on file)

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RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: Interference Free™ Multi-Component EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A32011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
11426 FAIRMONT PKWY
LA PORTE, TX 77571

P.O. No.: STOCK
Document # : 44094399-001

Customer
URS CORPORATION

9400 AMBERGLEN BLVD
AUSTIN TX 78729
US

ANALYTICAL INFORMATION Gas Type : CO2,O2,BALN

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC189665
Cylinder Pressure*:** 1850 PSIG

Certification Date: 14Dec2011

Exp. Date: 15Dec2019
Batch No: LAP0054691

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON DIOXIDE	19.2 %	+/- 1%	Direct NIST and VSL
OXYGEN	22.5 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1800	01Mar2013	K026135	17.87 %	CARBON DIOXIDE
NTRM 2659	02Oct2012	1D003416	20.85 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//MG-09-149	02Dec2011	FTIR
SERVOMEX/MODEL 244A/701/716	01Dec2011	PARAMAGNETIC

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis
CARBON DIOXIDE
Date: 13Dec2011 Response Unit: %
Z1=-0.00143 R1=17.78329 T1=19.14079
R2=17.78502 Z2=-0.00071 T2=19.14128
Z3=0.00239 T3=19.14149 R3=17.79819
Avg. Concentration: 19.23 %

OXYGEN
Date: 14Dec2011 Response Unit: VOLTS
Z1=0.00000 R1=0.84000 T1=0.90550
R2=0.84000 Z2=0.00000 T2=0.90550
Z3=0.00000 T3=0.90550 R3=0.84000
Avg. Concentration: 22.47 %

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99997E-1
Constants: A=0.00000E+0
B=9.05981E-1 C=1.21380E-2
D=0.00000E+0 E=0.00000E+0

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.9999996
Constants: A=-0.00147786
B=24.85715966 C=
D= E=

Special Notes:
The expiration date has been extended without re-assay per EPA 600/R23-23/542.
URS020 CGA 590 ; DEW PT. 40 DEG. F.

QUALITY ASSURANCE

APPROVED BY: SARAH HERBERT
(signature on file)

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RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A32011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
11426 FAIRMONT PKWY
LA PORTE, TX 77571

P.O. No.: STOCK
Document # : 43751811-001
Folio #:URS012

Customer
URS CORPORATION
9400 AMBERGLEN BLVD
AUSTIN TX 78729
US

ANALYTICAL INFORMATION Gas Type : NONE

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC215749
Cylinder Pressure*:** 2000 PSIG

Certification Date: 15Nov2011

Exp. Date: 16Nov2019
Batch No: LAP0052491

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON MONOXIDE 46.3	PPM	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1678	15Dec2011	KAL004179	48.60 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000929060	20Oct2011	FTIR

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis
CARBON MONOXIDE
Date: 08Nov2011 Response Unit: PPM
Z1=0.04763 R1=1246.779 T1=46.16463
R2=1246.808 Z2=0.05757 T2=46.16727
Z3=0.46298 T3=46.26108 R3=1247.792
Avg. Concentration: 46.26 PPM

Second Triad Analysis
Date: 15Nov2011 Response Unit: PPM
Z1=-0.01497 R1=48.58454 T1=46.16318
R2=48.59487 Z2=0.07493 T2=46.28466
Z3=0.11036 T3=46.33594 R3=48.65816
Avg. Concentration: 46.25 PPM

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99996E-1
Constants: A=0.00000E+0
B=8.39797E-1 C=5.13000E-4
D=1.00000E-6 E=0.00000E+0

Special Notes:
The expiration date has been extended without re-assay per EPA 600/R23-23/542.
Dew Point 40F CGA 350

QUALITY ASSURANCE

APPROVED BY: SARAH HERBERT
(signature on file)

AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22012

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 59661-70-65000
Document # : 45935248-042

Customer
CLEAN AIR INSTRUMENT RENTAL

JACK BIONDA
110 TECHNOLOGY DRIVE
RID PARK, FINLAY TOWNSHIP
CORAOPOLIS PA 15108
US

ANALYTICAL INFORMATION Gas Type : OC2

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC43355 **Certification Date:** 16May2012 **Exp. Date:** 16May2015
Cylinder Pressure*:** 2000 PSIG **Batch No:** TR00057923

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
OXYGEN	10.1	%	+/- 1%	Direct NIST and VSL
CARBON DIOXIDE	10.0	%	+/- 1%	Direct NIST and VSL
NITROGEN		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2350 23	04Jan2018	K024582	23.20 %	OXYGEN
NTRM 2300	17Aug2016	K026052	23.04 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
CAI/110P/V03018	07May2012	PARAMAGNETIC
PIR/2000/609015	07May2012	NDIR

ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

First Triad Analysis | **Second Triad Analysis** | **Calibration Curve**

OXYGEN

Date: 14May2012 Response Unit: %

Z1 = 0.00000	R1 = 23.20000	T1 = 10.09000
R2 = 23.20000	Z2 = 0.00000	T2 = 10.08000
Z3 = 0.00000	T3 = 10.08000	R3 = 23.20000

Avg. Concentration: 10.06 %

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999997
Constants: A = -0.04233969
B = 1.001808266 C = 0
D = 0 E = 0

CARBON DIOXIDE

Date: 17May2012 Response Unit: MV

Z1 = 0.00000	R1 = 99.10000	T1 = 60.30000
R2 = 99.10000	Z2 = 0.00000	T2 = 60.30000
Z3 = 0.00000	T3 = 60.30000	R3 = 99.10000

Avg. Concentration: 10.01 %

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999987
Constants: A = -0.00518415
B = 0.136464952 C = -0.0002272
D = 1.23741E-05 E = 0

APPROVED BY: JEFF CROTEAU

A-263