

TEST REPORT

COMPLIANCE EMISSION TEST PROGRAM

SRU THERMAL OXIDIZER 66F-3 STACK

SRU THERMAL OXIDIZER 66F-5 STACK

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SECTION ONE

Introduction and Summary

ARI Environmental, Inc. (ARI) was retained by Marathon Petroleum LLC (MPCLLC) to conduct a compliance emission test program on the SRU Thermal Oxidizer 66F-3 and 66F-5 stacks at the MPCLLC refinery in Robinson, Illinois. The testing was performed on February 26 through March 1, 2007.

The purpose of the testing was to determine the concentrations and mass emission rates of sulfur dioxide (SO₂), nitrogen oxides (NO_x) and carbon monoxide (CO). Twelve (12) one-hour test runs were performed on each stack. Each SRU was operated at 100% (max) load during the testing.

The program was conducted to comply with the test methods and procedures specified in the Code of Federal Regulations, 40 CFR, Part 60, 2006, Revised August 14, 2006, Appendix A, USEPA Methods 1 through 4, 6C, 7E and 10; and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Testing was conducted by Messrs. Rob Burton, Steve Flaherty and John Ronkowski of ARI. Ms. Wendy Robinson of MPCLLC assisted in coordinating the test program and obtaining the process data.

This report details the test procedures and results of the testing. Included in the appendices is complete documentation of all field test data, calculation summary data, process data, ARI reference method monitoring data and test equipment calibration data.

A summary of the average test results is presented below:

Test Run	:	SRU 66F-5	SRU 66F-3
O ₂ ,	% vol db	2.56	2.41
SO ₂ ,	ppmv db	50.8	50.9
	ppm @ 0% oxygen	57.9	57.5
	lb/hr	7.221	6.667
NO _x ,	ppmv db	20.4	14.3
	lb/hr	2.087	1.346
CO,	ppmv db	112.4	211.9
	ppm @ 50% excess air	83.6	156.4
	lb/hr	6.988	12.152



SECTION TWO

Testing and Analytical Procedures

2.1 OVERVIEW

At each exhaust stack, compliance testing was conducted for SO₂, NO_x and CO during twelve (12) one-hour sampling runs.

All testing was conducted in accordance with the following procedures:

- 40 CFR Part 51, Appendix M, USEPA Method 205
- 40 CFR Part 60, Appendix A, USEPA Methods 1-4, 6C, 7E and 10
- Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods

2.1.1 USEPA Method 1 - Sampling Location

The velocity sampling points at the stack locations were determined following USEPA Method 1. The sampling locations and number of velocity sampling points were as follows:

Sampling Location	Duct Diameter (inches)	Upstream Distance from Flow Disturbance (duct diameters)	Downstream Distance from Flow Disturbance (duct diameters)	No. of Ports	Sampling Points per Port	Total Points
66F-3 Stack	64	>2	>2	2	8	16
66F-5 Stack	66	>10	4.18	2	8	16

2.1.2 USEPA Method 2 - Volumetric Flow Rate Determination

Gas velocity and volumetric flow rate were determined following USEPA Method 2 procedures. Velocity traverses were performed using a Type "S" pitot tube with the velocity head pressure measured on a Dwyer oil gauge inclined manometer to the nearest 0.01 in. H₂O. Temperature measurements were performed with a Chromel-Alumel thermocouple connected to a digital direct read-out potentiometer.

2.1.3 USEPA Method 3A - Molecular Weight

The stack gas molecular weight was determined following USEPA Method 3A procedures. A complete description of this method is given in Subsection 2.1.5 which details instrument analyzer methods.

2.1.4 USEPA Method 4 - Moisture Determination

The stack gas moisture content was determined following USEPA Method 4 procedures. Stack gas was extracted through a series of chilled impingers. The first two impingers initially contained 100 mLs of deionized/distilled water; the third was initially empty, and the final impinger contained approximately 200 grams of silica gel for water vapor removal. Total moisture collected was determined gravimetrically from the difference of the initial and final sampling train weights. See Figure 2-1.

SECTION TWO

Testing and Analytical Procedures

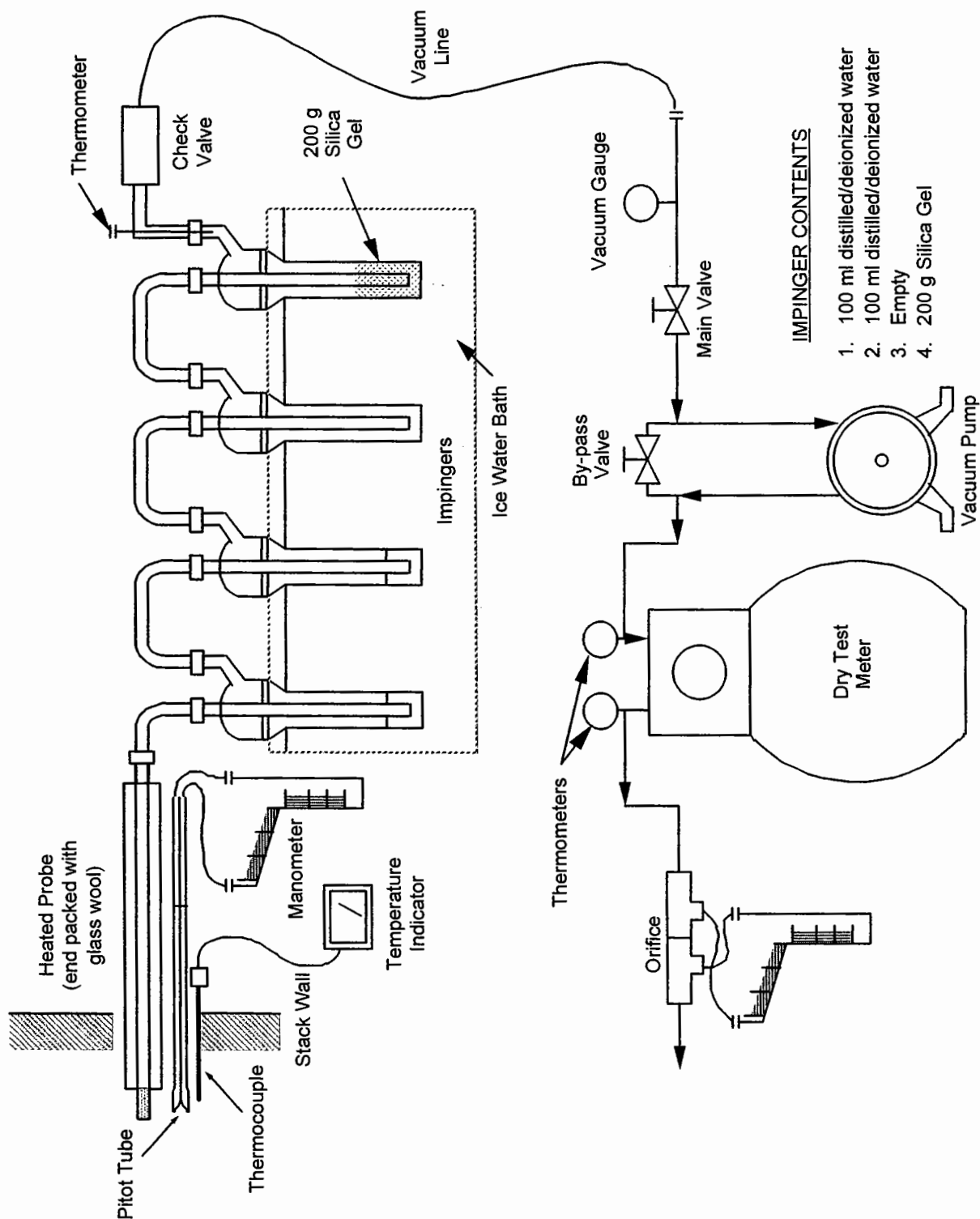


FIGURE 2-1. USEPA METHOD 4 SAMPLING TRAIN (MOISTURE)



SECTION TWO

Testing and Analytical Procedures

2.1.5 USEPA Methods 3A, 6C, 7E, and 10 - O₂, CO₂, SO₂, NO_x, and CO

ARI's sampling system consisted of a heated probe with in-stack filter followed by a three-way calibration valve connected to a heated Teflon sample line. The Teflon sample line was connected to an electronic sample conditioner (Universal Analyzer Model No. 3082) to remove moisture. A sample manifold was connected to the exhaust side of the sample conditioner with intake lines for ARI's O₂, CO₂, SO₂, NO_x, and CO analyzers. See Figure 2-2.

Continuous O₂ sampling was conducted following USEPA Method 3A. O₂ was measured using ARI's Servomex, Inc. Model 1440C paramagnetic analyzer. A pre-test and post-test system bias along with the initial calibration error test were performed using diluted O₂ balance nitrogen standards of zero, 10.00%, and 20.0% at an analyzer span of 20%.

Continuous CO₂ sampling was conducted following USEPA Method 3A. CO₂ was measured using ARI's Servomex, Inc. Model 1440C infrared gas analyzer. A pre-test and post-test system bias along with the initial calibration error test were performed using diluted CO₂ balance nitrogen standards of zero, 10.0%, and 20.0% at an analyzer span of 20%.

Continuous SO₂ sampling was conducted following USEPA Method 6C. SO₂ was measured using ARI's Thermo Environmental Instruments Inc. Model 43C monitor. A pre-test and post-test system bias along with the initial calibration error test were performed using diluted SO₂ balance nitrogen standards of zero, 20.0 ppm, 45.0 ppm and 88.67 ppm at an analyzer span of 88.67 ppm.

Continuous NO_x sampling was conducted following USEPA Method 7E procedures. NO_x was measured using ARI's Thermo Environmental Instruments, Inc. Model 42C chemiluminescent analyzer. A pre-test and post-test system bias along with the initial calibration error test were performed using diluted NO_x balance nitrogen standards of zero, 20.0 ppm, 45.0 ppm and 88.99 ppm at an analyzer span of 88.99 ppm. A NO_x converter check was performed each day of testing using the "Approved Alternative Method" EMC ALT-013, September 28, 1994. This procedure uses a NO₂ cylinder gas to provide direct measurement of the converter efficiency, as compared to the Tedlar bag procedure in Section 5.6.1 of Method 20. The converter is acceptable if the NO₂ to NO conversion rate is greater than 90%.

Continuous CO sampling was conducted following USEPA Method 10 procedures. CO was measured using ARI's Thermo Environmental Instruments, Inc. Model 48 analyzer. A pre-test and post-test system bias along with the initial calibration error test were performed using diluted CO balance nitrogen standards of zero, 60.0 ppm, 120.0 ppm, and 180.0 ppm at an analyzer span of 100 ppm.

A stratification test, calibration error test and measurement system bias test were performed prior to testing and a pre/post calibration drift test was performed after each test repetition on each monitor. The average zero and calibration drift values obtained during each test run on the monitors were used to correct each monitor's raw data for instrument zero and drift for each respective test run. A response time of 90 seconds was determined for the reference method sampling system.

Data was recorded and archived on ARI's data acquisition system consisting of an Omega OMB-DAQ-56 data acquisition module connected to a computer running DAQViewXL software for digital data archiving. Excel spreadsheet computer software was used for data reduction and emission calculations.

SECTION TWO

Testing and Analytical Procedures

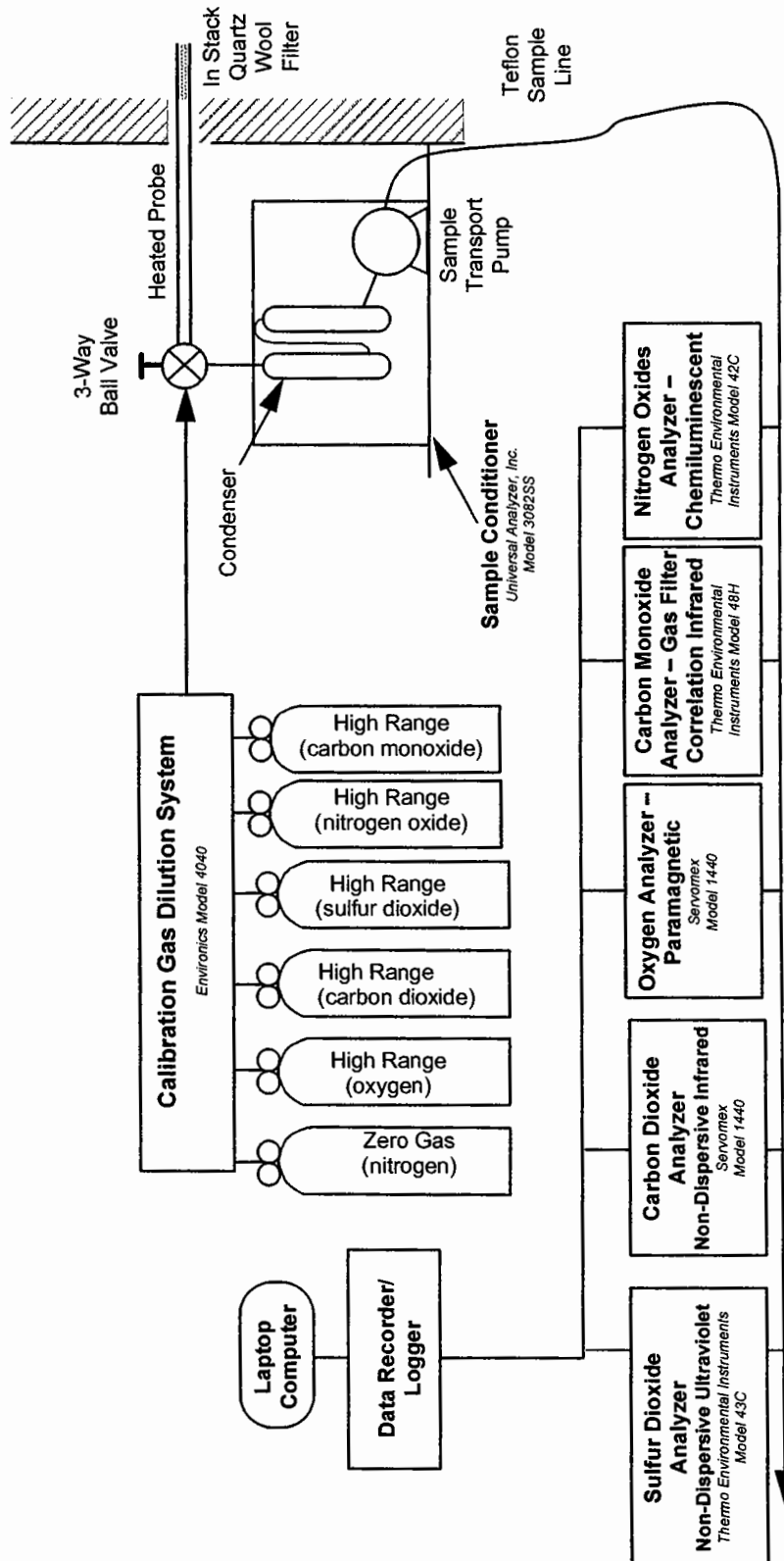


FIGURE 2-2. ARI REFERENCE METHOD O₂, CO₂, SO₂, NO_x AND CO SAMPLING SYSTEM



SECTION TWO

Testing and Analytical Procedures

2.1.6 Emission Rate Calculations

The pollutant emission rates were calculated by multiplying the concentration (lb/dscf) by the volumetric flow rate (dscf).

Sulfur dioxide was corrected to an oxygen free basis using the following equation:

$$\text{SO}_2 \text{ (ppmv db O}_2 \text{ free)} = C_{\text{gas(SO}_2\text{)}} \times \left(\frac{20.9\%}{20.9\% - C_{\text{gas(O}_2\text{)}}} \right)$$

2.1.7 USEPA Method 205 - Gas Dilution System Verification

All calibration gases were certified by USEPA Protocol 1 procedures. All diluted calibration standards were prepared using an Environics Model 4040 Dilution System that was verified by a field evaluation at the job site prior to testing following the requirements of USEPA Method 205 (40 CFR 51, Appendix M).

ARI's Servomex, Inc. Model 1440C paramagnetic O₂ gas analyzer was calibrated following USEPA Method 3A procedures. After the calibration procedure was complete, diluted standards of 12.51% and 20.00% and a mid-range EPA Protocol 1 standard of 12.51% were alternately introduced in triplicate, and an average instrument response was calculated for each standard. No single response differed by more than $\pm 2\%$ from the average response for each standard.



SECTION THREE

Results

The test results are presented in Tables 3-1 and 3-2.

All computer printouts and example calculations are included in the calculation summaries presented in Appendix A (66F-5) and Appendix B (66F-3). All field data are presented in Appendix C. Appendix D presents the collected process data which demonstrates that all bypass valves were closed during the emissions testing. ARI's reference method monitoring data are presented in 15-second intervals in Appendix E. Appendix F presents the calibration data on the equipment used during the compliance test program including calibration gas certifications from the specialty gas supplier.



Results

TABLE 3-1. SRU THERMAL OXIDIZER 66F-5 STACK TEST RESULTS

COMPANY	:	MPCLLC												
LOCATION	:	Robinson, IL												
SOURCE	:	SRU Stack: 66F-5												
RUN NO.	:	1	2	3	4	5	6	7	8	9	10	11	12	
TEST DATE	:	2/26/2007 2/26/2007 2/26/2007 2/26/2007 2/27/2007 2/27/2007 2/27/2007 2/27/2007 2/27/2007 2/27/2007 2/27/2007 2/27/2007 2/27/2007												
TEST TIME	:	15:50-16:50 17:12-18:12 18:32-19:32 19:56-20:56 06:41-07:41 08:03-09:03 09:26-10:26 10:50-11:50 12:12-13:12 13:39-14:39 15:02-16:02 16:22-17:22												
Stack Gas Parameters														
Temperature, °F		1195.8	1205.3	1214.7	1217.0	1192.3	1200.8	1205.9	1205.1	1208.7	1207.3	1206.5	1209.3	1205.7
Velocity, av. ft/sec		35.0	35.2	34.7	34.7	35.6	34.5	34.3	34.8	34.5	34.3	34.3	34.5	34.7
Volumetric flow, acfm		49,885	50,228	49,489	49,447	50,791	49,167	48,904	49,555	49,198	48,862	48,913	49,228	49,472
Volumetric flow, scfm		15,599	15,616	15,300	15,302	16,030	15,437	15,324	15,550	15,404	15,329	15,352	15,424	15,472
Volumetric flow, dscfh		872,382	867,281	843,030	846,227	879,471	860,811	841,878	853,284	856,721	848,893	838,759	854,915	855,305
Moisture, av. % vol		6.8	7.4	8.2	7.8	8.6	7.1	8.4	8.5	7.3	7.7	8.9	7.6	7.9
Carbon Dioxide, av. % vol		4.43	4.47	4.45	4.39	4.39	4.37	4.33	4.33	4.34	4.35	4.38	4.36	4.38
Oxygen, av. % vol		2.45	2.54	2.63	2.67	2.52	2.61	2.55	2.54	2.59	2.50	2.50	2.63	2.56
Nitrogen, % by difference		93.13	92.99	92.91	92.94	93.09	93.02	93.12	93.13	93.06	93.14	93.11	93.01	93.06
Sample Time, min		60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Volume, dscf		46.181	44.859	43.994	47.264	46.657	45.510	45.182	45.400	45.913	46.377	42.186	46.091	45.468
Stack Gas Concentration (ppm)														
Sulfur Dioxide		51.0	50.3	48.3	46.4	52.5	51.6	51.7	52.4	51.4	50.2	52.6	51.5	50.8
Oxides of Nitrogen		21.5	21.7	21.0	21.1	19.9	20.0	19.8	20.0	20.0	20.0	20.0	20.1	20.4
Carbon Monoxide		94.2	92.8	108.4	111.3	107.3	122.2	115.9	125.2	121.9	111.1	109.6	129.1	112.4
Stack Gas Carbon Monoxide Corrected														
CO ppm, @ 50% excess air		69.7	69.0	80.9	83.2	79.6	91.1	86.1	93.0	90.8	82.4	81.3	96.3	83.6
Stack Gas Sulfur Dioxide Corrected														
SO ₂ ppm, @ 0% Oxygen		57.7	57.2	55.3	53.2	59.6	58.9	58.9	59.7	58.6	57.0	59.7	58.9	57.9
Stack Gas Emission Rate (lb/hr)														
Sulfur Dioxide		7.390	7.243	6.768	6.522	7.664	7.375	7.229	7.431	7.314	7.076	7.328	7.319	7.222
Oxides of Nitrogen		2.237	2.253	2.118	2.128	2.091	2.055	1.994	2.039	2.041	2.030	2.005	2.049	2.087
Carbon Monoxide		5.976	5.853	6.642	6.849	6.860	7.650	7.095	7.767	7.596	6.857	6.685	8.026	6.988
Average														



SECTION THREE

MPCLLC: Robinson, Illinois
SRU 66F-3 and 66F-5 Stacks
Test Dates: 2/26 – 3/1/07
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Results

TABLE 3-2. SRU THERMAL OXIDIZER 66F-3 STACK TEST RESULTS

COMPANY :	MPCLLC											
LOCATION :	Robinson, IL											
SOURCE :	SRU Stack: 66F-3											
RUN NO. :	1	2	3	4	5	6	7	8	9	10	11	12
TEST DATE :	2/28/2007	2/28/2007	2/28/2007	2/28/2007	2/28/2007	2/28/2007	2/28/2007	2/28/2007	3/1/2007	3/1/2007	3/1/2007	3/1/2007
TEST TIME :	10:25-11:25	12:03-13:03	13:23-14:23	14:43-15:43	16:03-17:03	17:21-18:21	18:40-19:40	19:57-20:57	08:00-09:00	09:22-10:22	10:40-11:40	12:01-13:01
Average												
Stack Gas Parameters												
Temperature, °F	1246.5	1262.6	1261.0	1269.8	1273.2	1274.0	1273.7	1273.3	1292.0	1292.3	1292.4	1291.2
Velocity, av. ft/sec	33.2	35.4	36.4	36.1	36.1	36.3	36.6	36.5	36.8	36.9	37.1	36.9
Volumetric flow, acfm	44,500	47,384	48,853	48,362	48,430	48,716	49,012	48,910	49,379	49,428	49,668	49,439
Volumetric flow, scfm	13,611	14,328	14,742	14,490	14,452	14,531	14,606	14,580	14,403	14,416	14,470	14,412
Volumetric flow, dscfh	752,843	790,208	803,961	796,861	792,329	795,224	796,912	794,981	783,915	783,870	785,579	784,466
Moisture, av. % vol	7.8	8.1	9.1	8.3	8.6	8.8	9.1	9.1	9.3	9.4	9.5	9.3
Carbon Dioxide, av. % vol	4.32	4.33	4.29	4.36	4.37	4.35	4.29	4.37	4.47	4.43	4.47	4.46
Oxygen, av. % vol	2.69	2.55	2.48	2.37	2.35	2.42	2.35	2.33	2.04	2.12	2.16	3.04
Nitrogen, % by difference	92.99	93.12	93.22	93.27	93.28	93.23	93.35	93.30	93.49	93.45	93.36	92.50
Sample Time, min	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Volume, dscf	45,352	43,677	44,166	44,200	43,433	43,617	43,617	43,650	43,629	42,958	42,576	42,500
Stack Gas Concentration (ppm)												
Sulfur Dioxide	40.1	40.5	51.3	51.7	51.6	46.6	45.7	46.8	62.7	60.1	60.5	52.9
Oxides of Nitrogen	14.5	13.8	14.4	14.6	14.4	14.0	13.8	13.8	14.3	14.5	14.3	15.0
Carbon Monoxide	214.7	204.5	261.3	183.2	200.1	236.6	216.4	232.7	199.2	225.8	197.8	170.5
Stack Gas Carbon Monoxide Corrected												
CO ppm, @ 50% excess air	160.6	152.0	193.6	135.0	147.4	174.8	159.3	171.2	144.6	164.6	144.4	129.7
Stack Gas Sulfur Dioxide Corrected												
SO ₂ ppm, @ 0% Oxygen	46.0	46.1	58.3	58.3	58.1	52.7	51.5	52.7	69.5	66.9	67.5	61.9
Stack Gas Emission Rate (lb/hr)												
Sulfur Dioxide	5.010	5.316	6.858	6.849	6.793	6.155	6.047	6.187	8.169	7.825	7.900	6.898
Oxides of Nitrogen	1.307	1.302	1.385	1.390	1.365	1.326	1.315	1.310	1.338	1.357	1.346	1.409
Carbon Monoxide	11.750	11.752	15.275	10.615	11.526	13.678	12.535	13.449	11.353	12.871	11.297	9.723



MPCLLC: Robinson, Illinois
SRU 66F-3 and 66F-5 Stacks
Test Dates: 2/26 – 3/1/07

APPENDIX A

SRU 66F-5 Calculation Summaries

SUMMARY OF TEST RESULTS

COMPANY : MPC LLC
LOCATION : Robinson, IL
SOURCE : SRU Stack 66F-5

RUN NO	1	2	3	4	5	6	7	8	9	10	11	12	Average
TEST DATE	2/26/2007	2/26/2007	2/26/2007	2/26/2007	2/27/2007	2/27/2007	2/27/2007	2/27/2007	2/27/2007	2/27/2007	2/27/2007	2/27/2007	
TEST TIME	15:50-16:50	17:12-18:12	18:32-19:32	19:56-20:56	06:41-07:41	08:03-09:03	09:26-10:26	10:50-11:50	12:12-13:12	13:39-14:39	15:02-16:02	16:22-17:22	

Stack Gas Parameters

Temperature, °F	1195.8	1205.3	1214.7	1217.0	1192.3	1200.8	1205.9	1205.1	1208.7	1207.3	1206.5	1209.3	1205.7
Velocity, av. ft/sec	35.0	35.2	34.7	34.7	35.6	34.5	34.3	34.8	34.5	34.3	34.3	34.5	34.7
Volumetric flow, acfm	49.885	50.228	49.489	49.447	50.791	49.167	48.904	49.555	49.198	48.862	48.913	49.228	49.472
Volumetric flow, scfm	15.599	15.616	15.300	15.302	16.030	15.437	15.324	15.550	15.404	15.329	15.352	15.424	15.472
Volumetric flow, dscfh	872.382	867.281	843.030	846.227	879.471	860.811	841.878	853.284	856.721	848.897	836.759	854.915	855.305
Moisture, av. % vol	6.8	7.4	8.2	7.8	8.6	7.1	8.4	8.5	7.3	7.7	8.9	7.6	7.9
Carbon Dioxide, av. % vol	4.43	4.47	4.45	4.39	4.39	4.37	4.33	4.33	4.34	4.35	4.38	4.36	4.38
Oxygen, av. % vol	2.45	2.54	2.63	2.67	2.52	2.61	2.55	2.54	2.59	2.49	2.50	2.63	2.56
Nitrogen, % by difference	93.13	92.99	92.91	92.94	93.09	93.02	93.12	93.13	93.08	93.15	93.11	93.01	93.06
Sample Time, min	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Volume, dscf	46.181	44.859	43.994	47.264	46.657	45.510	45.182	45.400	45.913	46.377	42.186	46.091	45.468

Stack Gas Concentration (ppm)

Sulfur Dioxide	51.0	50.3	48.3	46.4	52.5	51.6	51.7	52.4	51.4	50.2	52.6	51.5	50.8
Oxides of Nitrogen	21.5	21.7	21.0	21.1	19.9	20.0	19.8	20.0	20.0	20.0	20.0	20.1	20.4
Carbon Monoxide	94.2	92.8	108.4	111.3	107.3	122.2	115.9	125.2	121.9	111.1	109.6	129.1	112.4

Stack Gas Carbon Monoxide Corrected

CO ppm, @ 50% excess air	69.7	69.0	80.9	83.2	79.6	91.1	86.1	93.0	90.8	82.4	81.3	96.3	83.6
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Stack Gas Sulfur Dioxide Corrected

SO2 ppm, @ 0% Oxygen	57.7	57.2	55.3	53.2	59.6	58.9	58.9	59.7	58.6	57.0	59.7	58.9	57.9
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Stack Gas Emission Rate (lb/hr)

Sulfur Dioxide	7.390	7.243	6.768	6.522	7.664	7.375	7.229	7.431	7.314	7.076	7.328	7.319	7.222
Oxides of Nitrogen	2.237	2.253	2.118	2.128	2.091	2.055	1.994	2.039	2.041	2.030	2.005	2.049	2.087
Carbon Monoxide	5.976	5.853	6.642	6.849	6.860	7.650	7.095	7.767	7.596	6.857	6.685	8.026	6.988



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/26/2007
Run #: 1

Data Input:

Volume metered (V_m):	47.078 ft
Meter calibration coefficient (Y_d):	0.998 dimensionless
Barometric pressure (P_{bar}):	29.38 inches Hg
Meter sample rate (ΔH):	1.60 inches H ₂ O
Meter inlet/outlet temperature (T_m):	69.6 °F
Volume of moisture collected (V_{lc}):	71.5 milliliters
Stack Temperature (T_s):	1,195.8 °F
Static Pressure (St):	-0.5 inches H ₂ O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ "Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 46.181 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 3.366 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0679 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 6.79 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(^\circ K)} = T_s - 32 \times 0.5556 + 273 = 919.6 \text{ }^\circ \text{Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 746.28 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt[10]{10^{\left(A \left(\frac{B}{(T_{s(^\circ K)} - C) \right) \right)}}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,318.3107 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 231831.07 \%$$

Percent moisture used for emissions calculations:

$$= 6.79 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/26/2007
Run #: 1

Data Input

Carbon Dioxide (CO ₂):	4.4 %
Oxygen (O ₂):	2.4 %
Nitrogen (N ₂):	93.1 %
Fractional Moisture Content (B _{ws})	0.0679 dimensionless
Stack Temperature (T _s):	1,195.8 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3437 inches H ₂ O
Barometric Pressure (P _{bar}):	29.38 inches Hg
Static Pressure (S _t):	-0.55 inches H ₂ O
Stack diameter:	66.00 inches
Stack area (A _s):	23.7583 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.806 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 28.072 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_t}{13.6} \right) = 29.340 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 34.995 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 49,885 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in.Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 15,599 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in.Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 935,959 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 14,540 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 872,382 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Run #: 1
Test Time: 15:50-16:50

		Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor		15 : 50	0					
Analyzer Type:	Oxygen	15 : 51	1	2.49	4.41	53.6	21.2	90.7
Analyzer Scale:	20.00 %	15 : 52	2	2.52	4.40	53.5	21.2	100.5
Pre-test calibration span value:	10.06 %	15 : 53	3	2.50	4.43	53.3	21.3	89.2
Post-test calibration span value:	10.02 %	15 : 54	4	2.44	4.44	53.4	21.3	71.2
Pre-test calibration zero value:	0.02 %	15 : 55	5	2.54	4.40	54.1	21.4	78.8
Post-test calibration zero value:	0.02 %	15 : 56	6	2.48	4.40	54.1	21.4	84.4
Calibration gas type:	Protocol 1 Oxygen %	15 : 57	7	2.49	4.40	52.7	21.2	88.4
Calibration gas concentration:	10.00 %	15 : 58	8	2.43	4.43	52.8	21.2	78.3
Monitor uncorrected average:	2.47 %	15 : 59	9	2.34	4.44	49.1	21.2	82.2
Monitor drift corrected average:	2.45 %	16 : 0	10	2.55	4.38	48.9	21.0	130.8
Reference Method CO₂ Monitor		16 : 1	11	2.51	4.41	49.2	21.1	117.8
Analyzer Type:	Carbon Dioxide	16 : 2	12	2.42	4.45	50.7	21.1	104.3
Analyzer Scale:	20.00 %	16 : 3	13	2.53	4.45	50.2	21.3	96.1
Pre-test calibration span value:	9.99 %	16 : 4	14	2.48	4.45	49.6	21.5	93.5
Post-test calibration span value:	10.01 %	16 : 5	15	2.59	4.40	48.6	21.5	93.5
Pre-test calibration zero value:	0.01 %	16 : 6	16	2.48	4.44	49.8	21.5	91.3
Post-test calibration zero value:	0.03 %	16 : 7	17	2.49	4.44	50.5	21.5	62.8
Calibration gas type:	Protocol 1 CO ₂ %	16 : 8	18	2.34	4.47	52.7	21.4	65.7
Calibration gas concentration:	10.00 %	16 : 9	19	2.42	4.44	53.4	21.4	80.8
Monitor uncorrected average:	4.44 %	16 : 10	20	2.41	4.43	53.4	21.2	88.7
Monitor drift corrected average:	4.43 %	16 : 11	21	2.49	4.44	52.4	21.2	105.1
Reference Method SO₂ Monitor		16 : 12	22	2.52	4.43	52.0	21.3	105.2
Analyzer Type:	Sulfur Dioxide	16 : 13	23	2.57	4.41	50.0	21.4	105.4
Analyzer Scale:	88.67 ppm	16 : 14	24	2.47	4.44	50.3	21.3	77.9
Pre-test calibration span value:	44.96 ppm	16 : 15	25	2.41	4.46	50.9	21.4	76.6
Post-test calibration span value:	45.15 ppm	16 : 16	26	2.48	4.45	50.6	21.3	81.7
Pre-test calibration zero value:	0.37 ppm	16 : 17	27	2.39	4.45	51.3	21.3	75.8
Post-test calibration zero value:	0.54 ppm	16 : 18	28	2.44	4.43	51.8	21.1	89.3
Calibration gas type:	Protocol 1 SO ₂ ppm	16 : 19	29	2.51	4.42	55.9	21.3	112.2
Calibration gas concentration:	45.00 ppm	16 : 20	30	2.52	4.43	51.2	21.3	114.1
Monitor uncorrected average:	50.98 ppm	16 : 21	31	2.60	4.40	50.0	21.3	122.1
Monitor drift corrected average:	50.98 ppm	16 : 22	32	2.46	4.45	50.5	21.4	89.7
Reference Method NO_x Monitor		16 : 23	33	2.47	4.44	50.5	21.4	82.2
Analyzer Type:	Oxides of Nitrogen	16 : 24	34	2.45	4.44	51.3	21.4	91.4
Analyzer Scale:	88.99 ppm	16 : 25	35	2.48	4.44	51.1	21.4	98.6
Pre-test calibration span value:	44.61 ppm	16 : 26	36	2.58	4.41	50.3	21.3	96.0
Post-test calibration span value:	44.78 ppm	16 : 27	37	2.35	4.46	51.6	21.3	79.3
Pre-test calibration zero value:	0.02 ppm	16 : 28	38	2.45	4.45	51.6	21.3	99.8
Post-test calibration zero value:	0.12 ppm	16 : 29	39	2.54	4.43	49.3	21.4	121.6
Calibration gas type:	Protocol 1 NO _x ppm	16 : 30	40	2.47	4.42	46.6	21.4	111.7
Calibration gas concentration:	45.00 ppm	16 : 31	41	2.49	4.44	48.3	21.3	99.4
Monitor uncorrected average:	21.36 ppm	16 : 32	42	2.42	4.44	49.0	21.4	82.0
Monitor drift corrected average:	21.47 ppm	16 : 33	43	2.47	4.45	49.8	21.3	96.6
Reference Method CO Monitor		16 : 34	44	2.54	4.43	50.0	21.5	98.4
Analyzer Type:	Carbon Monoxide	16 : 35	45	2.47	4.44	53.5	21.5	90.6
Analyzer Scale:	180.00 ppm	16 : 36	46	2.51	4.42	51.2	21.5	95.7
Pre-test calibration span value:	120.38 ppm	16 : 37	47	2.53	4.41	50.7	21.5	88.2
Post-test calibration span value:	120.45 ppm	16 : 38	48	2.46	4.44	51.5	21.6	83.2
Pre-test calibration zero value:	0.11 ppm	16 : 39	49	2.41	4.44	51.9	21.4	110.3
Post-test calibration zero value:	0.06 ppm	16 : 40	50	2.57	4.41	49.2	21.5	121.5
Calibration gas type:	Protocol 1 CO ppm	16 : 41	51	2.51	4.42	48.0	21.4	107.9
Calibration gas concentration:	120.00 ppm	16 : 42	52	2.40	4.47	49.4	21.3	93.7
Monitor uncorrected average:	94.56 ppm	16 : 43	53	2.37	4.47	49.7	21.4	92.8
Monitor drift corrected average:	94.22 ppm	16 : 44	54	2.38	4.48	50.2	21.4	81.0
		16 : 45	55	2.31	4.51	51.3	21.4	70.8
		16 : 46	56	2.34	4.48	51.4	21.4	81.7
		16 : 47	57	2.57	4.44	50.5	21.4	124.8
		16 : 48	58	2.61	4.41	49.7	21.4	120.6
		16 : 49	59	2.48	4.47	50.4	21.7	100.9
		16 : 50	60	2.50	4.49	50.6	21.6	108.9
		AVERAGE:		2.47	4.44	50.98	21.36	94.56



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 1
Test Time: 15:50-16:50

Data Input:

Average chart reading (C):	2.47 %
Average pre/post-test zero calibration reading (C _o):	0.02 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.04 %
Stack gas volumetric flow rate (Q _{std}):	872,382 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 2.45 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 1
Test Time: 15:50-16:50

Data Input:

Average chart reading (C):	4.44 %
Average pre/post-test zero calibration reading (C _o):	0.02 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.00 %
Stack gas volumetric flow rate (Q _{std}):	872,382 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 4.43 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 1
Test Time: 15:50-16:50

Data Input:

Average chart reading (C):	50.98 ppm
Average pre/post-test zero calibration reading (C _o):	0.45 ppm
Calibration gas concentration (C _{ma}):	45.00 ppm
Average pre/post-test calibration gas reading (C _m):	45.05 ppm
Stack gas volumetric flow rate (Q _{std}):	872,382 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide
Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 50.98 \text{ ppm}$$

Sulfur Dioxide
Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.4706 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide
Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 7.3896 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 1
Test Time: 15:50-16:50

Data Input:

Average chart reading (C):	21.36 ppm
Average pre/post-test zero calibration reading (C _o):	0.07 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	44.70 ppm
Stack gas volumetric flow rate (Q _{std}):	872,382 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 21.47 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 2.5639 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 2.2367 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 1
Test Time: 15:50-16:50

Data Input:

Average chart reading (C):	94.56 ppm
Average pre/post-test zero calibration reading (C _o):	0.08 ppm
Calibration gas concentration (C _{ma}):	120.0 ppm
Average pre/post-test calibration gas reading (C _m):	120.41 ppm
Stack gas volumetric flow rate (Q _{std}):	872,382 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.45 %
Carbon Dioxide Concentration (%CO ₂):	4.43 %
Nitrogen Concentration (%N ₂):	93.13 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 94.22 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 6.8502 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 5.9760 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas, 50\% Excess Air}} = C_{\text{gas, ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 69.7 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPC LLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/26/2007
Run #: 2

Data Input:

Volume metered (V_m):	45.990 ft
Meter calibration coefficient (Y_d):	0.998 dimensionless
Barometric pressure (P_{bar}):	29.38 inches Hg
Meter sample rate (ΔH):	1.60 inches H ₂ O
Meter inlet/outlet temperature (T_m):	72.6 °F
Volume of moisture collected (V_{lc}):	76.6 milliliters
Stack Temperature (T_s):	1,205.3 °F
Static Pressure (St):	-0.6 inches H ₂ O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ "Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 44.859 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 3.606 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0744 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 7.44 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 924.9 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 746.28 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt[10]{\left(\frac{A \left(\frac{B}{(T_{s(K)} - C)} \right) \right)}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,385.9461 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 238594.61 \%$$

Percent moisture used for emissions calculations:

$$= 7.44 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/26/2007
Run #: 2

Data Input

Carbon Dioxide (CO ₂):	4.5 %
Oxygen (O ₂):	2.5 %
Nitrogen (N ₂):	93.0 %
Fractional Moisture Content (B _{ws})	0.0744 dimensionless
Stack Temperature (T _s):	1,205.3 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3447 inches H ₂ O
Barometric Pressure (P _{bar}):	29.38 inches Hg
Static Pressure (S _t)	-0.56 inches H ₂ O
Stack diameter:	66.00 inches
Stack area (A _s):	23.7583 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.817 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 28.012 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_t}{13.6} \right) = 29.339 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 35.235 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 50,228 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 15,616 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 936,989 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 14,455 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 867,281 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Run #: 2
Test Time: 17:12-18:12

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method CO₂ Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method SO₂ Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method NO_x Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method CO Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
	17 : 12	0					
	17 : 13	1	2.46	4.51	50.0	21.3	87.5
	17 : 14	2	2.47	4.51	51.2	21.5	82.8
	17 : 15	3	2.43	4.51	51.8	21.5	78.1
	17 : 16	4	2.37	4.51	52.2	21.5	77.5
	17 : 17	5	2.41	4.51	52.5	21.5	89.4
	17 : 18	6	2.39	4.51	52.6	21.4	97.8
	17 : 19	7	2.53	4.48	49.5	21.5	130.3
	17 : 20	8	2.62	4.45	48.6	21.5	124.4
	17 : 21	9	2.49	4.51	50.1	21.6	101.5
	17 : 22	10	2.47	4.51	49.6	21.5	92.3
	17 : 23	11	2.49	4.51	49.9	21.7	83.5
	17 : 24	12	2.43	4.51	50.8	21.6	65.4
	17 : 25	13	2.35	4.52	51.6	21.7	65.4
	17 : 26	14	2.45	4.51	51.6	21.7	103.1
	17 : 27	15	2.63	4.48	50.6	21.6	104.1
	17 : 28	16	2.50	4.50	50.6	21.6	80.4
	17 : 29	17	2.55	4.49	50.8	21.7	85.8
	17 : 30	18	2.49	4.52	50.6	21.7	92.9
	17 : 31	19	2.56	4.50	50.0	21.8	96.9
	17 : 32	20	2.51	4.52	49.1	21.9	85.0
	17 : 33	21	2.51	4.50	45.8	21.8	77.9
	17 : 34	22	2.61	4.49	47.7	21.8	86.7
	17 : 35	23	2.59	4.51	48.6	22.1	74.6
	17 : 36	24	2.51	4.51	50.4	22.0	74.5
	17 : 37	25	2.63	4.48	50.2	21.9	97.5
	17 : 38	26	2.61	4.49	49.2	21.8	108.7
	17 : 39	27	2.71	4.50	48.6	22.1	111.6
	17 : 40	28	2.61	4.50	49.4	22.0	102.3
	17 : 41	29	2.71	4.48	49.1	22.0	110.4
	17 : 42	30	2.77	4.47	48.7	22.2	115.1
	17 : 43	31	2.68	4.49	49.0	22.1	87.2
	17 : 44	32	2.48	4.54	50.2	22.0	72.5
	17 : 45	33	2.56	4.52	50.1	21.9	68.4
	17 : 46	34	2.54	4.53	50.5	22.2	72.6
	17 : 47	35	2.60	4.51	51.4	22.0	75.0
	17 : 48	36	2.56	4.49	50.5	22.0	84.7
	17 : 49	37	2.68	4.46	48.8	21.9	99.2
	17 : 50	38	2.65	4.47	48.6	21.8	94.7
	17 : 51	39	2.65	4.49	62.1	21.9	99.7
	17 : 52	40	2.61	4.50	55.2	22.0	92.8
	17 : 53	41	2.56	4.50	52.0	22.0	80.8
	17 : 54	42	2.64	4.45	51.5	21.9	98.7
	17 : 55	43	2.68	4.46	50.2	21.9	103.9
	17 : 56	44	2.64	4.49	50.1	21.9	93.5
	17 : 57	45	2.53	4.51	50.7	21.7	70.6
	17 : 58	46	2.52	4.50	51.5	21.7	75.5
	17 : 59	47	2.56	4.49	51.7	21.8	98.1
	18 : 0	48	2.67	4.48	51.2	21.8	113.1
	18 : 1	49	2.59	4.47	51.9	21.7	105.5
	18 : 2	50	2.53	4.50	50.7	21.5	98.1
	18 : 3	51	2.61	4.51	48.5	21.7	121.9
	18 : 4	52	2.61	4.50	48.6	21.7	116.6
	18 : 5	53	2.65	4.47	48.5	21.7	112.8
	18 : 6	54	2.62	4.50	47.6	21.8	108.4
	18 : 7	55	2.60	4.51	48.5	21.9	95.6
	18 : 8	56	2.60	4.52	49.0	21.8	87.2
	18 : 9	57	2.58	4.51	49.5	21.8	80.5
	18 : 10	58	2.61	4.51	49.4	21.9	100.1
	18 : 11	59	2.64	4.51	49.5	21.8	94.7
	18 : 12	60	2.65	4.52	49.6	21.8	92.6
AVERAGE:			2.57	4.50	50.30	21.78	92.97



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 2
Test Time: 17:12-18:12

Data Input:

Average chart reading (C):	2.57 %
Average pre/post-test zero calibration reading (C _o):	0.03 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.03 %
Stack gas volumetric flow rate (Q _{std}):	867,281 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.54 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 2
Test Time: 17:12-18:12

Data Input:

Average chart reading (C):	4.50 %
Average pre/post-test zero calibration reading (C _o):	0.05 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.00 %
Stack gas volumetric flow rate (Q _{std}):	867,281 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.47 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 2
Test Time: 17:12-18:12

Data Input:

Average chart reading (C):	50.30 ppm
Average pre/post-test zero calibration reading (C _o):	0.45 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.08 ppm
Stack gas volumetric flow rate (Q _{std}):	867,281 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 50.26 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb / dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb / lb - mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ / lb - mole}} \right) = 8.3510 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb / hr}} = C_{\text{gas, lb / dscf}} \times Q_{\text{std}} = 7.2427 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 2
Test Time: 17:12-18:12

Data Input:

Average chart reading (C):	21.78 ppm
Average pre/post-test zero calibration reading (C _o):	0.12 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	44.94 ppm
Stack gas volumetric flow rate (Q _{std}):	867,281 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 21.75 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 2.5974 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 2.2527 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 2
Test Time: 17:12-18:12

Data Input:

Average chart reading (C):	92.97 ppm
Average pre/post-test zero calibration reading (C _o):	0.46 ppm
Calibration gas concentration (C _{ma}):	120.0 ppm
Average pre/post-test calibration gas reading (C _m):	120.05 ppm
Stack gas volumetric flow rate (Q _{std}):	867,281 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.54 %
Carbon Dioxide Concentration (%CO ₂):	4.47 %
Nitrogen Concentration (%N ₂):	92.99 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 92.83 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb / dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb / lb-mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ / lb-mole}} \right) = 6.7489 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb / hr}} = C_{\text{gas, lb / dscf}} \times Q_{\text{std}} = 5.8532 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas, 50\% Excess Air}} = C_{\text{gas, ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 69.0 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/26/2007
Run #: 3

Data Input:

Volume metered (V_m):	43.740 ft
Meter calibration coefficient (Y_d):	0.998 dimensionless
Barometric pressure (P_{bar}):	29.38 inches Hg
Meter sample rate (ΔH):	1.60 inches H ₂ O
Meter inlet/outlet temperature (T_m):	56.5 °F
Volume of moisture collected (V_{lc}):	83.1 milliliters
Stack Temperature (T_s):	1,214.7 °F
Static Pressure (St):	-0.6 inches H ₂ O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ "Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 43.994 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 3.912 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0817 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 8.17 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 930.1 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 746.28 \text{ mm Hg}$$

$$B_{ws} = \frac{\sqrt[10]{\left(\frac{A \left(\frac{B}{(T_{s(K)} - C)} \right) \right)}{P_{s(\text{mmHg})}}} = 2,454.3640 \%$$

where:
A= 8.361
B=1893.5
C=27.65

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{ws} \times 100 = 245436.40 \%$$

Percent moisture used for emissions calculations:

$$= 8.17 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/26/2007
Run #: 3

Data Input

Carbon Dioxide (CO ₂):	4.5 %
Oxygen (O ₂):	2.6 %
Nitrogen (N ₂):	92.9 %
Fractional Moisture Content (B _{ws})	0.0817 dimensionless
Stack Temperature (T _s):	1,214.7 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3382 inches H ₂ O
Barometric Pressure (P _{bar}):	29.38 inches Hg
Static Pressure (S _t)	-0.57 inches H ₂ O
Stack diameter:	66.00 inches
Stack area (A _s):	23.7583 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.818 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.935 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_t}{13.6} \right) = 29.338 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 34.717 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 49,489 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 15,300 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 917,983 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 14,050 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 843,030 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Run #: 3
Test Time: 18:32-19:32

		Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor								
Analyzer Type:	Oxygen	18 : 32	0					
Analyzer Scale:	20.00 %	18 : 33	1	2.58	4.50	50.0	20.6	96.9
Pre-test calibration span value:	10.03 %	18 : 34	2	2.59	4.49	50.9	20.6	100.6
Post-test calibration span value:	10.04 %	18 : 35	3	2.61	4.48	51.0	20.6	101.7
Pre-test calibration zero value:	0.03 %	18 : 36	4	2.58	4.49	58.5	20.9	104.1
Post-test calibration zero value:	0.01 %	18 : 37	5	2.65	4.46	52.6	20.9	113.9
Calibration gas type:	Protocol 1 Oxygen %	18 : 38	6	2.62	4.47	51.8	20.8	118.7
Calibration gas concentration:	10.00 %	18 : 39	7	2.63	4.48	51.0	20.9	100.8
Monitor uncorrected average:	2.66 %	18 : 40	8	2.49	4.51	51.9	20.8	82.4
Monitor drift corrected average:	2.63 %	18 : 41	9	2.57	4.48	52.2	20.9	97.6
		18 : 42	10	2.61	4.48	51.7	20.9	108.6
Reference Method CO₂ Monitor								
Analyzer Type:	Carbon Dioxide	18 : 43	11	2.62	4.46	51.3	20.8	112.2
Analyzer Scale:	20.00 %	18 : 44	12	2.58	4.49	51.3	20.7	111.7
Pre-test calibration span value:	10.00 %	18 : 45	13	2.63	4.47	46.8	20.9	133.5
Post-test calibration span value:	10.06 %	18 : 46	14	2.62	4.48	47.1	20.8	123.5
Pre-test calibration zero value:	0.06 %	18 : 47	15	2.58	4.50	48.2	20.8	113.0
Post-test calibration zero value:	0.03 %	18 : 48	16	2.57	4.48	49.2	20.7	124.8
Calibration gas type:	Protocol 1 CO ₂ %	18 : 49	17	2.62	4.47	48.8	20.7	142.1
Calibration gas concentration:	10.00 %	18 : 50	18	2.66	4.51	48.1	21.0	148.7
Monitor uncorrected average:	4.49 %	18 : 51	19	2.58	4.47	48.6	20.8	130.8
Monitor drift corrected average:	4.45 %	18 : 52	20	2.62	4.48	48.9	20.8	150.5
		18 : 53	21	2.70	4.51	48.6	20.9	173.6
Reference Method SO₂ Monitor								
Analyzer Type:	Sulfur Dioxide	18 : 54	22	2.70	4.50	48.3	20.9	145.2
Analyzer Scale:	88.67 ppm	18 : 55	23	2.63	4.51	47.1	21.0	117.0
Pre-test calibration span value:	45.01 ppm	18 : 56	24	2.58	4.50	46.2	21.0	121.1
Post-test calibration span value:	44.88 ppm	18 : 57	25	2.55	4.51	46.9	20.9	122.0
Pre-test calibration zero value:	0.35 ppm	18 : 58	26	2.72	4.50	47.1	21.0	166.8
Post-test calibration zero value:	0.34 ppm	18 : 59	27	2.75	4.50	46.2	21.1	131.0
Calibration gas type:	Protocol 1 SO ₂ ppm	19 : 0	28	2.59	4.52	47.3	21.1	79.9
Calibration gas concentration:	45.00 ppm	19 : 1	29	2.50	4.53	48.7	21.1	76.7
Monitor uncorrected average:	48.24 ppm	19 : 2	30	2.60	4.51	48.7	21.2	96.0
Monitor drift corrected average:	48.32 ppm	19 : 3	31	2.63	4.48	48.6	21.0	108.1
		19 : 4	32	2.62	4.50	48.1	21.0	109.6
Reference Method NO_x Monitor								
Analyzer Type:	Oxides of Nitrogen	19 : 5	33	2.71	4.49	47.5	21.1	120.6
Analyzer Scale:	88.99 ppm	19 : 6	34	2.69	4.50	45.6	21.1	105.3
Pre-test calibration span value:	45.09 ppm	19 : 7	35	2.66	4.53	45.8	21.3	77.0
Post-test calibration span value:	44.54 ppm	19 : 8	36	2.58	4.53	47.7	21.2	67.7
Pre-test calibration zero value:	0.12 ppm	19 : 9	37	2.67	4.49	48.9	21.0	96.7
Post-test calibration zero value:	0.02 ppm	19 : 10	38	2.74	4.48	48.4	21.0	106.2
Calibration gas type:	Protocol 1 NO _x ppm	19 : 11	39	2.64	4.51	48.0	21.2	87.6
Calibration gas concentration:	45.00 ppm	19 : 12	40	2.68	4.49	48.1	21.0	105.9
Monitor uncorrected average:	20.99 ppm	19 : 13	41	2.75	4.49	47.9	21.1	118.5
Monitor drift corrected average:	21.03 ppm	19 : 14	42	2.81	4.49	47.0	21.2	119.1
		19 : 15	43	2.76	4.51	46.6	21.2	92.0
Reference Method CO Monitor								
Analyzer Type:	Carbon Monoxide	19 : 16	44	2.69	4.53	44.0	21.3	71.5
Analyzer Scale:	180.00 ppm	19 : 17	45	2.66	4.51	44.6	21.1	96.3
Pre-test calibration span value:	119.66 ppm	19 : 18	46	2.84	4.47	46.0	21.1	130.0
Post-test calibration span value:	120.25 ppm	19 : 19	47	2.83	4.48	46.4	21.0	119.8
Pre-test calibration zero value:	0.86 ppm	19 : 20	48	2.79	4.49	46.5	21.0	119.6
Post-test calibration zero value:	0.45 ppm	19 : 21	49	2.82	4.48	46.3	21.0	117.7
Calibration gas type:	Protocol 1 CO ppm	19 : 22	50	2.83	4.49	46.2	21.2	112.2
Calibration gas concentration:	120.00 ppm	19 : 23	51	2.78	4.51	46.7	21.2	89.8
Monitor uncorrected average:	108.39 ppm	19 : 24	52	2.70	4.51	47.5	21.1	84.9
Monitor drift corrected average:	108.36 ppm	19 : 25	53	2.72	4.50	47.9	21.2	79.6
		19 : 26	54	2.61	4.52	48.6	21.1	71.3
		19 : 27	55	2.63	4.49	48.9	21.0	92.5
		19 : 28	56	2.74	4.49	46.4	21.0	111.8
		19 : 29	57	2.71	4.50	43.9	20.9	93.7
		19 : 30	58	2.67	4.51	46.0	21.0	80.2
		19 : 31	59	2.65	4.51	47.1	21.0	81.8
		19 : 32	60	2.65	4.48	48.0	21.0	90.6
AVERAGE:				2.66	4.49	48.24	20.99	108.39



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 3
Test Time: 18:32-19:32

Data Input:

Average chart reading (C):	2.66 %
Average pre/post-test zero calibration reading (C _o):	0.02 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.04 %
Stack gas volumetric flow rate (Q _{std}):	843,030 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.63 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 3
Test Time: 18:32-19:32

Data Input:

Average chart reading (C):	4.49 %
Average pre/post-test zero calibration reading (C _o):	0.05 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.03 %
Stack gas volumetric flow rate (Q _{std}):	843,030 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.45 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 3
Test Time: 18:32-19:32

Data Input:

Average chart reading (C):	48.24 ppm
Average pre/post-test zero calibration reading (C _o):	0.35 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	44.95 ppm
Stack gas volumetric flow rate (Q _{std}):	843,030 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 48.32 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.0284 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 6.7682 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 3
Test Time: 18:32-19:32

Data Input:

Average chart reading (C):	20.99 ppm
Average pre/post-test zero calibration reading (C _o):	0.07 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	44.82 ppm
Stack gas volumetric flow rate (Q _{std}):	843,030 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 21.03 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 2.5119 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 2.1176 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 3
Test Time: 18:32-19:32

Data Input:

Average chart reading (C):	108.39 ppm
Average pre/post-test zero calibration reading (C _o):	0.66 ppm
Calibration gas concentration (C _{ma}):	120.0 ppm
Average pre/post-test calibration gas reading (C _m):	119.95 ppm
Stack gas volumetric flow rate (Q _{std}):	843,030 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.63 %
Carbon Dioxide Concentration (%CO ₂):	4.45 %
Nitrogen Concentration (%N ₂):	92.91 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 108.36 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 7.8785 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 6.6418 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas, 50\% Excess Air}} = C_{\text{gas, ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 80.9 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/26/2007
Run #: 4

Data Input:

Volume metered (V_m):	46.008 ft
Meter calibration coefficient (Y_d):	0.998 dimensionless
Barometric pressure (P_{bar}):	29.45 inches Hg
Meter sample rate (ΔH):	1.60 inches H ₂ O
Meter inlet/outlet temperature (T_m):	46.9 °F
Volume of moisture collected (V_{ic}):	85.3 milliliters
Stack Temperature (T_s):	1,217.0 °F
Static Pressure (St):	-0.6 inches H ₂ O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92'' \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 47.264 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{ic} = 4.015 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0783 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 7.83 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 931.4 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{St}{13.6} \right) \times 25.401 = 748.06 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt{10 \left(A - \left(\frac{B}{(T_{s(K)} - C)} \right) \right)}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,465.3141 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 246531.41 \%$$

Percent moisture used for emissions calculations:

$$= 7.83 \%$$



USEPA Method 2 Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/26/2007
Run #: 4

Data Input

Carbon Dioxide (CO ₂):	4.4 %
Oxygen (O ₂):	2.7 %
Nitrogen (N ₂):	92.9 %
Fractional Moisture Content (B _{ws})	0.0783 dimensionless
Stack Temperature (T _s):	1,217.0 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3383 inches H ₂ O
Barometric Pressure (P _{bar}):	29.45 inches Hg
Static Pressure (S _i)	-0.57 inches H ₂ O
Stack diameter:	66.00 inches
Stack area (A _s):	23.7583 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.809 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.963 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_i}{13.6} \right) = 29.408 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 34.688 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 49,447 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 15,302 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 918,114 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 14,104 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 846,227 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Run #: 4
Test Time: 19:56-20:56

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method CO₂ Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method SO₂ Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method NO_x Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method CO Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
AVERAGE:							



USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 4
Test Time: 19:56-20:56

Data Input:

Average chart reading (C):	2.70 %
Average pre/post-test zero calibration reading (C _o):	0.02 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.05 %
Stack gas volumetric flow rate (Q _{std}):	846,227 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 2.67 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 4
Test Time: 19:56-20:56

Data Input:

Average chart reading (C):	4.46 %
Average pre/post-test zero calibration reading (C _o):	0.04 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.10 %
Stack gas volumetric flow rate (Q _{std}):	846,227 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide
Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.39 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 4
Test Time: 19:56-20:56

Data Input:

Average chart reading (C):	46.07 ppm
Average pre/post-test zero calibration reading (C _o):	0.42 ppm
Calibration gas concentration (C _{ma}):	45.00 ppm
Average pre/post-test calibration gas reading (C _m):	44.70 ppm
Stack gas volumetric flow rate (Q _{std}):	846,227 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 46.39 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 7.7076 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 6.5224 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 4
Test Time: 19:56-20:56

Data Input:

Average chart reading (C):	20.96 ppm
Average pre/post-test zero calibration reading (C _o):	0.07 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	44.70 ppm
Stack gas volumetric flow rate (Q _{std}):	846,227 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 21.06 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 2.5152 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 2.1284 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/26/2007
Test Run #: 4
Test Time: 19:56-20:56

Data Input:

Average chart reading (C):	111.40 ppm
Average pre/post-test zero calibration reading (C _o):	0.46 ppm
Calibration gas concentration (C _{ma}):	120.0 ppm
Average pre/post-test calibration gas reading (C _m):	120.05 ppm
Stack gas volumetric flow rate (Q _{std}):	846,227 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.67 %
Carbon Dioxide Concentration (%CO ₂):	4.39 %
Nitrogen Concentration (%N ₂):	92.94 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 111.32 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas,lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ /lb-mole}} \right) = 8.0936 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas,lb/hr}} = C_{\text{gas,lb/dscf}} \times Q_{\text{std}} = 6.8490 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas,50\%ExcessAir}} = C_{\text{gas,ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 83.2 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 5

Data Input:

Volume metered (V_m):	45.275 ft
Meter calibration coefficient (Y_d):	0.998 dimensionless
Barometric pressure (P_{bar}):	29.59 inches Hg
Meter sample rate (ΔH):	1.60 inches H ₂ O
Meter inlet/outlet temperature (T_m):	47.7 °F
Volume of moisture collected (V_{lc}):	92.8 milliliters
Stack Temperature (T_s):	1,192.3 °F
Static Pressure (St):	-0.5 inches H ₂ O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92'' \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 46.657 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.368 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0856 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 8.56 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 917.6 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_1}{13.6} \right) \times 25.401 = 751.62 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt[10]{\left(\frac{A \left(\frac{B}{(T_{s(K)} - C)} \right) \right)}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,277.4031 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 227740.31 \%$$

Percent moisture used for emissions calculations:

$$= 8.56 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 5

Data Input

Carbon Dioxide (CO ₂):	4.4 %
Oxygen (O ₂):	2.5 %
Nitrogen (N ₂):	93.1 %
Fractional Moisture Content (B _{ws})	0.0856 dimensionless
Stack Temperature (T _s):	1,192.3 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3504 inches H ₂ O
Barometric Pressure (P _{bar}):	29.59 inches Hg
Static Pressure (S _t)	-0.55 inches H ₂ O
Stack diameter:	66.00 inches
Stack area (A _s):	23.7583 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.804 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.879 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_t}{13.6} \right) = 29.550 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 35.630 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 50,791 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 16,030 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 961,808 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 14,658 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 879,471 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Run #: 5
Test Time: 06:41-07:41

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method CO₂ Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method SO₂ Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method NO_x Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method CO Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
AVERAGE:			2.54	4.40	52.21	20.10	107.22



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 5
Test Time: 06:41-07:41

Data Input:

Average chart reading (C):	2.54 %
Average pre/post-test zero calibration reading (C _o):	0.03 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.00 %
Stack gas volumetric flow rate (Q _{std}):	879,471 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.52 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 5
Test Time: 06:41-07:41

Data Input:

Average chart reading (C):	4.40 %
Average pre/post-test zero calibration reading (C _o):	0.03 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.97 %
Stack gas volumetric flow rate (Q _{std}):	879,471 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.39 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 5
Test Time: 06:41-07:41

Data Input:

Average chart reading (C):	52.21 ppm
Average pre/post-test zero calibration reading (C _o):	0.68 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	44.89 ppm
Stack gas volumetric flow rate (Q _{std}):	879,471 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 52.45 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.7147 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 7.6643 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 5
Test Time: 06:41-07:41

Data Input:

Average chart reading (C):	20.10 ppm
Average pre/post-test zero calibration reading (C _o):	0.21 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.17 ppm
Stack gas volumetric flow rate (Q _{std}):	879,471 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 19.91 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 2.3779 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 2.0913 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 5
Test Time: 06:41-07:41

Data Input:

Average chart reading (C):	107.22 ppm
Average pre/post-test zero calibration reading (C _o):	0.52 ppm
Calibration gas concentration (C _{ma}):	120.0 ppm
Average pre/post-test calibration gas reading (C _m):	119.87 ppm
Stack gas volumetric flow rate (Q _{std}):	879,471 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.52 %
Carbon Dioxide Concentration (%CO ₂):	4.39 %
Nitrogen Concentration (%N ₂):	93.09 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 107.28 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas,lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 7.8001 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas,lb/hr}} = C_{\text{gas,lb/dscf}} \times Q_{\text{std}} = 6.8599 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas,50\%ExcessAir}} = C_{\text{gas,ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 79.6 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 6

Data Input:

Volume metered (V_m):	46.110 ft
Meter calibration coefficient (Y_d):	0.998 dimensionless
Barometric pressure (P_{bar}):	29.59 inches Hg
Meter sample rate (ΔH):	1.60 inches H_2O
Meter inlet/outlet temperature (T_m):	70.1 °F
Volume of moisture collected (V_{lc}):	73.5 milliliters
Stack Temperature (T_s):	1,200.8 °F
Static Pressure (St):	-0.6 inches H_2O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ "Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 45.510 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 3.460 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0706 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 7.06 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 922.4 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 751.62 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt{10^{\left(A - \left(\frac{B}{(T_{s(K)} - C) \right) \right)}}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,337.4143 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 233741.43 \%$$

Percent moisture used for emissions calculations:

$$= 7.06 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 6

Data Input

Carbon Dioxide (CO ₂):	4.4 %
Oxygen (O ₂):	2.6 %
Nitrogen (N ₂):	93.0 %
Fractional Moisture Content (B _{ws})	0.0706 dimensionless
Stack Temperature (T _s):	1,200.8 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3393 inches H ₂ O
Barometric Pressure (P _{bar}):	29.59 inches Hg
Static Pressure (S _t)	-0.56 inches H ₂ O
Stack diameter:	66.00 inches
Stack area (A _s):	23.7583 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.803 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 28.040 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_t}{13.6} \right) = 29.549 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 34.491 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 49,167 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 15,437 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 926,249 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 14,347 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 860,811 \text{ dscfh}$$



**Reference Method Monitor Data
One-Minute Averages**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Run #: 6
Test Time: 08:03-09:03

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method CO₂ Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method SO₂ Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method NO_x Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method CO Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
	08 : 03	0					
	08 : 4	1	2.79	4.44	49.0	20.5	139.6
	08 : 5	2	2.82	4.45	50.0	20.6	116.4
	08 : 6	3	2.75	4.45	50.5	20.9	90.2
	08 : 7	4	2.77	4.43	50.4	21.1	100.9
	08 : 8	5	2.90	4.36	50.5	21.0	134.5
	08 : 9	6	2.89	4.39	49.8	21.1	122.5
	08 : 10	7	2.94	4.38	49.6	21.0	125.9
	08 : 11	8	2.87	4.38	49.2	20.8	93.2
	08 : 12	9	2.79	4.40	50.3	20.8	85.8
	08 : 13	10	2.77	4.40	51.3	20.6	76.6
	08 : 14	11	2.65	4.43	52.6	20.7	61.7
	08 : 15	12	2.58	4.41	53.8	20.5	68.9
	08 : 16	13	2.64	4.38	53.9	20.3	83.6
	08 : 17	14	2.61	4.36	54.1	20.2	100.3
	08 : 18	15	2.66	4.37	53.9	20.1	128.1
	08 : 19	16	2.63	4.40	53.2	20.2	108.8
	08 : 20	17	2.57	4.38	53.6	20.2	130.6
	08 : 21	18	2.68	4.35	52.6	20.3	132.2
	08 : 22	19	2.56	4.39	52.2	20.3	117.8
	08 : 23	20	2.65	4.37	52.0	20.3	126.0
	08 : 24	21	2.65	4.35	51.9	20.1	130.5
	08 : 25	22	2.67	4.34	51.9	20.1	158.3
	08 : 26	23	2.71	4.34	51.6	20.0	176.5
	08 : 27	24	2.66	4.35	51.1	20.0	177.8
	08 : 28	25	2.66	4.38	51.3	20.1	170.4
	08 : 29	26	2.51	4.43	51.4	20.2	143.9
	08 : 30	27	2.51	4.41	51.0	20.2	143.3
	08 : 31	28	2.56	4.39	51.1	20.2	147.4
	08 : 32	29	2.70	4.37	50.4	20.3	165.3
	08 : 33	30	2.64	4.39	50.5	20.4	135.4
	08 : 34	31	2.67	4.36	50.9	20.2	139.1
	08 : 35	32	2.63	4.37	47.8	20.2	155.1
	08 : 36	33	2.70	4.37	49.2	20.2	164.2
	08 : 37	34	2.67	4.39	50.1	20.2	147.9
	08 : 38	35	2.63	4.37	50.6	20.2	133.3
	08 : 39	36	2.61	4.36	51.0	20.1	149.3
	08 : 40	37	2.74	4.37	50.8	20.2	172.9
	08 : 41	38	2.68	4.41	50.5	20.2	168.6
	08 : 42	39	2.54	4.44	50.9	20.3	114.0
	08 : 43	40	2.43	4.44	51.4	20.3	84.8
	08 : 44	41	2.43	4.43	52.1	20.2	80.6
	08 : 45	42	2.51	4.39	51.6	20.4	107.9
	08 : 46	43	2.46	4.43	51.7	20.3	88.9
	08 : 47	44	2.46	4.40	52.1	20.2	103.9
	08 : 48	45	2.46	4.38	51.9	20.1	125.4
	08 : 49	46	2.56	4.38	51.2	20.1	155.6
	08 : 50	47	2.55	4.39	50.4	20.2	112.4
	08 : 51	48	2.39	4.42	51.5	20.2	87.5
	08 : 52	49	2.45	4.39	51.4	20.2	96.4
	08 : 53	50	2.51	4.39	50.9	20.2	90.1
	08 : 54	51	2.49	4.38	52.3	20.2	104.3
	08 : 55	52	2.58	4.35	52.1	20.2	109.7
	08 : 56	53	2.44	4.39	52.0	20.2	110.2
	08 : 57	54	2.44	4.38	52.2	20.0	115.7
	08 : 58	55	2.47	4.37	51.7	20.1	131.5
	08 : 59	56	2.60	4.35	48.7	20.2	160.2
	9 : 0	57	2.52	4.36	48.6	20.2	112.5
	9 : 1	58	2.38	4.39	51.2	20.2	109.1
	9 : 2	59	2.47	4.36	51.2	20.0	107.4
	9 : 3	60	2.43	4.39	51.5	20.2	109.2
	AVERAGE:		2.61	4.39	51.24	20.31	122.33



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 6
Test Time: 08:03-09:03

Data Input:

Average chart reading (C):	2.61 %
Average pre/post-test zero calibration reading (C _o):	0.02 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.96 %
Stack gas volumetric flow rate (Q _{std}):	860,811 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.61 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 6
Test Time: 08:03-09:03

Data Input:

Average chart reading (C):	4.39 %
Average pre/post-test zero calibration reading (C _o):	0.05 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.99 %
Stack gas volumetric flow rate (Q _{std}):	860,811 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.37 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 6
Test Time: 08:03-09:03

Data Input:

Average chart reading (C):	51.24 ppm
Average pre/post-test zero calibration reading (C _o):	0.99 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	44.84 ppm
Stack gas volumetric flow rate (Q _{std}):	860,811 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide
Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 51.57 \text{ ppm}$$

Sulfur Dioxide
Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.5675 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide
Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 7.3750 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 6
Test Time: 08:03-09:03

Data Input:

Average chart reading (C):	20.31 ppm
Average pre/post-test zero calibration reading (C _o):	0.12 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.58 ppm
Stack gas volumetric flow rate (Q _{std}):	860,811 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 19.99 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 2.3874 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 2.0551 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 6
Test Time: 08:03-09:03

Data Input:

Average chart reading (C):	122.33 ppm
Average pre/post-test zero calibration reading (C _o):	0.63 ppm
Calibration gas concentration (C _{ma}):	120.0 ppm
Average pre/post-test calibration gas reading (C _m):	120.11 ppm
Stack gas volumetric flow rate (Q _{std}):	860,811 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.61 %
Carbon Dioxide Concentration (%CO ₂):	4.37 %
Nitrogen Concentration (%N ₂):	93.02 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 122.23 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.8868 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 7.6499 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas, 50\% Excess Air}} = C_{\text{gas, ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 91.1 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 7

Data Input:

Volume metered (V_m):	45.645 ft
Meter calibration coefficient (Y_d):	0.998 dimensionless
Barometric pressure (P_{bar}):	29.62 inches Hg
Meter sample rate (ΔH):	1.60 inches H ₂ O
Meter inlet/outlet temperature (T_m):	69.1 °F
Volume of moisture collected (V_{lc}):	88.4 milliliters
Stack Temperature (T_s):	1,205.9 °F
Static Pressure (St):	-0.6 inches H ₂ O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{mstd} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 45.182 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.161 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0843 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 8.43 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 925.2 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 752.38 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt{\left(10^{\left(A \left(\frac{B}{(T_{s(K)} - C)} \right) \right)} \right)}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,370.8890 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 237088.90 \%$$

Percent moisture used for emissions calculations:

$$= 8.43 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 7

Data Input

Carbon Dioxide (CO ₂):	4.3 %
Oxygen (O ₂):	2.5 %
Nitrogen (N ₂):	93.1 %
Fractional Moisture Content (B _{ws})	0.0843 dimensionless
Stack Temperature (T _s):	1,205.9 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3362 inches H ₂ O
Barometric Pressure (P _{bar}):	29.62 inches Hg
Static Pressure (S _i)	-0.56 inches H ₂ O
Stack diameter:	66.00 inches
Stack area (A _s):	23.7583 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.795 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.884 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_i}{13.6} \right) = 29.579 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 34.306 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 48,904 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 15,324 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 919,410 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 14,031 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 841,878 \text{ dscfh}$$



Company: MPCLLC
 Location: Robinson, IL
 Source: SRU Stack: 66F-5
 Test Date: 2/27/2007
 Run #: 7
 Test Time: 09:26-10:26

Reference Method Monitor Data
One-Minute Averages

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:		09 : 26	0				
Analyzer Scale:	Oxygen	09 : 27	1	2.45	4.39	49.1	20.0
Pre-test calibration span value:	20.00 %	09 : 28	2	2.48	4.38	51.9	20.0
Post-test calibration span value:	9.95 %	09 : 29	3	2.47	4.36	53.6	20.0
Pre-test calibration zero value:	9.94 %	09 : 30	4	2.69	4.33	51.4	19.9
Post-test calibration zero value:	0.01 %	09 : 31	5	2.64	4.36	50.9	20.0
Calibration gas type:	0.03 %	09 : 32	6	2.54	4.36	51.5	20.0
Calibration gas concentration:	Protocol 1 Oxygen %	09 : 33	7	2.57	4.37	52.5	20.2
Monitor uncorrected average:	10.00 %	09 : 34	8	2.63	4.36	51.9	20.2
Monitor drift corrected average:	2.55 %	09 : 35	9	2.61	4.36	51.9	20.2
	2.55 %	09 : 36	10	2.58	4.36	52.2	20.2
Reference Method CO₂ Monitor							
Analyzer Type:	Carbon Dioxide	09 : 37	11	2.55	4.38	51.9	20.1
Analyzer Scale:		09 : 38	12	2.53	4.37	51.6	20.1
Pre-test calibration span value:	20.00 %	09 : 39	13	2.54	4.36	51.6	20.1
Post-test calibration span value:	10.00 %	09 : 40	14	2.54	4.35	51.2	20.0
Pre-test calibration zero value:	10.04 %	09 : 41	15	2.51	4.37	51.1	20.1
Post-test calibration zero value:	0.05 %	09 : 42	16	2.53	4.39	51.0	20.0
Calibration gas type:	0.05 %	09 : 43	17	2.65	4.34	50.3	20.1
Calibration gas concentration:	Protocol 1 CO ₂ %	09 : 44	18	2.55	4.36	50.8	20.1
Monitor uncorrected average:	10.00 %	09 : 45	19	2.58	4.34	51.4	20.1
Monitor drift corrected average:	4.37 %	09 : 46	20	2.60	4.34	52.2	20.1
	4.33 %	09 : 47	21	2.60	4.34	51.6	20.0
Reference Method SO₂ Monitor							
Analyzer Type:	Sulfur Dioxide	09 : 48	22	2.57	4.35	51.7	19.9
Analyzer Scale:		09 : 49	23	2.52	4.36	52.5	20.1
Pre-test calibration span value:	88.67 ppm	09 : 50	24	2.42	4.38	52.7	20.0
Post-test calibration span value:	44.77 ppm	09 : 51	25	2.39	4.38	50.6	19.9
Pre-test calibration zero value:	45.08 ppm	09 : 52	26	2.35	4.38	52.0	19.9
Post-test calibration zero value:	1.06 ppm	09 : 53	27	2.44	4.38	53.3	19.9
Calibration gas type:	0.98 ppm	09 : 54	28	2.50	4.37	52.6	19.8
Calibration gas concentration:	Protocol 1 SO ₂ ppm	09 : 55	29	2.55	4.36	52.3	20.0
Monitor uncorrected average:	45.00 ppm	09 : 56	30	2.47	4.37	53.2	20.0
Monitor drift corrected average:	51.44 ppm	09 : 57	31	2.39	4.38	53.2	19.9
	51.68 ppm	09 : 58	32	2.48	4.36	53.7	19.8
Reference Method NO_x Monitor							
Analyzer Type:	Oxides of Nitrogen	09 : 59	33	2.45	4.39	53.0	19.8
Analyzer Scale:		10 : 0	34	2.54	4.37	52.5	19.9
Pre-test calibration span value:	88.99 ppm	10 : 1	35	2.42	4.37	52.7	19.8
Post-test calibration span value:	45.75 ppm	10 : 2	36	2.70	4.34	51.8	19.9
Pre-test calibration zero value:	45.07 ppm	10 : 3	37	2.65	4.34	51.4	20.0
Post-test calibration zero value:	0.12 ppm	10 : 4	38	2.56	4.37	51.4	20.0
Calibration gas type:	0.06 ppm	10 : 5	39	2.60	4.40	48.5	20.1
Calibration gas concentration:	Protocol 1 NO _x ppm	10 : 6	40	2.45	4.43	50.4	20.1
Monitor uncorrected average:	45.00 ppm	10 : 7	41	2.43	4.42	51.4	20.2
Monitor drift corrected average:	20.06 ppm	10 : 8	42	2.40	4.44	52.0	20.3
	19.83 ppm	10 : 9	43	2.53	4.41	52.4	20.3
Reference Method CO Monitor							
Analyzer Type:	Carbon Monoxide	10 : 10	44	2.60	4.36	52.3	20.1
Analyzer Scale:		10 : 11	45	2.61	4.39	51.8	20.2
Pre-test calibration span value:	180.00 ppm	10 : 12	46	2.69	4.36	51.3	20.2
Post-test calibration span value:	120.39 ppm	10 : 13	47	2.56	4.36	51.7	20.2
Pre-test calibration zero value:	120.36 ppm	10 : 14	48	2.70	4.34	51.5	20.1
Post-test calibration zero value:	0.34 ppm	10 : 15	49	2.64	4.34	51.1	20.2
Calibration gas type:	0.35 ppm	10 : 16	50	2.61	4.35	51.6	20.2
Calibration gas concentration:	Protocol 1 CO ppm	10 : 17	51	2.69	4.33	51.2	20.2
Monitor uncorrected average:	120.00 ppm	10 : 18	52	2.72	4.32	50.7	20.1
Monitor drift corrected average:	116.29 ppm	10 : 19	53	2.73	4.35	50.0	20.2
	115.91 ppm	10 : 20	54	2.66	4.36	49.2	20.1
		10 : 21	55	2.62	4.37	46.1	20.2
		10 : 22	56	2.63	4.35	48.3	20.3
		10 : 23	57	2.61	4.38	49.2	20.1
		10 : 24	58	2.39	4.40	50.4	20.1
		10 : 25	59	2.39	4.40	52.3	20.1
		10 : 26	60	2.54	4.35	51.5	20.1
AVERAGE:				2.55	4.37	51.44	20.06
							116.29



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 7
Test Time: 09:26-10:26

Data Input:

Average chart reading (C):	2.55 %
Average pre/post-test zero calibration reading (C _o):	0.02 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.94 %
Stack gas volumetric flow rate (Q _{std}):	841,878 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 2.55 \%$$



USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 7
Test Time: 09:26-10:26

Data Input:

Average chart reading (C):	4.37 %
Average pre/post-test zero calibration reading (C _o):	0.05 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.02 %
Stack gas volumetric flow rate (Q _{std}):	841,878 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 4.33 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 7
Test Time: 09:26-10:26

Data Input:

Average chart reading (C):	51.44 ppm
Average pre/post-test zero calibration reading (C _o):	1.02 ppm
Calibration gas concentration (C _{ma}):	45.00 ppm
Average pre/post-test calibration gas reading (C _m):	44.92 ppm
Stack gas volumetric flow rate (Q _{std}):	841,878 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 51.68 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.5862 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 7.2285 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 7
Test Time: 09:26-10:26

Data Input:

Average chart reading (C):	20.06 ppm
Average pre/post-test zero calibration reading (C _o):	0.09 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.41 ppm
Stack gas volumetric flow rate (Q _{std}):	841,878 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 19.83 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 2.3686 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 1.9940 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 7
Test Time: 09:26-10:26

Data Input:

Average chart reading (C):	116.29 ppm
Average pre/post-test zero calibration reading (C _o):	0.35 ppm
Calibration gas concentration (C _{ma}):	120.0 ppm
Average pre/post-test calibration gas reading (C _m):	120.37 ppm
Stack gas volumetric flow rate (Q _{std}):	841,878 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.55 %
Carbon Dioxide Concentration (%CO ₂):	4.33 %
Nitrogen Concentration (%N ₂):	93.12 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 115.91 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.4275 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 7.0949 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas, 50\% Excess Air}} = C_{\text{gas, ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 86.1 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 8

Data Input:

Volume metered (V_m): 45.837 ft
Meter calibration coefficient (Y_d): 0.998 dimensionless
Barometric pressure (P_{bar}): 29.65 inches Hg
Meter sample rate (ΔH): 1.60 inches H_2O
Meter inlet/outlet temperature (T_m): 69.3 °F
Volume of moisture collected (V_{lc}): 90.1 milliliters
Stack Temperature (T_s): 1,205.1 °F
Static Pressure (St): -0.6 inches H_2O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 45.400 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.241 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0854 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 8.54 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 924.8 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 753.14 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt{\left(10^{\left(A \left(\frac{B}{(T_{s(K)} - C)} \right) \right)} \right)}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,363.1521 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 236315.21 \%$$

Percent moisture used for emissions calculations:

$$= 8.54 \%$$



USEPA Method 2 Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 8

Data Input

Carbon Dioxide (CO ₂):	4.3 %
Oxygen (O ₂):	2.5 %
Nitrogen (N ₂):	93.1 %
Fractional Moisture Content (B _{ws})	0.0854 dimensionless
Stack Temperature (T _s):	1,205.1 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3408 inches H ₂ O
Barometric Pressure (P _{bar}):	29.65 inches Hg
Static Pressure (S _i)	-0.58 inches H ₂ O
Stack diameter:	66.00 inches
Stack area (A _s):	23.7583 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.795 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.872 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_i}{13.6} \right) = 29.608 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 34.764 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 49,555 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 15,550 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 932,992 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 14,221 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 853,284 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Run #: 8
Test Time: 10:50-11:50

		Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor		10 : 50	0					
Analyzer Type:	Oxygen	10 : 51	1	2.58	4.40	45.3	20.4	88.2
Analyzer Scale:	20.00 %	10 : 52	2	2.76	4.36	48.7	20.7	100.2
Pre-test calibration span value:	9.94 %	10 : 53	3	2.67	4.38	51.0	20.7	81.4
Post-test calibration span value:	9.98 %	10 : 54	4	2.54	4.38	53.1	20.7	106.8
Pre-test calibration zero value:	0.03 %	10 : 55	5	2.74	4.37	51.8	20.7	132.9
Post-test calibration zero value:	0.03 %	10 : 56	6	2.78	4.37	51.0	20.7	116.9
Calibration gas type:	Protocol 1 Oxygen %	10 : 57	7	2.62	4.40	51.8	20.8	86.3
Calibration gas concentration:	10.00 %	10 : 58	8	2.55	4.41	52.7	20.8	75.7
Monitor uncorrected average:	2.55 %	10 : 59	9	2.66	4.37	52.9	20.7	93.5
Monitor drift corrected average:	2.54 %	11 : 0	10	2.56	4.39	53.5	20.5	76.3
Reference Method CO2 Monitor		11 : 1	11	2.42	4.41	54.4	20.5	69.9
Analyzer Type:	Carbon Dioxide	11 : 2	12	2.55	4.38	54.9	20.4	101.6
Analyzer Scale:	20.00 %	11 : 3	13	2.66	4.37	53.8	20.5	118.0
Pre-test calibration span value:	10.04 %	11 : 4	14	2.68	4.35	52.8	20.4	127.8
Post-test calibration span value:	10.04 %	11 : 5	15	2.51	4.38	52.8	20.3	90.9
Pre-test calibration zero value:	0.05 %	11 : 6	16	2.40	4.41	53.6	20.3	91.3
Post-test calibration zero value:	0.03 %	11 : 7	17	2.59	4.36	53.6	20.2	121.7
Calibration gas type:	Protocol 1 CO2 %	11 : 8	18	2.57	4.36	52.8	20.3	114.8
Calibration gas concentration:	10.00 %	11 : 9	19	2.50	4.38	53.2	20.2	120.8
Monitor uncorrected average:	4.37 %	11 : 10	20	2.50	4.39	52.5	20.2	102.8
Monitor drift corrected average:	4.33 %	11 : 11	21	2.41	4.41	53.4	20.2	98.9
Reference Method SO2 Monitor		11 : 12	22	2.47	4.38	53.3	20.2	122.3
Analyzer Type:	Sulfur Dioxide	11 : 13	23	2.62	4.35	52.0	20.2	124.6
Analyzer Scale:	88.67 ppm	11 : 14	24	2.42	4.40	53.6	20.2	104.4
Pre-test calibration span value:	45.08 ppm	11 : 15	25	2.55	4.34	53.8	20.1	132.7
Post-test calibration span value:	44.74 ppm	11 : 16	26	2.51	4.34	53.5	20.1	157.2
Pre-test calibration zero value:	0.98 ppm	11 : 17	27	2.61	4.33	52.9	20.0	169.4
Post-test calibration zero value:	0.62 ppm	11 : 18	28	2.60	4.37	52.9	20.1	173.5
Calibration gas type:	Protocol 1 SO2 ppm	11 : 19	29	2.55	4.37	52.5	20.2	158.4
Calibration gas concentration:	45.00 ppm	11 : 20	30	2.49	4.36	52.8	20.2	155.0
Monitor uncorrected average:	52.18 ppm	11 : 21	31	2.60	4.34	52.2	20.1	169.8
Monitor drift corrected average:	52.41 ppm	11 : 22	32	2.63	4.35	51.7	20.2	167.9
Reference Method NOx Monitor		11 : 23	33	2.63	4.35	52.5	20.1	170.7
Analyzer Type:	Oxides of Nitrogen	11 : 24	34	2.56	4.36	52.2	20.0	132.1
Analyzer Scale:	88.99 ppm	11 : 25	35	2.55	4.36	52.8	20.0	152.9
Pre-test calibration span value:	45.07 ppm	11 : 26	36	2.61	4.35	52.6	19.8	167.9
Post-test calibration span value:	45.69 ppm	11 : 27	37	2.51	4.36	52.5	19.7	160.4
Pre-test calibration zero value:	0.06 ppm	11 : 28	38	2.52	4.37	52.4	19.8	167.4
Post-test calibration zero value:	0.08 ppm	11 : 29	39	2.61	4.36	51.7	20.0	164.6
Calibration gas type:	Protocol 1 NOx ppm	11 : 30	40	2.63	4.35	51.2	19.9	158.9
Calibration gas concentration:	45.00 ppm	11 : 31	41	2.52	4.38	51.6	19.8	133.7
Monitor uncorrected average:	20.22 ppm	11 : 32	42	2.48	4.42	52.7	19.9	117.7
Monitor drift corrected average:	20.01 ppm	11 : 33	43	2.42	4.44	52.4	20.1	96.2
Reference Method CO Monitor		11 : 34	44	2.44	4.42	52.2	20.1	109.7
Analyzer Type:	Carbon Monoxide	11 : 35	45	2.51	4.38	51.4	20.1	138.2
Analyzer Scale:	180.00 ppm	11 : 36	46	2.52	4.35	49.9	20.0	131.9
Pre-test calibration span value:	120.36 ppm	11 : 37	47	2.49	4.38	51.2	20.1	130.2
Post-test calibration span value:	121.16 ppm	11 : 38	48	2.51	4.38	51.1	20.2	124.8
Pre-test calibration zero value:	0.35 ppm	11 : 39	49	2.44	4.39	52.1	20.1	111.8
Post-test calibration zero value:	0.28 ppm	11 : 40	50	2.46	4.35	52.2	20.1	128.1
Calibration gas type:	Protocol 1 CO ppm	11 : 41	51	2.60	4.33	52.0	20.1	141.9
Calibration gas concentration:	120.00 ppm	11 : 42	52	2.45	4.39	52.1	20.0	120.7
Monitor uncorrected average:	125.99 ppm	11 : 43	53	2.51	4.37	52.3	20.0	124.3
Monitor drift corrected average:	125.21 ppm	11 : 44	54	2.48	4.39	52.1	20.1	120.7
		11 : 45	55	2.57	4.34	51.9	20.0	140.8
		11 : 46	56	2.70	4.34	50.7	20.2	131.0
		11 : 47	57	2.49	4.39	50.9	20.3	107.0
		11 : 48	58	2.54	4.36	51.3	20.3	123.3
		11 : 49	59	2.58	4.36	51.2	20.3	158.3
		11 : 50	60	2.57	4.38	50.7	20.2	141.9
AVERAGE:				2.55	4.37	52.18	20.22	125.99



USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 8
Test Time: 10:50-11:50

Data Input:

Average chart reading (C):	2.55 %
Average pre/post-test zero calibration reading (C _o):	0.03 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.96 %
Stack gas volumetric flow rate (Q _{std}):	853,282 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.54 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPC LLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 8
Test Time: 10:50-11:50

Data Input:

Average chart reading (C):	4.37 %
Average pre/post-test zero calibration reading (C _o):	0.04 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.04 %
Stack gas volumetric flow rate (Q _{std}):	853,282 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.33 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 8
Test Time: 10:50-11:50

Data Input:

Average chart reading (C):	52.18 ppm
Average pre/post-test zero calibration reading (C _o):	0.80 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	44.91 ppm
Stack gas volumetric flow rate (Q _{std}):	853,284 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

**Sulfur Dioxide
Corrected for zero and calibration drift:**

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 52.41 \text{ ppm}$$

**Sulfur Dioxide
Concentration:**

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.7085 \times 10^{-6} \text{ lbs/dscf}$$

**Sulfur Dioxide
Emission rate:**

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 7.4308 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 8
Test Time: 10:50-11:50

Data Input:

Average chart reading (C):	20.22 ppm
Average pre/post-test zero calibration reading (C _o):	0.07 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.38 ppm
Stack gas volumetric flow rate (Q _{std}):	853,282 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 20.01 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 2.3900 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 2.0394 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 8
Test Time: 10:50-11:50

Data Input:

Average chart reading (C):	125.99 ppm
Average pre/post-test zero calibration reading (C _o):	0.32 ppm
Calibration gas concentration (C _{ma}):	120.0 ppm
Average pre/post-test calibration gas reading (C _m):	120.76 ppm
Stack gas volumetric flow rate (Q _{std}):	853,284 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.54 %
Carbon Dioxide Concentration (%CO ₂):	4.33 %
Nitrogen Concentration (%N ₂):	93.13 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 125.21 \text{ ppm}$$

**Carbon Monoxide
Concentration:**

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 9.1030 \times 10^{-6} \text{ lbs/dscf}$$

**Carbon Monoxide
Emission rate:**

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 7.7675 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas, 50\% Excess Air}} = C_{\text{gas, ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 93.0 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 9

Data Input:

Volume metered (V_m):	45.978 ft
Meter calibration coefficient (Y_d):	0.998 dimensionless
Barometric pressure (P_{bar}):	29.65 inches Hg
Meter sample rate (ΔH):	1.60 inches H_2O
Meter inlet/outlet temperature (T_m):	65.0 °F
Volume of moisture collected (V_{lc}):	76.9 milliliters
Stack Temperature (T_s):	1,208.7 °F
Static Pressure (St):	-0.6 inches H_2O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92'' Hg} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 45.913 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 3.620 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0731 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 7.31 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 926.8 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 753.14 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt{10 \left(\frac{A}{(T_{s(K)} - C)} \right)}}{P_{s(\text{mmHg})}} = 2,388.8392 \%$$

where:
A=8.361
B=1893.5
C=27.65

Percent moisture at saturated conditions:

$$\% \text{moisture}_{saturated} = B_{wos} \times 100 = 238883.92 \%$$

Percent moisture used for emissions calculations:

$$= 7.31 \%$$



USEPA Method 2 Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 9

Data Input

Carbon Dioxide (CO ₂):	4.3 %
Oxygen (O ₂):	2.6 %
Nitrogen (N ₂):	93.1 %
Fractional Moisture Content (B _{ws})	0.0731 dimensionless
Stack Temperature (T _s):	1,208.7 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3388 inches H ₂ O
Barometric Pressure (P _{bar}):	29.65 inches Hg
Static Pressure (S _t)	-0.58 inches H ₂ O
Stack diameter:	66.00 inches
Stack area (A _s):	23.7583 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.797 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 28.008 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_t}{13.6} \right) = 29.608 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 34.513 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 49,198 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 15,404 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 924,263 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 14,279 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 856,721 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Run #: 9
Test Time: 12:12-13:12

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:		12 : 12	0				
Analyzer Scale:	Oxygen	12 : 13	1	2.57	4.40	49.5	20.2
Pre-test calibration span value:	20.00 %	12 : 14	2	2.49	4.40	52.5	20.4
Post-test calibration span value:	9.98 %	12 : 15	3	2.54	4.38	53.0	20.4
Pre-test calibration zero value:	9.99 %	12 : 16	4	2.52	4.35	53.5	20.3
Post-test calibration zero value:	0.03 %	12 : 17	5	2.58	4.34	53.1	20.1
Calibration gas type:	0.04 %	12 : 18	6	2.61	4.33	52.8	20.1
Calibration gas concentration:	Protocol 1 Oxygen %	12 : 19	7	2.53	4.37	53.1	20.1
Monitor uncorrected average:	10.00 %	12 : 20	8	2.64	4.35	52.6	20.1
Monitor drift corrected average:	2.61 %	12 : 21	9	2.52	4.37	52.7	20.1
	2.59 %	12 : 22	10	2.55	4.36	52.2	20.1
Reference Method CO₂ Monitor							
Analyzer Type:	Carbon Dioxide	12 : 23	11	2.68	4.34	50.5	20.2
Analyzer Scale:	20.00 %	12 : 24	12	2.60	4.38	50.4	20.2
Pre-test calibration span value:	10.04 %	12 : 25	13	2.61	4.38	50.2	20.4
Post-test calibration span value:	10.00 %	12 : 26	14	2.44	4.41	52.1	20.4
Pre-test calibration zero value:	0.03 %	12 : 27	15	2.60	4.36	51.5	20.2
Post-test calibration zero value:	0.04 %	12 : 28	16	2.69	4.35	50.9	20.4
Calibration gas type:	Protocol 1 CO ₂ %	12 : 29	17	2.67	4.34	50.5	20.4
Calibration gas concentration:	10.00 %	12 : 30	18	2.66	4.38	50.3	20.5
Monitor uncorrected average:	4.37 %	12 : 31	19	2.62	4.37	50.6	20.4
Monitor drift corrected average:	4.34 %	12 : 32	20	2.67	4.35	50.7	20.4
		12 : 33	21	2.65	4.39	50.8	20.4
Reference Method SO₂ Monitor							
Analyzer Type:	Sulfur Dioxide	12 : 34	22	2.64	4.37	50.5	20.4
Analyzer Scale:	88.67 ppm	12 : 35	23	2.59	4.39	50.9	20.4
Pre-test calibration span value:	44.74 ppm	12 : 36	24	2.67	4.40	50.4	20.6
Post-test calibration span value:	45.01 ppm	12 : 37	25	2.57	4.40	51.1	20.6
Pre-test calibration zero value:	0.62 ppm	12 : 38	26	2.54	4.40	52.2	20.6
Post-test calibration zero value:	0.24 ppm	12 : 39	27	2.63	4.38	51.8	20.4
Calibration gas type:	Protocol 1 SO ₂ ppm	12 : 40	28	2.63	4.39	51.5	20.6
Calibration gas concentration:	45.00 ppm	12 : 41	29	2.57	4.41	51.6	20.6
Monitor uncorrected average:	51.18 ppm	12 : 42	30	2.70	4.35	50.9	20.7
Monitor drift corrected average:	51.38 ppm	12 : 43	31	2.75	4.32	50.9	20.6
		12 : 44	32	2.69	4.34	50.5	20.5
Reference Method NO_x Monitor							
Analyzer Type:	Oxides of Nitrogen	12 : 45	33	2.57	4.38	51.1	20.5
Analyzer Scale:	88.99 ppm	12 : 46	34	2.74	4.32	50.7	20.4
Pre-test calibration span value:	45.69 ppm	12 : 47	35	2.78	4.32	50.3	20.4
Post-test calibration span value:	46.01 ppm	12 : 48	36	2.77	4.33	50.0	20.5
Pre-test calibration zero value:	0.08 ppm	12 : 49	37	2.66	4.35	50.7	20.4
Post-test calibration zero value:	0.02 ppm	12 : 50	38	2.67	4.33	51.6	20.4
Calibration gas type:	Protocol 1 NO _x ppm	12 : 51	39	2.74	4.34	50.6	20.2
Calibration gas concentration:	45.00 ppm	12 : 52	40	2.67	4.38	50.3	20.3
Monitor uncorrected average:	20.36 ppm	12 : 53	41	2.48	4.41	51.1	20.4
Monitor drift corrected average:	19.95 ppm	12 : 54	42	2.60	4.35	51.1	20.4
		12 : 55	43	2.51	4.39	51.2	20.3
Reference Method CO Monitor							
Analyzer Type:	Carbon Monoxide	12 : 56	44	2.56	4.37	51.1	20.3
Analyzer Scale:	180.00 ppm	12 : 57	45	2.55	4.38	51.2	20.3
Pre-test calibration span value:	121.16 ppm	12 : 58	46	2.55	4.39	52.1	20.3
Post-test calibration span value:	120.38 ppm	12 : 59	47	2.50	4.39	52.6	20.4
Pre-test calibration zero value:	0.28 ppm	13 : 0	48	2.56	4.38	51.8	20.4
Post-test calibration zero value:	0.69 ppm	13 : 1	49	2.65	4.36	51.0	20.5
Calibration gas type:	Protocol 1 CO ppm	13 : 2	50	2.59	4.36	50.9	20.4
Calibration gas concentration:	120.00 ppm	13 : 3	51	2.68	4.33	50.6	20.4
Monitor uncorrected average:	122.72 ppm	13 : 4	52	2.49	4.41	50.8	20.4
Monitor drift corrected average:	121.95 ppm	13 : 5	53	2.47	4.39	51.6	20.3
		13 : 6	54	2.54	4.35	51.3	20.2
		13 : 7	55	2.72	4.33	50.4	20.2
		13 : 8	56	2.68	4.35	49.9	20.2
		13 : 9	57	2.60	4.40	49.9	20.3
		13 : 10	58	2.48	4.41	50.5	20.5
		13 : 11	59	2.66	4.34	50.1	20.3
		13 : 12	60	2.63	4.37	50.3	20.5
AVERAGE:				2.61	4.37	51.18	20.36
							122.72



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 9
Test Time: 12:12-13:12

Data Input:

Average chart reading (C):	2.61 %
Average pre/post-test zero calibration reading (C _o):	0.02 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.98 %
Stack gas volumetric flow rate (Q _{std}):	856,714 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.60 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 9
Test Time: 12:12-13:12

Data Input:

Average chart reading (C):	4.37 %
Average pre/post-test zero calibration reading (C _o):	0.04 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.02 %
Stack gas volumetric flow rate (Q _{std}):	856,714 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.34 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 9
Test Time: 12:12-13:12

Data Input:

Average chart reading (C):	51.18 ppm
Average pre/post-test zero calibration reading (C _o):	0.43 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	44.88 ppm
Stack gas volumetric flow rate (Q _{std}):	856,714 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 51.38 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.5368 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 7.3136 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 9
Test Time: 12:12-13:12

Data Input:

Average chart reading (C):	20.36 ppm
Average pre/post-test zero calibration reading (C _o):	0.05 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.85 ppm
Stack gas volumetric flow rate (Q _{std}):	856,714 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 19.95 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb / dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb / lb - mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ / lb - mole}} \right) = 2.3829 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb / hr}} = C_{\text{gas, lb / dscf}} \times Q_{\text{std}} = 2.0415 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 9
Test Time: 12:12-13:12

Data Input:

Average chart reading (C):	122.72 ppm
Average pre/post-test zero calibration reading (C _o):	0.49 ppm
Calibration gas concentration (C _{ma}):	120.0 ppm
Average pre/post-test calibration gas reading (C _m):	120.77 ppm
Stack gas volumetric flow rate (Q _{std}):	856,721 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.59 %
Carbon Dioxide Concentration (%CO ₂):	4.34 %
Nitrogen Concentration (%N ₂):	93.08 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 121.95 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas,lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.8660 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas,lb/hr}} = C_{\text{gas,lb/dscf}} \times Q_{\text{std}} = 7.5957 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas,50\%ExcessAir}} = C_{\text{gas,ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 90.8 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 10

Data Input:

Volume metered (V_m):	46.493 ft
Meter calibration coefficient (Y_d):	0.998 dimensionless
Barometric pressure (P_{bar}):	29.68 inches Hg
Meter sample rate (ΔH):	1.60 inches H_2O
Meter inlet/outlet temperature (T_m):	66.1 °F
Volume of moisture collected (V_{lc}):	82.2 milliliters
Stack Temperature (T_s):	1,207.3 °F
Static Pressure (St):	-0.6 inches H_2O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92'' Hg} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 46.377 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 3.869 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0770 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 7.70 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 926.0 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 753.90 \text{ mm Hg}$$

$$B_{ws} = \frac{\sqrt[10]{10^{\left(A \left(\frac{B}{(T_{s(K)} - C) \right) \right)}}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,376.0692 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{saturated} = B_{ws} \times 100 = 237606.92 \%$$

Percent moisture used for emissions calculations:

$$= 7.70 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 10

Data Input

Carbon Dioxide (CO ₂):	4.4 %
Oxygen (O ₂):	2.5 %
Nitrogen (N ₂):	93.1 %
Fractional Moisture Content (B _{ws})	0.0770 dimensionless
Stack Temperature (T _s):	1,207.3 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3366 inches H ₂ O
Barometric Pressure (P _{bar}):	29.68 inches Hg
Static Pressure (S)	-0.56 inches H ₂ O
Stack diameter:	66.00 inches
Stack area (A _s):	23.7583 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.797 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.965 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S}{13.6} \right) = 29.639 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 34.277 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 48,862 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 15,329 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 919,714 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 14,148 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 848,893 \text{ dscfh}$$



Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Run #: 10
Test Time: 13:39-14:39

Reference Method Monitor Data
One-Minute Averages

		Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor								
Analyzer Type:	Oxygen	13 : 39	0					
Analyzer Scale:	20.00 %	13 : 40	1	2.40	4.36	49.5	20.0	112.8
Pre-test calibration span value:	9.99 %	13 : 41	2	2.56	4.33	50.2	20.1	142.5
Post-test calibration span value:	9.97 %	13 : 42	3	2.55	4.37	50.4	20.2	135.0
Pre-test calibration zero value:	0.02 %	13 : 43	4	2.57	4.37	50.2	20.3	117.8
Post-test calibration zero value:	0.01 %	13 : 44	5	2.49	4.40	50.6	20.3	99.7
Calibration gas type:	Protocol 1 Oxygen %	13 : 45	6	2.67	4.35	49.8	20.5	118.7
Calibration gas concentration:	10.00 %	13 : 46	7	2.56	4.39	49.7	20.5	106.3
Monitor uncorrected average:	2.51 %	13 : 47	8	2.46	4.39	50.8	20.3	88.7
Monitor drift corrected average:	2.50 %	13 : 48	9	2.58	4.34	50.5	20.3	117.2
		13 : 49	10	2.72	4.33	49.1	20.3	109.4
Reference Method CO₂ Monitor								
Analyzer Type:	Carbon Dioxide	13 : 50	11	2.41	4.43	50.0	20.2	89.2
Analyzer Scale:	20.00 %	13 : 51	12	2.60	4.37	49.9	20.1	146.1
Pre-test calibration span value:	10.00 %	13 : 52	13	2.69	4.35	49.0	20.1	146.7
Post-test calibration span value:	10.02 %	13 : 53	14	2.54	4.40	49.0	20.1	108.1
Pre-test calibration zero value:	0.04 %	13 : 54	15	2.41	4.44	49.8	20.1	96.7
Post-test calibration zero value:	0.04 %	13 : 55	16	2.43	4.42	50.9	20.1	106.0
Calibration gas type:	Protocol 1 CO ₂ %	13 : 56	17	2.58	4.35	50.5	20.1	119.0
Calibration gas concentration:	10.00 %	13 : 57	18	2.49	4.38	50.6	20.1	89.9
Monitor uncorrected average:	4.38 %	13 : 58	19	2.32	4.41	52.5	20.0	80.6
Monitor drift corrected average:	4.35 %	13 : 59	20	2.43	4.40	52.9	20.0	118.2
		14 : 0	21	2.57	4.36	51.1	20.0	130.6
Reference Method SO₂ Monitor								
Analyzer Type:	Sulfur Dioxide	14 : 1	22	2.52	4.37	50.8	19.9	130.1
Analyzer Scale:	88.67 ppm	14 : 2	23	2.54	4.37	50.5	19.9	137.5
Pre-test calibration span value:	45.01 ppm	14 : 3	24	2.49	4.38	50.3	20.0	117.3
Post-test calibration span value:	45.46 ppm	14 : 4	25	2.49	4.38	50.7	20.0	121.2
Pre-test calibration zero value:	0.24 ppm	14 : 5	26	2.50	4.37	50.5	19.9	108.0
Post-test calibration zero value:	0.12 ppm	14 : 6	27	2.46	4.40	50.8	20.0	96.2
Calibration gas type:	Protocol 1 SO ₂ ppm	14 : 7	28	2.40	4.43	51.2	20.2	67.7
Calibration gas concentration:	45.00 ppm	14 : 8	29	2.39	4.48	51.4	21.3	71.6
Monitor uncorrected average:	50.41 ppm	14 : 9	30	2.46	4.46	50.9	21.2	76.5
Monitor drift corrected average:	50.17 ppm	14 : 10	31	2.39	4.46	50.9	21.1	66.0
		14 : 11	32	2.41	4.43	51.4	20.7	80.8
Reference Method NO_x Monitor								
Analyzer Type:	Oxides of Nitrogen	14 : 12	33	2.47	4.41	51.1	20.9	85.5
Analyzer Scale:	88.99 ppm	14 : 13	34	2.45	4.40	50.8	20.9	91.0
Pre-test calibration span value:	46.01 ppm	14 : 14	35	2.50	4.36	51.1	20.8	110.4
Post-test calibration span value:	45.15 ppm	14 : 15	36	2.56	4.35	50.7	20.7	127.5
Pre-test calibration zero value:	0.02 ppm	14 : 16	37	2.49	4.36	50.3	20.4	125.1
Post-test calibration zero value:	0.12 ppm	14 : 17	38	2.65	4.33	49.6	20.4	158.0
Calibration gas type:	Protocol 1 NO _x ppm	14 : 18	39	2.62	4.37	49.0	20.4	140.1
Calibration gas concentration:	45.00 ppm	14 : 19	40	2.48	4.38	49.5	20.2	124.1
Monitor uncorrected average:	20.32 ppm	14 : 20	41	2.58	4.38	49.3	20.3	128.0
Monitor drift corrected average:	20.02 ppm	14 : 21	42	2.53	4.41	49.2	20.4	96.6
		14 : 22	43	2.38	4.42	50.8	20.2	89.1
Reference Method CO Monitor								
Analyzer Type:	Carbon Monoxide	14 : 23	44	2.57	4.37	50.1	20.2	110.6
Analyzer Scale:	180.00 ppm	14 : 24	45	2.57	4.39	49.6	20.3	102.9
Pre-test calibration span value:	120.38 ppm	14 : 25	46	2.45	4.41	50.6	20.3	77.1
Post-test calibration span value:	119.83 ppm	14 : 26	47	2.47	4.38	51.6	20.4	88.6
Pre-test calibration zero value:	0.69 ppm	14 : 27	48	2.44	4.38	51.1	20.4	86.9
Post-test calibration zero value:	0.73 ppm	14 : 28	49	2.42	4.37	51.4	20.2	105.3
Calibration gas type:	Protocol 1 CO ppm	14 : 29	50	2.53	4.36	51.2	20.2	140.7
Calibration gas concentration:	120.00 ppm	14 : 30	51	2.57	4.36	48.9	20.5	155.8
Monitor uncorrected average:	111.25 ppm	14 : 31	52	2.56	4.36	49.0	20.4	120.3
Monitor drift corrected average:	111.10 ppm	14 : 32	53	2.50	4.35	50.1	20.4	117.9
		14 : 33	54	2.53	4.36	50.3	20.4	108.1
		14 : 34	55	2.50	4.37	50.7	20.3	111.2
		14 : 35	56	2.60	4.34	50.5	20.4	125.0
		14 : 36	57	2.51	4.37	50.5	20.3	91.3
		14 : 37	58	2.41	4.38	51.0	20.3	113.1
		14 : 38	59	2.58	4.33	50.9	20.2	146.0
		14 : 39	60	2.64	4.34	49.6	20.3	147.0
AVERAGE:				2.51	4.38	50.41	20.32	111.25



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 10
Test Time: 13:39-14:39

Data Input:

Average chart reading (C):	2.51 %
Average pre/post-test zero calibration reading (C _o):	0.02 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.98 %
Stack gas volumetric flow rate (Q _{std}):	848,893 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.50 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 10
Test Time: 13:39-14:39

Data Input:

Average chart reading (C):	4.38 %
Average pre/post-test zero calibration reading (C _o):	0.04 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.01 %
Stack gas volumetric flow rate (Q _{std}):	848,893 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.35 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 10
Test Time: 13:39-14:39

Data Input:

Average chart reading (C):	50.41 ppm
Average pre/post-test zero calibration reading (C _o):	0.18 ppm
Calibration gas concentration (C _{ma}):	45.00 ppm
Average pre/post-test calibration gas reading (C _m):	45.24 ppm
Stack gas volumetric flow rate (Q _{std}):	848,893 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 50.17 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb / dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb / lb - mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ / lb - mole}} \right) = 8.3357 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb / hr}} = C_{\text{gas, lb / dscf}} \times Q_{\text{std}} = 7.0761 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 10
Test Time: 13:39-14:39

Data Input:

Average chart reading (C):	20.32 ppm
Average pre/post-test zero calibration reading (C _o):	0.07 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.58 ppm
Stack gas volumetric flow rate (Q _{std}):	848,893 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 20.02 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 2.3915 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 2.0301 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 10
Test Time: 13:39-14:39

Data Input:

Average chart reading (C):	111.25 ppm
Average pre/post-test zero calibration reading (C _o):	0.71 ppm
Calibration gas concentration (C _{ma}):	120.0 ppm
Average pre/post-test calibration gas reading (C _m):	120.10 ppm
Stack gas volumetric flow rate (Q _{std}):	848,893 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.50 %
Carbon Dioxide Concentration (%CO ₂):	4.35 %
Nitrogen Concentration (%N ₂):	93.14 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 111.10 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.0777 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 6.8571 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas, 50\% Excess Air}} = C_{\text{gas, ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 82.4 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 11

Data Input:

Volume metered (V_m):	42.275 ft
Meter calibration coefficient (Y_d):	0.998 dimensionless
Barometric pressure (P_{bar}):	29.68 inches Hg
Meter sample rate (ΔH):	1.60 inches H_2O
Meter inlet/outlet temperature (T_m):	65.9 °F
Volume of moisture collected (V_{lc}):	88.0 milliliters
Stack Temperature (T_s):	1,206.5 °F
Static Pressure (St):	-0.6 inches H_2O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 42.186 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.142 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0894 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 8.94 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 925.5 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 753.90 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt[10]{10^{\left(A \left(\frac{B}{(T_{s(K)} - C) \right) \right)}}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,370.3673 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 237036.73 \%$$

Percent moisture used for emissions calculations:

$$= 8.94 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 11

Data Input

Carbon Dioxide (CO ₂):	4.4 %
Oxygen (O ₂):	2.5 %
Nitrogen (N ₂):	93.1 %
Fractional Moisture Content (B _{ws})	0.0894 dimensionless
Stack Temperature (T _s):	1,206.5 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3362 inches H ₂ O
Barometric Pressure (P _{bar}):	29.68 inches Hg
Static Pressure (S _t)	-0.56 inches H ₂ O
Stack diameter:	66.00 inches
Stack area (A _s):	23.7583 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.801 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.836 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_t}{13.6} \right) = 29.639 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 34.313 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 48,913 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 15,352 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 921,116 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 13,979 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 838,759 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Run #: 11
Test Time: 15:02-16:02

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:	15 : 02	0					
Analyzer Scale:	15 : 3	1	2.64	4.40	50.3	20.1	125.1
Pre-test calibration span value:	15 : 4	2	2.58	4.41	51.8	20.1	114.7
Post-test calibration span value:	15 : 5	3	2.57	4.38	53.1	20.1	119.2
Pre-test calibration zero value:	15 : 6	4	2.65	4.37	53.1	20.1	112.8
Post-test calibration zero value:	15 : 7	5	2.48	4.44	54.4	20.2	106.1
Calibration gas type:	15 : 8	6	2.51	4.40	54.0	20.0	109.9
Calibration gas concentration:	15 : 9	7	2.50	4.39	56.0	20.0	108.8
Monitor uncorrected average:	15 : 10	8	2.49	4.42	53.6	19.9	125.9
Monitor drift corrected average:	15 : 11	9	2.59	4.42	53.0	19.9	137.3
Reference Method CO₂ Monitor							
Analyzer Type:	15 : 12	10	2.63	4.39	50.9	20.0	131.7
Analyzer Scale:	15 : 13	11	2.52	4.42	51.1	20.1	84.5
Pre-test calibration span value:	15 : 14	12	2.32	4.46	52.9	20.0	71.1
Post-test calibration span value:	15 : 15	13	2.42	4.42	53.2	20.0	81.4
Pre-test calibration zero value:	15 : 16	14	2.41	4.43	53.9	20.1	100.6
Post-test calibration zero value:	15 : 17	15	2.44	4.42	54.0	19.9	111.9
Calibration gas type:	15 : 18	16	2.44	4.44	53.8	20.0	119.5
Calibration gas concentration:	15 : 19	17	2.46	4.44	53.4	20.0	119.0
Monitor uncorrected average:	15 : 20	18	2.39	4.46	53.3	20.0	98.2
Monitor drift corrected average:	15 : 21	19	2.44	4.45	53.4	20.1	103.6
Reference Method SO₂ Monitor							
Analyzer Type:	15 : 22	20	2.47	4.44	53.0	20.2	114.8
Analyzer Scale:	15 : 23	21	2.53	4.44	52.4	20.2	102.5
Pre-test calibration span value:	15 : 24	22	2.46	4.46	53.4	20.2	86.6
Post-test calibration span value:	15 : 25	23	2.40	4.45	53.7	20.3	82.8
Pre-test calibration zero value:	15 : 26	24	2.42	4.43	55.0	20.1	108.1
Post-test calibration zero value:	15 : 27	25	2.60	4.41	53.2	20.0	143.6
Calibration gas type:	15 : 28	26	2.64	4.42	52.0	20.1	145.1
Calibration gas concentration:	15 : 29	27	2.49	4.45	52.1	20.1	104.9
Monitor uncorrected average:	15 : 30	28	2.44	4.46	52.8	20.2	92.6
Monitor drift corrected average:	15 : 31	29	2.47	4.47	53.5	20.3	95.4
Reference Method NO_x Monitor							
Analyzer Type:	15 : 32	30	2.51	4.45	53.7	20.2	100.1
Analyzer Scale:	15 : 33	31	2.52	4.44	53.2	20.2	126.8
Pre-test calibration span value:	15 : 34	32	2.71	4.39	52.6	20.1	155.0
Post-test calibration span value:	15 : 35	33	2.62	4.43	51.9	20.2	112.6
Pre-test calibration zero value:	15 : 36	34	2.41	4.47	53.4	20.2	90.0
Post-test calibration zero value:	15 : 37	35	2.43	4.47	53.7	20.2	88.0
Calibration gas type:	15 : 38	36	2.43	4.45	53.9	20.1	112.3
Calibration gas concentration:	15 : 39	37	2.52	4.42	53.2	20.1	123.4
Monitor uncorrected average:	15 : 40	38	2.53	4.46	52.5	20.1	122.4
Monitor drift corrected average:	15 : 41	39	2.42	4.48	52.9	20.2	90.5
Reference Method CO Monitor							
Analyzer Type:	15 : 42	40	2.48	4.44	52.9	20.2	95.1
Analyzer Scale:	15 : 43	41	2.54	4.43	52.6	20.2	107.2
Pre-test calibration span value:	15 : 44	42	2.52	4.44	53.1	20.2	102.8
Post-test calibration span value:	15 : 45	43	2.34	4.48	53.7	20.2	87.1
Pre-test calibration zero value:	15 : 46	44	2.43	4.46	53.8	20.2	112.5
Post-test calibration zero value:	15 : 47	45	2.52	4.46	53.1	20.1	113.1
Calibration gas type:	15 : 48	46	2.51	4.44	53.3	20.1	107.7
Calibration gas concentration:	15 : 49	47	2.49	4.45	53.1	20.2	126.0
Monitor uncorrected average:	15 : 50	48	2.63	4.42	52.4	20.1	138.2
Monitor drift corrected average:	15 : 51	49	2.72	4.40	51.9	20.2	155.3
Reference Method CO₂ Monitor							
Analyzer Type:	15 : 52	50	2.64	4.44	51.7	20.2	127.6
Analyzer Scale:	15 : 53	51	2.56	4.45	51.9	20.2	112.5
Pre-test calibration span value:	15 : 54	52	2.66	4.42	52.1	20.2	123.4
Post-test calibration span value:	15 : 55	53	2.59	4.46	52.0	20.1	103.3
Pre-test calibration zero value:	15 : 56	54	2.55	4.48	52.1	20.2	100.4
Post-test calibration zero value:	15 : 57	55	2.56	4.47	52.2	20.3	97.7
Calibration gas type:	15 : 58	56	2.59	4.46	52.2	20.3	105.5
Calibration gas concentration:	15 : 59	57	2.62	4.43	51.9	20.2	99.2
Monitor uncorrected average:	16 : 0	58	2.63	4.43	51.9	20.2	91.7
Monitor drift corrected average:	16 : 1	59	2.51	4.46	52.8	20.2	90.0
AVERAGE:							
			2.52	4.44	52.91	20.14	109.61



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 11
Test Time: 15:02-16:02

Data Input:

Average chart reading (C):	2.52 %
Average pre/post-test zero calibration reading (C _o):	0.03 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.98 %
Stack gas volumetric flow rate (Q _{std}):	838,759 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.50 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 11
Test Time: 15:02-16:02

Data Input:

Average chart reading (C):	4.44 %
Average pre/post-test zero calibration reading (C _o):	0.07 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.03 %
Stack gas volumetric flow rate (Q _{std}):	838,759 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.38 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 11
Test Time: 15:02-16:02

Data Input:

Average chart reading (C):	52.91 ppm
Average pre/post-test zero calibration reading (C _o):	-0.05 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.27 ppm
Stack gas volumetric flow rate (Q _{std}):	838,759 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 52.58 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.7368 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 7.3281 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 11
Test Time: 15:02-16:02

Data Input:

Average chart reading (C):	20.14 ppm
Average pre/post-test zero calibration reading (C _o):	0.08 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.16 ppm
Stack gas volumetric flow rate (Q _{std}):	838,759 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 20.02 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 2.3904 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 2.0050 \text{ lbs/hr}$$



USEPA Method 10 Carbon Monoxide Calibration Drift Correction And Emission Rate Calculation

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 11
Test Time: 15:02-16:02

Data Input:

Average chart reading (C):	109.61 ppm
Average pre/post-test zero calibration reading (C _o):	0.57 ppm
Calibration gas concentration (C _{ma}):	120.0 ppm
Average pre/post-test calibration gas reading (C _m):	119.92 ppm
Stack gas volumetric flow rate (Q _{std}):	838,759 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.50 %
Carbon Dioxide Concentration (%CO ₂):	4.38 %
Nitrogen Concentration (%N ₂):	93.11 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 109.63 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 7.9705 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 6.6854 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas, 50\% Excess Air}} = C_{\text{gas, ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 81.3 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 12

Data Input:

Volume metered (V_m):	44.863 ft
Meter calibration coefficient (Y_d):	0.998 dimensionless
Barometric pressure (P_{bar}):	29.68 inches Hg
Meter sample rate (ΔH):	1.60 inches H_2O
Meter inlet/outlet temperature (T_m):	50.8 °F
Volume of moisture collected (V_{lc}):	80.8 milliliters
Stack Temperature (T_s):	1,209.3 °F
Static Pressure (St):	-0.6 inches H_2O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 46.091 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 3.803 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0762 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 7.62 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 927.1 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 753.90 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt[10]{10 \left(A \left(\frac{B}{(T_{s(K)} - C)} \right) \right)}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,390.7173 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{saturated} = B_{wos} \times 100 = 239071.73 \%$$

Percent moisture used for emissions calculations:

$$= 7.62 \%$$



USEPA Method 2 Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Date: 2/27/2007
Run #: 12

Data Input

Carbon Dioxide (CO ₂):	4.4 %
Oxygen (O ₂):	2.6 %
Nitrogen (N ₂):	93.0 %
Fractional Moisture Content (B _{ws})	0.0762 dimensionless
Stack Temperature (T _s):	1,209.3 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3390 inches H ₂ O
Barometric Pressure (P _{bar}):	29.68 inches Hg
Static Pressure (S)	-0.57 inches H ₂ O
Stack diameter:	66.00 inches
Stack area (A _s):	23.7583 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.803 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.980 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S}{13.6} \right) = 29.638 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 34.534 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 49,228 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 15,424 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 925,459 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 14,249 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 854,915 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Run #: 12
Test Time: 16:22-17:22

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:		16 : 22	0				
Analyzer Scale:	Oxygen	16 : 23	1	2.52	4.39	52.8	19.6
Pre-test calibration span value:	20.00 %	16 : 24	2	2.44	4.42	54.1	19.8
Post-test calibration span value:	9.98 %	16 : 25	3	2.50	4.41	54.2	19.8
Pre-test calibration zero value:	10.00 %	16 : 26	4	2.65	4.38	53.3	19.8
Post-test calibration zero value:	0.04 %	16 : 27	5	2.49	4.43	53.5	19.8
Calibration gas type:	0.03 %	16 : 28	6	2.52	4.42	53.6	20.0
Calibration gas concentration:	Protocol 1 Oxygen %	16 : 29	7	2.48	4.43	53.6	20.0
Monitor uncorrected average:	10.00 %	16 : 30	8	2.48	4.43	53.7	20.0
Monitor drift corrected average:	2.65 %	16 : 31	9	2.43	4.44	53.7	20.1
	2.63 %	16 : 32	10	2.57	4.41	52.4	20.2
Reference Method CO₂ Monitor							
Analyzer Type:	Carbon Dioxide	16 : 33	11	2.55	4.41	51.5	20.1
Analyzer Scale:	20.00 %	16 : 34	12	2.51	4.40	52.1	20.2
Pre-test calibration span value:	10.04 %	16 : 35	13	2.49	4.44	52.3	20.0
Post-test calibration span value:	10.02 %	16 : 36	14	2.53	4.45	52.1	20.1
Pre-test calibration zero value:	0.11 %	16 : 37	15	2.70	4.40	52.0	20.2
Post-test calibration zero value:	0.05 %	16 : 38	16	2.80	4.34	50.6	20.3
Calibration gas type:	Protocol 1 CO ₂ %	16 : 39	17	2.74	4.33	50.5	20.3
Calibration gas concentration:	10.00 %	16 : 40	18	2.84	4.32	50.0	20.4
Monitor uncorrected average:	4.42 %	16 : 41	19	2.80	4.37	50.6	20.4
Monitor drift corrected average:	4.36 %	16 : 42	20	2.75	4.38	50.8	20.5
		16 : 43	21	2.93	4.35	49.8	20.7
Reference Method SO₂ Monitor							
Analyzer Type:	Sulfur Dioxide	16 : 44	22	2.85	4.39	49.3	20.6
Analyzer Scale:	88.67 ppm	16 : 45	23	2.69	4.42	50.3	20.7
Pre-test calibration span value:	45.07 ppm	16 : 46	24	2.73	4.38	50.7	20.8
Post-test calibration span value:	45.50 ppm	16 : 47	25	2.74	4.41	50.8	20.8
Pre-test calibration zero value:	-0.23 ppm	16 : 48	26	2.75	4.40	50.4	20.6
Post-test calibration zero value:	0.83 ppm	16 : 49	27	2.57	4.44	52.1	20.5
Calibration gas type:	Protocol 1 SO ₂ ppm	16 : 50	28	2.64	4.41	52.4	20.5
Calibration gas concentration:	45.00 ppm	16 : 51	29	2.65	4.42	51.0	20.3
Monitor uncorrected average:	51.81 ppm	16 : 52	30	2.60	4.43	50.9	20.2
Monitor drift corrected average:	51.52 ppm	16 : 53	31	2.63	4.44	51.9	20.3
		16 : 54	32	2.63	4.44	52.2	20.3
Reference Method NO_x Monitor							
Analyzer Type:	Oxides of Nitrogen	16 : 55	33	2.69	4.45	52.3	20.2
Analyzer Scale:	88.99 ppm	16 : 56	34	2.53	4.48	52.8	20.2
Pre-test calibration span value:	45.18 ppm	16 : 57	35	2.55	4.47	53.5	20.2
Post-test calibration span value:	45.89 ppm	16 : 58	36	2.62	4.44	53.2	20.3
Pre-test calibration zero value:	0.05 ppm	16 : 59	37	2.63	4.44	52.8	20.4
Post-test calibration zero value:	0.20 ppm	17 : 0	38	2.55	4.47	52.5	20.5
Calibration gas type:	Protocol 1 NO _x ppm	17 : 1	39	2.70	4.41	51.8	20.6
Calibration gas concentration:	45.00 ppm	17 : 2	40	2.77	4.39	52.0	20.4
Monitor uncorrected average:	20.38 ppm	17 : 3	41	2.78	4.39	51.8	20.4
Monitor drift corrected average:	20.07 ppm	17 : 4	42	2.79	4.42	51.4	20.6
		17 : 5	43	2.65	4.43	51.8	20.6
Reference Method CO Monitor							
Analyzer Type:	Carbon Monoxide	17 : 6	44	2.66	4.44	52.1	20.6
Analyzer Scale:	180.00 ppm	17 : 7	45	2.64	4.44	51.7	20.5
Pre-test calibration span value:	120.02 ppm	17 : 8	46	2.68	4.41	51.8	20.5
Post-test calibration span value:	119.85 ppm	17 : 9	47	2.75	4.42	51.9	20.5
Pre-test calibration zero value:	0.42 ppm	17 : 10	48	2.77	4.43	51.5	20.5
Post-test calibration zero value:	1.00 ppm	17 : 11	49	2.76	4.43	51.2	20.6
Calibration gas type:	Protocol 1 CO ppm	17 : 12	50	2.67	4.44	50.9	20.5
Calibration gas concentration:	120.00 ppm	17 : 13	51	2.76	4.43	50.9	20.6
Monitor uncorrected average:	129.01 ppm	17 : 14	52	2.81	4.44	50.7	20.8
Monitor drift corrected average:	129.13 ppm	17 : 15	53	2.71	4.44	50.8	20.7
		17 : 16	54	2.62	4.45	51.8	20.8
		17 : 17	55	2.76	4.45	51.2	20.7
		17 : 18	56	2.61	4.48	51.7	20.7
		17 : 19	57	2.71	4.43	51.2	20.6
		17 : 20	58	2.71	4.44	51.0	20.5
		17 : 21	59	2.64	4.45	51.1	20.6
		17 : 22	60	2.47	4.48	52.4	20.7
AVERAGE:			2.65	4.42	51.81	20.38	129.01



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 12
Test Time: 16:22-17:22

Data Input:

Average chart reading (C):	2.65 %
Average pre/post-test zero calibration reading (C _o):	0.04 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.99 %
Stack gas volumetric flow rate (Q _{std}):	854,915 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.63 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 12
Test Time: 16:22-17:22

Data Input:

Average chart reading (C):	4.42 %
Average pre/post-test zero calibration reading (C _o):	0.08 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.03 %
Stack gas volumetric flow rate (Q _{std}):	854,915 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.36 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 12
Test Time: 16:22-17:22

Data Input:

Average chart reading (C):	51.81 ppm
Average pre/post-test zero calibration reading (C _o):	0.30 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.29 ppm
Stack gas volumetric flow rate (Q _{std}):	854,915 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 51.52 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.5607 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 7.3187 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 12
Test Time: 16:22-17:22

Data Input:

Average chart reading (C):	20.38 ppm
Average pre/post-test zero calibration reading (C _o):	0.12 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.54 ppm
Stack gas volumetric flow rate (Q _{std}):	854,915 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 20.07 \text{ ppm}$$

**Oxides of Nitrogen
Concentration:**

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 2.3967 \times 10^{-6} \text{ lbs/dscf}$$

**Oxides of Nitrogen
Emission rate:**

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 2.0490 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-5
Test Date: 2/27/2007
Test Run #: 12
Test Time: 16:22-17:22

Data Input:

Average chart reading (C):	129.01 ppm
Average pre/post-test zero calibration reading (C _o):	0.71 ppm
Calibration gas concentration (C _{ma}):	120.0 ppm
Average pre/post-test calibration gas reading (C _m):	119.94 ppm
Stack gas volumetric flow rate (Q _{std}):	854,915 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.63 %
Carbon Dioxide Concentration (%CO ₂):	4.36 %
Nitrogen Concentration (%N ₂):	93.01 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 129.13 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 9.3884 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 8.0263 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas, 50\% Excess Air}} = C_{\text{gas, ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 96.3 \text{ ppm, @50\% Excess Air}$$



MPCLLC: Robinson, Illinois
SRU 66F-3 and 66F-5 Stacks
Test Dates: 2/26 – 3/1/07

APPENDIX B

SRU 66F-3 Calculation Summaries

```

: COMPANY      : MPCLLC
: LOCATION     : Robinson, IL
: SOURCE       : SRU Stack: 66F-3

```

	1	2	3	4	5	6	7	8	9	10	11	12	Average
RUN NO	:												
TEST DATE	:	2/28/2007	2/28/2007	2/28/2007	2/28/2007	2/28/2007	2/28/2007	2/28/2007	3/1/2007	3/1/2007	3/1/2007	3/1/2007	
TEST TIME	:	10:25-11:25	12:03-13:03	13:23-14:23	14:43-15:43	16:03-17:03	17:21-18:21	18:40-19:40	19:57-20:57	08:00-09:00	09:22-10:22	10:40-11:40	12:01-13:01

Temperature, °F	1262.6	1261.0	1269.8	1273.2	1274.0	1273.7	1273.3	1292.0	1292.3	1292.4	1291.2	1275.1
Velocity, av. ft/sec	33.2	35.4	36.1	36.1	36.3	36.6	36.5	36.8	36.9	37.1	36.9	36.2
Volumetric flow, acfm	44,500	47,384	48,362	48,430	48,716	49,012	48,910	49,379	49,428	49,668	49,439	48,507
Volumetric flow, scfm	13,611	14,328	14,490	14,452	14,531	14,606	14,580	14,403	14,416	14,470	14,412	14,420
Volumetric flow, scfh	752,843	790,208	796,861	792,329	795,224	796,912	794,981	783,915	783,870	785,579	784,466	788,429
Moisture, av. % vol	7.8	8.1	8.3	8.6	8.8	9.1	9.1	9.3	9.4	9.5	9.3	8.9
Carbon Dioxide, av. % vol	4.32	4.29	4.36	4.37	4.35	4.29	4.37	4.47	4.43	4.46	4.46	4.38
Oxygen, av. % vol	2.69	2.55	2.37	2.35	2.42	2.35	2.33	2.04	2.12	2.16	3.04	2.41
Nitrogen, % by difference	92.99	93.12	93.27	93.28	93.23	93.35	93.30	93.49	93.45	93.36	92.50	93.21
Sample Time, min	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Volume, dscf	45,352	43,677	44,200	43,433	43,617	43,617	43,650	43,629	42,958	42,576	42,500	43,615

	40.1	40.5	51.3	51.7	51.6	46.6	45.7	46.8	62.7	60.1	60.5	52.9	50.9
Sulfur Dioxide	14.5	13.8	14.4	14.4	14.0	14.0	14.3	13.8	14.3	14.3	14.3	15.0	14.3
Oxides of Nitrogen	204.5	204.5	261.3	183.2	200.1	236.6	216.4	232.7	199.2	225.8	197.8	170.5	211.9
Carbon Monoxide	214.7	204.5	261.3	183.2	200.1	236.6	216.4	232.7	199.2	225.8	197.8	170.5	211.9

CO ppm, @ 50% excess air	160.6	152.0	193.6	135.0	147.4	174.8	159.3	171.2	144.6	164.6	144.4	129.7	156.4
CO ppm, @ 50% excess air	160.6	152.0	193.6	135.0	147.4	174.8	159.3	171.2	144.6	164.6	144.4	129.7	156.4

SO ₂ ppm, @ 0% Oxygen	46.0	46.1	58.3	58.3	58.1	52.7	51.5	52.7	69.5	66.9	67.5	61.9	57.5
SO ₂ ppm, @ 0% Oxygen	46.0	46.1	58.3	58.3	58.1	52.7	51.5	52.7	69.5	66.9	67.5	61.9	57.5

Chemical	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Sulfur Dioxide	5.010	5.316	6.858	6.849	6.793	6.155	6.047	6.187	6.169	7.825	7.900	6.898	6.667
Oxides of Nitrogen	1.307	1.302	1.385	1.390	1.365	1.326	1.315	1.310	1.338	1.357	1.346	1.409	1.346
Carbon Monoxide	11.750	11.752	15.275	10.615	11.526	13.678	12.535	13.449	11.353	12.871	11.297	9.723	12.152



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 1

Data Input:

Volume metered (V_m):	45.680 ft
Meter calibration coefficient (Y_d):	0.993 dimensionless
Barometric pressure (P_{bar}):	29.62 inches Hg
Meter sample rate (ΔH):	1.70 inches H_2O
Meter inlet/outlet temperature (T_m):	65.0 °F
Volume of moisture collected (V_{lc}):	81.7 milliliters
Stack Temperature (T_s):	1,246.5 °F
Static Pressure (St):	-0.6 inches H_2O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{mstd} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 45.352 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 3.846 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0782 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 7.82 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 947.7 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 752.38 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt[10]{10^{\left(\frac{B}{(T_{s(K)} - C)} \right)}}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,670.7424 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 267074.24 \%$$

Percent moisture used for emissions calculations:

$$= 7.82 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 1

Data Input

Carbon Dioxide (CO ₂):	4.3 %
Oxygen (O ₂):	2.7 %
Nitrogen (N ₂):	93.0 %
Fractional Moisture Content (B _{ws})	0.0782 dimensionless
Stack Temperature (T _s):	1,246.5 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3218 inches H ₂ O
Barometric Pressure (P _{bar}):	29.62 inches Hg
Static Pressure (S)	-0.58 inches H ₂ O
Stack diameter:	64.00 inches
Stack area (A _s):	22.3402 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.798 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.954 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S}{13.6} \right) = 29.578 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 33.199 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 44,500 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 13,611 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 816,680 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 12,547 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 752,843 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Run #: 1
Test Time: 10:25-11:25

		Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor		10 : 25	0					
Analyzer Type:	Oxygen	10 : 26	1	2.76	4.36	37.3	14.1	124.7
Analyzer Scale:	20.00 %	10 : 27	2	2.73	4.35	40.6	15.5	134.0
Pre-test calibration span value:	10.03 %	10 : 28	3	2.75	4.34	42.6	15.4	157.3
Post-test calibration span value:	9.99 %	10 : 29	4	2.72	4.36	42.1	15.5	110.4
Pre-test calibration zero value:	0.03 %	10 : 30	5	2.68	4.35	41.6	15.5	108.6
Post-test calibration zero value:	-0.01 %	10 : 31	6	2.66	4.37	42.8	15.4	127.2
Calibration gas type:	Protocol 1 Oxygen %	10 : 32	7	2.71	4.36	42.7	15.5	136.8
Calibration gas concentration:	10.00 %	10 : 33	8	2.68	4.37	41.2	15.4	112.7
Monitor uncorrected average:	2.70 %	10 : 34	9	2.61	4.35	41.8	15.5	126.7
Monitor drift corrected average:	2.69 %	10 : 35	10	2.75	4.31	42.2	15.3	228.6
Reference Method CO₂ Monitor		10 : 36	11	2.75	4.31	41.1	15.1	198.8
Analyzer Type:	Carbon Dioxide	10 : 37	12	2.69	4.33	39.7	15.1	161.4
Analyzer Scale:	20.00 %	10 : 38	13	2.65	4.35	40.1	15.1	155.2
Pre-test calibration span value:	10.01 %	10 : 39	14	2.68	4.34	39.8	15.2	161.3
Post-test calibration span value:	9.93 %	10 : 40	15	2.61	4.36	40.6	15.1	148.2
Pre-test calibration zero value:	0.01 %	10 : 41	16	2.69	4.32	40.7	15.1	200.7
Post-test calibration zero value:	0.02 %	10 : 42	17	2.69	4.33	40.2	15.0	176.5
Calibration gas type:	Protocol 1 CO ₂ %	10 : 43	18	2.70	4.35	39.6	15.1	209.7
Calibration gas concentration:	10.00 %	10 : 44	19	2.74	4.32	39.1	15.0	225.2
Monitor uncorrected average:	4.31 %	10 : 45	20	2.81	4.29	38.1	14.9	216.6
Monitor drift corrected average:	4.32 %	10 : 46	21	2.69	4.34	38.8	15.0	157.2
Reference Method SO₂ Monitor		10 : 47	22	2.65	4.34	38.9	14.9	159.2
Analyzer Type:	Sulfur Dioxide	10 : 48	23	2.66	4.33	40.3	14.9	180.3
Analyzer Scale:	88.67 ppm	10 : 49	24	2.81	4.30	39.3	14.9	274.4
Pre-test calibration span value:	45.10 ppm	10 : 50	25	2.80	4.31	39.1	14.9	235.5
Post-test calibration span value:	44.82 ppm	10 : 51	26	2.75	4.31	38.7	14.9	238.6
Pre-test calibration zero value:	0.14 ppm	10 : 52	27	2.79	4.31	39.2	14.9	212.6
Post-test calibration zero value:	0.65 ppm	10 : 53	28	2.74	4.32	38.7	14.9	202.8
Calibration gas type:	Protocol 1 SO ₂ ppm	10 : 54	29	2.83	4.28	39.1	14.9	258.1
Calibration gas concentration:	45.00 ppm	10 : 55	30	2.82	4.27	39.7	14.8	223.1
Monitor uncorrected average:	40.06 ppm	10 : 56	31	2.72	4.30	39.4	14.7	214.6
Monitor drift corrected average:	40.05 ppm	10 : 57	32	2.76	4.26	40.0	14.6	281.6
Reference Method NO_x Monitor		10 : 58	33	2.81	4.27	40.0	14.6	263.9
Analyzer Type:	Oxides of Nitrogen	10 : 59	34	2.77	4.28	39.4	14.6	237.9
Analyzer Scale:	88.99 ppm	11 : 0	35	2.74	4.29	39.3	14.7	238.8
Pre-test calibration span value:	45.11 ppm	11 : 1	36	2.79	4.28	39.4	14.7	268.3
Post-test calibration span value:	46.39 ppm	11 : 2	37	2.70	4.30	39.5	14.7	205.1
Pre-test calibration zero value:	0.18 ppm	11 : 3	38	2.73	4.28	40.6	14.8	217.2
Post-test calibration zero value:	0.11 ppm	11 : 4	39	2.71	4.27	41.0	14.7	278.7
Calibration gas type:	Protocol 1 NO _x ppm	11 : 5	40	2.81	4.29	40.5	14.7	331.4
Calibration gas concentration:	45.00 ppm	11 : 6	41	2.79	4.27	39.4	14.7	293.6
Monitor uncorrected average:	14.88 ppm	11 : 7	42	2.71	4.29	39.7	14.8	235.3
Monitor drift corrected average:	14.54 ppm	11 : 8	43	2.66	4.30	39.8	14.7	270.9
Reference Method CO Monitor		11 : 9	44	2.73	4.27	40.2	14.7	260.2
Analyzer Type:	Carbon Monoxide	11 : 10	45	2.64	4.29	40.6	14.7	209.5
Analyzer Scale:	500.00 ppm	11 : 11	46	2.67	4.29	40.5	14.7	213.5
Pre-test calibration span value:	181.52 ppm	11 : 12	47	2.65	4.28	39.3	14.7	256.6
Post-test calibration span value:	180.08 ppm	11 : 13	48	2.68	4.26	40.1	14.6	301.2
Pre-test calibration zero value:	0.11 ppm	11 : 14	49	2.70	4.27	40.5	14.6	317.9
Post-test calibration zero value:	0.22 ppm	11 : 15	50	2.55	4.35	40.3	14.8	161.2
Calibration gas type:	Protocol 1 CO ppm	11 : 16	51	2.54	4.35	39.5	14.9	162.2
Calibration gas concentration:	180.00 ppm	11 : 17	52	2.56	4.35	39.4	14.8	175.9
Monitor uncorrected average:	215.59 ppm	11 : 18	53	2.62	4.31	40.0	14.8	266.8
Monitor drift corrected average:	214.67 ppm	11 : 19	54	2.71	4.28	40.3	14.6	280.7
		11 : 20	55	2.68	4.29	39.0	14.6	251.8
		11 : 21	56	2.63	4.30	39.4	14.6	234.0
		11 : 22	57	2.62	4.31	40.2	14.6	250.0
		11 : 23	58	2.63	4.30	41.0	14.5	283.1
		11 : 24	59	2.64	4.29	39.9	14.5	306.4
		11 : 25	60	2.66	4.29	39.7	14.5	304.5
		AVERAGE:		2.70	4.31	40.06	14.88	215.59



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 1
Test Time: 10:25-11:25

Data Input:

Average chart reading (C):	2.70 %
Average pre/post-test zero calibration reading (C _o):	0.01 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.01 %
Stack gas volumetric flow rate (Q _{std}):	752,843 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.69 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 1
Test Time: 10:25-11:25

Data Input:

Average chart reading (C):	4.31 %
Average pre/post-test zero calibration reading (C _o):	0.01 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.97 %
Stack gas volumetric flow rate (Q _{std}):	752,843 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.32 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 1
Test Time: 10:25-11:25

Data Input:

Average chart reading (C):	40.06 ppm
Average pre/post-test zero calibration reading (C _o):	0.40 ppm
Calibration gas concentration (C _{ma}):	45.00 ppm
Average pre/post-test calibration gas reading (C _m):	44.96 ppm
Stack gas volumetric flow rate (Q _{std}):	752,843 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide
Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 40.05 \text{ ppm}$$

Sulfur Dioxide
Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 6.6543 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide
Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 5.0096 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 1
Test Time: 10:25-11:25

Data Input:

Average chart reading (C):	14.88 ppm
Average pre/post-test zero calibration reading (C _o):	0.15 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.75 ppm
Stack gas volumetric flow rate (Q _{std}):	752,843 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 14.54 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb / dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb / lb - mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ / lb - mole}} \right) = 1.7364 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb / hr}} = C_{\text{gas, lb / dscf}} \times Q_{\text{std}} = 1.3072 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 1
Test Time: 10:25-11:25

Data Input:

Average chart reading (C):	215.59 ppm
Average pre/post-test zero calibration reading (C _o):	0.16 ppm
Calibration gas concentration (C _{ma}):	180.0 ppm
Average pre/post-test calibration gas reading (C _m):	180.80 ppm
Stack gas volumetric flow rate (Q _{std}):	752,843 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.69 %
Carbon Dioxide Concentration (%CO ₂):	4.32 %
Nitrogen Concentration (%N ₂):	92.99 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 214.67 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 15.608 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 11.7501 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas, 50\% Excess Air}} = C_{\text{gas, ppm}} \times \left(\frac{1 + \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 160.6 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 2

Data Input:

Volume metered (V_m):	45.223 ft
Meter calibration coefficient (Y_d):	0.993 dimensionless
Barometric pressure (P_{bar}):	29.56 inches Hg
Meter sample rate (ΔH):	1.70 inches H_2O
Meter inlet/outlet temperature (T_m):	78.6 °F
Volume of moisture collected (V_{lc}):	81.6 milliliters
Stack Temperature (T_s):	1,262.6 °F
Static Pressure (St):	-0.6 inches H_2O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 43.677 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 3.841 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0808 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 8.08 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 956.7 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_i}{13.6} \right) \times 25.401 = 750.85 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt{\left(10^{\left(\frac{A \left(\frac{B}{(T_{s(K)} - C)} \right)} \right)} \right)}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,801.0904 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 280109.04 \%$$

Percent moisture used for emissions calculations:

$$= 8.08 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 2

Data Input

Carbon Dioxide (CO ₂):	4.3 %
Oxygen (O ₂):	2.5 %
Nitrogen (N ₂):	93.1 %
Fractional Moisture Content (B _{ws})	0.0808 dimensionless
Stack Temperature (T _s):	1,262.6 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3405 inches H ₂ O
Barometric Pressure (P _{bar}):	29.56 inches Hg
Static Pressure (S)	-0.60 inches H ₂ O
Stack diameter:	64.00 inches
Stack area (A _s):	22.3402 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.794 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.922 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S}{13.6} \right) = 29.516 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 35.351 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 47,384 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 14,328 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 859,699 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 13,170 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 790,208 \text{ dscfh}$$



Company: MPCLLC
 Location: Robinson, IL
 Source: SRU Stack: 66F-3
 Test Date: 2/28/2007
 Run #: 2
 Test Time: 12:03-13:03

Reference Method Monitor Data
One-Minute Averages

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method CO₂ Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method SO₂ Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method NO_x Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method CO Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
AVERAGE:			2.53	4.32	40.64	14.05	204.36



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 2
Test Time: 12:03-13:03

Data Input:

Average chart reading (C):	2.53 %
Average pre/post-test zero calibration reading (C _o):	-0.01 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.96 %
Stack gas volumetric flow rate (Q _{std}):	790,208 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.55 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 2
Test Time: 12:03-13:03

Data Input:

Average chart reading (C):	4.32 %
Average pre/post-test zero calibration reading (C _o):	0.03 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.94 %
Stack gas volumetric flow rate (Q _{std}):	790,208 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.33 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 2
Test Time: 12:03-13:03

Data Input:

Average chart reading (C):	40.64 ppm
Average pre/post-test zero calibration reading (C _o):	0.71 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.09 ppm
Stack gas volumetric flow rate (Q _{std}):	790,208 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 40.49 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb / dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb / lb - mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ / lb - mole}} \right) = 6.7268 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb / hr}} = C_{\text{gas, lb / dscf}} \times Q_{\text{std}} = 5.3156 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 2
Test Time: 12:03-13:03

Data Input:

Average chart reading (C):	14.05 ppm
Average pre/post-test zero calibration reading (C _o):	0.07 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.69 ppm
Stack gas volumetric flow rate (Q _{std}):	790,208 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 13.79 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ /lb-mole}} \right) = 1.6471 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 1.3015 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 2
Test Time: 12:03-13:03

Data Input:

Average chart reading (C):	204.36 ppm
Average pre/post-test zero calibration reading (C _o):	0.06 ppm
Calibration gas concentration (C _{ma}):	180.0 ppm
Average pre/post-test calibration gas reading (C _m):	179.84 ppm
Stack gas volumetric flow rate (Q _{std}):	790,208 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.55 %
Carbon Dioxide Concentration (%CO ₂):	4.33 %
Nitrogen Concentration (%N ₂):	93.12 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 204.55 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 14.8715 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 11.7516 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas, 50\% Excess Air}} = C_{\text{gas, ppm}} \times \left(\frac{1 \cdot \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 152.0 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 3

Data Input:

Volume metered (V_m):	45.886 ft
Meter calibration coefficient (Y_d):	0.993 dimensionless
Barometric pressure (P_{bar}):	29.47 inches Hg
Meter sample rate (ΔH):	1.70 inches H ₂ O
Meter inlet/outlet temperature (T_m):	78.8 °F
Volume of moisture collected (V_{lc}):	94.0 milliliters
Stack Temperature (T_s):	1,261.0 °F
Static Pressure (St):	-0.6 inches H ₂ O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{mstd} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92'' \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 44.166 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.425 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0911 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 9.11 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 955.8 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{St}{13.6} \right) \times 25.401 = 748.57 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt{10^{\left(A \cdot \left(\frac{B}{(T_{s(K)} - C) \right) \right)}}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,797.0445 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 279704.45 \%$$

Percent moisture used for emissions calculations:

$$= 9.11 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 3

Data Input

Carbon Dioxide (CO ₂):	4.3 %
Oxygen (O ₂):	2.5 %
Nitrogen (N ₂):	93.2 %
Fractional Moisture Content (B _{ws})	0.0911 dimensionless
Stack Temperature (T _s):	1,261.0 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3500 inches H ₂ O
Barometric Pressure (P _{bar}):	29.47 inches Hg
Static Pressure (S)	-0.58 inches H ₂ O
Stack diameter:	64.00 inches
Stack area (A _s):	22.3402 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.787 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.804 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S}{13.6} \right) = 29.428 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 36.446 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 48,853 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 14,742 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 884,502 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 13,399 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 803,961 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Run #: 3
Test Time: 13:23-14:23

		Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor								
Analyzer Type:	Oxygen	13 : 23	0					
Analyzer Scale:	20.00 %	13 : 24	1	2.71	4.23	50.4	14.3	314.8
Pre-test calibration span value:	9.93 %	13 : 25	2	2.58	4.28	51.4	14.3	204.6
Post-test calibration span value:	9.94 %	13 : 26	3	2.58	4.27	53.2	14.4	234.9
Pre-test calibration zero value:	-0.01 %	13 : 27	4	2.62	4.25	54.0	14.4	336.2
Post-test calibration zero value:	-0.01 %	13 : 28	5	2.68	4.25	54.1	14.4	419.8
Calibration gas type:	Protocol 1 Oxygen %	13 : 29	6	2.66	4.27	53.8	14.5	362.7
Calibration gas concentration:	10.00 %	13 : 30	7	2.57	4.31	53.0	14.5	260.8
Monitor uncorrected average:	2.46 %	13 : 31	8	2.61	4.31	51.8	14.6	226.1
Monitor drift corrected average:	2.48 %	13 : 32	9	2.56	4.30	52.4	14.6	224.4
Reference Method CO₂ Monitor								
Analyzer Type:	Carbon Dioxide	13 : 33	10	2.65	4.25	52.8	14.6	305.0
Analyzer Scale:	20.00 %	13 : 34	11	2.66	4.27	52.3	14.5	308.9
Pre-test calibration span value:	9.94 %	13 : 35	12	2.58	4.31	52.0	14.5	243.4
Post-test calibration span value:	9.94 %	13 : 36	13	2.45	4.33	52.1	14.6	206.7
Pre-test calibration zero value:	0.04 %	13 : 37	14	2.55	4.30	52.1	14.6	249.5
Post-test calibration zero value:	0.01 %	13 : 38	15	2.55	4.30	51.3	14.6	192.3
Calibration gas type:	Protocol 1 CO ₂ %	13 : 39	16	2.50	4.31	51.4	14.6	159.4
Calibration gas concentration:	10.00 %	13 : 40	17	2.48	4.32	51.3	14.7	161.2
Monitor uncorrected average:	4.29 %	13 : 41	18	2.51	4.29	51.7	14.6	232.9
Monitor drift corrected average:	4.29 %	13 : 42	19	2.50	4.28	51.9	14.7	227.6
Reference Method SO₂ Monitor								
Analyzer Type:	Sulfur Dioxide	13 : 43	20	2.50	4.27	51.8	14.6	229.2
Analyzer Scale:	88.67 ppm	13 : 44	21	2.48	4.28	51.6	14.5	214.0
Pre-test calibration span value:	45.36 ppm	13 : 45	22	2.48	4.27	50.9	14.6	206.8
Post-test calibration span value:	45.62 ppm	13 : 46	23	2.42	4.28	51.3	14.5	200.5
Pre-test calibration zero value:	0.77 ppm	13 : 47	24	2.46	4.27	52.2	14.5	243.5
Post-test calibration zero value:	0.59 ppm	13 : 48	25	2.46	4.29	52.3	14.4	201.6
Calibration gas type:	Protocol 1 SO ₂ ppm	13 : 49	26	2.36	4.30	51.9	14.4	210.4
Calibration gas concentration:	45.00 ppm	13 : 50	27	2.43	4.27	52.3	14.4	287.4
Monitor uncorrected average:	51.80 ppm	13 : 51	28	2.48	4.26	52.6	14.4	304.7
Monitor drift corrected average:	51.34 ppm	13 : 52	29	2.41	4.27	52.6	14.3	252.3
Reference Method NO_x Monitor								
Analyzer Type:	Oxides of Nitrogen	13 : 53	30	2.46	4.27	52.0	14.5	326.7
Analyzer Scale:	88.99 ppm	13 : 54	31	2.52	4.25	52.0	14.3	374.5
Pre-test calibration span value:	45.00 ppm	13 : 55	32	2.41	4.28	52.2	14.4	271.5
Post-test calibration span value:	45.42 ppm	13 : 56	33	2.33	4.29	52.8	14.5	203.6
Pre-test calibration zero value:	0.03 ppm	13 : 57	34	2.33	4.30	52.9	14.5	189.5
Post-test calibration zero value:	0.02 ppm	13 : 58	35	2.33	4.29	52.2	14.4	198.4
Calibration gas type:	Protocol 1 NO _x ppm	13 : 59	36	2.31	4.29	53.3	14.5	256.9
Calibration gas concentration:	45.00 ppm	14 : 0	37	2.47	4.24	53.7	14.5	370.0
Monitor uncorrected average:	14.51 ppm	14 : 1	38	2.53	4.23	52.7	14.4	476.2
Monitor drift corrected average:	14.43 ppm	14 : 2	39	2.47	4.26	52.9	14.4	377.2
Reference Method CO Monitor								
Analyzer Type:	Carbon Monoxide	14 : 3	40	2.36	4.29	53.3	14.4	275.7
Analyzer Scale:	500.00 ppm	14 : 4	41	2.38	4.29	53.3	14.6	274.5
Pre-test calibration span value:	179.60 ppm	14 : 5	42	2.42	4.29	52.2	14.6	241.7
Post-test calibration span value:	180.09 ppm	14 : 6	43	2.40	4.27	51.8	14.5	244.0
Pre-test calibration zero value:	-0.09 ppm	14 : 7	44	2.35	4.30	53.0	14.5	210.2
Post-test calibration zero value:	0.10 ppm	14 : 8	45	2.31	4.30	53.3	14.4	212.8
Calibration gas type:	Protocol 1 CO ppm	14 : 9	46	2.35	4.30	53.5	14.5	262.5
Calibration gas concentration:	180.00 ppm	14 : 10	47	2.37	4.30	51.8	14.5	217.6
Monitor uncorrected average:	261.10 ppm	14 : 11	48	2.32	4.31	51.7	14.6	228.2
Monitor drift corrected average:	261.33 ppm	14 : 12	49	2.32	4.32	52.3	14.5	220.1
Reference Method CO₂ Monitor								
Analyzer Type:	Carbon Dioxide	14 : 13	50	2.34	4.30	53.4	14.5	289.7
Analyzer Scale:	20.00 %	14 : 14	51	2.44	4.29	51.9	14.5	328.0
Pre-test calibration span value:	9.94 %	14 : 15	52	2.39	4.31	51.9	14.4	289.9
Post-test calibration span value:	9.94 %	14 : 16	53	2.38	4.30	49.6	14.6	282.4
Pre-test calibration zero value:	-0.01 %	14 : 17	54	2.38	4.30	48.9	14.6	273.8
Post-test calibration zero value:	-0.01 %	14 : 18	55	2.44	4.30	48.6	14.7	312.2
Calibration gas type:	Protocol 1 CO ₂ %	14 : 19	56	2.42	4.31	48.7	14.7	250.8
Calibration gas concentration:	10.00 %	14 : 20	57	2.46	4.29	47.6	14.6	266.7
Monitor uncorrected average:	2.46 %	14 : 21	58	2.46	4.30	46.8	14.7	263.0
Monitor drift corrected average:	2.46 %	14 : 22	59	2.40	4.31	47.7	14.8	216.4
Reference Method CO Monitor								
Analyzer Type:	Carbon Monoxide	14 : 23	60	2.42	4.31	47.9	14.7	239.4
Analyzer Scale:	500.00 ppm	AVERAGE:						
Pre-test calibration span value:	179.60 ppm	2.46						
Post-test calibration span value:	180.09 ppm	4.29						
Pre-test calibration zero value:	-0.09 ppm	51.80						
Post-test calibration zero value:	0.10 ppm	14.51						
Calibration gas type:	Protocol 1 CO ppm	261.10						
Calibration gas concentration:	180.00 ppm	261.10						
Monitor uncorrected average:	261.10 ppm							
Monitor drift corrected average:	261.33 ppm							



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 3
Test Time: 13:23-14:23

Data Input:

Average chart reading (C):	2.46 %
Average pre/post-test zero calibration reading (C _o):	-0.01 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.94 %
Stack gas volumetric flow rate (Q _{std}):	803,961 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 2.48 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 3
Test Time: 13:23-14:23

Data Input:

Average chart reading (C):	4.29 %
Average pre/post-test zero calibration reading (C _o):	0.03 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.94 %
Stack gas volumetric flow rate (Q _{std}):	803,961 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.29 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 3
Test Time: 13:23-14:23

Data Input:

Average chart reading (C):	51.80 ppm
Average pre/post-test zero calibration reading (C _o):	0.68 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.49 ppm
Stack gas volumetric flow rate (Q _{std}):	803,961 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 51.34 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.5299 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 6.8577 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 3
Test Time: 13:23-14:23

Data Input:

Average chart reading (C):	14.51 ppm
Average pre/post-test zero calibration reading (C _o):	0.02 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.21 ppm
Stack gas volumetric flow rate (Q _{std}):	803,961 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 14.43 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 1.7233 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 1.3854 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 3
Test Time: 13:23-14:23

Data Input:

Average chart reading (C):	261.10 ppm
Average pre/post-test zero calibration reading (C _o):	0.00 ppm
Calibration gas concentration (C _{ma}):	180.0 ppm
Average pre/post-test calibration gas reading (C _m):	179.84 ppm
Stack gas volumetric flow rate (Q _{std}):	803,961 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.48 %
Carbon Dioxide Concentration (%CO ₂):	4.29 %
Nitrogen Concentration (%N ₂):	93.22 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 261.33 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ /lb-mole}} \right) = 18.9995 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 15.2749 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$C_{\text{gas, 50\% Excess Air}} = C_{\text{gas, ppm}} \times \left(\frac{1 + \left[\frac{\%O_2}{0.266 \times \%N_2 - \%O_2} \right]}{1.5} \right) = 193.6 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPC LLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 4

Data Input:

Volume metered (V_m): 45.937 ft
Meter calibration coefficient (Y_d): 0.993 dimensionless
Barometric pressure (P_{bar}): 29.41 inches Hg
Meter sample rate (ΔH): 1.70 inches H₂O
Meter inlet/outlet temperature (T_m): 77.9 °F
Volume of moisture collected (V_{lc}): 85.5 milliliters
Stack Temperature (T_s): 1,269.8 °F
Static Pressure (St): -0.6 inches H₂O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 44.200 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.024 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0835 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 8.35 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 960.7 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 747.04 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt[10]{\left(\frac{B}{(T_{s(K)} - C)} \right)}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,872.5972 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 287259.72 \%$$

Percent moisture used for emissions calculations:

$$= 8.35 \%$$



USEPA Method 2 Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 4

Data Input

Carbon Dioxide (CO ₂):	4.4 %
Oxygen (O ₂):	2.4 %
Nitrogen (N ₂):	93.3 %
Fractional Moisture Content (B _{ws})	0.0835 dimensionless
Stack Temperature (T _s):	1,269.8 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3458 inches H ₂ O
Barometric Pressure (P _{bar}):	29.41 inches Hg
Static Pressure (S)	-0.57 inches H ₂ O
Stack diameter:	64.00 inches
Stack area (A _s):	22.3402 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.792 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.892 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S}{13.6} \right) = 29.368 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 36.080 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 48,362 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 14,490 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 869,418 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 13,281 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 796,861 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Run #: 4
Test Time: 14:43-15:43

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method CO₂ Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method SO₂ Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method NO_x Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
Reference Method CO Monitor							
Analyzer Type:							
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
	14 : 43	0					
	14 : 44	1	2.44	4.34	48.0	14.7	165.0
	14 : 45	2	2.43	4.33	50.0	14.7	157.4
	14 : 46	3	2.43	4.34	51.7	14.8	154.5
	14 : 47	4	2.41	4.34	53.5	14.9	173.9
	14 : 48	5	2.37	4.35	53.6	14.9	130.0
	14 : 49	6	2.35	4.34	54.1	14.9	172.4
	14 : 50	7	2.46	4.33	53.3	14.8	217.5
	14 : 51	8	2.48	4.34	52.7	14.9	185.4
	14 : 52	9	2.37	4.36	52.8	15.0	145.9
	14 : 53	10	2.34	4.35	52.7	14.9	127.6
	14 : 54	11	2.39	4.35	52.5	14.8	142.9
	14 : 55	12	2.35	4.37	52.4	14.8	145.0
	14 : 56	13	2.36	4.36	52.4	14.9	143.1
	14 : 57	14	2.36	4.36	52.5	14.9	112.8
	14 : 58	15	2.18	4.40	52.9	14.9	89.4
	14 : 59	16	2.26	4.37	53.5	14.9	159.2
	15 : 0	17	2.41	4.35	52.6	14.8	209.6
	15 : 1	18	2.42	4.32	51.8	14.7	239.7
	15 : 2	19	2.35	4.34	52.1	14.7	189.0
	15 : 3	20	2.30	4.36	52.7	14.8	155.3
	15 : 4	21	2.28	4.35	53.4	14.6	193.6
	15 : 5	22	2.38	4.34	52.7	14.7	199.3
	15 : 6	23	2.27	4.37	52.1	14.7	159.7
	15 : 7	24	2.34	4.33	52.4	14.7	206.6
	15 : 8	25	2.37	4.32	52.4	14.6	226.9
	15 : 9	26	2.37	4.35	52.7	14.7	251.8
	15 : 10	27	2.35	4.33	52.5	14.6	253.5
	15 : 11	28	2.31	4.34	52.1	14.6	224.0
	15 : 12	29	2.38	4.33	52.1	14.6	230.7
	15 : 13	30	2.34	4.35	51.9	14.7	194.7
	15 : 14	31	2.33	4.35	51.5	14.8	206.9
	15 : 15	32	2.35	4.35	51.5	14.8	212.9
	15 : 16	33	2.39	4.35	51.2	14.8	191.7
	15 : 17	34	2.31	4.36	51.6	14.7	146.9
	15 : 18	35	2.33	4.35	51.3	14.8	150.1
	15 : 19	36	2.35	4.35	51.7	14.7	178.4
	15 : 20	37	2.35	4.36	51.9	14.7	171.4
	15 : 21	38	2.30	4.36	52.2	14.7	149.5
	15 : 22	39	2.38	4.35	52.0	14.8	180.1
	15 : 23	40	2.30	4.37	50.7	14.8	137.0
	15 : 24	41	2.32	4.35	51.6	14.8	176.3
	15 : 25	42	2.43	4.33	51.5	14.8	217.1
	15 : 26	43	2.37	4.37	51.1	14.8	154.3
	15 : 27	44	2.33	4.34	51.0	14.8	158.7
	15 : 28	45	2.40	4.32	51.6	14.8	221.4
	15 : 29	46	2.39	4.33	52.4	14.7	269.7
	15 : 30	47	2.35	4.34	52.5	14.6	216.3
	15 : 31	48	2.33	4.35	52.1	14.7	184.6
	15 : 32	49	2.29	4.36	53.2	14.7	165.0
	15 : 33	50	2.34	4.34	50.5	14.6	180.7
	15 : 34	51	2.34	4.35	51.0	14.6	211.2
	15 : 35	52	2.31	4.33	51.8	14.6	206.9
	15 : 36	53	2.35	4.34	50.7	14.6	229.5
	15 : 37	54	2.33	4.35	50.9	14.6	184.0
	15 : 38	55	2.27	4.37	51.7	14.7	152.6
	15 : 39	56	2.31	4.36	52.2	14.7	150.7
	15 : 40	57	2.30	4.34	52.8	14.6	148.5
	15 : 41	58	2.22	4.34	53.5	14.6	185.3
	15 : 42	59	2.30	4.31	54.5	14.5	251.2
	15 : 43	60	2.40	4.31	53.9	14.5	284.0
AVERAGE:			2.35	4.35	52.13	14.74	183.83



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 4
Test Time: 14:43-15:43

Data Input:

Average chart reading (C):	2.35 %
Average pre/post-test zero calibration reading (C _o):	0.00 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.92 %
Stack gas volumetric flow rate (Q _{std}):	796,861 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.37 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 4
Test Time: 14:43-15:43

Data Input:

Average chart reading (C):	4.35 %
Average pre/post-test zero calibration reading (C _o):	0.03 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.93 %
Stack gas volumetric flow rate (Q _{std}):	796,861 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.36 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 4
Test Time: 14:43-15:43

Data Input:

Average chart reading (C):	52.13 ppm
Average pre/post-test zero calibration reading (C _o):	0.18 ppm
Calibration gas concentration (C _{ma}):	45.00 ppm
Average pre/post-test calibration gas reading (C _m):	45.37 ppm
Stack gas volumetric flow rate (Q _{std}):	796,861 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide
Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 51.73 \text{ ppm}$$

Sulfur Dioxide
Concentration:

$$C_{\text{gas, lb / dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb / lb - mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ / lb - mole}} \right) = 8.5947 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide
Emission rate:

$$E_{\text{gas, lb / hr}} = C_{\text{gas, lb / dscf}} \times Q_{\text{std}} = 6.8488 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 4
Test Time: 14:43-15:43

Data Input:

Average chart reading (C):	14.74 ppm
Average pre/post-test zero calibration reading (C _o):	0.03 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.36 ppm
Stack gas volumetric flow rate (Q _{std}):	796,861 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 14.61 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 1.7443 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 1.3899 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 4
Test Time: 14:43-15:43

Data Input:

Average chart reading (C):	183.83 ppm
Average pre/post-test zero calibration reading (C _o):	0.10 ppm
Calibration gas concentration (C _{ma}):	180.0 ppm
Average pre/post-test calibration gas reading (C _m):	180.59 ppm
Stack gas volumetric flow rate (Q _{std}):	796,861 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.37 %
Carbon Dioxide Concentration (%CO ₂):	4.36 %
Nitrogen Concentration (%N ₂):	93.27 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 183.23 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb / dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb / lb - mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ / lb - mole}} \right) = 13.3213 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb / hr}} = C_{\text{gas, lb / dscf}} \times Q_{\text{std}} = 10.6152 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$= 135.0 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 5

Data Input:

Volume metered (V_m):	45.442 ft
Meter calibration coefficient (Y_d):	0.993 dimensionless
Barometric pressure (P_{bar}):	29.35 inches Hg
Meter sample rate (ΔH):	1.70 inches H ₂ O
Meter inlet/outlet temperature (T_m):	80.4 °F
Volume of moisture collected (V_{lc}):	87.1 milliliters
Stack Temperature (T_s):	1,273.2 °F
Static Pressure (St):	-0.6 inches H ₂ O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{mstd} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 43.433 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.100 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0863 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 8.63 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 962.6 \text{ Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 745.52 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt{10 \left(A \left(\frac{B}{(T_{s(K)} - C) \right) \right)}}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,906.1780 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 290617.80 \%$$

Percent moisture used for emissions calculations:

$$= 8.63 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 5

Data Input

Carbon Dioxide (CO ₂):	4.4 %
Oxygen (O ₂):	2.4 %
Nitrogen (N ₂):	93.3 %
Fractional Moisture Content (B _{ws})	0.0863 dimensionless
Stack Temperature (T _s):	1,273.2 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3454 inches H ₂ O
Barometric Pressure (P _{bar}):	29.35 inches Hg
Static Pressure (S _i)	-0.57 inches H ₂ O
Stack diameter:	64.00 inches
Stack area (A _s):	22.3402 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.793 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.862 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_i}{13.6} \right) = 29.308 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 36.131 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 48,430 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 14,452 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 867,121 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 13,205 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 792,329 \text{ dscfh}$$



Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
16 : 03	0					
16 : 4	1	2.35	4.32	52.0	14.3	340.9
16 : 5	2	2.38	4.34	53.0	14.5	304.3
16 : 6	3	2.38	4.33	53.3	14.4	225.4
16 : 7	4	2.29	4.35	54.4	14.6	175.7
16 : 8	5	2.26	4.36	55.1	14.7	155.9
16 : 9	6	2.28	4.35	55.5	14.7	185.1
16 : 10	7	2.26	4.35	56.1	14.6	248.6
16 : 11	8	2.24	4.36	55.8	14.5	255.2
16 : 12	9	2.30	4.36	55.4	14.5	257.2
16 : 13	10	2.34	4.36	54.5	14.6	193.7
16 : 14	11	2.22	4.37	53.2	14.6	145.3
16 : 15	12	2.33	4.34	53.2	14.6	189.8
16 : 16	13	2.34	4.32	53.6	14.6	279.1
16 : 17	14	2.46	4.29	53.4	14.5	356.0
16 : 18	15	2.38	4.33	52.9	14.6	267.3
16 : 19	16	2.33	4.36	52.2	14.7	228.0
16 : 20	17	2.35	4.33	52.0	14.6	195.4
16 : 21	18	2.34	4.35	52.7	14.6	202.0
16 : 22	19	2.30	4.35	53.4	14.7	166.1
16 : 23	20	2.27	4.35	53.9	14.6	203.4
16 : 24	21	2.34	4.34	54.1	14.5	247.1
16 : 25	22	2.28	4.38	53.5	14.6	173.0
16 : 26	23	2.22	4.41	53.0	14.6	135.0
16 : 27	24	2.22	4.39	53.4	14.8	89.2
16 : 28	25	2.20	4.39	54.5	14.8	118.8
16 : 29	26	2.30	4.35	54.9	14.7	168.5
16 : 30	27	2.32	4.34	54.7	14.6	237.6
16 : 31	28	2.31	4.37	53.9	14.6	220.5
16 : 32	29	2.30	4.38	52.0	14.7	160.1
16 : 33	30	2.26	4.37	52.3	14.8	155.3
16 : 34	31	2.39	4.34	52.5	14.6	173.6
16 : 35	32	2.36	4.37	53.1	14.7	144.9
16 : 36	33	2.32	4.35	53.4	14.7	126.7
16 : 37	34	2.32	4.35	53.4	14.6	180.0
16 : 38	35	2.35	4.34	52.8	14.6	190.5
16 : 39	36	2.31	4.35	52.6	14.6	195.2
16 : 40	37	2.40	4.34	50.9	14.6	179.2
16 : 41	38	2.30	4.37	49.9	14.6	155.3
16 : 42	39	2.34	4.37	50.3	14.6	141.8
16 : 43	40	2.24	4.38	51.0	14.6	133.2
16 : 44	41	2.32	4.34	50.7	14.6	174.2
16 : 45	42	2.37	4.33	50.8	14.6	221.5
16 : 46	43	2.31	4.36	50.7	14.5	188.1
16 : 47	44	2.33	4.36	50.0	14.6	178.1
16 : 48	45	2.37	4.35	49.6	14.6	206.1
16 : 49	46	2.32	4.36	49.5	14.5	164.9
16 : 50	47	2.37	4.35	46.5	14.5	173.4
16 : 51	48	2.27	4.38	47.3	14.5	129.6
16 : 52	49	2.28	4.37	48.8	14.5	159.4
16 : 53	50	2.43	4.31	48.9	14.4	243.3
16 : 54	51	2.47	4.32	48.6	14.5	259.5
16 : 55	52	2.41	4.35	48.2	14.5	193.0
16 : 56	53	2.42	4.35	48.3	14.6	203.8
16 : 57	54	2.40	4.35	48.3	14.7	178.1
16 : 58	55	2.42	4.34	48.4	14.5	196.7
16 : 59	56	2.38	4.32	46.9	14.5	231.1
17 : 0	57	2.45	4.31	47.5	14.5	302.2
17 : 1						



USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 5
Test Time: 16:03-17:03

Data Input:

Average chart reading (C):	2.33 %
Average pre/post-test zero calibration reading (C _o):	0.00 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.92 %
Stack gas volumetric flow rate (Q _{std}):	792,329 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.35 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 5
Test Time: 16:03-17:03

Data Input:

Average chart reading (C):	4.35 %
Average pre/post-test zero calibration reading (C _o):	0.04 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.91 %
Stack gas volumetric flow rate (Q _{std}):	792,329 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.37 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 5
Test Time: 16:03-17:03

Data Input:

Average chart reading (C):	51.73 ppm
Average pre/post-test zero calibration reading (C _o):	-0.02 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.12 ppm
Stack gas volumetric flow rate (Q _{std}):	792,329 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide
Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 51.60 \text{ ppm}$$

Sulfur Dioxide
Concentration:

$$C_{\text{gas, lb / dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb / lb - mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ / lb - mole}} \right) = 8.5728 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide
Emission rate:

$$E_{\text{gas, lb / hr}} = C_{\text{gas, lb / dscf}} \times Q_{\text{std}} = 6.7925 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 5
Test Time: 16:03-17:03

Data Input:

Average chart reading (C):	14.59 ppm
Average pre/post-test zero calibration reading (C _o):	0.08 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.34 ppm
Stack gas volumetric flow rate (Q _{std}):	792,329 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 14.42 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 1.7224 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 1.3647 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 5
Test Time: 16:03-17:03

Data Input:

Average chart reading (C):	200.24 ppm
Average pre/post-test zero calibration reading (C _o):	0.10 ppm
Calibration gas concentration (C _{ma}):	180.0 ppm
Average pre/post-test calibration gas reading (C _m):	180.16 ppm
Stack gas volumetric flow rate (Q _{std}):	792,329 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.35 %
Carbon Dioxide Concentration (%CO ₂):	4.37 %
Nitrogen Concentration (%N ₂):	93.28 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 200.08 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 14.5466 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 11.5257 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$= 147.4 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 6

Data Input:

Volume metered (V_m):	45.348 ft
Meter calibration coefficient (Y_d):	0.993 dimensionless
Barometric pressure (P_{bar}):	29.35 inches Hg
Meter sample rate (ΔH):	1.70 inches H_2O
Meter inlet/outlet temperature (T_m):	77.0 °F
Volume of moisture collected (V_{lc}):	89.3 milliliters
Stack Temperature (T_s):	1,274.0 °F
Static Pressure (St):	-0.6 inches H_2O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{mstd} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 43.617 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.203 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0879 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 8.79 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 963.1 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 745.52 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt[10]{10^{\left(A \left(\frac{B}{(T_{s(K)} - C) \right) \right)}}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,912.6248 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 291262.48 \%$$

Percent moisture used for emissions calculations:

$$= 8.79 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 6

Data Input

Carbon Dioxide (CO ₂):	4.3 %
Oxygen (O ₂):	2.4 %
Nitrogen (N ₂):	93.2 %
Fractional Moisture Content (B _{ws}):	0.0879 dimensionless
Stack Temperature (T _s):	1,274.0 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3472 inches H ₂ O
Barometric Pressure (P _{bar}):	29.35 inches Hg
Static Pressure (S):	-0.56 inches H ₂ O
Stack diameter:	64.00 inches
Stack area (A _s):	22.3402 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.792 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.844 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S}{13.6} \right) = 29.309 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 36.344 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 48,716 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 14,531 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 871,859 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 13,254 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 795,224 \text{ dscfh}$$

Reference Method Monitor Data One-Minute Averages

Company: MPC LLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Run #: 6
Test Time: 17:21-18:21

Run #: 6		Clock	Elapsed	Monitor	Monitor	Monitor	Monitor	Monitor
Test Time: 17:21-18:21		Time	Time	O ₂ %	CO ₂ %	SO ₂ ppm	NO _x ppm	CO ppm
Reference Method Oxygen Monitor				17 : 21	0			
Analyzer Type:	Oxygen	17 : 22	1	2.47	4.32	44.6	14.0	297.8
Analyzer Scale:	20.00 %	17 : 23	2	2.51	4.32	46.1	14.0	302.9
Pre-test calibration span value:	9.93 %	17 : 24	3	2.46	4.33	46.3	14.1	232.3
Post-test calibration span value:	9.93 %	17 : 25	4	2.40	4.34	46.9	14.2	185.2
Pre-test calibration zero value:	-0.01 %	17 : 26	5	2.47	4.34	47.2	14.4	202.2
Post-test calibration zero value:	0.02 %	17 : 27	6	2.38	4.36	47.4	14.4	143.9
Calibration gas type:	Protocol 1 Oxygen %	17 : 28	7	2.38	4.33	47.2	14.3	201.7
Calibration gas concentration:	10.00 %	17 : 29	8	2.43	4.31	47.8	14.2	245.6
Monitor uncorrected average:	2.41 %	17 : 30	9	2.41	4.31	48.3	14.3	251.3
Monitor drift corrected average:	2.42 %	17 : 31	10	2.37	4.35	48.3	14.2	248.6
Reference Method CO2 Monitor				17 : 32	11	2.48	4.33	47.2
Analyzer Type:	Carbon Dioxide	17 : 33	12	2.40	4.34	46.5	14.3	139.9
Analyzer Scale:	20.00 %	17 : 34	13	2.31	4.37	47.2	14.4	138.8
Pre-test calibration span value:	9.92 %	17 : 35	14	2.38	4.35	48.2	14.3	173.3
Post-test calibration span value:	9.94 %	17 : 36	15	2.38	4.34	47.2	14.3	198.8
Pre-test calibration zero value:	0.02 %	17 : 37	16	2.36	4.31	47.2	14.2	239.2
Post-test calibration zero value:	0.03 %	17 : 38	17	2.42	4.31	47.2	14.2	257.4
Calibration gas type:	Protocol 1 CO2 %	17 : 39	18	2.43	4.32	46.9	14.2	280.5
Calibration gas concentration:	10.00 %	17 : 40	19	2.51	4.31	46.5	14.2	265.9
Monitor uncorrected average:	4.33 %	17 : 41	20	2.44	4.33	46.6	14.2	215.1
Monitor drift corrected average:	4.35 %	17 : 42	21	2.36	4.33	47.1	14.2	181.3
Reference Method SO2 Monitor				17 : 43	22	2.46	4.32	47.7
Analyzer Type:	Sulfur Dioxide	17 : 44	23	2.44	4.31	47.1	14.2	255.9
Analyzer Scale:	88.67 ppm	17 : 45	24	2.48	4.30	46.5	14.1	291.4
Pre-test calibration span value:	45.10 ppm	17 : 46	25	2.48	4.33	46.5	14.2	261.0
Post-test calibration span value:	45.36 ppm	17 : 47	26	2.39	4.33	46.5	14.2	188.1
Pre-test calibration zero value:	0.20 ppm	17 : 48	27	2.41	4.32	46.8	14.3	198.9
Post-test calibration zero value:	-0.32 ppm	17 : 49	28	2.35	4.36	46.9	14.3	140.3
Calibration gas type:	Protocol 1 SO2 ppm	17 : 50	29	2.32	4.35	47.5	14.3	123.0
Calibration gas concentration:	45.00 ppm	17 : 51	30	2.37	4.33	48.0	14.2	179.4
Monitor uncorrected average:	46.83 ppm	17 : 52	31	2.46	4.30	47.2	14.2	257.5
Monitor drift corrected average:	46.58 ppm	17 : 53	32	2.45	4.30	44.6	14.1	268.4
Reference Method NOx Monitor				17 : 54	33	2.45	4.32	45.7
Analyzer Type:	Oxides of Nitrogen	17 : 55	34	2.44	4.32	45.9	14.1	213.0
Analyzer Scale:	88.99 ppm	17 : 56	35	2.40	4.32	46.0	14.1	193.2
Pre-test calibration span value:	45.38 ppm	17 : 57	36	2.39	4.32	45.6	14.1	165.1
Post-test calibration span value:	45.40 ppm	17 : 58	37	2.36	4.35	44.4	14.1	190.6
Pre-test calibration zero value:	0.12 ppm	17 : 59	38	2.37	4.34	45.7	14.1	181.9
Post-test calibration zero value:	0.09 ppm	18 : 0	39	2.39	4.32	46.1	14.1	215.1
Calibration gas type:	Protocol 1 NOx ppm	18 : 1	40	2.45	4.31	46.2	14.1	267.6
Calibration gas concentration:	45.00 ppm	18 : 2	41	2.43	4.31	46.2	14.1	234.6
Monitor uncorrected average:	14.16 ppm	18 : 3	42	2.40	4.32	46.8	14.1	239.9
Monitor drift corrected average:	13.96 ppm	18 : 4	43	2.46	4.31	46.7	14.1	270.9
Reference Method CO Monitor				18 : 5	44	2.39	4.33	46.3
Analyzer Type:	Carbon Monoxide	18 : 6	45	2.18	4.59	50.1	14.0	110.3
Analyzer Scale:	500.00 ppm	18 : 7	46	2.29	4.33	48.5	14.0	272.0
Pre-test calibration span value:	179.21 ppm	18 : 8	47	2.47	4.31	48.3	13.8	409.2
Post-test calibration span value:	179.59 ppm	18 : 9	48	2.49	4.31	48.0	14.0	402.1
Pre-test calibration zero value:	0.10 ppm	18 : 10	49	2.41	4.32	48.3	14.0	280.3
Post-test calibration zero value:	0.26 ppm	18 : 11	50	2.41	4.31	47.7	14.2	248.9
Calibration gas type:	Protocol 1 CO ppm	18 : 12	51	2.38	4.33	47.4	14.2	224.0
Calibration gas concentration:	180.00 ppm	18 : 13	52	2.33	4.35	47.8	14.1	227.8
Monitor uncorrected average:	235.74 ppm	18 : 14	53	2.42	4.31	45.8	14.1	291.0
Monitor drift corrected average:	236.58 ppm	18 : 15	54	2.45	4.29	45.7	14.0	303.6
		18 : 16	55	2.48	4.30	46.1	14.0	317.6
		18 : 17	56	2.42	4.32	46.5	13.9	320.8
		18 : 18	57	2.42	4.32	46.2	14.0	305.0
		18 : 19	58	2.42	4.33	46.4	14.0	263.4
		18 : 20	59	2.40	4.34	47.0	14.0	253.2
		18 : 21	60	2.35	4.34	45.2	14.1	234.5
AVERAGE:				2.41	4.33	46.83	14.16	235.74



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 6
Test Time: 17:21-18:21

Data Input:

Average chart reading (C):	2.41 %
Average pre/post-test zero calibration reading (C _o):	0.01 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.93 %
Stack gas volumetric flow rate (Q _{std}):	795,224 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.42 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 6
Test Time: 17:21-18:21

Data Input:

Average chart reading (C):	4.33 %
Average pre/post-test zero calibration reading (C _o):	0.02 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.93 %
Stack gas volumetric flow rate (Q _{std}):	795,224 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.35 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 6
Test Time: 17:21-18:21

Data Input:

Average chart reading (C):	46.83 ppm
Average pre/post-test zero calibration reading (C _o):	-0.06 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.23 ppm
Stack gas volumetric flow rate (Q _{std}):	795,224 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 46.58 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 7.7399 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 6.1550 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 6
Test Time: 17:21-18:21

Data Input:

Average chart reading (C):	14.16 ppm
Average pre/post-test zero calibration reading (C _o):	0.10 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.39 ppm
Stack gas volumetric flow rate (Q _{std}):	795,224 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 13.96 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 1.6677 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 1.3262 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 6
Test Time: 17:21-18:21

Data Input:

Average chart reading (C):	235.74 ppm
Average pre/post-test zero calibration reading (C _o):	0.18 ppm
Calibration gas concentration (C _{ma}):	180.0 ppm
Average pre/post-test calibration gas reading (C _m):	179.40 ppm
Stack gas volumetric flow rate (Q _{std}):	795,224 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.42 %
Carbon Dioxide Concentration (%CO ₂):	4.35 %
Nitrogen Concentration (%N ₂):	93.23 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 236.58 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas,lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 17.2004 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas,lb/hr}} = C_{\text{gas,lb/dscf}} \times Q_{\text{std}} = 13.6782 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$= 174.8 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPC LLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 7

Data Input:

Volume metered (V _m):	45.098 ft
Meter calibration coefficient (Y _d):	0.993 dimensionless
Barometric pressure (P _{bar}):	29.32 inches Hg
Meter sample rate (ΔH):	1.70 inches H ₂ O
Meter inlet/outlet temperature (T _m):	73.5 °F
Volume of moisture collected (V _{lc}):	92.4 milliliters
Stack Temperature (T _s):	1,273.7 °F
Static Pressure (St):	-0.6 inches H ₂ O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{mstd} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 43.617 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.349 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0907 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 9.07 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 962.9 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 744.76 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt{10^{\left(A \left(\frac{B}{(T_{s(K)} - C) \right) \right)}}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,913.1840 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 291318.40 \%$$

Percent moisture used for emissions calculations:

$$= 9.07 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 7

Data Input

Carbon Dioxide (CO ₂):	4.3 %
Oxygen (O ₂):	2.4 %
Nitrogen (N ₂):	93.4 %
Fractional Moisture Content (B _{ws})	0.0907 dimensionless
Stack Temperature (T _s):	1,273.7 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3489 inches H ₂ O
Barometric Pressure (P _{bar}):	29.32 inches Hg
Static Pressure (S _t)	-0.57 inches H ₂ O
Stack diameter:	64.00 inches
Stack area (A _s):	22.3402 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.781 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.804 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_t}{13.6} \right) = 29.278 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 36.565 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 49,012 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 14,606 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 876,376 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 13,282 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 796,912 \text{ dscfh}$$



Company: MPCLLC
 Location: Robinson, IL
 Source: SRU Stack: 66F-3
 Test Date: 2/28/2007
 Run #: 7
 Test Time: 18:40-19:40

Reference Method Monitor Data
One-Minute Averages

		Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor								
Analyzer Type:	Oxygen	18 : 40	0					
Analyzer Scale:	20.00 %	18 : 41	1	2.29	4.26	45.9	13.8	238.2
Pre-test calibration span value:	9.93 %	18 : 42	2	2.38	4.26	46.6	13.9	237.8
Post-test calibration span value:	9.95 %	18 : 43	3	2.34	4.27	47.2	13.9	243.6
Pre-test calibration zero value:	0.02 %	18 : 44	4	2.41	4.23	47.5	13.9	299.7
Post-test calibration zero value:	0.00 %	18 : 45	5	2.46	4.24	48.5	13.9	301.4
Calibration gas type:	Protocol 1 Oxygen %	18 : 46	6	2.45	4.25	47.7	14.0	278.5
Calibration gas concentration:	10.00 %	18 : 47	7	2.41	4.26	47.6	14.1	205.1
Monitor uncorrected average:	2.34 %	18 : 48	8	2.27	4.29	48.4	14.0	189.1
Monitor drift corrected average:	2.35 %	18 : 49	9	2.36	4.28	48.5	14.1	238.2
		18 : 50	10	2.38	4.26	48.1	14.1	207.2
Reference Method CO₂ Monitor								
Analyzer Type:	Carbon Dioxide	18 : 51	11	2.31	4.28	48.4	14.0	234.6
Analyzer Scale:	20.00 %	18 : 52	12	2.37	4.27	46.6	14.1	213.7
Pre-test calibration span value:	9.94 %	18 : 53	13	2.27	4.29	45.8	14.0	214.8
Post-test calibration span value:	9.95 %	18 : 54	14	2.32	4.27	46.0	14.0	185.2
Pre-test calibration zero value:	0.03 %	18 : 55	15	2.32	4.27	46.1	14.0	221.6
Post-test calibration zero value:	-0.03 %	18 : 56	16	2.36	4.28	46.2	14.0	229.6
Calibration gas type:	Protocol 1 CO ₂ %	18 : 57	17	2.34	4.28	45.9	14.0	228.9
Calibration gas concentration:	10.00 %	18 : 58	18	2.42	4.24	45.4	13.9	244.1
Monitor uncorrected average:	4.27 %	18 : 59	19	2.32	4.28	46.1	14.0	222.5
Monitor drift corrected average:	4.29 %	19 : 0	20	2.34	4.27	46.7	13.9	216.4
		19 : 1	21	2.31	4.28	47.1	14.0	243.2
Reference Method SO₂ Monitor								
Analyzer Type:	Sulfur Dioxide	19 : 2	22	2.34	4.28	46.6	13.9	227.4
Analyzer Scale:	88.67 ppm	19 : 3	23	2.35	4.27	45.2	14.1	201.0
Pre-test calibration span value:	45.36 ppm	19 : 4	24	2.30	4.28	45.7	14.0	189.7
Post-test calibration span value:	45.47 ppm	19 : 5	25	2.32	4.29	45.8	14.0	186.2
Pre-test calibration zero value:	-0.32 ppm	19 : 6	26	2.29	4.31	46.1	14.1	152.2
Post-test calibration zero value:	0.04 ppm	19 : 7	27	2.19	4.32	46.7	14.0	146.5
Calibration gas type:	Protocol 1 SO ₂ ppm	19 : 8	28	2.35	4.26	46.3	14.1	222.7
Calibration gas concentration:	45.00 ppm	19 : 9	29	2.39	4.26	44.3	14.0	227.6
Monitor uncorrected average:	46.09 ppm	19 : 10	30	2.38	4.27	45.0	14.0	217.1
Monitor drift corrected average:	45.67 ppm	19 : 11	31	2.38	4.24	45.0	14.0	236.1
		19 : 12	32	2.45	4.25	45.0	14.0	255.5
Reference Method NO_x Monitor								
Analyzer Type:	Oxides of Nitrogen	19 : 13	33	2.32	4.29	45.7	13.9	192.1
Analyzer Scale:	88.99 ppm	19 : 14	34	2.34	4.28	45.4	13.9	201.2
Pre-test calibration span value:	45.40 ppm	19 : 15	35	2.38	4.27	43.5	14.0	227.2
Post-test calibration span value:	45.33 ppm	19 : 16	36	2.40	4.26	44.2	14.0	232.5
Pre-test calibration zero value:	0.09 ppm	19 : 17	37	2.37	4.27	45.1	14.0	200.7
Post-test calibration zero value:	0.13 ppm	19 : 18	38	2.38	4.26	45.6	14.1	213.9
Calibration gas type:	Protocol 1 NO _x ppm	19 : 19	39	2.36	4.27	46.3	14.0	226.7
Calibration gas concentration:	45.00 ppm	19 : 20	40	2.31	4.27	45.7	13.9	193.6
Monitor uncorrected average:	14.00 ppm	19 : 21	41	2.32	4.27	44.0	14.1	188.1
Monitor drift corrected average:	13.82 ppm	19 : 22	42	2.28	4.29	45.2	14.0	220.4
		19 : 23	43	2.29	4.29	46.0	14.0	200.1
Reference Method CO Monitor								
Analyzer Type:	Carbon Monoxide	19 : 24	44	2.43	4.24	45.9	14.0	240.1
Analyzer Scale:	500.00 ppm	19 : 25	45	2.31	4.29	45.7	14.0	159.5
Pre-test calibration span value:	179.59 ppm	19 : 26	46	2.20	4.31	46.2	14.0	163.8
Post-test calibration span value:	179.41 ppm	19 : 27	47	2.31	4.27	46.2	14.1	185.8
Pre-test calibration zero value:	0.26 ppm	19 : 28	48	2.20	4.31	46.6	14.0	204.7
Post-test calibration zero value:	0.51 ppm	19 : 29	49	2.44	4.24	44.6	14.0	252.6
Calibration gas type:	Protocol 1 CO ppm	19 : 30	50	2.40	4.25	45.0	14.0	243.6
Calibration gas concentration:	180.00 ppm	19 : 31	51	2.43	4.24	45.6	14.0	209.1
Monitor uncorrected average:	215.67 ppm	19 : 32	52	2.28	4.29	46.0	14.0	137.8
Monitor drift corrected average:	216.35 ppm	19 : 33	53	2.27	4.30	46.9	14.1	178.2
		19 : 34	54	2.28	4.28	46.9	14.0	216.2
		19 : 35	55	2.33	4.28	46.8	13.9	200.6
		19 : 36	56	2.34	4.28	45.8	14.1	180.8
		19 : 37	57	2.28	4.29	44.7	14.1	142.4
		19 : 38	58	2.27	4.29	45.8	14.0	204.6
		19 : 39	59	2.51	4.22	46.0	14.0	308.5
		19 : 40	60	2.47	4.26	45.7	14.0	259.9
AVERAGE:				2.34	4.27	46.09	14.00	215.67



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 7
Test Time: 18:40-19:40

Data Input:

Average chart reading (C):	2.34 %
Average pre/post-test zero calibration reading (C _o):	0.01 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.94 %
Stack gas volumetric flow rate (Q _{std}):	796,912 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.35 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 7
Test Time: 18:40-19:40

Data Input:

Average chart reading (C):	4.27 %
Average pre/post-test zero calibration reading (C _o):	0.00 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.95 %
Stack gas volumetric flow rate (Q _{std}):	796,912 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 4.29 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 7
Test Time: 18:40-19:40

Data Input:

Average chart reading (C):	46.09 ppm
Average pre/post-test zero calibration reading (C _o):	-0.14 ppm
Calibration gas concentration (C _{ma}):	45.00 ppm
Average pre/post-test calibration gas reading (C _m):	45.41 ppm
Stack gas volumetric flow rate (Q _{std}):	796,912 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide
Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 45.67 \text{ ppm}$$

Sulfur Dioxide
Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 7.5879 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide
Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 6.0468 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 7
Test Time: 18:40-19:40

Data Input:

Average chart reading (C):	14.00 ppm
Average pre/post-test zero calibration reading (C _o):	0.11 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.36 ppm
Stack gas volumetric flow rate (Q _{std}):	796,912 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 13.82 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 1.6500 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 1.3149 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 7
Test Time: 18:40-19:40

Data Input:

Average chart reading (C):	215.67 ppm
Average pre/post-test zero calibration reading (C _o):	0.39 ppm
Calibration gas concentration (C _{ma}):	180.0 ppm
Average pre/post-test calibration gas reading (C _m):	179.50 ppm
Stack gas volumetric flow rate (Q _{std}):	796,912 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.35 %
Carbon Dioxide Concentration (%CO ₂):	4.29 %
Nitrogen Concentration (%N ₂):	93.35 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 216.35 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3 / \text{lb-mole}} \right) = 15.7298 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 12.5353 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$= 159.3 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPC LLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 8

Data Input:

Volume metered (V_m): 45.065 ft
Meter calibration coefficient (Y_d): 0.993 dimensionless
Barometric pressure (P_{bar}): 29.32 inches Hg
Meter sample rate (ΔH): 1.70 inches H_2O
Meter inlet/outlet temperature (T_m): 72.7 °F
Volume of moisture collected (V_{lc}): 93.1 milliliters
Stack Temperature (T_s): 1,273.3 °F
Static Pressure (St): -0.6 inches H_2O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ "Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 43.650 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.382 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0912 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 9.12 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 962.6 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 744.76 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt{10^{\left(\frac{A \left(\frac{B}{(T_{s(K)} - C)} \right) \right)}}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 2,909.5547 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 290955.47 \%$$

Percent moisture used for emissions calculations:

$$= 9.12 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 2/28/2007
Run #: 8

Data Input

Carbon Dioxide (CO ₂):	4.3 %
Oxygen (O ₂):	2.3 %
Nitrogen (N ₂):	93.3 %
Fractional Moisture Content (B _{ws})	0.0912 dimensionless
Stack Temperature (T _s):	1,273.3 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3483 inches H ₂ O
Barometric Pressure (P _{bar}):	29.32 inches Hg
Static Pressure (S)	-0.57 inches H ₂ O
Stack diameter:	64.00 inches
Stack area (A _s):	22.3402 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.789 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.805 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S}{13.6} \right) = 29.278 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 36.491 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 48,913 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 14,581 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 874,846 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 13,250 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 795,030 \text{ dscfh}$$



Company: MPCLLC
 Location: Robinson, IL
 Source: SRU Stack: 66F-3
 Test Date: 2/28/2007
 Run #: 8
 Test Time: 19:57-20:57

Reference Method Monitor Data
One-Minute Averages

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:	19 : 57	0					
Analyzer Scale:	19 : 58	1	2.41	4.33	43.9	13.9	246.1
Pre-test calibration span value:	19 : 59	2	2.43	4.30	45.3	13.8	253.2
Post-test calibration span value:	20 : 0	3	2.41	4.32	46.4	13.8	219.2
Pre-test calibration zero value:	20 : 1	4	2.30	4.35	47.2	14.0	175.7
Post-test calibration zero value:	20 : 2	5	2.34	4.34	49.5	14.0	160.3
Calibration gas type:	20 : 3	6	2.23	4.36	51.7	14.6	137.9
Calibration gas concentration:	20 : 4	7	2.24	4.33	51.2	14.3	186.6
Monitor uncorrected average:	20 : 5	8	2.37	4.30	50.2	14.1	281.2
Monitor drift corrected average:	20 : 6	9	2.34	4.34	49.3	14.0	183.4
Reference Method CO₂ Monitor							
Analyzer Type:	20 : 7	10	2.27	4.35	49.5	14.0	164.8
Analyzer Scale:	20 : 8	11	2.31	4.33	49.0	14.0	190.4
Pre-test calibration span value:	20 : 9	12	2.27	4.35	48.7	14.0	164.6
Post-test calibration span value:	20 : 10	13	2.21	4.37	47.3	14.1	128.0
Pre-test calibration zero value:	20 : 11	14	2.17	4.36	46.8	14.1	140.6
Post-test calibration zero value:	20 : 12	15	2.17	4.35	46.8	14.0	183.2
Calibration gas type:	20 : 13	16	2.27	4.34	46.1	14.0	237.9
Calibration gas concentration:	20 : 14	17	2.33	4.33	45.4	14.0	247.7
Monitor uncorrected average:	20 : 15	18	2.30	4.33	45.7	14.0	239.3
Monitor drift corrected average:	20 : 16	19	2.40	4.30	45.4	14.0	246.3
Reference Method SO₂ Monitor							
Analyzer Type:	20 : 17	20	2.30	4.32	45.6	13.9	211.1
Analyzer Scale:	20 : 18	21	2.37	4.31	46.0	13.9	239.2
Pre-test calibration span value:	20 : 19	22	2.42	4.31	45.9	13.9	266.1
Post-test calibration span value:	20 : 20	23	2.42	4.29	46.3	13.9	239.9
Pre-test calibration zero value:	20 : 21	24	2.37	4.29	47.2	14.0	273.9
Post-test calibration zero value:	20 : 22	25	2.28	4.32	47.6	13.9	272.0
Calibration gas type:	20 : 23	26	2.34	4.31	47.3	13.8	350.0
Calibration gas concentration:	20 : 24	27	2.37	4.33	47.1	13.9	240.7
Monitor uncorrected average:	20 : 25	28	2.28	4.34	47.2	13.9	193.9
Monitor drift corrected average:	20 : 26	29	2.29	4.33	47.8	14.0	213.6
Reference Method NO_x Monitor							
Analyzer Type:	20 : 27	30	2.26	4.31	47.5	13.8	269.5
Analyzer Scale:	20 : 28	31	2.36	4.30	47.3	13.9	331.4
Pre-test calibration span value:	20 : 29	32	2.39	4.31	46.8	13.9	294.7
Post-test calibration span value:	20 : 30	33	2.33	4.33	47.2	13.9	314.2
Pre-test calibration zero value:	20 : 31	34	2.30	4.33	46.8	13.8	226.0
Post-test calibration zero value:	20 : 32	35	2.31	4.34	47.0	13.9	194.8
Calibration gas type:	20 : 33	36	2.26	4.36	47.7	14.0	172.8
Calibration gas concentration:	20 : 34	37	2.28	4.33	48.5	13.9	195.5
Monitor uncorrected average:	20 : 35	38	2.34	4.32	48.6	13.9	235.5
Monitor drift corrected average:	20 : 36	39	2.30	4.33	48.5	13.9	259.6
Reference Method CO Monitor							
Analyzer Type:	20 : 37	40	2.41	4.31	47.3	13.8	263.0
Analyzer Scale:	20 : 38	41	2.34	4.32	47.4	13.9	241.0
Pre-test calibration span value:	20 : 39	42	2.42	4.30	46.9	13.9	233.0
Post-test calibration span value:	20 : 40	43	2.30	4.34	47.2	13.9	204.0
Pre-test calibration zero value:	20 : 41	44	2.36	4.32	47.1	13.9	201.5
Post-test calibration zero value:	20 : 42	45	2.29	4.34	47.5	13.9	220.3
Calibration gas type:	20 : 43	46	2.32	4.31	48.1	13.9	261.3
Calibration gas concentration:	20 : 44	47	2.36	4.31	48.1	14.0	314.9
Monitor uncorrected average:	20 : 45	48	2.38	4.32	47.7	13.9	284.4
Monitor drift corrected average:	20 : 46	49	2.24	4.36	48.4	13.9	212.4
Reference Method CO₂ Monitor							
Analyzer Type:	20 : 47	50	2.25	4.37	47.7	13.9	179.3
Analyzer Scale:	20 : 48	51	2.32	4.35	48.4	13.9	225.2
Pre-test calibration span value:	20 : 49	52	2.29	4.34	48.5	13.8	237.6
Post-test calibration span value:	20 : 50	53	2.33	4.33	48.0	13.9	288.0
Pre-test calibration zero value:	20 : 51	54	2.38	4.32	47.7	13.9	371.3
Post-test calibration zero value:	20 : 52	55	2.46	4.32	47.1	13.9	312.4
Calibration gas type:	20 : 53	56	2.32	4.37	47.2	14.0	255.7
Calibration gas concentration:	20 : 54	57	2.37	4.34	46.9	14.0	232.4
Monitor uncorrected average:	20 : 55	58	2.27	4.38	46.6	14.0	182.9
Monitor drift corrected average:	20 : 56	59	2.31	4.37	47.5	14.0	220.5
AVERAGE:							
	20 : 57	60	2.35	4.34	48.0	13.9	240.8
			2.32	4.33	47.48	13.96	232.72



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 8
Test Time: 19:57-20:57

Data Input:

Average chart reading (C):	2.32 %
Average pre/post-test zero calibration reading (C _o):	0.01 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.94 %
Stack gas volumetric flow rate (Q _{std}):	795,030 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.33 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 8
Test Time: 19:57-20:57

Data Input:

Average chart reading (C):	4.33 %
Average pre/post-test zero calibration reading (C _o):	-0.04 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.96 %
Stack gas volumetric flow rate (Q _{std}):	794,981 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.37 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 8
Test Time: 19:57-20:57

Data Input:

Average chart reading (C):	47.48 ppm
Average pre/post-test zero calibration reading (C _o):	-0.03 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.62 ppm
Stack gas volumetric flow rate (Q _{std}):	795,030 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 46.84 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 7.7823 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 6.1871 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 8
Test Time: 19:57-20:57

Data Input:

Average chart reading (C):	13.96 ppm
Average pre/post-test zero calibration reading (C _o):	0.09 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.32 ppm
Stack gas volumetric flow rate (Q _{std}):	795,030 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 13.80 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 1.6478 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 1.3101 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 2/28/2007
Test Run #: 8
Test Time: 19:57-20:57

Data Input:

Average chart reading (C):	232.72 ppm
Average pre/post-test zero calibration reading (C _o):	0.56 ppm
Calibration gas concentration (C _{ma}):	180.0 ppm
Average pre/post-test calibration gas reading (C _m):	180.15 ppm
Stack gas volumetric flow rate (Q _{std}):	795,030 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.33 %
Carbon Dioxide Concentration (%CO ₂):	4.35 %
Nitrogen Concentration (%N ₂):	93.32 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 232.69 \text{ ppm}$$

**Carbon Monoxide
Concentration:**

$$C_{\text{gas,lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 16.9173 \times 10^{-6} \text{ lbs/dscf}$$

**Carbon Monoxide
Emission rate:**

$$E_{\text{gas,lb/hr}} = C_{\text{gas,lb/dscf}} \times Q_{\text{std}} = 13.4498 \text{ lbs/hr}$$

**Carbon Monoxide
Concentration corrected to 50% excess air:**

$$= 171.2 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 3/1/2007
Run #: 9

Data Input:

Volume metered (V_m): 45.982 ft
Meter calibration coefficient (Y_d): 0.993 dimensionless
Barometric pressure (P_{bar}): 29.00 inches Hg
Meter sample rate (ΔH): 1.70 inches H_2O
Meter inlet/outlet temperature (T_m): 77.9 °F
Volume of moisture collected (V_{lc}): 94.9 milliliters
Stack Temperature (T_s): 1,292.0 °F
Static Pressure (St): -0.6 inches H_2O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ "Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 43.629 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.467 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0929 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 9.29 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 973.1 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{St}{13.6} \right) \times 25.401 = 736.63 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt[10]{\left(\frac{B}{(T_{s(K)} - C)} \right)}}{P_{s(\text{mmHg})}} \quad \text{where:} \quad \begin{aligned} A &= 8.361 \\ B &= 1893.5 \\ C &= 27.65 \end{aligned} = 3,096.7623 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 309676.23 \%$$

Percent moisture used for emissions calculations:

$$= 9.29 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 3/1/2007
Run #: 9

Data Input

Carbon Dioxide (CO ₂):	4.5 %
Oxygen (O ₂):	2.0 %
Nitrogen (N ₂):	93.5 %
Fractional Moisture Content (B _{ws})	0.0929 dimensionless
Stack Temperature (T _s):	1,292.0 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3477 inches H ₂ O
Barometric Pressure (P _{bar}):	29.00 inches Hg
Static Pressure (S _i)	-0.57 inches H ₂ O
Stack diameter:	64.00 inches
Stack area (A _s):	22.3402 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.797 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.794 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_i}{13.6} \right) = 28.958 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 36.838 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 49,379 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 14,403 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 864,176 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 13,065 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 783,915 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPC LLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Run #: 9
Test Time: 08:00-09:00

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type: Oxygen	08 : 00	0					
Analyzer Scale: 20.00 %	08 : 01	1	2.22	4.45	58.2	14.1	208.5
Pre-test calibration span value: 10.01 %	08 : 02	2	2.00	4.48	61.1	14.1	162.7
Post-test calibration span value: 10.01 %	08 : 03	3	1.84	4.53	63.5	14.1	119.5
Pre-test calibration zero value: -0.01 %	08 : 04	4	1.93	4.51	63.5	14.1	123.3
Post-test calibration zero value: 0.02 %	08 : 05	5	1.78	4.53	65.5	14.1	100.1
Calibration gas type: Protocol 1 Oxygen %	08 : 06	6	1.85	4.51	66.4	14.1	181.3
Calibration gas concentration: 10.00 %	08 : 07	7	1.93	4.49	65.7	14.0	303.3
Monitor uncorrected average: 2.04 %	08 : 08	8	2.13	4.45	62.3	14.1	226.4
Monitor drift corrected average: 2.04 %	08 : 09	9	1.92	4.50	62.6	14.2	163.5
Reference Method CO₂ Monitor							
Analyzer Type: Carbon Dioxide	08 : 10	10	2.01	4.46	62.0	14.2	220.8
Analyzer Scale: 20.00 %	08 : 11	11	2.04	4.46	61.5	14.2	213.1
Pre-test calibration span value: 10.03 %	08 : 12	12	2.02	4.45	63.1	14.2	220.0
Post-test calibration span value: 10.07 %	08 : 13	13	2.04	4.44	65.3	14.1	252.8
Pre-test calibration zero value: -0.05 %	08 : 14	14	2.03	4.45	65.1	14.2	290.8
Post-test calibration zero value: 0.03 %	08 : 15	15	1.95	4.50	62.9	14.2	200.0
Calibration gas type: Protocol 1 CO ₂ %	08 : 16	16	1.99	4.48	63.3	14.2	232.6
Calibration gas concentration: 10.00 %	08 : 17	17	2.12	4.45	63.0	14.2	225.3
Monitor uncorrected average: 4.49 %	08 : 18	18	1.84	4.52	64.1	14.2	144.8
Monitor drift corrected average: 4.47 %	08 : 19	19	1.84	4.50	64.8	14.2	116.3
Reference Method SO₂ Monitor							
Analyzer Type: Sulfur Dioxide	08 : 20	20	1.82	4.51	65.9	14.2	249.5
Analyzer Scale: 88.67 ppm	08 : 21	21	2.12	4.46	64.1	14.3	301.9
Pre-test calibration span value: 45.26 ppm	08 : 22	22	1.93	4.52	64.1	14.3	162.6
Post-test calibration span value: 44.67 ppm	08 : 23	23	1.99	4.50	64.2	14.4	225.4
Pre-test calibration zero value: 0.31 ppm	08 : 24	24	2.11	4.47	63.1	14.4	209.1
Post-test calibration zero value: -0.33 ppm	08 : 25	25	2.01	4.50	63.1	14.3	177.9
Calibration gas type: Protocol 1 SO ₂ ppm	08 : 26	26	1.80	4.55	64.9	14.3	117.3
Calibration gas concentration: 45.00 ppm	08 : 27	27	1.99	4.49	64.9	14.4	224.6
Monitor uncorrected average: 62.68 ppm	08 : 28	28	2.12	4.46	63.6	14.4	264.5
Monitor drift corrected average: 62.72 ppm	08 : 29	29	2.05	4.49	62.8	14.4	270.3
Reference Method NO_x Monitor							
Analyzer Type: Oxides of Nitrogen	08 : 30	30	2.01	4.51	62.1	14.5	161.8
Analyzer Scale: 88.99 ppm	08 : 31	31	2.09	4.49	62.7	14.4	217.2
Pre-test calibration span value: 45.01 ppm	08 : 32	32	2.03	4.52	62.2	14.4	169.1
Post-test calibration span value: 45.02 ppm	08 : 33	33	1.99	4.53	63.0	14.5	159.4
Pre-test calibration zero value: 0.22 ppm	08 : 34	34	2.24	4.45	63.0	14.5	217.4
Post-test calibration zero value: 0.05 ppm	08 : 35	35	2.20	4.45	62.8	14.5	285.4
Calibration gas type: Protocol 1 NO _x ppm	08 : 36	36	2.17	4.48	62.3	14.5	265.2
Calibration gas concentration: 45.00 ppm	08 : 37	37	2.13	4.49	61.7	14.5	204.3
Monitor uncorrected average: 14.39 ppm	08 : 38	38	2.09	4.50	61.4	14.5	161.4
Monitor drift corrected average: 14.29 ppm	08 : 39	39	2.20	4.47	61.5	14.6	223.3
Reference Method CO Monitor							
Analyzer Type: Carbon Monoxide	08 : 40	40	2.22	4.46	61.3	14.5	246.1
Analyzer Scale: 500.00 ppm	08 : 41	41	2.17	4.47	61.5	14.5	259.3
Pre-test calibration span value: 181.65 ppm	08 : 42	42	2.20	4.49	61.1	14.6	230.1
Post-test calibration span value: 181.27 ppm	08 : 43	43	2.18	4.47	61.0	14.6	215.7
Pre-test calibration zero value: 0.53 ppm	08 : 44	44	2.14	4.49	61.4	14.6	145.8
Post-test calibration zero value: 0.85 ppm	08 : 45	45	1.98	4.53	63.0	14.6	110.8
Calibration gas type: Protocol 1 CO ppm	08 : 46	46	1.80	4.57	65.0	14.5	117.6
Calibration gas concentration: 180.00 ppm	08 : 47	47	1.98	4.54	64.5	14.5	170.9
Monitor uncorrected average: 200.75 ppm	08 : 48	48	1.93	4.54	64.0	14.6	168.8
Monitor drift corrected average: 199.20 ppm	08 : 49	49	2.12	4.49	62.5	14.6	204.0
Reference Method CO₂ Monitor							
Analyzer Type: Carbon Dioxide	08 : 50	50	2.11	4.49	61.9	14.6	141.2
Analyzer Scale: 500.00 ppm	08 : 51	51	2.01	4.51	61.6	14.7	155.9
Pre-test calibration span value: 181.65 ppm	08 : 52	52	2.17	4.47	61.1	14.6	194.6
Post-test calibration span value: 181.27 ppm	08 : 53	53	2.16	4.47	60.3	14.6	174.8
Pre-test calibration zero value: 0.53 ppm	08 : 54	54	2.13	4.47	61.2	14.6	242.2
Post-test calibration zero value: 0.85 ppm	08 : 55	55	2.22	4.44	60.8	14.5	285.1
Calibration gas type: Protocol 1 CO ₂ ppm	08 : 56	56	2.31	4.44	59.7	14.6	328.8
Calibration gas concentration: 180.00 ppm	08 : 57	57	2.07	4.49	60.1	14.5	170.7
Monitor uncorrected average: 200.75 ppm	08 : 58	58	1.94	4.54	61.0	14.6	152.9
Monitor drift corrected average: 199.20 ppm	08 : 59	59	2.06	4.51	60.7	14.7	147.0
Reference Method CO₂ Monitor							
Analyzer Type: Carbon Dioxide	9 : 00	60	2.12	4.48	60.4	14.6	209.5
AVERAGE:			2.04	4.49	62.68	14.39	200.75



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 9
Test Time: 08:00-09:00

Data Input:

Average chart reading (C):	2.04 %
Average pre/post-test zero calibration reading (C _o):	0.01 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.01 %
Stack gas volumetric flow rate (Q _{std}):	783,915 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.04 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 9
Test Time: 08:00-09:00

Data Input:

Average chart reading (C):	4.49 %
Average pre/post-test zero calibration reading (C _o):	-0.01 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.05 %
Stack gas volumetric flow rate (Q _{std}):	783,915 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 4.47 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 9
Test Time: 08:00-09:00

Data Input:

Average chart reading (C):	62.68 ppm
Average pre/post-test zero calibration reading (C _o):	-0.01 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	44.97 ppm
Stack gas volumetric flow rate (Q _{std}):	783,915 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 62.72 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 10.4212 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 8.1694 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 9
Test Time: 08:00-09:00

Data Input:

Average chart reading (C):	14.39 ppm
Average pre/post-test zero calibration reading (C _o):	0.14 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.02 ppm
Stack gas volumetric flow rate (Q _{std}):	783,915 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 14.29 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 1.7063 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 1.3376 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 9
Test Time: 08:00-09:00

Data Input:

Average chart reading (C):	200.75 ppm
Average pre/post-test zero calibration reading (C _o):	0.69 ppm
Calibration gas concentration (C _{ma}):	180.0 ppm
Average pre/post-test calibration gas reading (C _m):	181.46 ppm
Stack gas volumetric flow rate (Q _{std}):	783,915 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.04 %
Carbon Dioxide Concentration (%CO ₂):	4.46 %
Nitrogen Concentration (%N ₂):	93.50 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 199.20 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 14.4826 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 11.3532 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$= 144.6 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 3/1/2007
Run #: 10

Data Input:

Volume metered (V_m): 45.772 ft
Meter calibration coefficient (Y_d): 0.993 dimensionless
Barometric pressure (P_{bar}): 29.00 inches Hg
Meter sample rate (ΔH): 1.70 inches H₂O
Meter inlet/outlet temperature (T_m): 83.8 °F
Volume of moisture collected (V_{lc}): 94.4 milliliters
Stack Temperature (T_s): 1,292.3 °F
Static Pressure (St): -0.6 inches H₂O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ "Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 42.958 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.443 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0937 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 9.37 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 973.2 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 736.63 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt{10^{\left(A \left(\frac{B}{(T_{s(K)} - C) \right) \right)}}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 3,098.8609 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 309886.09 \%$$

Percent moisture used for emissions calculations:

$$= 9.37 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 3/1/2007
Run #: 10

Data Input

Carbon Dioxide (CO ₂):	4.4 %
Oxygen (O ₂):	2.1 %
Nitrogen (N ₂):	93.4 %
Fractional Moisture Content (B _{ws})	0.0937 dimensionless
Stack Temperature (T _s):	1,292.3 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3480 inches H ₂ O
Barometric Pressure (P _{bar}):	29.00 inches Hg
Static Pressure (S _i)	-0.55 inches H ₂ O
Stack diameter:	64.00 inches
Stack area (A _s):	22.3402 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.793 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.782 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_i}{13.6} \right) = 28.960 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 36.875 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 49,428 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 14,416 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 864,950 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 13,064 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 783,870 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Run #: 10
Test Time: 09:22-10:22

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:	09 : 22	0					
Analyzer Scale:	09 : 23	1	2.26	4.43	58.5	14.2	320.7
Pre-test calibration span value:	09 : 24	2	2.20	4.43	60.1	14.3	293.0
Post-test calibration span value:	09 : 25	3	2.23	4.41	62.1	14.3	284.9
Pre-test calibration zero value:	09 : 26	4	2.20	4.43	62.4	14.4	267.2
Post-test calibration zero value:	09 : 27	5	2.14	4.44	62.9	14.5	240.5
Calibration gas type:	09 : 28	6	2.16	4.42	63.6	14.4	326.3
Calibration gas concentration:	09 : 29	7	2.17	4.42	63.1	14.5	342.6
Monitor uncorrected average:	09 : 30	8	1.97	4.49	62.5	14.4	258.3
Monitor drift corrected average:	09 : 31	9	2.19	4.44	60.9	14.5	370.6
Reference Method CO₂ Monitor							
Analyzer Type:	09 : 32	10	2.26	4.42	59.6	14.5	314.1
Analyzer Scale:	09 : 33	11	2.08	4.45	59.8	14.5	242.6
Pre-test calibration span value:	09 : 34	12	2.17	4.41	60.9	14.4	291.0
Post-test calibration span value:	09 : 35	13	2.01	4.47	61.8	14.4	278.7
Pre-test calibration zero value:	09 : 36	14	2.20	4.42	61.0	14.5	350.3
Post-test calibration zero value:	09 : 37	15	2.20	4.42	60.2	14.5	315.2
Calibration gas type:	09 : 38	16	2.08	4.46	60.4	14.6	253.4
Calibration gas concentration:	09 : 39	17	2.08	4.46	61.3	14.5	225.4
Monitor uncorrected average:	09 : 40	18	2.07	4.44	62.5	14.6	193.5
Monitor drift corrected average:	09 : 41	19	2.04	4.45	62.9	14.5	337.2
Reference Method SO₂ Monitor							
Analyzer Type:	09 : 42	20	2.15	4.44	60.9	14.5	330.6
Analyzer Scale:	09 : 43	21	2.27	4.41	59.8	14.5	240.3
Pre-test calibration span value:	09 : 44	22	2.07	4.45	61.2	14.5	161.2
Post-test calibration span value:	09 : 45	23	2.15	4.45	60.6	14.6	187.6
Pre-test calibration zero value:	09 : 46	24	2.13	4.45	61.1	14.6	235.3
Post-test calibration zero value:	09 : 47	25	2.20	4.42	60.4	14.6	310.6
Calibration gas type:	09 : 48	26	2.21	4.43	59.5	14.6	292.8
Calibration gas concentration:	09 : 49	27	2.18	4.46	59.0	14.7	286.9
Monitor uncorrected average:	09 : 50	28	1.97	4.52	59.9	14.7	151.6
Monitor drift corrected average:	09 : 51	29	1.99	4.50	60.8	14.6	187.0
Reference Method NO_x Monitor							
Analyzer Type:	09 : 52	30	2.13	4.47	59.5	14.7	207.0
Analyzer Scale:	09 : 53	31	2.15	4.46	58.7	14.8	205.0
Pre-test calibration span value:	09 : 54	32	2.23	4.42	58.7	14.8	243.1
Post-test calibration span value:	09 : 55	33	2.23	4.43	58.3	14.8	251.6
Pre-test calibration zero value:	09 : 56	34	2.16	4.46	58.4	14.8	240.1
Post-test calibration zero value:	09 : 57	35	2.20	4.44	57.9	14.8	164.3
Calibration gas type:	09 : 58	36	2.00	4.50	58.7	14.7	139.0
Calibration gas concentration:	09 : 59	37	2.19	4.45	57.6	14.8	178.9
Monitor uncorrected average:	10 : 0	38	2.05	4.47	59.5	14.7	173.2
Monitor drift corrected average:	10 : 1	39	2.18	4.44	59.0	14.7	165.5
Reference Method CO Monitor							
Analyzer Type:	10 : 2	40	2.09	4.47	59.4	14.7	173.0
Analyzer Scale:	10 : 3	41	2.15	4.45	58.4	14.7	198.8
Pre-test calibration span value:	10 : 4	42	2.20	4.45	57.3	14.9	167.7
Post-test calibration span value:	10 : 5	43	2.08	4.46	58.3	14.8	169.4
Pre-test calibration zero value:	10 : 6	44	2.21	4.44	57.9	14.8	172.3
Post-test calibration zero value:	10 : 7	45	2.20	4.45	58.2	14.8	132.2
Calibration gas type:	10 : 8	46	2.03	4.50	59.3	14.8	96.8
Calibration gas concentration:	10 : 9	47	1.93	4.50	60.7	14.8	130.6
Monitor uncorrected average:	10 : 10	48	2.01	4.47	59.7	14.7	154.5
Monitor drift corrected average:	10 : 11	49	2.07	4.48	58.9	14.8	207.3
Reference Method CO₂ Monitor							
Analyzer Type:	10 : 12	50	2.25	4.43	58.3	14.8	179.8
Analyzer Scale:	10 : 13	51	2.06	4.47	59.4	14.8	135.0
Pre-test calibration span value:	10 : 14	52	2.12	4.45	59.3	14.7	170.3
Post-test calibration span value:	10 : 15	53	2.21	4.41	59.7	14.8	229.1
Pre-test calibration zero value:	10 : 16	54	2.16	4.42	59.6	14.6	245.2
Post-test calibration zero value:	10 : 17	55	2.25	4.42	59.1	14.7	280.8
Calibration gas type:	10 : 18	56	2.17	4.45	58.2	14.7	219.4
Calibration gas concentration:	10 : 19	57	2.19	4.44	58.3	14.7	210.2
Monitor uncorrected average:	10 : 20	58	2.06	4.49	59.0	14.7	143.0
Monitor drift corrected average:	10 : 21	59	2.04	4.50	58.8	14.8	151.1
AVERAGE:							
			2.13	4.45	59.88	14.63	226.20



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 10
Test Time: 09:22-10:22

Data Input:

Average chart reading (C):	2.13 %
Average pre/post-test zero calibration reading (C _o):	0.02 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.00 %
Stack gas volumetric flow rate (Q _{std}):	783,870 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.12 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 10
Test Time: 09:22-10:22

Data Input:

Average chart reading (C):	4.45 %
Average pre/post-test zero calibration reading (C _o):	0.03 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	10.01 %
Stack gas volumetric flow rate (Q _{std}):	783,870 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.43 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 10
Test Time: 09:22-10:22

Data Input:

Average chart reading (C):	59.88 ppm
Average pre/post-test zero calibration reading (C _o):	-0.58 ppm
Calibration gas concentration (C _{ma}):	45.00 ppm
Average pre/post-test calibration gas reading (C _m):	44.70 ppm
Stack gas volumetric flow rate (Q _{std}):	783,870 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 60.08 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb / dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb / lb - mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ / lb - mole}} \right) = 9.9826 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb / hr}} = C_{\text{gas, lb / dscf}} \times Q_{\text{std}} = 7.8251 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 10
Test Time: 09:22-10:22

Data Input:

Average chart reading (C):	14.63 ppm
Average pre/post-test zero calibration reading (C _o):	0.09 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.24 ppm
Stack gas volumetric flow rate (Q _{std}):	783,870 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 14.50 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb / dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb / lb - mole}}{385.26 \times 10^6 \text{ ft}^3 \text{ / lb - mole}} \right) = 1.7314 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb / hr}} = C_{\text{gas, lb / dscf}} \times Q_{\text{std}} = 1.3572 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 10
Test Time: 09:22-10:22

Data Input:

Average chart reading (C):	226.20 ppm
Average pre/post-test zero calibration reading (C _o):	0.84 ppm
Calibration gas concentration (C _{ma}):	180.0 ppm
Average pre/post-test calibration gas reading (C _m):	180.45 ppm
Stack gas volumetric flow rate (Q _{std}):	783,870 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.12 %
Carbon Dioxide Concentration (%CO ₂):	4.43 %
Nitrogen Concentration (%N ₂):	93.45 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 225.84 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 16.4196 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 12.8708 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$= 164.6 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 3/1/2007
Run #: 11

Data Input:

Volume metered (V_m):	45.545 ft
Meter calibration coefficient (Y_d):	0.993 dimensionless
Barometric pressure (P_{bar}):	28.97 inches Hg
Meter sample rate (ΔH):	1.70 inches H ₂ O
Meter inlet/outlet temperature (T_m):	85.4 °F
Volume of moisture collected (V_{lc}):	95.1 milliliters
Stack Temperature (T_s):	1,292.4 °F
Static Pressure (St):	-0.6 inches H ₂ O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 42.576 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.476 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0951 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 9.51 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 973.3 \text{ Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_t}{13.6} \right) \times 25.401 = 735.87 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt[10]{10^{\left(A \left(\frac{B}{(T_{s(K)} - C) \right) \right)}}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 3,102.9105 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 310291.05 \%$$

Percent moisture used for emissions calculations:

$$= 9.51 \%$$



USEPA Method 2
Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 3/1/2007
Run #: 11

Data Input

Carbon Dioxide (CO ₂):	4.5 %
Oxygen (O ₂):	2.2 %
Nitrogen (N ₂):	93.4 %
Fractional Moisture Content (B _{ws})	0.0951 dimensionless
Stack Temperature (T _s):	1,292.4 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3494 inches H ₂ O
Barometric Pressure (P _{bar}):	28.97 inches Hg
Static Pressure (S)	-0.57 inches H ₂ O
Stack diameter:	64.00 inches
Stack area (A _s):	22.3402 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.802 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.775 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S}{13.6} \right) = 28.928 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 37.055 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 49,668 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 14,470 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 868,173 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 13,093 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 785,579 \text{ dscfh}$$



**Reference Method Monitor Data
One-Minute Averages**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Run #: 11
Test Time: 10:40-11:40

	Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor							
Analyzer Type:	10 : 40	0					
Analyzer Scale:	10 : 41	1	2.19	4.44	57.6	14.5	210.9
Pre-test calibration span value:	10 : 42	2	2.26	4.43	57.6	14.6	232.8
Post-test calibration span value:	10 : 43	3	2.32	4.43	58.1	14.6	201.3
Pre-test calibration zero value:	10 : 44	4	2.14	4.46	58.9	14.7	127.8
Post-test calibration zero value:	10 : 45	5	2.15	4.43	60.6	14.7	156.7
Calibration gas type:	10 : 46	6	2.24	4.43	61.1	14.7	203.6
Calibration gas concentration:	10 : 47	7	2.16	4.47	60.4	14.7	214.0
Monitor uncorrected average:	10 : 48	8	2.20	4.46	59.3	14.9	192.5
Monitor drift corrected average:	10 : 49	9	2.14	4.48	58.7	14.9	158.0
Reference Method CO₂ Monitor							
Analyzer Type:	10 : 50	10	2.07	4.49	59.4	14.8	125.3
Analyzer Scale:	10 : 51	11	2.06	4.49	59.5	14.8	121.0
Pre-test calibration span value:	10 : 52	12	2.22	4.45	59.0	14.8	142.1
Post-test calibration span value:	10 : 53	13	2.12	4.47	59.3	14.8	146.1
Pre-test calibration zero value:	10 : 54	14	2.11	4.45	60.2	14.7	218.2
Post-test calibration zero value:	10 : 55	15	2.24	4.43	59.1	14.6	212.3
Calibration gas type:	10 : 56	16	2.21	4.45	58.9	14.7	174.2
Calibration gas concentration:	10 : 57	17	2.16	4.48	58.3	14.7	124.5
Monitor uncorrected average:	10 : 58	18	1.99	4.51	59.8	14.7	134.6
Monitor drift corrected average:	10 : 59	19	2.19	4.44	59.5	14.7	158.1
Reference Method SO₂ Monitor							
Analyzer Type:	11 : 0	20	2.22	4.41	59.6	14.7	260.8
Analyzer Scale:	11 : 1	21	2.35	4.41	58.5	14.6	249.8
Pre-test calibration span value:	11 : 2	22	2.10	4.49	58.7	14.6	112.7
Post-test calibration span value:	11 : 3	23	2.02	4.51	59.4	14.7	113.9
Pre-test calibration zero value:	11 : 4	24	2.15	4.46	59.4	14.7	137.6
Post-test calibration zero value:	11 : 5	25	2.10	4.45	60.3	14.7	145.7
Calibration gas type:	11 : 6	26	2.21	4.43	59.8	14.6	268.8
Calibration gas concentration:	11 : 7	27	2.37	4.40	58.3	14.6	284.4
Monitor uncorrected average:	11 : 8	28	2.27	4.44	57.9	14.7	168.1
Monitor drift corrected average:	11 : 9	29	2.16	4.45	59.4	14.6	122.6
Reference Method NO_x Monitor							
Analyzer Type:	11 : 10	30	2.27	4.42	59.3	14.7	176.5
Analyzer Scale:	11 : 11	31	2.19	4.43	59.7	14.6	175.0
Pre-test calibration span value:	11 : 12	32	2.19	4.44	59.9	14.5	215.6
Post-test calibration span value:	11 : 13	33	2.03	4.49	60.4	14.5	164.9
Pre-test calibration zero value:	11 : 14	34	2.21	4.42	60.0	14.5	194.2
Post-test calibration zero value:	11 : 15	35	1.97	4.48	61.2	14.5	137.6
Calibration gas type:	11 : 16	36	2.08	4.44	61.0	14.4	166.8
Calibration gas concentration:	11 : 17	37	2.09	4.46	61.1	14.4	196.3
Monitor uncorrected average:	11 : 18	38	2.11	4.43	62.0	14.4	190.3
Monitor drift corrected average:	11 : 19	39	2.13	4.42	62.5	14.5	276.8
Reference Method CO Monitor							
Analyzer Type:	11 : 20	40	2.14	4.44	62.1	14.4	324.0
Analyzer Scale:	11 : 21	41	2.29	4.42	61.0	14.5	329.4
Pre-test calibration span value:	11 : 22	42	2.07	4.47	61.6	14.5	172.7
Post-test calibration span value:	11 : 23	43	2.07	4.46	62.3	14.6	187.4
Pre-test calibration zero value:	11 : 24	44	2.13	4.43	62.4	14.5	282.6
Post-test calibration zero value:	11 : 25	45	2.10	4.47	62.3	14.4	284.7
Calibration gas type:	11 : 26	46	2.12	4.43	62.0	14.4	303.0
Calibration gas concentration:	11 : 27	47	2.30	4.40	61.2	14.5	281.3
Monitor uncorrected average:	11 : 28	48	2.23	4.45	60.4	14.6	197.5
Monitor drift corrected average:	11 : 29	49	2.12	4.44	60.8	14.5	177.4
Reference Method CO₂ Monitor							
Analyzer Type:	11 : 30	50	2.15	4.42	61.5	14.5	315.2
Analyzer Scale:	11 : 31	51	2.24	4.42	61.0	14.5	328.3
Pre-test calibration span value:	11 : 32	52	2.27	4.43	59.3	14.5	248.4
Post-test calibration span value:	11 : 33	53	2.08	4.49	59.3	14.5	135.7
Pre-test calibration zero value:	11 : 34	54	1.99	4.52	60.9	14.6	94.0
Post-test calibration zero value:	11 : 35	55	2.04	4.47	62.1	14.6	159.8
Calibration gas type:	11 : 36	56	2.17	4.44	61.7	14.6	231.9
Calibration gas concentration:	11 : 37	57	2.28	4.43	60.6	14.5	243.5
Monitor uncorrected average:	11 : 38	58	2.06	4.48	60.4	14.5	152.5
Monitor drift corrected average:	11 : 39	59	2.23	4.45	59.3	14.7	220.8
Reference Method CO Monitor							
Analyzer Type:	11 : 40	60	2.28	4.43	58.1	14.6	148.3
Analyzer Scale:							
Pre-test calibration span value:							
Post-test calibration span value:							
Pre-test calibration zero value:							
Post-test calibration zero value:							
Calibration gas type:							
Calibration gas concentration:							
Monitor uncorrected average:							
Monitor drift corrected average:							
AVERAGE:			2.16	4.45	60.06	14.60	197.17



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 11
Test Time: 10:40-11:40

Data Input:

Average chart reading (C):	2.16 %
Average pre/post-test zero calibration reading (C _o):	0.00 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.99 %
Stack gas volumetric flow rate (Q _{std}):	785,579 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 2.16 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 11
Test Time: 10:40-11:40

Data Input:

Average chart reading (C):	4.45 %
Average pre/post-test zero calibration reading (C _o):	0.00 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.94 %
Stack gas volumetric flow rate (Q _{std}):	785,579 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.47 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 11
Test Time: 10:40-11:40

Data Input:

Average chart reading (C):	60.06 ppm
Average pre/post-test zero calibration reading (C _o):	-0.71 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	44.47 ppm
Stack gas volumetric flow rate (Q _{std}):	785,579 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 60.53 \text{ ppm}$$

Sulfur Dioxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 10.0568 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 7.9004 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 11
Test Time: 10:40-11:40

Data Input:

Average chart reading (C):	14.60 ppm
Average pre/post-test zero calibration reading (C _o):	0.14 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.52 ppm
Stack gas volumetric flow rate (Q _{std}):	785,579 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 14.35 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 1.7132 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 1.3458 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 11
Test Time: 10:40-11:40

Data Input:

Average chart reading (C):	197.17 ppm
Average pre/post-test zero calibration reading (C _o):	0.96 ppm
Calibration gas concentration (C _{ma}):	180.0 ppm
Average pre/post-test calibration gas reading (C _m):	179.52 ppm
Stack gas volumetric flow rate (Q _{std}):	785,579 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	2.16 %
Carbon Dioxide Concentration (%CO ₂):	4.47 %
Nitrogen Concentration (%N ₂):	93.36 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 197.79 \text{ ppm}$$

**Carbon Monoxide
Concentration:**

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 14.3804 \times 10^{-6} \text{ lbs/dscf}$$

**Carbon Monoxide
Emission rate:**

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 11.2969 \text{ lbs/hr}$$

**Carbon Monoxide
Concentration corrected to 50% excess air:**

$$= 144.4 \text{ ppm, @50\% Excess Air}$$



USEPA Method 4 Moisture Determination Sample Calculations

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 3/1/2007
Run #: 12

Data Input:

Volume metered (V_m):	45.414 ft
Meter calibration coefficient (Y_d):	0.993 dimensionless
Barometric pressure (P_{bar}):	28.97 inches Hg
Meter sample rate (ΔH):	1.70 inches H ₂ O
Meter inlet/outlet temperature (T_m):	84.8 °F
Volume of moisture collected (V_{lc}):	92.4 milliliters
Stack Temperature (T_s):	1,291.2 °F
Static Pressure (St):	-0.6 inches H ₂ O

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Volume of sample, dry basis:

$$V_{m_{std}} = V_m \times Y_d \times \left(\frac{528.0^\circ R}{29.92 \text{ Hg}} \right) \times \left(\frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m + 460} \right) = 42.500 \text{ dscf}$$

Volume of water vapor in sample:

$$V_{wstd} = \frac{0.04707 \text{ ft}^3}{\text{ml}} \times V_{lc} = 4.349 \text{ scf}$$

Fractional moisture content of stack gas:

$$B_{ws} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})} = 0.0928 B_{wo}$$

Percent Moisture:

$$\% \text{moisture} = B_{ws} \times 100 = 9.28 \%$$

Fractional moisture content of stack gas at saturated conditions:

$$T_{s(K)} = T_s - 32 \times 0.5556 + 273 = 972.6 \text{ °Kelvin}$$

$$P_{s(\text{mmHg})} = \left(P_{bar} + \frac{S_i}{13.6} \right) \times 25.401 = 735.87 \text{ mm Hg}$$

$$B_{wos} = \frac{\sqrt[10]{\left(10^{\left(\frac{A \left(\frac{B}{(T_{s(K)} - C)} \right)} \right)} \right)}}{P_{s(\text{mmHg})}} \quad \begin{array}{l} \text{where:} \\ A = 8.361 \\ B = 1893.5 \\ C = 27.65 \end{array} = 3,093.2520 \%$$

Percent moisture at saturated conditions:

$$\% \text{moisture}_{\text{saturated}} = B_{wos} \times 100 = 309325.20 \%$$

Percent moisture used for emissions calculations:

$$= 9.28 \%$$



USEPA Method 2 Volumetric Flow Rate Sample Calculations (Circular Ducts)

Client: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Date: 3/1/2007
Run #: 12

Data Input

Carbon Dioxide (CO ₂):	4.5 %
Oxygen (O ₂):	3.0 %
Nitrogen (N ₂):	92.5 %
Fractional Moisture Content (B _{ws})	0.0928 dimensionless
Stack Temperature (T _s):	1,291.2 °F
Pitot Coefficient (C _p):	0.84 dimensionless
Average square root of ΔP	0.3483 inches H ₂ O
Barometric Pressure (P _{bar}):	28.97 inches Hg
Static Pressure (S _i)	-0.56 inches H ₂ O
Stack diameter:	64.00 inches
Stack area (A _s):	22.3402 ft ²

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Dry molecular weight of stack gas:

$$M_d = 0.44 \times \%CO_2 + 0.32 \times \%O_2 + 0.28 \times \%N_2 = 28.836 \text{ lb/lb-mole}$$

Molecular weight of stack gas, wet basis:

$$M_s = M_d \times 1 - B_{ws} + 18 \times B_{ws} = 27.830 \text{ lb/lb-mole}$$

Absolute stack gas pressure:

$$P_s = P_{bar} + \left(\frac{S_i}{13.6} \right) = 28.929 \text{ inches H}_2\text{O}$$

Stack gas velocity:

$$V_s = 85.49 \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_s + 460}{(P_s \times M_s)}} = 36.884 \text{ feet/second}$$

Stack gas volumetric flow rate:

$$Q_a = A_s \times V_s \times 60 = 49,439 \text{ acfm}$$

Stack gas volumetric flow rate, wet basis:

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] = 14,412 \text{ scfm}$$

$$Q_{sw} = Q_a \times \left[\left(\frac{528^\circ R}{29.92 \text{ in. Hg}} \right) \times \left(\frac{P_s}{T_s + 460} \right) \right] \times 60 = 864,745 \text{ scfh}$$

Stack gas volumetric flow rate, dry basis:

$$Q_{std} = Q_{sw} \times 1 - B_{ws} = 13,074 \text{ dscfm}$$

$$Q_{std} = Q_{sw} \times 1 - B_{ws} \times 60 = 784,466 \text{ dscfh}$$



Reference Method Monitor Data
One-Minute Averages

Company: MPC LLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Run #: 12
Test Time: 12:01-13:01

		Clock Time	Elapsed Time	Monitor O ₂ %	Monitor CO ₂ %	Monitor SO ₂ ppm	Monitor NO _x ppm	Monitor CO ppm
Reference Method Oxygen Monitor:								
Analyzer Type:	Oxygen	12 : 01	0					
Analyzer Scale:	20.00 %	12 : 2	1	2.26	4.45	56.1	14.4	171.4
Pre-test calibration span value:	9.99 %	12 : 3	2	2.32	4.42	57.7	14.5	209.5
Post-test calibration span value:	9.94 %	12 : 4	3	2.20	4.45	59.0	14.5	201.4
Pre-test calibration zero value:	-0.01 %	12 : 5	4	2.26	4.42	59.2	14.4	237.4
Post-test calibration zero value:	0.00 %	12 : 6	5	2.30	4.42	59.2	14.3	292.0
Calibration gas type:	Protocol 1 Oxygen %	12 : 7	6	2.38	4.41	58.7	14.4	283.4
Calibration gas concentration:	10.00 %	12 : 8	7	2.28	4.43	57.6	14.3	203.6
Monitor uncorrected average:	3.02 %	12 : 9	8	2.29	4.44	57.2	14.3	160.0
Monitor drift corrected average:	3.04 %	12 : 10	9	2.17	4.44	58.6	14.3	183.3
		12 : 11	10	2.15	4.44	59.9	14.3	259.8
Reference Method CO2 Monitor:								
Analyzer Type:	Carbon Dioxide	12 : 12	11	2.37	4.39	59.3	14.3	376.7
Analyzer Scale:	20.00 %	12 : 13	12	2.31	4.43	58.0	14.3	307.4
Pre-test calibration span value:	9.93 %	12 : 14	13	2.30	4.42	57.4	14.4	226.5
Post-test calibration span value:	10.02 %	12 : 15	14	2.27	4.42	58.0	14.3	246.1
Pre-test calibration zero value:	-0.02 %	12 : 16	15	2.23	4.41	59.0	14.1	239.3
Post-test calibration zero value:	-0.01 %	12 : 17	16	2.33	4.37	59.9	14.0	400.3
Calibration gas type:	Protocol 1 CO2 %	12 : 18	17	2.47	4.35	58.1	14.0	318.6
Calibration gas concentration:	10.00 %	12 : 19	18	2.54	4.36	55.1	14.2	194.0
Monitor uncorrected average:	4.44 %	12 : 20	19	2.59	4.38	53.5	14.5	109.2
Monitor drift corrected average:	4.46 %	12 : 21	20	2.79	4.40	52.4	14.9	168.7
		12 : 22	21	3.05	4.41	51.3	15.1	240.6
Reference Method SO2 Monitor:								
Analyzer Type:	Sulfur Dioxide	12 : 23	22	3.22	4.42	50.1	15.2	338.8
Analyzer Scale:	88.67 ppm	12 : 24	23	3.39	4.43	49.3	15.1	302.4
Pre-test calibration span value:	44.20 ppm	12 : 25	24	3.67	4.39	48.8	15.6	240.5
Post-test calibration span value:	44.94 ppm	12 : 26	25	3.73	4.41	47.8	15.8	338.7
Pre-test calibration zero value:	-0.59 ppm	12 : 27	26	3.90	4.46	46.0	16.1	331.8
Post-test calibration zero value:	-0.87 ppm	12 : 28	27	3.46	4.54	45.0	16.0	59.5
Calibration gas type:	Protocol 1 SO2 ppm	12 : 29	28	3.07	4.66	53.4	16.2	16.6
Calibration gas concentration:	45.00 ppm	12 : 30	29	3.36	4.51	60.8	16.1	39.7
Monitor uncorrected average:	52.55 ppm	12 : 31	30	3.25	4.53	60.3	16.1	22.4
Monitor drift corrected average:	52.92 ppm	12 : 32	31	3.20	4.58	64.6	16.2	16.0
		12 : 33	32	3.17	4.55	70.7	16.2	22.8
Reference Method NOx Monitor:								
Analyzer Type:	Oxides of Nitrogen	12 : 34	33	3.23	4.48	70.0	15.9	35.4
Analyzer Scale:	88.99 ppm	12 : 35	34	3.31	4.44	66.5	15.9	50.8
Pre-test calibration span value:	45.60 ppm	12 : 36	35	3.16	4.49	63.7	15.8	30.9
Post-test calibration span value:	45.69 ppm	12 : 37	36	3.04	4.54	61.6	15.9	23.6
Pre-test calibration zero value:	0.15 ppm	12 : 38	37	3.10	4.51	58.5	15.9	28.5
Post-test calibration zero value:	0.12 ppm	12 : 39	38	3.05	4.49	56.2	15.9	45.0
Calibration gas type:	Protocol 1 NOx ppm	12 : 40	39	3.29	4.43	52.0	15.9	104.6
Calibration gas concentration:	45.00 ppm	12 : 41	40	3.46	4.41	48.7	15.7	148.3
Monitor uncorrected average:	15.34 ppm	12 : 42	41	3.37	4.43	47.4	15.7	103.2
Monitor drift corrected average:	15.03 ppm	12 : 43	42	3.35	4.44	46.8	15.8	108.1
		12 : 44	43	3.39	4.44	45.6	15.9	90.9
Reference Method CO Monitor:								
Analyzer Type:	Carbon Monoxide	12 : 45	44	3.37	4.45	45.5	16.0	81.5
Analyzer Scale:	500.00 ppm	12 : 46	45	3.34	4.40	45.5	15.9	115.1
Pre-test calibration span value:	179.41 ppm	12 : 47	46	3.41	4.38	45.3	15.8	172.4
Post-test calibration span value:	179.00 ppm	12 : 48	47	3.42	4.44	44.1	15.8	144.2
Pre-test calibration zero value:	1.09 ppm	12 : 49	48	3.41	4.45	43.4	16.0	109.3
Post-test calibration zero value:	1.12 ppm	12 : 50	49	3.27	4.48	43.9	16.0	81.1
Calibration gas type:	Protocol 1 CO ppm	12 : 51	50	3.36	4.40	45.0	15.8	157.0
Calibration gas concentration:	180.00 ppm	12 : 52	51	3.43	4.40	44.3	15.7	192.7
Monitor uncorrected average:	169.79 ppm	12 : 53	52	3.51	4.41	42.8	15.8	191.4
Monitor drift corrected average:	170.48 ppm	12 : 54	53	3.47	4.45	41.9	15.8	134.8
		12 : 55	54	3.31	4.46	42.6	15.8	95.4
		12 : 56	55	3.32	4.41	43.4	15.7	173.1
		12 : 57	56	3.51	4.38	42.5	15.8	257.7
		12 : 58	57	3.64	4.42	41.6	15.8	308.2
		12 : 59	58	3.70	4.43	40.6	15.9	243.3
		13 : 0	59	3.52	4.46	39.8	15.9	98.9
		13 : 1	60	3.34	4.49	42.0	16.0	103.2
AVERAGE:				3.02	4.44	52.55	15.34	169.79



**USEPA Method 3A
Oxygen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 12
Test Time: 12:01-13:01

Data Input:

Average chart reading (C):	3.02 %
Average pre/post-test zero calibration reading (C _o):	-0.01 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.96 %
Stack gas volumetric flow rate (Q _{std}):	784,466 dscfh
Compound molecular weight (MW):	32.00 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxygen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 3.04 \%$$



**USEPA Method 3A
Carbon Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 12
Test Time: 12:01-13:01

Data Input:

Average chart reading (C):	4.44 %
Average pre/post-test zero calibration reading (C _o):	-0.02 %
Calibration gas concentration (C _{ma}):	10.0 %
Average pre/post-test calibration gas reading (C _m):	9.97 %
Stack gas volumetric flow rate (Q _{std}):	784,466 dscfh
Compound molecular weight (MW):	44.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Dioxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 4.46 \%$$



**USEPA Method 6C
Sulfur Dioxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 12
Test Time: 12:01-13:01

Data Input:

Average chart reading (C):	52.55 ppm
Average pre/post-test zero calibration reading (C _o):	-0.73 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	44.57 ppm
Stack gas volumetric flow rate (Q _{std}):	784,466 dscfh
Compound molecular weight (MW):	64.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Sulfur Dioxide
Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{\text{ma}}}{C_m - C_o} = 52.92 \text{ ppm}$$

Sulfur Dioxide
Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 8.7933 \times 10^{-6} \text{ lbs/dscf}$$

Sulfur Dioxide
Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 6.8980 \text{ lbs/hr}$$



**USEPA Method 7E
Oxides of Nitrogen
Calibration Drift Correction And Emission Rate Calculation**

Company: MPC LLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 12
Test Time: 12:01-13:01

Data Input:

Average chart reading (C):	15.34 ppm
Average pre/post-test zero calibration reading (C _o):	0.13 ppm
Calibration gas concentration (C _{ma}):	45.0 ppm
Average pre/post-test calibration gas reading (C _m):	45.64 ppm
Stack gas volumetric flow rate (Q _{std}):	784,466 dscfh
Compound molecular weight (MW):	46.01 lb/lb-mole

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Oxides of Nitrogen

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 15.03 \text{ ppm}$$

Oxides of Nitrogen

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 1.7956 \times 10^{-6} \text{ lbs/dscf}$$

Oxides of Nitrogen

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 1.4086 \text{ lbs/hr}$$



**USEPA Method 10
Carbon Monoxide
Calibration Drift Correction And Emission Rate Calculation**

Company: MPCLLC
Location: Robinson, IL
Source: SRU Stack: 66F-3
Test Date: 3/1/2007
Test Run #: 12
Test Time: 12:01-13:01

Data Input:

Average chart reading (C):	169.79 ppm
Average pre/post-test zero calibration reading (C _o):	1.11 ppm
Calibration gas concentration (C _{ma}):	180.0 ppm
Average pre/post-test calibration gas reading (C _m):	179.21 ppm
Stack gas volumetric flow rate (Q _{std}):	784,466 dscfh
Compound molecular weight (MW):	28.01 lb/lb-mole
Oxygen Concentration (%O ₂):	3.04 %
Carbon Dioxide Concentration (%CO ₂):	4.46 %
Nitrogen Concentration (%N ₂):	92.50 %

Sample calculations @ standard conditions (29.92 inches Hg, 68.0 °F):

Carbon Monoxide

Corrected for zero and calibration drift:

$$C_{\text{gas}} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o} = 170.48 \text{ ppm}$$

Carbon Monoxide

Concentration:

$$C_{\text{gas, lb/dscf}} = C_{\text{gas}} \times \left(\frac{\text{MW lb/lb-mole}}{385.26 \times 10^6 \text{ ft}^3/\text{lb-mole}} \right) = 12.3947 \times 10^{-6} \text{ lbs/dscf}$$

Carbon Monoxide

Emission rate:

$$E_{\text{gas, lb/hr}} = C_{\text{gas, lb/dscf}} \times Q_{\text{std}} = 9.7232 \text{ lbs/hr}$$

Carbon Monoxide

Concentration corrected to 50% excess air:

$$= 129.7 \text{ ppm, @50\% Excess Air}$$



MPCLLC: Robinson, Illinois
SRU 66F-3 and 66F-5 Stacks
Test Dates: 2/26 – 3/1/07

APPENDIX C

Field Data

TRAVERSE POINT LOCATION FOR CIRCULAR AND RECTANGULAR DUCTS

PLANT Marathon Robinson MP LLC
 DATE 2-26-07
 SAMPLING LOCATION Robinson, IL
 INSIDE OF FAR WALL TO
 OUTSIDE OF PORT (DISTANCE C) 79"
 INSIDE OF NEAR WALL TO
 OUTSIDE OF PORT (DISTANCE D) 13"
 STACK ID 66
 NEAREST UPSTREAM FROM DISTURBANCE (A) 10007
 NEAREST DOWNSTREAM FROM DISTURBANCE (B) 276"(41800)
 CALCULATOR JR

Location of Traverse Points in Rectangular Stacks

	2	3	4	5	6	7	8	9	10	11	12
1	25.0	18.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75.0	60.0	37.5	30.0	25.0	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50.0	43.8	38.9	35.0	31.8	29.2
5				90.0	75.0	64.3	56.3	50.0	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50.0	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

Rectangular Duct Equivalent Diameter Determination

$$\frac{2 \times L \times W}{L + W}$$

LOCATION OF TRAVERSE POINTS ON CIRCULAR STACKS

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	52.3	42.6	34.6	28.6	24.6	21.6	19.6	17.6	16.6
5		85.4	67.7	54.2	44.2	36.2	30.2	26.2	23.2	20.2	18.2
6			89.5	71.4	57.4	46.4	38.4	32.4	28.4	25.4	23.4
7				91.8	74.8	60.8	50.8	42.8	36.8	32.8	30.8
8					94.3	78.3	64.3	53.3	45.3	39.3	35.3
9						97.9	83.9	70.9	60.9	52.9	46.9
10							99.4	86.4	74.4	64.4	56.4
11								99.9	87.9	76.9	67.9
12									99.9	88.9	78.9
13										99.9	89.9
14											99.9
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 1 AND 2 (TO NEAREST 1/8 INCH)	DISTANCE D (PORT DEPTH)	TRAVERSE POINT LOCATION FROM OUTSIDE OF PORT (SUM OF COLUMNS 3 AND 4)
1	.032	126	2.11	13	15.11
2	.005		6.93		19.93
3	.194		12.90		25.81
4	.323		21.32		34.32
5	.677		44.68		57.68
6	.806		53.20		66.20
7	.895		59.07		72.07
8	.968		63.89		76.89
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

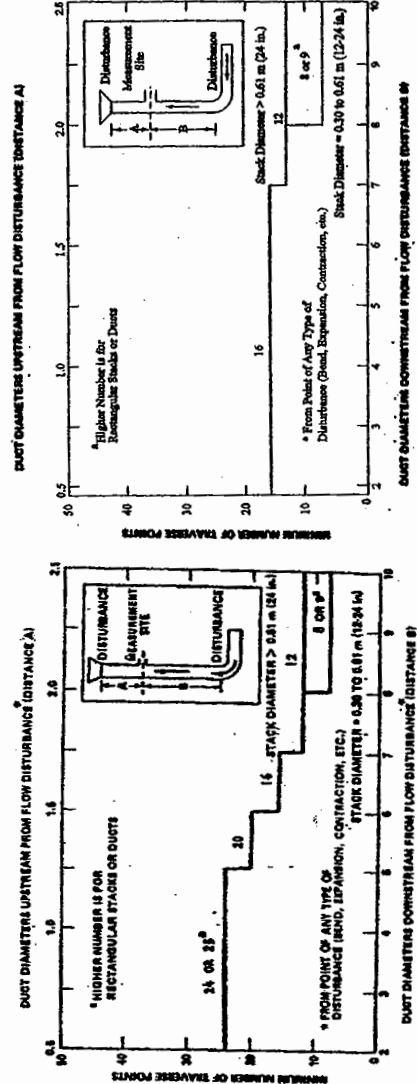
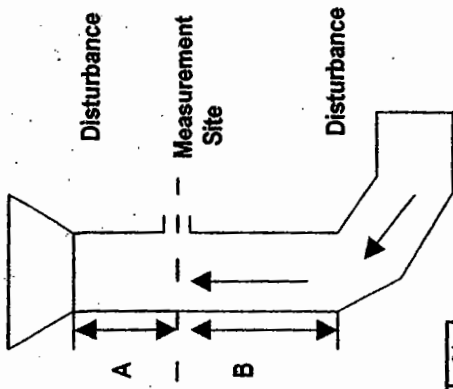


Figure 1-2. Minimum number of traverse points for velocity (unperforated) traverses.



FIELD DATA

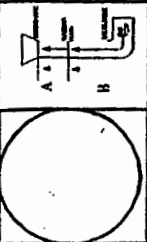
1671

PLANT Marathon MRC AMBIENT TEMPERATURE
DATE 2-26-07 BAROMETRIC PRESSURE
LOCATION Robinson IL ASSUMED MOISTURE, %
OPERATOR JR PROBE LENGTH, in.
STACK NO. SRU 66 F-5 NOZZLE DIAMETER, in.
RUN NO. 1 STACK DIAMETER, in.
SAMPLE BOX NO. APEX MINUTES PER POINT
METER BOX NO. 40827 NUMBER OF POINTS
START TIME 1550 NUMBER OF PORTS

40
29.38
NA
34"
NA
26.0"
NA
16
2

PROBE HEATER SETTING NA
HEATER BOX SETTING NA
METER H₂O 1.60
C₂ FACTOR .84
Y₄ FACTOR .98
PITOT/THERM # 339

WEIGHT OF PARTICULATE, lb
File No. NA
Sample NA
Pitot NA
M. gph. NA
TOTAL



STACK TIME	FLARE NO.	STARTING TIME (H:MM)	STATIC PRESSURE (in. H ₂ O)	STACK TEMPERATURE (°F)	VELOCITY HEAD (in. H ₂ O)	VELOCITY (ft/min)	DIFFERENTIAL PRESSURE (in. H ₂ O)	GAS SAMPLE VOLUME (ft ³ /min)	TEMP. AT DRY GAS METER (°F)	INLET (°F)	OUTLET (°F)	SAMPLE BOX TEMP (°F)	COND. TEMP (°F)	MOISTURE TEMP (°F)	LAST MEASURED TEMP (°F)	TIME FACTOR
1550	NA	0					1.6	665.300	64	59	NA	NA	NA	NA	61	4
1555		5						669.13	68	59					45	4
1600		10						671.07	74	60					61	4
1605		15						677.95	79	60					59	4
1610		20						681.84	81	61					58	4
1620		30						685.65	82	60					57	4
1625		35						689.49	82	61					58	4
1630		40						693.30	82	60					60	4
1635		45						697.12	83	61					60	4
1640		50						700.99	83	62					59	4
1645		55						704.81	83	62					59	4
1650		60						708.58	84	61					58	4
								712.378								

TIME	CO ₂	O ₂
TRIAL 1		
TRIAL 2		
TRIAL 3		
Average		

STACK NO.	STARTING TIME (H:MM)	STATIC PRESSURE (in. H ₂ O)	STACK TEMPERATURE (°F)	VELOCITY HEAD (in. H ₂ O)	VELOCITY (ft/min)	SILICA GEL WEIGHT
1	1550	0				
2	1600	0				
3	1610	0				
4	1620	0				
5	1630	0				
6	1640	0				
7	1650	0				
TOTAL						

SYSTEM PREP. OK CHECKED OK
POST. OK CHECKED OK
PITOT PREP. OK CHECKED OK
POST. OK CHECKED OK



FIELD DATA

37
29.38
NA
34.11
NA
66.11
NA
16
2

PROBE HEATER SETTING _____
HEATER BOX SETTING _____
METER H₀ _____
C_p FACTOR _____
Y_d FACTOR _____
PITOT/THERM # _____

**PRESTON
DIFFERENTIAL**

NA	
NA	

Filter No.	Sample	Final wt	Loss wt	Wt gain
1				
2				
3				
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97				
98				
99				
100				

WEIGHT					TOTAL
N/A					

Article 10

74					
----	--	--	--	--	--

As B=

[illegible]

TIME OR WEIGHT OF DRYED SOLUBLE MATTER		IMPURITIES				SILICA GEL WEIGHT
#1	#2	#3	#4			
INITIAL	156.16	120	56	208.16		
LIQUID COLLECTED	100	100	56	200		
TOTAL	56.16	20	36	8.6		

CEM's

OREAT DATA	TIME	CO ₂	O ₂
TRIAL 1			
TRIAL 2			
TRIAL 3			
Average			

CEM's

[illegible]



FIELD DATA

A- _____ B- _____			
WEIGHT OF PARTICULATE, mg			
PROBE HEATER SETTING	N/A	Filter No.	N/A
HEATER BOX SETTING	N/A	Sample	N/A
METER H ₂ O	1.60	Blank wt	
C ₂ FACTOR	84	Turn wt	
V ₂ FACTOR	498	Wt. gain	
PITOT/THERM #	839	TOTAL	mg
PRESSURE DIFFERENTIAL		CROSS SECTION	
PRESSURE		EAS SAMPLE	
DIFFERENTIAL		EAS	

BLOCK TAG	TRAVELER POST NUMBER	SAMPLING TIME (9) min	STATIC PRESSURE (in. H ₂ O)	STAGE TEMP (°F)	VELOCITY		ACROSS ORIFICE		GAS SAMPLE VOLUME (ft ³)	TEMP AT DRY GAS METER		BARTER BOX TEMP (°F)	COND. EXIT TEMP (°F)	ROBERT MIDDLE TEMP (°F)	BARTER MIDDLE TEMP (°F)	TEMP VARIATION (in. Hg)
					(ft/s)	HEAD (ft)	ACTUAL	DESIRED		INLET (T _{in}) °F	OUTLET (T _{out}) °F					
1832	NA	0	✓	✓	✓	✓	1.6	1.6	760.900	58	54	NA	NA	NA	50	5
1837		5	✓	✓	✓	✓			764.36	60	52				50	5
1842		10	✓	✓	✓	✓			768.43	61	52				50	5
1847		15	✓	✓	✓	✓			772.79	64	50				48	5
1852		20	✓	✓	✓	✓			776.17	67	49				47	5
1857		25	✓	✓	✓	✓			779.70	68	48				46	5
1902		30	✓	✓	✓	✓			783.64	67	48				46	5
1907		35	✓	✓	✓	✓			787.01	67	47				46	5
1912		40	✓	✓	✓	✓			790.89	66	47				46	5
1917		45	✓	✓	✓	✓			794.63	65	46				45	5
1922		50	✓	✓	✓	✓			798.31	65	45				45	5
1927		55	✓	✓	✓	✓			801.92	65	45				45	5
1932		60	✓	✓	✓	✓			804.640							
<div style="display: flex; justify-content: space-between;"><div>NA (60 min)</div><div>1.6 (1.6)</div><div>43.740 (43.740) Given 56.5</div><div>NA</div><div>NA</div><div>NA</div><div>268 (268)</div><div>5</div></div>																

VOLUME (ml) OF LIQUID		DIPMETER				SILICA GEL WEIGHT	
VOLUME (ml) OF LIQUID		VOLUME (ml) OR WEIGHT (g)				WEIGHT	
		#1	#2	#3	#4		
FINAL	100	100	100	—	50	211.1	
INITIAL	100	100	100	—	50	200	
LIQUID COLLECTED	0	0	0	—	0	11.1	
TOTAL	COLLECTED (moisture and air)						



FIELD DATA

22

**PRESSURE
DIFFERENTIAL
ACROSS ORIFICE**

--

GREAT DATA	TIME		O ₂	CO ₂	C.E.M.S
	1	2			
TRIAL 1					
TRIAL 2					
TRIAL 3					
Average					

CeM's

SYSTEM FILE	01001 ✓	COMPUSITE	0 > 3740
POST	01001 ✓	COMPUSITE	0 > 3740
PITOT FILE	01 ✓		
POST	01 ✓		



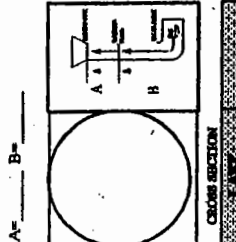
FIELD DATA

PLANT Marathon MRLC AMBIENT TEMPERATURE
DATE 2-27-07 BAROMETRIC PRESSURE
LOCATION SEB Robinson ASSUMED MOISTURE, %
OPERATOR JK PROBE LENGTH, in.
STACK NO. SRUG6F-5 NOZZLE DIAMETER, in.
RUN NO. 5 STACK DIAMETER, in.
SAMPLE BOX NO. APex MINUTES PER POINT
METER BOX NO. 40327 NUMBER OF POINTS
START TIME 641 NUMBER OF PORTS

38
29.59
NA
84"
NA
66"
NA
16
7

PROBE HEATER SETTING NA
HEATER BOX SETTING NA
METER H₀ 1.60
C_p FACTOR 1.84
Y₄ FACTOR .948
PITOT/THERM # 839

WEIGHT OF PARTICULATE, mg
Filter No. NA
Sample NA
Blank wt. NA
Turn wt. NA
Net gain NA
TOTAL NA



STACK TIME	FLAME POINT NUMBER	SAMPLING TIME (s)	STATIC PRESSURE (in. H ₂ O)	STACK TEMP (°F)	VELOCITY HEAD (in. H ₂ O)	VELOCITY HEAD (ft/min)
641	NA	0	NA	NA	NA	NA
646	1	5	NA	NA	NA	NA
651	1	10	NA	NA	NA	NA
656	1	15	NA	NA	NA	NA
701	1	20	NA	NA	NA	NA
706	1	25	NA	NA	NA	NA
711	1	30	NA	NA	NA	NA
716	1	35	NA	NA	NA	NA
721	1	40	NA	NA	NA	NA
726	1	45	NA	NA	NA	NA
731	1	50	NA	NA	NA	NA
736	1	55	NA	NA	NA	NA
741	1	60	NA	NA	NA	NA

DIFFERENTIAL ACROSS ORIFICE METER (in. H ₂ O)	ACTUAL (in. H ₂ O)	DESIRED
1.6	1.6	1.6

GAS SAMPLE TEMP AT DRY GAS METER (°F)	INLET (°F)	OUTLET (°F)	COND. EXIT TEMP (°F)	STANDARD CORRECTION TEMP (°F)	WET BULB TEMP (°F)	WET BULB TEMP (°F)
864.40	42	42	NA	NA	42	5
868.36	45	45	NA	NA	40	5
871.59	45	45	NA	NA	40	5
875.71	46	46	NA	NA	40	5
874.92	48	46	NA	NA	40	5
882.07	49	46	NA	NA	40	5
886.23	49	46	NA	NA	42	5
890.31	49	46	NA	NA	42	5
894.24	51	47	NA	NA	40	5
898.63	52	48	NA	NA	40	5
902.88	53	49	NA	NA	40	5
906.01	58	51	NA	NA	43	5
909.675	62	51	NA	NA	45	5

STACK TIME	FLAME POINT NUMBER	SAMPLING TIME (s)	STATIC PRESSURE (in. H ₂ O)	STACK TEMP (°F)	VELOCITY HEAD (in. H ₂ O)	VELOCITY HEAD (ft/min)
641	NA	0	NA	NA	NA	NA
646	1	5	NA	NA	NA	NA
651	1	10	NA	NA	NA	NA
656	1	15	NA	NA	NA	NA
701	1	20	NA	NA	NA	NA
706	1	25	NA	NA	NA	NA
711	1	30	NA	NA	NA	NA
716	1	35	NA	NA	NA	NA
721	1	40	NA	NA	NA	NA
726	1	45	NA	NA	NA	NA
731	1	50	NA	NA	NA	NA
736	1	55	NA	NA	NA	NA
741	1	60	NA	NA	NA	NA

DIFFERENTIAL ACROSS ORIFICE METER (in. H ₂ O)	ACTUAL (in. H ₂ O)	DESIRED
1.6	1.6	1.6

SYSTEM PRESS	0.001 V	0.001 V	0.001 V
POST	0.001 V	0.001 V	0.001 V
PITOT PRESS	0.001 V	0.001 V	0.001 V
POST	0.001 V	0.001 V	0.001 V

STACK TIME	FLAME POINT NUMBER	SAMPLING TIME (s)	STATIC PRESSURE (in. H ₂ O)	STACK TEMP (°F)	VELOCITY HEAD (in. H ₂ O)	VELOCITY HEAD (ft/min)
641	NA	0	NA	NA	NA	NA
646	1	5	NA	NA	NA	NA
651	1	10	NA	NA	NA	NA
656	1	15	NA	NA	NA	NA
701	1	20	NA	NA	NA	NA
706	1	25	NA	NA	NA	NA
711	1	30	NA	NA	NA	NA
716	1	35	NA	NA	NA	NA
721	1	40	NA	NA	NA	NA
726	1	45	NA	NA	NA	NA
731	1	50	NA	NA	NA	NA
736	1	55	NA	NA	NA	NA
741	1	60	NA	NA	NA	NA

DIFFERENTIAL ACROSS ORIFICE METER (in. H ₂ O)	ACTUAL (in. H ₂ O)	DESIRED
1.6	1.6	1.6

SYSTEM PRESS	0.001 V	0.001 V	0.001 V
POST	0.001 V	0.001 V	0.001 V
PITOT PRESS	0.001 V	0.001 V	0.001 V
POST	0.001 V	0.001 V	0.001 V



FIELD DATA

PLANT Marathon WPLIC AMBIENT TEMPERATURE 40
DATE 2-27-07 BAROMETRIC PRESSURE 29.59
LOCATION Robinson, IL ASSUMED MOISTURE, % NA
OPERATOR SR PROBE LENGTH, in. 84"
STACK NO. 546 606 F-5 NOZZLE DIAMETER, in. NA
RUN NO. 6 STACK DIAMETER, in. 66"
SAMPLE BOX NO. Alex MINUTES PER POINT NA
METER BOX NO. 40827 NUMBER OF PORTS 16
START TIME 803 NUMBER OF PORTS 2

PROBE HEATER SETTING NA
HEATER BOX SETTING NA
METER H₀ 1.60
C₀ FACTOR 1.84
Y₀ FACTOR .998
PLOT/THERM # 839

WEIGHT OF TANK/CLAMP, lb
Filling NA
Sample 1
Turn wt. 1
Wt. gain 1
TOTAL 1

TIME	FLOW	TEMP	STATIC PRESSURE (in. H ₂ O)	STACK TEMP (°F)	VELOCITY HEAD (in. H ₂ O)	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (in. H ₂ O)	GAS SAMPLE VOLUME (ft ³ /min)	EAS SAMPLE TRAP AT DRY GAS METER		BAMBLE DUX TEMP °F	CYCLIC TEMP °F	PORTABLE TEMP °F	EAS TEMP °F	TEMP °F
								INLET (ft ³ /min)	OUTLET (ft ³ /min)					
803	NA	0				1.6	911.100	66	56	NA	NA	NA	54	5
808		5					914.92	74	58				50	5
813		10					918.13	76	58				50	5
818		15					922.45	79	60				50	5
823		20					926.83	81	60				50	5
828		25					930.22	84	61				50	5
833		30					934.61	84	62				50	5
838		35					937.94	85	63				50	5
843		40					941.37	85	62				49	5
848		45					945.41	83	61				48	5
853		50					949.52	82	61				47	5
858		55					953.37	81	61				46	5
903		60					957.210							

ANALYSIS NA 60 11.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6

SYSTEM TYPE 0.001 CEM'S
PORT 0.001
PILOT FILL OK
PORT OK

ORIFICE DATA
TIME
TRIAL 1
TRIAL 2
TRIAL 3
Average

SILICA GEL WEIGHT
WEIGHT
209.5
200

COLLECTED (specify ml or g)
81 21 83 84
107 102 56
100 102 56
62 2 56
TOTAL



FIELD DATA

[illegible]

GAGE TIME	TRAVELING POINT NUMBER	STATION PRESSURE (in. H ₂ O)	STACK TEMP °F	VELOCITY HEAD		GROSS ORIFICE METER		GAS SAMPLE VOLUME (ccm)	TEMP AT DRY GAS METER		SAMPLE BOX TEMP °F	COND EXIT TEMP °F	PERCENT MOISTURE TEMP °F	BATHING TEMP °F	TANK TEMP °F
				(ft/s)	(ft/s)	ACTUAL	DESIRED		INLET (T _{in}) °F	OUTLET (T _{out}) °F					
926	NA					1.6	1.6	957.400	59	59	NA	NA	NA	64	6
931								961.76	66	59				53	6
936								965.12	75	59				47	6
941								968.99	78	60				47	6
946								972.74	81	61				46	6
951								976.58	81	60				45	6
956								980.81	81	61				46	6
1001								984.89	82	61				46	6
1006								987.93	83	62				47	6
1011								991.71	82	62				48	6
1016								995.34	82	62				48	6
1021								999.66	81	62				48	6
1026								1003.045							6
<div style="display: flex; justify-content: space-between;"> NA 60 1.6 1.6 45.645 AVG Given 5769.1 NA NA NA </div>															

SAMPLE NAME, WEIGHT, AND NUMBER		IMPINGER			SILICA GEL WEIGHT
SAMPLE COLLECTED		VOLUME (ml) OR WEIGHT (g)			
		#1	#2	#3	#4
FINAL		176	104	-	35
INITIAL		100	100	-	36
LIQUID COLLECTED		76	4	-	35
TOTAL		COLLECTED (quantity ml or g)			

CEM3

DECAT	TIME	CO ₂	O ₂
DATA			
TRIAL 1			
TRIAL 2			
TRIAL 3			
Average			

CEM's

SYSTEM FILE		POST		CROSSING	
0.00	✓	0.00	✓	0.00	✓
0.00	✓	0.00	✓	0.00	✓



FIELD DATA

PLANT	Maraathon MFLC			PROB HEATER SETTING	NA	WEIGHT OF PARTICULATE, mg	
DATE	2-27-07			HEATER BOX SETTING	NA		
LOCATION	Robinson, IL			METER H ₂ O	NA		
OPERATOR	JR			C _p FACTOR	1.60		
STACK NO.	52U 66 F-5			Y ₄ FACTOR	.84		
RUN NO.	8			PITOT/THERM #	1498	TOTAL	
SAMPLE BOX NO.	AP28						
METER BOX NO.	40821						
MINUTES PER POINT	16						
NUMBER OF POINTS	2						
START TIME	1050						

SLACK TIME	TRAVELING POINT NUMBER	LEADING TIME (P) MIN.	SPRING PRESSURE (in. H ₂ O)	SEAGE TEMP F/°C	VELOCITY		ACROSS ORIFICE		GAS SAMPLE VOLUME (Vol. ft ³)	TEMP AT DRY GAS METER		SAMPLE BOX TEMP °F	CHINA EXIT TEMP °F	SUBMIT AIR DRY TEMP °F	BATHING OUTLET TEMP °F	POINT VOLUME in. H ₂ O
					(ft ³ /min)	(ft ³ /hr)	ACTUAL	DESIRED		INLET (T _{in}) °F	OUTLET (T _{out}) °F					
1050	NA	0	/	/	/	/	1.6	1.6	003.600	65	62	NA	NA	NA	67	6
1055	/	5	/	/	/	/	/	/	007.35	69	61	/	/	/	50	6
1100	/	10	/	/	/	/	/	/	011.63	72	61	/	/	/	50	6
1105	/	15	/	/	/	/	/	/	015.89	75	62	/	/	/	50	6
1110	/	20	/	/	/	/	/	/	019.01	79	62	/	/	/	50	6
1115	/	25	/	/	/	/	/	/	022.71	82	63	/	/	/	50	6
1120	/	30	/	/	/	/	/	/	026.54	82	62	/	/	/	49	6
1125	/	35	/	/	/	/	/	/	030.91	81	61	/	/	/	49	6
1130	/	40	/	/	/	/	/	/	034.20	80	62	/	/	/	44	6
1135	/	45	/	/	/	/	/	/	038.02	80	62	/	/	/	50	6
1140	/	50	/	/	/	/	/	/	041.83	79	61	/	/	/	51	6
1145	/	55	/	/	/	/	/	/	045.63	78	61	/	/	/	51	6
1150	/	60	/	/	/	/	/	/	049.437			/	/	/		6

NA

60

1.6

1.6045.837

AVG. Given → 69.3

NA

NA

NA

668

6

VOLUME (ml) OR WEIGHT (g)		DAMPING		SILICA GEL WEIGHT
#1	#2	#3	#4	
78	124		56	208.1
100	100	—	56	200
78	4		56	8.1
TOTAL				
COLLECTED (cc's) ml or g				

DISEASE	TIME	CO ₂	O ₂
DATA	TRIAL 1		
	TRIAL 2		
	TRIAL 3		
	TRIAL 5		
	Average		

[illegible]



FIELD DATA

WEIGHT OF FACTOR HEATER, IN.		IN.	
File No.	NA	NA	
Sample			
Pinch set			
Turn set			
Weight			
TOTAL		IN.	

PROB HEATER SETTING

HEATER BOX SETTING

METER H₀

C₀ FACTOR

Y₀ FACTOR

PITOT/TERM #

NA

NA

1.60

0.84

0.998

834

AMBIENT TEMPERATURE

BAROMETRIC PRESSURE

ASSUMED MOISTURE, %

PROB LENGTH, in.

NOZZLE DIAMETER, in.

STACK DIAMETER, in.

MINUTES PER POINT

41

29.63

NA

84"

NA

66"

NA

SAMPLE BOX NO.

METER BOX NO.

START TIME

APex

46827

1212

PROB HEATER SETTING

HEATER BOX SETTING

METER H₀

C₀ FACTOR

Y₀ FACTOR

PITOT/TERM #

NA

NA

1.60

0.84

0.998

834

AMBIENT TEMPERATURE

BAROMETRIC PRESSURE

ASSUMED MOISTURE, %

PROB LENGTH, in.

NOZZLE DIAMETER, in.

STACK DIAMETER, in.

MINUTES PER POINT

41

29.63

NA

84"

NA

66"

NA

SAMPLE BOX NO.

METER BOX NO.

START TIME

APex

46827

1212

PROB HEATER SETTING

HEATER BOX SETTING

METER H₀

C₀ FACTOR

Y₀ FACTOR

PITOT/TERM #

NA

NA

1.60

0.84

0.998

834

AMBIENT TEMPERATURE

BAROMETRIC PRESSURE

ASSUMED MOISTURE, %

PROB LENGTH, in.

NOZZLE DIAMETER, in.

STACK DIAMETER, in.

MINUTES PER POINT

41

29.63

NA

84"

NA

66"

NA

SAMPLE BOX NO.

METER BOX NO.

START TIME

APex

46827

1212

PROB HEATER SETTING

HEATER BOX SETTING

METER H₀

C₀ FACTOR

Y₀ FACTOR

PITOT/TERM #

NA

NA

1.60

0.84

0.998

834

AMBIENT TEMPERATURE

BAROMETRIC PRESSURE

ASSUMED MOISTURE, %

PROB LENGTH, in.

NOZZLE DIAMETER, in.

STACK DIAMETER, in.

MINUTES PER POINT

41

29.63

NA

84"

NA

66"

NA

SAMPLE BOX NO.

METER BOX NO.

START TIME

APex

46827

1212

PROB HEATER SETTING

HEATER BOX SETTING

METER H₀

C₀ FACTOR

Y₀ FACTOR

PITOT/TERM #

NA

NA

1.60

0.84

0.998

834

AMBIENT TEMPERATURE

BAROMETRIC PRESSURE

ASSUMED MOISTURE, %

PROB LENGTH, in.

NOZZLE DIAMETER, in.

STACK DIAMETER, in.

MINUTES PER POINT

41

29.63

NA

84"

NA

66"

NA

SAMPLE BOX NO.

METER BOX NO.

START TIME

APex

46827

1212

PROB HEATER SETTING

HEATER BOX SETTING

METER H₀

C₀ FACTOR

Y₀ FACTOR

PITOT/TERM #

NA

NA

1.60

0.84

0.998

834

AMBIENT TEMPERATURE

BAROMETRIC PRESSURE

ASSUMED MOISTURE, %

PROB LENGTH, in.

NOZZLE DIAMETER, in.

STACK DIAMETER, in.

MINUTES PER POINT

41

29.63

NA

84"

NA

66"

NA

SAMPLE BOX NO.

METER BOX NO.

START TIME

APex

46827

1212

PROB HEATER SETTING

HEATER BOX SETTING

METER H₀

C₀ FACTOR

Y₀ FACTOR

PITOT/TERM #

NA

NA

1.60

0.84

0.998

834

AMBIENT TEMPERATURE

BAROMETRIC PRESSURE

ASSUMED MOISTURE, %

PROB LENGTH, in.

NOZZLE DIAMETER, in.

STACK DIAMETER, in.

MINUTES PER POINT

41

29.63

NA

84"

NA

66"

NA

SAMPLE BOX NO.

METER BOX NO.

START TIME

APex

46827

1212

PROB HEATER SETTING

HEATER BOX SETTING

METER H₀

C₀ FACTOR

Y₀ FACTOR

PITOT/TERM #

NA

NA

1.60

0.84

0.998

834

AMBIENT TEMPERATURE

BAROMETRIC PRESSURE

ASSUMED MOISTURE, %

PROB LENGTH, in.

NOZZLE DIAMETER, in.

STACK DIAMETER, in.

MINUTES PER POINT

41

29.63

NA

84"

NA

66"

NA

SAMPLE

FLOW TIME	TRAVELING POINT NUMBER	SAMPLING TIME (S)	STATIC PRESSURE (in. H ₂ O)	SPACE TRAP (S)	VELOCITY		METER		DETERMINED	GAS SAMPLE VOLUME (in. H ₂ O)	DRY GAS METER		INLET TEMP (°F)	BOX TEMP (°F)	EXIT TEMP (°F)	INLET SERVICE TEMP (°F)	OUTLET TEMP (°F)	PUMP VACUUM (in. Hg)
					(ft./S)	(ft./S)	ACTUAL (in. H ₂ O)	DESIRED (in. H ₂ O)			INLET (in. H ₂ O)	OUTLET (in. H ₂ O)						
1212	NA	0	/	/	/	/	1.6	1.6	050.200	68	56	NA	NA	NA	NA	61	5	
1217		5	/	/	/	/	/	/	54.08	66	57					53	5	
1222		10	/	/	/	/	/	/	50.92	68	57					53	5	
1227		15	/	/	/	/	/	/	64.74	70	58					52	5	
1232		20	/	/	/	/	/	/	65.48	71	59					52	5	
1237		25	/	/	/	/	/	/	69.30	72	59					53	5	
1242		30	/	/	/	/	/	/	73.12	72	59					54	5	
1247		35	/	/	/	/	/	/	78.96	73	61					55	5	
1252		40	/	/	/	/	/	/	80.73	74	60					55	5	
1257		45	/	/	/	/	/	/	83.49	75	60					56	5	
1302		50	/	/	/	/	/	/	88.26	76	60					57	5	
1307		55	/	/	/	/	/	/	92.39	77	60					57	5	
1312		60	/	/	/	/	/	/	96.178									
										AVG Given → 65.0		NA	VA	NA	<68	~5		

VOLUME OF WEIGHT OF DRYED		IMPTINGER				SILICA GEL
		#1	#2	#3	#4	WEIGHT
		168	100	0	54	208.9
		180	170	5	56	705
		68	0	0	56	
REAL						
INITIAL						
LIQUID COLLECTED						

COAST & DISTRICT OFFICE
LABORATORY

CEM'S

DREARY DATA	TIME	CO ₂	O ₂
TRIAL 1			
TRIAL 2			
TRIAL 3			
Average			

SYSTEM FILL:	0.001 ✓	CMA615-7E
POST:	0.001 ✓	CMA615-7E
PYROT FILL:	0kV ✓	0>3" H ₂ O
POST:	✓ - ok	0>3" H ₂ O

CEM's



FIELD DATA

PLANT	MFLC	AMBIENT TEMPERATURE	H5	PROBE HEATER SETTING	NA	WEIGHT OF PARTICULATE, mg	A" B"		
DATE	2-27-03	BAROMETRIC PRESSURE	29.68	HEATER BOX SETTING	NA				
LOCATION	Polioison IL	ASSUMED MOISTURE, %	NA	METER H ₂ O	1.66				
OPERATOR	MB	PROBE LENGTH, in.	84"	C _p FACTOR	0.84				
STACK NO.	SRU66F-5	NOZZLE DIAMETER, in.	NA	V _f FACTOR	0.998				
RUN NO.	10	STACK DIAMETER, in.	66"	PITOT/THERM #	839				
SAMPLE BOX NO.	APFEX	MINUTES PER POINT	NA	TOTAL		mg	PRESSURE DIFFERENTIAL	CROSS SECTION IN ²	
METER BOX NO.	40827	NUMBER OF POINTS	16						EAS SAMPLE
START TIME	1339	NUMBER OF PORTS	2						

PLACE TIME	TRAVELING POINT NUMBER	STARTING TIME (H:MM)	STATIC PRESSURE (in. H ₂ O)	STAGE TIME (H:MM)	VELOCITY		AIR FLOW METER		GAS SAMPLE VOLUME (ft ³ /min)	TEMP AT DRY GAS METER		BAMFLEX BOX TEMP °F	COND. EXIT TEMP °F	RESERVE TEMP °F	BATTERIES START TEMP °F	TEMP LOCATION in. H ₂ O
					(ft/min)	HEAD	ACTUAL	DESIRED		INLET (T _{in}) °F	OUTLET (T _{out}) °F					
1339	NA	0	/	/	/	/	1.6	1.60	096.900	59	59	NA	NA	NA	60	5
1344		5	/	/	/	/	/	/	100.76	62	59	/	/	/	58	5
1349		10	/	/	/	/	/	/	104.53	67	59	/	/	/	54	5
1354		15	/	/	/	/	/	/	108.39	72	55	/	/	/	50	5
1359		20	/	/	/	/	/	/	112.01	76	59	/	/	/	50	5
1404		25	/	/	/	/	/	/	116.74	80	59	/	/	/	50	5
1409		30	/	/	/	/	/	/	120.21	80	59	/	/	/	50	5
1414		35	/	/	/	/	/	/	124.75	80	61	/	/	/	51	5
1419		40	/	/	/	/	/	/	128.03	78	60	/	/	/	50	5
1424		45	/	/	/	/	/	/	131.81	74	58	/	/	/	50	5
1429		50	/	/	/	/	/	/	135.68	74	58	/	/	/	51	5
1434		55	/	/	/	/	/	/	139.54	74	59	/	/	/	50	5
1439		60	/	/	/	/	/	/	143.393			/	/	/		
NA (60) 1.6 1.6 46.493 105 66.1 NA NA 5																

SILICA GEL		IMPFINGER			DREAG		
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34						

SILICA GEL		IMPFINGER			DREAG		
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34	0	0	3.2	Average		

SILICA GEL		IMPFINGER		DREAG			
		VOLUME (ml) OR WEIGHT (g)			TIME	CO ₂	O ₂
1	34	8	83	34	TRIAL 1		
TOTAL	134	8	8	208.2	TRIAL 2		
TOTAL	193.4	100	0	180	TRIAL 3		
LIQUID COLLECTED	34						



FIELD DATA

48		NA		WEIGHT OF PARTICULATE, mg			A= _____ B= _____
PROBE HEATER SETTING		NA		Filice No.	NA		
HEATER BOX SETTING		NA		Sample	NA		
METER H ₂ O		1.60		Blank type			
C ₀ FACTOR		.84		Tare wt.			
Y ₁ FACTOR		.998		Wt. fuel			
PITOT/THERM #		839		TOTAL			
SAMPLE BOX NO.		NA		PRESSURE		CROSS SECTION	
METER BOX NO.		16		DIFFERENTIAL		EAST	
START TIME		1502		GAS SAMPLE		DIFFERENTIAL	

STAGE TIME	TREATMENT POINT NUMBER	STARTING TIME (H:MM)	STATIC PRESSURE (in H ₂ O)	STAGE TEMP. °F	VELOCITY HEAD		GROSS DRIFTS		OAS SAMPLE VOLUME (Vol.)	TEMP AT DRY QUANTITY		SAMPLE BOX TEMP. °F	COND. EXIT TEMP. °F	PERCENT MOISTURE TEMP. °F	WATER-TEST TEMP. °F	TOTAL WEIGHT lb.
					(AB) $\frac{Q}{A \cdot V}$	(AC) $\frac{Q}{A \cdot V}$	ACTUAL (AB) in H ₂ O	DESIRED		INLET (Temp.) °F	OUTLET (Temp.) °F					
1502	NA	0	/	/	/	/	1.6	1.60	144.300	61	58	NA	NA	NA	61	7
1507		5	/	/	/	/	/	/	148.06	62	55				47	7
1512		10	50	/	/	/	/	/	151.23	69	66				48	7
1517		15	/	/	/	/	/	/	155.67	70	60				48	7
1522		20	/	/	/	/	/	/	159.41	72	60				48	7
1527		25	/	/	/	/	/	/	162.11	73	59				47	7
1532		30	J	/	/	/	/	/	166.32	75	58				47	7
1537		35	X A	/	/	/	/	/	170.60	75	57				47	7
1542		40	/	/	/	/	/	/	174.38	78	59				47	7
1547		45	/	/	/	/	/	/	178.18	78	59				47	7
1552		50	/	/	/	/	/	/	181.97	79	60				48	7
1557	V	55	/	/	/	/	/	/	185.77	78	60				48	7
1602		60	/	/	/	/	/	/	189.575							
AVERAGE	NA	60	/	/	/	/	1.6	1.60	42.275	$\overline{\text{Avg Given}} = 65.9$		NA	NA	NA	L 68	7

VOLUME AND WEIGHT OF LIQUID						BUTYRINGER		SILICA GEL WEIGHT
VOLUME COLLECTED		#1	#2	#3	#4	VOLUME (ml) OR WEIGHT (g)		
FINAL	178		180	=	56		8	
INITIAL	140		180	=	36		200	
LIQUID COLLECTED	38		0	-	20		8	

CCMS

GAS FLOW	
SYSTEM PRESS.	0.00 ✓ CMHG/HR
POST.	13.96 ✓ CMHG/HR
FITOT PRESS.	OK ✓ @ > 3" H ₂ O
POST.	OK ✓ @ > 5" H ₂ O

TREAT DATA	TIME	CO ₂	O ₂
TRIAL 1			
TRIAL 2			
TRIAL 3			
Average			

VOLUME AND WEIGHT OF LIQUID WATERING SOLUTION				BOTTLING		SILICA GEL WEIGHT	
#1	#2	#3	#4	VOLUME (ml) OR WEIGHT (g)			
178	180	-	56				
190	180	-	36				
78	22	-	56				
				FINAL	INITIAL		
				LIQUID COLLECTED			

TREAT DATA	TIME	CO ₂	O ₂
TRIAL 1			
TRIAL 2			
TRIAL 3			
Average			

EARTH AIR	
SYSTEM FILL:	0.00 ✓ CMAQ-178
POST:	13.96 ✓ CMAQ-178
FITOT FILL:	OK ✓ @ > 3" H ₂ O
POST:	OK ✓ @ > 3" H ₂ O



FIELD DATA

PLANT MacAlloy MP LLC AMBIENT TEMPERATURE
DATE 2-27-07 BAROMETRIC PRESSURE
LOCATION Roblin 1201 PL ASSUMED MOISTURE, %
OPERATOR SR PROBE LENGTH, in.
STACK NO. 3RD 66 F-5 NOZZLE DIAMETER, in.
RUN NO. 12 STACK DIAMETER, in.
SAMPLE BOX NO. Alex MINUTES PER POINT
METER BOX NO. 40827 NUMBER OF POINTS
START TIME 1000 NUMBER OF PORTS

PROB HEATER SETTING NA
HEATER BOX SETTING NA
METER H₂ 1.60
C₂ FACTOR .84
Y₁ FACTOR .998
PITOT/THERM # 839

WEIGHT OF PARTICULATE, mg

Filter No.	Weight
Blank	NA
Sample	1
Filter	1
NO. 100	1

TOTAL

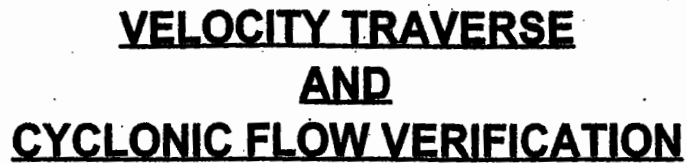
CLOCK TIME	FLOWING POINT NUMBER	SAMPLING TIME (H:MM)	STATIC PRESSURE (in. H ₂ O)	STACK TEMPERATURE (°F)	VELOCITY HEAD (in. H ₂ O)	VELOCITY (ft/min)	PRESSURE DIFFERENCE ACROSS DIFFERENCE METER (in. H ₂ O)		GAS SAMPLE VOLUME (ft ³)	GAS SAMPLE TEMPERATURE (°F)		SAMPLE BOX TEMPERATURE (°F)	COND. TEMP (°F)	CURRENT METER TEMP (°F)	METER TEMP (°F)	PITOT VACUUM (in. Hg)
							ACTUAL	DESIRED		INLET (°F)	OUTLET (°F)					
1622	NA	0					1.6	1.6	134.900	57	51	NA	NA	NA	50	5
1627		5							133.68	56	50				43	5
1632		10							132.81	57	48				43	5
1637		15							201.97	57	47				44	5
1642		20							205.03	58	46				44	5
1647		25							208.74	59	45				44	5
1652		30							212.49	57	45				43	5
1657		35							216.25	56	44				43	5
1702		40							219.99	54	42				43	5
1707		45							223.70	54	42				44	5
1712		50							227.41	54	43				44	5
1717		55							231.27	55	42				43	5
1722		60							234.763							
AVERAGE																
NA							1.6	1.6	44.863	Ave - 75.8		NA	NA	NA	NA	5

SILICA GEL WEIGHT	TAPFINGER		VOLUME (ml) OR WEIGHT (g)	SILICA GEL WEIGHT
	#1	#2		
REGUL	170	100	36	208.8
INITIAL	100	100	36	200
LIQUID COLLECTED	70	70	36	200
TOTAL	COLLECTED (g) ml or g			200.8

ORIGIN	DATA	TIME	CO ₂	O ₂
TRIAL 1				
TRIAL 2				
TRIAL 3				
Average				

SYSTEM FILE: 00017 CMO 0574
POST: 00017 CMO 0574
PITOT FILE: OK ✓ 0-574.0
POST: OK ✓ 0-574.0

VELOCITY TRAVERSE AND CYCLONIC FLOW VERIFICATION



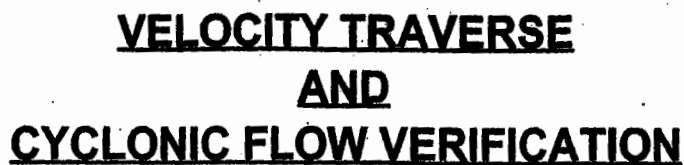
OPERATORS

JE-RB

SCHEMATIC OF TRAVERSE POINT LAYOUT

RUN NO. Post 3 - Pro 4 STATIC, In.H2O - 0.56

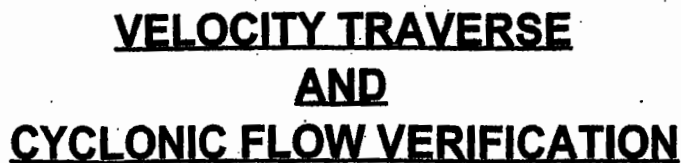
TRAVERSE POINT NUMBER	VELOCITY HEAD (ΔP_s), in.H₂O	STACK TEMP. (T_s), °F	YAW ANGLE °
S-1	0.11	1241	
2	0.11	1242	
3	0.12	1244	
4	0.12	1245	
5	0.13	1258	
6	0.13	1251	
7	0.12	1230	
8	0.10	1103	
w-1	0.11	1210	
2	0.11	1223	
3	0.12	1236	
4	0.13	1237	
5	0.13	1234	
6	0.12	1229	
7	0.10	1221	
8	0.09	1064	
AVERAGE	0.3396	1216.3	



SCHEMATIC OF TRAVERSE POINT LAYOUT

RUN NO. _____ **STATIC, in.H2O** _____

[illegible]

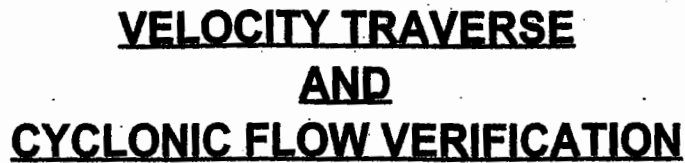


SCHEMATIC OF TRAVERSE POINT LAYOUT

RUN NO. Post 5/Pre 6 STATIC, ln.H2O -0.55

[illegible]

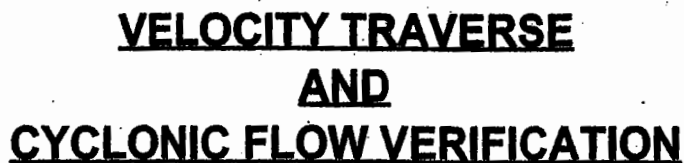
0.3522



SCHEMATIC OF TRAVERSE POINT LAYOUT

RUN NO. Post 9/12/10 STATIC, in. H₂O -0.56

TRAVERSE POINT NUMBER	VELOCITY HEAD (ΔP_s), in.H ₂ O	STACK TEMP. (T _s), °F	YAW ANGLE °
S- 1	.09	1170	
2	.11	1200	
3	.11	1207	
4	.13	1223	
5	.14	1224	
6	.12	1225	
7	.11	1221	
8	.10	1215	
N 1	.10	1165	
2	.11	1213	
3	.12	1220	
4	.13	1226	
5	.14	1222	
6	.13	1219	
7	.11	1207	
8	.09	1187	
AVERAGE	.3383	1209.0	



SCHEMATIC OF TRAVERSE POINT LAYOUT

RUN NO. post/pre 12 STATIC, in.H2O _____

TRAVERSE POINT NUMBER	VELOCITY HEAD (ΔP_s), in.H ₂ O	STACK TEMP. (T _s), °F	YAW ANGLE °
S- 1	0.09	1175	
2	0.11	1201	
3	0.12	1211	
4	0.13	1223	
5	0.14	1225	
6	0.12	1234	
7	0.11	1222	
8	0.10	1201	
w- 1	0.10	1189	
2	0.10	1195	
3	0.11	1206	
4	0.12	1214	
5	0.13	1223	
6	0.13	1224	
7	0.12	1217	
8	0.10	1159	
AVERAGE	0.3376	1207.4	

TRAVERSE POINT LOCATION FOR CIRCULAR AND RECTANGULAR DUCTS

PLANT Marathon WPLC

DATE 2-28-07

SAMPLING LOCATION SKU 62 F-3

INSIDE OF FAR WALL TO

OUTSIDE OF PORT (DISTANCE C) 74"

OUTSIDE OF NEAR WALL TO

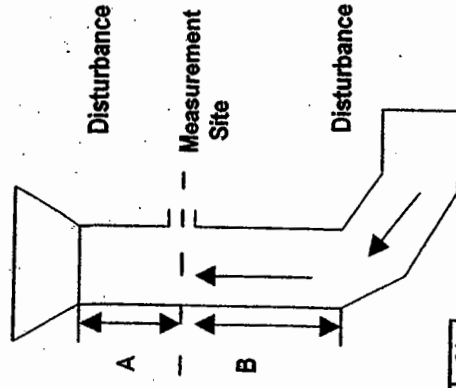
OUTSIDE OF PORT (DISTANCE D) 16"

STACK ID 64

NEAREST UPSTREAM FROM DISTURBANCE (A) > 2 DD

NEAREST DOWNSTREAM FROM DISTURBANCE (B) > 2 DD

CALCULATOR JR



Location of Traverse Points in Rectangular Stacks

	2	3	4	5	6	7	8	9	10	11	12
1	25.0	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75.0	60.0	37.5	30.0	25.0	21.4	18.8	16.7	15.0	13.6	12.5
3		63.3	62.5	60.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50.0	43.8	38.0	35.0	31.8	29.2
5				90.0	75.0	64.3	56.3	50.0	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50.0	46.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											85.8

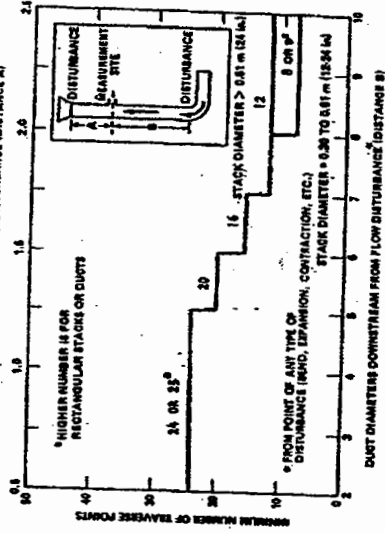
Rectangular Duct Equivalent Diameter Determination $2 \times L \times W / L + W$

LOCATION OF TRAVERSE POINTS ON CIRCULAR STACKS

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			189.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8				196.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8
9					91.8	82.3	73.1	62.5	38.2	30.6	26.2
10					97.4	88.2	79.9	71.7	61.8	38.8	31.5
11						93.3	85.4	78.0	70.4	61.2	39.3
12							97.9	90.1	83.1	76.4	69.4
13								94.3	87.5	81.2	75.0
14									98.2	91.5	85.4
15										95.1	89.1
16											98.4
17											
18											
19											
20											
21											
22											
23											
24											

TRAVERSE POINT NUMBER	FRACTION OF STACK I.D.	STACK I.D.	PRODUCT OF COLUMNS 1 AND 2 (TO NEAREST 1/8 INCH)	DISTANCE D (PORT DEPTH)	TRAVERSE POINT LOCATION FROM OUTSIDE OF PORT (SUM OF COLUMNS 3 AND 4)
1	0.52	64	2.05	10	12.05
2	1.05		6.72		16.72
3	1.94		12.42		22.42
4	3.23		20.67		30.67
5	6.77		43.33		53.33
6	8.06		51.58		61.58
7	8.95		57.28		67.28
8	9.68		61.95		71.95
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

DUCT DIAMETERS UPSTREAM FROM FLOW DISTURBANCE (DISTANCE A)



DUCT DIAMETERS DOWNSTREAM FROM FLOW DISTURBANCE (DISTANCE B)

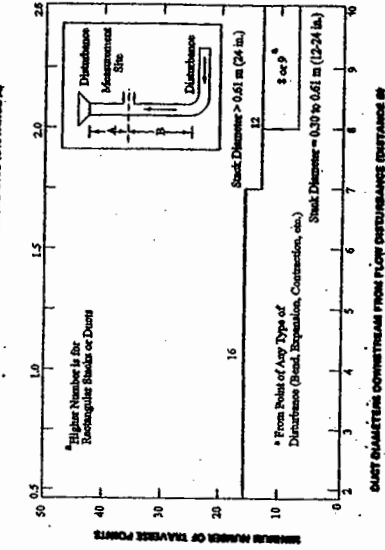


Figure 1-2. Minimum number of traverse points for velocity measurements



FIELD DATA

PLANT Marathon MPEC AMBIENT TEMPERATURE
DATE 2-28-07 BAROMETRIC PRESSURE
LOCATION Robinson, TX ASSUMED MOISTURE, %
OPERATOR SR PROBE LENGTH, in.
STACK NO. SR4 602 F-3 NOZZLE DIAMETER, in.
RUN NO. 1 STACK DIAMETER, in.
SAMPLE BOX NO. Alex MINUTES PER POINT
METER BOX NO. 641209 NUMBER OF POINTS
START TIME 1035 NUMBER OF PORTS

38
29.62
NA
84"
NA
64"
NA
16
2

PROBE HEATER SETTING NA
HEATER BOX SETTING NA
METER H₂O 1.74
C₂ FACTOR 1.84
Y₂ FACTOR 1.993
PTOT/THERM # 833

WEIGHT OF PARTICULATE, mg			
Filter	NA		
Sample			
Probe			
Tube			
Weight			
TOTAL			

FLOW TIME	TRAPPER POINT NUMBER	SAMPLING TIME (s)	STATIC PRESSURE (in. H ₂ O)	STACK TEMPERATURE (°F)	VELOCITY HEAD (in. H ₂ O)	VELOCITY (ft/min)	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (in. H ₂ O)		GAS SAMPLE VOLUME (ft ³)	GAS SAMPLE TEMP AT DRY GAS METER (°F)		SAMPLE BOX TEMP (°F)	COND. EXIT TEMP (°F)	STURTEVANT MANOMETER TEMP (°F)	LAST MEASURED ORIFICE TEMP (°F)	POINT LOCATION
							ACTUAL	DESIGNED		INLET (Time)	OUTLET (Time)					
1025	NA	0					1.7	1.74	911.800	53	54	NA	NA	NA	44	5
1030		5					1.7		915.31	61	52				43	5
1035		10					1.7		914.45	67	53				44	5
1040		15					1.7		923.603	76	54				44	5
1045		20					1.7		927.89	78	55				44	5
1050		25					1.7		930.10	77	57				44	5
1055		30					1.7		934.54	77	58				44	5
1100		35					1.7		938.72	78	59				43	5
1105		40					1.7		942.41	79	59				44	5
1110		45					1.7		945.93	78	60				45	5
1115		50					1.7		949.15	77	61				45	5
1120		55					1.7		953.37	78	60				45	5
1125		60							957.480							
										AUG 45.680 Given		NA	NA	NA	< 68	5

WEIGHT OF PARTICULATE	IMPFINGER VOLUME (ml) OR WEIGHT (g)				SILICA GEL WEIGHT	
	#1	#2	#3	#4	#1	#2
2	174	100			207	207
TOTAL	100	100			36	36
LIQUID COLLECTED	74	6			36	36
TOTAL	COLLECTED (quantity in g)				7.7	

ORIFICE DATA	TIME	CO ₂	O ₂
TRIAL 1			
TRIAL 2			
TRIAL 3			
Average			

C.B.M.'S

SYSTEM PRESSURE		SYSTEM PRESSURE	
STARTING PRESS.	0.001	STARTING PRESS.	0.001
STOPPING PRESS.	0.001	STOPPING PRESS.	0.001
STARTING PRESS.	0.001	STOPPING PRESS.	0.001
STOPPING PRESS.	0.001	STOPPING PRESS.	0.001



FIELD DATA

CLIENT	Washco, Inc.	AMBIENT TEMPERATURE	40
DATE	2-28-07	BAROMETRIC PRESSURE	29.56
LOCATION	Robinson IL	ASSUMED MOISTURE, %	NA
OPERATOR	JR	PROBE LENGTH, in.	84"
STACK NO.	SAV 62 F-3	NOZZLE DIAMETER, in.	NA
RUN NO.	2	STACK DIAMETER, in.	64"
SAMPLE BOX NO.	AYex	MINUTES PER POINT	NA
METER BOX NO.	611209	NUMBER OF PORTS	16
START TIME	1703	NUMBER OF PORTS	2

PROBE HEATER SETTING	NA
HEATER BOX SETTING	NA
METER H ₂ O	1.74
C ₂ FACTOR	84
Y ₂ FACTOR	1543
PITOT/THERM #	834

WEIGHT OF FERTILIZER, lb.	NA
Flue No.	NA
Sample No.	1
Time at	
Net Wt.	
TOTAL	

STACK TIME	TRAP NO.	SAMPLING TIME (min)	STATIC PRESSURE (in. H ₂ O)	STACK TEMP (°F)	VELOCITY (ft/min)	HEAD (ft)	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (in. H ₂ O)		GAS SAMPLE VOLUME (ft ³)	GAS SAMPLE TRAP AT		SAMPLE BOX TEMP (°F)	COND. EXIT TEMP (°F)	HUMIDITY MATERIAL TEMP (°F)	LAST MEASURED TEMP (°F)	PORT LOCATION
							ACTUAL	DERIVED		INLET (T _{in})	OUTLET (T _{out})					
1203	NA	0					1.7	1.74	458.100	76	62	NA	NA	NA	424	4
1208		5					1.7		462.42	88	62				45	4
1213		10					1.7		466.56	89	62				45	4
1218		15					1.7		469.81	92	63				45	4
1223		20					1.7		473.42	93	63				46	4
1228		25					1.7		477.31	93	64				45	4
1233		30					1.7		481.12	94	64				47	4
1238		35					1.7		484.84	93	64				47	4
1243		40					1.7		488.54	96	66				49	4
1248		45					1.7		492.01	98	67				48	4
1253		50					1.7		495.94	99	68				48	4
1258		55					1.7		499.15	101	70				49	4
103		60					1.7		003.323							

STACK	NA	60	1.7	1.74	45.223	AVG Given 78.6	NA	NA	NA	< 68	4
-------	----	----	-----	------	--------	----------------	----	----	----	------	---

TRIAL 1	DATA	TIME	CO ₂	O ₂
TRIAL 2				
TRIAL 3				
Average				

13533
1255.1
-0.59

SILICA GEL	WEIGHT
WATER	84
WATER	36
WATER	54
WATER	200
WATER	7.6

INLET	114	100	0	36	84
INLET	100	100	0	54	200
INLET	74	0	0	54	7.6
TOTAL	288	200	0	144	291.6

SYSTEM FEE	90.00	CFR 15.74
POST	0.00	CFR 15.74
PITOT FEE	0.00	CFR 15.74
POST	0.00	CFR 15.74



FIELD DATA

DYEAT	TIME	CO ₂	O ₂
DATA			
TRIAL 1			
TRIAL 2			
TRIAL 3			
Average			

SYSTEM FEE	0.00	✓	CHARGE SLIP
POST	0.00	OK	CHARGE SLIP
PIVOT FEE	OK	✓	0 > 37.00
POST	41/-	OK	0 > 37.00



FIELD DATA

TEST NO.	60	PROBE HEATER SETTING	NA		
DATE	2-28-07	HEATER BOX SETTING	NA		
LOCATION	Robinson IL	METER H ₂ O	1.74		
OPERATOR	RB/JJR	C _p FACTOR	0.84		
STACK NO.	SRV 62-F-3	Y ₂ FACTOR	0.993		
RUN NO.	4	PITOT/THERM #	839		
SAMPLE BOX NO.	APEX			TOTAL	mg
METER BOX NO.	611209				
START TIME	1443				

WRIGHT OF PATENT, INC.

CRACK SECTION

LAST

THIS SAMPLE

PRESSURE DIFFERENTIAL

STATION TIME	MEASURE POINT NUMBER	LAMPING TIME (H) MIN.	STATIC PRESSURE (in. H ₂ O)	SEACH TEMP F	VELOCITY		ACROSS ORIFICE		GAS SAMPLE VOLUME (cu ft)	TEMP AT DUS GAS METER		BARFLE TEMP F	CHRD. HEAT TEMP F	CURRENT MEASURE TEMP F	INSTRUMENT SERIAL TEMP F	TIME H:MM
					HEAD (in.)	FEET (ft)	ACTUAL	DESIRED		INLET (T _{in}) F	OUTLET (T _{out}) F					
1443	T	0	/	/	/	/	1.7	1.74	051.300	72	66	NA	NA	51		4
1448	T	5	/	/	/	/	1.7		055.75	85	66			47		4
1453		10	/	/	/	/	1.7		059.86	87	66			47		4
1458		15	/	/	/	/	1.7		063.91	89	63			47		4
1503		20	/	/	/	/	1.7		066.42	92	64			47		4
1508		25	/	/	/	/	1.7		070.23	94	64			48		4
1513		30	/	/	/	/	1.7		074.51	96	64			48		4
1518		35	/	/	/	/	1.7		078.27	95	65			48		4
1523		40	/	/	/	/	1.7		082.98	95	65			49		4
1528		45	/	/	/	/	1.7		086.22	96	64			49		4
1533		50	/	/	/	/	1.7		090.48	95	64			50		4
1538		55	/	/	/	/	1.7		093.92	97	64			51		4
1543	T	66	/	/	/	/	1.7	↓	097.237							

WEIGHT AND WEIGHT OF DRIED		IMPFINGER				SILICA GEL
MATERIAL COLLECTED		VOLUME (ml) OR WEIGHT (g)				WEIGHT
		#1	#2	#3	#4	
REAL		178	150	0		205
INITIAL		100	100	0	56	200
LIQUID COLLECTED		58	3	0		75
TOTAL	COLLECTED (moisture and air)					

DYEAT	TIME	CO ₂	O ₂
DATA			
TRIAL 1			
TRIAL 2			
TRIAL 3			
TRIAL 5			
AVG			

SYSTEM FEE 2.00/ok CMAA5742
 POST 0.00/✓ CMAA5742
 PILOT FEE 1/- ok CMAA5740
 POST 1/- ok CMAA5740



FIELD DATA

PLANT	Macthon MPCC		AMBIENT TEMPERATURE	58	PROBE HEATER SETTING	N/A	WEIGHT OF PARTICULATE, mg	A= B=
DATE	2-28-67		BAROMETRIC PRESSURE	29.35	HEATER BOX SETTING	N/A		
LOCATION	Robinson, IL		ASSUMED MOISTURE, %	N/A	METER H ₂ O	1.74		
OPERATOR	JR		PROBE LENGTH, in.	84"	C _p FACTOR	0.84		
STACK NO.	300626-3		NOZZLE DIAMETER, in.	N/A	Y ₂ FACTOR	0.593		
RUN NO.	5		STACK DIAMETER, in.	64"	PITOT/THERM #	589 839		
SAMPLE BOX NO.	APC		MINUTES PER POINT	N/A	TOTAL		mg	
METER BOX NO.	G11209		NUMBER OF POINTS	16	PRESSURE DIFFERENTIAL			
START TIME	11003		NUMBER OF PORTS	2	EAS SAMPLE			
				CRACK SECTION		LAST		

TEST TIME	TESTING POST NUMBER	STARTING TIME (H:MM)	STATIC PRESSURE (PSI)	STAGE TEMP (°F)	VELOCITY		AGRESS OFFICE		GAS SAMPLE VOLUME (cu ft)	TEMP AT		BAMBLE BOX TEMP (°F)	COND HEAT TEMP (°F)	SHEET SAMPLE TEMP (°F)	SHEET TEMP (°F)	TIME VACATING H:MM
					(AP)	(AF)	ACTUAL	DESIRED		INLET (T _{in}) (°F)	OUTLET (T _{out}) (°F)					
1603	NA	0	/	/	/	/	1.7	1.74	098.000	73	66	NA	NA	NA	57	6
1608	/	5	/	/	/	/	1.7	/	102.03	87	66	/	/	/	57	6
1613	/	10	/	/	/	/	1.7	/	105.84	92	67	/	/	/	52	6
1618	/	15	/	/	/	/	1.7	/	109.60	95	67	/	/	/	52	6
1623	/	20	/	/	/	/	1.7	/	113.92	97	68	/	/	/	52	6
1628	/	25	/	/	/	/	1.7	/	117.53	97	68	/	/	/	52	6
1633	/	30	/	/	/	/	1.7	/	120.91	97	68	/	/	/	52	6
1638	/	35	/	/	/	/	1.7	/	124.25	97	67	/	/	/	52	6
1643	/	40	/	/	/	/	1.7	/	128.43	97	68	/	/	/	52	6
1648	/	45	/	/	/	/	1.7	/	132.01	97	67	/	/	/	52	6
1653	/	50	/	/	/	/	1.7	/	135.95	97	67	/	/	/	52	6
1658	↓	55	/	/	/	/	1.7	↓	139.69	96	68	↓	↓	↓	53	6
1703		60	/	/	/	/			143.442							
<div style="display: flex; justify-content: space-between;"> NA 60 1.7 1.74 45.442 avg Given 80.4 NA NA NA 68 NA </div>																

WEIGHTS AND VOLUMES OF DRYED		IMPIFINGER				SILICA GEL WEIGHT
WATER COLLECTED		VOLUME (ml) OR WEIGHT (g)				
	#1	#2	#3	#4		
2						
WATER	130	100	—	36		207.1
WATER	100	100	—	55		200
WATER	20	0	—	58		7.1
TOTAL COLLECTED (quantity ml or g)						

DECAT DATA		TIME		CO ₂	O ₂
TRIAL 1					
TRIAL 2					
TRIAL 3					
Average					

SYSTEM PRESS.		CYCLES PER MIN.	
SYSTEM PRESS.	0.001	✓	
POST.	0.001	✓	

PIVOT PRESS.		CYCLES PER MIN.	
PIVOT PRESS.	71-0K	✓	
POST.	71-0K	✓	

507

SYSTEM PRESS. 0.001 ✓
POST. 0.001 ✓

PIVOT PRESS. 71-0K ✓
POST. 71-0K ✓



FIELD DATA

MARSHEN MP-LLC		AMBIENT TEMPERATURE	
DATE	2-28-07	BAROMETRIC PRESSURE	
LOCATION	Robinson, IL	ASSUMED MOISTURE, %	
OPERATOR	KB	PROB LENGTH, in.	
STACK NO.	SPU 62-F3	NOZZLE DIAMETER, in.	
RUN NO.	6	STACK DIAMETER, in.	
SAMPLE BOX NO.	AP64	MINUTES PER POINT	
METER BOX NO.	6/1209	NUMBER OF POINTS	
START TIME	1721	NUMBER OF PORTS	

57		PROB HEATER SETTING		NA	
29.35		HEATER BOX SETTING		NA	
NA		METER H ₂ O		1.74	
84"		C _p FACTOR		5.84	
NA		Y ₆ FACTOR		0.493	
64"		PITOT/THERM #		834	
NA				TOTAL	
16					
2					

PRESSURE		DIFFERENTIAL	

WEIGHT OF PARTICULATE, mg		A=		B=	
Filter No.	NA				
Sample					
Blank wt	1				
Test wt					
Wt. gain					

CROSS SECTION		EARTH	

BLOCK TAG	TRAVELER PORT NUMBER	LAPPING TIME (H:MM)	STATIC PRESSURE (in. H ₂ O)	SLAGE TEMP (°F)	VELOCITY		ACROSS-DIFFERENCE		GAS SAMPLE VOLUME (V ₀)	TEMP AT DRY GAS METER		HARTLEY BOX TEMP (°F)	COND. EXIT TEMP (°F)	REHEAT SHEATH TEMP (°F)	SHEATH TEMP (°F)	TOTAL VACUUM in. Hg	
					(ft/s)	(m/s)	(in. H ₂ O)	(mm H ₂ O)		INLET TEMP (°C)	OUTLET TEMP (°C)						
1721	NA	0					1.7	1.74	143.900	75	66	NA	NA	NA	58	5	
1726		5					1.7		147.73	82	65				50	5	
1731		10					1.7		151.40	87	65				50	5	
1736		15					1.7		155.62	89	65				50	5	
1741		20					1.7		159.20	92	64				50	5	
1746		25					1.7		162.97	92	64				50	5	
1751		30					1.7		166.72	93	63				50	5	
1756		35					1.7		170.49	93	63				50	5	
1801		40					1.7		174.26	94	63				50	5	
1806		45					1.7		178.00	95	63				50	5	
1811		50					1.7		181.67	94	63				50	5	
1816		55					1.7		185.53	93	64				50	5	
1821		60							189.245								
										Avg Given		27.0	NA	NA	NA	NA	
												45.348	1.74	1.7	1.74	45.348	1.74

WEIGHTING WEIGHT (g) DRIED		TAPFINGER				SILICA GEL WEIGHT
WATER COLLECTED		VOLUME (ml) OR WEIGHT (g)				
		#1	#2	#3	#4	
FINAL						
INITIAL		152	100	0	36	207.3
LIQUID COLLECTED		100	100	-	56	200
TOTAL		82	0	0	36	
		COLLECTED (quantity ml or g)				
		82 + 1.3				

DISCART DATA	TIME	CO ₂	O ₂
TRIAL 1			
TRIAL 2			
TRIAL 3			
Average			

CEM'S

CARGO	
SYSTEM FEE:	0.00 ✓ CARGOING
POST:	0.00 ✓ CARGOING
PAYOT FEE:	1/- 0k ✓ @ > 375.0
POST:	1/- 0k ✓ @ > 375.0



FIELD DATA

PLANT	Manitowoc MARC	AMBIENT TEMPERATURE	51
DATE	2-28-07	BAROMETRIC PRESSURE	29.32
LOCATION	Wilmington, IL	ASSUMED MOISTURE, %	NA
OPERATOR	30	PROBE LENGTH, in.	84"
STACK NO.	56 U 62 F3	NOZZLE DIAMETER, in.	NA
RUN NO.	4	STACK DIAMETER, in.	64"
SAMPLE BOX NO.	AP-2	MINUTES PER POINT	NA
METER BOX NO.	61209	NUMBER OF POINTS	16
START TIME	1840	NUMBER OF PORTS	2

PROBE HEATER SETTING	NA
HEATER BOX SETTING	NA
METER H ₀	1.74
C ₀ FACTOR	0.84
Y ₀ FACTOR	0.93
PLOT/THERM#	839

WEIGHT OF PARTICULATE, mg	NA
Filter No.	NA
Sample	NA
Final wt.	NA
Loss wt.	NA
Weight	NA
TOTAL	NA



TIME	TRAVEL POINT NUMBER	SAMPLING TIME (s)	STACK PRESSURE (in. H ₂ O)	STACK TEMP (°F)	VELOCITY (ft/min)	HEAD (ft)	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (AIR in. H ₂ O)		GAS SAMPLE VOLUME (ft ³)	GAS SAMPLE DRY GAS METER		SAMPLE BOX TEMP (°F)	COND. EXT. TEMP (°F)	CURRENT METER TEMP (°F)	LAST METER TEMP (°F)	TIME
							ACTUAL	DESIRED		INLET (ft ³)	OUTLET (ft ³)					
1840	NA	0					1.7	1.74	184.960	64	59	NA	NA	NA	61	3
1845		5					1.7		183.65	77	60				57	3
1850		10					1.7		197.51	85	60				54	3
1855		15					1.7		201.25	88	60				54	3
1900		20					1.7		203.98	89	60				54	3
1905		25					1.7		208.74	90	60				54	3
1910		30					1.7		211.54	90	61				55	3
1915		35					1.7		216.31	91	61				55	3
1920		40					1.7		220.08	91	61				55	3
1925		45					1.7		223.40	91	61				56	3
1930		50					1.7		227.55	90	61				56	3
1935		55					1.7		231.23	91	62				56	3
1940		60					1.7		234.94							
TOTAL																
AVERAGE							1.7	1.74	43.098	Avg. Given		NA	NA	NA	<68	5

SYSTEM FILE	0.00	0.00	0.00	0.00
POST	0.00	0.00	0.00	0.00
PILOT FILE	7/1-04	7/1-04	7/1-04	7/1-04
POST	7/1-04	7/1-04	7/1-04	7/1-04

ORIFICE DATA	TIME	CO ₂	CO
TRIAL 1			
TRIAL 2			
TRIAL 3			
Average			

Cems

DATE	2-28-07	TIME	1840
LOCATION	Wilmington, IL	STACK NO.	56 U 62 F3
OPERATOR	30	STACK DIAMETER, in.	64"
STACK NO.	56 U 62 F3	NOZZLE DIAMETER, in.	NA
RUN NO.	4	MINUTES PER POINT	NA
SAMPLE BOX NO.	AP-2	NUMBER OF POINTS	16
METER BOX NO.	61209	NUMBER OF PORTS	2
START TIME	1840		

DATE	2-28-07	TIME	1840
LOCATION	Wilmington, IL	STACK NO.	56 U 62 F3
OPERATOR	30	STACK DIAMETER, in.	64"
STACK NO.	56 U 62 F3	NOZZLE DIAMETER, in.	NA
RUN NO.	4	MINUTES PER POINT	NA
SAMPLE BOX NO.	AP-2	NUMBER OF POINTS	16
METER BOX NO.	61209	NUMBER OF PORTS	2
START TIME	1840		



FIELD DATA

CELANO	MPCLLC	AMBIENT TEMPERATURE	50	PROBE HEATER SETTING	VA	WEIGHT OF PARTICULATE, mg	
DATE	2-28-07	BAROMETRIC PRESSURE	29.32	HEATER BOX SETTING	VA	Filtering	
LOCATION	Robinson IL	ASSUMED MOISTURE, %	VA	METER H ₂ O	1.74	Sample	
OPERATOR	RB/JR	PROBE LENGTH, in.	54	C ₂ FACTOR	0.84	Final wt	
STACK NO.	SRV 62F-3	NOZZLE DIAMETER, in.	VA	Y ₂ FACTOR	0.993	Loss wt	
RUN NO.	8	STACK DIAMETER, in.	66"	PICTOTHERM #	839	Wt. loss	
SAMPLE BOX NO.	APK	MINUTES PER POINT	VA			TOTAL	
METER BOX NO.	61208	NUMBER OF POINTS	16				
START TIME	1957	NUMBER OF PORTS	2				

CROSS SECTION	TIME	TRAYING POINT NUMBER	SAMPLING TIME (min)	STATIC PRESSURE (in. H ₂ O)	STACK TEMP (°F)	VELOCITY (ft/min)	HEAD (ft)	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (in. H ₂ O)	GAS SAMPLE VOLUME (ft ³)	GAS SAMPLE TEMP AT DRY GAS METER (°F)		SAMPLE BOX TEMP (°F)	COND. EXIT TEMP (°F)	CURRENT AIR/FAIR TEMP (°F)	LAST MEASURED TEMP (°F)	POINT LOCATION
										INLET (°F)	OUTLET (°F)					
	1957	1	0					1.7	235.700	60	59	NA	NA	NA	64	5
	2002	2	3					1.7	239.56	73	59				58	5
	2007	3	10					1.7	243.31	86	59				56	5
	2012	4	15					1.7	247.11	86	59				56	5
	2017	5	20					1.7	250.68	87	60				56	5
	2022	6	25					1.7	254.43	88	60				57	5
	2027	7	30					1.7	258.27	89	60				57	5
	2032	8	35					1.7	262.02	90	61				58	5
	2037	9	40					1.7	265.80	91	61				59	5
	2042	10	45					1.7	269.57	91	61				60	5
	2047	11	50					1.7	273.18	92	61				60	5
	2052	12	55					1.7	276.97	92	61				61	5
	2057	13	60					1.7	280.765							5

SYSTEM NO. 00012	DATE 2-28-07	TIME 1957	CO ₂	O ₂	CFAS
SYSTEM FEE: 20012	CRAGS FEE: 20012	POST: 20012			
PILOT FEE: 1/2 of	POST: 1/2 of				
CRAGS FEE: 20012	CRAGS FEE: 20012				



FIELD DATA

[illegible]

FLOW TIME	TRAVEL POINT NUMBER	SAMPLING TIME (0.1 MIN)	STATIC PRESSURE (in. H ₂ O)	STAGE TEMP (°F)	VELOCITY		GAS METER		GAS SAMPLE VOLUME (ft ³)	TEMP		BAROMETER BOX TEMP (°F)	CYCLO TEST TEMP (°F)	SCHEDULE TEMP (°F)	ELECT TEMP (°F)	TEMP VARIATION in. H ₂ O
					(ft/s)	(ft/min)	INLET (T _{in}) (°F)	OUTLET (T _{out}) (°F)		INLET TEMP (°F)	OUTLET TEMP (°F)					
0800	—	0	/	/	1.7	1.74	65	61	281.600	NA	NA	NA	NA	61	4.5	
805		5	/	/	1.7		76	60	285.56					54	5	
810		10	/	/	1.7		89	61	289.38					55	5	
815		15	/	/	1.7		91	62	293.23					57	5	
820		20	/	/	1.7		92	63	297.03					57	5	
825		25	/	/	1.7		94	64	300.81					58	5	
830		30	/	/	1.7		95	65	304.54					59	5	
835		35	/	/	1.7		97	66	308.37					60	5	
840		40	/	/	1.7		98	67	312.11					61	5	
845		45	/	/	1.7		99	68	316.70					62	5	
850		50	/	/	1.7		100	69	320.47					63	5	
855		55	/	/	1.7		101	64	324.48					63	5	
0900	↓	60	/	/	1.7	↓			327.582	↓	↓	↓	↓		5	
— 60min See Velocity Data 1.7 1.74 45.982 avg → given 77.9 NA NA NA <68 ~5																

SPECIMEN OR WEIGHT, IF KNOWN		IMPINGER				SILICA GEL WEIGHT
SAMPLE COLLECTED		VOLUME (ml) OR WEIGHT (g)				
		#1	#2	#3	#4	
SEAL		180	180	0	24	203.9
INITIAL		100	100	0	56	200.0
LIQUID COLLECTED		0.0	0	0		
TOTAL					80 + 8.9	

649

OSHA#	DATE	TIME	CO ₂	O ₂
TRIAL 1				
TRIAL 2				
TRIAL 3				
Average				

SYSTEM FILE: 00000505 CMAA: 00000505
POST: 00000505 CMAA: 00000505

SYSTEM FILE: 00000505 CMAA: 00000505
POST: 00000505 CMAA: 00000505



FIELD DATA

PLANT	MRCLC	AMBIENT TEMPERATURE	60	PROB HEATER SETTING	NA	WEIGHT OF PARTICULATE, mg	
DATE	3-1-07	BAROMETRIC PRESSURE	29.00	HEATER BOX SETTING	NA	Filter No.	
LOCATION	Robinson Jr	ASSUMED MOISTURE, %	NA	METER H ₂ O	1.74	Sample	
OPERATOR	RB JR	PROBE LENGTH, in.	54	O ₂ FACTOR	0.84	Flue wt	
STACK NO.	SRU 62F-3	NOZZLE DIAMETER, in.	NA	Y ₁ FACTOR	0.993	Flue wt	
RUN NO.	70	STACK DIAMETER, in.	64			Flue wt	
SAMPLE BOX NO.	APEX	MINUTES PER POINT	NA			Flue wt	
METER BOX NO.	61309	NUMBER OF POINTS	16			Flue wt	
START TIME	0922	NUMBER OF PORTS	2			Flue wt	

CLOCK TIME	TRAVEL POINT NUMBER	SAMPLING TIME (s)	STATIC PRESSURE (in. H ₂ O)	STACK TEMP (°F)	VELOCITY HEAD (AP ₂)	VELOCITY (ft/min)	PRESSURE DIFFERENTIAL ACROSS ORIFICE		GAS SAMPLE VOLUME (V _m)	GAS SAMPLE TEMP AT DRY GAS METER		COND. EXIT TEMP (T _{me})	SORBENT MODULE TEMP (T _m)	LAST OUTLET TEMP (T _{me})	PUMP VACUUM (in. Hg)
							ACTUAL	DESIRED		INLET (T _{me})	OUTLET (T _{me})				
0922	T	0	/	/	/	/	1.7	1.74	328.400	74	67	NA	NA	59	5
0927	T	5	/	/	/	/	1.7	/	332.300	77	67	/	/	52	5
0932	T	10	/	/	/	/	1.7	/	336.15	94	68	/	/	54	5
0937	T	15	/	/	/	/	1.7	/	340.06	96	68	/	/	54	5
0942	T	20	/	/	/	/	1.7	/	344.71	98	69	/	/	54	5
0947	T	25	/	/	/	/	1.7	/	348.43	101	70	/	/	54	5
0952	T	30	/	/	/	/	1.7	/	352.16	103	70	/	/	54	5
0957	T	35	/	/	/	/	1.7	/	355.88	103	71	/	/	55	5
1002	T	40	/	/	/	/	1.7	/	359.60	104	71	/	/	55	5
1007	T	45	/	/	/	/	1.7	/	363.64	104	72	/	/	55	5
1012	T	50	/	/	/	/	1.7	/	366.76	104	73	/	/	55	5
1017	T	55	/	/	/	/	1.7	/	370.45	104	73	/	/	56	5
1022	T	60	/	/	/	/	1.7	/	374.172	/	/	/	/	56	5
AVERAGE															
- 60min See velocity Data 1.7 174 45.772 AUG 83.8															
- - - - - <68 5															

VELOCITY WEIGHT OF LIQUID		IMPINGER		SILICA GEL	
WATER COLLECTED		VOLUME (ml) OR WEIGHT (g)		WEIGHT	
#1	#2	#3	#4	#5	#6
182	104	-	-	-	2084
100	100	0	56	200	
TOTAL		COLLECTED (specify ml or g)		94.4	

LEAK CHECK	
SYSTEM PRE: 0.00	0.00
POST: 0.00	0.00
PITOT PRE: 1.00	1.00
POST: 1.00	1.00



FIELD DATA

PLANT	MPC66C	AMBIENT TEMPERATURE	61	PROB HEATER SETTING	NA
DATE	3-1-07	BAROMETRIC PRESSURE	29.97	HEATER BOX SETTING	NA
LOCATION	Robinson IL	ASSUMED MOISTURE, %	NA	METER H ₂ O	1.74
OPERATOR	RA JR	PROBE LENGTH, in.	NA	C ₁ FACTOR	0.84
STACK NO.	920 625.3	NOZZLE DIAMETER, in.	NA	Y ₁ FACTOR	0.993
RUN NO.	11	STACK DIAMETER, in.	6.4		
SAMPLE BOX NO.	APEX	MINUTES PER POINT	NA		
METER BOX NO.	61269	NUMBER OF POINTS	16		
START TIME	1040	NUMBER OF PORTS	2		

CLOCK TIME	TRAVERSE POINT NUMBER	SAMPLING TIME (h) min.	STATIC PRESSURE (in. H ₂ O)	STACK TEMP (°F)	VELOCITY HEAD (AP ₂) (AP ₁)	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (AH) in. H ₂ O		GAS SAMPLE VOLUME (Ym) ft ³	GAS SAMPLE TEMP AT DRY GAS METER (T _{mg}) °F		SAMPLE BOX TEMP °F	COND. EXIT TEMP °F	SORBENT MODULE TEMP °F	DIFFUSER OUTLET TEMP °F	PUMP VACUUM in. Hg
						ACTUAL	DESIRED		INLET (T _{mg}) °F	OUTLET (T _{mg}) °F					
1040	T	0	/	/	/	1.7	1.74	375.200	79	70	NA	NA	NA	60	5
1045	T	5	/	/	/	1.7	/	378.98	88	71	/	/	/	85	5
1050	T	10	/	/	/	1.7	/	382.51	97	71	/	/	/	55	5
1055	T	15	/	/	/	1.7	/	386.27	98	71	/	/	/	55	5
1100	T	20	/	/	/	1.7	/	390.01	99	71	/	/	/	55	5
1105	T	25	/	/	/	1.7	/	393.64	101	72	/	/	/	56	5
1110	T	30	/	/	/	1.7	/	397.43	102	73	/	/	/	56	5
1115	T	35	/	/	/	1.7	/	401.18	102	73	/	/	/	56	5
1120	T	40	/	/	/	1.7	/	403.91	103	73	/	/	/	56	5
1125	T	45	/	/	/	1.7	/	407.55	104	74	/	/	/	57	5
1130	T	50	/	/	/	1.7	/	411.22	104	74	/	/	/	57	5
1135	T	55	/	/	/	1.7	/	415.81	105	75	/	/	/	58	5
1140	T	60	/	/	/	1.7	/	420.745	/	/	/	/	/	/	5

AVERAGE	-	60 min	See Velocity Data	1.7	1.74	45.545	85.4	NA	NA	NA	NA	NA	NA	NA	5
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WEIGHT OR WEIGHT OF LIQUID	WATER COLLECTED	IMFINGER VOLUME (ml) OR WEIGHT (g)	#1	#2	#3	#4	SILICA GEL WEIGHT
INITIAL	192	104	0	39.1	8		
FINAL	100	100	0	56	200		
LIQUID COLLECTED							
TOTAL							

SYSTEM PRE: 0.00	CFM@15" H ₂ O	POST: 0.00	CFM@15" H ₂ O
PITOT PRE: 7.1	@ 2" H ₂ O	POST: 7.1	@ 2" H ₂ O

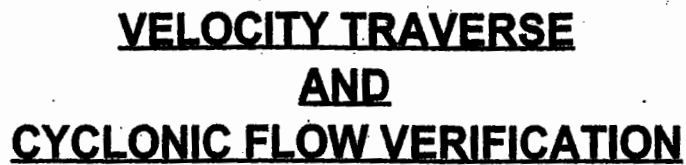


FIELD DATA

LEAK CHECK	
SYSTEM PRE: 0.00	CFM@15" H ₂
POST: 0.00	CFM@15" H ₂
PITOT PRE: 1.2	@ > 2" H ₂
POST: 1.2	@ > 1" H ₂

VOLUME OR WEIGHT OF LIQUID WASHER COLLECTED	IMPINGER			SILICA GEL WEIGHT
	#1	#2	#3	
FINAL	140	104	6	2084
INITIAL	108	109	0	32
LIQUID COLLECTED	30			28

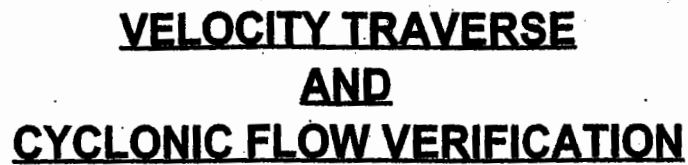
92.4



SCHEMATIC OF TRAVERSE POINT LAYOUT

RUN NO. Post 1 / pre 2 STATIC, in. H₂O 2.60

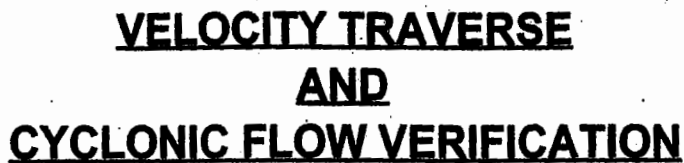
TRAVERSE POINT NUMBER	VELOCITY HEAD (ΔP_s), in.H ₂ O	STACK TEMP. (T _s), °F	YAW ANGLE °
1-1	0.11	1272	1272
2	0.11	1277	1277
3	0.12	1282	+2"
4	0.11	1289	
5	0.11	1292	
6	0.11	1289	
7	0.11	1290	
8	0.11	1281	
2-1	0.09	1247	
2	0.11	1251	
3	0.10	1263	
4	0.11	1264	
5	0.11	1265	
6	0.11	1262	
7	0.11	1259	
8	0.09	1237	
AVERAGE	0.3277	1270	



SCHEMATIC OF TRAVERSE POINT LAYOUT

RUN NO. post 3/pre 4 STATIC, in. H₂O - 0.56

TRAVERSE POINT NUMBER	VELOCITY HEAD (ΔP_s), in.H ₂ O	STACK TEMP. (T _s), °F	YAW ANGLE °
1- 1	0.10	1246	
2	0.13	1252	
3	0.14	1257	
4	0.15	1258	
5	0.13	1260	
6	0.11	1261	
7	0.12	1265	
8	0.10	1260	
2- 1	0.09	1280	
2	0.11	1281	
3	0.13	1283	
4	0.13	1285	
5	0.13	1277	
6	0.12	1266	
7	0.10	1270	
8	0.10	1268	
AVERAGE	0.3466	1266.8	

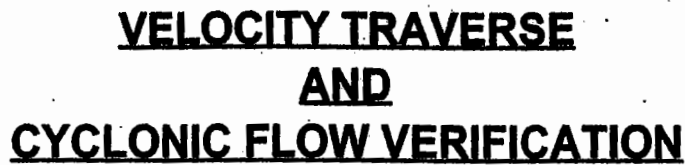


SCHEMATIC OF TRAVERSE POINT LAYOUT

29.35

RUN NO. post 5/pe 6 STATIC, in.H2O -0.56

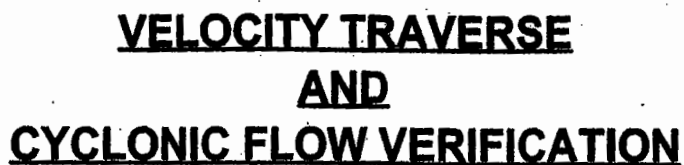
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SCHEMATIC OF TRAVERSE POINT LAYOUT

RUN NO. Post 7 STATIC, in.H₂O -0.58

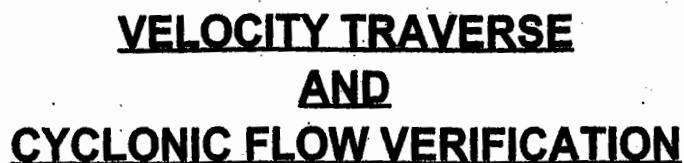
TRAVERSE POINT NUMBER	VELOCITY HEAD (ΔP_s), in.H ₂ O	STACK TEMP. (T _s), °F	YAW ANGLE °
1-1	0.10	1255	
2	0.11	1267	
3	0.12	1280	
4	0.14	1281	
5	0.14	1289	
6	0.13	1286	
7	0.12	1284	
8	0.11	1261	
2-1	0.11	1249	
2	0.12	1262	
3	0.12	1273	
4	0.12	1277	
5	0.15	1286	
6	0.14	1281	
7	0.14	1274	
8	0.09	1271	
AVERAGE	0.3492	1273.1	



SCHEMATIC OF TRAVERSE POINT LAYOUT

RUN NO. _____ **STATIC, in.H2O** _____

[illegible]



SCHEMATIC OF TRAVERSE POINT LAYOUT

RUN NO. post 1/pre 2 - STATIC, ln.H2O -0.54

TRAVERSE POINT NUMBER	VELOCITY HEAD (ΔP_s), in.H ₂ O	STACK TEMP. (T _s), °F	YAW ANGLE °
1-1	0.10	1279	
2	0.12	1281	
3	0.12	1278	
4	0.13	1281	
5	0.14	1288	
6	0.13	1291	
7	0.12	1295	
8	0.10	1289	
2-1	0.12	1295	
2	0.13	1302	
3	0.13	1300	
4	0.13	1299	
5	0.11	1304	
6	0.09	1297	
7	0.12	1299	
8	0.14	1289	
AVERAGE	0.3467	1291.7	

VELOCITY TRAVERSE AND CYCLONIC FLOW VERIFICATION



MPCLLC: Robinson, Illinois
SRU 66F-3 and 66F-5 Stacks
Test Dates: 2/26 – 3/1/07

APPENDIX D

Process Data

MACT UUU Bypass Line Daily Monitoring

OK

Date	Plant 16 Bypass	Acid Gas to Flare						TGTU Absorber Gas to Atmosphere		
		From Plant 9	From Old 73	From New 73	From Plant 64	From 66 Common		Plant 66		Plant 67
2/26/2007	16ZO0180	09PC0050.OP	73PC0062.OP	73PC0170.OP	64PC0041.OP	66PC0161.OP		66HS0020		67HS0020
12:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
1:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
2:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
3:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
4:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
5:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
6:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
7:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
8:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
9:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
10:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
11:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
12:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
1:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
2:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
3:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
4:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
5:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
6:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
7:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
8:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
9:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
10:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close
11:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9		Close		Close

MACT UUU Bypass Line Daily Monitoring

OK

D-2

Date	Plant 16 Bypass	Acid Gas to Flare					TGTU Absorber Gas to Atmosphere	
		From Plant 9	From Old 73	From New 73	From Plant 64	From 66 Common	Plant 66	Plant 67
2/27/2007	16ZO0180	09PC0050.OP	73PC0062.OP	73PC0170.OP	64PC0041.OP	66PC0161.OP	66HS0020	67HS0020
12:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
1:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
2:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
3:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
4:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
5:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
6:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
7:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
8:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
9:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
10:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
11:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
12:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
1:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
2:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
3:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
4:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
5:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
6:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
7:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
8:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
9:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
10:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
11:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close

MACT UUU Bypass Line Daily Monitoring

Date	Plant 16 Bypass 16ZO0180	Acid Gas to Flare						TGTU Absorber Gas to Atmosphere	
		From Plant 9 09PC0050.OP	From Old 73 73PC0062.OP	From New 73 73PC0170.OP	From Plant 64 64PC0041.OP	From 66 Common 66PC0161.OP	Plant 66 66HS0020	Plant 67 67HS0020	
2/27/2007									
12:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
1:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
2:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
3:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
4:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
5:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
6:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
7:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
8:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
9:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
10:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
11:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
12:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
1:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
2:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
3:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
4:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
5:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
6:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
7:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
8:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
9:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
10:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close
11:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	-6.9	Close	Close

MACT UUU Bypass Line Daily Monitoring

Date	Plant 16 Bypass 16ZO0180	Acid Gas to Flare					TGTU Absorber Gas to Atmosphere	
		From Plant 9 09PC0050.OP	From Old 73 73PC0062.OP	From New 73 73PC0170.OP	From Plant 64 64PC0041.OP	From 66 Common 66PC0161.OP	Plant 66 66HS0020	Plant 67 67HS0020
2/28/2007								
12:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
1:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
2:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
3:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
4:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
5:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
6:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
7:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
8:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
9:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
10:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
11:00 AM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
12:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
1:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
2:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
3:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
4:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
5:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
6:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
7:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
8:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
9:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
10:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close
11:00 PM	NOT_OPEN	-5.0	-6.9	-6.9	-6.9	-6.9	Close	Close

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
2/28/2007 10:25	135.062	9.098	71.982	45.902	252.945
2/28/2007 10:26	135.081	9.149	72.079	45.902	253.062
2/28/2007 10:27	135.100	9.119	72.177	45.902	253.179
2/28/2007 10:28	135.119	9.079	72.275	45.902	253.295
2/28/2007 10:29	135.138	9.040	72.372	45.902	253.412
2/28/2007 10:30	135.157	9.000	72.470	45.902	253.529
2/28/2007 10:31	135.175	8.960	72.567	45.903	253.645
2/28/2007 10:32	135.194	8.921	72.665	45.903	253.762
2/28/2007 10:33	135.104	8.881	72.763	45.903	253.770
2/28/2007 10:34	135.149	8.959	72.860	45.903	253.912
2/28/2007 10:35	134.603	9.127	72.958	45.903	253.464
2/28/2007 10:36	135.034	9.146	73.055	45.903	253.993
2/28/2007 10:37	135.354	9.151	73.153	45.904	254.411
2/28/2007 10:38	135.237	9.157	73.251	45.904	254.391
2/28/2007 10:39	135.119	9.162	73.348	45.904	254.371
2/28/2007 10:40	135.001	9.167	73.446	45.904	254.351
2/28/2007 10:41	134.883	9.173	73.543	45.904	254.331
2/28/2007 10:42	134.708	9.178	73.641	45.905	254.253
2/28/2007 10:43	134.430	9.183	73.739	45.905	254.074
2/28/2007 10:44	135.184	9.189	73.836	45.905	254.926
2/28/2007 10:45	135.175	9.194	73.934	45.905	255.014
2/28/2007 10:46	135.166	9.199	74.031	45.905	255.103
2/28/2007 10:47	135.157	9.205	74.129	45.905	255.191
2/28/2007 10:48	135.148	9.210	74.227	45.906	255.280
2/28/2007 10:49	135.139	9.216	74.324	45.906	255.369
2/28/2007 10:50	134.851	9.221	74.422	45.906	255.179
2/28/2007 10:51	135.280	9.226	74.519	45.906	255.705
2/28/2007 10:52	135.264	9.232	74.617	45.906	255.787
2/28/2007 10:53	135.249	9.237	74.715	45.906	255.870
2/28/2007 10:54	135.234	9.242	74.812	45.907	255.952
2/28/2007 10:55	134.790	9.248	74.910	45.907	255.607
2/28/2007 10:56	134.946	9.235	75.007	45.907	255.860
2/28/2007 10:57	134.616	9.221	75.105	45.907	255.628
2/28/2007 10:58	135.331	9.207	75.202	45.907	256.441
2/28/2007 10:59	134.735	9.193	75.300	45.908	255.942
2/28/2007 11:00	134.651	9.179	75.398	45.908	255.957
2/28/2007 11:01	135.157	9.165	75.500	45.908	256.565
2/28/2007 11:02	135.468	9.150	75.602	45.908	256.978
2/28/2007 11:03	135.226	9.136	75.704	45.908	256.838
2/28/2007 11:04	134.709	9.122	75.807	45.908	256.425
2/28/2007 11:05	134.848	9.108	75.909	45.909	256.666
2/28/2007 11:06	135.477	9.094	76.012	45.909	257.397
2/28/2007 11:07	135.295	9.080	76.114	45.909	257.318
2/28/2007 11:08	135.113	9.066	76.217	45.909	257.239
2/28/2007 11:09	135.236	9.052	76.319	45.909	257.464
2/28/2007 11:10	134.944	9.037	76.421	45.870	257.236
2/28/2007 11:11	134.954	9.023	76.524	45.801	257.278
2/28/2007 11:12	134.520	9.009	76.626	45.731	256.877
2/28/2007 11:13	134.538	8.995	76.706	45.662	256.906
2/28/2007 11:14	134.557	8.942	76.755	45.592	256.904
2/28/2007 11:15	135.254	8.832	76.803	45.523	257.580
2/28/2007 11:16	135.215	8.734	76.852	45.454	257.520
2/28/2007 11:17	135.176	8.776	76.900	45.384	257.460
2/28/2007 11:18	135.137	8.819	76.949	45.315	257.400
2/28/2007 11:19	134.854	8.861	76.997	45.245	257.097
2/28/2007 11:20	135.227	8.904	77.046	45.176	257.448
2/28/2007 11:21	135.201	8.946	77.094	45.107	257.402
2/28/2007 11:22	135.176	8.989	77.143	45.037	257.356
2/28/2007 11:23	134.833	9.031	77.191	44.968	256.992
2/28/2007 11:24	134.849	9.074	77.240	44.898	256.987

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
2/28/2007 12:03	134.944	9.359	79.794	45.452	260.190
2/28/2007 12:02	134.961	9.355	79.803	45.417	260.181
2/28/2007 12:01	134.844	9.351	79.813	45.382	260.038
2/28/2007 12:00	135.050	9.348	79.822	45.347	260.219
2/28/2007 11:59	135.089	9.344	79.831	45.312	260.232
2/28/2007 11:58	135.480	9.340	79.841	45.277	260.597
2/28/2007 11:57	135.150	9.337	79.850	45.242	260.242
2/28/2007 11:56	135.106	9.333	79.781	45.207	260.094
2/28/2007 11:55	135.063	9.329	79.686	45.172	259.921
2/28/2007 11:54	134.359	9.325	79.591	45.137	259.086
2/28/2007 11:53	134.792	9.322	79.496	45.102	259.389
2/28/2007 11:52	134.856	9.318	79.401	45.067	259.324
2/28/2007 11:51	134.920	9.318	79.306	45.032	259.258
2/28/2007 11:50	134.985	9.318	79.210	44.997	259.192
2/28/2007 11:49	135.060	9.318	79.115	44.962	259.137
2/28/2007 11:48	135.070	9.318	79.020	44.927	259.018
2/28/2007 11:47	134.705	9.317	78.925	44.892	258.523
2/28/2007 11:46	134.322	9.317	78.830	44.857	258.009
2/28/2007 11:45	134.992	9.317	78.735	44.822	258.549
2/28/2007 11:44	135.009	9.317	78.640	44.787	258.436
2/28/2007 11:43	134.969	9.317	78.545	44.752	258.266
2/28/2007 11:42	135.255	9.316	78.450	44.717	258.422
2/28/2007 11:41	135.241	9.316	78.355	44.682	258.278
2/28/2007 11:40	134.690	9.316	78.259	44.647	257.596
2/28/2007 11:39	134.585	9.316	78.164	44.612	257.361
2/28/2007 11:38	135.505	9.316	78.069	44.577	258.152
2/28/2007 11:37	135.311	9.316	77.974	44.542	257.827
2/28/2007 11:36	135.380	9.315	77.879	44.507	257.766
2/28/2007 11:35	135.287	9.315	77.784	44.472	257.543
2/28/2007 11:34	134.659	9.315	77.725	44.437	256.821
2/28/2007 11:33	134.620	9.315	77.676	44.402	256.699
2/28/2007 11:32	134.582	9.292	77.628	44.367	256.577
2/28/2007 11:31	134.820	9.018	77.579	44.412	256.811
2/28/2007 11:30	134.885	9.108	77.531	44.482	256.897
2/28/2007 11:29	134.950	9.223	77.482	44.551	256.983
2/28/2007 11:28	135.015	9.244	77.434	44.621	257.069
2/28/2007 11:27	135.080	9.201	77.385	44.690	257.155
2/28/2007 11:26	135.145	9.159	77.337	44.759	257.241
2/28/2007 11:25	135.210	9.116	77.288	44.829	257.327
2/28/2007 11:24	134.849	9.074	77.240	44.898	256.987
2/28/2007 11:23	134.833	9.031	77.191	44.968	256.992
2/28/2007 11:22	135.176	8.989	77.143	45.037	257.356
2/28/2007 11:21	135.201	8.946	77.094	45.107	257.402
2/28/2007 11:20	135.227	8.904	77.046	45.176	257.448
2/28/2007 11:19	134.854	8.861	76.997	45.245	257.097
2/28/2007 11:18	135.137	8.819	76.949	45.315	257.400
2/28/2007 11:17	135.176	8.776	76.900	45.384	257.460
2/28/2007 11:16	135.215	8.734	76.852	45.454	257.520
2/28/2007 11:15	135.254	8.832	76.803	45.523	257.580
2/28/2007 11:14	134.557	8.942	76.755	45.592	256.904
2/28/2007 11:13	134.538	8.995	76.706	45.662	256.906
2/28/2007 11:12	134.520	9.009	76.626	45.731	256.877
2/28/2007 11:11	134.954	9.023	76.524	45.801	257.278
2/28/2007 11:10	134.944	9.037	76.421	45.870	257.236
2/28/2007 11:09	135.236	9.052	76.319	45.909	257.464
2/28/2007 11:08	135.113	9.066	76.217	45.909	257.239
2/28/2007 11:07	135.295	9.080	76.114	45.909	257.318
2/28/2007 11:06	135.477	9.094	76.012	45.909	257.397
2/28/2007 11:05	134.848	9.108	75.909	45.909	256.666
2/28/2007 11:04	134.709	9.122	75.807	45.908	256.425

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
2/28/2007 13:23	135.122	9.614	79.725	48.466	263.314
2/28/2007 13:24	134.986	9.605	79.738	48.498	263.222
2/28/2007 13:25	134.849	9.596	79.751	48.530	263.130
2/28/2007 13:26	134.712	9.587	79.764	48.562	263.038
2/28/2007 13:27	134.612	9.578	79.777	48.595	262.983
2/28/2007 13:28	134.842	9.569	79.790	48.627	263.258
2/28/2007 13:29	135.205	9.560	79.803	48.659	263.666
2/28/2007 13:30	135.228	9.551	79.816	48.691	263.734
2/28/2007 13:31	135.250	9.542	79.829	48.723	263.802
2/28/2007 13:32	135.273	9.533	79.842	48.755	263.870
2/28/2007 13:33	135.296	9.524	79.855	48.787	263.938
2/28/2007 13:34	135.319	9.515	79.868	48.819	264.006
2/28/2007 13:35	135.342	9.501	79.881	48.851	264.074
2/28/2007 13:36	135.365	9.485	79.894	48.884	264.142
2/28/2007 13:37	135.387	9.469	79.907	48.917	264.211
2/28/2007 13:38	135.410	9.454	79.920	48.969	264.299
2/28/2007 13:39	135.433	9.438	79.933	49.022	264.387
2/28/2007 13:40	135.456	9.422	79.945	49.074	264.476
2/28/2007 13:41	135.479	9.406	79.958	49.127	264.564
2/28/2007 13:42	135.502	9.390	79.971	49.179	264.652
2/28/2007 13:43	135.525	9.375	79.984	49.231	264.740
2/28/2007 13:44	135.547	9.359	79.997	49.284	264.828
2/28/2007 13:45	135.570	9.343	80.180	49.336	265.087
2/28/2007 13:46	135.593	9.327	80.602	49.388	265.583
2/28/2007 13:47	135.616	9.311	81.023	49.441	266.080
2/28/2007 13:48	135.151	9.296	81.445	49.493	266.089
2/28/2007 13:49	134.416	9.336	81.866	49.546	265.828
2/28/2007 13:50	135.218	9.381	82.287	49.598	267.103
2/28/2007 13:51	135.194	9.426	82.709	49.650	267.553
2/28/2007 13:52	135.171	9.471	83.130	49.703	268.004
2/28/2007 13:53	135.147	9.516	83.535	49.755	268.438
2/28/2007 13:54	135.124	9.553	83.711	49.807	268.642
2/28/2007 13:55	134.632	9.493	83.887	49.860	268.378
2/28/2007 13:56	135.145	9.432	84.063	49.912	269.120
2/28/2007 13:57	135.159	9.371	84.239	49.965	269.363
2/28/2007 13:58	135.173	9.311	84.415	50.017	269.605
2/28/2007 13:59	135.187	9.302	84.591	50.069	269.847
2/28/2007 14:00	134.448	9.367	84.766	50.122	269.336
2/28/2007 14:01	135.035	9.432	84.942	50.174	270.151
2/28/2007 14:02	135.043	9.498	85.015	50.226	270.284
2/28/2007 14:03	135.052	9.544	84.932	50.279	270.262
2/28/2007 14:04	135.060	9.527	84.849	50.305	270.213
2/28/2007 14:05	135.068	9.510	84.766	50.310	270.144
2/28/2007 14:06	135.077	9.493	84.682	50.316	270.075
2/28/2007 14:07	135.085	9.477	84.599	50.321	270.006
2/28/2007 14:08	135.093	9.460	84.516	50.327	269.936
2/28/2007 14:09	135.102	9.443	84.433	50.332	269.867
2/28/2007 14:10	135.110	9.427	84.350	50.338	269.798
2/28/2007 14:11	135.118	9.410	84.267	50.343	269.729
2/28/2007 14:12	135.127	9.393	84.184	50.349	269.660
2/28/2007 14:13	134.770	9.376	84.101	50.354	269.225
2/28/2007 14:14	134.562	9.360	84.018	50.360	268.940
2/28/2007 14:15	134.626	9.343	83.935	50.365	268.927
2/28/2007 14:16	135.291	9.326	83.852	50.371	269.514
2/28/2007 14:17	135.003	9.310	83.769	50.376	269.149
2/28/2007 14:18	134.649	9.293	83.686	50.382	268.717
2/28/2007 14:19	134.739	9.276	83.603	50.388	268.729
2/28/2007 14:20	135.389	9.363	83.520	50.393	269.302
2/28/2007 14:21	134.767	9.530	83.437	50.399	268.602
2/28/2007 14:22	134.927	9.583	83.354	50.404	268.684

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
28-Feb-07 14:43:00	135.168	9.393	82.828	50.520	268.516
28-Feb-07 14:44:00	134.947	9.369	82.835	50.526	268.307
28-Feb-07 14:45:00	134.953	9.345	82.841	50.531	268.326
28-Feb-07 14:46:00	134.960	9.322	82.848	50.537	268.345
28-Feb-07 14:47:00	134.966	9.298	82.855	50.542	268.363
28-Feb-07 14:48:00	134.972	9.274	82.862	50.548	268.382
28-Feb-07 14:49:00	134.978	9.250	82.868	50.553	268.400
28-Feb-07 14:50:00	134.985	9.282	82.875	50.559	268.419
28-Feb-07 14:51:00	134.991	9.483	82.882	50.564	268.437
28-Feb-07 14:52:00	134.997	9.525	82.889	50.570	268.456
28-Feb-07 14:53:00	135.003	9.552	82.895	50.575	268.474
28-Feb-07 14:54:00	135.010	9.580	82.902	50.581	268.493
28-Feb-07 14:55:00	135.016	9.607	82.909	50.586	268.511
28-Feb-07 14:56:00	135.022	9.634	82.916	50.592	268.530
28-Feb-07 14:57:00	135.029	9.662	82.922	50.598	268.548
28-Feb-07 14:58:00	135.035	9.689	82.929	50.603	268.567
28-Feb-07 14:59:00	135.041	9.716	82.936	50.706	268.682
28-Feb-07 15:00:00	135.047	9.744	82.943	50.882	268.873
28-Feb-07 15:01:00	135.054	9.765	82.958	51.059	269.070
28-Feb-07 15:02:00	135.060	9.723	82.973	51.235	269.268
28-Feb-07 15:03:00	135.066	9.681	82.987	51.412	269.465
28-Feb-07 15:04:00	135.291	9.638	83.002	51.588	269.881
28-Feb-07 15:05:00	135.185	9.596	83.017	51.765	269.966
28-Feb-07 15:06:00	135.079	9.554	83.032	51.838	269.948
28-Feb-07 15:07:00	134.973	9.512	83.046	51.836	269.855
28-Feb-07 15:08:00	134.866	9.503	83.061	51.835	269.762
28-Feb-07 15:09:00	134.760	9.545	83.076	51.833	269.670
28-Feb-07 15:10:00	135.261	9.587	83.091	51.832	270.184
28-Feb-07 15:11:00	135.180	9.629	83.105	51.831	270.116
28-Feb-07 15:12:00	135.099	9.671	83.120	51.829	270.049
28-Feb-07 15:13:00	134.825	9.712	83.135	51.828	269.788
28-Feb-07 15:14:00	134.600	9.754	83.150	51.827	269.576
28-Feb-07 15:15:00	134.833	9.758	83.164	51.825	269.823
28-Feb-07 15:16:00	135.293	9.759	83.179	51.824	270.296
28-Feb-07 15:17:00	135.237	9.759	83.203	51.822	270.263
28-Feb-07 15:18:00	135.182	9.760	83.228	51.821	270.230
28-Feb-07 15:19:00	135.126	9.761	83.252	51.820	270.198
28-Feb-07 15:20:00	135.071	9.761	83.277	51.818	270.166
28-Feb-07 15:21:00	135.015	9.762	83.302	51.817	270.134
28-Feb-07 15:22:00	135.347	9.762	83.326	51.816	270.489
28-Feb-07 15:23:00	135.229	9.763	83.351	51.814	270.394
28-Feb-07 15:24:00	135.110	9.764	83.376	51.813	270.299
28-Feb-07 15:25:00	134.992	9.764	83.401	51.811	270.204
28-Feb-07 15:26:00	135.165	9.765	83.425	51.810	270.400
28-Feb-07 15:27:00	134.955	9.765	83.450	51.809	270.214
28-Feb-07 15:28:00	134.419	9.766	83.475	51.807	269.701
28-Feb-07 15:29:00	134.228	9.767	83.499	51.806	269.533
28-Feb-07 15:30:00	135.127	9.767	83.524	51.805	270.456
28-Feb-07 15:31:00	135.035	9.768	83.549	51.803	270.387
28-Feb-07 15:32:00	134.943	9.768	83.573	51.802	270.318
28-Feb-07 15:33:00	134.851	9.769	83.598	51.800	270.249
28-Feb-07 15:34:00	134.758	9.770	83.623	51.799	270.180
28-Feb-07 15:35:00	134.461	9.770	83.648	51.798	269.906
28-Feb-07 15:36:00	134.794	9.771	83.672	51.796	270.263
28-Feb-07 15:37:00	135.288	9.771	83.697	51.795	270.780
28-Feb-07 15:38:00	135.288	9.772	83.722	51.794	270.804
28-Feb-07 15:39:00	135.289	9.773	83.751	51.792	270.832
28-Feb-07 15:40:00	135.290	9.773	83.794	51.791	270.875
28-Feb-07 15:41:00	134.979	9.774	83.837	51.789	270.605
28-Feb-07 15:42:00	134.618	9.774	83.880	51.788	270.286

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
28-Feb-07 16:03:00	134.613	9.714	84.094	51.759	270.466
28-Feb-07 16:04:00	134.770	9.706	84.035	51.758	270.563
28-Feb-07 16:05:00	134.927	9.699	83.975	51.757	270.659
28-Feb-07 16:06:00	135.464	9.691	83.916	51.755	271.136
28-Feb-07 16:07:00	135.356	9.683	83.857	51.754	270.966
28-Feb-07 16:08:00	135.247	9.676	83.798	51.752	270.797
28-Feb-07 16:09:00	134.798	9.668	83.738	51.751	270.287
28-Feb-07 16:10:00	134.673	9.660	83.679	51.750	270.101
28-Feb-07 16:11:00	134.281	9.653	83.620	51.748	269.649
28-Feb-07 16:12:00	134.935	9.645	83.561	51.747	270.243
28-Feb-07 16:13:00	135.060	9.638	83.501	51.746	270.307
28-Feb-07 16:14:00	135.349	9.630	83.442	51.744	270.535
28-Feb-07 16:15:00	135.378	9.628	83.383	51.743	270.504
28-Feb-07 16:16:00	135.221	9.629	83.323	51.741	270.286
28-Feb-07 16:17:00	134.615	9.630	83.264	51.740	269.620
28-Feb-07 16:18:00	134.927	9.630	83.205	51.739	269.871
28-Feb-07 16:19:00	134.776	9.631	83.146	51.737	269.659
28-Feb-07 16:20:00	134.823	9.631	83.086	51.736	269.646
28-Feb-07 16:21:00	135.273	9.632	83.027	51.735	270.035
28-Feb-07 16:22:00	134.842	9.632	82.968	51.733	269.543
28-Feb-07 16:23:00	135.392	9.633	82.909	51.732	270.032
28-Feb-07 16:24:00	134.648	9.634	82.849	51.730	269.228
28-Feb-07 16:25:00	134.986	9.634	82.796	51.729	269.511
28-Feb-07 16:26:00	135.405	9.635	82.762	51.728	269.895
28-Feb-07 16:27:00	135.336	9.635	82.727	51.726	269.790
28-Feb-07 16:28:00	135.267	9.636	82.693	51.725	269.685
28-Feb-07 16:29:00	134.808	9.636	82.659	51.724	269.190
28-Feb-07 16:30:00	134.835	9.637	82.624	51.722	269.181
28-Feb-07 16:31:00	134.862	9.638	82.590	51.721	269.173
28-Feb-07 16:32:00	134.811	9.638	82.556	51.719	269.086
28-Feb-07 16:33:00	134.988	9.639	82.521	51.718	269.228
28-Feb-07 16:34:00	135.166	9.639	82.487	51.717	269.369
28-Feb-07 16:35:00	134.876	9.640	82.452	51.715	269.043
28-Feb-07 16:36:00	134.879	9.640	82.418	51.714	269.011
28-Feb-07 16:37:00	134.883	9.641	82.384	51.713	268.979
28-Feb-07 16:38:00	134.887	9.642	82.349	51.711	268.947
28-Feb-07 16:39:00	134.890	9.642	82.315	51.710	268.915
28-Feb-07 16:40:00	134.894	9.643	82.280	51.708	268.883
28-Feb-07 16:41:00	134.898	9.643	82.246	51.707	268.851
28-Feb-07 16:42:00	134.901	9.644	82.212	51.706	268.819
28-Feb-07 16:43:00	134.905	9.644	82.177	51.704	268.787
28-Feb-07 16:44:00	134.966	9.645	82.143	51.703	268.812
28-Feb-07 16:45:00	134.955	9.646	82.108	51.702	268.765
28-Feb-07 16:46:00	134.944	9.646	82.074	51.700	268.718
28-Feb-07 16:47:00	134.933	9.647	82.040	51.699	268.671
28-Feb-07 16:48:00	134.921	9.647	82.005	51.697	268.624
28-Feb-07 16:49:00	134.910	9.648	81.971	51.696	268.577
28-Feb-07 16:50:00	134.899	9.648	81.936	51.695	268.530
28-Feb-07 16:51:00	134.888	9.649	81.902	51.693	268.483
28-Feb-07 16:52:00	134.877	9.650	81.868	51.692	268.436
28-Feb-07 16:53:00	134.866	9.650	81.833	51.691	268.389
28-Feb-07 16:54:00	134.854	9.651	81.799	51.689	268.342
28-Feb-07 16:55:00	134.843	9.655	81.764	51.688	268.295
28-Feb-07 16:56:00	135.234	9.661	81.730	51.686	268.651
28-Feb-07 16:57:00	134.961	9.668	81.696	51.685	268.342
28-Feb-07 16:58:00	134.871	9.675	81.663	51.684	268.218
28-Feb-07 16:59:00	134.782	9.681	81.663	51.682	268.127
28-Feb-07 17:00:00	135.037	9.688	81.662	51.681	268.380
28-Feb-07 17:01:00	134.998	9.694	81.661	51.680	268.338
28-Feb-07 17:02:00	134.958	9.701	81.660	51.678	268.297

Note: 62FC0010 is in error - valve is actually closed.

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
28-Feb-07 17:21:00	134.536	9.643	81.598	51.652	267.786
28-Feb-07 17:22:00	134.807	9.622	81.571	51.651	268.028
28-Feb-07 17:23:00	135.077	9.601	81.544	51.649	268.270
28-Feb-07 17:24:00	135.117	9.580	81.517	51.648	268.282
28-Feb-07 17:25:00	134.993	9.558	81.490	51.647	268.129
28-Feb-07 17:26:00	134.869	9.537	81.463	51.645	267.976
28-Feb-07 17:27:00	134.744	9.516	81.436	51.644	267.824
28-Feb-07 17:28:00	134.620	9.509	81.409	51.643	267.671
28-Feb-07 17:29:00	134.572	9.511	81.382	51.641	267.594
28-Feb-07 17:30:00	134.773	9.514	81.354	51.640	267.767
28-Feb-07 17:31:00	135.211	9.516	81.327	51.638	268.177
28-Feb-07 17:32:00	135.060	9.518	81.300	51.637	267.998
28-Feb-07 17:33:00	134.909	9.521	81.273	51.636	267.818
28-Feb-07 17:34:00	134.759	9.523	81.246	51.634	267.639
28-Feb-07 17:35:00	134.608	9.526	81.219	51.633	267.460
28-Feb-07 17:36:00	134.600	9.528	81.192	51.632	267.424
28-Feb-07 17:37:00	134.639	9.531	81.165	51.630	267.435
28-Feb-07 17:38:00	135.195	9.533	81.138	51.629	267.962
28-Feb-07 17:39:00	135.179	9.536	81.111	51.627	267.918
28-Feb-07 17:40:00	135.164	9.538	81.084	51.626	267.874
28-Feb-07 17:41:00	135.148	9.540	81.057	51.623	267.828
28-Feb-07 17:42:00	135.133	9.543	81.030	51.598	267.761
28-Feb-07 17:43:00	135.117	9.545	81.003	51.573	267.693
28-Feb-07 17:44:00	135.102	9.548	80.976	51.549	267.626
28-Feb-07 17:45:00	135.086	9.550	80.949	51.524	267.559
28-Feb-07 17:46:00	135.071	9.553	80.922	51.499	267.492
28-Feb-07 17:47:00	135.055	9.555	80.895	51.475	267.424
28-Feb-07 17:48:00	135.040	9.554	80.868	51.450	267.357
28-Feb-07 17:49:00	135.024	9.550	80.841	51.425	267.290
28-Feb-07 17:50:00	135.009	9.546	80.814	51.401	267.223
28-Feb-07 17:51:00	134.993	9.543	80.787	51.376	267.156
28-Feb-07 17:52:00	134.977	9.539	80.759	51.351	267.088
28-Feb-07 17:53:00	135.016	9.535	80.742	51.327	267.086
28-Feb-07 17:54:00	135.268	9.531	80.866	51.302	267.436
28-Feb-07 17:55:00	135.000	9.528	80.989	51.277	267.266
28-Feb-07 17:56:00	134.962	9.524	81.112	51.253	267.326
28-Feb-07 17:57:00	134.923	9.520	81.236	51.228	267.387
28-Feb-07 17:58:00	134.885	9.516	81.359	51.203	267.448
28-Feb-07 17:59:00	134.232	9.513	81.482	51.179	266.893
28-Feb-07 18:00:00	134.320	9.509	81.606	51.154	267.080
28-Feb-07 18:01:00	134.687	9.505	81.729	51.129	267.545
28-Feb-07 18:02:00	135.045	9.501	81.852	51.105	268.002
28-Feb-07 18:03:00	135.047	9.498	81.975	51.080	268.102
28-Feb-07 18:04:00	135.049	9.494	82.099	51.055	268.203
28-Feb-07 18:05:00	135.051	9.490	82.222	51.031	268.304

28-Feb-07 18:06:00	135.053	9.486	82.345	51.006	268.404
28-Feb-07 18:07:00	135.055	9.483	82.669	52.892	270.616
28-Feb-07 18:08:00	135.057	9.484	82.790	52.832	270.679
28-Feb-07 18:09:00	135.059	9.489	82.704	52.772	270.535
28-Feb-07 18:10:00	135.061	9.494	82.618	52.712	270.391
28-Feb-07 18:11:00	135.063	9.498	82.533	52.652	270.247
28-Feb-07 18:12:00	135.065	9.503	82.447	52.592	270.103
28-Feb-07 18:13:00	135.067	9.508	82.361	52.532	269.960
28-Feb-07 18:14:00	135.069	9.513	82.275	52.472	269.816
28-Feb-07 18:15:00	135.071	9.518	82.189	52.412	269.672
28-Feb-07 18:16:00	135.073	9.523	82.104	52.352	269.528
28-Feb-07 18:17:00	135.074	9.527	82.018	52.292	269.384
28-Feb-07 18:18:00	135.076	9.532	81.932	52.232	269.241
28-Feb-07 18:19:00	135.382	9.537	81.846	52.172	269.401
28-Feb-07 18:20:00	135.390	9.542	81.761	52.112	269.262

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Coomplex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	TOTAL ACID GAS MSCFH
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	
	MSCFH	MSCFH	MSCFH	MSCFH	
2/28/2007 18:40	135.03	9.50	80.74	50.91	266.68
2/28/2007 18:41	134.73	9.50	80.71	50.85	266.29
2/28/2007 18:42	134.49	9.49	80.68	50.79	265.97
2/28/2007 18:43	134.52	9.49	80.65	50.73	265.90
2/28/2007 18:44	135.20	9.48	80.62	50.67	266.49
2/28/2007 18:45	135.18	9.48	80.59	50.61	266.38
2/28/2007 18:46	135.16	9.47	80.57	50.55	266.28
2/28/2007 18:47	135.19	9.46	80.54	50.49	266.22
2/28/2007 18:48	135.15	9.46	80.51	50.48	266.15
2/28/2007 18:49	134.68	9.45	80.48	50.49	265.65
2/28/2007 18:50	134.75	9.45	80.45	50.50	265.70
2/28/2007 18:51	134.82	9.44	80.42	50.51	265.75
2/28/2007 18:52	134.90	9.43	80.39	50.51	265.80
2/28/2007 18:53	134.98	9.43	80.36	50.52	265.87
2/28/2007 18:54	134.76	9.42	80.33	50.53	265.62
2/28/2007 18:55	134.76	9.42	80.30	50.54	265.60
2/28/2007 18:56	135.10	9.41	80.28	50.55	265.92
2/28/2007 18:57	135.21	9.41	80.25	50.55	266.01
2/28/2007 18:58	134.80	9.40	80.22	50.56	265.57
2/28/2007 18:59	135.02	9.39	80.19	50.57	265.77
2/28/2007 19:00	135.28	9.39	80.16	50.58	266.02
2/28/2007 19:01	134.94	9.38	80.13	50.59	265.65
2/28/2007 19:02	134.66	9.38	80.10	50.59	265.35
2/28/2007 19:03	135.30	9.37	80.07	50.60	265.98
2/28/2007 19:04	135.25	9.37	80.04	50.61	265.90
2/28/2007 19:05	135.19	9.36	80.01	50.62	265.82
2/28/2007 19:06	135.13	9.35	79.85	50.62	265.61
2/28/2007 19:07	135.08	9.35	79.59	50.63	265.30
2/28/2007 19:08	135.02	9.34	79.33	50.64	264.99
2/28/2007 19:09	134.96	9.34	79.07	50.65	264.68
2/28/2007 19:10	134.91	9.33	78.80	50.66	264.36
2/28/2007 19:11	134.85	9.32	78.75	50.66	264.26
2/28/2007 19:12	134.66	9.32	78.77	50.67	264.10
2/28/2007 19:13	135.15	9.31	78.79	50.68	264.62
2/28/2007 19:14	135.26	9.31	78.80	50.69	264.76
2/28/2007 19:15	135.26	9.30	78.82	50.70	264.78
2/28/2007 19:16	134.92	9.30	78.84	50.70	264.46
2/28/2007 19:17	134.71	9.29	78.86	50.71	264.28
2/28/2007 19:18	134.68	9.28	78.87	50.72	264.28
2/28/2007 19:19	135.07	9.28	78.89	50.73	264.68
2/28/2007 19:20	134.78	9.27	78.91	50.73	264.43
2/28/2007 19:21	134.81	9.27	78.93	50.74	264.48
2/28/2007 19:22	134.83	9.26	78.95	50.75	264.52
2/28/2007 19:23	134.85	9.25	78.96	50.76	264.57
2/28/2007 19:24	134.87	9.25	78.98	50.77	264.61
2/28/2007 19:25	134.89	9.24	79.00	50.77	264.66
2/28/2007 19:26	134.91	9.24	79.02	50.78	264.70
2/28/2007 19:27	135.15	9.23	79.03	50.79	264.97
2/28/2007 19:28	134.81	9.23	79.05	50.80	264.66
2/28/2007 19:29	134.80	9.23	79.07	50.80	264.68
2/28/2007 19:30	134.80	9.23	79.09	50.81	264.70
2/28/2007 19:31	135.25	9.23	79.11	50.82	265.17
2/28/2007 19:32	134.83	9.23	79.12	50.83	264.78
2/28/2007 19:33	135.00	9.23	79.14	50.84	264.97
2/28/2007 19:34	134.84	9.23	79.16	50.84	264.84
2/28/2007 19:35	134.85	9.23	79.18	50.85	264.88
2/28/2007 19:36	134.87	9.23	79.19	50.86	264.92
2/28/2007 19:37	134.88	9.23	79.21	50.87	264.96
2/28/2007 19:38	134.90	9.23	79.23	50.88	265.01
2/28/2007 19:39	134.92	9.23	79.25	50.88	265.05

Note: 62FC0010 is in error - valve is actually closed.

Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
28-Feb-07 19:57:00	135.037	9.239	79.567	51.025	265.629
28-Feb-07 19:58:00	135.048	9.239	79.632	51.032	265.712
28-Feb-07 19:59:00	135.058	9.240	79.714	51.040	265.813
28-Feb-07 20:00:00	135.069	9.240	79.797	51.048	265.914
28-Feb-07 20:01:00	135.079	9.241	79.879	51.056	266.014
28-Feb-07 20:02:00	135.286	9.241	79.962	51.064	266.312
28-Feb-07 20:03:00	134.882	9.242	80.044	51.072	265.998
28-Feb-07 20:04:00	134.851	9.242	80.127	51.079	266.058
28-Feb-07 20:05:00	134.855	9.242	80.209	51.087	266.152
28-Feb-07 20:06:00	134.859	9.243	80.291	51.095	266.246
28-Feb-07 20:07:00	134.863	9.243	80.374	51.103	266.340
28-Feb-07 20:08:00	134.867	9.244	80.456	51.111	266.434
28-Feb-07 20:09:00	134.870	9.244	80.539	51.119	266.528
28-Feb-07 20:10:00	134.874	9.244	80.621	51.127	266.622
28-Feb-07 20:11:00	134.878	9.245	80.704	51.134	266.716
28-Feb-07 20:12:00	134.882	9.245	80.786	51.142	266.810
28-Feb-07 20:13:00	134.885	9.246	80.868	51.150	266.904
28-Feb-07 20:14:00	134.889	9.246	80.951	51.158	266.998
28-Feb-07 20:15:00	134.893	9.247	81.033	51.166	267.092
28-Feb-07 20:16:00	134.897	9.247	81.116	51.174	267.186
28-Feb-07 20:17:00	134.901	9.247	81.198	51.181	267.280
28-Feb-07 20:18:00	134.904	9.248	81.281	51.189	267.374
28-Feb-07 20:19:00	135.619	9.248	81.363	51.197	268.179
28-Feb-07 20:20:00	135.007	9.249	81.446	51.205	267.657
28-Feb-07 20:21:00	135.146	9.249	81.528	51.213	267.886
28-Feb-07 20:22:00	135.284	9.249	81.610	51.221	268.115
28-Feb-07 20:23:00	135.423	9.250	81.693	51.229	268.344
28-Feb-07 20:24:00	135.525	9.250	81.775	51.236	268.536
28-Feb-07 20:25:00	135.220	9.251	81.858	51.244	268.322
28-Feb-07 20:26:00	134.810	9.251	81.940	51.252	268.002
28-Feb-07 20:27:00	134.696	9.252	82.023	51.260	267.978
28-Feb-07 20:28:00	134.754	9.252	82.105	51.268	268.127
28-Feb-07 20:29:00	134.813	9.252	82.187	51.276	268.276
28-Feb-07 20:30:00	134.871	9.253	82.270	51.283	268.425
28-Feb-07 20:31:00	135.381	9.253	82.352	51.291	269.024
28-Feb-07 20:32:00	135.271	9.254	82.435	51.299	269.004
28-Feb-07 20:33:00	135.160	9.254	82.517	51.307	268.984
28-Feb-07 20:34:00	135.050	9.255	82.600	51.315	268.964
28-Feb-07 20:35:00	134.816	9.255	82.682	51.323	268.821
28-Feb-07 20:36:00	134.851	9.255	82.764	51.331	268.946
28-Feb-07 20:37:00	135.556	9.256	82.778	51.338	269.672
28-Feb-07 20:38:00	135.280	9.256	82.768	51.346	269.394
28-Feb-07 20:39:00	134.959	9.257	82.758	51.354	269.071
28-Feb-07 20:40:00	134.940	9.257	82.748	51.362	269.050
28-Feb-07 20:41:00	134.921	9.257	82.738	51.370	269.029
28-Feb-07 20:42:00	134.902	9.258	82.728	51.378	269.008
28-Feb-07 20:43:00	134.884	9.258	82.718	51.385	268.987
28-Feb-07 20:44:00	134.865	9.259	82.708	51.393	268.966
28-Feb-07 20:45:00	134.846	9.259	82.699	51.401	268.946
28-Feb-07 20:46:00	134.827	9.260	82.689	51.409	268.925
28-Feb-07 20:47:00	134.808	9.260	82.679	51.417	268.904
28-Feb-07 20:48:00	134.789	9.261	82.669	51.425	268.883
28-Feb-07 20:49:00	134.770	9.262	82.659	51.433	268.862
28-Feb-07 20:50:00	134.464	9.264	82.649	51.440	268.554
28-Feb-07 20:51:00	134.943	9.265	82.639	51.448	269.031
28-Feb-07 20:52:00	134.944	9.266	82.629	51.456	269.030
28-Feb-07 20:53:00	134.945	9.268	82.619	51.464	269.028
28-Feb-07 20:54:00	134.973	9.269	82.610	51.472	269.055
28-Feb-07 20:55:00	135.341	9.271	82.600	51.480	269.421
28-Feb-07 20:56:00	134.841	9.272	82.590	51.487	268.918

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
01-Mar-07 08:00:00	135.488	10.327	85.508	52.518	273.514
01-Mar-07 08:01:00	135.497	10.324	85.651	52.417	273.565
01-Mar-07 08:02:00	135.103	10.322	85.793	52.316	273.213
01-Mar-07 08:03:00	134.840	10.320	85.936	52.215	272.991
01-Mar-07 08:04:00	134.795	10.318	86.079	52.114	272.988
01-Mar-07 08:05:00	134.750	10.315	86.222	52.012	272.984
01-Mar-07 08:06:00	134.705	10.313	86.365	51.911	272.981
01-Mar-07 08:07:00	134.541	10.311	86.508	51.810	272.859
01-Mar-07 08:08:00	134.953	10.309	86.651	51.709	273.313
01-Mar-07 08:09:00	134.928	10.306	86.793	51.608	273.330
01-Mar-07 08:10:00	134.903	10.304	86.936	51.507	273.346
01-Mar-07 08:11:00	134.878	10.302	87.079	51.405	273.363
01-Mar-07 08:12:00	134.853	10.300	87.222	51.304	273.380
01-Mar-07 08:13:00	134.828	10.297	87.365	51.203	273.396
01-Mar-07 08:14:00	134.803	10.295	87.508	51.102	273.413
01-Mar-07 08:15:00	134.778	10.293	87.651	51.001	273.430
01-Mar-07 08:16:00	134.753	10.291	87.794	50.900	273.447
01-Mar-07 08:17:00	134.728	10.288	87.936	50.865	273.530
01-Mar-07 08:18:00	134.704	10.286	87.926	50.881	273.510
01-Mar-07 08:19:00	134.679	10.284	87.805	50.897	273.381
01-Mar-07 08:20:00	134.654	10.281	87.685	50.913	273.252
01-Mar-07 08:21:00	134.462	10.279	87.565	50.929	272.956
01-Mar-07 08:22:00	134.814	10.277	87.444	50.946	273.203
01-Mar-07 08:23:00	134.839	10.275	87.324	50.962	273.125
01-Mar-07 08:24:00	134.865	10.272	87.203	50.978	273.046
01-Mar-07 08:25:00	135.347	10.270	87.083	50.994	273.424
01-Mar-07 08:26:00	134.875	10.268	86.963	51.010	272.848
01-Mar-07 08:27:00	134.800	10.266	86.842	51.026	272.669
01-Mar-07 08:28:00	134.283	10.263	86.722	51.042	272.047
01-Mar-07 08:29:00	134.924	10.261	86.601	51.059	272.584
01-Mar-07 08:30:00	134.972	10.259	86.481	51.075	272.528
01-Mar-07 08:31:00	135.021	10.257	86.361	51.091	272.472
01-Mar-07 08:32:00	135.069	10.254	86.240	51.107	272.416
01-Mar-07 08:33:00	135.109	10.252	86.120	51.112	272.341
01-Mar-07 08:34:00	135.078	10.250	86.000	51.116	272.194
01-Mar-07 08:35:00	134.612	10.248	85.879	51.121	271.611
01-Mar-07 08:36:00	134.998	10.245	85.759	51.125	271.882
01-Mar-07 08:37:00	135.255	10.243	85.604	51.129	271.989
01-Mar-07 08:38:00	135.513	10.241	85.426	51.133	272.072
01-Mar-07 08:39:00	135.515	10.239	85.247	51.137	271.899
01-Mar-07 08:40:00	135.024	10.236	85.069	51.141	271.234
01-Mar-07 08:41:00	135.057	10.234	84.890	51.146	271.093
01-Mar-07 08:42:00	135.091	10.232	84.711	51.150	270.952
01-Mar-07 08:43:00	135.399	10.230	84.533	51.154	271.086
01-Mar-07 08:44:00	135.038	10.227	84.354	51.158	270.550
01-Mar-07 08:45:00	134.980	10.225	84.176	51.162	270.318
01-Mar-07 08:46:00	135.022	10.223	84.014	51.166	270.202
01-Mar-07 08:47:00	135.064	10.221	84.040	51.171	270.274
01-Mar-07 08:48:00	135.105	10.218	84.066	51.175	270.346
01-Mar-07 08:49:00	135.147	10.216	84.092	51.224	270.464
01-Mar-07 08:50:00	135.189	10.214	84.118	51.409	270.716
01-Mar-07 08:51:00	135.112	10.212	84.144	51.594	270.850
01-Mar-07 08:52:00	135.068	10.209	84.170	51.779	271.016
01-Mar-07 08:53:00	135.024	10.207	84.196	51.964	271.183
01-Mar-07 08:54:00	134.979	10.205	84.222	52.149	271.350
01-Mar-07 08:55:00	134.414	10.203	84.248	52.334	270.995
01-Mar-07 08:56:00	134.574	10.200	84.274	52.519	271.366
01-Mar-07 08:57:00	135.085	10.198	84.299	52.703	272.088
01-Mar-07 08:58:00	134.959	10.196	84.325	52.685	271.970
01-Mar-07 08:59:00	134.833	10.194	84.351	52.384	271.568

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
01-Mar-07 09:22:00	135.109	10.142	85.760	52.989	273.858
01-Mar-07 09:23:00	135.152	10.139	85.860	53.354	274.366
01-Mar-07 09:24:00	135.574	10.137	85.960	53.719	275.253
01-Mar-07 09:25:00	134.998	10.135	86.060	54.084	275.143
01-Mar-07 09:26:00	134.953	10.133	86.161	54.449	275.563
01-Mar-07 09:27:00	134.908	10.130	86.261	54.773	275.942
01-Mar-07 09:28:00	134.862	10.128	86.361	54.648	275.871
01-Mar-07 09:29:00	134.817	10.126	86.461	54.523	275.801
01-Mar-07 09:30:00	135.088	10.124	86.562	54.397	276.047
01-Mar-07 09:31:00	135.147	10.121	86.662	54.272	276.081
01-Mar-07 09:32:00	135.207	10.119	86.762	54.146	276.115
01-Mar-07 09:33:00	135.509	10.117	86.863	54.021	276.392
01-Mar-07 09:34:00	135.132	10.115	86.963	53.895	275.990
01-Mar-07 09:35:00	134.717	10.112	87.063	53.770	275.550
01-Mar-07 09:36:00	134.651	10.110	87.163	53.644	275.459
01-Mar-07 09:37:00	135.407	10.108	87.264	53.519	276.190
01-Mar-07 09:38:00	135.301	10.106	87.364	53.393	276.058
01-Mar-07 09:39:00	135.194	10.107	87.464	53.268	275.926
01-Mar-07 09:40:00	134.632	10.107	87.455	53.142	275.229
01-Mar-07 09:41:00	134.706	10.108	87.436	53.017	275.159
01-Mar-07 09:42:00	134.780	10.109	87.417	52.892	275.089
01-Mar-07 09:43:00	134.854	10.109	87.398	52.766	275.018
01-Mar-07 09:44:00	135.218	10.110	87.379	52.641	275.238
01-Mar-07 09:45:00	134.876	10.110	87.360	52.515	274.751
01-Mar-07 09:46:00	134.616	10.111	87.341	52.390	274.347
01-Mar-07 09:47:00	134.603	10.111	87.323	52.264	274.190
01-Mar-07 09:48:00	134.947	10.112	87.304	52.139	274.390
01-Mar-07 09:49:00	135.066	10.113	87.285	52.013	274.364
01-Mar-07 09:50:00	134.807	10.113	87.266	51.888	273.961
01-Mar-07 09:51:00	134.685	10.114	87.247	51.773	273.405
01-Mar-07 09:52:00	135.120	10.114	87.228	51.648	273.380
01-Mar-07 09:53:00	135.160	10.115	87.209	50.592	272.961
01-Mar-07 09:54:00	135.019	10.115	87.190	50.515	272.360
01-Mar-07 09:55:00	134.453	10.116	87.171	49.710	271.334
01-Mar-07 09:56:00	135.109	10.117	87.152	49.406	271.668
01-Mar-07 09:57:00	135.747	10.117	87.133	49.512	272.393
01-Mar-07 09:58:00	135.811	10.118	87.114	49.618	272.543
01-Mar-07 09:59:00	134.948	10.118	87.080	49.724	271.753
01-Mar-07 10:00:00	134.885	10.119	87.041	49.830	271.756
01-Mar-07 10:01:00	134.822	10.119	87.002	49.936	271.760
01-Mar-07 10:02:00	135.229	10.120	86.963	50.042	272.235
01-Mar-07 10:03:00	135.185	10.121	86.924	50.148	272.257
01-Mar-07 10:04:00	135.141	10.121	86.885	50.254	272.280
01-Mar-07 10:05:00	135.096	10.122	86.846	50.360	272.303
01-Mar-07 10:06:00	135.052	10.122	86.807	50.466	272.325
01-Mar-07 10:07:00	135.008	10.123	86.768	50.572	272.348
01-Mar-07 10:08:00	134.964	10.123	86.729	50.678	272.371
01-Mar-07 10:09:00	134.880	10.124	86.690	50.784	272.354
01-Mar-07 10:10:00	134.588	10.125	86.651	50.890	272.129
01-Mar-07 10:11:00	134.794	10.125	86.612	50.996	272.402
01-Mar-07 10:12:00	135.191	10.126	86.573	51.102	272.866
01-Mar-07 10:13:00	135.164	10.126	86.534	51.208	272.906
01-Mar-07 10:14:00	135.137	10.127	86.495	51.314	272.945
01-Mar-07 10:15:00	135.110	10.127	86.456	51.420	272.985
01-Mar-07 10:16:00	134.751	10.128	86.417	51.526	272.693
01-Mar-07 10:17:00	135.040	10.128	86.378	51.508	272.926
01-Mar-07 10:18:00	135.299	10.129	86.339	51.479	273.117
01-Mar-07 10:19:00	135.216	10.130	86.300	51.450	272.966
01-Mar-07 10:20:00	135.133	10.130	86.261	51.421	272.815
01-Mar-07 10:21:00	135.050	10.131	86.222	51.392	272.664

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
01-Mar-07 10:40:00	134.857	10.142	84.145	52.076	271.078
01-Mar-07 10:41:00	134.410	10.142	84.132	52.031	270.573
01-Mar-07 10:42:00	135.155	10.143	84.120	51.986	271.261
01-Mar-07 10:43:00	135.140	10.143	84.108	51.940	271.188
01-Mar-07 10:44:00	135.125	10.144	84.095	51.895	271.115
01-Mar-07 10:45:00	135.110	10.144	84.083	51.850	271.043
01-Mar-07 10:46:00	134.465	10.145	84.070	51.805	270.340
01-Mar-07 10:47:00	134.404	10.146	84.058	51.760	270.222
01-Mar-07 10:48:00	135.181	10.146	84.045	51.715	270.941
01-Mar-07 10:49:00	135.086	10.147	84.033	51.670	270.789
01-Mar-07 10:50:00	134.991	10.147	84.020	51.625	270.636
01-Mar-07 10:51:00	134.897	10.148	84.008	51.580	270.484
01-Mar-07 10:52:00	134.802	10.148	83.995	51.535	270.332
01-Mar-07 10:53:00	134.707	10.149	83.983	51.490	270.179
01-Mar-07 10:54:00	134.318	10.149	83.970	51.444	269.733
01-Mar-07 10:55:00	134.817	10.150	83.958	51.399	270.174
01-Mar-07 10:56:00	135.405	10.151	83.945	51.354	270.704
01-Mar-07 10:57:00	135.341	10.151	83.933	51.309	270.583
01-Mar-07 10:58:00	135.278	10.152	83.920	51.264	270.463
01-Mar-07 10:59:00	134.930	10.152	83.908	51.219	270.057
01-Mar-07 11:00:00	134.638	10.153	83.895	51.265	269.799
01-Mar-07 11:01:00	134.635	10.153	83.883	51.440	269.959
01-Mar-07 11:02:00	134.892	10.154	83.871	51.615	270.378
01-Mar-07 11:03:00	135.422	10.155	83.858	51.790	271.070
01-Mar-07 11:04:00	135.312	10.155	83.846	51.965	271.122
01-Mar-07 11:05:00	134.734	10.156	83.833	52.140	270.707
01-Mar-07 11:06:00	134.689	10.156	83.821	52.315	270.824
01-Mar-07 11:07:00	135.045	10.157	83.808	52.490	271.343
01-Mar-07 11:08:00	135.472	10.157	83.796	52.664	271.932
01-Mar-07 11:09:00	135.117	10.158	83.783	52.839	271.739
01-Mar-07 11:10:00	135.138	10.159	83.771	53.014	271.923
01-Mar-07 11:11:00	134.816	10.159	83.758	53.189	271.764
01-Mar-07 11:12:00	134.530	10.160	83.746	53.364	271.640
01-Mar-07 11:13:00	134.637	10.160	83.733	53.531	271.901
01-Mar-07 11:14:00	135.194	10.161	83.721	53.615	272.530
01-Mar-07 11:15:00	135.096	10.161	83.708	53.699	272.504
01-Mar-07 11:16:00	134.998	10.162	83.696	53.784	272.477
01-Mar-07 11:17:00	134.900	10.163	83.683	53.868	272.451
01-Mar-07 11:18:00	134.802	10.163	83.671	53.952	272.424
01-Mar-07 11:19:00	134.704	10.162	83.658	54.036	272.398
01-Mar-07 11:20:00	134.749	10.162	83.646	54.120	272.515
01-Mar-07 11:21:00	135.016	10.161	83.633	54.204	272.853
01-Mar-07 11:22:00	135.055	10.160	83.690	54.288	273.034
01-Mar-07 11:23:00	135.093	10.160	83.770	54.372	273.235
01-Mar-07 11:24:00	134.663	10.159	83.849	53.840	272.352
01-Mar-07 11:25:00	134.512	10.159	83.929	53.390	271.831
01-Mar-07 11:26:00	134.960	10.158	84.008	53.565	272.533
01-Mar-07 11:27:00	135.583	10.158	84.088	53.740	273.411
01-Mar-07 11:28:00	135.559	10.157	84.167	53.870	273.596
01-Mar-07 11:29:00	134.921	10.156	84.247	53.506	272.673
01-Mar-07 11:30:00	134.878	10.156	84.326	53.142	272.346
01-Mar-07 11:31:00	134.836	10.155	84.406	52.778	272.019
01-Mar-07 11:32:00	134.793	10.155	84.485	52.414	271.692
01-Mar-07 11:33:00	134.750	10.154	84.552	52.050	271.351
01-Mar-07 11:34:00	134.708	10.153	84.474	51.685	270.867
01-Mar-07 11:35:00	134.665	10.153	84.397	51.321	270.383
01-Mar-07 11:36:00	134.622	10.152	84.320	50.957	269.899
01-Mar-07 11:37:00	135.076	10.152	84.242	50.593	269.911
01-Mar-07 11:38:00	135.101	10.151	84.165	50.229	269.495
01-Mar-07 11:39:00	135.125	10.151	84.088	49.865	269.078

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
01-Mar-07 12:01:00	134.806	10.138	82.386	50.876	268.068
01-Mar-07 12:02:00	134.703	10.137	82.309	50.855	267.867
01-Mar-07 12:03:00	135.122	10.137	82.231	50.835	268.188
01-Mar-07 12:04:00	135.120	10.136	82.154	50.815	268.089
01-Mar-07 12:05:00	135.119	10.135	82.076	50.794	267.990
01-Mar-07 12:06:00	135.118	10.135	81.999	50.774	267.891
01-Mar-07 12:07:00	134.753	10.134	81.922	50.933	267.609
01-Mar-07 12:08:00	134.872	10.134	81.844	51.222	267.938
01-Mar-07 12:09:00	134.628	10.133	81.767	51.510	267.904
01-Mar-07 12:10:00	135.389	10.132	81.690	51.798	268.877
01-Mar-07 12:11:00	135.345	10.132	81.612	52.086	269.044
01-Mar-07 12:12:00	135.302	10.131	81.535	52.374	269.210
01-Mar-07 12:13:00	135.258	10.131	81.458	52.662	269.377
01-Mar-07 12:14:00	134.748	10.130	81.380	52.950	269.078
01-Mar-07 12:15:00	134.773	10.130	81.303	53.238	269.314
01-Mar-07 12:16:00	134.798	10.129	81.226	53.526	269.550
01-Mar-07 12:17:00	134.823	10.128	81.202	53.814	269.840
01-Mar-07 12:18:00	135.589	10.120	81.341	54.102	271.033
01-Mar-07 12:19:00	135.363	10.022	81.481	54.390	271.234
01-Mar-07 12:20:00	135.137	9.814	81.620	53.145	269.903
01-Mar-07 12:21:00	134.363	9.734	81.759	50.805	266.928
01-Mar-07 12:22:00	134.592	9.775	81.898	46.352	262.842
01-Mar-07 12:23:00	134.820	9.816	82.037	41.707	258.564
01-Mar-07 12:24:00	134.460	9.858	82.176	33.674	250.311
01-Mar-07 12:25:00	134.492	9.899	82.275	24.512	241.279
01-Mar-07 12:26:00	135.113	9.940	82.344	15.617	233.074
01-Mar-07 12:27:00	133.099	9.963	82.414	13.122	228.635
01-Mar-07 12:28:00	131.861	9.960	82.484	13.093	227.438
01-Mar-07 12:29:00	129.021	9.956	82.553	13.065	224.639
01-Mar-07 12:30:00	124.154	9.953	82.623	13.036	219.813
01-Mar-07 12:31:00	122.223	9.950	83.259	13.008	218.490
01-Mar-07 12:32:00	118.794	9.946	85.595	12.979	217.368
01-Mar-07 12:33:00	116.816	9.943	87.930	12.951	217.697
01-Mar-07 12:34:00	113.152	9.940	90.265	12.922	216.340
01-Mar-07 12:35:00	111.392	9.936	92.601	12.893	216.887
01-Mar-07 12:36:00	110.436	9.933	94.800	12.865	218.100
01-Mar-07 12:37:00	109.952	9.930	95.493	12.836	218.281
01-Mar-07 12:38:00	109.685	9.926	96.186	12.808	218.678
01-Mar-07 12:39:00	109.417	9.923	96.879	12.779	219.076
01-Mar-07 12:40:00	109.476	9.920	97.572	12.750	219.799
01-Mar-07 12:41:00	109.643	9.917	98.000	12.722	220.365
01-Mar-07 12:42:00	109.810	9.913	98.055	12.693	220.559
01-Mar-07 12:43:00	109.977	9.910	98.111	12.665	220.753
01-Mar-07 12:44:00	109.970	9.907	98.166	12.636	220.772
01-Mar-07 12:45:00	109.904	9.903	98.222	12.608	220.734
01-Mar-07 12:46:00	109.839	9.900	98.278	12.579	220.695
01-Mar-07 12:47:00	109.773	9.897	98.333	12.550	220.657
01-Mar-07 12:48:00	109.708	9.893	98.389	12.522	220.618
01-Mar-07 12:49:00	109.643	9.890	98.444	12.493	220.580
01-Mar-07 12:50:00	109.457	9.887	98.500	12.465	220.422
01-Mar-07 12:51:00	109.707	9.883	98.555	12.436	220.698
01-Mar-07 12:52:00	109.962	9.880	98.611	12.407	220.980
01-Mar-07 12:53:00	109.758	9.877	98.666	12.379	220.804
01-Mar-07 12:54:00	109.555	9.873	98.722	12.350	220.627
01-Mar-07 12:55:00	109.283	9.870	98.777	12.322	220.383
01-Mar-07 12:56:00	109.849	9.867	98.833	12.293	220.975
01-Mar-07 12:57:00	109.912	9.863	98.888	12.265	221.065
01-Mar-07 12:58:00	109.975	9.860	98.944	12.236	221.155
01-Mar-07 12:59:00	110.038	9.857	98.980	12.207	221.225
01-Mar-07 13:00:00	110.101	9.854	99.009	12.179	221.289

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020 AMINE GAS TO THERMAL RX MSCFH	62FC0010 SWTR GAS TO THERMAL RX MSCFH	63FC0020 AMINE GAS TO THERMAL RX MSCFH	63FC0010 SWTR GAS TO THERMAL RX MSCFH	TOTAL ACID GAS MSCFH
2/26/2007 15:50	135.162	8.517	70.249	47.780	253.192
2/26/2007 15:51	135.171	8.467	70.288	47.572	253.031
2/26/2007 15:52	135.180	8.418	70.327	47.364	252.871
2/26/2007 15:53	135.189	8.369	70.366	47.156	252.711
2/26/2007 15:54	135.180	8.320	70.405	46.948	252.532
2/26/2007 15:55	134.981	8.271	70.444	46.739	252.164
2/26/2007 15:56	134.509	8.193	70.483	46.531	251.523
2/26/2007 15:57	134.700	8.253	70.522	46.323	251.545
2/26/2007 15:58	135.020	8.313	70.561	46.115	251.696
2/26/2007 15:59	134.856	8.373	70.600	45.651	251.107
2/26/2007 16:00	134.968	8.433	70.639	45.164	250.770
2/26/2007 16:01	135.079	8.771	70.678	45.014	250.771
2/26/2007 16:02	134.996	8.970	70.717	45.105	250.818
2/26/2007 16:03	135.377	8.957	70.708	45.196	251.282
2/26/2007 16:04	135.294	8.944	70.695	45.287	251.276
2/26/2007 16:05	134.857	8.930	70.682	45.378	250.918
2/26/2007 16:06	134.603	8.917	70.669	45.469	250.742
2/26/2007 16:07	134.719	8.904	70.656	45.560	250.935
2/26/2007 16:08	135.239	8.890	70.643	45.652	251.534
2/26/2007 16:09	135.246	8.877	70.631	45.743	251.619
2/26/2007 16:10	135.252	8.864	70.618	45.834	251.703
2/26/2007 16:11	135.258	8.850	70.605	45.925	251.788
2/26/2007 16:12	134.937	8.837	70.592	46.016	251.544
2/26/2007 16:13	134.953	8.824	70.579	46.107	251.639
2/26/2007 16:14	135.217	8.810	70.566	46.198	251.981
2/26/2007 16:15	134.702	8.797	70.553	46.289	251.543
2/26/2007 16:16	134.930	8.784	70.540	46.380	251.851
2/26/2007 16:17	135.483	8.770	70.527	46.471	252.481
2/26/2007 16:18	135.456	8.757	70.514	46.562	252.532
2/26/2007 16:19	135.454	8.744	70.501	46.653	252.608
2/26/2007 16:20	134.975	8.730	70.488	46.744	252.207
2/26/2007 16:21	134.946	8.717	70.475	46.835	252.257
2/26/2007 16:22	134.918	8.712	70.463	46.926	252.307
2/26/2007 16:23	134.889	8.709	70.450	47.017	252.356
2/26/2007 16:24	134.547	8.707	70.437	47.109	252.093
2/26/2007 16:25	134.682	8.704	70.424	47.200	252.305
2/26/2007 16:26	134.525	8.702	70.411	47.291	252.226
2/26/2007 16:27	135.110	8.699	70.398	47.382	252.890
2/26/2007 16:28	135.268	8.697	70.385	47.473	253.126
2/26/2007 16:29	134.698	8.694	70.372	47.564	252.634
2/26/2007 16:30	135.142	8.692	70.359	47.655	253.156
2/26/2007 16:31	134.763	8.689	70.346	47.746	252.855
2/26/2007 16:32	134.732	8.687	70.375	47.837	252.944
2/26/2007 16:33	134.701	8.684	70.418	47.928	253.048
2/26/2007 16:34	134.670	8.682	70.461	48.019	253.151
2/26/2007 16:35	134.639	8.679	70.504	48.110	253.254
2/26/2007 16:36	134.608	8.677	70.547	47.971	253.127
2/26/2007 16:37	134.578	8.674	70.590	47.668	252.836
2/26/2007 16:38	134.547	8.672	70.633	47.365	252.545
2/26/2007 16:39	134.516	8.669	70.676	47.062	252.254
2/26/2007 16:40	134.485	8.667	70.719	46.758	251.963
2/26/2007 16:41	134.454	8.664	70.762	46.455	251.671
2/26/2007 16:42	134.423	8.677	70.805	46.152	251.380
2/26/2007 16:43	134.392	8.695	70.848	45.849	251.089
2/26/2007 16:44	134.361	8.713	70.891	45.546	250.798
2/26/2007 16:45	134.330	8.732	70.934	45.242	250.507
2/26/2007 16:46	134.299	8.750	70.977	44.939	250.216
2/26/2007 16:47	134.958	8.768	71.020	45.082	251.060
2/26/2007 16:48	135.003	8.786	70.909	45.373	251.284
2/26/2007 16:49	135.667	8.804	70.333	45.664	251.664

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
2/26/2007 17:12	135.072	8.651	68.242	47.471	250.785
2/26/2007 17:13	135.155	8.651	68.172	47.491	250.819
2/26/2007 17:14	135.238	8.651	68.102	47.512	250.852
2/26/2007 17:15	134.836	8.651	68.033	47.533	250.401
2/26/2007 17:16	135.099	8.651	67.963	47.554	250.616
2/26/2007 17:17	135.087	8.651	67.894	47.574	250.555
2/26/2007 17:18	135.075	8.652	67.824	47.595	250.494
2/26/2007 17:19	135.126	8.652	67.754	47.616	250.496
2/26/2007 17:20	135.126	8.652	67.392	47.636	250.155
2/26/2007 17:21	135.126	8.652	66.933	48.100	250.159
2/26/2007 17:22	135.126	8.650	66.473	48.710	250.310
2/26/2007 17:23	135.127	8.627	66.014	49.321	250.462
2/26/2007 17:24	135.127	8.604	65.555	49.748	250.429
2/26/2007 17:25	135.127	8.581	65.095	49.625	249.847
2/26/2007 17:26	135.127	8.558	64.636	49.501	249.264
2/26/2007 17:27	135.127	8.535	64.176	49.377	248.681
2/26/2007 17:28	135.128	8.512	63.717	49.254	248.098
2/26/2007 17:29	135.128	8.489	63.537	49.130	247.795
2/26/2007 17:30	135.128	8.466	63.558	49.007	247.692
2/26/2007 17:31	135.128	8.443	63.578	48.883	247.589
2/26/2007 17:32	135.128	8.420	63.598	48.759	247.486
2/26/2007 17:33	135.129	8.397	63.619	48.636	247.383
2/26/2007 17:34	135.129	8.384	63.639	48.512	247.280
2/26/2007 17:35	134.734	8.471	63.659	48.389	246.782
2/26/2007 17:36	135.006	8.559	63.680	48.265	246.951
2/26/2007 17:37	135.669	8.647	63.700	48.141	247.511
2/26/2007 17:38	134.981	8.605	63.720	48.018	246.719
2/26/2007 17:39	135.292	8.520	63.741	47.894	246.926
2/26/2007 17:40	135.249	8.485	63.761	47.771	246.781
2/26/2007 17:41	135.207	8.595	63.781	47.647	246.636
2/26/2007 17:42	135.165	8.666	63.802	47.523	246.490
2/26/2007 17:43	135.123	8.623	63.822	47.400	246.345
2/26/2007 17:44	134.863	8.579	63.842	47.276	245.981
2/26/2007 17:45	134.856	8.535	63.863	47.153	245.872
2/26/2007 17:46	134.850	8.492	63.883	47.029	245.762
2/26/2007 17:47	134.844	8.448	63.903	46.905	245.652
2/26/2007 17:48	134.891	8.422	63.924	46.782	245.596
2/26/2007 17:49	134.876	8.446	63.944	46.658	245.478
2/26/2007 17:50	134.861	8.470	64.088	46.535	245.484
2/26/2007 17:51	134.846	8.494	64.321	46.411	245.578
2/26/2007 17:52	134.831	8.518	64.554	46.287	245.672
2/26/2007 17:53	134.817	8.542	64.786	46.164	245.767
2/26/2007 17:54	134.802	8.567	65.019	46.040	245.861
2/26/2007 17:55	134.787	8.591	65.251	45.917	245.955
2/26/2007 17:56	134.772	8.615	65.484	45.793	246.049
2/26/2007 17:57	134.758	8.639	65.717	45.669	246.143
2/26/2007 17:58	134.743	8.663	65.949	45.546	246.238
2/26/2007 17:59	134.728	8.687	66.182	45.422	246.332
2/26/2007 18:00	134.713	8.782	66.139	45.299	246.151
2/26/2007 18:01	134.698	8.882	66.005	45.175	245.878
2/26/2007 18:02	134.684	8.983	65.871	45.051	245.606
2/26/2007 18:03	134.669	8.927	65.737	44.928	245.333
2/26/2007 18:04	134.654	8.856	65.603	44.804	245.061
2/26/2007 18:05	134.956	8.785	65.468	44.681	245.105
2/26/2007 18:06	134.952	8.714	65.334	44.557	244.843
2/26/2007 18:07	134.949	8.643	65.200	44.433	244.582
2/26/2007 18:08	134.945	8.572	65.066	44.310	244.321
2/26/2007 18:09	134.941	8.501	64.932	44.186	244.059
2/26/2007 18:10	134.938	8.411	64.798	44.063	243.798
2/26/2007 18:11	134.934	8.307	64.664	43.939	243.537

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020 AMINE GAS TO THERMAL RX MSCFH	62FC0010 SWTR GAS TO THERMAL RX MSCFH	63FC0020 AMINE GAS TO THERMAL RX MSCFH	63FC0010 SWTR GAS TO THERMAL RX MSCFH	TOTAL ACID GAS MSCFH
2/26/2007 18:32	134.744	7.793	60.835	47.603	243.182
2/26/2007 18:33	134.565	7.784	60.783	47.606	242.954
2/26/2007 18:34	134.606	7.775	60.732	47.608	242.946
2/26/2007 18:35	134.648	7.766	60.681	47.610	242.939
2/26/2007 18:36	135.197	7.757	60.629	47.613	243.439
2/26/2007 18:37	134.557	7.748	60.578	47.615	242.750
2/26/2007 18:38	134.511	7.739	60.527	47.617	242.655
2/26/2007 18:39	135.073	7.729	60.475	47.620	243.167
2/26/2007 18:40	134.696	7.720	60.424	47.622	242.742
2/26/2007 18:41	134.718	7.719	60.372	47.624	242.715
2/26/2007 18:42	135.063	7.718	60.321	47.627	243.011
2/26/2007 18:43	134.722	7.717	60.270	47.629	242.620
2/26/2007 18:44	134.749	7.716	60.218	47.631	242.598
2/26/2007 18:45	134.776	7.715	60.097	47.634	242.506
2/26/2007 18:46	135.335	7.714	59.879	47.636	242.849
2/26/2007 18:47	135.621	7.713	59.660	47.638	242.919
2/26/2007 18:48	134.289	7.712	59.441	47.640	241.371
2/26/2007 18:49	134.609	7.712	59.223	47.643	241.475
2/26/2007 18:50	135.110	7.711	59.004	47.645	241.760
2/26/2007 18:51	135.632	7.710	58.786	47.647	242.065
2/26/2007 18:52	134.839	7.709	58.567	47.650	241.056
2/26/2007 18:53	134.726	7.708	58.348	47.652	240.727
2/26/2007 18:54	134.726	7.707	58.130	47.654	240.510
2/26/2007 18:55	135.127	7.706	57.911	47.657	240.695
2/26/2007 18:56	135.349	7.705	57.693	47.659	240.700
2/26/2007 18:57	135.693	7.704	57.474	47.661	240.829
2/26/2007 18:58	135.413	7.703	57.255	47.664	240.332
2/26/2007 18:59	134.578	7.702	57.203	47.666	239.447
2/26/2007 19:00	134.619	7.702	57.166	47.668	239.453
2/26/2007 19:01	135.033	7.701	57.129	47.671	239.832
2/26/2007 19:02	135.481	7.700	57.091	47.673	240.246
2/26/2007 19:03	135.559	7.699	57.054	47.675	240.289
2/26/2007 19:04	135.638	7.698	57.017	47.678	240.332
2/26/2007 19:05	134.692	7.697	56.980	47.680	239.351
2/26/2007 19:06	134.828	7.696	56.942	47.682	239.453
2/26/2007 19:07	134.965	7.695	56.905	47.670	239.541
2/26/2007 19:08	135.146	7.694	56.868	47.501	239.516
2/26/2007 19:09	134.686	7.693	56.831	47.333	238.850
2/26/2007 19:10	135.031	7.693	56.794	47.164	238.989
2/26/2007 19:11	135.483	7.692	56.756	46.995	239.234
2/26/2007 19:12	135.410	7.691	56.719	46.826	238.955
2/26/2007 19:13	135.336	7.690	56.682	46.657	238.676
2/26/2007 19:14	134.803	7.689	56.645	46.504	237.951
2/26/2007 19:15	134.936	7.688	56.607	46.514	238.057
2/26/2007 19:16	135.068	7.687	56.570	46.524	238.162
2/26/2007 19:17	135.201	7.686	56.533	46.533	238.267
2/26/2007 19:18	135.333	7.685	56.496	46.543	238.372
2/26/2007 19:19	135.316	7.684	56.458	46.553	238.328
2/26/2007 19:20	135.191	7.683	56.421	46.563	238.176
2/26/2007 19:21	134.756	7.683	56.384	46.573	237.714
2/26/2007 19:22	134.930	7.682	56.347	46.583	237.861
2/26/2007 19:23	134.800	7.681	56.310	46.593	237.703
2/26/2007 19:24	134.505	7.680	56.272	46.603	237.381
2/26/2007 19:25	134.853	7.679	56.235	46.613	237.701
2/26/2007 19:26	135.264	7.678	56.198	46.623	238.085
2/26/2007 19:27	134.937	7.677	56.161	46.633	237.731
2/26/2007 19:28	135.465	7.676	56.123	46.643	238.232
2/26/2007 19:29	134.737	7.675	56.086	46.653	237.476
2/26/2007 19:30	134.682	7.674	56.049	46.663	237.394
2/26/2007 19:31	134.627	7.674	56.044	46.673	237.345

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020 AMINE GAS TO THERMAL RX MSCFH	62FC0010 SWTR GAS TO THERMAL RX MSCFH	63FC0020 AMINE GAS TO THERMAL RX MSCFH	63FC0010 SWTR GAS TO THERMAL RX MSCFH	TOTAL ACID GAS MSCFH
2/26/2007 19:56	134.918	7.651	54.220	46.899	236.037
2/26/2007 19:57	134.944	7.650	54.322	46.908	236.173
2/26/2007 19:58	134.970	7.649	54.423	46.917	236.310
2/26/2007 19:59	135.001	7.648	54.525	46.925	236.451
2/26/2007 20:00	134.837	7.647	54.627	46.934	236.398
2/26/2007 20:01	134.886	7.646	54.729	46.943	236.557
2/26/2007 20:02	134.934	7.645	54.830	46.952	236.716
2/26/2007 20:03	135.300	7.645	54.932	46.960	237.192
2/26/2007 20:04	134.842	7.644	55.034	46.969	236.845
2/26/2007 20:05	135.185	7.643	55.136	46.978	237.298
2/26/2007 20:06	135.115	7.642	55.237	46.986	237.338
2/26/2007 20:07	135.292	7.641	55.339	46.995	237.627
2/26/2007 20:08	135.242	7.640	55.441	47.004	237.687
2/26/2007 20:09	135.192	7.639	55.542	47.013	237.747
2/26/2007 20:10	134.646	7.638	55.649	47.021	237.316
2/26/2007 20:11	134.729	7.637	55.757	47.030	237.515
2/26/2007 20:12	134.812	7.636	55.864	47.039	237.715
2/26/2007 20:13	135.446	7.635	55.972	47.047	238.466
2/26/2007 20:14	135.336	7.635	56.080	47.056	238.472
2/26/2007 20:15	135.327	7.634	56.188	47.065	238.580
2/26/2007 20:16	134.853	7.633	56.296	47.073	238.222
2/26/2007 20:17	134.885	7.632	56.404	47.082	238.370
2/26/2007 20:18	135.027	7.631	56.511	47.091	238.630
2/26/2007 20:19	135.086	7.630	56.619	47.100	238.805
2/26/2007 20:20	135.145	7.629	56.727	47.108	238.980
2/26/2007 20:21	135.049	7.626	56.835	47.117	239.001
2/26/2007 20:22	135.032	7.622	56.943	47.126	239.101
2/26/2007 20:23	135.016	7.618	57.050	47.134	239.201
2/26/2007 20:24	134.999	7.614	57.158	47.143	239.301
2/26/2007 20:25	134.983	7.610	57.266	47.152	239.401
2/26/2007 20:26	134.967	7.606	57.374	47.161	239.501
2/26/2007 20:27	134.950	7.602	57.482	47.169	239.601
2/26/2007 20:28	134.839	7.598	57.590	47.178	239.607
2/26/2007 20:29	134.653	7.594	57.697	47.187	239.537
2/26/2007 20:30	134.756	7.590	57.805	47.141	239.702
2/26/2007 20:31	135.075	7.587	57.913	47.089	240.078
2/26/2007 20:32	135.053	7.583	58.021	47.038	240.112
2/26/2007 20:33	135.031	7.579	58.129	46.987	240.146
2/26/2007 20:34	135.008	7.575	58.236	46.936	240.180
2/26/2007 20:35	134.986	7.571	58.344	46.884	240.215
2/26/2007 20:36	134.963	7.567	58.452	46.833	240.249
2/26/2007 20:37	134.941	7.563	58.560	46.782	240.283
2/26/2007 20:38	134.919	7.559	58.668	46.731	240.317
2/26/2007 20:39	134.896	7.555	58.776	46.680	240.351
2/26/2007 20:40	134.874	7.551	58.946	46.628	240.448
2/26/2007 20:41	134.533	7.547	59.122	46.577	240.233
2/26/2007 20:42	135.118	7.543	59.299	46.526	240.942
2/26/2007 20:43	135.058	7.539	59.475	46.475	241.008
2/26/2007 20:44	135.616	7.535	59.651	46.423	241.691
2/26/2007 20:45	134.747	7.531	59.828	46.372	240.947
2/26/2007 20:46	134.490	7.527	60.004	46.321	240.815
2/26/2007 20:47	134.541	7.523	60.180	46.270	240.991
2/26/2007 20:48	134.592	7.519	60.255	46.219	241.066
2/26/2007 20:49	134.643	7.515	60.257	46.167	241.068
2/26/2007 20:50	134.694	7.512	60.259	46.116	241.070
2/26/2007 20:51	134.898	7.508	60.262	46.065	241.225
2/26/2007 20:52	134.995	7.504	60.264	46.014	241.273
2/26/2007 20:53	134.851	7.500	60.266	45.962	241.079
2/26/2007 20:54	134.707	7.496	60.268	45.911	240.886
2/26/2007 20:55	134.619	7.492	60.270	45.816	240.705

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
27-Feb-07 06:41:00	135.279	8.253	68.191	46.672	250.143
27-Feb-07 06:42:00	135.318	8.302	68.289	46.564	250.172
27-Feb-07 06:43:00	135.357	8.141	68.387	46.457	250.201
27-Feb-07 06:44:00	135.396	8.015	68.472	46.349	250.218
27-Feb-07 06:45:00	135.435	7.941	68.418	46.241	250.095
27-Feb-07 06:46:00	134.933	7.866	68.364	46.133	249.431
27-Feb-07 06:47:00	134.668	7.792	68.310	46.026	249.004
27-Feb-07 06:48:00	134.737	7.816	68.256	45.918	248.911
27-Feb-07 06:49:00	134.806	7.850	68.202	45.810	248.818
27-Feb-07 06:50:00	134.875	7.884	68.148	45.702	248.726
27-Feb-07 06:51:00	134.944	7.918	68.094	45.595	248.633
27-Feb-07 06:52:00	135.013	7.952	68.040	45.487	248.540
27-Feb-07 06:53:00	135.379	7.985	67.986	45.379	248.744
27-Feb-07 06:54:00	135.354	8.019	67.932	45.271	248.557
27-Feb-07 06:55:00	134.767	8.053	67.878	45.164	247.809
27-Feb-07 06:56:00	134.862	8.095	67.824	45.056	247.742
27-Feb-07 06:57:00	134.580	8.163	67.770	44.948	247.298
27-Feb-07 06:58:00	134.378	8.231	67.716	44.996	247.090
27-Feb-07 06:59:00	134.871	8.299	67.662	45.262	247.794
27-Feb-07 07:00:00	135.158	8.355	67.302	45.528	247.988
27-Feb-07 07:01:00	135.420	8.376	66.841	45.794	248.055
27-Feb-07 07:02:00	135.440	8.396	66.379	46.060	247.879
27-Feb-07 07:03:00	135.459	8.417	65.918	46.326	247.703
27-Feb-07 07:04:00	135.479	8.438	65.457	46.592	247.527
27-Feb-07 07:05:00	135.498	8.458	65.502	46.600	247.599
27-Feb-07 07:06:00	135.517	8.479	65.716	46.423	247.656
27-Feb-07 07:07:00	135.537	8.499	65.930	46.246	247.713
27-Feb-07 07:08:00	135.556	8.520	66.144	46.069	247.769
27-Feb-07 07:09:00	135.576	8.541	66.358	45.891	247.826
27-Feb-07 07:10:00	135.072	8.561	66.573	45.714	247.359
27-Feb-07 07:11:00	135.456	8.582	66.787	45.760	248.002
27-Feb-07 07:12:00	135.176	8.602	67.001	45.879	248.057
27-Feb-07 07:13:00	134.775	8.449	67.215	45.999	247.989
27-Feb-07 07:14:00	135.311	8.378	67.363	46.118	248.792
27-Feb-07 07:15:00	135.151	8.504	67.418	46.238	248.807
27-Feb-07 07:16:00	134.834	8.596	67.474	46.357	248.665
27-Feb-07 07:17:00	135.389	8.586	67.529	46.477	249.395
27-Feb-07 07:18:00	134.997	8.577	67.584	46.596	249.177
27-Feb-07 07:19:00	134.767	8.567	67.639	46.716	249.122
27-Feb-07 07:20:00	134.762	8.558	67.694	46.835	249.292
27-Feb-07 07:21:00	134.757	8.548	67.750	46.955	249.462
27-Feb-07 07:22:00	134.753	8.539	67.805	47.074	249.632
27-Feb-07 07:23:00	134.748	8.529	67.860	47.194	249.802
27-Feb-07 07:24:00	134.743	8.519	67.915	47.313	249.972
27-Feb-07 07:25:00	134.738	8.510	67.925	47.433	250.096
27-Feb-07 07:26:00	134.950	8.500	67.870	47.552	250.372
27-Feb-07 07:27:00	134.951	8.491	67.815	47.672	250.438
27-Feb-07 07:28:00	135.233	8.481	67.760	47.791	250.784
27-Feb-07 07:29:00	134.839	8.471	67.705	47.911	250.455
27-Feb-07 07:30:00	134.854	8.462	67.650	48.030	250.534
27-Feb-07 07:31:00	134.868	8.452	67.596	48.150	250.613
27-Feb-07 07:32:00	134.882	8.443	67.541	48.269	250.692
27-Feb-07 07:33:00	134.897	8.433	67.486	48.389	250.771
27-Feb-07 07:34:00	134.911	8.423	67.431	48.508	250.850
27-Feb-07 07:35:00	134.925	8.414	67.376	48.628	250.929
27-Feb-07 07:36:00	134.940	8.370	67.321	48.747	251.008
27-Feb-07 07:37:00	134.954	8.223	67.267	48.867	251.087
27-Feb-07 07:38:00	135.303	8.075	67.212	48.986	251.501
27-Feb-07 07:39:00	135.099	7.928	67.157	49.106	251.361
27-Feb-07 07:40:00	135.015	7.852	67.102	49.225	251.342

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
27-Feb-07 08:03:00	135.465	7.867	66.036	40.726	242.228
27-Feb-07 08:04:00	134.923	7.869	65.416	40.156	240.496
27-Feb-07 08:05:00	135.096	8.058	64.796	40.179	240.070
27-Feb-07 08:06:00	135.540	8.195	64.176	41.030	240.747
27-Feb-07 08:07:00	135.355	8.296	63.556	41.882	240.794
27-Feb-07 08:08:00	135.451	8.396	62.936	42.876	241.264
27-Feb-07 08:09:00	135.398	8.458	62.316	44.069	241.783
27-Feb-07 08:10:00	135.344	8.493	61.696	45.261	242.302
27-Feb-07 08:11:00	135.291	8.528	61.811	46.454	243.555
27-Feb-07 08:12:00	134.990	8.562	62.449	47.153	244.592
27-Feb-07 08:13:00	134.710	8.597	63.088	47.162	244.960
27-Feb-07 08:14:00	134.667	8.731	63.727	47.171	245.565
27-Feb-07 08:15:00	134.625	8.899	64.229	47.179	246.033
27-Feb-07 08:16:00	134.987	9.014	64.542	47.188	246.716
27-Feb-07 08:17:00	134.508	8.969	64.854	47.197	246.559
27-Feb-07 08:18:00	134.613	8.923	65.166	47.205	246.985
27-Feb-07 08:19:00	134.481	8.878	65.478	47.214	247.173
27-Feb-07 08:20:00	134.688	8.833	65.791	47.223	247.702
27-Feb-07 08:21:00	135.129	8.787	66.103	47.231	248.464
27-Feb-07 08:22:00	135.109	8.742	66.415	47.240	248.764
27-Feb-07 08:23:00	135.088	8.643	66.716	47.249	249.053
27-Feb-07 08:24:00	135.067	8.538	67.016	47.257	249.341
27-Feb-07 08:25:00	135.554	8.422	67.316	47.266	250.136
27-Feb-07 08:26:00	134.881	8.176	67.616	47.275	249.772
27-Feb-07 08:27:00	134.841	8.252	67.916	47.284	250.040
27-Feb-07 08:28:00	134.800	8.357	68.184	47.182	250.166
27-Feb-07 08:29:00	134.759	8.399	68.429	46.750	249.939
27-Feb-07 08:30:00	134.027	8.353	68.675	46.319	249.020
27-Feb-07 08:31:00	135.111	8.307	68.920	46.136	250.167
27-Feb-07 08:32:00	135.078	8.261	69.166	46.303	250.547
27-Feb-07 08:33:00	135.046	8.215	69.411	46.469	250.926
27-Feb-07 08:34:00	135.014	8.169	69.657	46.636	251.306
27-Feb-07 08:35:00	134.981	8.123	69.783	46.802	251.567
27-Feb-07 08:36:00	134.608	8.078	69.744	46.969	251.321
27-Feb-07 08:37:00	135.071	8.032	69.705	47.135	251.911
27-Feb-07 08:38:00	135.337	7.986	69.665	47.302	252.305
27-Feb-07 08:39:00	135.376	7.940	69.626	47.468	252.470
27-Feb-07 08:40:00	135.415	7.894	69.587	47.635	252.636
27-Feb-07 08:41:00	135.453	7.848	69.547	47.801	252.802
27-Feb-07 08:42:00	135.492	7.744	69.508	47.968	252.967
27-Feb-07 08:43:00	135.530	7.597	69.469	48.134	253.133
27-Feb-07 08:44:00	134.901	7.720	69.429	48.301	252.632
27-Feb-07 08:45:00	134.707	7.874	69.390	48.467	252.564
27-Feb-07 08:46:00	134.894	7.810	69.351	48.634	252.878
27-Feb-07 08:47:00	135.678	7.745	69.311	48.800	253.789
27-Feb-07 08:48:00	134.926	7.680	69.272	48.967	253.165
27-Feb-07 08:49:00	135.566	7.648	69.233	48.883	253.682
27-Feb-07 08:50:00	135.193	7.714	69.193	48.776	253.162
27-Feb-07 08:51:00	134.939	7.779	69.353	48.669	252.960
27-Feb-07 08:52:00	134.933	7.845	69.578	48.562	253.074
27-Feb-07 08:53:00	134.928	7.910	69.804	48.455	253.187
27-Feb-07 08:54:00	134.922	7.982	70.030	48.348	253.300
27-Feb-07 08:55:00	135.674	8.140	70.255	48.242	254.170
27-Feb-07 08:56:00	135.245	8.298	70.481	48.135	253.861
27-Feb-07 08:57:00	134.855	8.456	70.707	48.028	253.589
27-Feb-07 08:58:00	134.882	8.566	70.932	47.921	253.735
27-Feb-07 08:59:00	134.909	8.673	71.158	47.814	253.881
27-Feb-07 09:00:00	134.936	8.779	71.384	47.707	254.027
27-Feb-07 09:01:00	134.963	8.941	71.609	47.600	254.173
27-Feb-07 09:02:00	134.991	9.109	71.833	47.494	254.317

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
27-Feb-07 09:26:00	134.823	8.998	72.059	45.994	252.877
27-Feb-07 09:27:00	134.799	8.834	72.043	45.932	252.774
27-Feb-07 09:28:00	134.775	8.670	72.027	45.869	252.671
27-Feb-07 09:29:00	134.751	8.514	72.010	45.391	252.152
27-Feb-07 09:30:00	134.448	8.453	71.994	44.875	251.317
27-Feb-07 09:31:00	134.935	8.391	71.978	44.358	251.271
27-Feb-07 09:32:00	134.941	8.330	71.962	43.842	250.744
27-Feb-07 09:33:00	134.946	8.269	71.945	44.006	250.898
27-Feb-07 09:34:00	134.952	8.224	71.919	44.657	251.528
27-Feb-07 09:35:00	134.958	8.190	71.878	45.307	252.143
27-Feb-07 09:36:00	134.964	8.157	71.836	45.958	252.758
27-Feb-07 09:37:00	134.970	8.124	71.795	45.085	251.851
27-Feb-07 09:38:00	134.976	8.091	71.645	45.034	251.655
27-Feb-07 09:39:00	134.890	8.058	71.458	45.303	251.651
27-Feb-07 09:40:00	135.065	8.025	71.272	45.571	251.908
27-Feb-07 09:41:00	135.065	7.992	71.085	45.840	251.990
27-Feb-07 09:42:00	135.066	7.987	70.995	46.108	252.169
27-Feb-07 09:43:00	135.066	8.021	71.039	46.377	252.483
27-Feb-07 09:44:00	135.067	8.056	71.084	46.646	252.796
27-Feb-07 09:45:00	135.067	8.091	71.128	46.914	253.110
27-Feb-07 09:46:00	135.068	8.178	71.173	47.113	253.353
27-Feb-07 09:47:00	134.296	8.182	71.217	47.102	252.615
27-Feb-07 09:48:00	134.093	8.112	71.262	47.091	252.446
27-Feb-07 09:49:00	135.051	7.970	71.306	47.080	253.437
27-Feb-07 09:50:00	135.229	7.834	71.351	47.069	253.649
27-Feb-07 09:51:00	134.933	7.771	71.395	47.058	253.385
27-Feb-07 09:52:00	134.554	7.708	71.440	47.047	253.041
27-Feb-07 09:53:00	134.725	7.646	71.484	47.035	253.245
27-Feb-07 09:54:00	134.761	7.985	71.529	47.024	253.314
27-Feb-07 09:55:00	134.797	8.236	71.573	47.013	253.383
27-Feb-07 09:56:00	134.832	8.158	71.613	47.002	253.448
27-Feb-07 09:57:00	134.868	8.044	71.602	46.991	253.461
27-Feb-07 09:58:00	134.904	7.990	71.590	46.980	253.475
27-Feb-07 09:59:00	134.940	8.023	71.579	46.969	253.488
27-Feb-07 10:00:00	134.975	8.056	71.568	46.958	253.501
27-Feb-07 10:01:00	135.011	8.089	71.556	46.947	253.515
27-Feb-07 10:02:00	135.047	8.121	71.545	46.936	253.528
27-Feb-07 10:03:00	135.371	8.154	71.533	46.925	253.830
27-Feb-07 10:04:00	134.940	8.187	71.522	46.914	253.376
27-Feb-07 10:05:00	135.244	8.219	71.416	46.903	253.563
27-Feb-07 10:06:00	134.725	8.193	71.301	46.892	252.918
27-Feb-07 10:07:00	135.109	8.085	71.187	46.881	253.177
27-Feb-07 10:08:00	135.628	7.799	71.072	46.870	253.570
27-Feb-07 10:09:00	134.846	7.619	70.958	46.859	252.662
27-Feb-07 10:10:00	134.858	7.526	70.843	46.848	252.550
27-Feb-07 10:11:00	134.871	7.434	70.729	46.837	252.437
27-Feb-07 10:12:00	135.063	7.500	70.605	46.830	252.499
27-Feb-07 10:13:00	135.283	7.681	70.479	46.827	252.590
27-Feb-07 10:14:00	134.510	7.884	70.353	46.824	251.687
27-Feb-07 10:15:00	135.144	7.982	70.227	46.821	252.192
27-Feb-07 10:16:00	135.214	8.045	70.131	46.966	252.311
27-Feb-07 10:17:00	135.284	8.107	70.125	47.319	252.728
27-Feb-07 10:18:00	134.935	8.170	70.119	47.673	252.727
27-Feb-07 10:19:00	135.477	8.238	70.113	48.026	253.616
27-Feb-07 10:20:00	134.951	8.323	70.107	48.380	253.438
27-Feb-07 10:21:00	134.934	8.407	70.101	48.733	253.768
27-Feb-07 10:22:00	134.917	8.492	70.095	49.086	254.098
27-Feb-07 10:23:00	134.900	8.529	70.089	49.017	254.006
27-Feb-07 10:24:00	134.883	8.499	70.083	48.807	253.772
27-Feb-07 10:25:00	134.866	8.469	70.077	48.596	253.538

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
27-Feb-07 10:50:00	135.129	8.520	67.795	45.019	247.942
27-Feb-07 10:51:00	135.095	8.451	67.761	45.197	248.053
27-Feb-07 10:52:00	135.180	8.382	67.727	45.375	248.283
27-Feb-07 10:53:00	135.166	8.314	67.693	45.553	248.412
27-Feb-07 10:54:00	135.152	8.351	67.826	45.731	248.709
27-Feb-07 10:55:00	134.750	8.469	68.015	45.908	248.674
27-Feb-07 10:56:00	134.935	8.587	68.203	46.086	249.225
27-Feb-07 10:57:00	134.486	8.542	68.392	46.264	249.142
27-Feb-07 10:58:00	135.114	8.482	68.581	46.442	250.136
27-Feb-07 10:59:00	135.114	8.423	68.769	46.620	250.503
27-Feb-07 11:00:00	135.114	8.363	68.958	46.798	250.869
27-Feb-07 11:01:00	135.114	8.321	69.113	46.976	251.202
27-Feb-07 11:02:00	135.114	8.517	69.256	47.154	251.523
27-Feb-07 11:03:00	135.114	8.525	69.399	47.332	251.844
27-Feb-07 11:04:00	135.114	8.469	69.542	47.509	252.165
27-Feb-07 11:05:00	135.114	8.414	69.685	47.687	252.486
27-Feb-07 11:06:00	135.114	8.359	69.828	47.700	252.641
27-Feb-07 11:07:00	135.114	8.130	69.971	47.694	252.778
27-Feb-07 11:08:00	135.114	8.372	70.114	47.688	252.915
27-Feb-07 11:09:00	135.471	8.354	70.626	47.681	253.778
27-Feb-07 11:10:00	134.795	8.335	72.208	47.675	254.678
27-Feb-07 11:11:00	134.831	8.316	72.266	47.669	254.766
27-Feb-07 11:12:00	134.867	8.297	72.324	47.663	254.855
27-Feb-07 11:13:00	134.903	8.279	72.382	47.657	254.943
27-Feb-07 11:14:00	134.939	8.260	72.441	47.651	255.031
27-Feb-07 11:15:00	134.842	8.241	72.499	47.645	254.986
27-Feb-07 11:16:00	134.881	8.222	72.557	47.639	255.077
27-Feb-07 11:17:00	134.919	8.083	72.615	47.633	255.168
27-Feb-07 11:18:00	134.958	8.178	72.673	47.627	255.258
27-Feb-07 11:19:00	134.996	8.273	72.732	47.621	255.349
27-Feb-07 11:20:00	134.962	8.321	72.790	47.615	255.366
27-Feb-07 11:21:00	134.792	8.217	72.848	47.609	255.248
27-Feb-07 11:22:00	134.622	8.113	72.906	47.603	255.131
27-Feb-07 11:23:00	134.444	8.170	72.964	47.597	255.005
27-Feb-07 11:24:00	135.271	8.286	73.023	47.591	255.884
27-Feb-07 11:25:00	135.216	8.342	73.081	47.300	255.598
27-Feb-07 11:26:00	135.162	8.202	73.139	46.793	255.094
27-Feb-07 11:27:00	135.108	8.173	73.197	46.286	254.591
27-Feb-07 11:28:00	135.054	8.311	73.255	45.778	254.087
27-Feb-07 11:29:00	134.977	8.437	73.314	45.785	254.076
27-Feb-07 11:30:00	134.692	8.425	73.255	46.513	254.460
27-Feb-07 11:31:00	134.837	8.413	73.034	47.241	255.111
27-Feb-07 11:32:00	135.512	8.402	72.812	47.535	255.858
27-Feb-07 11:33:00	135.624	8.390	72.590	47.519	255.733
27-Feb-07 11:34:00	135.737	8.378	72.369	47.503	255.608
27-Feb-07 11:35:00	135.294	8.366	72.147	47.487	254.928
27-Feb-07 11:36:00	135.206	8.355	71.926	47.471	254.603
27-Feb-07 11:37:00	135.214	8.343	71.704	47.455	254.373
27-Feb-07 11:38:00	134.567	8.331	71.594	47.439	253.599
27-Feb-07 11:39:00	134.741	8.319	71.493	47.423	253.657
27-Feb-07 11:40:00	134.916	8.236	71.393	47.407	253.715
27-Feb-07 11:41:00	135.189	8.247	71.292	47.391	253.872
27-Feb-07 11:42:00	135.087	8.337	71.191	47.375	253.653
27-Feb-07 11:43:00	134.924	8.428	71.091	47.130	253.145
27-Feb-07 11:44:00	134.831	8.421	70.990	46.809	252.631
27-Feb-07 11:45:00	134.878	8.344	70.890	46.488	252.256
27-Feb-07 11:46:00	134.877	8.267	70.789	46.167	251.834
27-Feb-07 11:47:00	134.876	8.189	70.689	45.846	251.411
27-Feb-07 11:48:00	135.181	8.112	70.543	45.526	251.250
27-Feb-07 11:49:00	135.020	8.035	69.773	45.458	250.251

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
27-Feb-07 12:12:00	134.968	8.205	66.617	47.701	249.286
27-Feb-07 12:13:00	134.853	8.146	66.897	47.574	249.323
27-Feb-07 12:14:00	134.737	8.087	67.177	47.447	249.361
27-Feb-07 12:15:00	134.621	8.073	67.457	47.321	249.398
27-Feb-07 12:16:00	134.505	8.091	67.737	47.194	249.435
27-Feb-07 12:17:00	134.737	8.110	68.017	47.067	249.820
27-Feb-07 12:18:00	134.944	8.128	68.297	46.940	250.181
27-Feb-07 12:19:00	134.935	8.146	68.543	46.814	250.292
27-Feb-07 12:20:00	134.927	8.165	68.416	46.687	250.029
27-Feb-07 12:21:00	134.918	8.183	68.289	46.560	249.767
27-Feb-07 12:22:00	134.910	8.202	68.162	46.433	249.505
27-Feb-07 12:23:00	134.901	8.220	68.035	46.307	249.243
27-Feb-07 12:24:00	134.893	8.239	67.908	46.180	248.980
27-Feb-07 12:25:00	134.884	8.257	67.781	46.053	248.718
27-Feb-07 12:26:00	134.876	8.275	67.654	45.926	248.456
27-Feb-07 12:27:00	134.867	8.294	67.527	45.801	248.255
27-Feb-07 12:28:00	135.207	8.312	67.400	45.978	248.585
27-Feb-07 12:29:00	135.346	8.331	67.280	46.095	248.720
27-Feb-07 12:30:00	135.246	8.182	67.160	46.213	248.619
27-Feb-07 12:31:00	135.096	8.081	67.040	46.330	248.466
27-Feb-07 12:32:00	135.102	8.170	66.920	46.447	248.469
27-Feb-07 12:33:00	135.107	8.258	66.800	46.565	248.472
27-Feb-07 12:34:00	135.112	8.315	66.680	46.682	248.474
27-Feb-07 12:35:00	135.117	8.279	66.561	46.800	248.477
27-Feb-07 12:36:00	135.122	8.242	66.441	46.917	248.480
27-Feb-07 12:37:00	135.127	8.205	66.321	47.034	248.482
27-Feb-07 12:38:00	135.132	8.168	66.201	47.152	248.485
27-Feb-07 12:39:00	134.900	8.132	66.081	47.269	248.250
27-Feb-07 12:40:00	134.993	8.095	65.961	47.386	248.341
27-Feb-07 12:41:00	135.866	8.062	65.842	47.504	249.211
27-Feb-07 12:42:00	135.148	8.078	65.872	47.621	248.642
27-Feb-07 12:43:00	135.192	8.094	65.958	47.739	248.888
27-Feb-07 12:44:00	134.832	8.110	66.043	47.856	248.730
27-Feb-07 12:45:00	134.817	8.126	66.128	47.973	248.918
27-Feb-07 12:46:00	134.832	8.142	66.214	48.091	249.136
27-Feb-07 12:47:00	134.726	8.158	66.299	48.208	249.233
27-Feb-07 12:48:00	134.621	8.174	66.384	48.325	249.330
27-Feb-07 12:49:00	134.794	8.190	66.469	48.443	249.706
27-Feb-07 12:50:00	134.769	8.206	66.555	48.560	249.884
27-Feb-07 12:51:00	135.657	8.223	66.640	48.678	250.974
27-Feb-07 12:52:00	135.123	8.239	66.725	48.795	250.643
27-Feb-07 12:53:00	134.821	8.255	66.811	48.912	250.544
27-Feb-07 12:54:00	134.875	8.271	66.896	48.953	250.724
27-Feb-07 12:55:00	134.928	8.287	67.063	48.940	250.931
27-Feb-07 12:56:00	134.981	8.303	67.258	48.926	251.165
27-Feb-07 12:57:00	135.034	8.319	67.452	48.913	251.399
27-Feb-07 12:58:00	135.087	8.335	67.646	48.899	251.633
27-Feb-07 12:59:00	135.140	8.148	67.841	48.886	251.867
27-Feb-07 13:00:00	135.194	8.120	68.035	48.872	252.101
27-Feb-07 13:01:00	135.247	8.220	68.230	48.859	252.335
27-Feb-07 13:02:00	135.300	8.319	68.424	48.845	252.569
27-Feb-07 13:03:00	135.353	8.373	68.618	48.832	252.803
27-Feb-07 13:04:00	135.406	8.363	68.813	48.818	253.037
27-Feb-07 13:05:00	135.417	8.353	69.007	48.275	252.700
27-Feb-07 13:06:00	135.302	8.343	69.201	47.685	252.188
27-Feb-07 13:07:00	135.187	8.333	69.396	47.094	251.677
27-Feb-07 13:08:00	134.485	8.323	69.590	46.957	251.032
27-Feb-07 13:09:00	134.582	8.313	69.698	46.985	251.264
27-Feb-07 13:10:00	134.655	8.303	69.683	47.012	251.351
27-Feb-07 13:11:00	135.281	8.293	69.669	46.918	251.867

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
27-Feb-07 13:39:00	134.570	7.803	70.471	44.909	249.951
27-Feb-07 13:40:00	135.057	7.677	70.331	43.621	249.009
27-Feb-07 13:41:00	135.142	7.550	70.191	43.738	249.071
27-Feb-07 13:42:00	135.121	7.523	70.050	43.856	249.027
27-Feb-07 13:43:00	135.099	7.496	69.894	43.973	248.967
27-Feb-07 13:44:00	135.078	7.469	69.737	44.091	248.906
27-Feb-07 13:45:00	135.057	7.442	69.816	44.319	249.192
27-Feb-07 13:46:00	134.771	7.258	69.983	44.559	249.313
27-Feb-07 13:47:00	134.855	7.135	70.149	44.799	249.804
27-Feb-07 13:48:00	135.396	7.025	70.315	45.040	250.751
27-Feb-07 13:49:00	135.679	7.109	70.482	45.280	251.441
27-Feb-07 13:50:00	135.224	7.192	70.648	45.520	251.392
27-Feb-07 13:51:00	135.197	7.276	70.814	45.760	251.771
27-Feb-07 13:52:00	135.169	6.953	70.980	46.001	252.150
27-Feb-07 13:53:00	135.142	6.816	71.147	46.061	252.349
27-Feb-07 13:54:00	134.427	6.675	71.313	46.061	251.800
27-Feb-07 13:55:00	134.295	6.717	71.479	46.061	251.835
27-Feb-07 13:56:00	134.675	6.758	71.646	46.061	252.381
27-Feb-07 13:57:00	135.094	6.800	71.812	46.061	252.966
27-Feb-07 13:58:00	135.065	7.147	71.835	46.061	252.961
27-Feb-07 13:59:00	135.037	7.355	71.756	46.061	252.853
27-Feb-07 14:00:00	135.008	7.569	71.676	46.060	252.745
27-Feb-07 14:01:00	134.980	7.628	71.597	46.060	252.637
27-Feb-07 14:02:00	134.951	7.881	71.518	46.060	252.529
27-Feb-07 14:03:00	134.922	7.974	71.438	46.060	252.421
27-Feb-07 14:04:00	134.998	7.806	71.359	46.060	252.417
27-Feb-07 14:05:00	134.708	7.847	71.280	46.060	252.048
27-Feb-07 14:06:00	135.156	7.888	71.241	46.060	252.457
27-Feb-07 14:07:00	135.132	7.928	71.324	46.060	252.517
27-Feb-07 14:08:00	135.102	7.969	71.407	46.060	252.569
27-Feb-07 14:09:00	134.987	8.010	71.489	46.060	252.537
27-Feb-07 14:10:00	134.873	8.051	71.572	46.060	252.505
27-Feb-07 14:11:00	135.666	7.780	71.655	46.060	253.381
27-Feb-07 14:12:00	134.780	7.741	71.738	46.060	252.578
27-Feb-07 14:13:00	135.515	7.732	71.821	46.060	253.396
27-Feb-07 14:14:00	135.274	7.723	71.903	46.060	253.238
27-Feb-07 14:15:00	135.113	7.715	71.986	46.060	253.159
27-Feb-07 14:16:00	134.779	7.706	72.069	46.060	252.908
27-Feb-07 14:17:00	134.547	7.697	72.152	46.060	252.759
27-Feb-07 14:18:00	134.315	7.689	72.069	46.060	252.444
27-Feb-07 14:19:00	134.425	7.680	71.868	46.060	252.352
27-Feb-07 14:20:00	135.153	7.671	71.666	46.060	252.879
27-Feb-07 14:21:00	135.100	7.662	71.465	46.070	252.636
27-Feb-07 14:22:00	135.047	7.654	71.264	46.200	252.511
27-Feb-07 14:23:00	134.995	7.645	71.063	46.330	252.387
27-Feb-07 14:24:00	135.081	7.602	70.862	46.459	252.402
27-Feb-07 14:25:00	135.099	7.762	70.660	46.589	252.348
27-Feb-07 14:26:00	135.117	7.805	70.717	46.718	252.552
27-Feb-07 14:27:00	135.134	7.848	70.861	46.848	252.843
27-Feb-07 14:28:00	135.152	7.891	71.004	46.977	253.133
27-Feb-07 14:29:00	135.170	7.934	71.147	47.107	253.424
27-Feb-07 14:30:00	134.722	7.976	71.290	47.237	253.249
27-Feb-07 14:31:00	134.775	8.019	71.295	47.366	253.436
27-Feb-07 14:32:00	134.827	8.136	71.093	47.496	253.416
27-Feb-07 14:33:00	134.879	8.279	70.891	47.625	253.395
27-Feb-07 14:34:00	134.931	8.043	70.689	47.755	253.375
27-Feb-07 14:35:00	134.984	8.219	70.487	47.884	253.355
27-Feb-07 14:36:00	135.559	8.221	70.285	48.014	253.857
27-Feb-07 14:37:00	135.461	8.142	70.082	48.144	253.686
27-Feb-07 14:38:00	135.363	8.063	69.880	48.273	253.516

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
27-Feb-07 15:02:00	135.391	7.204	70.151	47.229	252.771
27-Feb-07 15:03:00	135.253	7.471	70.116	47.402	252.771
27-Feb-07 15:04:00	135.114	7.491	70.082	47.575	252.771
27-Feb-07 15:05:00	134.668	7.512	70.047	47.748	252.463
27-Feb-07 15:06:00	134.888	7.532	70.013	47.921	252.821
27-Feb-07 15:07:00	135.440	7.553	69.978	48.093	253.511
27-Feb-07 15:08:00	135.461	7.574	69.944	48.266	253.671
27-Feb-07 15:09:00	135.482	7.594	69.909	48.204	253.595
27-Feb-07 15:10:00	135.503	7.615	69.875	47.962	253.340
27-Feb-07 15:11:00	135.133	7.635	71.150	47.721	254.004
27-Feb-07 15:12:00	134.557	7.656	71.729	47.479	253.766
27-Feb-07 15:13:00	134.716	7.676	71.918	47.237	253.871
27-Feb-07 15:14:00	135.166	7.697	72.106	46.996	254.268
27-Feb-07 15:15:00	135.184	7.718	72.295	46.754	254.233
27-Feb-07 15:16:00	135.201	7.742	72.483	46.512	254.197
27-Feb-07 15:17:00	135.219	7.809	72.672	46.292	254.182
27-Feb-07 15:18:00	135.236	7.876	72.860	46.369	254.465
27-Feb-07 15:19:00	135.254	7.942	72.735	46.446	254.435
27-Feb-07 15:20:00	135.271	8.009	72.581	46.523	254.375
27-Feb-07 15:21:00	135.105	8.076	72.428	46.600	254.132
27-Feb-07 15:22:00	134.298	8.143	72.274	46.677	253.249
27-Feb-07 15:23:00	134.638	8.210	72.120	46.754	253.513
27-Feb-07 15:24:00	134.984	8.276	71.966	46.831	253.782
27-Feb-07 15:25:00	134.932	8.343	71.813	46.908	253.653
27-Feb-07 15:26:00	134.880	8.410	71.659	46.985	253.525
27-Feb-07 15:27:00	134.872	8.477	71.513	47.063	253.448
27-Feb-07 15:28:00	134.557	8.544	71.368	47.140	253.064
27-Feb-07 15:29:00	134.579	8.484	71.222	47.217	253.018
27-Feb-07 15:30:00	134.956	8.412	71.076	47.294	253.326
27-Feb-07 15:31:00	135.428	8.340	70.930	47.371	253.729
27-Feb-07 15:32:00	135.273	8.269	70.866	48.102	254.241
27-Feb-07 15:33:00	135.118	8.314	70.916	48.497	254.532
27-Feb-07 15:34:00	134.530	8.372	70.967	48.476	253.973
27-Feb-07 15:35:00	135.174	8.430	71.017	48.455	254.646
27-Feb-07 15:36:00	135.164	8.488	71.068	48.433	254.665
27-Feb-07 15:37:00	134.992	8.546	71.118	48.412	254.522
27-Feb-07 15:38:00	134.934	8.576	71.169	48.293	254.395
27-Feb-07 15:39:00	134.875	8.521	71.219	47.880	253.974
27-Feb-07 15:40:00	134.817	8.466	71.269	47.467	253.553
27-Feb-07 15:41:00	134.759	8.411	71.320	47.054	253.132
27-Feb-07 15:42:00	134.700	8.356	71.650	46.641	252.991
27-Feb-07 15:43:00	134.500	8.301	72.082	46.044	252.626
27-Feb-07 15:44:00	134.181	8.246	72.514	45.317	252.012
27-Feb-07 15:45:00	134.470	8.191	72.946	44.590	252.005
27-Feb-07 15:46:00	134.936	8.136	73.378	44.027	252.341
27-Feb-07 15:47:00	134.929	8.081	73.538	44.005	252.471
27-Feb-07 15:48:00	135.468	7.918	73.318	43.983	252.768
27-Feb-07 15:49:00	134.946	7.863	73.097	43.960	252.004
27-Feb-07 15:50:00	134.687	7.808	72.877	43.938	251.502
27-Feb-07 15:51:00	134.688	7.753	72.657	43.916	251.261
27-Feb-07 15:52:00	134.689	7.698	72.317	43.894	250.899
27-Feb-07 15:53:00	135.345	7.410	71.809	43.872	251.025
27-Feb-07 15:54:00	135.159	7.342	71.301	44.349	250.809
27-Feb-07 15:55:00	134.972	7.309	70.793	44.627	250.393
27-Feb-07 15:56:00	134.786	7.129	70.370	43.895	249.051
27-Feb-07 15:57:00	134.677	7.188	70.065	44.117	248.859
27-Feb-07 15:58:00	134.797	7.248	69.761	44.340	248.897
27-Feb-07 15:59:00	134.917	7.307	69.456	44.562	248.935
27-Feb-07 16:00:00	135.385	7.455	69.262	44.784	249.431
27-Feb-07 16:01:00	135.189	7.474	69.154	45.007	249.349

Note: 62FC0010 is in error - valve is actually closed.

**Marathon Petroleum Company LLC - Illinois Refining Division
Sulfur Recovery Complex Performance Test Process Data**

	62FC0020	62FC0010	63FC0020	63FC0010	
	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	AMINE GAS TO THERMAL RX	SWTR GAS TO THERMAL RX	TOTAL ACID GAS
	MSCFH	MSCFH	MSCFH	MSCFH	MSCFH
27-Feb-07 16:22:00	134.989	7.464	69.066	47.518	251.573
27-Feb-07 16:23:00	134.744	7.460	69.079	47.526	251.349
27-Feb-07 16:24:00	134.672	7.456	69.092	47.533	251.297
27-Feb-07 16:25:00	134.599	7.452	69.105	47.541	251.246
27-Feb-07 16:26:00	134.526	7.447	69.119	47.549	251.194
27-Feb-07 16:27:00	134.454	7.443	69.132	47.557	251.143
27-Feb-07 16:28:00	134.969	7.439	69.145	47.565	251.678
27-Feb-07 16:29:00	134.796	7.435	69.158	47.573	251.527
27-Feb-07 16:30:00	134.783	7.431	69.171	47.580	251.535
27-Feb-07 16:31:00	134.771	7.426	69.185	47.588	251.543
27-Feb-07 16:32:00	134.758	7.422	69.198	47.278	251.233
27-Feb-07 16:33:00	134.745	7.418	69.211	46.521	250.477
27-Feb-07 16:34:00	134.732	7.414	69.224	45.765	249.722
27-Feb-07 16:35:00	134.720	7.410	69.238	45.008	248.966
27-Feb-07 16:36:00	134.707	7.405	69.251	44.252	248.210
27-Feb-07 16:37:00	134.694	7.401	69.264	43.495	247.454
27-Feb-07 16:38:00	134.682	7.397	69.277	42.839	246.798
27-Feb-07 16:39:00	134.982	7.393	68.787	43.586	247.355
27-Feb-07 16:40:00	135.374	7.389	66.960	43.674	246.008
27-Feb-07 16:41:00	135.229	7.384	67.028	42.843	245.101
27-Feb-07 16:42:00	135.120	7.380	67.097	43.731	245.948
27-Feb-07 16:43:00	135.159	7.376	66.444	44.776	246.379
27-Feb-07 16:44:00	135.195	7.372	64.779	45.821	245.795
27-Feb-07 16:45:00	135.180	7.368	64.573	45.744	245.497
27-Feb-07 16:46:00	135.165	7.363	64.852	45.543	245.560
27-Feb-07 16:47:00	135.137	7.359	65.131	45.342	245.611
27-Feb-07 16:48:00	134.992	7.355	65.410	45.141	245.544
27-Feb-07 16:49:00	134.847	7.351	65.690	44.940	245.477
27-Feb-07 16:50:00	134.932	7.347	65.969	44.739	245.640
27-Feb-07 16:51:00	134.783	7.342	66.248	44.538	245.570
27-Feb-07 16:52:00	135.193	7.338	66.528	44.337	246.058
27-Feb-07 16:53:00	134.541	7.334	66.807	44.136	245.484
27-Feb-07 16:54:00	134.537	7.330	67.086	43.935	245.559
27-Feb-07 16:55:00	134.534	7.326	67.340	43.420	245.294
27-Feb-07 16:56:00	134.531	7.321	67.508	42.433	244.472
27-Feb-07 16:57:00	134.911	7.317	67.676	41.447	244.033
27-Feb-07 16:58:00	135.314	7.313	67.844	40.551	243.709
27-Feb-07 16:59:00	135.336	7.309	68.012	40.665	244.013
27-Feb-07 17:00:00	135.357	7.305	68.180	40.778	244.316
27-Feb-07 17:01:00	135.379	7.300	68.348	40.892	244.620
27-Feb-07 17:02:00	134.902	7.296	68.517	41.005	244.424
27-Feb-07 17:03:00	134.612	7.292	68.685	41.119	244.415
27-Feb-07 17:04:00	134.321	7.288	68.853	41.232	244.406
27-Feb-07 17:05:00	134.455	7.284	68.913	41.346	244.715
27-Feb-07 17:06:00	135.198	7.279	68.652	41.459	245.309
27-Feb-07 17:07:00	135.039	7.275	68.390	41.573	245.002
27-Feb-07 17:08:00	134.687	7.271	68.129	41.686	244.502
27-Feb-07 17:09:00	134.962	7.267	67.867	41.800	244.628
27-Feb-07 17:10:00	135.220	7.263	67.605	41.913	244.739
27-Feb-07 17:11:00	134.859	7.258	67.344	42.027	244.230
27-Feb-07 17:12:00	134.847	7.254	67.082	42.140	244.069
27-Feb-07 17:13:00	134.835	7.250	66.820	42.254	243.909
27-Feb-07 17:14:00	134.823	7.246	66.559	42.367	243.748
27-Feb-07 17:15:00	134.810	7.242	66.297	42.481	243.588
27-Feb-07 17:16:00	135.208	7.237	66.035	42.594	243.838
27-Feb-07 17:17:00	134.923	7.233	65.772	43.214	243.849
27-Feb-07 17:18:00	134.814	7.229	65.296	43.881	243.990
27-Feb-07 17:19:00	135.461	7.225	64.880	44.547	244.888
27-Feb-07 17:20:00	135.543	7.221	64.463	45.213	245.220
27-Feb-07 17:21:00	134.902	7.216	64.047	45.879	244.829

Note: 62FC0010 is in error - valve is actually closed.



MPCLLC: Robinson, Illinois
SRU 66F-3 and 66F-5 Stacks
Test Dates: 2/26 – 3/1/07

APPENDIX E

ARI Reference Method Monitoring Data

Reference Method 15-second Averages

Scale Units		0 - 10 %v db	0 - 10 %v db	0 - 88.67 ppmv db	0 - 88.99 ppmv db	0 - 160 ppmv db	
Data	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/26/07	13:05:00	-0.02	-0.07	0.09	0.02	0.02	
02/26/07	13:05:15	-0.02	-0.07	0.08	0.02	0.02	
02/26/07	13:05:30	-0.02	-0.06	0.05	0.02	0.02	
02/26/07	13:05:45	-0.02	-0.02	0.07	0.02	0.02	Calibration Error
02/26/07	13:06:00	-0.03	-0.01	0.03	0.02	-0.03	Zero Nitrogen Injection
02/26/07	13:06:15	-0.02	-0.01	0.09	0.02	0.00	-0.03 % Oxygen
02/26/07	13:06:30	-0.03	-0.01	0.08	0.02	-0.03	-0.01 % CO ₂
02/26/07	13:06:45	-0.03	-0.01	0.08	0.02	-0.08	0.07 ppm SO ₂
02/26/07	13:07:00	-0.02	-0.01	0.07	0.02	0.02	0.02 ppm NO _x
02/26/07	13:07:15	-0.03	-0.01	0.09	0.02	0.02	-0.03 ppm CO
02/26/07	13:07:30	-0.03	-0.01	0.08	0.02	-0.03	
02/26/07	13:07:45	0.61	0.11	0.19	0.02	-0.15	
02/26/07	13:08:00	7.72	3.40	0.19	1.17	-0.43	
02/26/07	13:08:15	14.54	10.32	0.09	4.07	-0.48	
02/26/07	13:08:30	17.92	15.88	0.05	7.02	-0.48	
02/26/07	13:08:45	19.45	19.23	0.04	2.95	-0.48	
02/26/07	13:09:00	19.85	20.44	0.04	0.87	-0.48	
02/26/07	13:09:15	19.90	20.78	0.05	0.27	-0.48	
02/26/07	13:09:30	19.91	20.84	0.10	0.07	-0.48	
02/26/07	13:09:45	19.91	20.87	0.12	0.02	-0.48	
02/26/07	13:10:00	19.98	20.22	0.08	0.02	-0.48	Calibration Error
02/26/07	13:10:15	19.98	20.00	0.04	0.02	-0.48	20.0% Oxygen Injection
02/26/07	13:10:30	19.98	20.00	0.07	0.02	-0.48	19.98 % Oxygen
02/26/07	13:10:45	19.98	19.99	0.13	0.02	-0.48	
02/26/07	13:11:00	19.97	19.97	0.12	0.02	-0.48	
02/26/07	13:11:15	19.97	19.99	0.08	0.02	-0.48	
02/26/07	13:11:30	19.97	19.98	0.10	0.02	-0.48	
02/26/07	13:11:45	19.97	20.01	0.07	0.02	-0.48	
02/26/07	13:12:00	19.98	19.01	0.10	0.02	-0.43	
02/26/07	13:12:15	14.58	13.20	0.07	0.02	-0.38	
02/26/07	13:12:30	11.16	10.39	0.07	0.02	-0.38	
02/26/07	13:12:45	10.19	9.78	0.11	0.02	-0.38	
02/26/07	13:13:00	10.11	9.72	0.07	0.03	-0.38	
02/26/07	13:13:15	10.11	9.71	0.00	0.02	-0.38	
02/26/07	13:13:30	10.10	9.70	0.01	0.02	-0.38	Calibration Error
02/26/07	13:13:45	10.10	9.69	0.04	0.02	-0.38	10.0% Oxygen Injection
02/26/07	13:14:00	10.10	9.70	0.03	0.02	-0.38	10.10 % Oxygen
02/26/07	13:14:15	10.10	9.70	0.07	0.02	-0.38	
02/26/07	13:14:30	10.10	9.71	0.04	0.02	-0.38	
02/26/07	13:14:45	10.10	9.70	0.09	0.02	-0.38	
02/26/07	13:15:00	10.10	9.70	0.05	0.02	-0.37	
02/26/07	13:15:15	10.10	9.70	0.02	0.02	-0.38	
02/26/07	13:15:30	10.10	9.70	0.03	0.02	-0.43	
02/26/07	13:15:45	10.02	11.51	0.01	0.02	-0.48	
02/26/07	13:16:00	15.79	16.70	0.01	0.02	-0.48	
02/26/07	13:16:15	18.22	19.38	0.12	0.02	-0.55	
02/26/07	13:16:30	19.97	19.97	0.10	0.02	-0.48	
02/26/07	13:16:45	19.98	20.04	0.07	0.02	-0.55	
02/26/07	13:17:00	19.98	20.04	0.07	0.02	-0.53	
02/26/07	13:17:15	19.97	20.07	0.07	0.02	-0.55	
02/26/07	13:17:30	19.97	20.04	0.04	0.02	-0.58	
02/26/07	13:17:45	19.97	20.04	0.03	0.02	-0.50	Target 1: Trial 1
02/26/07	13:18:00	19.97	20.08	0.07	0.02	-0.53	20.0% Oxygen Injection
02/26/07	13:18:15	19.97	20.05	0.10	0.02	-0.58	19.97 % Oxygen
02/26/07	13:18:30	19.97	20.08	0.08	0.02	-0.58	
02/26/07	13:18:45	19.97	20.08	0.07	0.02	-0.58	
02/26/07	13:19:00	19.97	20.08	0.05	0.02	-0.53	
02/26/07	13:19:15	19.97	20.05	0.03	0.02	-0.55	
02/26/07	13:19:30	19.97	20.08	0.01	0.02	-0.58	
02/26/07	13:19:45	19.97	20.08	0.01	0.02	-0.58	
02/26/07	13:20:00	19.97	20.08	0.04	0.02	-0.58	
02/26/07	13:20:15	19.97	20.07	0.07	0.02	-0.50	
02/26/07	13:20:30	19.97	20.02	0.09	0.02	-0.38	
02/26/07	13:20:45	20.09	15.78	0.18	0.02	-0.20	
02/26/07	13:21:00	20.31	9.84	0.33	1.82	-0.08	
02/26/07	13:21:15	20.48	7.17	0.42	8.27	-0.08	
02/26/07	13:21:30	20.51	6.99	0.45	20.82	-0.03	
02/26/07	13:21:45	20.51	7.11	0.53	25.19	0.02	
02/26/07	13:22:00	20.54	6.19	0.53	29.36	0.12	
02/26/07	13:22:15	20.59	4.72	0.55	30.61	0.12	
02/26/07	13:22:30	20.64	3.60	0.60	32.81	0.22	
02/26/07	13:22:45	20.67	3.28	0.64	35.81	0.22	
02/26/07	13:23:00	20.67	3.17	0.64	39.36	0.22	
02/26/07	13:23:15	20.88	2.77	0.64	40.99	0.22	
02/26/07	13:23:30	20.88	2.48	0.58	41.81	-0.08	
02/26/07	13:23:45	18.87	6.17	0.32	41.05	-0.25	
02/26/07	13:24:00	14.89	10.52	0.14	37.88	-0.28	
02/26/07	13:24:15	12.95	12.07	0.07	25.09	-0.28	
02/26/07	13:24:30	12.64	12.23	0.04	7.42	-0.33	
02/26/07	13:24:45	12.61	12.23	0.04	1.95	-0.38	
02/26/07	13:25:00	12.60	12.26	0.04	0.42	-0.38	Target 2: Trial 1
02/26/07	13:25:15	12.60	12.28	0.01	0.20	-0.37	12.51% Oxygen Injection
02/26/07	13:25:30	12.59	12.28	0.02	0.12	-0.38	12.59 % Oxygen
02/26/07	13:25:45	12.59	12.26	0.04	0.12	-0.38	
02/26/07	13:26:00	12.59	12.27	0.04	0.12	-0.28	
02/26/07	13:26:15	12.82	11.43	0.12	0.10	-0.20	
02/26/07	13:26:30	13.38	6.30	0.21	1.62	-0.03	
02/26/07	13:26:45	11.58	2.13	0.13	5.84	0.02	
02/26/07	13:27:00	11.92	0.30	0.08	7.37	0.12	
02/26/07	13:27:15	12.40	0.11	0.04	4.39	0.05	
02/26/07	13:27:30	12.48	0.08	0.02	0.72	0.07	
02/26/07	13:27:45	12.48	0.07	0.05	0.22	0.02	Accuracy 1
02/26/07	13:28:00	12.48	0.08	0.05	0.07	0.07	Cylinder No. ALM-045107
02/26/07	13:28:15	12.48	0.08	0.02	0.02	0.02	12.51% Oxygen
02/26/07	13:28:30	12.48	0.05	0.01	0.02	0.02	System Response
02/26/07	13:28:45	12.48	0.05	0.07	0.02	-0.05	12.48 % Oxygen
02/26/07	13:29:00	12.54	0.60	0.04	0.02	-0.33	
02/26/07	13:29:15	15.01	7.94	0.00	0.02	-0.45	
02/26/07	13:29:30	18.13	14.44	0.00	0.02	-0.48	
02/26/07	13:29:45	18.58	18.31	0.05	0.02	-0.48	
02/26/07	13:30:00	19.97	19.79	0.05	0.02	-0.48	Target 1: Trial 2
02/26/07	13:30:15	19.99	19.97	0.13	0.02	-0.48	20.0% Oxygen Injection
02/26/07	13:30:30	19.98	20.05	0.08	0.02	-0.48	19.98 % Oxygen
02/26/07	13:30:45	19.98	20.02	0.05	0.02	-0.48	
02/26/07	13:31:00	19.97	20.08	0.02	0.02	-0.48	
02/26/07	13:31:15	19.97	20.04	0.03	0.02	-0.48	
02/26/07	13:31:30	19.97	20.07	0.04	0.02	-0.48	
02/26/07	13:31:45	19.75	19.41	0.10	0.02	-0.45	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/26/07	13:33:00	12.59	12.29	0.07	0.02	-0.38	
02/26/07	13:33:15	12.59	12.29	0.02	0.02	-0.38	
02/26/07	13:33:30	12.59	12.29	0.03	0.02	-0.38	Target 2: Trial 2
02/26/07	13:33:45	12.58	12.30	0.08	0.02	-0.45	12.51% Oxygen Injection
02/26/07	13:34:00	12.58	12.30	0.15	0.02	-0.43	12.58 % Oxygen
02/26/07	13:34:15	12.58	12.28	0.09	0.02	-0.38	
02/26/07	13:34:30	12.58	12.28	0.10	0.02	-0.38	
02/26/07	13:34:45	12.58	12.28	0.09	0.02	-0.38	
02/26/07	13:35:00	12.58	12.28	0.11	0.02	-0.38	
02/26/07	13:35:15	12.58	12.28	0.08	0.02	-0.38	
02/26/07	13:35:30	12.58	12.29	0.04	0.02	-0.33	
02/26/07	13:35:45	12.88	9.82	0.20	0.12	-0.18	
02/26/07	13:36:00	11.01	4.27	0.22	0.62	-0.08	
02/26/07	13:36:15	8.07	1.04	0.16	3.02	0.00	
02/26/07	13:36:30	7.03	0.18	0.13	4.17	0.02	
02/26/07	13:36:45	8.84	0.10	0.07	1.37	-0.03	
02/26/07	13:37:00	8.93	0.08	0.08	0.27	-0.03	
02/26/07	13:37:15	8.93	0.07	0.05	0.02	0.00	
02/26/07	13:37:30	8.93	0.07	0.04	0.02	-0.03	
02/26/07	13:37:45	8.93	0.06	0.07	0.02	0.00	
02/26/07	13:38:00	8.82	0.06	0.09	0.02	0.02	
02/26/07	13:38:15	8.82	0.05	0.05	0.02	-0.05	
02/26/07	13:38:30	8.82	0.05	0.07	0.02	-0.03	
02/26/07	13:38:45	8.82	0.04	0.10	0.02	0.02	
02/26/07	13:39:00	8.82	0.04	0.10	0.02	0.07	
02/26/07	13:39:15	7.93	0.06	0.19	0.02	0.12	
02/26/07	13:39:30	12.44	0.11	0.37	2.47	0.12	
02/26/07	13:39:45	13.88	0.14	0.30	10.64	0.06	
02/26/07	13:40:00	12.69	0.07	0.14	23.02	0.02	
02/26/07	13:40:15	12.49	0.04	0.13	16.52	0.02	
02/26/07	13:40:30	12.46	0.03	0.14	4.17	0.02	
02/26/07	13:40:45	12.46	0.03	0.10	1.00	0.02	
02/26/07	13:41:00	12.46	0.03	0.07	0.17	0.02	Accuracy 2
02/26/07	13:41:15	12.49	0.03	0.12	0.05	0.02	Cylinder No. ALM-045107
02/26/07	13:41:30	12.49	0.02	0.09	0.02	0.02	12.51% Oxygen
02/26/07	13:41:45	12.49	0.02	0.04	0.02	0.02	System Response
02/26/07	13:42:00	12.49	0.02	0.02	0.02	0.02	12.49 % Oxygen
02/26/07	13:42:15	12.49	0.02	0.04	0.02	0.02	
02/26/07	13:42:30	12.49	0.02	0.08	0.02	0.02	
02/26/07	13:42:45	12.49	0.02	0.02	0.02	-0.13	
02/26/07	13:43:00	13.09	1.68	0.02	0.02	-0.43	
02/26/07	13:43:15	16.88	9.59	0.10	0.90	-0.48	
02/26/07	13:43:30	16.16	15.57	0.10	2.67	-0.48	
02/26/07	13:43:45	16.82	18.91	0.11	4.64	-0.48	
02/26/07	13:44:00	20.02	19.90	0.10	2.72	-0.53	
02/26/07	13:44:15	20.00	20.00	0.10	0.97	-0.50	
02/26/07	13:44:30	19.99	20.05	0.12	0.12	-0.53	Target 1: Trial 3
02/26/07	13:44:45	19.98	20.07	0.12	0.05	-0.53	20.0% Oxygen Injection
02/26/07	13:45:00	19.98	20.05	0.11	0.02	-0.53	19.97 % Oxygen
02/26/07	13:45:15	19.97	20.02	0.08	0.02	-0.53	
02/26/07	13:45:30	19.97	20.04	0.09	0.02	-0.53	
02/26/07	13:45:45	19.96	20.03	0.10	0.02	-0.53	
02/26/07	13:46:00	19.96	20.04	0.07	0.02	-0.58	
02/26/07	13:46:15	19.96	20.05	0.08	0.02	-0.50	
02/26/07	13:46:30	19.99	18.96	0.13	0.02	-0.48	
02/26/07	13:46:45	17.88	14.96	0.12	0.42	-0.48	
02/26/07	13:47:00	14.00	12.77	0.12	2.47	-0.48	
02/26/07	13:47:15	12.73	12.34	0.10	2.25	-0.40	
02/26/07	13:47:30	12.80	12.31	0.07	0.97	-0.43	Target 2: Trial 3
02/26/07	13:47:45	12.59	12.31	0.07	0.25	-0.48	12.51% Oxygen Injection
02/26/07	13:48:00	12.59	12.31	0.07	0.02	-0.48	12.59 % Oxygen
02/26/07	13:48:15	12.59	12.30	0.07	0.02	-0.48	
02/26/07	13:48:30	12.59	12.29	0.05	0.02	-0.48	
02/26/07	13:48:45	12.59	12.31	0.04	0.02	-0.48	
02/26/07	13:49:00	12.58	12.30	0.07	0.02	-0.48	
02/26/07	13:49:15	12.58	12.31	0.05	0.02	-0.40	
02/26/07	13:49:30	12.61	11.48	0.10	0.02	-0.28	
02/26/07	13:49:45	12.70	5.85	0.13	0.02	-0.10	
02/26/07	13:50:00	12.55	1.88	0.11	0.02	-0.03	
02/26/07	13:50:15	12.48	0.24	0.08	0.02	0.02	
02/26/07	13:50:30	12.48	0.11	0.08	0.02	0.02	
02/26/07	13:50:45	12.49	0.09	0.05	0.02	0.00	Accuracy 3
02/26/07	13:51:00	12.49	0.08	0.04	0.02	-0.03	Cylinder No. ALM-045107
02/26/07	13:51:15	12.49	0.07	0.05	0.02	0.02	12.51% Oxygen
02/26/07	13:51:30	12.49	0.08	0.15	0.02	-0.03	System Response
02/26/07	13:51:45	12.49	0.06	0.13	0.02	-0.03	12.49 % Oxygen
02/26/07	13:52:00	12.49	0.05	0.10	0.02	-0.18	
02/26/07	13:52:15	12.91	1.81	0.01	0.02	-0.43	
02/26/07	13:52:30	16.15	9.52	0.02	0.47	-0.53	
02/26/07	13:52:45	18.51	15.35	0.04	1.85	-0.58	
02/26/07	13:53:00	19.45	18.58	0.07	1.92	-0.58	
02/26/07	13:53:15	19.65	19.47	0.11	1.02	-0.58	
02/26/07	13:53:30	19.65	19.61	0.08	0.32	-0.58	
02/26/07	13:53:45	19.64	19.60	0.10	0.02	-0.58	
02/26/07	13:54:00	19.63	19.61	0.08	0.02	-0.58	
02/26/07	13:54:15	19.63	19.62	0.10	0.02	-0.58	
02/26/07	13:54:30	19.62	19.65	0.03	0.02	-0.58	
02/26/07	13:54:45	19.62	19.64	0.00	0.02	-0.58	
02/26/07	13:55:00	19.62	19.62	0.01	0.02	-0.58	Calibration Error
02/26/07	13:55:15	19.61	19.99	0.00	0.02	-0.58	20.0% CO ₂ Injection
02/26/07	13:55:30	19.61	19.99	0.04	0.02	-0.58	19.98 % CO ₂
02/26/07	13:55:45	19.61	19.96	0.08	0.02	-0.58	
02/26/07	13:56:00	19.61	19.96	0.06	0.02	-0.58	
02/26/07	13:56:15	19.61	20.00	0.04	0.02	-0.58	
02/26/07	13:56:30	19.61	19.98	0.05	0.02	-0.58	
02/26/07	13:56:45	19.60	19.87	0.14	0.02	-0.50	
02/26/07	13:57:00	17.52	16.31	0.14	0.02	-0.48	
02/26/07	13:57:15	12.91	12.30	0.12	0.02	-0.48	
02/26/07	13:57:30	10.43	10.33	0.12	0.02	-0.43	
02/26/07	13:57:45	9.97	10.06	0.07	0.02	-0.45	
02/26/07	13:58:00	9.93	10.03	0.06	0.02	-0.48	Calibration Error
02/26/07	13:58:15	9.93	10.03	0.02	0.02	-0.43	10.0% CO ₂ Injection
02/26/07	13:58:30	9.93	10.03	0.03	0.02	-0.43	10.03 % CO ₂
02/26/07	13:58:45	9.93	10.03	0.06	0.02	-0.45	
02/26/07	13:59:00	9.93	10.02	0.07	0.02	-0.48	
02/26/07	13:59:15	9.92	10.01	0.04	0.02	-0.45	
02/26/07	13:59:30	9.92	9.72	0.07	0.02	-0.38	
02/26/07	13:59:45	10.28	8.27	17.30	0.05	-0.25	
02/26/07	14:00:00	7.80	3.72	64.98	0.12	-0.18	
02/26/07	14:00:15	2.41	0.92	77.96	3.27	-0.08	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/26/07	14:01:45	-0.01	0.06	88.60	0.02	-0.08	
02/26/07	14:02:00	-0.01	0.06	88.67	0.02	-0.08	
02/26/07	14:02:15	-0.01	0.05	88.78	0.02	-0.15	
02/26/07	14:02:30	-0.01	0.05	88.88	0.02	-0.08	
02/26/07	14:02:45	-0.02	0.05	88.88	0.02	-0.15	
02/26/07	14:03:00	-0.02	0.04	88.39	0.02	-0.08	Calibration Error
02/26/07	14:03:15	-0.02	0.04	88.97	0.02	-0.08	88.67ppm SO ₂ Injection
02/26/07	14:03:30	-0.02	0.04	89.06	0.02	-0.08	89.08 % SO ₂ Injection
02/26/07	14:03:45	-0.02	0.04	89.13	0.02	-0.10	
02/26/07	14:04:00	-0.02	0.03	89.17	0.02	-0.13	
02/26/07	14:04:15	-0.02	0.03	89.13	0.02	-0.08	
02/26/07	14:04:30	-0.03	0.03	89.11	0.02	-0.08	
02/26/07	14:04:45	-0.02	0.03	89.09	0.02	-0.08	
02/26/07	14:05:00	0.08	0.04	82.73	0.02	-0.08	
02/26/07	14:05:15	0.62	0.05	59.32	0.12	-0.18	
02/26/07	14:05:30	0.20	0.03	48.77	0.47	-0.18	
02/26/07	14:05:45	0.00	0.02	48.59	1.35	-0.10	
02/26/07	14:06:00	-0.02	0.02	48.08	0.52	-0.13	
02/26/07	14:06:15	-0.03	0.02	45.87	0.10	-0.08	
02/26/07	14:06:30	-0.03	0.02	45.73	0.02	-0.08	
02/26/07	14:06:45	-0.03	0.02	45.65	0.02	-0.10	Calibration Error
02/26/07	14:07:00	-0.03	0.02	45.68	0.02	-0.13	45.0ppm SO ₂ Injection
02/26/07	14:07:15	-0.03	0.02	45.57	0.02	-0.18	45.56 % SO ₂ Injection
02/26/07	14:07:30	-0.03	0.02	45.53	0.02	-0.13	
02/26/07	14:07:45	-0.03	0.02	45.53	0.02	-0.08	
02/26/07	14:08:00	-0.03	0.02	38.22	0.02	-0.13	
02/26/07	14:08:15	-0.02	0.02	19.54	0.02	-0.10	
02/26/07	14:08:30	-0.01	0.03	19.10	0.02	-0.18	
02/26/07	14:08:45	-0.02	0.01	20.12	0.02	-0.15	
02/26/07	14:09:00	-0.03	0.01	20.45	0.02	-0.13	
02/26/07	14:09:15	-0.03	0.01	20.59	0.02	-0.18	
02/26/07	14:09:30	-0.03	0.01	20.69	0.02	-0.13	Calibration Error
02/26/07	14:09:45	-0.03	0.00	20.70	0.02	-0.15	20.0ppm SO ₂ Injection
02/26/07	14:10:00	-0.03	0.01	20.84	0.02	-0.08	20.66 % SO ₂ Injection
02/26/07	14:10:15	-0.03	0.01	20.83	0.02	-0.18	
02/26/07	14:10:30	-0.03	0.01	20.66	0.02	-0.13	
02/26/07	14:10:45	-0.03	0.01	20.65	0.02	-0.15	
02/26/07	14:11:00	-0.03	0.01	20.63	0.02	-0.08	
02/26/07	14:11:15	0.45	0.06	18.07	0.02	-0.08	
02/26/07	14:11:30	1.61	0.07	8.89	8.57	-0.08	
02/26/07	14:11:45	0.43	0.02	1.83	31.34	-0.08	
02/26/07	14:12:00	0.02	0.00	0.83	89.22	-0.08	
02/26/07	14:12:15	-0.01	0.01	0.55	94.22	-0.08	
02/26/07	14:12:30	-0.02	0.01	0.43	91.30	-0.08	
02/26/07	14:12:45	-0.02	0.01	0.36	91.32	-0.08	
02/26/07	14:13:00	-0.02	0.01	0.30	92.60	-0.08	
02/26/07	14:13:15	-0.02	0.00	0.34	93.82	-0.08	
02/26/07	14:13:30	-0.02	0.00	0.32	94.87	-0.08	
02/26/07	14:13:45	-0.02	0.00	0.32	95.52	-0.08	
02/26/07	14:14:00	-0.02	0.01	0.22	95.67	-0.08	
02/26/07	14:14:15	-0.02	0.01	0.21	95.47	-0.08	
02/26/07	14:14:30	-0.02	0.01	0.19	95.32	-0.08	
02/26/07	14:14:45	-0.02	0.01	0.22	95.15	-0.08	
02/26/07	14:15:00	-0.03	0.01	0.19	94.92	-0.08	
02/26/07	14:15:15	-0.02	0.01	0.14	94.77	-0.08	
02/26/07	14:15:30	-0.03	0.01	0.11	92.43	-0.08	Calibration Error
02/26/07	14:15:45	-0.03	0.01	0.18	89.97	-0.08	89.99ppm NO _x Injection
02/26/07	14:16:00	-0.03	0.01	0.20	89.82	-0.08	89.77 ppm NO _x
02/26/07	14:16:15	-0.03	0.00	0.17	89.67	-0.08	
02/26/07	14:16:30	-0.03	0.01	0.18	89.60	-0.08	
02/26/07	14:16:45	-0.03	0.00	0.18	89.57	-0.08	
02/26/07	14:17:00	-0.03	0.00	0.17	89.50	-0.08	
02/26/07	14:17:15	-0.03	0.01	0.18	89.40	-0.15	
02/26/07	14:17:30	-0.01	0.02	0.17	89.32	-0.08	
02/26/07	14:17:45	-0.01	0.01	0.20	85.92	-0.08	
02/26/07	14:18:00	-0.03	0.00	0.13	85.31	-0.08	
02/26/07	14:18:15	-0.03	0.00	0.11	52.43	-0.10	
02/26/07	14:18:30	-0.03	0.00	0.11	48.06	-0.10	
02/26/07	14:18:45	-0.03	0.00	0.07	45.16	-0.08	
02/26/07	14:19:00	-0.03	0.00	0.07	44.94	-0.08	Calibration Error
02/26/07	14:19:15	-0.03	0.00	0.07	44.89	-0.08	45.0ppm NO _x Injection
02/26/07	14:19:30	-0.03	0.00	0.11	44.74	-0.08	44.73 ppm NO _x
02/26/07	14:19:45	-0.03	0.00	0.09	44.69	-0.08	
02/26/07	14:20:00	-0.03	0.00	0.07	44.61	-0.15	
02/26/07	14:20:15	-0.03	0.00	0.08	44.51	-0.10	
02/26/07	14:20:30	-0.03	0.00	0.14	43.99	-0.10	
02/26/07	14:20:45	-0.02	0.01	0.15	36.61	-0.08	
02/26/07	14:21:00	-0.03	0.00	0.10	19.54	-0.15	
02/26/07	14:21:15	-0.03	0.00	0.10	18.52	-0.18	
02/26/07	14:21:30	-0.03	0.00	0.08	19.54	-0.10	
02/26/07	14:21:45	-0.03	0.00	0.07	19.82	-0.10	
02/26/07	14:22:00	-0.03	0.00	0.07	19.92	-0.18	Calibration Error
02/26/07	14:22:15	-0.03	0.00	0.03	19.82	-0.08	20.0ppm NO _x Injection
02/26/07	14:22:30	-0.03	0.00	0.03	19.82	-0.08	19.78 ppm NO _x
02/26/07	14:22:45	-0.03	0.00	0.05	19.77	-0.18	
02/26/07	14:23:00	-0.03	0.00	0.04	19.72	-0.10	
02/26/07	14:23:15	0.01	0.00	0.09	19.72	0.02	
02/26/07	14:23:30	2.87	0.02	0.34	19.72	0.02	
02/26/07	14:23:45	8.70	0.05	0.48	23.27	-0.03	
02/26/07	14:24:00	8.53	0.24	0.49	32.31	0.07	
02/26/07	14:24:15	2.46	0.19	0.27	34.81	10.04	
02/26/07	14:24:30	1.37	0.04	0.16	24.72	22.04	
02/26/07	14:24:45	0.83	0.01	0.12	6.02	31.44	
02/26/07	14:25:00	0.20	0.00	0.11	2.02	99.88	
02/26/07	14:25:15	0.03	0.00	0.10	0.62	168.02	
02/26/07	14:25:30	0.00	0.00	0.11	0.35	168.52	
02/26/07	14:25:45	0.00	0.00	0.12	0.22	169.22	
02/26/07	14:26:00	-0.01	0.00	0.15	0.22	169.67	
02/26/07	14:26:15	-0.02	0.00	0.09	0.17	170.22	
02/26/07	14:26:30	-0.02	0.00	0.10	0.12	170.67	
02/26/07	14:26:45	-0.03	0.00	0.08	0.12	170.82	
02/26/07	14:27:00	-0.03	0.00	0.08	0.12	170.97	
02/26/07	14:27:15	-0.03	0.00	0.04	0.12	170.92	
02/26/07	14:27:30	-0.03	0.00	0.04	0.12	177.36	Calibration Error
02/26/07	14:27:45	-0.03	0.00	0.11	0.12	180.11	180.0ppm CO Injection
02/26/07	14:28:00	-0.03	0.00	0.15	0.12	180.21	180.10 ppm CO
02/26/07	14:28:15	-0.03	0.00	0.06	0.12	179.91	
02/26/07	14:28:30	-0.03	0.00	0.06	0.05	180.16	
02/26/07	14:28:45	-0.03	0.00	0.08	0.02	178.71	
02/26/07	14:29:00	-0.03	0.00	0.04	0.02	165.67	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	14:30:30	-0.03	0.00	0.01	0.02	120.33	
02/28/07	14:30:45	-0.03	0.00	0.04	0.02	120.13	
02/28/07	14:31:00	-0.03	0.00	0.04	0.02	105.93	
02/28/07	14:31:15	-0.03	0.00	0.06	0.02	72.24	
02/28/07	14:31:30	-0.03	-0.01	0.02	0.02	60.99	
02/28/07	14:31:45	-0.03	-0.01	-0.01	0.02	59.34	
02/28/07	14:32:00	-0.03	0.00	0.07	0.02	59.09	
02/28/07	14:32:15	-0.03	0.00	0.10	0.02	59.34	Calibration Error
02/28/07	14:32:30	-0.03	0.00	0.09	0.02	59.29	60.0ppm CO Injection
02/28/07	14:32:45	-0.03	0.00	0.08	0.02	59.44	59.36 ppm CO
02/28/07	14:33:00	-0.03	0.00	0.08	0.02	59.44	
02/28/07	14:33:15	-0.03	0.00	0.08	0.02	59.34	
02/28/07	14:33:30	-0.03	0.00	0.04	0.02	59.44	
02/28/07	14:33:45	-0.03	0.00	0.05	0.02	63.14	
02/28/07	14:34:00	-0.03	0.00	0.05	0.02	57.79	
02/28/07	14:34:15	1.06	0.01	0.17	0.02	40.64	
02/28/07	14:34:30	6.25	0.04	0.39	1.67	30.89	
02/28/07	14:34:45	11.07	0.04	0.49	9.37	28.84	
02/28/07	14:35:00	11.82	0.04	0.57	25.39	29.09	
02/28/07	14:35:15	11.78	0.04	0.65	31.06	28.94	
02/28/07	14:35:30	11.79	0.04	0.61	31.91	23.54	
02/28/07	14:35:45	13.65	0.05	0.62	32.26	18.84	
02/28/07	14:36:00	15.55	0.05	0.66	34.09	17.24	
02/28/07	14:36:15	16.38	0.06	0.67	36.21	17.04	
02/28/07	14:36:30	16.63	0.06	0.75	39.71	16.29	
02/28/07	14:36:45	16.76	0.06	0.82	43.21	14.34	
02/28/07	14:37:00	17.31	0.06	0.89	45.11	12.14	
02/28/07	14:37:15	18.16	0.07	0.89	46.21	11.04	
02/28/07	14:37:30	18.72	0.07	0.88	46.11	10.89	
02/28/07	14:37:45	18.89	0.07	0.87	46.01	10.64	
02/28/07	14:38:00	18.96	0.07	0.91	47.10	9.54	
02/28/07	14:38:15	18.16	0.07	0.89	46.96	7.37	
02/28/07	14:38:30	19.55	0.07	0.88	49.83	17.87	
02/28/07	14:38:45	19.14	0.11	1.06	49.06	15.67	
02/28/07	14:39:00	10.90	0.12	1.32	51.06	5.17	
02/28/07	14:39:15	1.52	0.02	1.24	74.70	0.87	
02/28/07	14:39:30	0.09	0.00	1.13	69.25	0.42	
02/28/07	14:39:45	0.00	0.00	1.04	56.86	0.32	
02/28/07	14:40:00	-0.01	0.00	1.00	44.54	0.32	
02/28/07	14:40:15	-0.02	0.00	0.97	41.71	0.27	
02/28/07	14:40:30	-0.02	0.00	0.96	44.11	0.16	
02/28/07	14:40:45	-0.02	0.00	0.96	43.06	0.12	
02/28/07	14:41:00	-0.02	0.00	0.93	42.59	0.05	
02/28/07	14:41:15	-0.02	0.00	0.93	42.91	0.07	
02/28/07	14:41:30	-0.02	0.00	0.94	43.64	0.00	
02/28/07	14:41:45	-0.02	0.00	0.96	44.31	-0.03	
02/28/07	14:42:00	-0.02	0.00	1.00	45.26	0.00	
02/28/07	14:42:15	-0.03	0.00	1.03	45.96	-0.08	
02/28/07	14:42:30	-0.03	0.00	1.02	46.71	-0.15	
02/28/07	14:42:45	-0.03	0.00	1.05	47.16	-0.13	
02/28/07	14:43:00	-0.03	0.00	1.07	47.69	-0.15	
02/28/07	14:43:15	-0.03	0.00	1.07	46.06	-0.23	
02/28/07	14:43:30	-0.03	0.00	1.06	46.59	-0.13	
02/28/07	14:43:45	-0.03	-0.01	1.10	46.96	-0.23	
02/28/07	14:44:00	-0.03	-0.01	1.11	49.36	-0.28	
02/28/07	14:44:15	-0.03	-0.01	1.11	49.61	-0.23	
02/28/07	14:44:30	-0.03	-0.01	1.12	49.96	-0.25	
02/28/07	14:44:45	-0.03	0.00	1.11	50.21	-0.28	
02/28/07	14:45:00	-0.03	0.00	1.16	50.46	-0.23	
02/28/07	14:45:15	-0.03	0.00	1.16	50.66	-0.33	
02/28/07	14:45:30	-0.03	0.00	1.11	50.84	-0.35	NO _x Converter Check
02/28/07	14:45:45	-0.03	0.00	1.16	50.96	-0.33	Cylinder No. ALM-013266
02/28/07	14:46:00	-0.03	0.00	1.17	51.21	-0.36	52.4ppm Cylinder
02/28/07	14:46:15	-0.03	-0.01	1.18	51.26	-0.33	
02/28/07	14:46:30	-0.03	0.00	1.22	51.44	-0.35	System Response
02/28/07	14:46:45	-0.03	0.00	1.18	51.56	-0.36	51.33 ppm NO _x
02/28/07	14:47:00	-0.03	0.00	1.15	51.64	-0.48	
02/28/07	14:47:15	-0.03	-0.01	1.18	51.76	0.02	98.0 % Conversion
02/28/07	14:47:30	0.07	0.00	1.15	51.84	1.20	
02/28/07	14:47:45	2.30	0.03	0.84	52.01	0.77	
02/28/07	14:48:00	4.12	0.01	0.44	49.79	0.15	
02/28/07	14:48:15	4.66	0.00	0.23	29.97	-0.13	
02/28/07	14:48:30	5.24	0.01	0.16	12.57	-0.08	
02/28/07	14:48:45	12.66	0.04	0.15	2.45	0.02	
02/28/07	14:49:00	19.30	0.05	0.15	0.80	0.25	
02/28/07	14:49:15	20.88	0.06	0.15	0.57	0.42	
02/28/07	14:49:30	20.80	0.05	0.17	0.50	0.50	
02/28/07	14:49:45	20.80	0.05	0.18	0.42	0.42	
02/28/07	14:50:00	20.76	0.05	0.17	0.42	0.45	
02/28/07	14:50:15	20.77	0.06	0.11	0.35	0.57	
02/28/07	14:50:30	20.77	0.06	0.08	0.32	0.55	
02/28/07	14:50:45	20.76	0.06	0.09	0.32	0.67	
02/28/07	14:51:00	20.76	0.06	0.09	0.30	0.65	
02/28/07	14:51:15	20.75	0.06	0.15	0.22	0.67	
02/28/07	14:51:30	20.75	0.06	0.15	0.22	0.62	
02/28/07	14:51:45	20.74	0.05	0.10	0.22	0.67	
02/28/07	14:52:00	20.74	0.05	0.11	0.22	0.60	
02/28/07	14:52:15	20.74	0.05	0.11	0.22	0.72	
02/28/07	14:52:30	20.73	0.06	0.11	0.22	0.72	
02/28/07	14:52:45	20.74	0.07	0.17	0.15	0.67	
02/28/07	14:53:00	20.75	0.06	0.20	0.12	0.72	
02/28/07	14:53:15	20.77	0.06	0.15	0.12	0.72	
02/28/07	14:53:30	20.77	0.06	0.11	0.12	0.76	
02/28/07	14:53:45	20.77	0.06	0.18	0.12	0.87	
02/28/07	14:54:00	20.77	0.06	0.13	0.12	0.70	
02/28/07	14:54:15	20.77	0.06	0.11	0.12	0.72	
02/28/07	14:54:30	20.77	0.06	0.18	0.12	0.72	
02/28/07	14:54:45	20.77	0.06	0.11	0.12	0.67	
02/28/07	14:55:00	20.77	0.06	0.05	0.12	0.75	
02/28/07	14:55:15	20.77	0.06	0.03	0.12	0.82	
02/28/07	14:55:30	20.77	0.06	0.08	0.12	0.80	
02/28/07	14:55:45	20.77	0.06	0.10	0.12	0.72	
02/28/07	14:56:00	20.77	0.06	0.12	0.12	0.75	
02/28/07	14:56:15	20.76	0.06	0.12	0.12	0.75	
02/28/07	14:56:30	20.75	0.07	0.12	0.12	0.80	
02/28/07	14:56:45	20.74	0.07	0.11	0.12	0.80	
02/28/07	14:57:00	20.75	0.06	0.15	0.12	0.82	
02/28/07	14:57:15	20.75	0.07	0.13	0.12	0.75	
02/28/07	14:57:30	20.76	0.06	0.11	0.12	0.77	
02/28/07	14:57:45	20.76	0.06	0.10	0.12	0.85	
02/28/07	14:58:00	20.76	0.06	0.10	0.12	0.75	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	14:59:15	20.76	0.08	0.11	0.12	0.85	
02/28/07	14:59:30	20.74	0.07	0.11	0.12	0.87	
02/28/07	14:59:45	20.73	0.08	0.12	0.12	0.87	
02/28/07	15:00:00	20.72	0.08	0.12	0.12	0.87	
02/28/07	15:00:15	20.72	0.08	0.08	0.12	0.85	
02/28/07	15:00:30	20.72	0.08	0.08	0.02	0.77	
02/28/07	15:00:45	20.72	0.07	0.07	0.02	0.82	
02/28/07	15:01:00	20.73	0.08	0.07	0.13	0.78	
02/28/07	15:01:15	20.73	0.07	0.02	0.12	0.80	
02/28/07	15:01:30	20.72	0.08	0.03	0.12	0.78	
02/28/07	15:01:45	20.72	0.07	0.08	0.05	0.75	
02/28/07	15:02:00	20.72	0.07	0.07	0.02	0.77	
02/28/07	15:02:15	20.72	0.08	0.08	0.02	0.80	
02/28/07	15:02:30	20.71	0.08	0.12	0.03	0.83	
02/28/07	15:02:45	20.71	0.08	0.11	0.02	0.82	
02/28/07	15:03:00	20.71	0.08	0.07	0.02	0.77	
02/28/07	15:03:15	20.71	0.08	0.08	0.02	0.80	
02/28/07	15:03:30	20.72	0.08	0.05	0.02	0.82	
02/28/07	15:03:45	20.72	0.08	0.05	0.02	0.83	
02/28/07	15:04:00	20.72	0.07	0.05	0.02	0.82	
02/28/07	15:04:15	20.72	0.08	0.08	0.02	0.80	
02/28/07	15:04:30	20.73	0.08	0.07	0.02	0.77	
02/28/07	15:04:45	20.72	0.08	0.07	0.02	0.72	
02/28/07	15:05:00	20.72	0.08	0.10	0.02	0.77	
02/28/07	15:05:15	20.72	0.08	0.07	0.02	0.80	
02/28/07	15:05:30	20.72	0.08	0.04	0.02	0.77	
02/28/07	15:05:45	20.73	0.07	0.04	0.02	0.80	
02/28/07	15:06:00	20.78	0.06	0.00	0.02	0.82	
02/28/07	15:06:15	20.78	0.05	0.04	0.02	0.82	
02/28/07	15:06:30	20.79	0.05	0.02	0.02	0.87	
02/28/07	15:06:45	20.79	0.05	0.08	0.02	0.72	
02/28/07	15:07:00	20.79	0.05	0.07	0.02	0.72	
02/28/07	15:07:15	20.79	0.04	0.06	0.02	0.72	
02/28/07	15:07:30	20.79	0.05	0.07	0.02	0.82	
02/28/07	15:07:45	20.78	0.05	0.05	0.02	0.80	
02/28/07	15:08:00	20.78	0.05	0.08	0.02	0.87	
02/28/07	15:08:15	20.78	0.06	0.11	0.02	0.75	
02/28/07	15:08:30	20.78	0.06	0.14	0.02	0.77	
02/28/07	15:08:45	20.78	0.05	0.13	0.02	0.77	
02/28/07	15:09:00	20.77	0.06	0.08	0.02	0.72	
02/28/07	15:09:15	20.77	0.06	0.11	0.02	0.75	
02/28/07	15:09:30	20.77	0.06	0.07	0.02	0.77	
02/28/07	15:09:45	20.77	0.06	0.09	0.02	0.80	
02/28/07	15:10:00	20.77	0.05	0.05	0.02	0.82	
02/28/07	15:10:15	20.77	0.05	0.07	0.02	0.80	
02/28/07	15:10:30	20.77	0.05	0.08	0.02	0.72	
02/28/07	15:10:45	20.77	0.08	0.08	0.02	0.72	
02/28/07	15:11:00	20.77	0.06	0.05	0.02	0.77	
02/28/07	15:11:15	20.77	0.06	0.10	0.02	0.82	
02/28/07	15:11:30	20.77	0.06	0.08	0.02	0.82	
02/28/07	15:11:45	20.77	0.06	0.05	0.02	0.80	
02/28/07	15:12:00	20.77	0.06	0.03	0.02	0.72	
02/28/07	15:12:15	20.77	0.06	0.02	0.02	0.77	
02/28/07	15:12:30	20.77	0.06	0.05	0.02	0.77	
02/28/07	15:12:45	20.77	0.06	0.07	0.02	0.85	
02/28/07	15:13:00	20.77	0.06	0.06	0.02	0.82	
02/28/07	15:13:15	20.77	0.06	0.02	0.02	0.80	
02/28/07	15:13:30	20.77	0.06	0.02	0.02	0.77	
02/28/07	15:13:45	20.77	0.06	0.08	0.02	0.82	
02/28/07	15:14:00	20.77	0.06	0.08	0.02	0.87	
02/28/07	15:14:15	20.77	0.06	0.05	0.02	0.85	
02/28/07	15:14:30	20.77	0.06	0.08	0.02	0.87	
02/28/07	15:14:45	20.77	0.06	0.09	0.02	0.80	
02/28/07	15:15:00	20.77	0.08	0.05	0.02	0.72	
02/28/07	15:15:15	20.77	0.08	0.07	0.02	0.80	
02/28/07	15:15:30	20.77	0.06	0.04	0.02	0.87	
02/28/07	15:15:45	20.77	0.06	0.08	0.02	0.82	
02/28/07	15:16:00	20.77	0.06	0.03	0.02	0.87	
02/28/07	15:16:15	20.77	0.08	0.07	0.02	0.77	
02/28/07	15:16:30	20.76	0.07	0.07	0.02	0.82	
02/28/07	15:16:45	20.76	0.08	0.09	0.02	0.82	
02/28/07	15:17:00	20.76	0.08	0.07	0.02	0.82	
02/28/07	15:17:15	20.76	0.06	0.12	0.02	0.85	
02/28/07	15:17:30	20.76	0.06	0.15	0.02	0.87	
02/28/07	15:17:45	20.76	0.07	0.18	0.02	0.77	
02/28/07	15:18:00	20.76	0.08	0.12	0.02	0.77	
02/28/07	15:18:15	20.76	0.06	0.12	0.02	0.82	
02/28/07	15:18:30	20.76	0.07	0.09	0.02	0.88	
02/28/07	15:18:45	20.76	0.07	0.07	0.02	0.92	
02/28/07	15:19:00	20.76	0.07	0.07	0.02	0.92	
02/28/07	15:19:15	20.76	0.07	0.09	0.02	0.75	
02/28/07	15:19:30	20.76	0.07	0.10	0.02	0.77	
02/28/07	15:19:45	20.76	0.07	0.09	0.02	0.82	
02/28/07	15:20:00	20.75	0.07	0.05	0.02	0.82	
02/28/07	15:20:15	20.75	0.07	0.13	0.02	0.90	
02/28/07	15:20:30	20.75	0.07	0.11	0.02	0.87	
02/28/07	15:20:45	20.75	0.06	0.12	0.02	0.74	
02/28/07	15:21:00	20.75	0.06	0.13	0.02	0.77	
02/28/07	15:21:15	20.75	0.07	0.10	0.02	0.82	
02/28/07	15:21:30	20.74	0.07	0.11	0.02	0.82	
02/28/07	15:21:45	18.94	0.06	0.11	0.02	0.85	
02/28/07	15:22:00	16.55	0.06	0.12	0.02	0.82	
02/28/07	15:22:15	19.71	0.07	0.11	0.03	0.80	
02/28/07	15:22:30	20.66	0.10	0.14	0.03	0.83	
02/28/07	15:22:45	20.73	0.07	0.17	0.02	0.85	
02/28/07	15:23:00	20.74	0.07	0.15	0.02	1.08	
02/28/07	15:23:15	20.70	0.07	0.18	0.02	0.52	
02/28/07	15:23:30	15.90	0.04	0.25	0.02	0.98	
02/28/07	15:23:45	5.02	0.02	0.37	0.02	0.90	
02/28/07	15:24:00	0.37	0.01	0.44	0.02	0.82	
02/28/07	15:24:15	0.10	0.01	0.47	0.02	0.65	
02/28/07	15:24:30	0.08	0.00	0.45	0.02	0.77	
02/28/07	15:24:45	0.06	0.00	0.43	0.02	0.80	
02/28/07	15:25:00	0.06	0.01	0.44	0.03	0.88	
02/28/07	15:25:15	0.05	0.00	0.44	0.02	0.55	
02/28/07	15:25:30	0.06	0.00	0.40	0.02	0.47	
02/28/07	15:25:45	0.04	0.01	0.39	0.02	0.37	
02/28/07	15:26:00	0.03	0.01	0.37	0.02	0.22	
02/28/07	15:26:15	0.03	0.01	0.37	0.02	0.15	
02/28/07	15:26:30	0.02	0.01	0.33	0.02	0.17	System Bias
02/28/07	15:26:45	0.02	0.01	0.33	0.02	0.17	Zero Nitrogen Injection

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	15:28:00	0.19	0.01	0.38	0.02	0.22	
02/28/07	15:28:15	5.83	0.02	0.29	0.02	0.85	
02/28/07	15:28:30	13.91	0.77	0.28	0.02	-0.03	
02/28/07	15:28:45	10.83	5.21	0.30	0.02	-1.17	
02/28/07	15:29:00	9.92	8.38	0.33	0.17	-1.58	System Bias
02/28/07	15:29:15	10.04	9.37	0.32	0.30	-1.68	10.0% Oxygen Injection
02/28/07	15:29:30	10.08	9.34	0.34	0.15	-1.83	10.0% Oxygen
02/28/07	15:29:45	10.08	9.27	0.30	0.10	-1.68	
02/28/07	15:30:00	10.08	9.38	0.31	0.02	-1.73	
02/28/07	15:30:15	10.08	9.53	0.34	0.02	-1.88	
02/28/07	15:30:30	10.08	9.68	0.38	0.02	-1.83	
02/28/07	15:30:45	10.07	9.64	0.34	0.02	-1.23	
02/28/07	15:31:00	11.69	7.07	0.41	0.02	-1.17	
02/28/07	15:31:15	12.88	7.54	0.40	0.02	-1.80	
02/28/07	15:31:30	10.88	9.25	0.37	0.02	-1.68	
02/28/07	15:31:45	9.99	9.55	0.34	0.02	-1.77	
02/28/07	15:32:00	9.91	9.66	0.37	0.02	-1.71	
02/28/07	15:32:15	9.90	9.71	0.34	0.02	-1.70	
02/28/07	15:32:30	9.90	9.97	0.35	0.02	-1.83	System Bias
02/28/07	15:32:45	9.90	9.98	0.33	0.02	-1.72	10.0% CO ₂ Injection
02/28/07	15:33:00	9.90	9.99	0.33	0.02	-1.80	9.99 % CO ₂
02/28/07	15:33:15	9.90	9.99	0.32	0.02	-1.77	
02/28/07	15:33:30	9.90	9.99	0.37	0.02	-1.78	
02/28/07	15:33:45	9.90	9.99	0.38	0.02	-1.85	
02/28/07	15:34:00	9.90	10.00	0.40	0.02	-1.58	
02/28/07	15:34:15	9.90	10.00	0.38	0.02	-1.35	
02/28/07	15:34:30	10.81	8.12	3.03	0.02	-0.75	
02/28/07	15:34:45	10.71	4.54	21.21	0.03	-0.42	
02/28/07	15:35:00	4.01	1.45	38.48	0.02	-0.20	
02/28/07	15:35:15	0.44	0.27	41.69	0.12	-0.15	
02/28/07	15:35:30	0.09	0.13	43.21	0.12	-0.08	
02/28/07	15:35:45	0.06	0.10	43.71	0.02	-0.25	
02/28/07	15:36:00	0.05	0.08	44.12	0.02	-0.18	
02/28/07	15:36:15	0.04	0.07	44.35	0.02	-0.13	
02/28/07	15:36:30	0.04	0.07	44.50	0.02	-0.05	
02/28/07	15:36:45	0.03	0.06	44.80	0.02	-0.08	
02/28/07	15:37:00	0.03	0.05	44.71	0.02	-0.15	
02/28/07	15:37:15	0.03	0.05	44.78	0.02	-0.15	System Bias
02/28/07	15:37:30	0.03	0.04	44.88	0.02	-0.08	45.0ppm SO ₂ Injection
02/28/07	15:37:45	0.02	0.04	44.84	0.02	-0.08	44.96 ppm SO ₂
02/28/07	15:38:00	0.02	0.04	45.00	0.02	-0.08	
02/28/07	15:38:15	0.02	0.04	45.03	0.02	4.85	
02/28/07	15:38:30	0.02	0.03	45.22	0.02	82.54	
02/28/07	15:38:45	0.17	0.58	54.39	0.02	91.84	
02/28/07	15:39:00	0.98	1.61	48.17	0.55	86.24	
02/28/07	15:39:15	0.58	0.83	14.68	2.82	102.44	
02/28/07	15:39:30	0.15	0.13	4.44	7.00	116.83	
02/28/07	15:39:45	0.06	0.04	2.08	2.87	119.73	
02/28/07	15:40:00	0.04	0.03	1.42	0.82	120.18	
02/28/07	15:40:15	0.04	0.03	1.11	0.12	119.98	System Bias
02/28/07	15:40:30	0.04	0.03	0.94	0.05	120.13	80.0ppm CO Injection
02/28/07	15:40:45	0.04	0.02	0.80	0.02	120.63	120.38 ppm CO
02/28/07	15:41:00	0.03	0.03	0.88	0.02	120.53	
02/28/07	15:41:15	0.02	0.02	0.87	0.02	120.23	
02/28/07	15:41:30	0.02	0.02	0.84	0.02	122.03	
02/28/07	15:41:45	0.02	0.02	0.58	0.02	121.18	
02/28/07	15:42:00	0.04	0.12	4.49	0.02	115.18	
02/28/07	15:42:15	0.52	1.04	10.87	0.22	58.85	
02/28/07	15:42:30	0.49	0.49	5.02	5.30	7.77	
02/28/07	15:42:45	0.10	0.08	1.64	28.02	1.37	
02/28/07	15:43:00	0.03	0.03	0.89	43.24	0.80	
02/28/07	15:43:15	0.02	0.02	0.85	48.51	0.52	
02/28/07	15:43:30	0.02	0.02	0.57	37.59	0.55	
02/28/07	15:43:45	0.01	0.02	0.57	36.38	0.42	
02/28/07	15:44:00	0.02	0.01	0.50	38.29	0.50	
02/28/07	15:44:15	0.01	0.01	0.40	40.38	0.42	
02/28/07	15:44:30	0.02	0.02	0.41	41.84	0.45	
02/28/07	15:44:45	0.01	0.01	0.43	42.58	0.22	
02/28/07	15:45:00	0.01	0.01	0.41	43.24	0.30	
02/28/07	15:45:15	0.01	0.02	0.35	43.68	0.32	
02/28/07	15:45:30	0.01	0.02	0.33	44.58	0.32	System Bias
02/28/07	15:45:45	0.01	0.02	0.37	44.88	0.27	45.0ppm NO _x Injection
02/28/07	15:46:00	0.02	0.02	0.35	44.54	0.23	44.61 ppm NO _x
02/28/07	15:46:15	0.01	0.01	0.34	44.81	0.23	
02/28/07	15:46:30	0.01	0.01	0.35	44.81	0.22	
02/28/07	15:46:45	0.01	0.01	0.37	44.58	2.52	
02/28/07	15:47:00	0.01	0.02	0.58	44.51	16.00	
02/28/07	15:47:15	0.39	1.20	8.05	44.51	51.27	
02/28/07	15:47:30	1.57	3.51	27.87	43.09	88.21	
02/28/07	15:47:45	2.29	4.29	41.71	38.02	71.53	
02/28/07	15:48:00	2.38	4.39	48.04	28.19	75.94	
02/28/07	15:48:15	2.38	4.39	48.51	22.72	88.21	
02/28/07	15:48:30	2.43	4.38	47.05	21.89	89.68	
02/28/07	15:48:45	2.48	4.38	49.11	21.37	87.31	
02/28/07	15:49:00	2.47	4.40	53.71	21.22	89.31	
02/28/07	15:49:15	2.55	4.38	55.07	21.12	111.83	
02/28/07	15:49:30	2.58	4.37	54.12	21.12	110.78	
02/28/07	15:49:45	2.80	4.37	53.57	21.17	103.58	
02/28/07	15:50:00	2.56	4.38	53.30	21.12	92.94	Start Run 1
02/28/07	15:50:15	2.48	4.41	53.55	21.12	89.84	
02/28/07	15:50:30	2.47	4.42	53.75	21.20	90.75	
02/28/07	15:50:45	2.48	4.43	53.82	21.22	89.43	
02/28/07	15:51:00	2.48	4.42	53.78	21.22	94.23	
02/28/07	15:51:15	2.48	4.41	53.60	21.17	105.76	
02/28/07	15:51:30	2.56	4.39	53.28	21.19	104.58	
02/28/07	15:51:45	2.57	4.40	53.28	21.32	97.33	
02/28/07	15:52:00	2.49	4.42	53.57	21.32	92.84	
02/28/07	15:52:15	2.51	4.42	53.33	21.27	91.13	
02/28/07	15:52:30	2.49	4.43	53.16	21.29	90.83	
02/28/07	15:52:45	2.52	4.43	52.96	21.42	82.19	
02/28/07	15:53:00	2.48	4.45	53.07	21.42	73.84	
02/28/07	15:53:15	2.40	4.46	53.33	21.32	71.29	
02/28/07	15:53:30	2.40	4.44	53.54	21.32	70.09	
02/28/07	15:53:45	2.48	4.42	53.60	21.27	68.50	
02/28/07	15:54:00	2.52	4.42	53.48	21.32	73.34	
02/28/07	15:54:15	2.51	4.41	53.88	21.42	81.89	
02/28/07	15:54:30	2.55	4.40	54.65	21.42	82.84	
02/28/07	15:54:45	2.58	4.39	54.25	21.42	77.44	
02/28/07	15:55:00	2.54	4.40	53.83	21.42	73.24	
02/28/07	15:55:15	2.47	4.41	54.08	21.42	81.89	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	15:58:30	2.45	4.41	52.37	21.24	86.13	
02/28/07	15:58:45	2.50	4.40	51.92	21.22	83.74	
02/28/07	15:57:00	2.43	4.42	52.11	21.22	82.84	
02/28/07	15:57:15	2.42	4.42	52.49	21.22	78.49	
02/28/07	15:57:30	2.45	4.44	55.13	21.20	78.99	
02/28/07	15:57:45	2.43	4.43	51.49	21.17	74.89	
02/28/07	15:58:00	2.36	4.43	49.29	21.27	73.99	
02/28/07	15:58:15	2.36	4.42	48.90	21.17	73.59	
02/28/07	15:58:30	2.35	4.44	48.99	21.12	79.44	
02/28/07	15:58:45	2.30	4.45	49.43	21.12	101.83	
02/28/07	15:59:00	2.34	4.42	49.55	21.09	126.43	
02/28/07	15:59:15	2.55	4.39	49.08	20.92	138.28	
02/28/07	15:59:30	2.86	4.37	48.62	20.94	136.12	
02/28/07	15:59:45	2.84	4.36	48.44	21.12	124.54	
02/28/07	16:00:00	2.81	4.39	48.47	21.12	119.68	
02/28/07	16:00:15	2.50	4.41	48.89	21.12	120.21	
02/28/07	16:00:30	2.48	4.42	49.37	21.09	119.48	
02/28/07	16:00:45	2.49	4.42	49.89	21.02	112.01	
02/28/07	16:01:00	2.48	4.43	50.44	20.97	105.33	
02/28/07	16:01:15	2.39	4.45	50.89	21.07	101.53	
02/28/07	16:01:30	2.38	4.46	50.91	21.12	102.08	
02/28/07	16:01:45	2.43	4.46	50.56	21.12	108.23	
02/28/07	16:02:00	2.47	4.46	50.15	21.14	116.03	
02/28/07	16:02:15	2.53	4.44	49.72	21.27	99.63	
02/28/07	16:02:30	2.82	4.43	50.38	21.32	86.34	
02/28/07	16:02:45	2.49	4.47	50.67	21.42	82.30	
02/28/07	16:03:00	2.41	4.47	50.15	21.60	84.54	
02/28/07	16:03:15	2.42	4.46	49.76	21.62	92.94	
02/28/07	16:03:30	2.52	4.44	49.10	21.49	97.48	
02/28/07	16:03:45	2.58	4.42	49.26	21.37	99.23	
02/28/07	16:04:00	2.58	4.41	49.15	21.49	101.38	
02/28/07	16:04:15	2.61	4.40	49.63	21.52	100.53	
02/28/07	16:04:30	2.63	4.40	48.32	21.52	90.44	
02/28/07	16:04:45	2.54	4.42	48.45	21.52	81.74	
02/28/07	16:05:00	2.42	4.45	48.96	21.52	86.09	
02/28/07	16:05:15	2.43	4.45	49.70	21.47	91.24	
02/28/07	16:05:30	2.52	4.43	50.30	21.42	95.50	
02/28/07	16:05:45	2.58	4.43	50.37	21.47	92.44	
02/28/07	16:06:00	2.60	4.42	50.11	21.52	81.24	
02/28/07	16:06:15	2.57	4.43	49.99	21.47	84.04	
02/28/07	16:06:30	2.47	4.45	50.39	21.44	53.84	
02/28/07	16:06:45	2.33	4.46	51.47	21.52	52.14	
02/28/07	16:07:00	2.28	4.49	52.40	21.44	58.14	
02/28/07	16:07:15	2.34	4.48	52.61	21.37	58.64	
02/28/07	16:07:30	2.36	4.48	52.79	21.42	66.59	
02/28/07	16:07:45	2.37	4.48	53.12	21.52	61.34	
02/28/07	16:08:00	2.48	4.43	53.10	21.44	61.34	
02/28/07	16:08:15	2.46	4.44	53.17	21.42	78.04	
02/28/07	16:08:30	2.36	4.48	53.44	21.34	79.89	
02/28/07	16:08:45	2.35	4.45	53.75	21.32	84.04	
02/28/07	16:09:00	2.38	4.44	53.98	21.27	86.64	
02/28/07	16:09:15	2.43	4.42	53.60	21.07	84.14	
02/28/07	16:09:30	2.44	4.42	53.25	21.12	82.19	
02/28/07	16:09:45	2.40	4.44	53.05	21.27	101.83	
02/28/07	16:10:00	2.41	4.44	52.96	21.29	112.08	
02/28/07	16:10:15	2.56	4.41	52.46	21.17	105.03	
02/28/07	16:10:30	2.54	4.44	52.07	21.19	99.28	
02/28/07	16:10:45	2.44	4.45	52.06	21.27	103.83	
02/28/07	16:11:00	2.44	4.45	51.90	21.37	109.68	
02/28/07	16:11:15	2.52	4.42	51.41	21.32	103.23	
02/28/07	16:11:30	2.58	4.41	51.60	21.32	99.09	
02/28/07	16:11:45	2.55	4.44	52.97	21.32	108.83	
02/28/07	16:12:00	2.55	4.42	51.57	21.42	109.33	
02/28/07	16:12:15	2.80	4.41	50.23	21.52	105.13	
02/28/07	16:12:30	2.56	4.42	49.35	21.42	107.03	
02/28/07	16:12:45	2.57	4.40	49.99	21.32	100.13	
02/28/07	16:13:00	2.80	4.41	49.98	21.32	88.64	
02/28/07	16:13:15	2.51	4.43	49.12	21.32	72.94	
02/28/07	16:13:30	2.40	4.47	51.06	21.32	73.69	
02/28/07	16:13:45	2.37	4.47	52.10	21.32	76.44	
02/28/07	16:14:00	2.42	4.45	51.19	21.39	71.94	
02/28/07	16:14:15	2.39	4.47	50.62	21.37	73.24	
02/28/07	16:14:30	2.38	4.47	51.01	21.34	76.29	
02/28/07	16:14:45	2.44	4.48	50.97	21.37	85.04	
02/28/07	16:15:00	2.43	4.47	50.86	21.32	83.39	
02/28/07	16:15:15	2.49	4.44	50.88	21.37	87.14	
02/28/07	16:15:30	2.54	4.43	50.35	21.32	77.99	
02/28/07	16:15:45	2.48	4.45	50.36	21.27	68.24	
02/28/07	16:16:00	2.40	4.45	50.62	21.32	86.44	
02/28/07	16:16:15	2.33	4.46	51.11	21.32	75.74	
02/28/07	16:16:30	2.38	4.44	51.51	21.24	76.54	
02/28/07	16:16:45	2.44	4.44	51.77	21.17	80.34	
02/28/07	16:17:00	2.43	4.44	51.97	21.04	81.19	
02/28/07	16:17:15	2.43	4.44	51.93	21.07	81.44	
02/28/07	16:17:30	2.44	4.43	51.73	21.12	68.54	
02/28/07	16:17:45	2.44	4.42	51.67	21.12	108.03	
02/28/07	16:18:00	2.54	4.40	52.09	21.14	106.03	
02/28/07	16:18:15	2.59	4.40	58.11	21.22	104.73	
02/28/07	16:18:30	2.43	4.44	56.84	21.34	115.48	
02/28/07	16:18:45	2.47	4.43	54.63	21.42	120.43	
02/28/07	16:19:00	2.61	4.41	52.18	21.27	111.18	
02/28/07	16:19:15	2.51	4.44	51.18	21.37	107.23	
02/28/07	16:19:30	2.47	4.44	50.78	21.39	112.73	
02/28/07	16:19:45	2.48	4.44	50.54	21.32	125.33	
02/28/07	16:20:00	2.53	4.41	50.34	21.37	129.98	
02/28/07	16:20:15	2.60	4.40	50.14	21.32	133.03	
02/28/07	16:20:30	2.63	4.40	49.83	21.32	121.78	
02/28/07	16:20:45	2.65	4.40	49.88	21.32	103.43	
02/28/07	16:21:00	2.49	4.45	50.28	21.34	97.79	
02/28/07	16:21:15	2.48	4.45	50.88	21.42	86.64	
02/28/07	16:21:30	2.43	4.48	50.86	21.42	85.59	
02/28/07	16:21:45	2.44	4.44	50.47	21.42	86.44	
02/28/07	16:22:00	2.48	4.44	50.37	21.37	87.89	
02/28/07	16:22:15	2.48	4.44	50.38	21.42	62.94	
02/28/07	16:22:30	2.49	4.44	50.40	21.42	76.14	
02/28/07	16:22:45	2.42	4.48	50.76	21.47	91.64	
02/28/07	16:23:00	2.34	4.48	51.27	21.49	86.64	
02/28/07	16:23:15	2.48	4.44	51.33	21.32	68.34	
02/28/07	16:23:30	2.46	4.45	51.28	21.42	97.49	
02/28/07	16:23:45	2.50	4.43	51.13	21.52	83.24	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/26/07	16:25:15	2.58	4.41	50.21	21.37	100.94	
02/26/07	16:25:30	2.58	4.41	50.24	21.29	94.74	
02/26/07	16:25:45	2.57	4.41	50.44	21.27	85.04	
02/26/07	16:26:00	2.45	4.44	50.90	21.49	77.49	
02/26/07	16:26:15	2.39	4.45	51.47	21.32	70.44	
02/26/07	16:26:30	2.29	4.48	52.00	21.24	75.39	
02/26/07	16:26:45	2.26	4.48	52.19	21.32	93.84	
02/26/07	16:27:00	2.37	4.45	51.95	21.32	101.94	
02/26/07	16:27:15	2.49	4.43	51.47	21.32	96.44	
02/26/07	16:27:30	2.49	4.45	51.34	21.34	96.39	
02/26/07	16:27:45	2.44	4.46	51.72	21.37	104.34	
02/26/07	16:28:00	2.47	4.45	52.02	21.34	110.33	
02/26/07	16:28:15	2.53	4.44	51.71	21.42	130.63	
02/26/07	16:28:30	2.58	4.43	47.86	21.42	133.43	
02/26/07	16:28:45	2.59	4.40	45.54	21.42	112.63	
02/26/07	16:29:00	2.50	4.42	45.48	21.42	111.83	
02/26/07	16:29:15	2.43	4.43	46.40	21.42	112.03	
02/26/07	16:29:30	2.49	4.42	46.95	21.42	115.28	
02/26/07	16:29:45	2.48	4.43	47.48	21.37	107.63	
02/26/07	16:30:00	2.54	4.42	47.82	21.24	97.67	
02/26/07	16:30:15	2.43	4.48	48.33	21.32	104.24	
02/26/07	16:30:30	2.45	4.45	48.48	21.42	105.12	
02/26/07	16:30:45	2.54	4.42	48.38	21.42	90.54	
02/26/07	16:31:00	2.48	4.44	48.45	21.49	81.72	
02/26/07	16:31:15	2.38	4.45	48.80	21.37	62.04	
02/26/07	16:31:30	2.38	4.45	49.22	21.32	83.41	
02/26/07	16:31:45	2.45	4.43	48.37	21.27	80.94	
02/26/07	16:32:00	2.49	4.44	48.59	21.24	88.29	
02/26/07	16:32:15	2.40	4.45	49.92	21.37	95.44	
02/26/07	16:32:30	2.50	4.44	49.92	21.32	99.09	
02/26/07	16:32:45	2.52	4.45	49.96	21.32	103.74	
02/26/07	16:33:00	2.52	4.45	49.97	21.34	105.89	
02/26/07	16:33:15	2.55	4.43	49.72	21.47	100.24	
02/26/07	16:33:30	2.59	4.42	49.58	21.52	96.04	
02/26/07	16:33:45	2.51	4.43	50.54	21.52	81.34	
02/26/07	16:34:00	2.51	4.43	53.59	21.59	85.89	
02/26/07	16:34:15	2.44	4.48	54.70	21.47	91.44	
02/26/07	16:34:30	2.42	4.49	53.80	21.54	95.09	
02/26/07	16:34:45	2.52	4.43	52.20	21.57	89.94	
02/26/07	16:35:00	2.49	4.44	51.61	21.52	93.74	
02/26/07	16:35:15	2.44	4.44	51.34	21.47	100.74	
02/26/07	16:35:30	2.53	4.41	50.99	21.42	97.29	
02/26/07	16:35:45	2.56	4.40	50.67	21.47	91.14	
02/26/07	16:36:00	2.53	4.41	50.57	21.52	88.39	
02/26/07	16:36:15	2.53	4.41	50.61	21.57	88.44	
02/26/07	16:36:30	2.54	4.42	50.77	21.52	89.74	
02/26/07	16:36:45	2.53	4.42	50.91	21.57	88.84	
02/26/07	16:37:00	2.51	4.44	51.00	21.59	88.54	
02/26/07	16:37:15	2.45	4.45	51.35	21.52	88.54	
02/26/07	16:37:30	2.49	4.43	51.88	21.54	80.49	
02/26/07	16:37:45	2.40	4.45	52.07	21.62	79.24	
02/26/07	16:38:00	2.34	4.48	52.25	21.52	88.44	
02/26/07	16:38:15	2.32	4.48	52.22	21.52	107.63	
02/26/07	16:38:30	2.44	4.43	51.83	21.39	120.76	
02/26/07	16:38:45	2.54	4.42	51.32	21.37	124.23	
02/26/07	16:39:00	2.56	4.41	50.88	21.49	124.38	
02/26/07	16:39:15	2.61	4.42	50.48	21.42	128.23	
02/26/07	16:39:30	2.58	4.40	49.09	21.52	121.38	
02/26/07	16:39:45	2.54	4.40	47.32	21.52	111.83	
02/26/07	16:40:00	2.48	4.42	47.49	21.52	114.83	
02/26/07	16:40:15	2.51	4.41	47.68	21.47	115.23	
02/26/07	16:40:30	2.55	4.41	48.03	21.39	104.54	
02/26/07	16:40:45	2.52	4.43	48.67	21.32	97.24	
02/26/07	16:41:00	2.39	4.47	48.38	21.32	89.79	
02/26/07	16:41:15	2.39	4.47	49.57	21.37	97.54	
02/26/07	16:41:30	2.43	4.45	49.38	21.32	89.79	
02/26/07	16:41:45	2.38	4.48	49.37	21.32	67.54	
02/26/07	16:42:00	2.38	4.47	49.51	21.42	89.19	
02/26/07	16:42:15	2.36	4.47	49.72	21.42	93.84	
02/26/07	16:42:30	2.35	4.48	49.85	21.42	95.49	
02/26/07	16:42:45	2.41	4.47	49.83	21.42	92.74	
02/26/07	16:43:00	2.39	4.47	49.90	21.42	89.99	
02/26/07	16:43:15	2.38	4.48	50.01	21.42	84.24	
02/26/07	16:43:30	2.39	4.48	50.24	21.42	78.29	
02/26/07	16:43:45	2.35	4.51	50.84	21.47	73.54	
02/26/07	16:44:00	2.32	4.52	51.11	21.52	72.59	
02/26/07	16:44:15	2.32	4.51	51.40	21.52	89.04	
02/26/07	16:44:30	2.31	4.51	51.43	21.39	89.59	
02/26/07	16:44:45	2.28	4.51	51.45	21.37	71.04	
02/26/07	16:45:00	2.32	4.49	51.47	21.39	70.84	
02/26/07	16:45:15	2.35	4.47	51.42	21.32	73.24	
02/26/07	16:45:30	2.33	4.48	51.48	21.47	84.04	
02/26/07	16:45:45	2.36	4.48	51.30	21.57	96.54	
02/26/07	16:46:00	2.43	4.47	51.20	21.42	115.58	
02/26/07	16:46:15	2.54	4.45	50.81	21.42	129.73	
02/26/07	16:46:30	2.65	4.43	50.14	21.42	129.06	
02/26/07	16:46:45	2.65	4.43	49.79	21.42	124.73	
02/26/07	16:47:00	2.58	4.44	49.79	21.42	123.88	
02/26/07	16:47:15	2.60	4.41	49.98	21.42	122.83	
02/26/07	16:47:30	2.62	4.40	49.84	21.42	120.73	
02/26/07	16:47:45	2.68	4.40	49.44	21.47	114.94	
02/26/07	16:48:00	2.62	4.42	49.49	21.64	101.84	
02/26/07	16:48:15	2.52	4.45	49.88	21.72	93.74	
02/26/07	16:48:30	2.40	4.50	50.72	21.72	99.19	
02/26/07	16:48:45	2.38	4.50	51.39	21.88	108.94	
02/26/07	16:49:00	2.44	4.48	51.25	21.62	109.89	
02/26/07	16:49:15	2.53	4.48	50.72	21.62	107.84	
02/26/07	16:49:30	2.51	4.50	50.31	21.62	110.99	
02/26/07	16:49:45	2.52	4.49	50.05	21.64	107.00	End Run 1
02/26/07	16:50:00	2.55	4.48	48.80	21.62	93.09	
02/26/07	16:50:15	2.47	4.50	48.71	21.54	86.05	
02/26/07	16:50:30	2.40	3.87	45.39	21.62	57.30	
02/26/07	16:50:45	1.52	1.33	28.66	22.22	86.65	
02/26/07	16:51:00	0.40	0.26	18.82	21.64	113.69	
02/26/07	16:51:15	0.11	0.10	11.46	11.67	121.34	
02/26/07	16:51:30	0.08	0.08	8.48	4.62	122.49	
02/26/07	16:51:45	0.04	0.05	6.55	0.96	121.53	
02/26/07	16:52:00	0.03	0.05	5.26	0.32	119.98	
02/26/07	16:52:15	0.02	0.04	4.36	0.25	120.53	
02/26/07	16:52:30	0.02	0.04	3.69	0.22	120.19	

Reference Method 15-second Averages						
Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO
02/26/07	18:18:30	0.04	0.14	0.26	46.36	7.26
02/26/07	18:18:45	0.55	1.05	0.85	46.31	4.46
02/26/07	18:20:00	0.43	0.46	10.83	43.26	1.16
02/26/07	18:20:15	0.06	0.08	24.95	33.74	0.70
02/26/07	18:20:30	0.02	0.03	32.83	15.32	0.65
02/26/07	18:20:45	0.02	0.03	36.74	3.62	0.65
02/26/07	18:21:00	0.02	0.03	40.88	0.62	0.45
02/26/07	18:21:15	0.01	0.02	42.31	0.40	0.45
02/26/07	18:21:30	0.02	0.02	44.24	0.32	0.45
02/26/07	18:21:45	0.02	0.02	44.92	0.22	0.45
02/26/07	18:22:00	0.02	0.02	44.92	0.22	0.65
02/26/07	18:22:15	0.02	0.02	44.94	0.22	0.50
02/26/07	18:22:30	0.01	0.02	45.14	0.22	0.45
02/26/07	18:22:45	0.01	0.02	45.13	0.12	3.60
02/26/07	18:23:00	0.02	0.06	45.35	0.12	15.25
02/26/07	18:23:15	0.57	1.26	36.42	0.27	11.50
02/26/07	18:23:30	3.67	4.78	27.90	0.92	2.45
02/26/07	18:23:45	7.77	8.08	17.46	3.40	-0.20
02/26/07	18:24:00	9.49	9.84	10.52	3.67	-0.95
02/26/07	18:24:15	9.78	9.84	7.27	0.92	-0.95
02/26/07	18:24:30	9.81	9.77	5.52	0.42	-1.05
02/26/07	18:24:45	9.82	9.86	4.25	0.12	-1.00
02/26/07	18:25:00	9.82	9.97	3.47	0.12	-1.15
02/26/07	18:25:15	9.84	9.97	2.90	0.12	-1.15
02/26/07	18:25:30	9.84	10.02	2.44	0.12	-1.15
02/26/07	18:25:45	9.84	10.02	2.11	0.02	-0.85
02/26/07	18:26:00	9.85	10.05	1.77	0.02	16.55
02/26/07	18:26:15	9.15	9.81	1.89	0.05	22.40
02/26/07	18:26:30	6.30	7.00	4.69	0.12	8.75
02/26/07	18:26:45	7.79	8.84	5.89	6.77	1.25
02/26/07	18:27:00	9.65	10.06	4.35	9.02	-0.95
02/26/07	18:27:15	9.99	10.25	2.99	3.40	-1.10
02/26/07	18:27:30	10.03	10.27	2.22	1.22	-1.14
02/26/07	18:27:45	10.03	10.28	1.75	0.20	-1.30
02/26/07	18:28:00	10.03	10.29	1.40	0.12	-1.25
02/26/07	18:28:15	10.03	10.29	1.16	0.02	-1.13
02/26/07	18:28:30	10.03	10.30	0.95	0.02	-1.35
02/26/07	18:28:45	10.03	10.30	0.60	0.02	-1.19
02/26/07	18:29:00	10.03	10.31	0.73	0.02	-0.94
02/26/07	18:29:15	10.04	10.32	0.66	0.02	7.96
02/26/07	18:29:30	9.86	9.96	0.67	0.02	46.64
02/26/07	18:29:45	9.93	8.97	5.17	0.10	71.54
02/26/07	18:30:00	3.55	4.95	20.28	2.97	89.44
02/26/07	18:30:15	2.78	4.58	29.86	12.74	96.69
02/26/07	18:30:30	2.66	4.52	33.67	17.87	94.24
02/26/07	18:30:45	2.70	4.50	36.42	20.29	89.19
02/26/07	18:31:00	2.65	4.51	39.74	20.52	87.14
02/26/07	18:31:15	2.59	4.51	42.95	20.54	86.54
02/26/07	18:31:30	2.59	4.50	45.26	20.62	90.94
02/26/07	18:31:45	2.60	4.49	47.04	20.64	92.44
02/26/07	18:32:00	2.62	4.50	48.63	20.66	92.54
02/26/07	18:32:15	2.57	4.51	49.92	20.82	97.34
02/26/07	18:32:30	2.55	4.51	50.67	20.82	100.24
02/26/07	18:32:45	2.59	4.49	50.63	20.59	97.59
02/26/07	18:33:00	2.59	4.49	50.84	20.52	102.04
02/26/07	18:33:15	2.59	4.49	51.00	20.82	102.79
02/26/07	18:33:30	2.61	4.48	51.02	20.82	98.04
02/26/07	18:33:45	2.57	4.50	50.92	20.59	98.81
02/26/07	18:34:00	2.58	4.49	50.82	20.52	103.93
02/26/07	18:34:15	2.82	4.47	50.88	20.54	103.08
02/26/07	18:34:30	2.64	4.47	51.00	20.82	98.94
02/26/07	18:34:45	2.60	4.48	51.13	20.64	101.05
02/26/07	18:35:00	2.54	4.50	53.74	20.72	100.04
02/26/07	18:35:15	2.57	4.48	63.05	20.64	101.48
02/26/07	18:35:30	2.58	4.50	61.24	20.89	108.44
02/26/07	18:35:45	2.83	4.47	58.17	21.14	108.48
02/26/07	18:36:00	2.63	4.48	53.91	21.14	115.53
02/26/07	18:36:15	2.63	4.48	52.85	20.89	116.83
02/26/07	18:36:30	2.69	4.44	52.04	20.84	112.73
02/26/07	18:36:45	2.65	4.45	51.68	20.82	110.58
02/26/07	18:37:00	2.82	4.48	51.69	20.82	108.43
02/26/07	18:37:15	2.61	4.47	51.89	20.82	117.33
02/26/07	18:37:30	2.57	4.48	52.01	20.82	123.83
02/26/07	18:37:45	2.87	4.48	51.44	20.82	125.18
02/26/07	18:38:00	2.64	4.48	51.03	20.82	121.83
02/26/07	18:38:15	2.69	4.47	50.94	20.82	108.48
02/26/07	18:38:30	2.64	4.49	51.04	20.82	91.24
02/26/07	18:38:45	2.55	4.51	51.17	20.82	61.99
02/26/07	18:39:00	2.45	4.52	51.38	20.64	78.14
02/26/07	18:39:15	2.48	4.51	51.60	20.74	79.29
02/26/07	18:39:30	2.48	4.50	52.17	20.82	85.84
02/26/07	18:39:45	2.54	4.49	52.25	20.82	86.34
02/26/07	18:40:00	2.60	4.47	52.15	20.82	85.54
02/26/07	18:40:15	2.53	4.50	52.17	20.82	84.04
02/26/07	18:40:30	2.53	4.50	52.28	20.89	105.44
02/26/07	18:40:45	2.63	4.47	52.10	20.82	105.34
02/26/07	18:41:00	2.86	4.48	51.78	20.89	103.04
02/26/07	18:41:15	2.59	4.48	51.63	20.92	104.19
02/26/07	18:41:30	2.58	4.48	51.70	20.92	110.63
02/26/07	18:41:45	2.59	4.48	51.74	20.82	116.48
02/26/07	18:42:00	2.64	4.45	51.48	20.82	113.23
02/26/07	18:42:15	2.66	4.45	51.14	20.82	109.74
02/26/07	18:42:30	2.61	4.48	51.10	20.82	112.13
02/26/07	18:42:45	2.58	4.48	51.31	20.72	113.73
02/26/07	18:43:00	2.60	4.47	51.41	20.72	113.73
02/26/07	18:43:15	2.59	4.48	51.27	20.72	108.23
02/26/07	18:43:30	2.58	4.48	51.31	20.72	105.94
02/26/07	18:43:45	2.55	4.52	51.02	20.72	118.83
02/26/07	18:44:00	2.59	4.50	48.51	20.79	130.43
02/26/07	18:44:15	2.63	4.47	48.37	20.82	137.28
02/26/07	18:44:30	2.63	4.48	48.00	20.82	137.63
02/26/07	18:44:45	2.88	4.45	48.26	20.79	128.53
02/26/07	18:45:00	2.65	4.48	48.85	20.72	125.03
02/26/07	18:45:15	2.60	4.48	47.08	20.67	128.53
02/26/07	18:45:30	2.82	4.48	47.28	20.69	122.33
02/26/07	18:45:45	2.61	4.48	47.58	20.62	120.28
02/26/07	18:46:00	2.58	4.48	47.85	20.74	118.73
02/26/07	18:46:15	2.82	4.49	48.13	20.74	110.33
02/26/07	18:46:30	2.59	4.50	48.35	20.89	108.13
02/26/07	18:46:45	2.54	4.52	48.54	20.82	114.93

Reference Method 15-second Averages							Comments
Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	
02/26/07	18:48:00	2.57	4.48	48.29	20.82	129.33	
02/26/07	18:48:15	2.59	4.48	48.05	20.62	138.83	
02/26/07	18:48:30	2.68	4.47	48.54	20.62	148.83	
02/26/07	18:48:45	2.87	4.50	48.18	20.64	153.23	
02/26/07	18:49:00	2.87	4.51	48.12	20.69	158.83	
02/26/07	18:48:15	2.87	4.52	48.21	20.69	155.23	
02/26/07	18:49:30	2.89	4.50	48.13	20.92	144.82	
02/26/07	18:49:45	2.83	4.49	48.11	20.94	138.08	
02/26/07	18:50:00	2.80	4.48	48.22	20.94	128.73	
02/26/07	18:50:15	2.80	4.48	48.50	20.82	125.38	
02/26/07	18:50:30	2.57	4.48	48.75	20.82	129.03	
02/26/07	18:50:45	2.55	4.47	48.88	20.82	140.18	
02/26/07	18:51:00	2.59	4.48	48.93	20.82	145.83	
02/26/07	18:51:15	2.62	4.47	48.81	20.82	145.73	
02/26/07	18:51:30	2.83	4.49	48.88	20.82	148.43	
02/26/07	18:51:45	2.84	4.50	48.83	20.84	161.02	
02/26/07	18:52:00	2.88	4.51	48.73	20.92	171.62	
02/26/07	18:52:15	2.71	4.51	48.52	20.92	176.87	
02/26/07	18:52:30	2.89	4.52	48.52	20.92	170.32	
02/26/07	18:52:45	2.71	4.51	48.54	20.82	175.52	
02/26/07	18:53:00	2.73	4.50	48.44	20.82	185.02	
02/26/07	18:53:15	2.71	4.50	48.33	20.82	151.08	
02/26/07	18:53:30	2.71	4.48	48.28	20.89	137.43	
02/26/07	18:53:45	2.83	4.50	48.25	20.94	127.13	
02/26/07	18:54:00	2.81	4.50	48.24	20.94	114.43	
02/26/07	18:54:15	2.82	4.52	48.04	20.82	116.78	
02/26/07	18:54:30	2.82	4.53	48.83	20.89	126.03	
02/26/07	18:54:45	2.88	4.50	45.59	21.04	118.63	
02/26/07	18:55:00	2.57	4.51	45.80	21.04	129.03	
02/26/07	18:55:15	2.52	4.51	48.27	21.02	128.23	
02/26/07	18:55:30	2.57	4.49	48.44	20.94	124.53	
02/26/07	18:55:45	2.85	4.48	48.44	20.89	111.53	
02/26/07	18:56:00	2.59	4.49	48.50	20.89	103.93	
02/26/07	18:56:15	2.52	4.51	48.78	20.92	112.58	
02/26/07	18:56:30	2.52	4.52	47.15	20.84	129.83	
02/26/07	18:56:45	2.58	4.51	47.29	20.82	141.53	
02/26/07	18:57:00	2.65	4.51	47.41	20.82	154.12	
02/26/07	18:57:15	2.87	4.51	47.38	20.87	189.82	
02/26/07	18:57:30	2.73	4.50	48.98	21.09	172.42	
02/26/07	18:57:45	2.83	4.47	48.56	20.87	171.09	
02/26/07	18:58:00	2.84	4.47	48.22	20.89	153.93	
02/26/07	18:58:15	2.74	4.50	48.15	21.12	138.88	
02/26/07	18:58:30	2.72	4.50	48.18	21.19	124.73	
02/26/07	18:58:45	2.88	4.52	48.34	21.12	106.63	
02/26/07	18:59:00	2.83	4.53	48.80	21.12	98.34	
02/26/07	18:59:15	2.82	4.52	48.88	21.22	82.99	
02/26/07	18:59:30	2.58	4.52	47.54	21.14	73.44	
02/26/07	18:59:45	2.53	4.53	48.03	21.12	86.69	
02/26/07	19:00:00	2.48	4.54	48.41	21.12	88.94	
02/26/07	19:00:15	2.48	4.53	48.79	21.17	75.19	
02/26/07	19:00:30	2.52	4.53	48.87	21.12	79.24	
02/26/07	19:00:45	2.56	4.51	48.81	21.17	83.49	
02/26/07	19:01:00	2.58	4.51	48.63	21.22	87.54	
02/26/07	19:01:15	2.80	4.50	48.71	21.27	92.74	
02/26/07	19:01:30	2.83	4.50	48.54	21.14	96.84	
02/26/07	19:01:45	2.80	4.50	48.65	21.12	107.23	
02/26/07	19:02:00	2.81	4.49	48.79	21.12	110.83	
02/26/07	19:02:15	2.85	4.47	48.84	21.02	107.88	
02/26/07	19:02:30	2.88	4.47	48.39	21.02	105.13	
02/26/07	19:02:45	2.59	4.50	48.42	21.02	109.43	
02/26/07	19:03:00	2.60	4.51	48.48	20.94	110.33	
02/26/07	19:03:15	2.83	4.51	48.23	20.87	107.73	
02/26/07	19:03:30	2.62	4.50	47.95	20.89	104.83	
02/26/07	19:03:45	2.83	4.50	47.83	21.12	115.68	
02/26/07	19:04:00	2.82	4.50	47.80	21.12	127.83	
02/26/07	19:04:15	2.75	4.48	47.58	21.07	128.08	
02/26/07	19:04:30	2.78	4.48	47.38	21.12	119.53	
02/26/07	19:04:45	2.70	4.50	47.25	21.17	109.13	
02/26/07	19:05:00	2.87	4.52	47.20	21.14	108.93	
02/26/07	19:05:15	2.89	4.51	45.70	21.12	111.48	
02/26/07	19:05:30	2.71	4.50	44.57	21.12	107.53	
02/26/07	19:05:45	2.71	4.49	44.98	21.22	93.19	
02/26/07	19:06:00	2.71	4.50	45.34	21.19	83.54	
02/26/07	19:06:15	2.88	4.52	45.84	21.17	79.19	
02/26/07	19:06:30	2.85	4.53	48.02	21.32	77.44	
02/26/07	19:06:45	2.84	4.54	48.34	21.42	87.99	
02/26/07	19:07:00	2.80	4.55	48.89	21.32	81.24	
02/26/07	19:07:15	2.55	4.55	47.47	21.22	82.14	
02/26/07	19:07:30	2.58	4.53	48.09	21.14	70.84	
02/26/07	19:07:45	2.62	4.50	48.34	21.12	77.54	
02/26/07	19:08:00	2.87	4.48	48.57	21.09	83.74	
02/26/07	19:08:15	2.85	4.48	48.89	21.02	81.14	
02/26/07	19:08:30	2.87	4.48	48.98	20.99	102.34	
02/26/07	19:08:45	2.70	4.49	48.98	20.82	109.48	
02/26/07	19:09:00	2.77	4.48	48.83	20.94	109.53	
02/26/07	19:09:15	2.74	4.48	48.51	21.02	108.03	
02/26/07	19:09:30	2.73	4.48	48.23	21.04	105.43	
02/26/07	19:09:45	2.72	4.49	48.13	21.12	101.78	
02/26/07	19:10:00	2.73	4.49	47.89	21.14	98.14	
02/26/07	19:10:15	2.89	4.51	47.78	21.22	84.19	
02/26/07	19:10:30	2.59	4.52	48.05	21.19	83.52	
02/26/07	19:10:45	2.58	4.52	48.21	21.07	86.59	
02/26/07	19:11:00	2.88	4.49	48.09	21.09	88.24	
02/26/07	19:11:15	2.84	4.49	48.10	21.07	100.19	
02/26/07	19:11:30	2.86	4.49	48.14	21.02	115.78	
02/26/07	19:11:45	2.75	4.48	48.08	21.02	119.23	
02/26/07	19:12:00	2.81	4.49	48.20	21.04	113.88	
02/26/07	19:12:15	2.75	4.49	48.03	21.17	112.18	
02/26/07	19:12:30	2.89	4.50	47.74	21.22	120.43	
02/26/07	19:12:45	2.73	4.50	47.48	21.17	127.73	
02/26/07	19:13:00	2.79	4.50	47.30	21.19	129.53	
02/26/07	19:13:15	2.82	4.48	47.12	21.22	122.28	
02/26/07	19:13:30	2.82	4.48	48.87	21.22	114.48	
02/26/07	19:13:45	2.81	4.48	48.66	21.22	109.83	
02/26/07	19:14:00	2.80	4.49	48.84	21.22	103.49	
02/26/07	19:14:15	2.78	4.51	48.51	21.22	98.19	
02/26/07	19:14:30	2.73	4.52	48.40	21.17	89.29	
02/26/07	19:14:45	2.73	4.50	48.78	21.32	79.19	
02/26/07	19:15:00	2.70	4.52	47.31	21.34	77.09	
02/26/07	19:15:15	2.74	4.52	44.52	21.32	73.09	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	19:16:45	2.75	4.50	45.46	20.97	110.98	
02/28/07	19:17:00	2.76	4.49	45.78	21.04	128.23	
02/28/07	19:17:15	2.87	4.45	45.88	21.12	131.43	
02/28/07	19:17:30	2.91	4.45	45.98	21.09	128.88	
02/28/07	19:17:45	2.83	4.48	46.28	20.97	131.48	
02/28/07	19:18:00	2.84	4.49	46.44	21.02	129.38	
02/28/07	19:18:15	2.85	4.48	46.40	21.07	124.83	
02/28/07	19:18:30	2.83	4.47	46.40	21.09	111.93	
02/28/07	19:18:45	2.80	4.47	46.53	20.97	112.89	
02/28/07	19:19:00	2.75	4.49	46.82	20.94	118.53	
02/28/07	19:19:15	2.81	4.48	46.56	21.02	119.03	
02/28/07	19:19:30	2.80	4.49	46.45	21.12	117.93	
02/28/07	19:19:45	2.80	4.48	46.33	21.12	122.83	
02/28/07	19:20:00	2.82	4.48	46.35	21.02	127.58	
02/28/07	19:20:15	2.85	4.48	46.37	21.02	120.33	
02/28/07	19:20:30	2.83	4.48	46.28	21.09	112.83	
02/28/07	19:20:45	2.78	4.51	46.27	20.97	110.23	
02/28/07	19:21:00	2.77	4.51	46.27	21.04	109.43	
02/28/07	19:21:15	2.81	4.50	46.21	21.17	114.83	
02/28/07	19:21:30	2.84	4.48	46.08	21.34	118.83	
02/28/07	19:21:45	2.89	4.48	46.12	21.42	105.93	
02/28/07	19:22:00	2.89	4.48	46.18	21.29	92.49	
02/28/07	19:22:15	2.78	4.51	46.50	21.22	89.84	
02/28/07	19:22:30	2.71	4.53	46.95	21.22	90.39	
02/28/07	19:22:45	2.74	4.51	47.12	21.22	86.74	
02/28/07	19:23:00	2.72	4.51	47.21	21.12	82.04	
02/28/07	19:23:15	2.71	4.51	47.40	21.12	82.74	
02/28/07	19:23:30	2.69	4.51	47.66	21.12	84.69	
02/28/07	19:23:45	2.69	4.51	47.82	21.17	89.93	
02/28/07	19:24:00	2.70	4.51	47.92	21.22	90.14	
02/28/07	19:24:15	2.78	4.50	47.90	21.22	82.84	
02/28/07	19:24:30	2.74	4.50	47.81	21.22	74.84	
02/28/07	19:24:45	2.68	4.51	47.93	21.28	70.84	
02/28/07	19:25:00	2.64	4.52	48.18	21.19	73.54	
02/28/07	19:25:15	2.61	4.52	48.44	21.19	73.74	
02/28/07	19:25:30	2.61	4.52	48.73	21.17	68.44	
02/28/07	19:25:45	2.60	4.52	48.99	20.87	69.44	
02/28/07	19:26:00	2.58	4.51	49.18	20.82	74.44	
02/28/07	19:26:15	2.61	4.49	49.21	20.82	90.24	
02/28/07	19:26:30	2.62	4.49	49.01	21.02	100.68	
02/28/07	19:26:45	2.73	4.47	48.42	21.09	104.63	
02/28/07	19:27:00	2.74	4.48	47.96	21.02	106.68	
02/28/07	19:27:15	2.72	4.48	47.85	21.02	106.03	
02/28/07	19:27:30	2.75	4.50	48.26	21.09	112.78	
02/28/07	19:27:45	2.78	4.51	43.73	21.02	119.53	
02/28/07	19:28:00	2.73	4.51	42.89	21.02	114.78	
02/28/07	19:28:15	2.75	4.48	43.48	21.02	96.03	
02/28/07	19:28:30	2.70	4.50	44.25	20.89	83.39	
02/28/07	19:28:45	2.65	4.51	45.05	20.74	80.84	
02/28/07	19:29:00	2.62	4.53	45.88	20.94	84.19	
02/28/07	19:29:15	2.65	4.52	45.86	21.02	83.24	
02/28/07	19:29:30	2.71	4.50	45.92	21.12	78.79	
02/28/07	19:29:45	2.69	4.50	46.33	21.12	78.84	
02/28/07	19:30:00	2.67	4.50	46.67	21.02	78.19	
02/28/07	19:30:15	2.68	4.51	47.01	21.02	78.84	
02/28/07	19:30:30	2.62	4.51	47.29	21.08	84.34	
02/28/07	19:30:45	2.65	4.50	47.35	21.02	88.04	
02/28/07	19:31:00	2.68	4.47	47.37	21.02	87.82	
02/28/07	19:31:15	2.65	4.47	47.93	21.02	87.24	
02/28/07	19:31:30	2.63	4.48	46.45	20.92	91.13	
02/28/07	19:31:45	2.65	4.48	48.40	20.92	96.24	End Run 3
02/28/07	19:32:00	2.70	4.49	48.19	20.89	98.69	
02/28/07	19:32:15	2.72	4.47	48.11	20.89	81.14	
02/28/07	19:32:30	3.14	4.75	43.98	20.99	80.19	
02/28/07	19:32:45	4.14	3.79	27.79	20.92	80.34	
02/28/07	19:33:00	1.76	1.26	15.34	14.89	107.23	
02/28/07	19:33:15	0.32	0.25	9.57	7.42	116.13	
02/28/07	19:33:30	0.08	0.11	6.83	1.27	117.58	
02/28/07	19:33:45	0.04	0.09	5.18	0.45	118.43	
02/28/07	19:34:00	0.03	0.07	4.08	0.23	118.79	
02/28/07	19:34:15	0.02	0.07	3.30	0.15	118.83	
02/28/07	19:34:30	0.02	0.08	2.69	0.12	119.03	
02/28/07	19:34:45	0.02	0.08	2.26	0.12	119.33	
02/28/07	19:35:00	0.02	0.05	1.98	0.12	119.54	
02/28/07	19:35:15	0.02	0.05	1.69	0.12	119.63	
02/28/07	19:35:30	0.02	0.05	1.43	0.12	119.84	
02/28/07	19:35:45	0.02	0.04	1.24	0.12	119.83	
02/28/07	19:36:00	0.02	0.04	1.08	0.10	119.68	System Bias
02/28/07	19:36:15	0.02	0.04	0.97	0.02	120.03	120.0ppm CO Injection
02/28/07	19:36:30	0.01	0.03	0.91	0.02	120.24	0.01 % Oxygen
02/28/07	19:36:45	0.01	0.03	0.80	0.03	120.44	0.03 % CO ₂
02/28/07	19:37:00	0.01	0.03	0.70	0.02	120.28	0.02 ppm NO _x
02/28/07	19:37:15	0.01	0.03	0.65	0.02	120.33	120.25 ppm CO
02/28/07	19:37:30	0.01	0.03	0.58	0.02	119.83	
02/28/07	19:37:45	0.01	0.03	0.50	0.02	112.13	
02/28/07	19:38:00	0.04	0.14	0.59	0.02	90.49	
02/28/07	19:38:15	0.58	1.04	0.51	0.10	47.44	
02/28/07	19:38:30	0.48	0.47	0.52	2.77	12.70	
02/28/07	19:38:45	0.09	0.08	0.48	9.17	1.75	
02/28/07	19:39:00	0.02	0.04	0.43	32.16	0.80	
02/28/07	19:39:15	0.01	0.03	0.43	40.41	0.75	
02/28/07	19:39:30	0.01	0.02	0.41	42.06	0.65	
02/28/07	19:39:45	0.01	0.03	0.39	42.44	0.45	System Bias
02/28/07	19:40:00	0.01	0.03	0.35	44.21	0.45	45.0ppm NO _x Injection
02/28/07	19:40:15	0.01	0.03	0.37	44.71	0.45	0.34 ppm SO ₂
02/28/07	19:40:30	0.01	0.02	0.34	44.41	0.45	44.54 ppm NO _x
02/28/07	19:40:45	0.01	0.02	0.31	44.84	0.45	0.45 ppm CO
02/28/07	19:41:00	0.01	0.02	0.31	45.16	5.20	
02/28/07	19:41:15	0.13	0.35	0.29	45.21	6.35	
02/28/07	19:41:30	0.60	0.83	2.73	44.36	2.65	
02/28/07	19:41:45	0.23	0.19	18.29	42.06	0.45	
02/28/07	19:42:00	0.03	0.04	28.06	22.67	0.25	
02/28/07	19:42:15	0.01	0.02	34.31	11.27	0.25	
02/28/07	19:42:30	0.01	0.02	37.49	1.42	0.05	
02/28/07	19:42:45	0.01	0.02	39.52	0.60	0.05	
02/28/07	19:43:00	0.01	0.02	40.89	0.37	0.10	
02/28/07	19:43:15	0.00	0.02	42.88	0.32	0.15	
02/28/07	19:43:30	0.01	0.01	43.44	0.22	0.25	System Bias
02/28/07	19:43:45	0.00	0.01	44.89	0.22	0.15	45.0ppm SO ₂ Injection
02/28/07	19:44:00	0.01	0.02	44.84	0.22	0.05	44.68 ppm SO ₂

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	19:45:15	1.12	2.28	37.89	0.30	19.74	
02/28/07	19:45:30	3.55	5.03	29.28	3.07	3.45	
02/28/07	19:45:45	7.13	8.23	18.71	8.87	-0.25	
02/28/07	19:46:00	9.33	9.72	11.49	4.87	-1.15	
02/28/07	19:46:15	9.77	9.88	8.18	1.60	-1.15	
02/28/07	19:46:30	9.81	9.79	8.15	0.27	-1.35	
02/28/07	19:46:45	9.82	9.81	4.88	0.15	-1.35	
02/28/07	19:47:00	9.83	9.93	3.92	0.12	-1.35	
02/28/07	19:47:15	9.84	10.04	3.30	0.12	-1.35	System Bias
02/28/07	19:47:30	9.85	10.07	2.78	0.12	-1.35	10.0% CO ₂ Injection
02/28/07	19:47:45	9.85	10.07	2.39	0.12	-1.35	10.0% CO ₂
02/28/07	19:48:00	9.85	10.07	2.10	0.12	7.10	
02/28/07	19:48:15	9.85	10.08	1.83	0.05	25.14	
02/28/07	19:48:30	9.99	8.39	1.94	0.07	17.20	
02/28/07	19:48:45	7.53	8.87	2.30	1.05	3.79	
02/28/07	19:49:00	9.29	10.03	2.26	5.37	-0.85	
02/28/07	19:49:15	9.97	10.27	1.91	4.19	-1.30	
02/28/07	19:49:30	10.03	10.30	1.62	0.97	-1.35	
02/28/07	19:49:45	10.03	10.30	1.41	0.27	-1.35	
02/28/07	19:50:00	10.03	10.32	1.22	0.12	-1.35	
02/28/07	19:50:15	10.03	10.33	1.05	0.05	-1.35	
02/28/07	19:50:30	10.04	10.33	0.94	0.02	-1.35	System Bias
02/28/07	19:50:45	10.04	10.33	0.91	0.02	-1.35	10.0% Oxygen Injection
02/28/07	19:51:00	10.04	10.32	0.83	0.02	-1.35	10.0% Oxygen
02/28/07	19:51:15	10.04	10.31	0.81	0.02	-1.35	
02/28/07	19:51:30	10.04	10.32	0.74	0.02	-1.35	
02/28/07	19:51:45	10.04	10.32	0.68	0.02	-1.35	
02/28/07	19:52:00	10.04	10.33	0.66	0.02	-1.35	
02/28/07	19:52:15	10.04	10.32	0.65	0.02	-1.35	
02/28/07	19:52:30	10.04	10.33	0.61	0.02	-1.31	
02/28/07	19:52:45	10.04	10.31	0.53	0.02	-1.20	
02/28/07	19:53:00	10.05	10.32	0.56	0.02	9.85	
02/28/07	19:53:15	9.90	9.68	0.70	0.02	32.80	
02/28/07	19:53:30	7.17	6.53	5.42	0.72	54.05	
02/28/07	19:53:45	3.47	4.88	19.19	4.12	65.59	
02/28/07	19:54:00	2.77	4.59	27.74	13.47	67.70	
02/28/07	19:54:15	2.74	4.54	32.13	18.63	70.99	
02/28/07	19:54:30	2.75	4.51	35.11	20.47	75.55	
02/28/07	19:54:45	2.75	4.51	38.12	20.81	82.74	
02/28/07	19:55:00	2.73	4.51	40.87	20.82	87.29	
02/28/07	19:55:15	2.77	4.50	42.24	20.82	87.44	
02/28/07	19:55:30	2.77	4.50	43.58	20.82	84.04	
02/28/07	19:55:45	2.81	4.48	44.75	20.84	80.74	
02/28/07	19:56:00	2.79	4.49	45.60	20.82	83.24	Start Run 4
02/28/07	19:56:15	2.78	4.50	46.41	20.84	82.49	
02/28/07	19:56:30	2.78	4.51	47.05	20.97	80.14	
02/28/07	19:56:45	2.69	4.53	47.58	20.82	76.54	
02/28/07	19:57:00	2.70	4.51	47.73	20.77	74.94	
02/28/07	19:57:15	2.71	4.50	47.80	20.74	79.90	
02/28/07	19:57:30	2.70	4.49	48.15	20.82	90.24	
02/28/07	19:57:45	2.74	4.47	48.54	20.89	93.24	
02/28/07	19:58:00	2.78	4.48	48.93	20.82	101.58	
02/28/07	19:58:15	2.72	4.48	49.16	20.89	108.33	
02/28/07	19:58:30	2.78	4.47	49.16	20.82	111.43	
02/28/07	19:58:45	2.79	4.48	49.94	20.72	111.43	
02/28/07	19:59:00	2.82	4.45	49.70	20.87	112.48	
02/28/07	19:59:15	2.93	4.45	49.70	20.74	112.33	
02/28/07	19:59:30	2.84	4.44	49.92	20.87	114.68	
02/28/07	19:59:45	2.78	4.45	49.82	20.89	121.28	
02/28/07	20:00:00	2.85	4.44	49.49	20.82	106.88	
02/28/07	20:00:15	2.88	4.48	49.15	20.82	92.48	
02/28/07	20:00:30	2.74	4.49	49.25	20.87	83.80	
02/28/07	20:00:45	2.70	4.50	48.44	21.04	80.79	
02/28/07	20:01:00	2.68	4.50	48.82	21.17	92.94	
02/28/07	20:01:15	2.87	4.50	48.72	21.22	90.14	
02/28/07	20:01:30	2.71	4.49	48.74	21.17	80.94	
02/28/07	20:01:45	2.74	4.49	48.72	21.02	87.59	
02/28/07	20:02:00	2.59	4.52	49.02	20.97	72.69	
02/28/07	20:02:15	2.59	4.50	49.38	20.92	81.44	
02/28/07	20:02:30	2.72	4.47	49.31	20.92	86.54	
02/28/07	20:02:45	2.74	4.47	49.20	20.94	85.79	
02/28/07	20:03:00	2.73	4.48	49.21	21.07	83.79	
02/28/07	20:03:15	2.68	4.49	49.13	21.02	79.44	
02/28/07	20:03:30	2.65	4.50	49.12	21.02	80.49	
02/28/07	20:03:45	2.80	4.51	48.15	21.04	88.44	
02/28/07	20:04:00	2.88	4.51	48.05	21.12	85.59	
02/28/07	20:04:15	2.72	4.50	48.09	21.02	105.18	
02/28/07	20:04:30	2.77	4.48	48.34	21.02	106.68	
02/28/07	20:04:45	2.79	4.48	47.48	21.02	95.94	
02/28/07	20:05:00	2.72	4.47	47.07	21.07	92.94	
02/28/07	20:05:15	2.64	4.48	47.05	21.12	94.44	
02/28/07	20:05:30	2.87	4.47	47.12	21.07	92.74	
02/28/07	20:05:45	2.89	4.47	47.20	21.02	90.19	
02/28/07	20:06:00	2.88	4.48	47.30	21.02	91.48	
02/28/07	20:06:15	2.66	4.48	47.42	20.99	95.69	
02/28/07	20:06:30	2.69	4.47	47.50	20.97	104.33	
02/28/07	20:06:45	2.71	4.48	47.47	21.12	113.83	
02/28/07	20:07:00	2.75	4.47	47.37	21.07	117.13	
02/28/07	20:07:15	2.77	4.48	47.25	20.99	117.68	
02/28/07	20:07:30	2.79	4.47	48.94	20.97	111.08	
02/28/07	20:07:45	2.78	4.47	48.84	21.12	108.14	
02/28/07	20:08:00	2.72	4.48	48.91	21.07	105.28	
02/28/07	20:08:15	2.71	4.47	47.11	21.12	109.78	
02/28/07	20:08:30	2.71	4.48	47.30	21.12	115.33	
02/28/07	20:08:45	2.77	4.44	47.12	21.12	113.68	
02/28/07	20:09:00	2.77	4.45	48.97	21.12	109.88	
02/28/07	20:09:15	2.75	4.48	48.95	21.02	108.58	
02/28/07	20:09:30	2.78	4.45	48.89	21.02	105.23	
02/28/07	20:09:45	2.78	4.45	49.24	21.04	101.83	
02/28/07	20:10:00	2.78	4.46	48.11	21.12	100.90	
02/28/07	20:10:15	2.75	4.47	48.43	21.12	96.54	
02/28/07	20:10:30	2.77	4.47	46.85	21.12	92.96	
02/28/07	20:10:45	2.73	4.49	48.60	21.14	88.44	
02/28/07	20:11:00	2.74	4.49	48.76	21.27	78.61	
02/28/07	20:11:15	2.68	4.49	48.03	21.22	78.99	
02/28/07	20:11:30	2.58	4.49	47.78	21.22	83.78	
02/28/07	20:11:45	2.83	4.47	47.59	21.19	92.74	
02/28/07	20:12:00	2.87	4.48	47.38	21.02	99.83	
02/28/07	20:12:15	2.72	4.45	47.26	20.82	89.43	
02/28/07	20:12:30	2.71	4.45	47.14	20.92	95.34	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/26/07	20:13:45	2.73	4.44	47.02	20.89	129.53	
02/26/07	20:14:00	2.74	4.44	46.71	20.82	134.83	
02/26/07	20:14:15	2.78	4.44	46.40	20.84	145.27	
02/26/07	20:14:30	2.78	4.44	46.00	20.87	147.23	
02/26/07	20:14:45	2.85	4.42	45.78	20.82	135.33	
02/26/07	20:15:00	2.79	4.48	45.84	20.77	135.63	
02/26/07	20:15:15	2.72	4.48	45.59	20.84	134.28	
02/26/07	20:15:30	2.78	4.47	45.43	20.92	123.23	
02/26/07	20:15:45	2.73	4.48	45.31	20.92	118.48	
02/26/07	20:16:00	2.71	4.47	45.21	20.92	115.83	
02/26/07	20:16:15	2.68	4.47	45.35	21.02	113.78	
02/26/07	20:16:30	2.68	4.48	45.50	21.02	112.23	
02/26/07	20:16:45	2.71	4.48	45.33	20.92	108.33	
02/26/07	20:17:00	2.68	4.45	45.29	20.97	101.13	
02/26/07	20:17:15	2.67	4.48	45.36	21.02	104.23	
02/26/07	20:17:30	2.85	4.48	46.00	20.95	113.73	
02/26/07	20:17:45	2.71	4.48	46.74	20.94	114.58	
02/26/07	20:18:00	2.73	4.48	46.66	21.08	108.23	
02/26/07	20:18:15	2.74	4.47	46.11	21.02	103.78	
02/26/07	20:18:30	2.71	4.48	45.72	21.02	102.73	
02/26/07	20:18:45	2.68	4.48	45.56	21.12	104.03	
02/26/07	20:18:00	2.69	4.48	45.59	21.04	107.23	
02/26/07	20:19:15	2.70	4.48	45.49	20.99	103.19	
02/26/07	20:19:30	2.68	4.47	45.39	20.92	91.44	
02/26/07	20:19:45	2.68	4.48	45.16	20.92	78.29	
02/26/07	20:20:00	2.63	4.48	45.35	20.84	78.54	
02/26/07	20:20:15	2.49	4.52	45.99	20.82	83.74	
02/26/07	20:20:30	2.53	4.50	46.39	20.82	121.73	
02/26/07	20:20:45	2.62	4.47	46.28	20.92	130.78	
02/26/07	20:21:00	2.74	4.44	45.58	20.92	125.03	
02/26/07	20:21:15	2.77	4.44	44.67	20.79	116.03	
02/26/07	20:21:30	2.73	4.45	44.58	20.78	103.83	
02/26/07	20:21:45	2.85	4.47	44.83	20.92	96.69	
02/26/07	20:22:00	2.58	4.49	44.91	20.92	104.73	
02/26/07	20:22:15	2.53	4.49	45.26	20.92	115.48	
02/26/07	20:22:30	2.64	4.48	45.15	20.84	118.43	
02/26/07	20:22:45	2.73	4.43	44.85	20.84	114.88	
02/26/07	20:23:00	2.71	4.44	44.85	20.92	113.43	
02/26/07	20:23:15	2.63	4.47	45.09	20.92	111.68	
02/26/07	20:23:30	2.60	4.48	45.92	20.92	117.33	
02/26/07	20:23:45	2.60	4.49	46.53	20.92	125.43	
02/26/07	20:24:00	2.65	4.47	46.28	20.99	127.13	
02/26/07	20:24:15	2.68	4.48	46.14	20.92	131.33	
02/26/07	20:24:30	2.70	4.45	46.33	20.84	139.32	
02/26/07	20:24:45	2.75	4.44	45.62	20.84	138.67	
02/26/07	20:25:00	2.78	4.44	45.14	20.92	134.03	
02/26/07	20:25:15	2.74	4.45	44.63	21.02	122.68	
02/26/07	20:25:30	2.74	4.45	44.14	21.02	108.63	
02/26/07	20:25:45	2.81	4.48	44.13	21.02	108.93	
02/26/07	20:26:00	2.59	4.49	44.34	20.94	107.43	
02/26/07	20:26:15	2.61	4.50	44.53	21.04	108.23	
02/26/07	20:26:30	2.83	4.49	44.53	21.04	109.43	
02/26/07	20:26:45	2.68	4.47	44.29	21.04	101.63	
02/26/07	20:27:00	2.72	4.48	44.04	21.12	85.54	
02/26/07	20:27:15	2.61	4.50	44.05	21.12	85.69	
02/26/07	20:27:30	2.57	4.51	44.21	21.12	90.24	
02/26/07	20:27:45	2.61	4.49	44.44	21.14	88.04	
02/26/07	20:28:00	2.59	4.48	44.63	21.29	68.14	
02/26/07	20:28:15	2.61	4.48	44.61	21.19	89.48	
02/26/07	20:28:30	2.65	4.45	44.69	21.12	90.24	
02/26/07	20:28:45	2.64	4.48	44.89	21.14	92.59	
02/26/07	20:29:00	2.61	4.47	45.08	21.22	91.04	
02/26/07	20:29:15	2.62	4.48	44.88	21.09	83.14	
02/26/07	20:29:30	2.57	4.47	44.89	21.09	84.14	
02/26/07	20:29:45	2.54	4.48	45.04	21.12	88.84	
02/26/07	20:30:00	2.56	4.49	45.12	21.12	97.84	
02/26/07	20:30:15	2.54	4.49	45.20	21.12	103.28	
02/26/07	20:30:30	2.55	4.49	45.28	21.04	113.63	
02/26/07	20:30:45	2.61	4.48	45.12	21.02	118.48	
02/26/07	20:31:00	2.68	4.44	44.72	21.02	113.63	
02/26/07	20:31:15	2.72	4.45	44.45	20.92	118.68	
02/26/07	20:31:30	2.70	4.47	44.37	20.99	120.63	
02/26/07	20:31:45	2.75	4.45	44.14	21.12	109.13	
02/26/07	20:32:00	2.72	4.44	43.99	21.04	88.84	
02/26/07	20:32:15	2.57	4.46	44.12	20.99	91.49	
02/26/07	20:32:30	2.56	4.47	44.10	20.84	102.44	
02/26/07	20:32:45	2.63	4.45	43.92	20.82	108.88	
02/26/07	20:33:00	2.67	4.44	43.57	20.89	111.83	
02/26/07	20:33:15	2.70	4.43	43.22	20.92	113.63	
02/26/07	20:33:30	2.68	4.43	43.26	20.92	120.53	
02/26/07	20:33:45	2.68	4.44	43.58	20.92	132.28	
02/26/07	20:34:00	2.70	4.44	43.75	20.99	155.83	
02/26/07	20:34:15	2.74	4.44	43.81	20.92	162.70	
02/26/07	20:34:30	2.79	4.44	43.63	20.92	155.03	
02/26/07	20:34:45	2.78	4.43	43.35	20.89	146.12	
02/26/07	20:35:00	2.78	4.43	43.35	20.82	144.33	
02/26/07	20:35:15	2.74	4.44	43.72	20.94	148.07	
02/26/07	20:35:30	2.78	4.43	43.96	20.94	137.13	
02/26/07	20:35:45	2.79	4.43	43.96	20.92	129.73	
02/26/07	20:36:00	2.74	4.45	44.15	20.92	126.13	
02/26/07	20:36:15	2.79	4.43	44.25	20.92	120.78	
02/26/07	20:36:30	2.80	4.43	44.19	20.99	115.43	
02/26/07	20:36:45	2.82	4.42	44.13	21.04	103.78	
02/26/07	20:37:00	2.78	4.44	44.35	21.19	95.84	
02/26/07	20:37:15	2.68	4.46	44.81	21.12	94.84	
02/26/07	20:37:30	2.68	4.46	44.63	21.04	93.44	
02/26/07	20:37:45	2.72	4.43	45.14	20.92	84.14	
02/26/07	20:38:00	2.71	4.43	45.34	20.92	78.74	
02/26/07	20:38:15	2.65	4.45	45.52	20.92	63.59	
02/26/07	20:38:30	2.83	4.45	45.96	20.92	96.34	
02/26/07	20:38:45	2.65	4.45	46.38	20.92	109.83	
02/26/07	20:39:00	2.73	4.44	46.50	20.92	119.03	
02/26/07	20:39:15	2.78	4.43	46.34	20.92	118.28	
02/26/07	20:39:30	2.84	4.41	45.68	20.99	117.23	
02/26/07	20:39:45	2.79	4.42	45.58	20.97	121.13	
02/26/07	20:40:00	2.75	4.42	45.49	20.92	123.63	
02/26/07	20:40:15	2.78	4.42	45.44	20.82	118.48	
02/26/07	20:40:30	2.79	4.43	45.37	20.64	108.93	
02/26/07	20:40:45	2.74	4.43	45.41	20.62	108.73	
02/26/07	20:41:00	2.71	4.43	45.48	20.89	104.33	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	20:42:30	2.68	4.42	45.82	20.74	124.83	
02/28/07	20:42:45	2.67	4.41	45.87	20.77	137.28	
02/28/07	20:43:00	2.68	4.41	45.73	20.82	147.72	
02/28/07	20:43:15	2.78	4.40	45.80	20.82	150.83	
02/28/07	20:43:30	2.74	4.41	45.43	20.82	161.02	
02/28/07	20:43:45	2.75	4.41	45.11	20.82	168.77	
02/28/07	20:44:00	2.82	4.40	44.90	20.82	169.32	
02/28/07	20:44:15	2.80	4.41	45.15	20.92	167.82	
02/28/07	20:44:30	2.77	4.42	45.31	20.92	160.32	
02/28/07	20:44:45	2.79	4.43	45.24	20.92	150.13	
02/28/07	20:45:00	2.74	4.45	45.31	20.92	143.32	
02/28/07	20:45:15	2.73	4.45	45.12	20.82	137.83	
02/28/07	20:45:30	2.78	4.43	44.97	20.89	125.83	
02/28/07	20:45:45	2.78	4.43	44.90	21.02	108.28	
02/28/07	20:46:00	2.72	4.44	44.88	21.02	91.94	
02/28/07	20:46:15	2.85	4.48	45.11	21.02	86.89	
02/28/07	20:46:30	2.58	4.47	45.57	21.02	88.94	
02/28/07	20:46:45	2.60	4.48	46.04	20.97	91.89	
02/28/07	20:47:00	2.64	4.44	46.89	21.02	93.44	
02/28/07	20:47:15	2.66	4.43	48.82	20.87	104.48	
02/28/07	20:47:30	2.67	4.43	48.78	20.92	118.43	
02/28/07	20:47:45	2.70	4.42	48.73	20.92	132.53	
02/28/07	20:48:00	2.70	4.41	48.83	20.92	143.52	
02/28/07	20:48:15	2.74	4.40	48.41	20.87	148.48	
02/28/07	20:48:30	2.74	4.41	48.20	20.82	149.93	
02/28/07	20:48:45	2.78	4.41	48.05	20.77	144.13	
02/28/07	20:49:00	2.73	4.42	48.13	20.89	140.22	
02/28/07	20:49:15	2.69	4.43	48.42	20.82	139.72	
02/28/07	20:49:30	2.73	4.42	48.36	20.82	136.73	
02/28/07	20:49:45	2.73	4.42	48.09	20.87	134.03	
02/28/07	20:50:00	2.71	4.43	48.08	21.02	133.43	
02/28/07	20:50:15	2.70	4.44	45.88	20.87	129.23	
02/28/07	20:50:30	2.69	4.44	45.85	20.92	124.13	
02/28/07	20:50:45	2.68	4.44	45.72	20.92	117.23	
02/28/07	20:51:00	2.67	4.44	45.52	20.89	114.43	
02/28/07	20:51:15	2.83	4.44	45.53	21.02	116.18	
02/28/07	20:51:30	2.84	4.44	45.78	21.02	114.93	
02/28/07	20:51:45	2.82	4.45	45.93	20.87	118.63	
02/28/07	20:52:00	2.60	4.48	46.01	20.84	120.83	
02/28/07	20:52:15	2.82	4.45	45.88	20.87	123.53	
02/28/07	20:52:30	2.82	4.45	45.83	20.84	128.13	
02/28/07	20:52:45	2.65	4.44	45.82	20.92	131.28	
02/28/07	20:53:00	2.71	4.43	45.73	20.92	131.43	
02/28/07	20:53:15	2.70	4.44	45.76	20.92	135.83	
02/28/07	20:53:30	2.68	4.45	45.78	20.92	141.82	
02/28/07	20:53:45	2.68	4.44	45.81	20.87	140.47	
02/28/07	20:54:00	2.71	4.44	45.78	20.92	131.23	
02/28/07	20:54:15	2.68	4.48	45.81	20.87	128.84	
02/28/07	20:54:30	2.83	4.47	45.96	20.90	124.37	
02/28/07	20:54:45	2.67	4.48	45.94	21.02	118.23	
02/28/07	20:55:00	2.68	4.47	45.84	21.02	117.53	
02/28/07	20:55:15	2.68	4.47	44.96	21.12	115.38	
02/28/07	20:55:30	2.68	4.48	44.83	21.18	117.33	
02/28/07	20:55:45	2.64	4.49	44.81	21.22	112.83	End Run 4
02/28/07	20:56:00	2.65	4.48	45.11	21.22	105.33	
02/28/07	20:56:15	2.65	4.48	45.03	21.12	80.44	
02/28/07	20:56:30	3.35	4.86	38.71	21.12	81.54	
02/28/07	20:56:45	3.77	3.12	23.78	19.27	83.09	
02/28/07	20:57:00	1.21	0.84	13.80	13.29	111.73	
02/28/07	20:57:15	0.20	0.19	9.18	4.82	117.43	
02/28/07	20:57:30	0.08	0.10	8.75	1.12	118.23	
02/28/07	20:57:45	0.04	0.08	5.14	0.27	118.68	
02/28/07	20:58:00	0.03	0.07	3.97	0.20	118.93	
02/28/07	20:58:15	0.02	0.06	3.19	0.12	119.28	System Bias
02/28/07	20:58:30	0.02	0.08	2.64	0.12	118.53	120.0ppm CO Injection
02/28/07	20:58:45	0.02	0.05	2.20	0.12	118.88	0.02 % Oxygen
02/28/07	20:59:00	0.02	0.05	1.92	0.12	118.83	0.05 % CO ₂
02/28/07	20:59:15	0.02	0.05	1.60	0.12	120.03	0.12 ppm NO _x
02/28/07	20:59:30	0.02	0.06	1.35	0.12	119.53	119.84 ppm CO
02/28/07	20:59:45	0.01	0.04	1.25	0.12	104.33	
02/28/07	21:00:00	0.13	0.40	1.04	0.12	77.04	
02/28/07	21:00:15	0.88	1.03	0.93	0.07	23.54	
02/28/07	21:00:30	0.28	0.28	0.91	4.84	5.25	
02/28/07	21:00:45	0.04	0.06	0.88	16.27	1.15	
02/28/07	21:01:00	0.01	0.04	0.80	34.74	0.75	
02/28/07	21:01:15	0.01	0.04	0.74	40.71	0.65	
02/28/07	21:01:30	0.01	0.04	0.65	43.04	0.65	
02/28/07	21:01:45	0.01	0.03	0.80	43.81	0.80	
02/28/07	21:02:00	0.01	0.03	0.55	44.16	0.45	System Bias
02/28/07	21:02:15	0.01	0.03	0.53	44.81	0.45	45.0ppm NO _x Injection
02/28/07	21:02:30	0.01	0.03	0.48	44.84	0.55	0.48 ppm SO ₂
02/28/07	21:02:45	0.01	0.03	0.47	44.78	0.60	44.88 ppm NO _x
02/28/07	21:03:00	0.01	0.03	0.47	45.02	0.30	0.47 ppm CO
02/28/07	21:03:15	0.01	0.03	0.39	45.11	0.40	
02/28/07	21:03:30	0.78	0.02	0.37	45.11	0.85	
02/28/07	21:03:45	4.05	0.03	2.77	43.98	0.80	
02/28/07	21:04:00	1.52	0.03	16.38	37.99	0.30	
02/28/07	21:04:15	0.15	0.03	28.85	24.42	0.25	
02/28/07	21:04:30	0.02	0.02	35.15	8.57	0.10	
02/28/07	21:04:45	0.01	0.02	38.70	1.72	0.25	
02/28/07	21:05:00	0.01	0.02	40.72	0.50	0.10	
02/28/07	21:05:15	0.01	0.02	42.05	0.37	0.25	
02/28/07	21:05:30	0.01	0.02	42.88	0.30	0.25	
02/28/07	21:05:45	0.01	0.02	43.36	0.22	0.05	
02/28/07	21:06:00	0.01	0.02	43.74	0.22	0.05	
02/28/07	21:06:15	0.01	0.02	44.02	0.22	0.10	System Bias
02/28/07	21:06:30	0.01	0.02	44.28	0.12	0.10	45.0ppm SO ₂ Injection
02/28/07	21:06:45	0.00	0.02	44.47	0.12	0.20	44.51 ppm SO ₂
02/28/07	21:07:00	0.00	0.02	44.59	0.12	0.05	
02/28/07	21:07:15	0.00	0.02	44.71	0.12	0.30	
02/28/07	21:07:30	0.47	0.02	43.40	0.12	1.80	
02/28/07	21:07:45	4.78	1.04	33.84	0.12	1.35	
02/28/07	21:08:00	7.52	5.65	23.50	0.16	-0.30	
02/28/07	21:08:15	8.97	8.79	14.23	0.27	-1.20	
02/28/07	21:08:30	9.72	9.82	9.16	0.22	-1.35	
02/28/07	21:08:45	9.81	9.83	8.62	0.17	-1.35	
02/28/07	21:09:00	9.82	9.80	5.05	0.12	-1.35	
02/28/07	21:09:15	9.83	9.86	4.08	0.12	-1.35	
02/28/07	21:09:30	9.84	9.89	3.33	0.10	-1.35	
02/28/07	21:09:45	9.85	10.07	2.81	0.02	-1.55	
02/28/07	21:10:00	9.85	10.07	2.81	0.02	-1.55	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/20/07	21:11:00	9.86	10.14	1.41	0.02	-1.50	
02/20/07	21:11:15	9.87	10.14	1.28	0.02	-1.55	
02/20/07	21:11:30	9.87	10.16	1.18	0.02	-1.55	
02/20/07	21:11:45	9.87	10.16	1.10	0.02	-1.50	
02/20/07	21:12:00	9.87	10.13	0.99	0.02	-0.30	
02/20/07	21:12:15	11.29	7.58	0.89	0.02	0.34	
02/20/07	21:12:30	13.02	7.87	0.79	0.02	-0.70	
02/20/07	21:12:45	10.92	9.88	0.77	0.02	-1.55	
02/20/07	21:13:00	10.16	10.31	0.67	0.10	-1.55	
02/20/07	21:13:15	10.08	10.34	0.67	0.02	-1.55	
02/20/07	21:13:30	10.05	10.36	0.61	0.02	-1.40	System Bias
02/20/07	21:13:45	10.05	10.35	0.54	0.02	-1.55	10.0% Oxygen Injection
02/20/07	21:14:00	10.05	10.35	0.52	0.02	-1.55	10.05 % Oxygen
02/20/07	21:14:15	10.05	10.38	0.53	0.02	-1.55	
02/20/07	21:14:30	10.05	10.37	0.50	0.02	-1.55	
02/20/07	21:14:45	10.05	10.37	0.52	0.02	-1.45	
02/20/07	21:15:00	10.05	10.37	0.47	0.02	-1.50	
02/20/07	21:15:15	10.13	10.00	0.47	0.02	-1.15	
02/21/07	5:33:00	20.92	20.92	0.17	0.02	-1.05	DAY-2
02/21/07	5:33:15	20.92	0.06	0.18	0.02	0.95	
02/21/07	5:33:30	20.92	0.05	0.20	0.02	0.85	
02/21/07	5:33:45	20.92	0.06	0.19	0.02	0.65	
02/21/07	5:34:00	20.45	0.06	0.21	0.02	-0.50	
02/21/07	5:34:15	11.68	0.04	0.20	0.02	-1.05	
02/21/07	5:34:30	2.11	0.02	0.16	0.02	-1.35	
02/21/07	5:34:45	0.22	0.01	0.17	0.02	-1.35	
02/21/07	5:35:00	0.05	0.01	0.14	0.02	-1.35	
02/21/07	5:35:15	0.03	0.01	0.11	0.02	-1.35	
02/21/07	5:35:30	0.02	0.01	0.14	0.02	-0.35	Calibration Error
02/21/07	5:36:45	0.02	0.01	0.18	0.02	-0.15	Zero Nitrogen Injection
02/21/07	5:38:00	0.01	0.01	0.20	0.02	-0.15	0.01 % Oxygen
02/21/07	5:38:15	0.01	0.01	0.20	0.02	-0.15	0.01 % CO ₂
02/21/07	5:38:30	0.01	0.01	0.11	0.02	0.05	0.17 ppm SO ₂
02/21/07	5:38:45	0.00	0.01	0.14	0.02	0.05	0.02 ppm NO _x
02/21/07	5:37:00	0.01	0.01	0.11	0.02	0.60	-0.10 ppm CO
02/21/07	5:37:15	2.58	1.34	0.14	0.07	-0.05	
02/21/07	5:37:30	11.72	9.05	0.15	0.12	-1.30	
02/21/07	5:37:45	18.93	14.89	0.18	8.22	-1.95	
02/21/07	5:38:00	19.19	18.01	0.19	8.77	-2.40	
02/21/07	5:38:15	19.84	19.85	0.19	3.97	-2.55	
02/21/07	5:38:30	20.00	21.07	0.14	1.27	-2.55	Calibration Error
02/21/07	5:38:45	20.04	21.41	0.17	0.27	-2.45	20.0% Oxygen Injection
02/21/07	5:39:00	20.85	21.51	0.16	0.04	-2.40	20.04 % Oxygen
02/21/07	5:39:15	20.05	21.58	0.14	0.02	-2.55	
02/21/07	5:39:30	20.05	21.58	0.16	0.02	-2.55	
02/21/07	5:39:45	20.05	21.61	0.14	0.02	-2.45	
02/21/07	5:40:00	19.34	19.78	0.16	0.02	-2.10	
02/21/07	5:40:15	14.93	14.45	0.18	0.02	-1.95	
02/21/07	5:40:30	11.29	11.25	0.18	0.02	-1.95	
02/21/07	5:40:45	10.25	10.53	0.21	0.02	-1.95	
02/21/07	5:41:00	10.16	10.48	0.14	0.02	-1.90	Calibration Error
02/21/07	5:41:15	10.15	10.48	0.17	0.02	-1.85	10.0% Oxygen Injection
02/21/07	5:41:30	10.15	10.48	0.18	0.02	-2.10	10.15 % Oxygen
02/21/07	5:41:45	10.15	10.48	0.18	0.02	-1.95	
02/21/07	5:42:00	10.15	10.45	0.09	0.02	-1.45	
02/21/07	5:42:15	10.42	9.85	0.21	0.02	-0.95	
02/21/07	5:42:30	13.37	6.50	0.33	0.02	-0.55	
02/21/07	5:42:45	15.85	5.14	0.47	8.22	0.05	
02/21/07	5:43:00	18.07	4.91	0.53	16.31	0.80	
02/21/07	5:43:15	17.26	10.34	0.43	28.58	-0.55	
02/21/07	5:43:30	18.07	18.85	0.34	29.01	-1.95	
02/21/07	5:43:45	19.69	20.16	0.24	17.81	-2.45	
02/21/07	5:44:00	19.75	21.14	0.22	9.79	-2.85	
02/21/07	5:44:15	19.74	21.20	0.14	2.12	-2.45	
02/21/07	5:44:30	19.73	21.27	0.16	0.82	-2.55	
02/21/07	5:44:45	19.73	21.30	0.15	0.17	-2.55	Calibration Error
02/21/07	5:45:00	19.72	19.98	0.15	0.12	-2.70	20.0% CO ₂ Injection
02/21/07	5:45:15	19.72	19.97	0.17	0.02	-2.55	19.98 % CO ₂
02/21/07	5:45:30	19.72	19.98	0.21	0.02	-2.55	
02/21/07	5:45:45	19.72	19.99	0.22	0.02	-2.55	
02/21/07	5:46:00	19.71	19.99	0.21	0.02	-2.35	
02/21/07	5:46:15	18.63	17.68	0.24	0.02	-2.15	
02/21/07	5:46:30	14.04	12.83	0.24	0.02	-1.95	
02/21/07	5:46:45	10.83	10.22	0.24	0.02	-1.95	Calibration Error
02/21/07	5:47:00	10.05	9.95	0.21	0.02	-1.95	10.0% CO ₂ Injection
02/21/07	5:47:15	10.00	9.96	0.22	0.02	-1.95	9.95 % CO ₂
02/21/07	5:47:30	9.99	9.94	0.21	0.02	-1.95	
02/21/07	5:47:45	9.99	9.95	0.13	0.02	-1.95	
02/21/07	5:48:00	9.99	9.93	0.18	0.02	-1.90	
02/21/07	5:48:15	9.99	9.94	0.22	0.02	-1.85	
02/21/07	5:48:30	9.33	8.38	0.53	0.14	-1.05	
02/21/07	5:48:45	4.88	3.71	0.59	0.57	-0.55	
02/21/07	5:49:00	1.13	0.77	0.45	32.34	-0.15	
02/21/07	5:49:15	0.11	0.15	0.31	68.51	-0.15	
02/21/07	5:49:30	0.02	0.10	0.27	80.31	-0.15	
02/21/07	5:49:45	0.01	0.08	0.24	85.11	-0.25	
02/21/07	5:50:00	0.01	0.08	0.25	87.60	-0.15	
02/21/07	5:50:15	0.01	0.07	0.30	89.38	-0.15	
02/21/07	5:50:30	0.00	0.06	0.25	90.08	-0.15	
02/21/07	5:50:45	0.00	0.06	0.16	90.40	-0.25	Calibration Error
02/21/07	5:51:00	0.00	0.06	0.22	90.58	-0.35	89.99ppm NO _x Injection
02/21/07	5:51:15	0.00	0.05	0.19	90.61	-0.25	90.60 ppm NO _x
02/21/07	5:51:30	0.00	0.05	0.29	90.61	-0.20	
02/21/07	5:51:45	0.00	0.05	0.24	90.69	-0.35	
02/21/07	5:52:00	0.00	0.06	0.23	90.61	-0.40	
02/21/07	5:52:15	0.01	0.06	0.24	87.55	-0.45	
02/21/07	5:52:30	0.00	0.04	0.31	78.53	-0.35	
02/21/07	5:52:45	-0.01	0.04	0.28	58.78	-0.35	
02/21/07	5:53:00	-0.01	0.04	0.21	47.78	-0.35	
02/21/07	5:53:15	-0.01	0.04	0.21	48.01	-0.45	
02/21/07	5:53:30	-0.01	0.03	0.27	45.68	-0.50	Calibration Error
02/21/07	5:53:45	-0.01	0.03	0.23	45.28	-0.35	45.0ppm NO _x Injection
02/21/07	5:54:00	-0.01	0.03	0.26	45.28	-0.35	45.28 ppm NO _x
02/21/07	5:54:15	-0.01	0.03	0.25	45.29	-0.47	
02/21/07	5:54:30	-0.01	0.03	0.25	45.21	-0.35	
02/21/07	5:54:45	-0.01	0.03	0.27	45.16	-0.35	
02/21/07	5:55:00	0.00	0.04	0.24	45.51	-0.50	
02/21/07	5:55:15	0.00	0.04	0.24	40.81	-0.35	
02/21/07	5:55:30	-0.01	0.03	0.27	28.31	-0.55	
02/21/07	5:55:45	-0.01	0.02	0.26	22.08	-0.40	
02/21/07	5:56:00	0.00	0.02	0.26	22.08	-0.55	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	5:57:15	-0.01	0.02	2.95	20.01	-0.50	
02/27/07	5:57:30	0.06	0.02	47.50	19.99	-0.55	
02/27/07	5:57:45	0.09	0.02	81.33	19.91	-0.70	
02/27/07	5:58:00	0.01	0.02	88.49	12.89	-0.70	
02/27/07	5:58:15	-0.01	0.02	90.09	4.57	-0.55	
02/27/07	5:58:30	-0.01	0.02	90.69	1.24	-0.50	
02/27/07	5:58:45	-0.01	0.02	91.00	0.32	-0.51	
02/27/07	5:59:00	-0.01	0.02	91.14	0.22	-0.80	
02/27/07	5:59:15	-0.01	0.02	91.15	0.22	-0.80	
02/27/07	5:59:30	-0.01	0.02	91.23	0.19	-0.55	
02/27/07	5:59:45	-0.01	0.02	89.52	0.12	-0.55	Calibration Error
02/27/07	6:00:00	-0.02	0.02	88.93	0.12	-0.80	88.57ppm SO ₂ Injection
02/27/07	6:00:15	-0.01	0.01	88.99	0.12	-0.80	88.99 % SO ₂ Injection
02/27/07	6:00:30	-0.02	0.01	89.02	0.12	-0.55	
02/27/07	6:00:45	-0.01	0.01	89.03	0.12	-0.55	
02/27/07	6:01:00	-0.02	0.01	85.45	0.12	-0.55	
02/27/07	6:01:15	-0.01	0.02	82.06	0.12	-0.55	
02/27/07	6:01:30	-0.01	0.02	48.68	0.12	-0.85	
02/27/07	6:01:45	-0.01	0.01	48.18	0.17	-0.70	
02/27/07	6:02:00	-0.01	0.01	45.55	0.14	-0.80	
02/27/07	6:02:15	-0.02	0.01	45.38	0.12	-0.80	
02/27/07	6:02:30	-0.02	0.01	45.29	0.04	-0.75	Calibration Error
02/27/07	6:02:45	-0.02	0.01	45.20	0.02	-0.75	45.0ppm SO ₂ Injection
02/27/07	6:03:00	-0.01	0.01	45.19	0.02	-0.75	45.19 % SO ₂ Injection
02/27/07	6:03:15	-0.02	0.01	45.16	0.02	-0.75	
02/27/07	6:03:30	-0.02	0.01	45.19	0.02	-0.80	
02/27/07	6:03:45	-0.02	0.01	41.24	0.02	-0.75	
02/27/07	6:04:00	-0.01	0.01	26.32	0.02	-0.75	
02/27/07	6:04:15	-0.01	0.01	21.77	0.07	-0.75	
02/27/07	6:04:30	-0.02	0.01	21.12	0.12	-0.70	
02/27/07	6:04:45	-0.02	0.01	20.21	0.07	-0.70	Calibration Error
02/27/07	6:05:00	-0.02	0.01	20.12	0.02	-0.75	20.0ppm SO ₂ Injection
02/27/07	6:05:15	-0.02	0.01	20.08	0.02	-0.75	20.07 % SO ₂ Injection
02/27/07	6:05:30	-0.02	0.01	20.08	0.02	-0.50	
02/27/07	6:05:45	-0.02	0.01	20.02	0.02	29.19	
02/27/07	6:06:00	-0.02	0.02	14.94	0.02	111.64	
02/27/07	6:06:15	0.07	0.05	5.45	0.02	166.68	
02/27/07	6:06:30	0.12	0.02	1.84	0.09	179.33	
02/27/07	6:06:45	0.05	0.01	0.93	0.17	181.28	Calibration Error
02/27/07	6:07:00	-0.01	0.01	0.81	0.12	180.48	180.0ppm CO Injection
02/27/07	6:07:15	-0.02	0.01	0.50	0.02	180.23	180.36 ppm CO
02/27/07	6:07:30	-0.02	0.01	0.45	0.02	180.40	
02/27/07	6:07:45	-0.02	0.01	0.41	0.02	180.33	
02/27/07	6:08:00	-0.01	0.01	0.47	0.02	177.13	
02/27/07	6:08:15	-0.01	0.01	0.46	0.02	130.33	
02/27/07	6:08:30	-0.01	0.01	0.42	0.02	92.34	
02/27/07	6:08:45	-0.01	0.01	0.37	0.02	107.04	
02/27/07	6:09:00	-0.01	0.01	0.39	0.02	119.44	Calibration Error
02/27/07	6:09:15	-0.02	0.01	0.39	0.02	120.94	120.0ppm CO Injection
02/27/07	6:09:30	-0.02	0.01	0.41	0.02	120.98	120.92 ppm CO
02/27/07	6:09:45	-0.02	0.01	0.40	0.02	120.83	
02/27/07	6:10:00	-0.02	0.01	0.39	0.02	120.93	
02/27/07	6:10:15	-0.02	0.01	0.32	0.02	120.94	
02/27/07	6:10:30	-0.02	0.00	0.32	0.02	109.34	
02/27/07	6:10:45	-0.02	0.02	0.32	0.02	78.44	
02/27/07	6:11:00	0.09	0.13	0.33	0.02	61.89	Calibration Error
02/27/07	6:11:15	0.05	0.05	0.31	0.12	59.74	60.0ppm CO Injection
02/27/07	6:11:30	-0.01	0.01	0.32	0.32	59.65	59.67 ppm CO
02/27/07	6:11:45	-0.02	0.01	0.30	0.17	59.65	
02/27/07	6:12:00	-0.02	0.01	0.31	0.02	59.65	
02/27/07	6:12:15	-0.02	0.00	0.33	0.02	58.45	
02/27/07	6:12:30	-0.02	0.00	0.33	0.02	58.54	
02/27/07	6:12:45	-0.02	0.00	0.38	0.02	45.49	
02/27/07	6:13:00	0.00	0.02	0.74	0.02	16.40	
02/27/07	6:13:15	0.02	0.01	1.14	7.27	1.85	
02/27/07	6:13:30	-0.01	0.01	1.23	30.51	-0.40	
02/27/07	6:13:45	-0.02	0.00	1.29	43.21	-0.55	
02/27/07	6:14:00	-0.02	0.00	1.34	47.69	-0.55	
02/27/07	6:14:15	-0.02	0.00	1.35	48.38	-0.70	
02/27/07	6:14:30	-0.02	0.00	1.32	49.74	-0.75	
02/27/07	6:14:45	-0.02	0.00	1.32	50.31	-0.75	
02/27/07	6:15:00	-0.02	0.00	1.38	50.79	-0.70	
02/27/07	6:15:15	-0.02	0.00	1.35	51.08	-0.70	
02/27/07	6:15:30	-0.02	0.00	1.38	51.24	-0.75	
02/27/07	6:15:45	-0.02	0.00	1.36	51.38	-0.75	
02/27/07	6:16:00	-0.02	0.00	1.35	51.51	-0.75	NO _x Converter Check
02/27/07	6:16:15	-0.02	0.00	1.38	51.58	-0.75	Cylinder No. ALM-013266
02/27/07	6:16:30	-0.02	0.00	1.40	51.64	-0.80	52.4ppm Cylinder
02/27/07	6:16:45	-0.02	0.00	1.36	51.71	-0.95	
02/27/07	6:17:00	-0.02	0.00	1.36	51.81	-0.75	System Response
02/27/07	6:17:15	-0.02	0.00	1.39	51.81	-0.75	51.75 ppm NO _x
02/27/07	6:17:30	-0.02	0.00	1.40	51.64	-0.75	
02/27/07	6:17:45	-0.02	0.00	1.40	52.01	-0.75	98.6 % Conversion
02/27/07	6:18:00	-0.02	0.00	1.45	52.04	-0.95	
02/27/07	6:18:15	-0.02	0.00	1.37	52.11	-0.95	
02/27/07	6:18:30	-0.02	0.00	1.37	52.21	45.59	
02/27/07	6:18:45	0.38	0.03	1.40	52.28	174.28	
02/27/07	6:19:00	7.65	0.28	1.37	52.14	180.53	
02/27/07	6:19:15	14.80	0.40	1.27	41.41	99.09	
02/27/07	6:19:30	8.07	0.17	1.04	16.27	93.29	
02/27/07	6:19:45	1.24	0.04	0.99	8.42	118.54	
02/27/07	6:20:00	0.16	0.01	0.49	1.92	119.94	
02/27/07	6:20:15	0.07	0.01	0.47	1.37	119.39	
02/27/07	6:20:30	0.06	0.01	0.44	0.59	119.98	
02/27/07	6:20:45	0.05	0.01	0.42	0.47	119.94	System Bias
02/27/07	6:21:00	0.04	0.01	0.46	0.32	119.83	120.0ppm CO Injection
02/27/07	6:21:15	0.04	0.01	0.47	0.32	119.99	0.04 % Oxygen
02/27/07	6:21:30	0.03	0.01	0.47	0.32	119.84	0.01 % CO ₂
02/27/07	6:21:45	0.03	0.01	0.49	0.27	119.99	0.31 ppm NO _x
02/27/07	6:22:00	0.03	0.01	0.48	0.22	119.93	119.91 ppm CO
02/27/07	6:22:15	0.03	0.01	0.45	0.22	112.44	
02/27/07	6:22:30	0.09	0.01	0.42	0.22	99.29	
02/27/07	6:22:45	3.20	0.02	0.51	0.22	54.90	
02/27/07	6:23:00	3.03	0.02	0.82	0.14	15.49	
02/27/07	6:23:15	0.45	0.01	0.57	18.82	4.85	
02/27/07	6:23:30	0.06	0.01	0.50	64.51	3.80	
02/27/07	6:23:45	0.03	0.01	0.46	51.51	2.30	
02/27/07	6:24:00	0.02	0.01	0.45	41.88	1.10	
02/27/07	6:24:15	0.03	0.01	0.46	36.51	0.10	
02/27/07	6:24:30	0.03	0.01	0.45	41.19	0.09	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	6:26:00	0.02	0.01	0.44	44.64	0.09	
02/27/07	6:26:15	0.02	0.01	0.43	44.76	0.10	
02/27/07	6:26:30	0.02	0.01	0.43	44.84	0.06	System Bias
02/27/07	6:26:45	0.02	0.01	0.43	44.91	0.39	45.0ppm NO _x Injection
02/27/07	6:27:00	0.02	0.01	0.45	44.94	0.04	0.45 ppm SO ₂
02/27/07	6:27:15	0.02	0.01	0.49	45.01	0.04	44.92 ppm NO _x
02/27/07	6:27:30	0.02	0.01	0.48	45.04	-0.05	0.13 ppm CO
02/27/07	6:27:45	0.02	0.01	0.48	45.11	-0.10	
02/27/07	6:28:00	0.02	0.01	0.43	45.11	0.54	
02/27/07	6:28:15	0.40	0.01	0.53	45.11	1.54	
02/27/07	6:28:30	3.80	0.02	11.52	44.36	1.05	
02/27/07	6:28:45	1.68	0.01	34.30	40.66	0.15	
02/27/07	6:29:00	0.21	0.01	41.18	24.49	-0.25	
02/27/07	6:29:15	0.04	0.01	42.85	12.27	-0.31	
02/27/07	6:29:30	0.02	0.01	43.66	1.57	-0.26	
02/27/07	6:29:45	0.02	0.01	44.12	0.82	-0.35	
02/27/07	6:30:00	0.02	0.01	44.36	0.39	-0.35	
02/27/07	6:30:15	0.01	0.01	44.75	0.32	-0.35	System Bias
02/27/07	6:30:30	0.01	0.01	44.68	0.29	-0.26	45.0ppm SO ₂ Injection
02/27/07	6:30:45	0.01	0.01	44.64	0.22	-0.35	
02/27/07	6:31:00	0.01	0.01	44.68	0.22	-0.35	44.87 ppm SO ₂
02/27/07	6:31:15	0.01	0.01	44.87	0.22	-0.35	
02/27/07	6:31:30	0.20	0.01	42.71	0.22	1.65	
02/27/07	6:31:45	5.88	0.18	30.05	0.17	2.15	
02/27/07	6:32:00	8.71	4.03	15.36	0.12	-0.05	
02/27/07	6:32:15	9.18	7.78	6.37	0.22	-1.35	
02/27/07	6:32:30	9.80	9.41	2.66	0.39	-1.55	
02/27/07	6:32:45	9.93	9.90	1.69	0.27	-1.55	
02/27/07	6:33:00	9.96	9.55	1.35	0.19	-1.65	
02/27/07	6:33:15	9.96	9.59	1.14	0.12	-1.75	
02/27/07	6:33:30	9.97	9.67	1.04	0.12	-1.75	
02/27/07	6:33:45	9.97	9.74	0.97	0.12	-1.75	
02/27/07	6:34:00	9.97	9.79	0.92	0.12	-1.75	
02/27/07	6:34:15	9.97	9.97	0.86	0.12	-1.60	System Bias
02/27/07	6:34:30	9.97	9.98	0.80	0.12	-1.85	10.0% CO ₂ Injection
02/27/07	6:34:45	9.97	9.98	0.78	0.12	-1.80	
02/27/07	6:35:00	9.98	9.98	0.72	0.12	-1.75	9.98 % CO ₂
02/27/07	6:35:15	9.98	9.97	0.69	0.12	-1.75	
02/27/07	6:35:30	9.98	9.99	0.72	0.12	31.74	
02/27/07	6:35:45	9.79	9.62	6.18	0.12	44.79	
02/27/07	6:36:00	7.66	7.95	12.77	0.12	16.74	
02/27/07	6:36:15	8.56	9.24	5.70	1.82	2.10	
02/27/07	6:36:30	9.92	10.08	2.09	6.32	-1.45	System Bias
02/27/07	6:36:45	10.00	10.17	1.18	2.82	-1.70	10.0% Oxygen Injection
02/27/07	6:37:00	10.04	10.21	0.87	0.64	-1.75	10.03 % Oxygen
02/27/07	6:37:15	10.02	10.19	0.76	0.12	-1.75	
02/27/07	6:37:30	10.04	10.19	0.75	0.09	-1.75	
02/27/07	6:37:45	10.04	10.20	0.75	0.02	-0.70	
02/27/07	6:38:00	10.04	10.19	1.01	0.02	28.54	
02/27/07	6:38:15	9.11	8.84	17.38	0.03	51.35	
02/27/07	6:38:30	5.01	5.72	43.07	1.12	64.04	
02/27/07	6:38:45	2.74	4.83	52.40	7.36	66.99	
02/27/07	6:39:00	2.42	4.51	53.17	14.69	85.74	
02/27/07	6:39:15	2.44	4.49	52.51	19.09	96.28	
02/27/07	6:39:30	2.56	4.45	52.47	19.74	97.94	
02/27/07	6:39:45	2.58	4.45	54.12	19.81	103.19	
02/27/07	6:40:00	2.54	4.44	55.33	19.91	113.84	
02/27/07	6:40:15	2.61	4.41	55.56	19.84	111.74	
02/27/07	6:40:30	2.64	4.41	55.67	19.84	99.54	
02/27/07	6:40:45	2.59	4.40	56.21	19.92	90.35	
02/27/07	6:41:00	2.52	4.42	56.52	19.91	82.84	Start Run 5
02/27/07	6:41:15	2.48	4.43	56.91	19.92	79.35	
02/27/07	6:41:30	2.44	4.43	57.05	19.91	76.75	
02/27/07	6:41:45	2.41	4.44	57.84	19.91	86.09	
02/27/07	6:42:00	2.39	4.45	57.69	20.01	99.54	
02/27/07	6:42:15	2.48	4.43	56.91	19.94	105.59	
02/27/07	6:42:30	2.49	4.42	56.14	19.91	113.34	
02/27/07	6:42:45	2.48	4.41	55.79	19.89	115.03	
02/27/07	6:43:00	2.51	4.40	55.28	19.94	110.14	
02/27/07	6:43:15	2.49	4.40	54.99	19.94	108.59	
02/27/07	6:43:30	2.48	4.40	54.91	19.91	101.94	
02/27/07	6:43:45	2.45	4.42	54.63	19.91	102.04	
02/27/07	6:44:00	2.47	4.42	54.60	19.91	100.74	
02/27/07	6:44:15	2.50	4.42	54.49	19.91	103.04	
02/27/07	6:44:30	2.45	4.44	54.26	19.91	111.34	
02/27/07	6:44:45	2.49	4.43	54.04	19.99	113.83	
02/27/07	6:45:00	2.48	4.43	53.64	19.91	120.94	
02/27/07	6:45:15	2.53	4.41	53.50	19.91	120.83	
02/27/07	6:45:30	2.60	4.40	53.13	19.91	111.34	
02/27/07	6:45:45	2.54	4.41	53.02	19.99	106.94	
02/27/07	6:46:00	2.49	4.42	53.13	20.01	103.54	
02/27/07	6:46:15	2.50	4.42	53.30	20.01	104.79	
02/27/07	6:46:30	2.53	4.41	53.35	19.94	106.64	
02/27/07	6:46:45	2.54	4.41	53.55	20.09	106.09	
02/27/07	6:47:00	2.53	4.42	53.78	20.11	105.64	
02/27/07	6:47:15	2.51	4.42	53.89	20.11	105.64	
02/27/07	6:47:30	2.51	4.41	53.55	20.11	104.54	
02/27/07	6:47:45	2.53	4.40	53.25	20.11	104.94	
02/27/07	6:48:00	2.56	4.39	53.04	20.01	98.54	
02/27/07	6:48:15	2.55	4.40	53.14	20.01	93.04	
02/27/07	6:48:30	2.48	4.41	53.50	20.01	90.54	
02/27/07	6:48:45	2.53	4.40	53.44	20.01	84.34	
02/27/07	6:49:00	2.52	4.40	53.35	20.04	77.04	
02/27/07	6:49:15	2.48	4.42	53.57	20.04	75.94	
02/27/07	6:49:30	2.43	4.43	54.06	20.01	77.24	
02/27/07	6:49:45	2.43	4.43	54.33	20.01	85.99	
02/27/07	6:50:00	2.44	4.41	54.14	20.11	92.44	
02/27/07	6:50:15	2.55	4.39	53.68	20.04	68.59	
02/27/07	6:50:30	2.56	4.39	53.67	20.04	67.34	
02/27/07	6:50:45	2.49	4.42	53.96	20.11	84.24	
02/27/07	6:51:00	2.48	4.42	53.95	20.21	107.54	
02/27/07	6:51:15	2.52	4.41	53.29	20.21	112.39	
02/27/07	6:51:30	2.56	4.40	52.59	20.21	110.74	
02/27/07	6:51:45	2.55	4.42	52.28	20.21	114.39	
02/27/07	6:52:00	2.55	4.42	52.17	20.21	112.64	
02/27/07	6:52:15	2.63	4.40	51.91	20.14	105.64	
02/27/07	6:52:30	2.62	4.40	51.93	20.14	87.54	
02/27/07	6:52:45	2.57	4.41	51.87	20.21	91.39	
02/27/07	6:53:00	2.53	4.41	51.95	20.21	63.44	
02/27/07	6:53:15	2.48	4.43	52.13	20.21	61.74	
02/27/07	6:53:30	2.48	4.43	52.13	20.21	61.74	
02/27/07	6:53:45	2.48	4.43	52.13	20.21	61.74	
02/27/07	6:54:00	2.48	4.43	52.13	20.21	61.74	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	6:54:30	2.48	4.40	52.63	20.01	84.74	
02/27/07	6:54:45	2.48	4.39	52.60	20.09	100.39	
02/27/07	6:55:00	2.53	4.38	52.46	20.11	104.54	
02/27/07	6:55:15	2.50	4.39	52.51	20.04	107.69	
02/27/07	6:55:30	2.49	4.41	52.79	20.01	115.53	
02/27/07	6:55:45	2.51	4.42	52.81	20.01	119.68	
02/27/07	6:56:00	2.55	4.43	52.33	20.04	122.63	
02/27/07	6:56:15	2.54	4.43	51.84	20.11	124.15	
02/27/07	6:56:30	2.52	4.44	51.71	20.19	128.33	
02/27/07	6:56:45	2.54	4.42	51.53	20.11	130.88	
02/27/07	6:57:00	2.62	4.39	51.38	20.21	120.83	
02/27/07	6:57:15	2.61	4.40	51.41	20.21	108.83	
02/27/07	6:57:30	2.54	4.42	51.58	20.29	84.14	
02/27/07	6:57:45	2.52	4.42	51.77	20.21	84.84	
02/27/07	6:58:00	2.49	4.43	51.90	20.21	77.44	
02/27/07	6:58:15	2.45	4.44	52.18	20.21	74.44	
02/27/07	6:58:30	2.40	4.46	52.69	20.24	77.34	
02/27/07	6:58:45	2.41	4.45	53.22	20.31	78.79	
02/27/07	6:59:00	2.46	4.43	53.38	20.29	73.84	
02/27/07	6:59:15	2.48	4.42	53.38	20.21	71.99	
02/27/07	6:59:30	2.43	4.42	53.35	20.19	78.44	
02/27/07	6:59:45	2.43	4.42	53.32	20.11	80.84	
02/27/07	7:00:00	2.53	4.40	53.07	20.11	81.84	
02/27/07	7:00:15	2.52	4.41	52.88	20.19	88.59	
02/27/07	7:00:30	2.50	4.43	52.80	20.31	98.74	
02/27/07	7:00:45	2.57	4.42	52.57	20.24	100.19	
02/27/07	7:01:00	2.63	4.40	52.44	20.21	83.84	
02/27/07	7:01:15	2.58	4.42	53.10	20.29	90.34	
02/27/07	7:01:30	2.51	4.43	53.32	20.26	88.84	
02/27/07	7:01:45	2.54	4.42	53.00	20.14	78.24	
02/27/07	7:02:00	2.52	4.42	52.92	20.11	71.34	
02/27/07	7:02:15	2.43	4.43	53.05	20.19	73.79	
02/27/07	7:02:30	2.42	4.42	53.26	20.16	77.84	
02/27/07	7:02:45	2.51	4.41	53.22	20.11	82.19	
02/27/07	7:03:00	2.49	4.41	53.26	20.21	90.84	
02/27/07	7:03:15	2.58	4.40	53.05	20.21	100.04	
02/27/07	7:03:30	2.59	4.40	52.51	20.26	102.84	
02/27/07	7:03:45	2.64	4.38	52.01	20.31	98.59	
02/27/07	7:04:00	2.61	4.38	51.91	20.26	92.84	
02/27/07	7:04:15	2.54	4.40	52.01	20.21	92.99	
02/27/07	7:04:30	2.52	4.40	52.11	20.21	88.24	
02/27/07	7:04:45	2.53	4.41	52.17	20.21	88.24	
02/27/07	7:05:00	2.49	4.45	52.27	20.11	85.14	
02/27/07	7:05:15	2.54	4.44	51.92	20.19	100.79	
02/27/07	7:05:30	2.62	4.42	51.46	20.31	97.54	
02/27/07	7:05:45	2.58	4.41	51.46	20.24	91.04	
02/27/07	7:06:00	2.50	4.41	51.46	20.21	88.44	
02/27/07	7:06:15	2.55	4.38	51.09	20.21	82.54	
02/27/07	7:06:30	2.52	4.39	50.92	20.21	78.54	
02/27/07	7:06:45	2.43	4.41	51.23	20.14	78.84	
02/27/07	7:07:00	2.40	4.42	51.68	20.01	84.14	
02/27/07	7:07:15	2.42	4.41	51.85	20.01	92.34	
02/27/07	7:07:30	2.50	4.40	51.62	20.01	102.84	
02/27/07	7:07:45	2.51	4.40	51.84	20.09	115.83	
02/27/07	7:08:00	2.59	4.38	51.49	20.26	123.03	
02/27/07	7:08:15	2.68	4.37	51.02	20.31	118.38	
02/27/07	7:08:30	2.65	4.37	50.71	20.31	114.33	
02/27/07	7:08:45	2.60	4.38	50.75	20.31	107.54	
02/27/07	7:09:00	2.64	4.37	50.87	20.21	98.54	
02/27/07	7:09:15	2.59	4.39	50.73	20.21	98.79	
02/27/07	7:09:30	2.58	4.40	51.15	20.21	106.74	
02/27/07	7:09:45	2.63	4.38	51.43	20.21	108.74	
02/27/07	7:10:00	2.68	4.37	51.42	20.21	100.34	
02/27/07	7:10:15	2.64	4.38	51.40	20.21	84.14	
02/27/07	7:10:30	2.62	4.38	51.46	20.28	84.84	
02/27/07	7:10:45	2.59	4.39	51.63	20.21	71.54	
02/27/07	7:11:00	2.49	4.43	52.10	20.21	61.74	
02/27/07	7:11:15	2.38	4.45	52.83	20.21	80.39	
02/27/07	7:11:30	2.38	4.45	52.98	20.26	61.84	
02/27/07	7:11:45	2.40	4.44	53.28	20.21	58.44	
02/27/07	7:12:00	2.39	4.45	53.59	20.21	56.34	
02/27/07	7:12:15	2.37	4.45	53.92	20.29	60.84	
02/27/07	7:12:30	2.38	4.45	54.20	20.31	86.84	
02/27/07	7:12:45	2.41	4.43	54.40	20.31	73.74	
02/27/07	7:13:00	2.44	4.41	54.31	20.31	79.34	
02/27/07	7:13:15	2.50	4.39	53.85	20.24	79.25	
02/27/07	7:13:30	2.57	4.39	53.21	20.12	74.85	
02/27/07	7:13:45	2.54	4.40	53.10	20.11	75.18	
02/27/07	7:14:00	2.45	4.43	53.34	20.18	83.24	
02/27/07	7:14:15	2.49	4.41	53.34	20.21	84.48	
02/27/07	7:14:30	2.55	4.40	53.05	20.21	80.54	
02/27/07	7:14:45	2.49	4.41	53.01	20.21	61.24	
02/27/07	7:15:00	2.44	4.41	53.02	20.21	84.84	
02/27/07	7:15:15	2.44	4.40	53.04	20.21	90.39	
02/27/07	7:15:30	2.45	4.39	53.27	20.21	90.84	
02/27/07	7:15:45	2.45	4.39	53.55	20.21	88.84	
02/27/07	7:16:00	2.43	4.40	53.73	20.11	90.84	
02/27/07	7:16:15	2.40	4.42	53.98	20.04	102.44	
02/27/07	7:16:30	2.43	4.42	53.72	19.98	108.84	
02/27/07	7:16:45	2.51	4.41	52.38	20.01	134.08	
02/27/07	7:17:00	2.55	4.38	50.19	20.08	139.23	
02/27/07	7:17:15	2.64	4.36	49.30	19.98	121.54	
02/27/07	7:17:30	2.58	4.37	49.40	19.88	117.24	
02/27/07	7:17:45	2.53	4.38	49.86	19.99	117.08	
02/27/07	7:18:00	2.58	4.35	50.38	20.01	118.33	
02/27/07	7:18:15	2.61	4.38	50.65	20.01	118.74	
02/27/07	7:18:30	2.60	4.37	50.82	20.01	117.03	
02/27/07	7:18:45	2.58	4.37	51.12	20.08	120.19	
02/27/07	7:19:00	2.53	4.38	51.40	20.01	122.04	
02/27/07	7:19:15	2.57	4.37	51.39	20.04	113.49	
02/27/07	7:19:30	2.54	4.39	51.36	20.11	102.84	
02/27/07	7:19:45	2.48	4.42	51.38	20.11	93.59	
02/27/07	7:20:00	2.48	4.42	51.42	20.11	87.04	
02/27/07	7:20:15	2.44	4.43	51.69	20.14	87.24	
02/27/07	7:20:30	2.41	4.44	52.15	20.21	88.54	
02/27/07	7:20:45	2.48	4.41	52.41	20.21	85.08	
02/27/07	7:21:00	2.49	4.40	52.46	20.21	79.54	
02/27/07	7:21:15	2.49	4.39	52.74	20.21	78.19	
02/27/07	7:21:30	2.43	4.40	53.01	20.18	84.84	
02/27/07	7:21:45	2.47	4.38	53.04	20.08	108.24	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	7:23:15	2.81	4.38	51.17	20.01	128.88	
02/27/07	7:23:30	2.57	4.38	51.01	20.01	128.03	
02/27/07	7:23:45	2.58	4.37	51.08	20.04	113.49	
02/27/07	7:24:00	2.51	4.38	51.27	20.11	111.64	
02/27/07	7:24:15	2.47	4.40	51.49	20.09	117.53	
02/27/07	7:24:30	2.51	4.39	51.68	20.01	119.73	
02/27/07	7:24:45	2.59	4.37	51.74	20.01	116.74	
02/27/07	7:25:00	2.80	4.37	51.76	20.02	116.04	
02/27/07	7:25:15	2.59	4.37	51.82	19.99	111.94	
02/27/07	7:25:30	2.60	4.36	51.89	19.96	107.24	
02/27/07	7:25:45	2.58	4.37	51.57	20.01	110.94	
02/27/07	7:26:00	2.51	4.36	51.74	20.01	118.94	
02/27/07	7:26:15	2.51	4.35	51.88	20.01	126.63	
02/27/07	7:26:30	2.35	4.35	51.92	19.99	132.73	
02/27/07	7:26:45	2.54	4.36	51.93	19.94	147.83	
02/27/07	7:27:00	2.59	4.38	50.73	19.88	162.93	
02/27/07	7:27:15	2.62	4.35	48.94	19.91	175.58	
02/27/07	7:27:30	2.60	4.36	48.43	19.91	171.93	
02/27/07	7:27:45	2.59	4.37	48.74	19.84	168.83	
02/27/07	7:28:00	2.57	4.36	48.94	19.88	175.23	
02/27/07	7:28:15	2.60	4.37	49.09	19.91	179.13	
02/27/07	7:28:30	2.67	4.35	49.31	19.91	177.63	
02/27/07	7:28:45	2.68	4.35	49.98	19.84	188.88	
02/27/07	7:29:00	2.71	4.34	49.75	19.78	156.83	
02/27/07	7:29:15	2.68	4.35	49.83	19.71	134.53	
02/27/07	7:29:30	2.65	4.36	50.11	19.78	120.33	
02/27/07	7:29:45	2.58	4.37	50.48	19.91	107.04	
02/27/07	7:30:00	2.51	4.39	50.97	20.01	110.54	
02/27/07	7:30:15	2.50	4.36	51.33	20.01	113.88	
02/27/07	7:30:30	2.59	4.37	51.31	20.08	102.74	
02/27/07	7:30:45	2.52	4.40	51.53	20.19	99.54	
02/27/07	7:31:00	2.36	4.43	51.91	20.21	106.44	
02/27/07	7:31:15	2.43	4.42	51.98	20.19	116.53	
02/27/07	7:31:30	2.49	4.41	51.77	20.11	122.74	
02/27/07	7:31:45	2.52	4.39	51.50	20.11	133.88	
02/27/07	7:32:00	2.60	4.37	51.21	20.11	138.23	
02/27/07	7:32:15	2.66	4.36	50.97	20.04	141.88	
02/27/07	7:32:30	2.69	4.35	50.72	20.08	143.33	
02/27/07	7:32:45	2.71	4.34	50.62	20.19	135.33	
02/27/07	7:33:00	2.70	4.34	50.83	20.21	121.24	
02/27/07	7:33:15	2.84	4.37	51.01	20.11	111.79	
02/27/07	7:33:30	2.54	4.38	51.27	20.06	112.34	
02/27/07	7:33:45	2.56	4.39	51.49	20.11	117.83	
02/27/07	7:34:00	2.56	4.39	51.50	20.16	123.23	
02/27/07	7:34:15	2.58	4.39	51.52	20.21	132.73	
02/27/07	7:34:30	2.60	4.38	51.37	20.21	137.33	
02/27/07	7:34:45	2.82	4.38	51.20	20.19	139.43	
02/27/07	7:35:00	2.58	4.38	51.15	20.11	143.33	
02/27/07	7:35:15	2.60	4.38	51.17	20.11	147.83	
02/27/07	7:35:30	2.66	4.35	50.92	20.11	153.43	
02/27/07	7:35:45	2.72	4.34	50.82	20.11	146.83	
02/27/07	7:36:00	2.78	4.34	50.28	20.11	140.53	
02/27/07	7:36:15	2.72	4.36	50.30	20.14	128.53	
02/27/07	7:36:30	2.84	4.39	50.67	20.21	128.21	
02/27/07	7:36:45	2.59	4.40	51.04	20.13	129.23	
02/27/07	7:37:00	2.82	4.38	51.08	20.11	129.88	
02/27/07	7:37:15	2.69	4.38	50.72	20.11	130.88	
02/27/07	7:37:30	2.73	4.36	50.32	20.16	126.83	
02/27/07	7:37:45	2.73	4.35	50.15	20.21	125.23	
02/27/07	7:38:00	2.67	4.36	50.29	20.21	131.53	
02/27/07	7:38:15	2.69	4.35	50.45	20.11	139.28	
02/27/07	7:38:30	2.71	4.34	50.42	20.11	148.03	
02/27/07	7:38:45	2.73	4.34	50.27	20.04	148.63	
02/27/07	7:39:00	2.74	4.34	50.16	20.11	145.48	
02/27/07	7:39:15	2.89	4.38	50.22	20.11	138.83	
02/27/07	7:39:30	2.82	4.37	50.41	20.11	140.13	
02/27/07	7:39:45	2.81	4.38	50.58	20.01	142.76	
02/27/07	7:40:00	2.65	4.38	50.85	20.01	142.03	
02/27/07	7:40:15	2.68	4.35	50.85	20.01	138.16	
02/27/07	7:40:30	2.65	4.35	50.84	20.01	129.43	
02/27/07	7:40:45	2.60	4.36	52.37	20.01	127.23	End Run 5
02/27/07	7:41:00	2.53	4.39	58.20	19.98	105.34	
02/27/07	7:41:15	2.92	4.66	49.82	19.91	88.84	
02/27/07	7:41:30	4.08	3.70	30.17	19.26	84.09	
02/27/07	7:41:45	1.75	1.22	16.27	15.67	109.99	
02/27/07	7:42:00	0.32	0.25	10.37	6.67	116.58	
02/27/07	7:42:15	0.09	0.11	7.59	1.54	117.73	
02/27/07	7:42:30	0.05	0.08	5.80	0.37	118.18	
02/27/07	7:42:45	0.04	0.07	4.85	0.19	118.48	
02/27/07	7:43:00	0.03	0.07	3.82	0.12	118.78	
02/27/07	7:43:15	0.03	0.06	3.27	0.12	119.23	
02/27/07	7:43:30	0.02	0.05	2.66	0.12	119.38	
02/27/07	7:43:45	0.02	0.05	2.48	0.12	119.28	
02/27/07	7:44:00	0.02	0.05	2.22	0.12	119.43	System Bias
02/27/07	7:44:15	0.02	0.05	1.99	0.12	119.83	120.0ppm CO Injection
02/27/07	7:44:30	0.02	0.05	1.63	0.12	119.99	0.02 % Oxygen
02/27/07	7:44:45	0.02	0.05	1.87	0.12	119.60	0.05 % CO ₂
02/27/07	7:45:00	0.02	0.04	1.53	0.12	119.89	0.12 ppm NO _x 119.83 ppm CO
02/27/07	7:45:15	0.02	0.04	1.43	0.02	119.63	
02/27/07	7:45:30	0.02	0.04	1.33	0.02	112.44	
02/27/07	7:45:45	0.07	0.23	1.31	0.02	92.89	
02/27/07	7:46:00	0.59	0.95	1.21	0.02	41.44	
02/27/07	7:46:15	0.35	0.33	1.19	3.32	7.84	
02/27/07	7:46:30	0.07	0.08	1.15	12.62	2.00	
02/27/07	7:46:45	0.02	0.03	1.11	38.68	1.29	
02/27/07	7:47:00	0.02	0.03	1.05	40.19	1.30	
02/27/07	7:47:15	0.02	0.03	1.04	41.99	1.04	
02/27/07	7:47:30	0.02	0.03	0.98	42.59	1.05	
02/27/07	7:47:45	0.02	0.03	0.86	43.34	1.05	
02/27/07	7:48:00	0.01	0.02	0.95	44.09	1.05	
02/27/07	7:48:15	0.01	0.03	0.89	44.81	1.05	
02/27/07	7:48:30	0.01	0.03	0.91	45.08	0.90	
02/27/07	7:48:45	0.02	0.03	0.91	45.24	0.95	
02/27/07	7:49:00	0.02	0.03	0.85	45.31	1.04	System Bias
02/27/07	7:49:15	0.02	0.03	0.91	45.41	0.95	45.0ppm NO _x Injection
02/27/07	7:49:30	0.02	0.03	0.95	45.41	0.85	
02/27/07	7:49:45	0.02	0.02	0.91	45.41	0.95	0.91 ppm SO ₂
02/27/07	7:50:00	0.02	0.02	0.86	45.41	1.00	45.41 ppm NO _x 0.91 ppm CO
02/27/07	7:50:15	0.02	0.03	0.80	45.41	5.95	
02/27/07	7:50:30	0.08	0.28	0.81	45.41	7.90	
02/27/07	7:50:45	0.02	0.02	0.80	45.41	5.95	
02/27/07	7:51:00	0.02	0.02	0.80	45.41	5.95	

Reference Method 15-second Averages							Comments
Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	
02/27/07	7:51:45	0.01	0.02	37.06	1.84	0.05	
02/27/07	7:52:00	0.01	0.02	39.59	0.87	0.05	
02/27/07	7:52:15	0.01	0.02	42.86	0.39	0.05	
02/27/07	7:52:30	0.01	0.02	44.78	0.32	0.80	
02/27/07	7:52:45	0.01	0.02	44.87	0.22	0.65	System Bias 45.0ppm SO ₂ Injection 44.91 ppm SO ₂
02/27/07	7:53:00	0.01	0.02	44.73	0.22	0.70	
02/27/07	7:53:15	0.01	0.02	45.06	0.22	2.85	
02/27/07	7:53:30	0.01	0.02	44.95	0.14	18.70	
02/27/07	7:53:45	0.20	0.68	41.78	0.12	22.34	
02/27/07	7:54:00	1.81	3.04	34.12	0.12	10.60	
02/27/07	7:54:15	5.46	8.77	23.28	4.37	1.15	
02/27/07	7:54:30	8.87	9.12	13.95	5.12	-0.41	
02/27/07	7:54:45	9.05	9.69	9.21	1.89	-0.65	
02/27/07	7:55:00	9.76	9.64	6.78	0.54	-0.56	
02/27/07	7:55:15	9.77	9.62	5.40	0.17	-0.56	
02/27/07	7:55:30	9.78	9.63	4.46	0.12	-0.70	
02/27/07	7:55:45	9.79	9.84	3.73	0.12	-0.65	
02/27/07	7:56:00	9.79	9.96	3.19	0.12	-0.65	System Bias 10.0% CO ₂ Injection 9.87 % CO ₂
02/27/07	7:56:15	9.79	9.96	2.77	0.12	-0.65	
02/27/07	7:56:30	9.80	9.97	2.49	0.12	-0.70	
02/27/07	7:56:45	9.80	9.97	2.20	0.12	0.45	
02/27/07	7:57:00	9.80	9.97	1.99	0.04	16.94	
02/27/07	7:57:15	9.83	9.29	1.96	0.02	22.64	
02/27/07	7:57:30	7.43	7.76	2.84	0.54	0.55	
02/27/07	7:57:45	8.14	9.33	3.29	2.52	0.84	
02/27/07	7:58:00	9.71	10.07	2.89	5.52	-0.65	
02/27/07	7:58:15	9.99	10.15	2.46	2.17	-0.66	
02/27/07	7:58:30	9.98	10.17	2.05	0.59	-0.66	
02/27/07	7:58:45	9.98	10.18	1.87	0.12	-0.65	
02/27/07	7:59:00	9.98	10.19	1.69	0.12	-0.65	System Bias 10.0% Oxygen Injection 9.88 % Oxygen
02/27/07	7:59:15	9.98	10.19	1.48	0.07	-0.75	
02/27/07	7:59:30	9.98	10.19	1.42	0.02	-0.75	
02/27/07	7:59:45	9.98	10.21	1.30	0.02	-0.75	
02/27/07	8:00:00	9.98	10.20	1.23	0.02	1.25	
02/27/07	8:00:15	9.98	10.20	1.16	0.02	22.04	
02/27/07	8:00:30	9.98	9.93	1.26	0.02	73.49	
02/27/07	8:00:45	7.22	6.48	7.39	0.92	123.13	
02/27/07	8:01:00	3.51	4.76	23.58	3.09	150.68	
02/27/07	8:01:15	2.81	4.48	32.33	13.81	159.33	
02/27/07	8:01:30	2.82	4.48	36.52	18.21	148.86	
02/27/07	8:01:45	2.76	4.49	39.52	19.98	134.73	
02/27/07	8:02:00	2.87	4.50	42.53	20.09	134.35	
02/27/07	8:02:15	2.84	4.49	45.37	20.11	136.04	
02/27/07	8:02:30	2.74	4.44	47.27	20.11	123.63	
02/27/07	8:02:45	2.73	4.45	48.20	20.21	120.63	
02/27/07	8:03:00	2.67	4.46	48.71	20.29	135.38	Start Run 6
02/27/07	8:03:15	2.74	4.44	49.81	20.51	146.03	
02/27/07	8:03:30	2.85	4.43	49.11	20.54	141.88	
02/27/07	8:03:45	2.88	4.43	49.26	20.51	135.13	
02/27/07	8:04:00	2.82	4.46	49.88	20.59	129.93	
02/27/07	8:04:15	2.85	4.45	49.97	20.51	120.43	
02/27/07	8:04:30	2.82	4.45	50.22	20.59	112.34	
02/27/07	8:04:45	2.81	4.43	50.28	20.81	102.74	
02/27/07	8:05:00	2.83	4.43	50.31	20.81	93.74	
02/27/07	8:05:15	2.77	4.44	50.47	20.82	85.34	
02/27/07	8:05:30	2.73	4.46	50.56	20.96	85.34	
02/27/07	8:05:45	2.86	4.48	50.57	21.11	98.54	
02/27/07	8:06:00	2.73	4.44	50.45	21.19	102.44	
02/27/07	8:06:15	2.83	4.42	50.30	21.11	89.74	
02/27/07	8:06:30	2.80	4.42	50.33	21.11	97.34	
02/27/07	8:06:45	2.72	4.43	50.84	21.01	104.04	
02/27/07	8:07:00	2.75	4.41	50.81	20.94	118.19	
02/27/07	8:07:15	2.82	4.38	50.94	20.81	135.93	
02/27/07	8:07:30	2.96	4.33	50.57	20.99	143.83	
02/27/07	8:07:45	3.08	4.32	49.88	21.01	140.23	
02/27/07	8:08:00	3.07	4.33	49.49	21.01	123.08	
02/27/07	8:08:15	2.94	4.38	49.49	21.06	111.53	
02/27/07	8:08:30	2.79	4.43	49.80	21.11	120.58	
02/27/07	8:08:45	2.78	4.43	50.23	21.01	134.93	
02/27/07	8:09:00	2.87	4.40	50.23	21.09	141.63	
02/27/07	8:09:15	2.96	4.38	49.96	20.87	138.63	
02/27/07	8:09:30	2.88	4.37	49.38	20.81	121.38	
02/27/07	8:09:45	2.94	4.37	48.96	20.88	101.94	
02/27/07	8:10:00	2.89	4.38	48.88	20.81	94.59	
02/27/07	8:10:15	2.83	4.39	48.11	20.81	92.44	
02/27/07	8:10:30	2.90	4.38	49.21	20.99	85.64	
02/27/07	8:10:45	2.88	4.38	49.40	20.88	80.04	
02/27/07	8:11:00	2.79	4.41	49.84	20.81	88.34	
02/27/07	8:11:15	2.79	4.40	50.16	20.81	88.24	
02/27/07	8:11:30	2.80	4.40	50.51	20.79	83.39	
02/27/07	8:11:45	2.78	4.40	50.82	20.88	82.04	
02/27/07	8:12:00	2.79	4.40	51.02	20.81	91.89	
02/27/07	8:12:15	2.81	4.39	51.15	20.81	78.24	
02/27/07	8:12:30	2.76	4.40	51.27	20.61	72.79	
02/27/07	8:12:45	2.72	4.41	51.80	20.68	73.44	
02/27/07	8:13:00	2.65	4.44	52.17	20.76	64.89	
02/27/07	8:13:15	2.89	4.42	52.45	20.71	82.54	
02/27/07	8:13:30	2.85	4.43	52.78	20.81	60.14	
02/27/07	8:13:45	2.84	4.42	53.01	20.59	59.34	
02/27/07	8:14:00	2.80	4.42	53.27	20.68	61.79	
02/27/07	8:14:15	2.56	4.42	53.97	20.81	68.14	
02/27/07	8:14:30	2.57	4.41	54.02	20.49	71.80	
02/27/07	8:14:45	2.80	4.41	54.15	20.31	75.74	
02/27/07	8:15:00	2.64	4.39	54.11	20.39	81.33	
02/27/07	8:15:15	2.67	4.37	53.90	20.36	81.54	
02/27/07	8:15:30	2.87	4.37	53.68	20.31	80.68	
02/27/07	8:15:45	2.80	4.38	53.74	20.31	90.74	
02/27/07	8:16:00	2.57	4.36	53.94	20.29	99.48	
02/27/07	8:16:15	2.67	4.34	53.97	20.21	97.54	
02/27/07	8:16:30	2.65	4.35	54.02	20.19	96.44	
02/27/07	8:16:45	2.56	4.39	54.38	20.11	107.84	
02/27/07	8:17:00	2.55	4.38	54.49	20.11	121.83	
02/27/07	8:17:15	2.66	4.37	54.23	20.19	127.83	
02/27/07	8:17:30	2.71	4.37	53.70	20.14	131.28	
02/27/07	8:17:45	2.73	4.37	53.33	20.19	131.73	
02/27/07	8:18:00	2.70	4.38	53.16	20.21	119.73	
02/27/07	8:18:15	2.67	4.39	53.17	20.21	111.03	
02/27/07	8:18:30	2.58	4.41	53.25	20.24	100.14	
02/27/07	8:18:45	2.55	4.42	53.31	20.31	105.24	
02/27/07	8:19:00	2.47	4.41	53.49	20.29	113.58	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	8:20:15	2.68	4.35	52.71	20.21	140.83	
02/27/07	8:20:30	2.70	4.35	52.32	20.24	125.48	
02/27/07	8:20:45	2.63	4.38	52.28	20.36	118.44	
02/27/07	8:21:00	2.52	4.40	52.39	20.39	118.74	
02/27/07	8:21:15	2.58	4.38	52.32	20.31	115.34	
02/27/07	8:21:30	2.58	4.38	52.15	20.31	118.44	
02/27/07	8:21:45	2.57	4.39	52.13	20.31	120.84	
02/27/07	8:22:00	2.64	4.37	52.01	20.31	122.58	
02/27/07	8:22:15	2.67	4.36	52.02	20.31	123.03	
02/27/07	8:22:30	2.65	4.36	52.05	20.31	132.43	
02/27/07	8:22:45	2.68	4.37	52.02	20.28	125.83	
02/27/07	8:23:00	2.68	4.36	51.83	20.21	128.88	
02/27/07	8:23:15	2.60	4.37	52.01	20.21	132.63	
02/27/07	8:23:30	2.65	4.35	51.82	20.11	131.78	
02/27/07	8:23:45	2.68	4.34	51.66	20.01	128.43	
02/27/07	8:24:00	2.64	4.35	51.78	20.04	135.18	
02/27/07	8:24:15	2.60	4.35	51.66	20.18	153.03	
02/27/07	8:24:30	2.65	4.35	52.08	20.21	171.88	
02/27/07	8:24:45	2.78	4.31	51.85	20.18	172.63	
02/27/07	8:25:00	2.74	4.33	51.73	20.09	179.57	
02/27/07	8:25:15	2.71	4.33	51.58	19.96	173.83	
02/27/07	8:25:30	2.70	4.34	51.49	19.91	172.82	
02/27/07	8:25:45	2.71	4.34	51.53	19.96	179.52	
02/27/07	8:26:00	2.68	4.35	51.41	20.01	178.17	
02/27/07	8:26:15	2.64	4.35	51.20	20.01	179.92	
02/27/07	8:26:30	2.65	4.35	50.88	19.99	175.88	
02/27/07	8:26:45	2.67	4.35	50.83	19.96	177.23	
02/27/07	8:27:00	2.60	4.37	50.85	20.04	170.02	
02/27/07	8:27:15	2.68	4.36	51.01	20.11	167.42	
02/27/07	8:27:30	2.75	4.36	51.12	20.14	178.98	
02/27/07	8:27:45	2.82	4.41	52.09	20.18	167.33	
02/27/07	8:28:00	2.54	4.43	52.40	20.14	152.83	
02/27/07	8:28:15	2.51	4.43	51.85	20.21	148.63	
02/27/07	8:28:30	2.49	4.43	50.85	20.21	137.18	
02/27/07	8:28:45	2.48	4.42	50.63	20.21	136.73	
02/27/07	8:29:00	2.41	4.44	50.86	20.19	149.18	
02/27/07	8:29:15	2.53	4.39	50.94	20.11	144.53	
02/27/07	8:29:30	2.60	4.38	50.87	20.14	137.73	
02/27/07	8:29:45	2.52	4.41	51.07	20.21	141.83	
02/27/07	8:30:00	2.51	4.40	51.13	20.28	137.83	
02/27/07	8:30:15	2.55	4.39	51.14	20.18	138.83	
02/27/07	8:30:30	2.55	4.39	51.11	20.11	150.68	
02/27/07	8:30:45	2.62	4.37	50.85	20.18	161.23	
02/27/07	8:31:00	2.68	4.36	50.61	20.24	160.08	
02/27/07	8:31:15	2.75	4.37	50.39	20.36	160.33	
02/27/07	8:31:30	2.65	4.40	50.40	20.39	172.72	
02/27/07	8:31:45	2.73	4.37	50.38	20.31	168.23	
02/27/07	8:32:00	2.78	4.36	50.15	20.31	140.83	
02/27/07	8:32:15	2.69	4.39	50.11	20.36	128.03	
02/27/07	8:32:30	2.54	4.42	50.59	20.41	134.48	
02/27/07	8:32:45	2.55	4.41	51.02	20.41	137.33	
02/27/07	8:33:00	2.61	4.39	51.29	20.31	149.38	
02/27/07	8:33:15	2.66	4.36	51.33	20.18	149.13	
02/27/07	8:33:30	2.75	4.34	50.92	20.19	128.83	
02/27/07	8:33:45	2.68	4.38	50.01	20.21	130.13	
02/27/07	8:34:00	2.83	4.38	48.39	20.21	143.28	
02/27/07	8:34:15	2.64	4.36	47.14	20.21	148.83	
02/27/07	8:34:30	2.81	4.37	47.43	20.21	158.38	
02/27/07	8:34:45	2.65	4.37	48.08	20.21	168.03	
02/27/07	8:35:00	2.69	4.36	48.60	20.15	171.52	
02/27/07	8:35:15	2.72	4.36	49.23	20.21	168.33	
02/27/07	8:35:30	2.72	4.37	49.28	20.21	159.03	
02/27/07	8:35:45	2.69	4.38	49.49	20.21	160.83	
02/27/07	8:36:00	2.68	4.38	48.94	20.29	155.23	
02/27/07	8:36:15	2.70	4.37	50.07	20.21	149.03	
02/27/07	8:36:30	2.65	4.40	50.24	20.21	145.13	
02/27/07	8:36:45	2.63	4.39	50.38	20.21	142.13	
02/27/07	8:37:00	2.81	4.39	50.48	20.21	143.28	
02/27/07	8:37:15	2.80	4.36	50.54	20.21	141.53	
02/27/07	8:37:30	2.68	4.36	50.56	20.11	128.83	
02/27/07	8:37:45	2.64	4.36	50.73	20.11	121.43	
02/27/07	8:38:00	2.54	4.38	50.94	20.01	130.73	
02/27/07	8:38:15	2.57	4.36	51.07	20.01	142.23	
02/27/07	8:38:30	2.64	4.35	51.04	20.11	158.53	
02/27/07	8:38:45	2.69	4.34	50.96	20.11	165.72	
02/27/07	8:39:00	2.72	4.36	50.87	20.21	173.77	
02/27/07	8:39:15	2.71	4.36	50.85	20.18	174.22	
02/27/07	8:39:30	2.72	4.39	50.82	20.21	171.32	
02/27/07	8:39:45	2.79	4.38	50.59	20.26	172.12	
02/27/07	8:40:00	2.78	4.40	50.38	20.31	174.88	
02/27/07	8:40:15	2.67	4.40	50.41	20.31	168.72	
02/27/07	8:40:30	2.65	4.42	50.52	20.19	170.07	
02/27/07	8:40:45	2.64	4.41	50.67	20.18	161.12	
02/27/07	8:41:00	2.70	4.41	50.54	20.31	130.83	
02/27/07	8:41:15	2.58	4.44	50.71	20.31	115.83	
02/27/07	8:41:30	2.45	4.48	51.07	20.29	106.83	
02/27/07	8:41:45	2.45	4.44	51.28	20.26	100.73	
02/27/07	8:42:00	2.48	4.43	51.19	20.31	93.84	
02/27/07	8:42:15	2.43	4.44	51.20	20.31	89.04	
02/27/07	8:42:30	2.42	4.44	51.34	20.31	82.14	
02/27/07	8:42:45	2.40	4.44	51.68	20.31	74.04	
02/27/07	8:43:00	2.38	4.45	52.08	20.29	79.39	
02/27/07	8:43:15	2.36	4.44	52.27	20.21	82.84	
02/27/07	8:43:30	2.52	4.40	52.03	20.21	78.14	
02/27/07	8:43:45	2.46	4.43	51.66	20.26	83.15	
02/27/07	8:44:00	2.42	4.42	51.90	20.41	96.54	
02/27/07	8:44:15	2.48	4.40	51.83	20.41	107.87	
02/27/07	8:44:30	2.56	4.36	51.81	20.31	117.18	
02/27/07	8:44:45	2.81	4.38	51.20	20.31	110.11	
02/27/07	8:45:00	2.62	4.36	51.10	20.31	95.88	
02/27/07	8:45:15	2.50	4.43	51.51	20.31	67.00	
02/27/07	8:45:30	2.38	4.48	52.00	20.31	88.14	
02/27/07	8:45:45	2.34	4.47	52.37	20.31	86.44	
02/27/07	8:46:00	2.38	4.45	52.40	20.29	97.44	
02/27/07	8:46:15	2.39	4.43	52.39	20.18	110.18	
02/27/07	8:46:30	2.50	4.38	52.08	20.14	109.58	
02/27/07	8:46:45	2.58	4.35	51.60	20.18	88.33	
02/27/07	8:47:00	2.49	4.38	51.67	20.11	103.48	
02/27/07	8:47:15	2.40	4.39	51.87	20.06	123.73	
02/27/07	8:47:30	2.47	4.36	52.08	20.11	133.58	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	8:49:50	2.57	4.39	50.47	20.11	138.87	
02/27/07	8:49:15	2.61	4.37	50.29	20.11	120.08	
02/27/07	8:49:30	2.58	4.39	50.25	20.21	101.88	
02/27/07	8:49:45	2.47	4.41	50.49	20.21	88.54	
02/27/07	8:50:00	2.40	4.43	51.19	20.11	81.39	
02/27/07	8:50:15	2.37	4.43	51.74	20.18	84.24	
02/27/07	8:50:30	2.38	4.42	51.87	20.34	84.89	
02/27/07	8:50:45	2.44	4.39	51.27	20.36	90.33	
02/27/07	8:51:00	2.51	4.39	51.04	20.29	85.84	
02/27/07	8:51:15	2.40	4.40	51.48	20.18	81.19	
02/27/07	8:51:30	2.41	4.39	51.71	20.11	104.43	
02/27/07	8:51:45	2.49	4.38	51.52	20.11	103.88	
02/27/07	8:52:00	2.60	4.37	50.92	20.21	84.39	
02/27/07	8:52:15	2.51	4.40	50.77	20.26	90.63	
02/27/07	8:52:30	2.47	4.41	50.87	20.21	89.78	
02/27/07	8:52:45	2.45	4.40	51.14	20.21	85.44	
02/27/07	8:53:00	2.47	4.39	51.83	20.21	88.19	
02/27/07	8:53:15	2.42	4.40	52.72	20.21	89.58	
02/27/07	8:53:30	2.49	4.37	52.86	20.19	112.03	
02/27/07	8:53:45	2.56	4.35	52.07	20.11	117.28	
02/27/07	8:54:00	2.60	4.34	52.28	20.19	117.88	
02/27/07	8:54:15	2.60	4.35	52.36	20.08	114.08	
02/27/07	8:54:30	2.59	4.35	51.96	20.14	105.83	
02/27/07	8:54:45	2.53	4.37	51.83	20.21	101.13	
02/27/07	8:55:00	2.45	4.39	52.09	20.21	100.48	
02/27/07	8:55:15	2.43	4.40	52.07	20.18	104.08	
02/27/07	8:55:30	2.44	4.39	51.87	20.11	114.28	
02/27/07	8:55:45	2.45	4.39	51.91	20.11	121.83	
02/27/07	8:56:00	2.49	4.37	52.01	20.01	119.13	
02/27/07	8:56:15	2.48	4.37	52.09	20.01	111.48	
02/27/07	8:56:30	2.41	4.39	52.34	20.01	113.58	
02/27/07	8:56:45	2.39	4.39	52.31	20.01	118.53	
02/27/07	8:57:00	2.44	4.37	51.92	20.11	125.83	
02/27/07	8:57:15	2.48	4.37	51.63	20.18	129.53	
02/27/07	8:57:30	2.49	4.37	51.52	20.11	134.23	
02/27/07	8:57:45	2.48	4.37	51.54	20.11	137.22	
02/27/07	8:58:00	2.52	4.36	51.17	20.21	148.27	
02/27/07	8:58:15	2.60	4.36	49.20	20.21	166.12	
02/27/07	8:58:30	2.85	4.34	47.33	20.21	171.37	
02/27/07	8:58:45	2.63	4.34	47.02	20.18	155.17	
02/27/07	8:59:00	2.63	4.34	47.33	20.11	136.87	
02/27/07	8:59:15	2.55	4.35	48.15	20.17	115.88	
02/27/07	8:59:30	2.51	4.38	49.11	20.19	100.83	
02/27/07	8:59:45	2.39	4.40	49.69	20.18	86.08	
02/27/07	9:00:00	2.34	4.41	50.84	20.31	105.23	
02/27/07	9:00:15	2.35	4.39	51.38	20.31	109.28	
02/27/07	9:00:30	2.41	4.36	51.47	20.19	110.73	
02/27/07	9:00:45	2.43	4.37	51.32	20.04	111.16	
02/27/07	9:01:00	2.48	4.35	51.09	20.01	113.53	
02/27/07	9:01:15	2.49	4.34	50.85	19.84	104.88	
02/27/07	9:01:30	2.49	4.38	51.37	20.01	103.88	
02/27/07	9:01:45	2.43	4.37	51.56	20.09	107.33	
02/27/07	9:02:00	2.47	4.37	51.28	20.14	102.88	
02/27/07	9:02:15	2.48	4.38	51.30	20.21	100.03	
02/27/07	9:02:30	2.37	4.42	51.75	20.21	110.08	
02/27/07	9:02:45	2.42	4.40	51.71	20.21	123.88	End Run 6
02/27/07	9:03:00	2.52	4.38	51.31	20.14	125.88	
02/27/07	9:03:15	2.55	4.37	51.06	20.21	124.83	
02/27/07	9:03:30	2.48	4.38	51.13	20.21	132.48	
02/27/07	9:03:45	2.50	4.36	51.18	20.21	130.07	
02/27/07	9:04:00	2.52	4.36	51.12	20.21	124.53	
02/27/07	9:04:15	2.44	4.38	51.13	20.14	124.08	
02/27/07	9:04:30	2.49	4.37	50.94	20.11	122.58	
02/27/07	9:04:45	2.52	4.37	50.80	20.19	117.33	
02/27/07	9:05:00	2.50	4.37	50.72	20.31	114.78	
02/27/07	9:05:15	2.47	4.38	50.78	20.31	112.08	
02/27/07	9:05:30	2.48	4.39	51.21	20.21	112.83	
02/27/07	9:05:45	2.45	4.39	51.65	20.29	112.83	
02/27/07	9:06:00	2.60	4.51	49.81	20.31	78.04	
02/27/07	9:06:15	3.92	4.32	34.80	20.31	75.59	
02/27/07	9:06:30	2.50	1.81	19.42	18.36	103.33	
02/27/07	9:06:45	0.53	0.36	11.58	9.81	115.18	
02/27/07	9:07:00	0.10	0.12	8.20	1.82	117.18	
02/27/07	9:07:15	0.04	0.08	6.33	0.54	116.78	
02/27/07	9:07:30	0.03	0.07	5.14	0.22	119.83	
02/27/07	9:07:45	0.02	0.08	4.25	0.14	119.83	System Bias
02/27/07	9:08:00	0.02	0.08	3.82	0.12	120.09	120.0ppm CO Injection
02/27/07	9:08:15	0.02	0.05	3.10	0.12	120.36	0.01 % Oxygen
02/27/07	9:08:30	0.01	0.04	2.71	0.12	120.83	0.05 % CO ₂
02/27/07	9:08:45	0.01	0.04	2.44	0.12	120.48	0.12 ppm NO _x
02/27/07	9:09:00	0.01	0.04	2.20	0.12	110.23	120.39 ppm CO
02/27/07	9:09:15	0.11	0.37	1.90	0.12	65.58	
02/27/07	9:09:30	0.54	0.93	1.73	0.14	27.94	
02/27/07	9:09:45	0.25	0.24	1.87	4.34	5.99	
02/27/07	9:10:00	0.04	0.06	1.58	14.48	1.14	
02/27/07	9:10:15	0.01	0.04	1.47	35.99	0.60	
02/27/07	9:10:30	0.01	0.03	1.38	41.16	0.64	
02/27/07	9:10:45	0.01	0.03	1.29	42.51	0.34	
02/27/07	9:11:00	0.00	0.02	1.28	43.17	0.54	
02/27/07	9:11:15	0.01	0.02	1.22	43.88	0.64	
02/27/07	9:11:30	0.00	0.02	1.20	44.78	0.26	
02/27/07	9:11:45	0.00	0.03	1.12	45.23	0.39	System Bias
02/27/07	9:12:00	0.00	0.02	1.08	45.61	0.24	45.0ppm NO _x Injection
02/27/07	9:12:15	0.00	0.02	1.10	45.78	0.39	1.06 ppm SO ₂
02/27/07	9:12:30	0.00	0.02	1.06	45.81	0.44	45.75 ppm NO _x
02/27/07	9:12:45	0.00	0.02	1.03	45.81	0.28	0.34 ppm CO
02/27/07	9:13:00	0.00	0.02	1.03	45.81	0.24	
02/27/07	9:13:15	0.00	0.01	0.97	45.81	0.24	
02/27/07	9:13:30	0.00	0.02	0.95	46.71	3.14	
02/27/07	9:13:45	0.01	0.05	0.90	45.71	7.19	
02/27/07	9:14:00	0.38	0.77	1.09	45.56	4.34	
02/27/07	9:14:15	0.41	0.48	8.37	45.18	1.14	
02/27/07	9:14:30	0.08	0.07	24.05	34.48	0.14	
02/27/07	9:14:45	0.00	0.02	32.73	20.99	0.04	
02/27/07	9:15:00	0.00	0.01	38.90	3.11	0.04	
02/27/07	9:15:15	0.00	0.01	39.48	1.04	0.04	
02/27/07	9:15:30	0.00	0.02	41.20	0.47	0.04	
02/27/07	9:15:45	0.00	0.01	42.32	0.34	0.04	
02/27/07	9:16:00	0.00	0.01	42.68	0.27	0.04	
02/27/07	9:16:15	0.00	0.01	43.66	0.22	0.19	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	9:17:30	0.00	0.01	44.98	0.11	7.24	
02/27/07	9:17:45	0.00	0.05	44.78	0.12	21.49	
02/27/07	9:18:00	0.52	1.31	40.28	0.22	16.84	
02/27/07	9:18:15	3.07	4.87	30.52	0.39	4.89	
02/27/07	9:18:30	8.86	8.08	18.63	4.96	-0.36	
02/27/07	9:18:45	9.34	9.73	11.45	4.13	-1.11	
02/27/07	9:19:00	9.87	9.92	7.98	1.21	-1.16	
02/27/07	9:19:15	9.91	9.85	6.10	0.37	-1.41	
02/27/07	9:19:30	9.92	9.90	4.89	0.11	-1.36	System Bias
02/27/07	9:19:45	9.94	10.01	4.08	0.11	-1.36	10.0% Oxygen Injection
02/27/07	9:20:00	9.95	10.10	3.40	0.11	-1.26	9.95 % Oxygen
02/27/07	9:20:15	9.95	10.13	2.92	0.11	17.39	
02/27/07	9:20:30	9.95	9.83	2.88	0.11	53.03	
02/27/07	9:20:45	7.82	6.90	7.55	0.14	48.09	
02/27/07	9:21:00	4.62	6.29	16.99	3.36	16.34	
02/27/07	9:21:15	7.08	8.79	12.45	10.61	2.14	
02/27/07	9:21:30	9.35	9.88	7.51	8.81	-1.08	
02/27/07	9:21:45	9.76	9.97	5.04	4.19	-1.21	System Bias
02/27/07	9:22:00	9.79	10.00	3.76	0.88	-1.40	10.0% CO ₂ Injection
02/27/07	9:22:15	9.79	10.00	2.98	0.21	-1.41	10.00 % CO ₂
02/27/07	9:22:30	9.79	10.01	2.43	0.11	-1.36	
02/27/07	9:22:45	9.79	10.01	2.02	0.12	-1.34	
02/27/07	9:23:00	9.79	10.02	1.81	0.11	-1.16	
02/27/07	9:23:15	9.79	10.03	1.82	0.09	17.94	
02/27/07	9:23:30	9.73	9.59	1.61	0.02	57.13	
02/27/07	9:23:45	7.43	8.61	7.36	0.17	89.88	
02/27/07	9:24:00	3.54	4.77	22.88	3.46	108.32	
02/27/07	9:24:15	2.67	4.43	31.59	12.34	114.12	
02/27/07	9:24:30	2.70	4.37	36.16	17.76	109.42	
02/27/07	9:24:45	2.67	4.38	39.43	19.51	108.00	
02/27/07	9:25:00	2.59	4.40	42.45	19.76	105.93	
02/27/07	9:25:15	2.58	4.40	44.60	19.99	100.16	
02/27/07	9:25:30	2.54	4.41	46.09	20.01	95.83	
02/27/07	9:25:45	2.50	4.41	47.05	20.01	90.05	
02/27/07	9:26:00	2.51	4.38	47.59	20.01	80.33	Start Run 7
02/27/07	9:26:15	2.49	4.38	48.30	20.01	73.53	
02/27/07	9:26:30	2.40	4.40	49.64	20.01	77.83	
02/27/07	9:26:45	2.39	4.40	50.85	20.01	68.53	
02/27/07	9:27:00	2.45	4.38	51.34	20.01	107.03	
02/27/07	9:27:15	2.51	4.38	51.53	19.94	107.28	
02/27/07	9:27:30	2.53	4.37	51.78	19.91	104.53	
02/27/07	9:27:45	2.43	4.39	52.93	19.99	100.43	
02/27/07	9:28:00	2.37	4.40	54.27	20.01	114.83	
02/27/07	9:28:15	2.35	4.39	54.24	20.01	151.52	
02/27/07	9:28:30	2.50	4.34	53.37	20.01	168.32	
02/27/07	9:28:45	2.67	4.30	52.34	19.91	166.67	
02/27/07	9:29:00	2.70	4.31	51.79	19.91	166.72	
02/27/07	9:29:15	2.86	4.33	51.45	19.64	173.46	
02/27/07	9:29:30	2.71	4.32	51.18	19.98	187.62	
02/27/07	9:29:45	2.88	4.35	51.08	20.01	164.32	
02/27/07	9:30:00	2.61	4.36	51.05	20.01	160.92	
02/27/07	9:30:15	2.89	4.35	50.85	19.99	145.67	
02/27/07	9:30:30	2.85	4.36	50.74	20.01	140.02	
02/27/07	9:30:45	2.61	4.36	50.77	20.09	126.47	
02/27/07	9:31:00	2.65	4.34	50.80	20.11	108.43	
02/27/07	9:31:15	2.49	4.38	51.48	20.02	112.16	
02/27/07	9:31:30	2.42	4.38	51.96	20.01	123.32	
02/27/07	9:31:45	2.60	4.34	51.78	20.04	112.27	
02/27/07	9:32:00	2.66	4.35	51.85	20.11	104.42	
02/27/07	9:32:15	2.60	4.37	52.50	20.14	98.53	
02/27/07	9:32:30	2.51	4.38	53.09	20.26	108.22	
02/27/07	9:32:45	2.50	4.39	52.84	20.31	127.32	
02/27/07	9:33:00	2.64	4.35	52.27	20.31	127.22	
02/27/07	9:33:15	2.86	4.36	51.94	20.21	122.67	
02/27/07	9:33:30	2.82	4.37	51.67	20.21	121.92	
02/27/07	9:33:45	2.61	4.37	51.58	20.19	114.57	
02/27/07	9:34:00	2.62	4.36	51.66	20.11	108.32	
02/27/07	9:34:15	2.60	4.37	51.72	20.14	112.02	
02/27/07	9:34:30	2.56	4.36	52.05	20.21	111.52	
02/27/07	9:34:45	2.65	4.34	52.07	20.21	105.62	
02/27/07	9:35:00	2.56	4.36	52.03	20.21	111.72	
02/27/07	9:35:15	2.58	4.36	52.05	20.21	109.92	
02/27/07	9:35:30	2.65	4.34	52.38	20.26	102.52	
02/27/07	9:35:45	2.53	4.39	52.38	20.31	98.43	
02/27/07	9:36:00	2.52	4.39	52.15	20.31	96.33	
02/27/07	9:36:15	2.50	4.40	51.98	20.19	105.56	
02/27/07	9:36:30	2.52	4.37	51.83	20.08	107.32	
02/27/07	9:36:45	2.65	4.35	51.47	20.04	98.58	
02/27/07	9:37:00	2.62	4.36	51.35	20.11	90.23	
02/27/07	9:37:15	2.57	4.37	51.41	20.11	91.48	
02/27/07	9:37:30	2.47	4.39	51.68	20.16	84.63	
02/27/07	9:37:45	2.48	4.39	51.63	20.11	94.78	
02/27/07	9:38:00	2.50	4.36	51.84	20.11	102.62	
02/27/07	9:38:15	2.52	4.36	51.75	20.19	110.07	
02/27/07	9:38:30	2.55	4.35	51.50	20.08	113.62	
02/27/07	9:38:45	2.59	4.34	51.33	20.01	114.87	
02/27/07	9:39:00	2.58	4.34	51.37	20.01	111.62	
02/27/07	9:39:15	2.57	4.34	51.25	20.01	108.07	
02/27/07	9:39:30	2.54	4.35	51.02	20.01	104.22	
02/27/07	9:39:45	2.47	4.37	51.05	20.01	103.27	
02/27/07	9:40:00	2.45	4.36	51.14	20.01	107.12	
02/27/07	9:40:15	2.46	4.37	51.25	20.04	113.57	
02/27/07	9:40:30	2.55	4.35	51.10	20.11	107.02	
02/27/07	9:40:45	2.56	4.36	50.96	20.11	101.03	
02/27/07	9:41:00	2.46	4.40	51.12	20.11	106.52	
02/27/07	9:41:15	2.46	4.40	51.18	20.01	115.12	
02/27/07	9:41:30	2.55	4.38	50.99	19.99	121.52	
02/27/07	9:41:45	2.82	4.37	50.61	20.04	128.57	
02/27/07	9:42:00	2.87	4.34	50.31	20.11	122.42	
02/27/07	9:42:15	2.70	4.33	50.11	20.11	112.62	
02/27/07	9:42:30	2.61	4.35	50.25	20.11	116.02	
02/27/07	9:42:45	2.61	4.34	50.35	20.11	112.07	
02/27/07	9:43:00	2.87	4.33	50.43	20.11	101.92	
02/27/07	9:43:15	2.54	4.37	50.68	20.11	100.12	
02/27/07	9:43:30	2.46	4.38	51.00	20.11	107.02	
02/27/07	9:43:45	2.53	4.37	51.13	20.09	112.12	
02/27/07	9:44:00	2.59	4.34	51.06	20.08	105.72	
02/27/07	9:44:15	2.59	4.35	51.16	20.11	106.67	
02/27/07	9:44:30	2.54	4.35	51.53	20.11	106.92	
02/27/07	9:44:45	2.82	4.33	51.77	20.11	103.97	

Reference Method 15-second Averages							Comments
Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	
02/27/07	9:46:00	2.66	4.33	51.43	20.01	115.82	
02/27/07	9:46:15	2.65	4.33	51.36	20.01	106.17	
02/27/07	9:46:30	2.53	4.37	51.88	20.01	117.42	
02/27/07	9:46:45	2.57	4.35	51.77	20.01	116.12	
02/27/07	9:47:00	2.66	4.33	51.49	19.96	105.22	
02/27/07	9:47:15	2.61	4.35	51.31	19.91	92.38	
02/27/07	9:47:30	2.53	4.36	51.72	19.91	93.22	
02/27/07	9:47:45	2.49	4.37	52.30	20.01	99.87	
02/27/07	9:48:00	2.53	4.36	52.53	20.01	99.02	
02/27/07	9:48:15	2.51	4.37	52.55	20.04	105.37	
02/27/07	9:48:30	2.50	4.36	52.57	20.11	109.72	
02/27/07	9:48:45	2.55	4.35	52.40	20.11	105.67	
02/27/07	9:49:00	2.55	4.36	52.35	20.06	97.72	
02/27/07	9:49:15	2.45	4.36	52.52	20.01	88.27	
02/27/07	9:49:30	2.37	4.40	52.64	19.98	83.73	
02/27/07	9:49:45	2.31	4.41	53.23	20.01	91.42	
02/27/07	9:50:00	2.32	4.40	52.31	19.96	105.58	
02/27/07	9:50:15	2.43	4.38	50.20	19.91	113.32	
02/27/07	9:50:30	2.43	4.37	49.82	19.91	107.00	
02/27/07	9:50:45	2.36	4.39	50.26	19.91	104.82	
02/27/07	9:51:00	2.33	4.38	50.88	19.91	98.97	
02/27/07	9:51:15	2.35	4.38	51.82	19.91	106.47	
02/27/07	9:51:30	2.31	4.39	52.41	19.88	116.82	
02/27/07	9:51:45	2.40	4.38	52.97	19.91	123.42	
02/27/07	9:52:00	2.40	4.37	53.16	19.88	128.81	
02/27/07	9:52:15	2.48	4.37	53.32	19.81	128.82	
02/27/07	9:52:30	2.47	4.37	53.35	19.88	124.32	
02/27/07	9:52:45	2.44	4.40	53.25	19.91	125.52	
02/27/07	9:53:00	2.37	4.42	53.11	19.91	138.91	
02/27/07	9:53:15	2.45	4.39	52.71	19.88	135.66	
02/27/07	9:53:30	2.56	4.35	52.34	19.78	132.52	
02/27/07	9:53:45	2.61	4.34	52.08	19.81	126.42	
02/27/07	9:54:00	2.66	4.33	51.83	19.88	106.82	
02/27/07	9:54:15	2.58	4.35	52.09	20.06	98.82	
02/27/07	9:54:30	2.49	4.38	52.44	19.96	99.42	
02/27/07	9:54:45	2.49	4.38	52.70	19.94	83.32	
02/27/07	9:55:00	2.49	4.38	52.82	20.01	92.58	
02/27/07	9:55:15	2.41	4.40	53.28	19.89	100.17	
02/27/07	9:55:30	2.47	4.37	53.30	19.91	99.72	
02/27/07	9:55:45	2.52	4.36	53.13	19.83	93.77	
02/27/07	9:56:00	2.49	4.38	53.02	20.01	84.83	
02/27/07	9:56:15	2.44	4.37	52.85	19.98	78.93	
02/27/07	9:56:30	2.33	4.40	53.20	19.91	63.53	
02/27/07	9:56:45	2.31	4.40	53.48	19.88	104.17	
02/27/07	9:57:00	2.40	4.38	53.74	19.81	117.67	
02/27/07	9:57:15	2.51	4.35	53.94	19.81	121.67	
02/27/07	9:57:30	2.49	4.36	53.63	19.61	123.92	
02/27/07	9:57:45	2.51	4.35	53.37	19.81	126.02	
02/27/07	9:58:00	2.49	4.37	53.83	19.81	131.42	
02/27/07	9:58:15	2.48	4.38	52.99	19.91	130.72	
02/27/07	9:58:30	2.43	4.40	53.81	19.84	138.28	
02/27/07	9:58:45	2.43	4.40	52.86	19.81	152.41	
02/27/07	9:59:00	2.55	4.36	52.47	19.81	144.91	
02/27/07	9:59:15	2.61	4.38	52.19	19.83	142.66	
02/27/07	9:59:30	2.51	4.38	52.46	19.91	144.06	
02/27/07	9:59:45	2.50	4.37	52.89	19.91	134.68	
02/27/07	10:00:00	2.48	4.37	52.74	19.83	121.77	
02/27/07	10:00:15	2.38	4.38	52.77	19.71	125.27	
02/27/07	10:00:30	2.36	4.38	52.75	19.78	149.11	
02/27/07	10:00:45	2.47	4.38	52.49	19.81	162.28	
02/27/07	10:01:00	2.60	4.34	52.18	19.81	188.90	
02/27/07	10:01:15	2.75	4.32	51.90	19.81	170.55	
02/27/07	10:01:30	2.77	4.33	51.58	19.91	179.60	
02/27/07	10:01:45	2.67	4.38	51.42	19.83	173.30	
02/27/07	10:02:00	2.65	4.38	51.42	20.01	174.51	
02/27/07	10:02:15	2.67	4.34	51.45	20.01	171.86	
02/27/07	10:02:30	2.66	4.32	51.29	19.94	151.16	
02/27/07	10:02:45	2.61	4.34	51.44	19.91	142.28	
02/27/07	10:03:00	2.53	4.38	51.71	19.91	146.91	
02/27/07	10:03:15	2.50	4.37	51.78	20.01	161.01	
02/27/07	10:03:30	2.59	4.36	51.85	20.01	162.61	
02/27/07	10:03:45	2.65	4.39	50.42	20.01	173.51	
02/27/07	10:04:00	2.63	4.40	48.28	20.09	178.20	
02/27/07	10:04:15	2.68	4.39	47.89	20.11	167.96	
02/27/07	10:04:30	2.61	4.40	48.61	20.04	140.81	
02/27/07	10:04:45	2.50	4.42	49.30	20.01	127.46	
02/27/07	10:05:00	2.46	4.43	49.78	20.01	122.21	
02/27/07	10:05:15	2.49	4.42	50.13	20.11	109.57	
02/27/07	10:05:30	2.48	4.42	50.58	20.11	102.07	
02/27/07	10:05:45	2.38	4.44	50.93	20.21	98.57	
02/27/07	10:06:00	2.43	4.43	51.04	20.21	93.17	
02/27/07	10:06:15	2.43	4.43	51.26	20.24	93.72	
02/27/07	10:06:30	2.40	4.43	51.84	20.31	96.72	
02/27/07	10:06:45	2.48	4.41	51.81	20.21	88.82	
02/27/07	10:07:00	2.46	4.42	51.88	20.21	78.88	
02/27/07	10:07:15	2.41	4.44	51.82	20.21	75.58	
02/27/07	10:07:30	2.37	4.45	52.11	20.29	78.78	
02/27/07	10:07:45	2.37	4.48	52.26	20.34	90.22	
02/27/07	10:08:00	2.43	4.45	52.41	20.34	99.97	
02/27/07	10:08:15	2.52	4.43	52.50	20.29	107.22	
02/27/07	10:08:30	2.55	4.41	52.47	20.21	121.47	
02/27/07	10:08:45	2.62	4.37	52.38	20.19	127.71	
02/27/07	10:09:00	2.68	4.34	52.27	20.11	117.07	
02/27/07	10:09:15	2.60	4.35	52.36	20.11	110.97	
02/27/07	10:09:30	2.55	4.37	52.30	20.04	114.12	
02/27/07	10:09:45	2.57	4.37	52.15	20.04	116.67	
02/27/07	10:10:00	2.60	4.37	51.94	20.19	119.07	
02/27/07	10:10:15	2.60	4.39	51.71	20.29	120.02	
02/27/07	10:10:30	2.63	4.40	51.74	20.21	126.46	
02/27/07	10:10:45	2.63	4.40	51.69	20.24	132.37	
02/27/07	10:11:00	2.70	4.38	51.50	20.31	123.96	
02/27/07	10:11:15	2.72	4.38	51.34	20.21	109.42	
02/27/07	10:11:30	2.67	4.36	51.28	20.14	98.02	
02/27/07	10:11:45	2.85	4.35	51.17	20.11	81.12	
02/27/07	10:12:00	2.60	4.35	51.27	20.19	97.67	
02/27/07	10:12:15	2.56	4.35	51.59	20.29	90.02	
02/27/07	10:12:30	2.54	4.38	51.65	20.21	100.82	
02/27/07	10:12:45	2.54	4.36	52.12	20.21	118.42	
02/27/07	10:13:00	2.64	4.35	52.01	20.14	127.41	
02/27/07	10:13:15	2.74	4.33	51.59	20.04	124.17	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	10:14:45	2.59	4.36	51.17	20.19	103.62	
02/27/07	10:15:00	2.59	4.35	51.37	20.11	112.67	
02/27/07	10:15:15	2.62	4.34	51.71	20.21	113.52	
02/27/07	10:15:30	2.64	4.34	51.69	20.29	113.67	
02/27/07	10:15:45	2.58	4.37	51.60	20.19	119.87	
02/27/07	10:16:00	2.63	4.35	51.41	20.19	131.27	
02/27/07	10:16:15	2.66	4.34	51.34	20.21	136.72	
02/27/07	10:16:30	2.72	4.32	51.22	20.14	136.46	
02/27/07	10:16:45	2.74	4.32	50.84	20.11	146.94	
02/27/07	10:17:00	2.70	4.32	50.58	20.11	146.96	
02/27/07	10:17:15	2.71	4.32	50.63	20.11	153.91	
02/27/07	10:17:30	2.73	4.32	50.77	20.04	160.01	
02/27/07	10:17:45	2.73	4.33	50.67	20.15	170.01	
02/27/07	10:18:00	2.77	4.33	50.26	20.21	165.96	
02/27/07	10:18:15	2.79	4.34	49.93	20.21	152.11	
02/27/07	10:18:30	2.72	4.36	49.64	20.21	145.09	
02/27/07	10:18:45	2.66	4.37	49.95	20.21	133.51	
02/27/07	10:19:00	2.67	4.36	49.99	20.14	129.22	
02/27/07	10:19:15	2.65	4.36	49.95	20.18	116.32	
02/27/07	10:19:30	2.66	4.36	49.46	20.21	113.67	
02/27/07	10:19:45	2.66	4.35	47.47	20.08	119.02	
02/27/07	10:20:00	2.68	4.36	45.76	20.09	122.12	
02/27/07	10:20:15	2.68	4.36	45.42	20.16	107.62	
02/27/07	10:20:30	2.63	4.36	46.04	20.21	98.27	
02/27/07	10:20:45	2.51	4.39	47.10	20.28	109.62	
02/27/07	10:21:00	2.55	4.36	47.72	20.31	112.32	
02/27/07	10:21:15	2.66	4.35	49.03	20.31	112.22	
02/27/07	10:21:30	2.63	4.36	49.54	20.24	112.02	
02/27/07	10:21:45	2.68	4.34	49.72	20.21	102.22	
02/27/07	10:22:00	2.63	4.35	49.69	20.21	96.17	
02/27/07	10:22:15	2.60	4.40	49.01	20.18	96.93	
02/27/07	10:22:30	2.63	4.39	49.23	20.11	92.47	
02/27/07	10:22:45	2.59	4.37	49.53	20.08	78.23	
02/27/07	10:23:00	2.51	4.39	49.73	20.09	69.68	
02/27/07	10:23:15	2.37	4.41	50.23	20.11	70.34	
02/27/07	10:23:30	2.32	4.41	50.74	20.19	73.08	
02/27/07	10:23:45	2.37	4.41	51.02	20.11	70.35	
02/27/07	10:24:00	2.39	4.40	52.10	20.04	72.54	
02/27/07	10:24:15	2.35	4.41	52.78	20.01	77.63	
02/27/07	10:24:30	2.41	4.40	52.36	20.09	82.38	
02/27/07	10:24:45	2.39	4.40	51.95	20.16	97.72	
02/27/07	10:25:00	2.43	4.39	51.76	20.14	108.72	
02/27/07	10:25:15	2.52	4.36	51.70	20.08	116.12	
02/27/07	10:25:30	2.59	4.33	51.39	20.01	122.52	
02/27/07	10:25:45	2.63	4.31	50.98	20.01	120.12	End Run 7
02/27/07	10:26:00	2.62	4.33	50.84	19.94	115.42	
02/27/07	10:26:15						Reboot Computer
02/27/07	10:26:30						Reboot Computer
02/27/07	10:26:45						Reboot Computer
02/27/07	10:27:00						Reboot Computer
02/27/07	10:27:15						Reboot Computer
02/27/07	10:27:30						Reboot Computer
02/27/07	10:27:45						Reboot Computer
02/27/07	10:28:00						Reboot Computer
02/27/07	10:28:15						Reboot Computer
02/27/07	10:28:30						Reboot Computer
02/27/07	10:28:45						Reboot Computer
02/27/07	10:29:00						Reboot Computer
02/27/07	10:29:15						Reboot Computer
02/27/07	10:29:30						Reboot Computer
02/27/07	10:29:45						Reboot Computer
02/27/07	10:30:00						Reboot Computer
02/27/07	10:30:15						Reboot Computer
02/27/07	10:30:30						Reboot Computer
02/27/07	10:30:45						Reboot Computer
02/27/07	10:31:00						Reboot Computer
02/27/07	10:31:15						Reboot Computer
02/27/07	10:31:30						Reboot Computer
02/27/07	10:31:45						Reboot Computer
02/27/07	10:32:00	9.92	10.00	4.67	0.17	-1.45	
02/27/07	10:32:15	9.93	10.12	3.89	0.12	-1.40	System Bias
02/27/07	10:32:30	9.84	10.18	3.32	0.12	-1.55	10.0% Oxygen Injection
02/27/07	10:32:45	9.84	10.21	2.90	0.12	-1.64	9.94 % Oxygen
02/27/07	10:33:00	9.94	10.21	2.50	0.12	-0.15	
02/27/07	10:33:15	9.94	10.21	2.28	0.12	12.69	
02/27/07	10:33:30	9.46	9.43	2.19	0.12	14.64	
02/27/07	10:33:45	7.39	8.08	2.73	0.69	4.75	
02/27/07	10:34:00	8.74	9.47	2.66	2.32	-0.75	
02/27/07	10:34:15	9.66	9.99	2.76	4.52	-1.50	System Bias
02/27/07	10:34:30	9.77	10.04	2.36	1.97	-1.55	10.0% CO ₂ Injection
02/27/07	10:34:45	9.78	10.04	2.08	0.42	-1.50	10.04 % CO ₂
02/27/07	10:35:00	9.78	10.04	1.89	0.12	-1.45	
02/27/07	10:35:15	9.78	10.05	1.69	0.12	0.50	
02/27/07	10:35:30	9.79	10.05	1.60	0.07	14.35	
02/27/07	10:35:45	9.66	9.81	1.56	0.02	23.54	
02/27/07	10:36:00	7.75	7.37	1.61	0.37	42.64	
02/27/07	10:36:15	3.94	3.54	1.62	1.37	66.89	
02/27/07	10:36:30	1.20	0.68	1.56	2.62	114.93	
02/27/07	10:36:45	0.23	0.25	1.42	1.75	116.73	
02/27/07	10:37:00	0.09	0.10	1.31	0.32	120.23	System Bias
02/27/07	10:37:15	0.04	0.06	1.21	0.15	120.23	120.0ppm CO Injection
02/27/07	10:37:30	0.04	0.05	1.17	0.07	120.33	0.03 % Oxygen
02/27/07	10:37:45	0.03	0.06	1.20	0.02	120.43	0.05 % CO ₂
02/27/07	10:38:00	0.03	0.05	1.14	0.02	120.43	0.06 ppm NO _x
02/27/07	10:38:15	0.03	0.07	1.11	0.02	119.23	120.36 ppm CO
02/27/07	10:38:30	0.07	0.26	1.06	0.02	69.04	
02/27/07	10:38:45	0.57	1.14	1.05	0.12	41.49	
02/27/07	10:39:00	0.39	0.42	1.08	2.87	8.05	
02/27/07	10:39:15	0.06	0.10	1.05	12.87	1.65	
02/27/07	10:39:30	0.02	0.06	1.02	31.89	0.75	
02/27/07	10:39:45	0.02	0.05	0.99	40.21	0.50	
02/27/07	10:40:00	0.02	0.05	0.98	41.66	0.45	
02/27/07	10:40:15	0.01	0.04	1.02	42.34	0.45	
02/27/07	10:40:30	0.01	0.04	0.99	43.06	0.45	
02/27/07	10:40:45	0.01	0.04	0.99	43.79	0.45	
02/27/07	10:41:00	0.01	0.04	0.96	44.41	0.35	System Bias
02/27/07	10:41:15	0.01	0.04	0.98	44.68	0.30	45.0ppm NO _x Injection
02/27/07	10:41:30	0.01	0.03	0.99	45.68	0.35	0.96 ppm SO ₂
02/27/07	10:41:45	0.01	0.03	1.02	45.14	0.40	45.07 ppm NO _x
02/27/07	10:42:00	0.01	0.03	0.96	45.21	0.35	0.35 ppm CO

Reference Method 15-second Averages							Comments
Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	
02/27/07	10:43:15	0.09	0.09	23.85	34.74	0.25	
02/27/07	10:43:30	0.01	0.04	32.50	15.27	0.28	
02/27/07	10:43:45	0.01	0.03	37.87	4.45	0.22	
02/27/07	10:44:00	0.00	0.03	40.08	0.77	0.05	
02/27/07	10:44:15	0.00	0.03	41.87	0.45	0.05	
02/27/07	10:44:30	0.01	0.03	42.70	0.32	0.05	
02/27/07	10:44:45	0.00	0.02	43.42	0.25	0.05	
02/27/07	10:45:00	0.00	0.02	43.90	0.22	0.05	
02/27/07	10:45:15	0.00	0.02	44.28	0.22	0.15	
02/27/07	10:45:30	0.00	0.02	44.51	0.17	0.05	
02/27/07	10:45:45	0.01	0.02	44.68	0.12	0.05	
02/27/07	10:46:00	0.00	0.02	44.98	0.12	0.05	System Bias 45.0ppm SO ₂ Injection 45.08 ppm SO ₂
02/27/07	10:46:15	0.00	0.02	45.02	0.12	0.11	
02/27/07	10:46:30	0.00	0.02	45.14	0.12	0.15	
02/27/07	10:46:45	0.01	0.02	45.29	0.12	-0.05	
02/27/07	10:47:00	0.00	0.02	45.32	0.12	0.05	
02/27/07	10:47:15	0.00	0.02	45.38	0.12	0.05	
02/27/07	10:47:30	0.00	0.02	45.43	0.12	0.05	
02/27/07	10:47:45	0.00	0.02	45.45	0.12	0.05	
02/27/07	10:48:00	0.00	0.02	45.45	0.12	0.05	
02/27/07	10:48:15	0.00	0.02	45.51	0.12	1.85	
02/27/07	10:48:30	0.00	0.02	44.58	0.12	17.95	
02/27/07	10:48:45	0.19	0.87	42.75	0.12	49.04	
02/27/07	10:49:00	1.42	3.05	41.18	1.17	88.94	
02/27/07	10:49:15	2.30	4.20	43.77	5.39	71.49	
02/27/07	10:49:30	2.51	4.38	44.29	14.27	88.94	
02/27/07	10:49:45	2.51	4.39	43.24	18.92	74.44	
02/27/07	10:50:00	2.49	4.40	42.84	20.27	79.34	Start Run 8
02/27/07	10:50:15	2.57	4.40	44.24	20.34	84.19	
02/27/07	10:50:30	2.58	4.40	48.48	20.47	90.54	
02/27/07	10:50:45	2.68	4.38	47.80	20.54	98.89	
02/27/07	10:51:00	2.73	4.37	48.10	20.62	100.24	
02/27/07	10:51:15	2.79	4.35	48.41	20.69	99.49	
02/27/07	10:51:30	2.78	4.38	48.87	20.72	101.54	
02/27/07	10:51:45	2.78	4.38	49.38	20.84	99.49	
02/27/07	10:52:00	2.75	4.37	50.08	20.62	94.84	
02/27/07	10:52:15	2.74	4.38	50.70	20.69	85.14	
02/27/07	10:52:30	2.65	4.38	51.34	20.77	73.84	
02/27/07	10:52:45	2.52	4.40	52.04	20.79	71.84	
02/27/07	10:53:00	2.43	4.41	52.78	20.87	84.14	
02/27/07	10:53:15	2.45	4.40	53.37	20.82	101.59	
02/27/07	10:53:30	2.60	4.36	53.30	20.87	116.33	
02/27/07	10:53:45	2.67	4.38	52.93	20.72	125.33	
02/27/07	10:54:00	2.73	4.37	52.48	20.72	131.43	
02/27/07	10:54:15	2.71	4.38	52.00	20.72	135.13	
02/27/07	10:54:30	2.77	4.37	51.48	20.87	131.73	
02/27/07	10:54:45	2.77	4.38	51.10	20.70	133.33	
02/27/07	10:55:00	2.70	4.39	51.00	20.72	139.83	
02/27/07	10:55:15	2.80	4.35	50.95	20.72	132.68	
02/27/07	10:55:30	2.88	4.35	50.84	20.72	107.44	
02/27/07	10:55:45	2.78	4.38	51.03	20.74	67.59	
02/27/07	10:56:00	2.80	4.42	51.54	20.82	84.54	
02/27/07	10:56:15	2.57	4.41	51.80	20.79	89.94	
02/27/07	10:56:30	2.83	4.39	51.84	20.72	92.34	
02/27/07	10:56:45	2.69	4.37	52.00	20.74	78.24	
02/27/07	10:57:00	2.87	4.39	51.99	20.77	88.44	
02/27/07	10:57:15	2.45	4.43	52.59	20.72	73.04	
02/27/07	10:57:30	2.50	4.42	53.02	20.72	78.04	
02/27/07	10:57:45	2.58	4.41	53.12	20.82	83.24	
02/27/07	10:58:00	2.80	4.40	53.12	20.82	91.44	
02/27/07	10:58:15	2.65	4.37	52.91	20.72	86.39	
02/27/07	10:58:30	2.69	4.38	52.82	20.72	94.94	
02/27/07	10:58:45	2.70	4.35	52.88	20.69	91.04	
02/27/07	10:59:00	2.87	4.38	53.08	20.57	83.84	
02/27/07	10:59:15	2.83	4.38	53.33	20.52	74.89	
02/27/07	10:59:30	2.48	4.42	53.73	20.52	72.24	
02/27/07	10:59:45	2.47	4.41	53.93	20.42	74.34	
02/27/07	11:00:00	2.48	4.40	54.09	20.47	72.04	
02/27/07	11:00:15	2.44	4.40	54.31	20.59	84.89	
02/27/07	11:00:30	2.42	4.41	54.43	20.47	85.34	
02/27/07	11:00:45	2.38	4.42	54.90	20.54	77.46	
02/27/07	11:01:00	2.45	4.40	54.99	20.57	91.24	
02/27/07	11:01:15	2.54	4.39	54.88	20.42	100.51	
02/27/07	11:01:30	2.82	4.38	54.88	20.37	105.14	
02/27/07	11:01:45	2.59	4.38	54.82	20.42	109.41	
02/27/07	11:02:00	2.85	4.37	54.30	20.42	115.53	
02/27/07	11:02:15	2.89	4.36	53.63	20.44	118.48	
02/27/07	11:02:30	2.88	4.37	53.63	20.52	119.53	
02/27/07	11:02:45	2.83	4.37	53.40	20.49	120.38	
02/27/07	11:03:00	2.87	4.38	53.11	20.42	122.23	
02/27/07	11:03:15	2.84	4.38	52.83	20.42	134.63	
02/27/07	11:03:30	2.89	4.35	52.63	20.42	132.63	
02/27/07	11:03:45	2.72	4.35	52.50	20.32	121.63	
02/27/07	11:04:00	2.81	4.37	52.84	20.32	106.73	
02/27/07	11:04:15	2.54	4.38	52.78	20.32	91.14	
02/27/07	11:04:30	2.48	4.39	52.78	20.27	84.74	
02/27/07	11:04:45	2.44	4.39	52.82	20.32	78.89	
02/27/07	11:05:00	2.40	4.40	53.24	20.32	79.04	
02/27/07	11:05:15	2.38	4.42	53.52	20.39	84.89	
02/27/07	11:05:30	2.38	4.42	53.77	20.27	93.24	
02/27/07	11:05:45	2.45	4.40	53.75	20.19	108.34	
02/27/07	11:06:00	2.53	4.38	53.84	20.17	118.63	
02/27/07	11:06:15	2.59	4.36	53.73	20.29	123.48	
02/27/07	11:06:30	2.63	4.34	53.67	20.22	122.63	
02/27/07	11:06:45	2.82	4.35	53.32	20.22	122.03	
02/27/07	11:07:00	2.63	4.34	52.82	20.27	116.34	
02/27/07	11:07:15	2.63	4.35	52.55	20.32	109.19	
02/27/07	11:07:30	2.54	4.37	52.80	20.32	111.34	
02/27/07	11:07:45	2.48	4.39	53.21	20.32	122.29	
02/27/07	11:08:00	2.47	4.38	53.38	20.27	121.34	
02/27/07	11:08:15	2.54	4.38	53.23	20.22	116.63	
02/27/07	11:08:30	2.50	4.39	53.12	20.17	119.43	
02/27/07	11:08:45	2.50	4.38	52.80	20.27	125.84	
02/27/07	11:09:00	2.56	4.37	52.48	20.37	121.34	
02/27/07	11:09:15	2.58	4.38	52.33	20.22	105.44	
02/27/07	11:09:30	2.48	4.40	52.47	20.17	85.04	
02/27/07	11:09:45	2.41	4.41	52.74	20.22	89.29	
02/27/07	11:10:00	2.38	4.42	53.09	20.22	92.94	
02/27/07	11:10:15	2.41	4.40	53.36	20.22	96.39	
02/27/07	11:10:30	2.43	4.41	53.54	20.27	99.14	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	11:11:45	2.52	4.38	52.76	20.22	141.73	
02/27/07	11:12:00	2.62	4.34	52.23	20.22	142.33	
02/27/07	11:12:15	2.68	4.33	51.90	20.22	130.73	
02/27/07	11:12:30	2.65	4.35	51.61	20.22	118.63	
02/27/07	11:12:45	2.55	4.38	51.67	20.22	108.84	
02/27/07	11:13:00	2.48	4.39	52.63	20.27	89.74	
02/27/07	11:13:15	2.40	4.41	53.61	20.29	98.54	
02/27/07	11:13:30	2.38	4.41	53.74	20.17	105.04	
02/27/07	11:13:45	2.43	4.38	54.06	20.12	114.19	
02/27/07	11:14:00	2.51	4.35	54.31	20.07	119.13	
02/27/07	11:14:15	2.54	4.35	54.05	20.04	129.88	
02/27/07	11:14:30	2.56	4.34	53.84	20.12	139.93	
02/27/07	11:14:45	2.58	4.32	53.35	20.14	141.98	
02/27/07	11:15:00	2.58	4.32	53.41	20.17	140.53	
02/27/07	11:15:15	2.48	4.34	53.48	20.09	154.78	
02/27/07	11:15:30	2.48	4.35	53.98	20.02	163.83	
02/27/07	11:15:45	2.52	4.34	53.58	20.04	169.83	
02/27/07	11:16:00	2.52	4.35	53.27	20.07	179.73	
02/27/07	11:16:15	2.55	4.34	52.98	19.94	170.02	
02/27/07	11:16:30	2.65	4.33	52.69	20.07	160.02	
02/27/07	11:16:45	2.71	4.32	52.47	20.12	167.82	
02/27/07	11:17:00	2.68	4.34	52.41	20.12	178.42	
02/27/07	11:17:15	2.61	4.38	52.53	20.12	173.77	
02/27/07	11:17:30	2.60	4.37	53.17	20.12	168.53	
02/27/07	11:17:45	2.53	4.40	53.42	20.12	173.16	
02/27/07	11:18:00	2.48	4.40	53.18	20.17	175.73	
02/27/07	11:18:15	2.58	4.38	52.45	20.22	182.68	
02/27/07	11:18:30	2.59	4.38	51.98	20.22	154.83	
02/27/07	11:18:45	2.53	4.38	52.41	20.24	140.53	
02/27/07	11:19:00	2.48	4.38	53.04	20.27	141.03	
02/27/07	11:19:15	2.42	4.38	53.02	20.19	153.18	
02/27/07	11:19:30	2.53	4.35	52.78	20.12	160.83	
02/27/07	11:19:45	2.55	4.35	52.56	20.22	164.78	
02/27/07	11:20:00	2.58	4.34	52.38	20.22	185.73	
02/27/07	11:20:15	2.54	4.35	52.26	20.19	170.13	
02/27/07	11:20:30	2.58	4.34	52.22	20.06	170.32	
02/27/07	11:20:45	2.69	4.32	52.04	20.12	173.83	
02/27/07	11:21:00	2.72	4.32	51.73	20.12	168.43	
02/27/07	11:21:15	2.61	4.36	51.56	20.14	167.83	
02/27/07	11:21:30	2.56	4.36	51.81	20.22	168.63	
02/27/07	11:21:45	2.63	4.35	51.80	20.19	168.98	
02/27/07	11:22:00	2.60	4.36	52.42	20.12	168.83	
02/27/07	11:22:15	2.58	4.36	52.70	20.12	171.28	
02/27/07	11:22:30	2.82	4.35	52.60	20.04	172.82	
02/27/07	11:22:45	2.69	4.33	52.28	20.02	169.78	
02/27/07	11:23:00	2.71	4.32	52.03	20.02	144.73	
02/27/07	11:23:15	2.63	4.35	51.88	20.02	122.59	
02/27/07	11:23:30	2.46	4.38	52.23	20.02	125.13	
02/27/07	11:23:45	2.43	4.38	52.74	20.02	135.83	
02/27/07	11:24:00	2.50	4.38	52.68	20.02	144.83	
02/27/07	11:24:15	2.54	4.37	52.79	20.02	151.83	
02/27/07	11:24:30	2.60	4.35	52.70	19.94	151.23	
02/27/07	11:24:45	2.55	4.36	52.71	19.89	163.63	
02/27/07	11:25:00	2.58	4.35	52.64	19.82	173.43	
02/27/07	11:25:15	2.65	4.33	52.55	19.82	173.98	
02/27/07	11:25:30	2.83	4.34	52.56	19.84	167.03	
02/27/07	11:25:45	2.57	4.36	52.65	19.79	157.33	
02/27/07	11:26:00	2.50	4.38	52.84	19.72	158.83	
02/27/07	11:26:15	2.48	4.37	52.60	19.72	160.56	
02/27/07	11:26:30	2.54	4.35	52.43	19.72	160.43	
02/27/07	11:26:45	2.53	4.35	52.48	19.72	163.83	
02/27/07	11:27:00	2.49	4.36	52.60	19.72	160.83	
02/27/07	11:27:15	2.53	4.38	52.51	19.72	183.98	
02/27/07	11:27:30	2.48	4.39	52.38	19.79	176.22	
02/27/07	11:27:45	2.57	4.37	52.19	19.92	168.47	
02/27/07	11:28:00	2.70	4.34	51.76	19.89	168.53	
02/27/07	11:28:15	2.65	4.38	51.43	20.02	162.13	
02/27/07	11:28:30	2.54	4.38	51.66	19.94	167.72	
02/27/07	11:28:45	2.54	4.37	51.78	19.82	160.02	
02/27/07	11:29:00	2.64	4.35	51.48	19.92	174.72	
02/27/07	11:29:15	2.70	4.33	51.18	19.84	167.13	
02/27/07	11:29:30	2.82	4.34	51.05	19.82	151.13	
02/27/07	11:29:45	2.58	4.36	51.10	19.89	142.78	
02/27/07	11:30:00	2.50	4.37	51.39	19.82	145.43	
02/27/07	11:30:15	2.52	4.37	51.61	19.69	137.18	
02/27/07	11:30:30	2.55	4.38	51.55	19.82	128.14	
02/27/07	11:30:45	2.52	4.39	51.84	19.82	124.09	
02/27/07	11:31:00	2.48	4.40	52.60	19.69	120.54	
02/27/07	11:31:15	2.48	4.41	52.89	19.92	120.89	
02/27/07	11:31:30	2.45	4.43	52.70	19.92	119.32	
02/27/07	11:31:45	2.48	4.43	52.46	19.89	110.04	
02/27/07	11:32:00	2.45	4.44	52.30	19.89	99.01	
02/27/07	11:32:15	2.45	4.44	52.39	20.04	91.84	
02/27/07	11:32:30	2.39	4.44	52.49	20.12	93.87	
02/27/07	11:32:45	2.39	4.43	52.41	20.22	100.54	
02/27/07	11:33:00	2.42	4.42	52.25	20.14	102.30	
02/27/07	11:33:15	2.46	4.42	52.18	20.02	103.64	
02/27/07	11:33:30	2.45	4.42	52.15	20.02	111.41	
02/27/07	11:33:45	2.43	4.41	52.13	20.14	121.29	
02/27/07	11:34:00	2.46	4.40	52.08	20.22	130.74	
02/27/07	11:34:15	2.48	4.39	51.95	20.09	136.43	
02/27/07	11:34:30	2.54	4.37	51.36	19.94	139.33	
02/27/07	11:34:45	2.55	4.37	50.38	20.02	144.13	
02/27/07	11:35:00	2.50	4.38	49.75	20.02	141.58	
02/27/07	11:35:15	2.54	4.34	49.58	20.09	131.74	
02/27/07	11:35:30	2.52	4.35	49.84	20.02	127.89	
02/27/07	11:35:45	2.50	4.36	50.41	20.02	126.89	
02/27/07	11:36:00	2.51	4.37	50.82	20.02	122.34	
02/27/07	11:36:15	2.48	4.38	51.12	20.12	131.94	
02/27/07	11:36:30	2.47	4.38	51.35	20.12	133.44	
02/27/07	11:36:45	2.50	4.38	51.38	20.12	133.29	
02/27/07	11:37:00	2.49	4.39	51.25	20.19	132.24	
02/27/07	11:37:15	2.51	4.37	51.06	20.22	127.39	
02/27/07	11:37:30	2.52	4.37	50.92	20.14	122.29	
02/27/07	11:37:45	2.50	4.38	51.18	20.14	117.19	
02/27/07	11:38:00	2.48	4.39	51.67	20.14	117.19	
02/27/07	11:38:15	2.45	4.40	52.03	20.04	116.39	
02/27/07	11:38:30	2.44	4.40	52.32	20.12	106.74	
02/27/07	11:38:45	2.40	4.40	52.31	20.12	104.79	
02/27/07	11:39:00	2.39	4.38	52.21	20.12	106.89	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	11:40:30	2.58	4.35	52.01	20.09	145.93	
02/27/07	11:40:45	2.53	4.38	52.15	20.12	137.39	
02/27/07	11:41:00	2.56	4.38	52.00	20.12	122.54	
02/27/07	11:41:15	2.48	4.38	51.94	20.02	112.24	
02/27/07	11:41:30	2.40	4.40	52.04	20.02	117.34	
02/27/07	11:41:45	2.37	4.40	52.27	20.02	130.48	
02/27/07	11:42:00	2.48	4.38	52.29	19.94	120.94	
02/27/07	11:42:15	2.53	4.38	52.25	19.94	125.44	
02/27/07	11:42:30	2.48	4.37	52.42	20.02	126.34	
02/27/07	11:42:45	2.52	4.37	52.38	20.04	124.69	
02/27/07	11:43:00	2.48	4.39	52.19	20.12	125.59	
02/27/07	11:43:15	2.50	4.38	51.94	20.12	121.14	
02/27/07	11:43:30	2.48	4.39	52.01	20.19	117.69	
02/27/07	11:43:45	2.43	4.39	52.20	20.12	118.24	
02/27/07	11:44:00	2.48	4.38	52.34	20.12	129.34	
02/27/07	11:44:15	2.50	4.38	52.22	20.02	142.38	
02/27/07	11:44:30	2.61	4.33	51.80	20.02	147.18	
02/27/07	11:44:45	2.71	4.31	51.25	20.02	147.33	
02/27/07	11:45:00	2.73	4.31	50.95	20.09	148.99	
02/27/07	11:45:15	2.74	4.32	50.76	20.24	137.13	
02/27/07	11:45:30	2.73	4.33	50.53	20.32	121.99	
02/27/07	11:45:45	2.61	4.39	50.55	20.32	115.94	
02/27/07	11:46:00	2.50	4.40	50.69	20.32	111.29	
02/27/07	11:46:15	2.48	4.39	50.82	20.39	103.94	
02/27/07	11:46:30	2.51	4.39	50.94	20.24	103.64	
02/27/07	11:46:45	2.47	4.39	51.05	20.32	109.19	
02/27/07	11:47:00	2.50	4.37	51.28	20.24	120.74	
02/27/07	11:47:15	2.57	4.34	51.18	20.22	119.49	
02/27/07	11:47:30	2.60	4.35	51.28	20.22	121.29	
02/27/07	11:47:45	2.49	4.39	51.57	20.37	131.79	
02/27/07	11:48:00	2.51	4.37	51.49	20.34	143.49	
02/27/07	11:48:15	2.56	4.37	51.27	20.27	160.68	
02/27/07	11:48:30	2.60	4.38	50.99	20.32	170.13	
02/27/07	11:48:45	2.67	4.35	50.67	20.32	159.63	
02/27/07	11:49:00	2.62	4.37	50.75	20.24	146.63	
02/27/07	11:49:15	2.55	4.39	50.59	20.17	139.78	
02/27/07	11:49:30	2.54	4.38	50.52	20.22	137.53	
02/27/07	11:49:45	2.55	4.39	51.00	20.22	143.68	End Run 9
02/27/07	11:50:00	2.57	4.38	51.20	20.29	148.48	
02/27/07	11:50:15	2.63	4.37	50.84	20.42	142.23	
02/27/07	11:50:30	2.63	4.38	50.52	20.42	141.33	
02/27/07	11:50:45	2.60	4.39	50.27	20.42	141.99	
02/27/07	11:51:00	2.64	4.37	50.00	20.49	98.79	
02/27/07	11:51:15	2.40	3.15	47.15	20.52	34.30	
02/27/07	11:51:30	1.04	0.83	44.16	20.34	5.20	
02/27/07	11:51:45	0.16	0.15	43.78	9.97	1.35	
02/27/07	11:52:00	0.04	0.08	43.84	4.35	1.05	
02/27/07	11:52:15	0.02	0.06	43.96	0.52	1.05	
02/27/07	11:52:30	0.02	0.06	44.03	0.27	0.90	
02/27/07	11:52:45	0.02	0.06	44.08	0.22	0.70	
02/27/07	11:53:00	0.02	0.05	44.09	0.15	0.65	
02/27/07	11:53:15	0.02	0.05	44.15	0.12	0.65	
02/27/07	11:53:30	0.01	0.04	44.25	0.12	0.65	
02/27/07	11:53:45	0.02	0.04	44.27	0.12	0.60	
02/27/07	11:54:00	0.02	0.04	44.26	0.12	0.65	
02/27/07	11:54:15	0.01	0.04	44.32	0.12	0.65	
02/27/07	11:54:30	0.01	0.04	44.36	0.12	0.60	
02/27/07	11:54:45	0.01	0.04	44.42	0.12	0.65	
02/27/07	11:55:00	0.01	0.04	44.62	0.12	0.65	System Bias
02/27/07	11:55:15	0.01	0.03	44.75	0.12	0.70	45.0ppm SO ₂ Injection
02/27/07	11:55:30	0.01	0.03	44.78	0.12	0.70	44.74 ppm SO ₂
02/27/07	11:55:45	0.01	0.03	44.73	0.12	0.70	
02/27/07	11:56:00	0.02	0.03	44.70	0.12	0.66	
02/27/07	11:56:15	0.01	0.03	44.64	0.12	1.00	
02/27/07	11:56:30	0.02	0.03	44.57	0.12	0.55	
02/27/07	11:56:45	0.01	0.03	44.60	0.12	6.15	
02/27/07	11:57:00	0.05	0.18	43.99	0.12	10.05	
02/27/07	11:57:15	0.51	0.65	38.16	0.52	31.55	
02/27/07	11:57:30	0.29	0.32	24.71	1.45	84.80	
02/27/07	11:57:45	0.09	0.10	15.21	2.37	114.59	
02/27/07	11:58:00	0.04	0.04	10.36	1.80	119.69	
02/27/07	11:58:15	0.03	0.03	7.66	0.27	120.69	System Bias
02/27/07	11:58:30	0.02	0.03	6.08	0.15	121.14	120.0ppm CO Injection
02/27/07	11:58:45	0.02	0.03	4.96	0.12	121.04	0.62 % Oxygen
02/27/07	11:59:00	0.01	0.03	4.17	0.05	121.04	0.03 % CO ₂
02/27/07	11:59:15	0.02	0.03	3.59	0.02	121.44	0.08 ppm NO _x
02/27/07	11:59:30	0.01	0.03	3.20	0.02	116.74	121.16 ppm CO
02/27/07	11:59:45	0.01	0.03	2.66	0.02	106.69	
02/27/07	12:00:00	0.29	0.71	2.55	0.02	71.35	
02/27/07	12:00:15	0.59	0.79	2.41	1.37	23.35	
02/27/07	12:00:30	0.17	0.14	2.27	4.80	4.00	
02/27/07	12:00:45	0.03	0.04	1.31	27.12	1.60	
02/27/07	12:01:00	0.01	0.03	1.16	37.12	1.45	
02/27/07	12:01:15	0.02	0.03	1.04	42.12	1.21	
02/27/07	12:01:30	0.02	0.03	0.96	42.62	1.06	
02/27/07	12:01:45	0.01	0.02	0.89	43.47	1.05	
02/27/07	12:02:00	0.02	0.02	0.83	44.09	1.05	
02/27/07	12:02:15	0.01	0.02	0.73	44.61	1.05	
02/27/07	12:02:30	0.02	0.02	0.71	45.32	1.05	System Bias
02/27/07	12:02:45	0.02	0.02	0.67	45.61	0.45	45.0ppm NO _x Injection
02/27/07	12:03:00	0.01	0.02	0.62	45.71	0.35	0.62 ppm SO ₂
02/27/07	12:03:15	0.02	0.04	0.58	45.71	0.17	45.69 ppm NO _x
02/27/07	12:03:30	0.46	1.14	0.60	45.71	0.15	0.28 ppm CO
02/27/07	12:03:45	1.43	2.69	3.07	44.27	22.27	
02/27/07	12:04:00	4.27	5.57	6.11	39.09	6.90	
02/27/07	12:04:15	8.17	8.60	5.30	26.62	0.25	
02/27/07	12:04:30	9.69	9.84	3.84	14.67	-0.50	
02/27/07	12:04:45	9.62	9.87	3.02	4.57	-0.55	
02/27/07	12:05:00	9.94	9.80	2.50	1.30	-0.70	
02/27/07	12:05:15	9.96	9.87	2.17	0.37	-0.75	
02/27/07	12:05:30	9.97	10.03	2.00	0.32	-0.75	System Bias
02/27/07	12:05:45	9.97	10.13	1.79	0.22	-0.75	10.0% Oxygen Injection
02/27/07	12:06:00	9.98	10.17	1.66	0.22	-0.75	9.98 % Oxygen
02/27/07	12:06:15	9.98	10.20	1.59	0.17	0.65	
02/27/07	12:06:30	9.98	10.20	1.48	0.12	12.55	
02/27/07	12:06:45	9.58	9.50	1.55	0.12	15.35	
02/27/07	12:07:00	7.26	7.84	2.50	0.57	6.85	
02/27/07	12:07:15	8.47	9.26	2.93	2.47	0.15	
02/27/07	12:07:30	9.64	9.65	2.65	6.00	-0.70	
02/27/07	12:07:45	9.80	10.04	2.27	2.37	-0.85	System Bias

Reference Method 15-second Averages							Comments
Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	
02/27/07	12:09:00	9.82	10.04	1.49	0.12	1.76	
02/27/07	12:09:15	9.82	10.03	1.40	0.12	48.65	
02/27/07	12:09:30	8.66	8.30	2.70	0.12	85.50	
02/27/07	12:09:45	4.86	5.40	14.78	0.67	113.74	
02/27/07	12:10:00	2.89	4.50	27.20	6.45	124.04	
02/27/07	12:10:15	2.71	4.40	32.09	16.37	126.74	
02/27/07	12:10:30	2.75	4.38	35.22	19.14	127.44	
02/27/07	12:10:45	2.71	4.39	38.64	19.67	140.54	
02/27/07	12:11:00	2.74	4.37	41.78	19.99	143.24	
02/27/07	12:11:15	2.83	4.35	44.35	20.02	127.34	
02/27/07	12:11:30	2.62	4.38	48.03	20.02	110.89	
02/27/07	12:11:45	2.69	4.40	47.45	20.17	95.95	
02/27/07	12:12:00	2.60	4.41	48.42	20.22	91.95	Start Run 8
02/27/07	12:12:15	2.56	4.41	49.04	20.12	85.95	
02/27/07	12:12:30	2.59	4.39	49.83	20.13	79.35	
02/27/07	12:12:45	2.54	4.39	50.74	20.22	72.65	
02/27/07	12:13:00	2.52	4.40	51.27	20.29	88.20	
02/27/07	12:13:15	2.49	4.40	52.31	20.32	67.85	
02/27/07	12:13:30	2.45	4.41	53.19	20.39	89.90	
02/27/07	12:13:45	2.51	4.39	53.16	20.42	74.05	
02/27/07	12:14:00	2.56	4.39	53.01	20.39	75.90	
02/27/07	12:14:15	2.58	4.38	52.96	20.37	75.15	
02/27/07	12:14:30	2.53	4.37	52.88	20.39	76.10	
02/27/07	12:14:45	2.52	4.37	52.98	20.27	77.15	
02/27/07	12:15:00	2.53	4.36	53.02	20.29	79.00	
02/27/07	12:15:15	2.47	4.36	53.45	20.32	94.15	
02/27/07	12:15:30	2.49	4.35	53.78	20.29	109.09	
02/27/07	12:15:45	2.60	4.33	53.67	20.17	114.04	
02/27/07	12:16:00	2.64	4.33	53.25	20.12	114.94	
02/27/07	12:16:15	2.54	4.36	53.13	20.12	127.44	
02/27/07	12:16:30	2.53	4.35	53.04	20.09	131.64	
02/27/07	12:16:45	2.59	4.33	52.88	20.02	124.94	
02/27/07	12:17:00	2.62	4.33	52.66	20.02	121.64	
02/27/07	12:17:15	2.57	4.34	52.67	20.07	132.14	
02/27/07	12:17:30	2.62	4.32	52.90	20.12	128.34	
02/27/07	12:17:45	2.66	4.32	52.85	20.12	116.64	
02/27/07	12:18:00	2.56	4.35	53.01	20.12	112.69	
02/27/07	12:18:15	2.54	4.37	53.10	20.12	107.34	
02/27/07	12:18:30	2.52	4.36	53.10	20.12	112.64	
02/27/07	12:18:45	2.50	4.39	53.15	20.12	127.94	
02/27/07	12:19:00	2.57	4.37	53.14	20.09	135.14	
02/27/07	12:19:15	2.85	4.35	52.78	20.02	134.14	
02/27/07	12:19:30	2.68	4.34	52.29	20.04	128.64	
02/27/07	12:19:45	2.64	4.34	52.22	20.12	116.94	
02/27/07	12:20:00	2.57	4.36	52.57	20.12	111.34	
02/27/07	12:20:15	2.50	4.37	52.74	20.12	111.54	
02/27/07	12:20:30	2.50	4.37	52.71	20.07	113.64	
02/27/07	12:20:45	2.50	4.37	52.66	20.12	122.64	
02/27/07	12:21:00	2.50	4.37	52.67	20.19	129.94	
02/27/07	12:21:15	2.56	4.36	52.42	20.17	132.74	
02/27/07	12:21:30	2.57	4.38	51.94	20.09	142.74	
02/27/07	12:21:45	2.59	4.35	51.43	20.02	156.94	
02/27/07	12:22:00	2.66	4.33	50.96	20.12	158.69	
02/27/07	12:22:15	2.72	4.33	50.50	20.22	156.94	
02/27/07	12:22:30	2.67	4.35	50.31	20.17	158.34	
02/27/07	12:22:45	2.68	4.36	50.11	20.22	149.34	
02/27/07	12:23:00	2.64	4.37	50.05	20.22	139.99	
02/27/07	12:23:15	2.60	4.36	50.37	20.22	129.64	
02/27/07	12:23:30	2.56	4.39	50.69	20.17	139.29	
02/27/07	12:23:45	2.60	4.38	50.50	20.22	143.54	
02/27/07	12:24:00	2.73	4.35	50.04	20.32	129.79	
02/27/07	12:24:15	2.65	4.36	49.97	20.42	113.64	
02/27/07	12:24:30	2.54	4.40	50.27	20.42	104.99	
02/27/07	12:24:45	2.51	4.40	50.70	20.42	92.75	
02/27/07	12:25:00	2.47	4.41	51.24	20.42	69.90	
02/27/07	12:25:15	2.40	4.42	52.07	20.42	91.85	
02/27/07	12:25:30	2.45	4.41	52.51	20.34	97.75	
02/27/07	12:25:45	2.46	4.41	52.39	20.27	110.04	
02/27/07	12:26:00	2.56	4.38	51.94	20.19	112.14	
02/27/07	12:26:15	2.62	4.36	51.45	20.17	112.44	
02/27/07	12:26:30	2.61	4.35	51.33	20.22	112.64	
02/27/07	12:26:45	2.83	4.35	51.36	20.27	122.54	
02/27/07	12:27:00	2.64	4.35	51.40	20.34	129.69	
02/27/07	12:27:15	2.68	4.35	51.01	20.42	137.14	
02/27/07	12:27:30	2.70	4.34	50.75	20.37	136.39	
02/27/07	12:27:45	2.73	4.34	50.50	20.42	135.04	
02/27/07	12:28:00	2.65	4.35	50.46	20.44	141.69	
02/27/07	12:28:15	2.68	4.34	50.50	20.47	145.14	
02/27/07	12:28:30	2.70	4.34	50.55	20.42	146.34	
02/27/07	12:28:45	2.69	4.35	50.52	20.42	140.34	
02/27/07	12:29:00	2.71	4.36	50.32	20.42	133.54	
02/27/07	12:29:15	2.67	4.36	50.22	20.47	129.64	
02/27/07	12:29:30	2.83	4.39	50.23	20.52	125.39	
02/27/07	12:29:45	2.64	4.36	50.25	20.52	125.34	
02/27/07	12:30:00	2.64	4.37	50.33	20.44	120.54	
02/27/07	12:30:15	2.64	4.37	50.49	20.42	114.14	
02/27/07	12:30:30	2.59	4.36	50.76	20.47	119.54	
02/27/07	12:30:45	2.59	4.37	51.00	20.42	122.64	
02/27/07	12:31:00	2.68	4.34	50.63	20.34	124.39	
02/27/07	12:31:15	2.85	4.35	50.69	20.37	131.14	
02/27/07	12:31:30	2.69	4.35	50.55	20.37	133.69	
02/27/07	12:31:45	2.66	4.36	50.66	20.42	142.64	
02/27/07	12:32:00	2.61	4.41	50.86	20.42	151.94	
02/27/07	12:32:15	2.63	4.40	50.68	20.42	155.64	
02/27/07	12:32:30	2.67	4.39	50.61	20.39	152.74	
02/27/07	12:32:45	2.70	4.37	50.62	20.27	143.74	
02/27/07	12:33:00	2.70	4.36	50.43	20.32	134.96	
02/27/07	12:33:15	2.67	4.37	50.41	20.42	121.74	
02/27/07	12:33:30	2.63	4.37	50.55	20.42	113.94	
02/27/07	12:33:45	2.56	4.36	50.68	20.37	110.34	
02/27/07	12:34:00	2.57	4.36	50.72	20.32	106.69	
02/27/07	12:34:15	2.57	4.39	50.60	20.37	110.64	
02/27/07	12:34:30	2.59	4.40	51.01	20.44	111.25	
02/27/07	12:34:45	2.63	4.40	51.07	20.52	106.65	
02/27/07	12:35:00	2.65	4.40	50.67	20.52	101.18	
02/27/07	12:35:15	2.67	4.41	50.40	20.57	96.35	
02/27/07	12:35:30	2.65	4.40	50.33	20.69	97.30	
02/27/07	12:35:45	2.70	4.38	50.31	20.77	90.35	
02/27/07	12:36:00	2.69	4.36	50.45	20.72	77.30	
02/27/07	12:36:15	2.81	4.39	50.68	20.62	69.95	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	12:37:30	2.54	4.40	52.40	20.67	79.90	
02/27/07	12:37:45	2.51	4.40	52.85	20.57	89.65	
02/27/07	12:38:00	2.55	4.39	52.44	20.49	96.75	
02/27/07	12:38:15	2.85	4.37	51.88	20.42	93.35	
02/27/07	12:38:30	2.71	4.36	51.52	20.42	88.00	
02/27/07	12:38:45	2.62	4.36	51.40	20.47	90.35	
02/27/07	12:39:00	2.60	4.39	51.49	20.54	95.45	
02/27/07	12:39:15	2.64	4.36	51.53	20.62	96.65	
02/27/07	12:39:30	2.66	4.39	51.50	20.62	92.20	
02/27/07	12:39:45	2.63	4.40	51.37	20.67	86.25	
02/27/07	12:40:00	2.57	4.42	51.62	20.72	83.95	
02/27/07	12:40:15	2.52	4.43	51.60	20.67	85.75	
02/27/07	12:40:30	2.57	4.41	51.59	20.54	94.70	
02/27/07	12:40:45	2.62	4.38	51.43	20.67	101.55	
02/27/07	12:41:00	2.73	4.34	51.07	20.62	103.05	
02/27/07	12:41:15	2.73	4.34	50.64	20.62	100.05	
02/27/07	12:41:30	2.71	4.35	50.79	20.72	97.80	
02/27/07	12:41:45	2.64	4.36	50.97	20.67	107.64	
02/27/07	12:42:00	2.62	4.35	51.19	20.62	130.39	
02/27/07	12:42:15	2.74	4.33	51.07	20.62	145.74	
02/27/07	12:42:30	2.83	4.31	50.78	20.62	145.70	
02/27/07	12:42:45	2.81	4.31	50.52	20.57	141.24	
02/27/07	12:43:00	2.75	4.33	50.39	20.52	139.54	
02/27/07	12:43:15	2.70	4.34	50.39	20.52	139.64	
02/27/07	12:43:30	2.88	4.34	50.58	20.52	134.89	
02/27/07	12:43:45	2.84	4.36	50.73	20.52	128.34	
02/27/07	12:44:00	2.80	4.37	50.94	20.52	119.39	
02/27/07	12:44:15	2.57	4.38	51.10	20.47	112.74	
02/27/07	12:44:30	2.56	4.38	51.20	20.42	116.74	
02/27/07	12:44:45	2.56	4.38	51.24	20.42	126.64	
02/27/07	12:45:00	2.61	4.36	51.10	20.52	145.49	
02/27/07	12:45:15	2.69	4.33	50.62	20.47	157.44	
02/27/07	12:45:30	2.79	4.30	50.48	20.39	155.79	
02/27/07	12:45:45	2.86	4.29	50.24	20.32	151.44	
02/27/07	12:46:00	2.81	4.31	50.21	20.34	151.89	
02/27/07	12:46:15	2.78	4.32	50.36	20.42	152.64	
02/27/07	12:46:30	2.78	4.32	50.33	20.32	146.24	
02/27/07	12:46:45	2.79	4.33	50.24	20.32	143.94	
02/27/07	12:47:00	2.75	4.34	50.17	20.47	146.94	
02/27/07	12:47:15	2.77	4.33	50.04	20.57	149.14	
02/27/07	12:47:30	2.79	4.32	49.67	20.52	139.34	
02/27/07	12:47:45	2.78	4.33	49.91	20.47	128.74	
02/27/07	12:48:00	2.69	4.36	50.34	20.42	126.59	
02/27/07	12:48:15	2.67	4.35	50.78	20.42	121.54	
02/27/07	12:48:30	2.67	4.34	50.81	20.42	112.59	
02/27/07	12:48:45	2.83	4.34	50.78	20.37	106.55	
02/27/07	12:49:00	2.61	4.34	50.95	20.32	116.54	
02/27/07	12:49:15	2.62	4.33	51.95	20.32	132.64	
02/27/07	12:49:30	2.72	4.31	52.01	20.42	138.69	
02/27/07	12:49:45	2.74	4.31	51.39	20.42	141.54	
02/27/07	12:50:00	2.70	4.33	51.12	20.29	143.39	
02/27/07	12:50:15	2.74	4.33	50.83	20.17	146.64	
02/27/07	12:50:30	2.75	4.34	50.42	20.14	147.64	
02/27/07	12:50:45	2.78	4.34	50.07	20.27	141.14	
02/27/07	12:51:00	2.77	4.35	49.94	20.29	136.09	
02/27/07	12:51:15	2.70	4.38	50.15	20.27	116.64	
02/27/07	12:51:30	2.84	4.39	50.41	20.32	108.19	
02/27/07	12:51:45	2.56	4.42	50.59	20.37	102.24	
02/27/07	12:52:00	2.50	4.42	50.74	20.44	88.40	
02/27/07	12:52:15	2.47	4.43	50.97	20.47	88.45	
02/27/07	12:52:30	2.44	4.42	51.36	20.39	102.25	
02/27/07	12:52:45	2.51	4.39	51.37	20.32	105.95	
02/27/07	12:53:00	2.59	4.36	51.19	20.32	107.50	
02/27/07	12:53:15	2.61	4.35	51.14	20.32	112.54	
02/27/07	12:53:30	2.59	4.35	51.14	20.42	113.24	
02/27/07	12:53:45	2.80	4.35	51.09	20.42	115.04	
02/27/07	12:54:00	2.50	4.38	51.19	20.42	122.39	
02/27/07	12:54:15	2.53	4.39	51.25	20.37	123.14	
02/27/07	12:54:30	2.53	4.39	51.26	20.22	125.74	
02/27/07	12:54:45	2.50	4.39	51.26	20.22	128.34	
02/27/07	12:55:00	2.56	4.37	51.16	20.24	125.49	
02/27/07	12:55:15	2.53	4.38	51.16	20.32	128.74	
02/27/07	12:55:30	2.54	4.36	51.17	20.32	128.29	
02/27/07	12:55:45	2.61	4.35	51.10	20.32	121.34	
02/27/07	12:56:00	2.56	4.36	51.04	20.32	122.09	
02/27/07	12:56:15	2.51	4.39	51.09	20.32	129.64	
02/27/07	12:56:30	2.54	4.36	51.20	20.32	129.49	
02/27/07	12:56:45	2.56	4.39	51.44	20.32	124.34	
02/27/07	12:57:00	2.54	4.40	51.56	20.22	124.74	
02/27/07	12:57:15	2.55	4.39	51.45	20.22	121.94	
02/27/07	12:57:30	2.80	4.37	51.99	20.34	108.19	
02/27/07	12:57:45	2.53	4.40	53.24	20.42	127.25	
02/27/07	12:58:00	2.44	4.41	53.31	20.42	131.39	
02/27/07	12:58:15	2.52	4.36	52.89	20.37	127.55	
02/27/07	12:58:30	2.55	4.38	52.25	20.32	127.40	
02/27/07	12:58:45	2.50	4.39	52.22	20.37	131.55	
02/27/07	12:59:00	2.54	4.39	52.06	20.42	138.29	
02/27/07	12:59:15	2.53	4.36	51.90	20.42	138.74	
02/27/07	12:59:30	2.58	4.36	51.64	20.42	116.44	
02/27/07	12:59:45	2.60	4.36	51.46	20.47	119.64	
02/27/07	13:00:00	2.59	4.37	51.28	20.52	125.74	
02/27/07	13:00:15	2.82	4.36	51.21	20.47	129.94	
02/27/07	13:00:30	2.70	4.34	50.95	20.34	122.24	
02/27/07	13:00:45	2.68	4.36	50.71	20.47	116.54	
02/27/07	13:01:00	2.56	4.36	50.90	20.49	121.24	
02/27/07	13:01:15	2.54	4.37	50.96	20.42	138.54	
02/27/07	13:01:30	2.59	4.36	50.83	20.32	147.89	
02/27/07	13:01:45	2.66	4.34	50.81	20.32	157.34	
02/27/07	13:02:00	2.67	4.34	50.63	20.32	170.09	
02/27/07	13:02:15	2.70	4.32	50.59	20.37	170.64	
02/27/07	13:02:30	2.73	4.32	50.53	20.42	162.49	
02/27/07	13:02:45	2.63	4.35	50.65	20.42	152.44	
02/27/07	13:03:00	2.61	4.37	50.73	20.29	135.54	
02/27/07	13:03:15	2.54	4.40	50.57	20.27	119.64	
02/27/07	13:03:30	2.44	4.43	50.70	20.42	113.14	
02/27/07	13:03:45	2.39	4.44	51.22	20.42	114.84	
02/27/07	13:04:00	2.41	4.43	51.55	20.29	120.99	
02/27/07	13:04:15	2.45	4.41	51.72	20.28	125.74	
02/27/07	13:04:30	2.50	4.36	51.67	20.29	133.44	
02/27/07	13:04:45	2.53	4.36	51.56	20.16	132.24	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	13:08:15	2.72	4.33	50.51	20.22	177.02	
02/27/07	13:08:30	2.74	4.32	50.33	20.20	171.03	
02/27/07	13:08:45	2.75	4.33	50.10	20.22	173.88	
02/27/07	13:07:30	2.74	4.33	49.93	20.12	177.78	
02/27/07	13:07:15	2.70	4.34	49.88	20.12	167.73	
02/27/07	13:07:30	2.66	4.36	49.97	20.22	167.48	
02/27/07	13:07:45	2.63	4.37	50.01	20.22	161.83	
02/27/07	13:08:00	2.68	4.37	49.96	20.22	159.99	
02/27/07	13:08:15	2.60	4.40	49.90	20.22	150.44	
02/27/07	13:08:30	2.58	4.41	49.84	20.24	134.59	
02/27/07	13:08:45	2.57	4.41	49.71	20.30	116.94	
02/27/07	13:09:00	2.48	4.43	49.78	20.42	111.89	
02/27/07	13:09:15	2.39	4.43	50.45	20.48	118.84	
02/27/07	13:09:30	2.47	4.40	51.00	20.52	127.89	
02/27/07	13:09:45	2.57	4.37	50.75	20.44	132.04	
02/27/07	13:10:00	2.64	4.34	50.28	20.32	130.79	
02/27/07	13:10:15	2.67	4.33	49.89	20.32	134.84	
02/27/07	13:10:30	2.66	4.34	50.00	20.32	141.49	
02/27/07	13:10:45	2.69	4.34	50.10	20.30	143.54	
02/27/07	13:11:00	2.71	4.35	50.35	20.42	134.89	
02/27/07	13:11:15	2.70	4.35	50.34	20.42	124.54	
02/27/07	13:11:30	2.61	4.36	50.22	20.52	113.44	
02/27/07	13:11:45	2.50	4.40	50.37	20.50	113.04	End Run 9
02/27/07	13:12:00	2.48	4.42	50.80	20.40	120.39	
02/27/07	13:12:15	2.49	4.42	51.07	20.42	123.74	
02/27/07	13:12:30	2.57	4.40	51.08	20.44	117.54	
02/27/07	13:12:45	2.57	4.41	50.83	20.50	113.44	
02/27/07	13:13:00	2.48	4.43	50.80	20.82	109.99	
02/27/07	13:13:15	2.51	4.42	50.58	20.54	102.55	
02/27/07	13:13:30	2.50	4.42	50.38	20.52	92.30	
02/27/07	13:13:45	2.49	4.41	51.06	20.52	85.35	
02/27/07	13:14:00	2.44	4.42	51.28	20.52	83.40	
02/27/07	13:14:15	2.38	4.42	50.44	20.52	85.85	
02/27/07	13:14:30	2.44	4.40	49.90	20.49	87.00	
02/27/07	13:14:45	2.48	4.39	50.14	20.42	84.35	
02/27/07	13:15:00	2.40	4.41	52.83	20.42	101.10	
02/27/07	13:15:15	2.40	4.41	53.68	20.42	112.64	
02/27/07	13:15:30	2.58	4.37	52.42	20.42	117.04	
02/27/07	13:15:45	2.53	4.40	51.82	20.49	121.34	
02/27/07	13:16:00	2.50	4.40	51.32	20.42	127.19	
02/27/07	13:16:15	2.50	4.42	51.23	20.42	131.74	
02/27/07	13:16:30	2.49	4.43	51.29	20.34	134.49	
02/27/07	13:16:45	2.50	4.43	51.32	20.42	139.24	
02/27/07	13:17:00	2.47	4.43	51.41	20.32	126.64	
02/27/07	13:17:15	3.10	4.91	49.19	20.32	68.45	
02/27/07	13:17:30	0.81	7.35	30.28	19.49	10.70	
02/27/07	13:17:45	0.28	9.34	17.50	14.70	1.25	
02/27/07	13:18:00	0.74	9.89	11.44	6.75	-0.55	
02/27/07	13:18:15	0.77	9.89	8.28	1.65	-0.85	
02/27/07	13:18:30	0.78	9.95	6.43	0.32	-0.80	
02/27/07	13:18:45	0.78	9.99	5.10	0.25	-0.85	System Bias
02/27/07	13:19:00	0.79	9.99	4.24	0.12	-0.95	10.0% CO ₂ Injection
02/27/07	13:19:15	0.80	9.99	3.54	0.12	-0.94	10.00 % CO ₂
02/27/07	13:19:30	0.80	10.02	3.01	0.12	-0.90	
02/27/07	13:19:45	0.80	10.03	2.70	0.12	-0.95	
02/27/07	13:20:00	0.80	10.04	2.45	0.12	-0.90	
02/27/07	13:20:15	0.35	9.29	2.33	0.12	17.45	
02/27/07	13:20:30	7.35	8.03	3.05	0.77	4.78	
02/27/07	13:20:45	8.84	9.58	3.34	4.60	0.15	
02/27/07	13:21:00	9.85	10.16	3.03	4.02	-0.95	
02/27/07	13:21:15	9.97	10.23	2.70	2.30	-1.05	
02/27/07	13:21:30	9.98	10.24	2.37	0.30	-1.15	System Bias
02/27/07	13:21:45	9.98	10.24	2.11	0.15	-1.14	10.0% Oxygen Injection
02/27/07	13:22:00	9.99	10.25	1.86	0.12	-0.94	9.99 % Oxygen
02/27/07	13:22:15	9.99	10.25	1.75	0.12	-0.25	
02/27/07	13:22:30	9.99	10.25	1.65	0.02	11.86	
02/27/07	13:22:45	0.55	9.54	1.68	0.02	11.45	
02/27/07	13:23:00	0.78	8.44	5.15	0.25	3.58	
02/27/07	13:23:15	2.86	2.45	16.99	1.97	1.15	
02/27/07	13:23:30	0.53	0.44	29.46	4.35	0.80	
02/27/07	13:23:45	0.10	0.18	35.58	1.35	0.45	
02/27/07	13:24:00	0.06	0.14	39.07	0.42	0.45	
02/27/07	13:24:15	0.05	0.12	40.97	0.12	0.40	
02/27/07	13:24:30	0.05	0.11	42.03	0.12	0.40	
02/27/07	13:24:45	0.04	0.10	42.70	0.12	0.55	
02/27/07	13:25:00	0.04	0.09	43.20	0.12	0.45	
02/27/07	13:25:15	0.04	0.09	43.52	0.12	0.40	
02/27/07	13:25:30	0.03	0.08	43.69	0.12	0.40	
02/27/07	13:25:45	0.03	0.08	44.11	0.12	0.45	
02/27/07	13:26:00	0.03	0.07	44.21	0.12	0.85	
02/27/07	13:26:15	0.03	0.07	44.37	0.12	0.55	
02/27/07	13:26:30	0.03	0.07	44.78	0.12	0.47	System Bias
02/27/07	13:26:45	0.03	0.06	45.02	0.05	0.48	45.0ppm SO ₂ Injection
02/27/07	13:27:00	0.02	0.06	44.95	0.05	0.50	45.01 ppm SO ₂
02/27/07	13:27:15	0.02	0.06	45.08	0.12	0.55	
02/27/07	13:27:30	0.02	0.06	45.02	0.12	0.60	
02/27/07	13:27:45	0.02	0.05	45.24	0.12	1.35	
02/27/07	13:28:00	0.02	0.05	45.20	0.12	8.81	
02/27/07	13:28:15	0.18	0.50	43.20	0.12	10.25	
02/27/07	13:28:30	0.40	0.80	32.85	0.47	57.90	
02/27/07	13:28:45	0.18	0.23	19.59	3.17	98.35	
02/27/07	13:29:00	0.12	0.12	12.83	1.97	118.69	
02/27/07	13:29:15	0.06	0.06	8.91	0.82	120.34	
02/27/07	13:29:30	0.04	0.05	8.79	0.12	120.24	
02/27/07	13:29:45	0.03	0.05	5.47	0.12	120.24	System Bias
02/27/07	13:30:00	0.02	0.05	4.53	0.02	120.09	120.0ppm CO Injection
02/27/07	13:30:15	0.02	0.04	3.97	0.02	120.34	0.02 % Oxygen
02/27/07	13:30:30	0.02	0.04	3.42	0.02	120.44	0.04 % CO ₂
02/27/07	13:30:45	0.02	0.04	2.99	0.02	120.64	0.02 ppm NO _x
02/27/07	13:31:00	0.02	0.04	2.69	0.02	118.49	120.36 ppm CO
02/27/07	13:31:15	0.02	0.05	2.42	0.02	103.25	
02/27/07	13:31:30	0.29	0.71	1.27	0.12	55.90	
02/27/07	13:31:45	0.42	0.54	1.17	0.22	19.15	
02/27/07	13:32:00	0.11	0.11	1.04	9.82	2.40	
02/27/07	13:32:15	0.03	0.05	0.90	22.89	1.45	
02/27/07	13:32:30	0.02	0.04	0.75	40.82	1.05	
02/27/07	13:32:45	0.02	0.04	0.69	42.24	1.05	
02/27/07	13:33:00	0.02	0.04	0.70	43.22	0.90	
02/27/07	13:33:15	0.02	0.04	0.82	43.79	0.95	
02/27/07	13:33:30	0.02	0.03	0.52	44.82	1.00	

Reference Method 15-second Averages							Comments
Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	
02/27/07	13:34:48	0.02	0.03	0.33	48.02	0.85	System Bias 45.0ppm NO _x Injection 0.24 ppm SO ₂ 48.01 ppm NO _x 0.69 ppm CO
02/27/07	13:35:00	0.02	0.03	0.26	45.97	0.67	
02/27/07	13:35:15	0.02	0.03	0.22	45.99	0.65	
02/27/07	13:35:30	0.02	0.03	0.25	48.02	0.85	
02/27/07	13:35:45	0.02	0.03	0.25	48.02	0.80	
02/27/07	13:36:00	0.02	0.03	0.24	48.01	0.85	Start Run 10
02/27/07	13:36:15	0.02	0.03	0.23	48.02	4.70	
02/27/07	13:36:30	0.03	0.09	-0.02	45.91	32.30	
02/27/07	13:36:45	0.74	1.78	1.52	45.92	67.14	
02/27/07	13:37:00	2.03	3.73	14.84	42.57	90.00	
02/27/07	13:37:15	2.62	4.24	27.97	35.22	64.05	
02/27/07	13:37:30	2.59	4.31	33.84	23.82	88.25	
02/27/07	13:37:45	2.54	4.34	35.55	21.22	80.15	
02/27/07	13:38:00	2.44	4.37	39.42	20.42	77.45	
02/27/07	13:38:15	2.35	4.40	42.88	20.32	88.15	
02/27/07	13:38:30	2.37	4.40	45.73	20.22	91.55	
02/27/07	13:38:45	2.43	4.37	47.47	20.22	90.49	
02/27/07	13:39:00	2.38	4.38	48.72	20.07	95.40	
02/27/07	13:39:15	2.38	4.37	49.44	20.02	108.14	
02/27/07	13:39:30	2.40	4.35	49.81	20.02	118.44	
02/27/07	13:39:45	2.48	4.35	50.04	20.02	128.24	
02/27/07	13:40:00	2.51	4.34	50.19	20.02	134.54	
02/27/07	13:40:15	2.58	4.34	50.10	20.02	148.39	
02/27/07	13:40:30	2.58	4.34	50.14	20.12	149.64	
02/27/07	13:40:45	2.82	4.32	50.19	20.12	139.29	
02/27/07	13:41:00	2.59	4.35	50.25	20.22	142.69	
02/27/07	13:41:15	2.58	4.37	50.35	20.22	135.24	
02/27/07	13:41:30	2.58	4.37	50.38	20.22	124.14	
02/27/07	13:41:45	2.47	4.40	50.47	20.22	137.64	
02/27/07	13:42:00	2.50	4.38	50.48	20.32	138.49	
02/27/07	13:42:15	2.68	4.35	50.09	20.32	121.39	
02/27/07	13:42:30	2.80	4.38	49.88	20.32	108.24	
02/27/07	13:42:45	2.50	4.39	50.18	20.32	103.14	
02/27/07	13:43:00	2.48	4.40	50.48	20.32	98.70	
02/27/07	13:43:15	2.51	4.40	50.68	20.32	92.40	
02/27/07	13:43:30	2.50	4.39	50.71	20.32	95.05	
02/27/07	13:43:45	2.47	4.39	50.66	20.32	112.59	
02/27/07	13:44:00	2.57	4.35	50.37	20.47	123.39	
02/27/07	13:44:15	2.73	4.33	49.72	20.52	124.74	
02/27/07	13:44:30	2.72	4.34	49.48	20.52	116.69	
02/27/07	13:44:45	2.88	4.37	49.45	20.59	110.09	
02/27/07	13:45:00	2.57	4.39	49.59	20.57	114.14	
02/27/07	13:45:15	2.57	4.38	49.87	20.59	115.19	
02/27/07	13:45:30	2.57	4.38	49.70	20.57	108.29	
02/27/07	13:45:45	2.54	4.39	49.83	20.44	89.65	
02/27/07	13:46:00	2.50	4.40	50.33	20.37	81.95	
02/27/07	13:46:15	2.42	4.41	50.81	20.32	85.25	
02/27/07	13:46:30	2.43	4.39	51.07	20.32	91.25	
02/27/07	13:46:45	2.50	4.38	50.98	20.32	96.35	
02/27/07	13:47:00	2.51	4.38	50.93	20.42	98.25	
02/27/07	13:47:15	2.53	4.35	50.84	20.34	110.54	
02/27/07	13:47:30	2.57	4.34	50.36	20.22	125.84	
02/27/07	13:47:45	2.70	4.32	49.74	20.29	133.89	
02/27/07	13:48:00	2.78	4.31	49.25	20.27	129.44	
02/27/07	13:48:15	2.78	4.32	49.83	20.22	120.29	
02/27/07	13:48:30	2.70	4.33	49.99	20.27	103.39	
02/27/07	13:48:45	2.85	4.38	49.23	20.38	67.50	
02/27/07	13:49:00	2.47	4.41	49.56	20.27	82.55	
02/27/07	13:49:15	2.39	4.43	50.00	20.22	82.40	
02/27/07	13:49:30	2.39	4.43	50.22	20.17	85.90	
02/27/07	13:49:45	2.38	4.44	50.34	20.12	105.99	
02/27/07	13:50:00	2.42	4.42	50.38	20.17	132.09	
02/27/07	13:50:15	2.57	4.37	50.13	20.14	145.74	
02/27/07	13:50:30	2.70	4.34	49.70	20.07	147.54	
02/27/07	13:50:45	2.71	4.35	49.39	20.02	159.24	
02/27/07	13:51:00	2.87	4.35	49.28	20.17	162.83	
02/27/07	13:51:15	2.78	4.33	49.01	20.14	148.34	
02/27/07	13:51:30	2.70	4.38	49.78	20.02	140.48	
02/27/07	13:51:45	2.63	4.37	48.79	20.09	137.04	
02/27/07	13:52:00	2.64	4.37	48.82	20.12	121.34	
02/27/07	13:52:15	2.80	4.39	48.84	20.12	108.84	
02/27/07	13:52:30	2.48	4.42	49.01	20.07	103.49	
02/27/07	13:52:45	2.44	4.42	49.26	20.19	101.08	
02/27/07	13:53:00	2.44	4.42	49.35	20.17	96.00	
02/27/07	13:53:15	2.41	4.44	49.88	20.12	95.89	
02/27/07	13:53:30	2.38	4.44	50.02	20.12	95.00	
02/27/07	13:53:45	2.39	4.45	50.33	20.12	100.09	
02/27/07	13:54:00	2.40	4.44	50.62	20.12	101.19	
02/27/07	13:54:15	2.48	4.41	50.74	20.12	95.80	
02/27/07	13:54:30	2.40	4.42	51.04	20.07	104.94	
02/27/07	13:54:45	2.45	4.39	51.03	20.02	122.04	
02/27/07	13:55:00	2.57	4.35	50.62	20.12	124.89	
02/27/07	13:55:15	2.62	4.33	50.31	20.12	122.29	
02/27/07	13:55:30	2.58	4.38	50.51	20.12	117.89	
02/27/07	13:55:45	2.55	4.38	50.64	20.11	111.14	
02/27/07	13:56:00	2.52	4.37	50.62	20.02	110.09	
02/27/07	13:56:15	2.51	4.37	50.80	20.03	100.35	
02/27/07	13:56:30	2.53	4.37	50.42	20.12	79.25	
02/27/07	13:56:45	2.40	4.41	50.59	20.04	89.85	
02/27/07	13:57:00	2.26	4.43	51.15	20.02	72.10	
02/27/07	13:57:15	2.33	4.40	51.62	19.99	77.80	
02/27/07	13:57:30	2.33	4.40	52.95	19.92	85.10	
02/27/07	13:57:45	2.34	4.39	54.17	19.92	67.35	
02/27/07	13:58:00	2.35	4.42	53.91	19.92	99.99	
02/27/07	13:58:15	2.35	4.42	53.42	19.94	115.44	
02/27/07	13:58:30	2.48	4.39	52.57	20.02	124.79	
02/27/07	13:58:45	2.54	4.37	51.78	20.02	132.44	
02/27/07	13:59:00	2.59	4.35	51.34	20.02	134.04	
02/27/07	13:59:15	2.62	4.35	51.10	20.04	127.89	
02/27/07	13:59:30	2.58	4.38	51.00	20.07	128.14	
02/27/07	13:59:45	2.48	4.39	51.08	20.02	134.39	
02/27/07	14:00:00	2.50	4.37	50.97	19.97	133.04	
02/27/07	14:00:15	2.55	4.37	50.64	19.99	129.44	
02/27/07	14:00:30	2.51	4.37	50.78	19.97	130.14	
02/27/07	14:00:45	2.50	4.37	50.69	19.99	127.74	
02/27/07	14:01:00	2.51	4.38	50.89	19.97	130.09	
02/27/07	14:01:15	2.51	4.38	50.73	19.94	141.04	
02/27/07	14:01:30	2.54	4.38	50.50	19.97	148.18	
02/27/07	14:01:45	2.60	4.38	50.22	19.92	132.54	
02/27/07	14:02:00	2.58	4.37	50.10	19.97	121.34	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	14:03:15	2.48	4.39	50.84	19.99	126.04	
02/27/07	14:03:30	2.50	4.38	50.72	19.92	122.34	
02/27/07	14:03:45	2.57	4.35	50.47	19.92	115.44	
02/27/07	14:04:00	2.53	4.38	50.46	19.92	115.39	
02/27/07	14:04:15	2.52	4.38	50.49	19.92	104.14	
02/27/07	14:04:30	2.52	4.38	50.52	19.92	108.09	
02/27/07	14:04:45	2.45	4.40	50.84	19.94	108.39	
02/27/07	14:05:00	2.53	4.38	50.60	20.02	98.25	
02/27/07	14:05:15	2.47	4.39	50.59	20.09	91.49	
02/27/07	14:05:30	2.42	4.42	50.82	20.07	94.50	
02/27/07	14:05:45	2.40	4.42	51.28	19.97	100.64	
02/27/07	14:06:00	2.44	4.41	51.26	20.07	94.35	
02/27/07	14:06:15	2.44	4.40	51.20	20.14	72.50	
02/27/07	14:06:30	2.38	4.43	51.13	20.17	52.72	
02/27/07	14:06:45	2.32	4.50	51.11	20.24	51.40	
02/27/07	14:07:00	2.29	4.51	51.29	20.62	59.91	
02/27/07	14:07:15	2.37	4.46	51.30	21.32	68.55	
02/27/07	14:07:30	2.44	4.47	51.42	21.57	77.28	
02/27/07	14:07:45	2.45	4.47	51.55	21.37	82.60	
02/27/07	14:08:00	2.49	4.47	51.42	21.27	79.45	
02/27/07	14:08:15	2.48	4.47	51.07	21.22	76.75	
02/27/07	14:08:30	2.44	4.46	50.68	21.22	74.35	
02/27/07	14:08:45	2.46	4.46	50.48	21.29	75.60	
02/27/07	14:09:00	2.41	4.46	50.59	21.32	73.55	
02/27/07	14:09:15	2.43	4.45	50.71	21.22	68.40	
02/27/07	14:09:30	2.39	4.46	50.95	21.02	61.25	
02/27/07	14:09:45	2.35	4.47	51.25	20.84	60.85	
02/27/07	14:10:00	2.32	4.47	51.48	20.77	71.95	
02/27/07	14:10:15	2.38	4.45	51.48	20.69	79.60	
02/27/07	14:10:30	2.48	4.41	51.39	20.67	83.85	
02/27/07	14:10:45	2.49	4.40	51.31	20.72	67.80	
02/27/07	14:11:00	2.49	4.40	51.18	20.77	86.35	
02/27/07	14:11:15	2.48	4.41	51.14	20.64	84.50	
02/27/07	14:11:30	2.45	4.41	51.03	20.92	85.15	
02/27/07	14:11:45	2.46	4.42	50.97	20.92	85.85	
02/27/07	14:12:00	2.46	4.42	50.85	20.97	86.25	
02/27/07	14:12:15	2.44	4.42	50.86	20.92	88.50	
02/27/07	14:12:30	2.45	4.40	50.77	20.82	94.34	
02/27/07	14:12:45	2.47	4.39	50.78	20.84	96.75	
02/27/07	14:13:00	2.50	4.37	50.81	20.92	101.24	
02/27/07	14:13:15	2.50	4.37	50.58	20.82	102.89	
02/27/07	14:13:30	2.49	4.38	51.59	20.72	113.64	
02/27/07	14:13:45	2.49	4.35	51.78	20.77	123.59	
02/27/07	14:14:00	2.58	4.34	51.89	20.72	122.84	
02/27/07	14:14:15	2.58	4.34	50.64	20.72	121.34	
02/27/07	14:14:30	2.54	4.38	50.54	20.67	132.04	
02/27/07	14:14:45	2.52	4.37	50.45	20.59	134.14	
02/27/07	14:15:00	2.54	4.38	50.38	20.47	121.64	
02/27/07	14:15:15	2.50	4.37	50.33	20.34	117.04	
02/27/07	14:15:30	2.44	4.37	50.41	20.32	125.74	
02/27/07	14:15:45	2.49	4.35	50.27	20.32	135.84	
02/27/07	14:16:00	2.58	4.33	50.81	20.27	150.14	
02/27/07	14:16:15	2.84	4.32	49.76	20.32	158.04	
02/27/07	14:16:30	2.88	4.33	49.43	20.42	161.83	
02/27/07	14:16:45	2.69	4.34	49.22	20.42	163.93	
02/27/07	14:17:00	2.68	4.38	49.19	20.42	155.14	
02/27/07	14:17:15	2.67	4.38	49.09	20.39	143.48	
02/27/07	14:17:30	2.60	4.38	48.94	20.37	133.44	
02/27/07	14:17:45	2.52	4.38	48.92	20.39	128.19	
02/27/07	14:18:00	2.50	4.37	48.10	20.27	122.44	
02/27/07	14:18:15	2.48	4.37	49.45	20.24	119.59	
02/27/07	14:18:30	2.48	4.38	49.73	20.27	125.64	
02/27/07	14:18:45	2.48	4.38	49.75	20.22	128.54	
02/27/07	14:19:00	2.57	4.37	49.54	20.17	124.74	
02/27/07	14:19:15	2.58	4.38	49.39	20.29	126.44	
02/27/07	14:19:30	2.57	4.39	49.22	20.42	131.64	
02/27/07	14:19:45	2.59	4.39	49.11	20.49	129.14	
02/27/07	14:20:00	2.61	4.39	49.94	20.47	111.64	
02/27/07	14:20:15	2.55	4.42	49.00	20.39	104.64	
02/27/07	14:20:30	2.48	4.43	49.31	20.32	91.14	
02/27/07	14:20:45	2.48	4.42	49.73	20.29	78.90	
02/27/07	14:21:00	2.38	4.43	50.19	20.17	75.55	
02/27/07	14:21:15	2.33	4.44	50.74	20.19	60.85	
02/27/07	14:21:30	2.38	4.42	51.04	20.22	95.64	
02/27/07	14:21:45	2.48	4.39	51.07	20.22	103.98	
02/27/07	14:22:00	2.56	4.37	50.57	20.22	105.54	
02/27/07	14:22:15	2.57	4.38	50.06	20.22	109.34	
02/27/07	14:22:30	2.55	4.38	49.83	20.22	115.34	
02/27/07	14:22:45	2.57	4.37	49.81	20.31	112.29	
02/27/07	14:23:00	2.56	4.39	49.59	20.37	110.24	
02/27/07	14:23:15	2.53	4.39	49.62	20.32	110.69	
02/27/07	14:23:30	2.59	4.38	49.58	20.32	100.34	
02/27/07	14:23:45	2.58	4.39	49.74	20.32	90.24	
02/27/07	14:24:00	2.51	4.41	49.89	20.37	77.35	
02/27/07	14:24:15	2.47	4.42	50.33	20.32	73.70	
02/27/07	14:24:30	2.43	4.42	50.60	20.32	76.95	
02/27/07	14:24:45	2.41	4.41	51.13	20.32	80.50	
02/27/07	14:25:00	2.41	4.40	51.74	20.32	90.44	
02/27/07	14:25:15	2.47	4.38	52.03	20.32	91.19	
02/27/07	14:25:30	2.52	4.37	51.48	20.37	87.24	
02/27/07	14:25:45	2.47	4.37	51.14	20.42	85.45	
02/27/07	14:26:00	2.47	4.38	51.01	20.42	85.95	
02/27/07	14:26:15	2.44	4.39	51.04	20.42	88.74	
02/27/07	14:26:30	2.44	4.38	51.10	20.37	87.04	
02/27/07	14:26:45	2.42	4.38	51.07	20.29	85.94	
02/27/07	14:27:00	2.40	4.38	51.13	20.17	87.05	
02/27/07	14:27:15	2.39	4.38	51.39	20.12	95.29	
02/27/07	14:27:30	2.40	4.37	51.58	20.17	114.84	
02/27/07	14:27:45	2.48	4.38	51.52	20.22	123.84	
02/27/07	14:28:00	2.53	4.38	51.31	20.22	133.74	
02/27/07	14:28:15	2.48	4.37	51.25	20.22	139.18	
02/27/07	14:28:30	2.55	4.38	51.19	20.22	144.24	
02/27/07	14:28:45	2.57	4.38	51.10	20.27	145.68	
02/27/07	14:29:00	2.58	4.38	50.06	20.47	150.93	
02/27/07	14:29:15	2.58	4.37	48.61	20.49	155.68	
02/27/07	14:29:30	2.58	4.38	48.35	20.42	159.53	
02/27/07	14:29:45	2.60	4.35	48.42	20.49	157.14	
02/27/07	14:30:00	2.63	4.35	48.83	20.42	138.94	
02/27/07	14:30:15	2.60	4.38	48.71	20.42	122.94	
02/27/07	14:30:30	2.51	4.37	48.83	20.42	111.24	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	14:32:00	2.62	4.32	50.09	20.32	114.34	
02/27/07	14:32:15	2.58	4.36	50.13	20.44	109.29	
02/27/07	14:32:30	2.44	4.39	50.53	20.52	107.84	
02/27/07	14:32:45	2.46	4.36	50.62	20.42	101.19	
02/27/07	14:33:00	2.45	4.38	50.71	20.37	108.74	
02/27/07	14:33:15	2.44	4.38	50.83	20.22	109.49	
02/27/07	14:33:30	2.58	4.36	50.65	20.27	111.34	
02/27/07	14:33:45	2.55	4.37	50.51	20.42	117.34	
02/27/07	14:34:00	2.59	4.35	50.39	20.42	122.24	
02/27/07	14:34:15	2.62	4.34	50.32	20.52	123.29	
02/27/07	14:34:30	2.58	4.34	50.66	20.47	126.14	
02/27/07	14:34:45	2.62	4.34	50.83	20.38	128.19	
02/27/07	14:35:00	2.64	4.34	50.40	20.32	109.14	
02/27/07	14:35:15	2.61	4.35	50.27	20.29	90.24	
02/27/07	14:35:30	2.43	4.39	50.54	20.27	81.85	
02/27/07	14:35:45	2.34	4.42	50.82	20.42	84.00	
02/27/07	14:36:00	2.36	4.41	51.10	20.42	92.14	
02/27/07	14:36:15	2.35	4.40	51.22	20.42	104.79	
02/27/07	14:36:30	2.43	4.36	51.05	20.37	125.14	
02/27/07	14:36:45	2.52	4.35	50.71	20.14	130.35	
02/27/07	14:37:00	2.55	4.34	50.46	20.22	133.54	
02/27/07	14:37:15	2.52	4.35	50.42	20.19	143.07	
02/27/07	14:37:30	2.59	4.32	51.45	20.17	149.83	
02/27/07	14:37:45	2.65	4.32	51.17	20.32	157.41	
02/27/07	14:38:00	2.64	4.33	50.28	20.32	159.24	
02/27/07	14:38:15	2.65	4.33	49.69	20.34	152.52	
02/27/07	14:38:30	2.62	4.34	49.39	20.37	141.74	
02/27/07	14:38:45	2.64	4.35	49.15	20.24	134.64	End Run 10
02/27/07	14:39:00	2.58	4.36	49.07	20.32	130.24	
02/27/07	14:39:15	2.57	4.37	48.93	20.42	102.69	
02/27/07	14:39:30	2.48	3.68	44.78	20.42	47.45	
02/27/07	14:39:45	1.48	1.48	38.52	20.67	11.25	
02/27/07	14:40:00	0.32	0.25	39.64	21.67	1.45	
02/27/07	14:40:15	0.05	0.10	41.58	11.25	0.85	
02/27/07	14:40:30	0.02	0.08	42.57	3.47	0.66	
02/27/07	14:40:45	0.02	0.07	42.95	0.50	0.55	
02/27/07	14:41:00	0.02	0.08	43.17	0.37	0.55	
02/27/07	14:41:15	0.02	0.08	43.34	0.22	0.50	
02/27/07	14:41:30	0.01	0.05	43.45	0.22	0.65	
02/27/07	14:41:45	0.02	0.05	44.39	0.22	0.80	
02/27/07	14:42:00	0.01	0.05	45.38	0.17	0.45	
02/27/07	14:42:15	0.02	0.05	45.36	0.12	0.45	
02/27/07	14:42:30	0.01	0.05	45.36	0.12	0.45	System Bias
02/27/07	14:42:45	0.01	0.04	45.43	0.12	0.50	45.0ppm SO ₂ Injection
02/27/07	14:43:00	0.01	0.04	45.46	0.12	0.55	45.46 ppm SO ₂
02/27/07	14:43:15	0.01	0.04	45.47	0.12	1.85	
02/27/07	14:43:30	0.01	0.04	45.49	0.12	10.95	
02/27/07	14:43:45	0.08	0.28	44.38	0.12	17.85	
02/27/07	14:44:00	0.63	1.11	37.76	0.12	39.85	
02/27/07	14:44:15	0.32	0.36	23.33	3.40	87.14	
02/27/07	14:44:30	0.10	0.11	13.64	4.42	113.64	
02/27/07	14:44:45	0.04	0.05	8.64	1.30	118.14	
02/27/07	14:45:00	0.03	0.04	6.01	0.62	118.64	
02/27/07	14:45:15	0.02	0.04	4.42	0.20	119.29	
02/27/07	14:45:30	0.01	0.04	3.32	0.12	119.64	System Bias
02/27/07	14:45:45	0.01	0.04	2.60	0.12	119.55	120.0ppm CO Injection
02/27/07	14:46:00	0.01	0.04	2.09	0.12	119.74	0.01 % Oxygen
02/27/07	14:46:15	0.01	0.04	1.70	0.12	119.89	0.04 % CO ₂
02/27/07	14:46:30	0.01	0.04	1.39	0.12	120.14	0.12 ppm NO _x
02/27/07	14:46:45	0.01	0.03	1.12	0.12	112.64	119.83 ppm CO
02/27/07	14:47:00	0.03	0.13	0.94	0.12	64.05	
02/27/07	14:47:15	0.41	0.81	0.84	0.10	45.25	
02/27/07	14:47:30	0.30	0.33	0.72	2.06	9.35	
02/27/07	14:47:45	0.06	0.07	0.58	10.64	2.25	
02/27/07	14:48:00	0.02	0.04	0.48	32.22	1.15	
02/27/07	14:48:15	0.01	0.03	0.39	40.84	0.90	
02/27/07	14:48:30	0.01	0.03	0.30	42.47	0.85	
02/27/07	14:48:45	0.01	0.03	0.28	43.24	0.85	
02/27/07	14:49:00	0.01	0.03	0.24	44.06	0.85	System Bias
02/27/07	14:49:15	0.01	0.03	0.19	44.44	0.85	45.0ppm NO _x Injection
02/27/07	14:49:30	0.01	0.03	0.13	45.34	0.75	0.12 ppm SO ₂
02/27/07	14:49:45	0.01	0.03	0.12	45.44	0.85	45.15 ppm NO _x
02/27/07	14:50:00	0.01	0.03	0.06	45.39	0.85	0.73 ppm CO
02/27/07	14:50:15	0.01	0.03	0.03	45.39	1.00	
02/27/07	14:50:30	0.01	0.03	0.03	45.31	0.55	
02/27/07	14:50:45	0.05	0.21	-0.01	45.31	12.00	
02/27/07	14:51:00	0.95	1.99	0.00	45.39	7.85	
02/27/07	14:51:15	4.87	5.88	-0.01	41.09	1.60	
02/27/07	14:51:30	8.50	8.81	-0.03	29.99	-0.45	
02/27/07	14:51:45	9.75	9.86	0.00	14.07	-0.85	
02/27/07	14:52:00	9.92	9.89	-0.01	4.10	-0.85	
02/27/07	14:52:15	9.94	9.85	-0.02	1.27	-1.05	
02/27/07	14:52:30	9.95	9.85	-0.04	0.45	-1.05	System Bias
02/27/07	14:52:45	9.97	10.09	-0.03	0.32	-1.05	10.0% Oxygen Injection
02/27/07	14:53:00	9.97	10.16	-0.05	0.25	-1.05	9.97 % Oxygen
02/27/07	14:53:15	9.98	10.19	-0.07	0.22	-0.95	
02/27/07	14:53:30	9.98	10.20	-0.09	0.22	-1.04	
02/27/07	14:53:45	9.98	10.21	-0.10	0.12	3.90	
02/27/07	14:54:00	9.98	10.22	-0.13	0.12	20.25	
02/27/07	14:54:15	8.91	8.76	0.26	0.12	16.25	
02/27/07	14:54:30	5.74	5.76	1.56	2.00	6.25	
02/27/07	14:54:45	2.43	2.14	1.81	4.92	1.25	
02/27/07	14:55:00	0.43	0.37	1.29	4.47	0.35	
02/27/07	14:55:15	0.08	0.15	0.82	2.02	0.35	
02/27/07	14:55:30	0.04	0.11	0.56	0.37	1.35	
02/27/07	14:55:45	0.04	0.09	0.34	0.12	8.80	
02/27/07	14:56:00	0.20	0.58	0.26	0.12	9.55	
02/27/07	14:56:15	2.67	4.14	0.23	0.37	3.35	
02/27/07	14:56:30	7.03	7.76	0.23	1.85	-0.25	
02/27/07	14:56:45	9.28	9.68	0.17	3.20	-0.89	
02/27/07	14:57:00	9.74	9.91	0.09	1.17	-0.94	
02/27/07	14:57:15	9.78	9.95	0.06	0.35	-1.10	
02/27/07	14:57:30	9.79	9.97	0.03	0.12	-1.15	
02/27/07	14:57:45	9.80	9.99	-0.02	0.12	-1.15	System Bias
02/27/07	14:58:00	9.81	10.00	-0.10	0.12	-1.15	10.0% CO ₂ Injection
02/27/07	14:58:15	9.81	10.01	-0.12	0.12	-1.15	10.02 % CO ₂
02/27/07	14:58:30	9.81	10.03	-0.10	0.12	-1.15	
02/27/07	14:58:45	9.82	10.04	-0.12	0.10	-1.15	
02/27/07	14:59:00	9.82	10.05	-0.20	0.02	6.25	
02/27/07	14:59:15	9.82	10.03	-0.16	0.02	64.80	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	15:00:30	2.57	4.44	38.10	19.22	115.84	
02/27/07	15:00:45	2.54	4.44	40.61	19.74	118.99	
02/27/07	15:01:00	2.59	4.41	43.20	19.82	111.74	
02/27/07	15:01:15	2.84	4.40	45.42	19.84	98.04	
02/27/07	15:01:30	2.55	4.42	47.45	19.98	94.95	
02/27/07	15:01:45	2.48	4.43	48.94	20.12	108.34	
02/27/07	15:02:00	2.49	4.43	49.84	20.12	124.54	Start Run 11
02/27/07	15:02:15	2.53	4.39	50.27	20.12	132.34	
02/27/07	15:02:30	2.73	4.38	50.48	20.12	126.14	
02/27/07	15:02:45	2.70	4.40	50.69	20.12	117.39	
02/27/07	15:03:00	2.82	4.41	51.05	20.12	112.14	
02/27/07	15:03:15	2.55	4.42	51.70	20.12	116.39	
02/27/07	15:03:30	2.54	4.41	52.18	20.12	118.44	
02/27/07	15:03:45	2.60	4.39	52.45	20.04	111.79	
02/27/07	15:04:00	2.59	4.39	52.67	20.19	108.14	
02/27/07	15:04:15	2.51	4.40	53.30	20.12	117.24	
02/27/07	15:04:30	2.57	4.38	53.34	20.12	125.54	
02/27/07	15:04:45	2.68	4.36	53.01	20.12	125.89	
02/27/07	15:05:00	2.67	4.36	52.91	20.12	125.74	
02/27/07	15:05:15	2.87	4.36	52.91	20.12	119.74	
02/27/07	15:05:30	2.68	4.36	52.67	20.12	105.94	
02/27/07	15:05:45	2.56	4.40	53.67	20.22	99.64	
02/27/07	15:06:00	2.47	4.43	54.47	20.22	102.04	
02/27/07	15:06:15	2.46	4.44	54.45	20.22	106.34	
02/27/07	15:06:30	2.50	4.43	54.32	20.14	107.44	
02/27/07	15:06:45	2.50	4.44	54.23	20.09	108.64	
02/27/07	15:07:00	2.49	4.43	54.20	20.02	109.34	
02/27/07	15:07:15	2.52	4.40	54.08	19.99	108.04	
02/27/07	15:07:30	2.51	4.39	53.67	19.99	109.74	
02/27/07	15:07:45	2.50	4.39	53.97	20.02	112.43	
02/27/07	15:08:00	2.52	4.38	56.10	20.02	111.04	
02/27/07	15:08:15	2.52	4.38	57.00	19.99	109.85	
02/27/07	15:08:30	2.50	4.39	55.62	19.92	107.34	
02/27/07	15:08:45	2.47	4.40	54.90	19.92	107.14	
02/27/07	15:09:00	2.43	4.43	54.17	19.84	116.54	
02/27/07	15:09:15	2.43	4.43	53.68	19.92	127.69	
02/27/07	15:09:30	2.53	4.41	53.31	19.92	127.44	
02/27/07	15:09:45	2.55	4.42	53.34	19.84	131.69	
02/27/07	15:10:00	2.51	4.44	53.74	19.92	138.33	
02/27/07	15:10:15	2.58	4.42	53.84	19.92	138.14	
02/27/07	15:10:30	2.86	4.41	52.58	19.92	134.64	
02/27/07	15:10:45	2.62	4.42	51.79	20.04	138.04	
02/27/07	15:11:00	2.62	4.41	51.30	20.12	138.23	
02/27/07	15:11:15	2.66	4.39	50.96	20.02	131.64	
02/27/07	15:11:30	2.63	4.39	50.75	20.02	129.74	
02/27/07	15:11:45	2.62	4.39	50.60	20.02	126.24	
02/27/07	15:12:00	2.66	4.39	50.52	20.02	109.04	
02/27/07	15:12:15	2.81	4.40	50.58	20.02	84.15	
02/27/07	15:12:30	2.44	4.44	51.20	20.09	73.75	
02/27/07	15:12:45	2.38	4.48	52.00	20.09	71.00	
02/27/07	15:13:00	2.31	4.47	52.52	20.02	72.05	
02/27/07	15:13:15	2.35	4.46	52.63	20.05	67.20	
02/27/07	15:13:30	2.33	4.46	53.05	20.04	67.35	
02/27/07	15:13:45	2.29	4.47	53.29	19.98	77.65	
02/27/07	15:14:00	2.35	4.44	53.35	19.92	81.15	
02/27/07	15:14:15	2.46	4.41	53.12	20.02	79.75	
02/27/07	15:14:30	2.47	4.41	53.15	20.02	79.85	
02/27/07	15:14:45	2.42	4.42	53.35	20.12	84.90	
02/27/07	15:15:00	2.41	4.43	53.68	20.19	87.85	
02/27/07	15:15:15	2.42	4.44	53.64	20.12	96.74	
02/27/07	15:15:30	2.38	4.44	53.89	20.12	102.74	
02/27/07	15:15:45	2.43	4.43	54.09	20.07	115.14	
02/27/07	15:16:00	2.41	4.42	54.22	19.94	117.34	
02/27/07	15:16:15	2.48	4.41	54.07	19.97	111.69	
02/27/07	15:16:30	2.45	4.43	53.84	19.94	110.44	
02/27/07	15:16:45	2.42	4.44	53.77	19.92	107.94	
02/27/07	15:17:00	2.41	4.45	53.71	19.92	113.14	
02/27/07	15:17:15	2.39	4.45	53.80	20.02	121.64	
02/27/07	15:17:30	2.45	4.43	53.94	20.02	123.24	
02/27/07	15:17:45	2.49	4.42	53.81	20.02	119.89	
02/27/07	15:18:00	2.47	4.42	53.69	20.09	124.04	
02/27/07	15:18:15	2.44	4.43	53.57	20.02	129.39	
02/27/07	15:18:30	2.49	4.43	53.27	20.02	118.34	
02/27/07	15:18:45	2.44	4.46	53.19	20.02	108.39	
02/27/07	15:19:00	2.39	4.46	53.18	20.02	104.04	
02/27/07	15:19:15	2.43	4.44	53.07	20.02	94.15	
02/27/07	15:19:30	2.39	4.46	53.22	20.02	94.45	
02/27/07	15:19:45	2.35	4.46	53.53	20.07	99.89	
02/27/07	15:20:00	2.39	4.46	53.68	20.12	107.64	
02/27/07	15:20:15	2.44	4.45	53.55	20.07	108.64	
02/27/07	15:20:30	2.49	4.44	53.31	20.02	101.64	
02/27/07	15:20:45	2.44	4.46	53.23	20.12	96.10	
02/27/07	15:21:00	2.39	4.47	53.25	20.12	101.84	
02/27/07	15:21:15	2.41	4.46	53.21	20.07	119.89	
02/27/07	15:21:30	2.49	4.42	53.06	20.17	123.04	
02/27/07	15:21:45	2.59	4.41	52.63	20.32	114.19	
02/27/07	15:22:00	2.53	4.45	52.42	20.24	117.54	
02/27/07	15:22:15	2.51	4.44	52.24	20.22	110.64	
02/27/07	15:22:30	2.56	4.42	52.10	20.22	95.34	
02/27/07	15:22:45	2.48	4.46	52.75	20.22	86.20	
02/27/07	15:23:00	2.37	4.49	53.45	20.22	90.15	
02/27/07	15:23:15	2.41	4.47	53.63	20.22	93.70	
02/27/07	15:23:30	2.51	4.43	53.29	20.14	87.75	
02/27/07	15:23:45	2.53	4.42	53.06	20.17	74.75	
02/27/07	15:24:00	2.44	4.45	53.36	20.29	73.55	
02/27/07	15:24:15	2.33	4.47	53.76	20.32	88.20	
02/27/07	15:24:30	2.37	4.45	53.89	20.32	89.55	
02/27/07	15:24:45	2.46	4.43	53.97	20.27	80.05	
02/27/07	15:25:00	2.38	4.45	54.87	20.22	84.05	
02/27/07	15:25:15	2.36	4.44	55.29	20.12	97.75	
02/27/07	15:25:30	2.45	4.42	55.03	20.12	112.34	
02/27/07	15:25:45	2.50	4.42	54.71	20.07	138.29	
02/27/07	15:26:00	2.57	4.40	54.00	20.02	143.43	
02/27/07	15:26:15	2.66	4.39	53.29	20.02	138.69	
02/27/07	15:26:30	2.59	4.42	52.87	19.94	139.44	
02/27/07	15:26:45	2.58	4.42	52.47	19.97	154.89	
02/27/07	15:27:00	2.62	4.42	52.24	20.02	159.74	
02/27/07	15:27:15	2.88	4.41	52.07	20.02	152.19	
02/27/07	15:27:30	2.66	4.43	51.87	20.09	139.74	
02/27/07	15:27:45	2.59	4.44	51.87	20.12	128.64	

Reference Method 15-second Averages							Comments
Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	
02/27/07	15:28:00	2.43	4.46	52.53	20.12	96.65	
02/27/07	15:28:15	2.44	4.46	52.72	20.12	92.40	
02/27/07	15:28:30	2.47	4.45	52.64	20.19	88.54	
02/27/07	15:28:45	2.42	4.47	53.08	20.22	91.85	
02/27/07	15:30:00	2.49	4.46	53.23	20.29	90.04	
02/27/07	15:30:15	2.50	4.47	53.32	20.27	91.75	
02/27/07	15:30:30	2.44	4.46	53.55	20.29	97.54	
02/27/07	15:30:45	2.44	4.46	53.67	20.27	102.19	
02/27/07	15:31:00	2.52	4.45	53.93	20.14	97.64	
02/27/07	15:31:15	2.53	4.44	53.81	20.17	95.40	
02/27/07	15:31:30	2.49	4.45	53.58	20.22	98.44	
02/27/07	15:31:45	2.49	4.46	53.45	20.22	107.64	
02/27/07	15:32:00	2.51	4.45	53.35	20.22	108.94	
02/27/07	15:32:15	2.49	4.45	53.27	20.22	121.24	
02/27/07	15:32:30	2.46	4.44	53.25	20.14	130.04	
02/27/07	15:32:45	2.59	4.42	53.01	20.02	145.79	
02/27/07	15:33:00	2.63	4.42	52.87	20.09	160.44	
02/27/07	15:33:15	2.71	4.39	52.77	20.17	163.96	
02/27/07	15:33:30	2.77	4.39	52.46	20.14	152.94	
02/27/07	15:33:45	2.72	4.39	52.11	20.12	142.79	
02/27/07	15:34:00	2.67	4.41	51.85	20.04	137.44	
02/27/07	15:34:15	2.71	4.41	51.56	20.27	116.94	
02/27/07	15:34:30	2.82	4.44	51.75	20.32	103.54	
02/27/07	15:34:45	2.48	4.46	52.57	20.32	92.50	
02/27/07	15:35:00	2.43	4.47	52.89	20.24	86.35	
02/27/07	15:35:15	2.42	4.47	53.27	20.22	86.65	
02/27/07	15:35:30	2.38	4.46	53.59	20.22	90.75	
02/27/07	15:35:45	2.42	4.46	53.60	20.22	96.30	
02/27/07	15:36:00	2.48	4.46	53.39	20.22	90.35	
02/27/07	15:36:15	2.45	4.46	53.48	20.17	85.05	
02/27/07	15:36:30	2.39	4.49	53.76	20.12	84.75	
02/27/07	15:36:45	2.39	4.49	54.00	20.12	91.69	
02/27/07	15:37:00	2.37	4.49	54.13	20.19	103.24	
02/27/07	15:37:15	2.42	4.45	53.97	20.12	107.59	
02/27/07	15:37:30	2.49	4.44	53.77	20.12	111.54	
02/27/07	15:37:45	2.44	4.45	53.91	20.07	128.64	
02/27/07	15:38:00	2.49	4.42	53.70	20.12	128.14	
02/27/07	15:38:15	2.55	4.41	53.28	20.12	128.49	
02/27/07	15:38:30	2.53	4.42	53.63	20.12	121.85	
02/27/07	15:38:45	2.52	4.44	52.76	20.12	117.24	
02/27/07	15:39:00	2.48	4.47	52.67	20.12	126.46	
02/27/07	15:39:15	2.48	4.47	52.63	20.12	133.19	
02/27/07	15:39:30	2.58	4.45	52.45	20.13	123.66	
02/27/07	15:39:45	2.61	4.45	52.35	20.22	108.39	
02/27/07	15:40:00	2.53	4.47	52.42	20.16	92.06	
02/27/07	15:40:15	2.44	4.49	52.68	20.22	88.05	
02/27/07	15:40:30	2.36	4.50	53.12	20.20	86.50	
02/27/07	15:40:45	2.37	4.47	53.39	20.12	93.40	
02/27/07	15:41:00	2.41	4.45	53.37	20.12	95.80	
02/27/07	15:41:15	2.53	4.43	52.90	20.12	91.35	
02/27/07	15:41:30	2.51	4.44	52.62	20.22	95.40	
02/27/07	15:41:45	2.47	4.44	52.67	20.32	97.69	
02/27/07	15:42:00	2.51	4.43	52.64	20.24	99.49	
02/27/07	15:42:15	2.50	4.45	52.58	20.27	109.99	
02/27/07	15:42:30	2.53	4.43	52.62	20.24	111.19	
02/27/07	15:42:45	2.60	4.42	52.58	20.22	108.19	
02/27/07	15:43:00	2.54	4.44	52.76	20.22	110.14	
02/27/07	15:43:15	2.51	4.45	53.10	20.22	112.64	
02/27/07	15:43:30	2.50	4.44	53.27	20.14	101.99	
02/27/07	15:43:45	2.52	4.44	53.33	20.12	86.35	
02/27/07	15:44:00	2.41	4.47	53.49	20.12	80.05	
02/27/07	15:44:15	2.32	4.46	53.72	20.17	62.30	
02/27/07	15:44:30	2.29	4.49	53.88	20.22	82.95	
02/27/07	15:44:45	2.35	4.46	53.77	20.22	93.30	
02/27/07	15:45:00	2.43	4.46	53.63	20.14	97.05	
02/27/07	15:45:15	2.40	4.47	53.90	20.17	108.34	
02/27/07	15:45:30	2.43	4.48	53.91	20.24	119.44	
02/27/07	15:45:45	2.46	4.48	53.64	20.27	125.24	
02/27/07	15:46:00	2.53	4.45	53.32	20.14	118.49	
02/27/07	15:46:15	2.55	4.45	53.06	20.12	109.19	
02/27/07	15:46:30	2.51	4.49	53.02	20.12	109.79	
02/27/07	15:46:45	2.46	4.49	53.13	20.12	115.04	
02/27/07	15:47:00	2.53	4.44	53.26	20.12	115.49	
02/27/07	15:47:15	2.56	4.43	53.26	20.07	108.74	
02/27/07	15:47:30	2.51	4.44	53.32	20.02	103.04	
02/27/07	15:47:45	2.44	4.49	53.33	20.07	103.34	
02/27/07	15:48:00	2.46	4.46	53.29	20.19	106.04	
02/27/07	15:48:15	2.49	4.46	53.20	20.22	118.64	
02/27/07	15:48:30	2.48	4.46	53.15	20.24	134.44	
02/27/07	15:48:45	2.57	4.43	52.67	20.27	144.59	
02/27/07	15:49:00	2.66	4.42	52.62	20.09	143.53	
02/27/07	15:49:15	2.67	4.41	52.43	20.12	130.29	
02/27/07	15:49:30	2.63	4.41	52.22	20.12	134.49	
02/27/07	15:49:45	2.58	4.43	52.17	20.12	144.44	
02/27/07	15:50:00	2.68	4.41	52.15	20.14	154.49	
02/27/07	15:50:15	2.70	4.41	51.95	20.22	162.98	
02/27/07	15:50:30	2.75	4.39	51.74	20.29	155.64	
02/27/07	15:50:45	2.74	4.40	51.61	20.27	147.94	
02/27/07	15:51:00	2.66	4.44	51.63	20.14	141.18	
02/27/07	15:51:15	2.66	4.44	51.68	20.17	131.54	
02/27/07	15:51:30	2.63	4.45	51.69	20.24	122.69	
02/27/07	15:51:45	2.61	4.44	51.85	20.32	115.04	
02/27/07	15:52:00	2.58	4.45	51.75	20.24	113.39	
02/27/07	15:52:15	2.56	4.46	51.87	20.22	108.04	
02/27/07	15:52:30	2.55	4.45	52.04	20.22	109.69	
02/27/07	15:52:45	2.55	4.45	52.06	20.22	118.69	
02/27/07	15:53:00	2.62	4.43	51.99	20.22	120.34	
02/27/07	15:53:15	2.65	4.42	52.07	20.22	127.49	
02/27/07	15:53:30	2.65	4.42	52.20	20.22	126.14	
02/27/07	15:53:45	2.71	4.42	52.13	20.17	119.44	
02/27/07	15:54:00	2.61	4.45	52.12	20.12	115.54	
02/27/07	15:54:15	2.62	4.44	51.96	20.07	104.69	
02/27/07	15:54:30	2.60	4.46	51.91	20.09	96.15	
02/27/07	15:54:45	2.53	4.49	52.04	20.12	96.65	
02/27/07	15:55:00	2.51	4.49	52.18	20.12	103.54	
02/27/07	15:55:15	2.54	4.47	52.17	20.17	100.79	
02/27/07	15:55:30	2.59	4.49	52.10	20.22	96.39	
02/27/07	15:55:45	2.55	4.49	52.11	20.22	98.85	
02/27/07	15:56:00	2.59	4.49	52.12	20.29	94.50	
02/27/07	15:56:15	2.56	4.47	52.07	20.32	94.90	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	15:57:45	2.57	4.45	52.12	20.27	101.04	
02/27/07	15:58:00	2.61	4.43	52.01	20.17	98.85	
02/27/07	15:58:15	2.62	4.43	51.89	20.22	97.50	
02/27/07	15:58:30	2.63	4.42	51.78	20.22	98.10	
02/27/07	15:58:45	2.63	4.43	51.77	20.22	102.74	
02/27/07	15:59:00	2.65	4.41	51.73	20.22	96.80	
02/27/07	15:59:15	2.66	4.42	51.85	20.27	89.90	
02/27/07	15:59:30	2.61	4.44	51.89	20.22	95.15	
02/27/07	15:59:45	2.61	4.44	51.98	20.17	85.85	
02/27/07	16:00:00	2.58	4.48	52.37	20.19	77.55	
02/27/07	16:00:15	2.45	4.48	52.63	20.12	81.75	
02/27/07	16:00:30	2.48	4.47	52.90	20.14	84.35	
02/27/07	16:00:45	2.51	4.45	52.91	20.22	108.30	
02/27/07	16:01:00	2.63	4.41	52.64	20.22	103.44	
02/27/07	16:01:15	2.64	4.42	52.51	20.22	100.15	
02/27/07	16:01:30	2.57	4.45	52.52	20.22	102.54	
02/27/07	16:01:45	2.58	4.45	52.56	20.22	101.69	End Run 11
02/27/07	16:02:00	2.60	4.46	52.60	20.22	100.94	
02/27/07	16:02:15	2.60	4.46	52.59	20.22	97.30	
02/27/07	16:02:30	2.98	4.86	47.86	20.19	49.45	
02/27/07	16:02:45	6.48	7.31	31.72	19.37	11.90	
02/27/07	16:03:00	9.28	9.48	17.65	15.90	0.95	
02/27/07	16:03:15	9.90	10.05	10.80	7.12	-0.65	
02/27/07	16:03:30	9.95	10.01	7.39	2.12	-0.80	
02/27/07	16:03:45	9.98	9.93	5.29	0.42	-0.80	
02/27/07	16:04:00	9.98	9.97	3.95	0.25	-0.75	
02/27/07	16:04:15	9.97	10.09	3.04	0.17	-0.75	
02/27/07	16:04:30	9.97	10.15	2.39	0.12	-0.75	
02/27/07	16:04:45	9.98	10.18	1.93	0.12	-0.75	System Bias
02/27/07	16:05:00	9.98	10.20	1.52	0.12	-0.90	10.0% Oxygen Injection
02/27/07	16:05:15	9.98	10.21	1.26	0.12	-0.75	9.98 % Oxygen
02/27/07	16:05:30	9.98	10.22	1.01	0.12	-0.90	
02/27/07	16:05:45	9.98	10.21	0.84	0.12	12.30	
02/27/07	16:06:00	9.99	9.95	0.78	0.12	21.80	
02/27/07	16:06:15	7.27	7.75	1.87	0.07	6.90	
02/27/07	16:06:30	8.24	9.11	2.51	4.93	0.75	
02/27/07	16:06:45	9.60	9.93	2.23	6.62	-0.80	
02/27/07	16:07:00	9.80	10.03	1.77	2.25	-1.09	
02/27/07	16:07:15	9.81	10.03	1.33	0.82	-0.99	System Bias
02/27/07	16:07:30	9.82	10.03	1.07	0.20	-1.00	10.0% CO ₂ Injection
02/27/07	16:07:45	9.82	10.04	0.83	0.12	-0.95	10.04 % CO ₂
02/27/07	16:08:00	9.82	10.05	0.63	0.10	-0.95	
02/27/07	16:08:15	9.82	10.04	0.42	0.02	12.75	
02/27/07	16:08:30	8.51	9.50	0.35	0.03	17.42	
02/27/07	16:08:45	7.02	6.78	0.59	0.82	44.05	
02/27/07	16:09:00	3.44	3.12	0.72	2.42	91.75	
02/27/07	16:09:15	0.99	0.81	0.65	3.02	115.32	
02/27/07	16:09:30	0.20	0.24	0.51	1.55	118.44	
02/27/07	16:09:45	0.09	0.16	0.36	0.32	119.31	
02/27/07	16:10:00	0.06	0.14	0.32	0.12	119.59	System Bias
02/27/07	16:10:15	0.05	0.12	0.22	0.12	119.92	120.0ppm CO Injection
02/27/07	16:10:30	0.05	0.11	0.15	0.02	120.04	0.04 % Oxygen
02/27/07	16:10:45	0.04	0.10	0.08	0.02	119.93	0.11 % CO ₂
02/27/07	16:11:00	0.04	0.10	0.00	0.02	120.19	0.05 ppm NO _x
02/27/07	16:11:15	0.04	0.09	-0.03	0.02	112.57	120.02 ppm CO
02/27/07	16:11:30	0.05	0.16	-0.05	0.02	98.15	
02/27/07	16:11:45	0.50	1.08	-0.03	0.12	45.45	
02/27/07	16:12:00	0.48	0.58	-0.04	1.77	13.20	
02/27/07	16:12:15	0.11	0.14	-0.09	8.62	1.86	
02/27/07	16:12:30	0.04	0.08	-0.09	28.79	1.25	
02/27/07	16:12:45	0.03	0.07	-0.14	39.82	1.05	
02/27/07	16:13:00	0.02	0.07	-0.20	41.82	1.05	
02/27/07	16:13:15	0.03	0.07	-0.11	42.37	0.86	
02/27/07	16:13:30	0.03	0.08	-0.19	43.24	0.85	
02/27/07	16:13:45	0.02	0.06	-0.20	43.82	0.85	
02/27/07	16:14:00	0.02	0.06	-0.25	44.57	0.85	
02/27/07	16:14:15	0.02	0.06	-0.27	44.67	0.75	System Bias
02/27/07	16:14:30	0.02	0.06	-0.19	45.12	0.85	45.0ppm NO _x Injection
02/27/07	16:14:45	0.02	0.06	-0.24	45.17	0.85	-0.23 ppm SO ₂
02/27/07	16:15:00	0.02	0.06	-0.25	45.22	0.10	45.18 ppm NO _x
02/27/07	16:15:15	0.04	0.15	-0.25	45.22	0.25	0.42 ppm CO
02/27/07	16:15:30	0.48	0.95	0.27	45.22	4.30	
02/27/07	16:15:45	0.37	0.41	9.99	43.12	0.95	
02/27/07	16:16:00	0.07	0.09	24.43	33.22	0.86	
02/27/07	16:16:15	0.02	0.06	33.27	14.67	0.50	
02/27/07	16:16:30	0.02	0.05	38.12	3.32	0.80	
02/27/07	16:16:45	0.02	0.05	40.98	0.77	0.50	
02/27/07	16:17:00	0.02	0.05	42.58	0.40	0.61	
02/27/07	16:17:15	0.02	0.05	43.60	0.32	0.50	
02/27/07	16:17:30	0.02	0.05	44.13	0.30	0.48	
02/27/07	16:17:45	0.02	0.05	44.49	0.22	0.66	System Bias
02/27/07	16:18:00	0.02	0.04	44.91	0.22	0.51	45.0ppm SO ₂ Injection
02/27/07	16:18:15	0.02	0.04	45.01	0.22	0.48	45.07 ppm SO ₂
02/27/07	16:18:30	0.02	0.04	45.17	0.22	0.80	
02/27/07	16:18:45	0.02	0.05	45.21	0.22	0.66	
02/27/07	16:19:00	0.02	0.05	45.13	0.20	1.10	
02/27/07	16:19:15	0.02	0.04	45.53	0.12	35.15	
02/27/07	16:19:30	0.26	0.82	43.24	0.12	75.45	
02/27/07	16:19:45	1.57	3.17	42.48	1.17	111.34	
02/27/07	16:20:00	2.40	4.20	45.08	5.66	124.85	
02/27/07	16:20:15	2.58	4.34	45.22	13.82	129.24	
02/27/07	16:20:30	2.82	4.38	44.34	18.52	131.29	
02/27/07	16:20:45	2.57	4.40	44.40	19.47	131.74	
02/27/07	16:21:00	2.80	4.39	48.02	19.52	132.44	
02/27/07	16:21:15	2.56	4.40	46.87	19.52	136.04	
02/27/07	16:21:30	2.57	4.38	50.75	19.62	131.64	
02/27/07	16:21:45	2.55	4.39	51.67	19.57	128.04	
02/27/07	16:22:00	2.53	4.38	52.17	19.52	124.14	Start Run 12
02/27/07	16:22:15	2.54	4.38	52.59	19.57	121.44	
02/27/07	16:22:30	2.51	4.40	53.00	19.62	123.29	
02/27/07	16:22:45	2.50	4.40	53.29	19.62	118.04	
02/27/07	16:23:00	2.47	4.41	53.60	19.72	113.14	
02/27/07	16:23:15	2.45	4.42	53.90	19.67	109.65	
02/27/07	16:23:30	2.44	4.43	54.28	19.74	113.99	
02/27/07	16:23:45	2.41	4.44	54.48	19.67	128.84	
02/27/07	16:24:00	2.42	4.43	54.57	19.89	140.74	
02/27/07	16:24:15	2.48	4.42	54.37	19.82	147.14	
02/27/07	16:24:30	2.52	4.41	54.03	19.72	154.29	
02/27/07	16:24:45	2.55	4.39	53.67	19.72	161.24	
02/27/07	16:25:00	2.65	4.37	53.58	19.62	158.39	

Reference Method 15-second Averages							Comments
Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	
02/27/07	16:26:15	2.43	4.45	53.56	19.78	138.44	
02/27/07	16:26:30	2.47	4.42	53.61	19.72	139.89	
02/27/07	16:26:45	2.51	4.42	53.69	19.79	141.44	
02/27/07	16:27:00	2.54	4.40	53.72	19.92	134.99	
02/27/07	16:27:15	2.54	4.42	53.62	19.99	130.35	
02/27/07	16:27:30	2.46	4.44	53.52	20.02	129.75	
02/27/07	16:27:45	2.52	4.44	53.36	20.02	123.85	
02/27/07	16:28:00	2.48	4.44	53.44	20.02	125.45	
02/27/07	16:28:15	2.48	4.43	53.58	20.02	126.25	
02/27/07	16:28:30	2.49	4.42	53.67	20.02	124.60	
02/27/07	16:28:45	2.48	4.42	53.68	20.02	121.95	
02/27/07	16:29:00	2.45	4.44	53.60	20.02	129.75	
02/27/07	16:29:15	2.42	4.44	53.66	20.02	141.14	
02/27/07	16:29:30	2.52	4.42	53.62	19.92	137.29	
02/27/07	16:29:45	2.52	4.44	53.40	19.92	127.65	
02/27/07	16:30:00	2.45	4.44	53.46	20.02	122.55	
02/27/07	16:30:15	2.40	4.45	53.71	20.09	142.45	
02/27/07	16:30:30	2.37	4.45	53.68	20.12	156.84	
02/27/07	16:30:45	2.51	4.41	53.94	20.12	158.54	
02/27/07	16:31:00	2.52	4.43	53.15	20.20	145.54	
02/27/07	16:31:15	2.53	4.43	52.84	20.05	157.44	
02/27/07	16:31:30	2.62	4.40	52.65	20.17	157.84	
02/27/07	16:31:45	2.60	4.39	51.74	20.25	155.54	
02/27/07	16:32:00	2.62	4.39	51.60	20.12	141.69	
02/27/07	16:32:15	2.61	4.41	51.40	20.04	119.34	
02/27/07	16:32:30	2.49	4.43	51.48	20.02	115.79	
02/27/07	16:32:45	2.47	4.42	51.60	20.09	120.14	
02/27/07	16:33:00	2.52	4.40	51.64	20.22	121.60	
02/27/07	16:33:15	2.51	4.40	52.13	20.22	122.74	
02/27/07	16:33:30	2.52	4.40	52.18	20.12	116.00	
02/27/07	16:33:45	2.51	4.41	52.21	20.12	116.24	
02/27/07	16:34:00	2.46	4.43	52.29	20.12	126.44	
02/27/07	16:34:15	2.46	4.43	52.38	20.12	125.84	
02/27/07	16:34:30	2.52	4.44	52.42	19.99	124.62	
02/27/07	16:34:45	2.51	4.45	52.29	19.92	126.74	
02/27/07	16:35:00	2.54	4.44	52.12	19.94	124.55	
02/27/07	16:35:15	2.58	4.44	51.95	20.02	124.24	
02/27/07	16:35:30	2.52	4.45	52.06	20.17	127.69	
02/27/07	16:35:45	2.52	4.45	52.23	20.25	138.24	
02/27/07	16:36:00	2.55	4.44	52.36	20.12	164.54	
02/27/07	16:36:15	2.64	4.41	52.25	20.12	161.04	
02/27/07	16:36:30	2.77	4.37	51.96	20.25	167.46	
02/27/07	16:36:45	2.83	4.36	51.47	20.32	173.23	
02/27/07	16:37:00	2.62	4.35	51.01	20.32	169.23	
02/27/07	16:37:15	2.83	4.33	50.59	20.32	156.14	
02/27/07	16:37:30	2.76	4.35	50.32	20.32	147.44	
02/27/07	16:37:45	2.77	4.34	50.34	20.32	140.84	
02/27/07	16:38:00	2.77	4.34	50.48	20.25	143.34	
02/27/07	16:38:15	2.72	4.34	50.58	20.32	148.34	
02/27/07	16:38:30	2.74	4.33	50.83	20.32	158.84	
02/27/07	16:38:45	2.75	4.32	50.52	20.40	171.23	
02/27/07	16:39:00	2.83	4.31	50.24	20.42	175.03	
02/27/07	16:39:15	2.87	4.31	49.99	20.35	175.03	
02/27/07	16:39:30	2.86	4.32	49.62	20.42	175.03	
02/27/07	16:39:45	2.79	4.35	49.96	20.42	175.03	
02/27/07	16:40:00	2.62	4.36	50.27	20.42	175.03	
02/27/07	16:40:15	2.79	4.37	50.50	20.42	175.03	
02/27/07	16:40:30	2.76	4.37	50.68	20.45	173.63	
02/27/07	16:40:45	2.83	4.38	50.83	20.45	162.33	
02/27/07	16:41:00	2.79	4.38	50.88	20.45	167.94	
02/27/07	16:41:15	2.73	4.39	50.85	20.52	168.04	
02/27/07	16:41:30	2.68	4.38	50.81	20.50	161.24	
02/27/07	16:41:45	2.81	4.35	50.56	20.50	161.93	
02/27/07	16:42:00	2.89	4.35	50.28	20.55	159.43	
02/27/07	16:42:15	2.92	4.35	49.92	20.70	168.24	
02/27/07	16:42:30	2.94	4.35	49.60	20.72	162.54	
02/27/07	16:42:45	2.97	4.36	49.27	20.72	152.74	
02/27/07	16:43:00	2.94	4.36	49.96	20.62	136.29	
02/27/07	16:43:15	2.90	4.37	49.94	20.70	115.15	
02/27/07	16:43:30	2.83	4.40	49.40	20.62	97.70	
02/27/07	16:43:45	2.78	4.42	49.90	20.62	87.55	
02/27/07	16:44:00	2.72	4.42	50.14	20.72	96.41	
02/27/07	16:44:15	2.71	4.43	50.18	20.72	96.26	
02/27/07	16:44:30	2.87	4.43	50.30	20.62	96.70	
02/27/07	16:44:45	2.67	4.41	50.54	20.70	102.65	
02/27/07	16:45:00	2.67	4.39	50.73	20.80	108.35	
02/27/07	16:45:15	2.72	4.38	50.71	20.72	115.85	
02/27/07	16:45:30	2.75	4.37	50.74	20.75	127.19	
02/27/07	16:45:45	2.78	4.37	50.72	20.82	132.15	
02/27/07	16:46:00	2.78	4.39	50.64	20.90	135.19	
02/27/07	16:46:15	2.73	4.42	50.94	20.75	135.04	
02/27/07	16:46:30	2.74	4.41	50.75	20.72	130.04	
02/27/07	16:46:45	2.75	4.40	50.52	20.85	126.14	
02/27/07	16:47:00	2.76	4.39	50.32	20.52	119.55	
02/27/07	16:47:15	2.80	4.39	50.20	20.52	108.85	
02/27/07	16:47:30	2.77	4.40	50.33	20.68	91.05	
02/27/07	16:47:45	2.68	4.43	50.86	20.85	79.65	
02/27/07	16:48:00	2.50	4.47	51.79	20.58	87.40	
02/27/07	16:48:15	2.52	4.45	52.24	20.45	93.25	
02/27/07	16:48:30	2.63	4.42	52.14	20.47	92.30	
02/27/07	16:48:45	2.61	4.42	52.16	20.52	96.15	
02/27/07	16:49:00	2.58	4.41	52.46	20.52	104.10	
02/27/07	16:49:15	2.65	4.40	52.45	20.60	110.05	
02/27/07	16:49:30	2.68	4.40	52.28	20.47	107.10	
02/27/07	16:49:45	2.67	4.41	52.27	20.35	110.65	
02/27/07	16:50:00	2.61	4.44	52.27	20.32	131.64	
02/27/07	16:50:15	2.65	4.43	51.34	20.32	139.24	
02/27/07	16:50:30	2.67	4.41	50.40	20.27	128.20	
02/27/07	16:50:45	2.68	4.41	49.95	20.22	119.15	
02/27/07	16:51:00	2.60	4.44	50.11	20.12	117.40	
02/27/07	16:51:15	2.59	4.44	50.57	20.12	121.45	
02/27/07	16:51:30	2.57	4.44	51.23	20.37	120.60	
02/27/07	16:51:45	2.84	4.42	51.74	20.35	119.15	
02/27/07	16:52:00	2.59	4.45	52.02	20.27	123.00	
02/27/07	16:52:15	2.64	4.44	51.83	20.40	127.14	
02/27/07	16:52:30	2.86	4.43	51.75	20.32	122.30	
02/27/07	16:52:45	2.65	4.43	51.85	20.25	115.55	
02/27/07	16:53:00	2.84	4.43	51.81	20.27	105.30	
02/27/07	16:53:15	2.85	4.44	51.95	20.32	100.75	
02/27/07	16:53:30	2.59	4.45	52.34	20.27	104.95	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	16:55:00	2.55	4.46	52.48	20.27	88.85	
02/27/07	16:55:15	2.60	4.47	52.68	20.32	77.96	
02/27/07	16:55:30	2.51	4.49	52.85	20.17	73.01	
02/27/07	16:55:45	2.47	4.49	53.23	20.12	74.05	
02/27/07	16:56:00	2.46	4.50	53.57	20.12	63.10	
02/27/07	16:56:15	2.53	4.48	53.81	20.12	90.75	
02/27/07	16:56:30	2.60	4.46	53.39	20.27	88.85	
02/27/07	16:56:45	2.62	4.44	53.29	20.32	107.55	
02/27/07	16:57:00	2.68	4.43	53.23	20.32	108.00	
02/27/07	16:57:15	2.68	4.43	53.14	20.25	96.85	
02/27/07	16:57:30	2.63	4.43	53.03	20.22	101.15	
02/27/07	16:57:45	2.55	4.46	53.23	20.30	112.55	
02/27/07	16:58:00	2.59	4.45	53.21	20.42	118.30	
02/27/07	16:58:15	2.68	4.43	52.82	20.42	115.85	
02/27/07	16:58:30	2.65	4.44	52.60	20.42	115.60	
02/27/07	16:58:45	2.59	4.46	52.54	20.42	114.85	
02/27/07	16:59:00	2.58	4.47	52.58	20.42	108.85	
02/27/07	16:59:15	2.53	4.49	52.69	20.42	107.55	
02/27/07	16:59:30	2.49	4.46	52.68	20.52	124.28	
02/27/07	16:59:45	2.61	4.44	52.29	20.52	130.85	
02/27/07	17:00:00	2.69	4.42	51.87	20.57	140.78	
02/27/07	17:00:15	2.66	4.42	51.68	20.70	150.15	
02/27/07	17:00:30	2.71	4.39	51.70	20.62	146.03	
02/27/07	17:00:45	2.73	4.40	51.83	20.55	151.84	
02/27/07	17:01:00	2.69	4.40	51.98	20.42	163.88	
02/27/07	17:01:15	2.79	4.39	52.01	20.50	164.64	
02/27/07	17:01:30	2.80	4.39	52.06	20.42	178.89	
02/27/07	17:01:45	2.76	4.38	52.04	20.42	178.64	
02/27/07	17:02:00	2.83	4.36	51.87	20.42	163.39	
02/27/07	17:02:15	2.77	4.39	51.79	20.42	163.54	
02/27/07	17:02:30	2.72	4.40	51.79	20.32	161.64	
02/27/07	17:02:45	2.61	4.39	51.81	20.40	157.35	
02/27/07	17:03:00	2.79	4.40	51.66	20.47	158.19	
02/27/07	17:03:15	2.79	4.42	51.36	20.60	161.34	
02/27/07	17:03:30	2.81	4.42	51.19	20.67	144.89	
02/27/07	17:03:45	2.78	4.42	51.33	20.72	126.25	
02/27/07	17:04:00	2.70	4.44	51.47	20.67	109.25	
02/27/07	17:04:15	2.64	4.44	51.61	20.62	109.75	
02/27/07	17:04:30	2.60	4.44	51.82	20.62	106.05	
02/27/07	17:04:45	2.68	4.42	52.12	20.82	104.85	
02/27/07	17:05:00	2.63	4.45	52.27	20.52	111.70	
02/27/07	17:05:15	2.64	4.45	52.32	20.52	124.25	
02/27/07	17:05:30	2.68	4.44	52.08	20.67	137.74	
02/27/07	17:05:45	2.73	4.42	51.89	20.72	135.25	
02/27/07	17:06:00	2.70	4.43	51.55	20.62	128.85	
02/27/07	17:06:15	2.64	4.44	51.69	20.62	122.85	
02/27/07	17:06:30	2.63	4.44	51.79	20.47	123.15	
02/27/07	17:06:45	2.58	4.44	51.85	20.42	124.75	
02/27/07	17:07:00	2.65	4.41	51.82	20.52	129.45	
02/27/07	17:07:15	2.64	4.42	51.82	20.45	144.15	
02/27/07	17:07:30	2.68	4.42	51.89	20.42	167.69	
02/27/07	17:07:45	2.75	4.41	51.85	20.50	174.54	
02/27/07	17:08:00	2.81	4.40	52.08	20.52	171.34	
02/27/07	17:08:15	2.80	4.41	51.92	20.60	160.85	
02/27/07	17:08:30	2.68	4.44	51.77	20.52	170.19	
02/27/07	17:08:45	2.70	4.44	51.66	20.52	175.54	
02/27/07	17:09:00	2.77	4.43	51.53	20.47	178.29	
02/27/07	17:09:15	2.75	4.43	51.54	20.52	178.14	
02/27/07	17:09:30	2.77	4.43	51.49	20.52	185.45	
02/27/07	17:09:45	2.80	4.43	51.55	20.52	156.75	
02/27/07	17:10:00	2.78	4.44	51.44	20.52	156.30	
02/27/07	17:10:15	2.74	4.43	51.27	20.60	158.45	
02/27/07	17:10:30	2.77	4.43	51.08	20.62	146.35	
02/27/07	17:10:45	2.79	4.43	50.67	20.55	134.75	
02/27/07	17:11:00	2.68	4.48	50.91	20.47	123.35	
02/27/07	17:11:15	2.65	4.44	50.65	20.52	123.95	
02/27/07	17:11:30	2.66	4.43	50.67	20.52	136.79	
02/27/07	17:11:45	2.71	4.41	50.84	20.52	135.85	
02/27/07	17:12:00	2.76	4.42	50.62	20.57	144.50	
02/27/07	17:12:15	2.69	4.44	51.08	20.52	154.15	
02/27/07	17:12:30	2.77	4.44	51.02	20.57	156.80	
02/27/07	17:12:45	2.63	4.43	50.76	20.63	153.85	
02/27/07	17:13:00	2.62	4.44	50.79	20.72	150.00	
02/27/07	17:13:15	2.63	4.44	50.71	20.80	145.85	
02/27/07	17:13:30	2.81	4.45	50.63	20.62	144.79	
02/27/07	17:13:45	2.79	4.45	50.59	20.62	131.15	
02/27/07	17:14:00	2.83	4.43	50.46	20.62	106.78	
02/27/07	17:14:15	2.67	4.45	50.56	20.75	102.45	
02/27/07	17:14:30	2.66	4.44	50.79	20.67	85.80	
02/27/07	17:14:45	2.67	4.45	51.21	20.70	77.86	
02/27/07	17:15:00	2.52	4.49	51.62	20.77	85.26	
02/27/07	17:15:15	2.54	4.48	52.01	20.62	104.75	
02/27/07	17:15:30	2.63	4.44	51.92	20.62	128.45	
02/27/07	17:15:45	2.81	4.40	51.57	20.75	135.75	
02/27/07	17:16:00	2.68	4.41	51.23	20.72	127.40	
02/27/07	17:16:15	2.63	4.43	51.07	20.72	118.35	
02/27/07	17:16:30	2.70	4.47	51.14	20.67	108.80	
02/27/07	17:16:45	2.64	4.47	51.28	20.70	98.85	
02/27/07	17:17:00	2.81	4.48	51.49	20.72	92.98	
02/27/07	17:17:15	2.58	4.49	51.64	20.70	100.85	
02/27/07	17:17:30	2.60	4.48	51.74	20.62	110.85	
02/27/07	17:17:45	2.65	4.48	51.76	20.60	116.15	
02/27/07	17:18:00	2.68	4.44	51.50	20.52	110.45	
02/27/07	17:18:15	2.73	4.43	51.16	20.52	106.85	
02/27/07	17:18:30	2.69	4.43	50.99	20.57	110.30	
02/27/07	17:18:45	2.73	4.43	50.95	20.62	113.75	
02/27/07	17:19:00	2.71	4.45	50.99	20.57	116.70	
02/27/07	17:19:15	2.74	4.44	50.99	20.52	114.85	
02/27/07	17:19:30	2.71	4.43	51.06	20.57	113.25	
02/27/07	17:19:45	2.69	4.44	50.99	20.52	113.85	
02/27/07	17:20:00	2.71	4.44	50.94	20.47	106.55	
02/27/07	17:20:15	2.69	4.45	51.06	20.60	98.15	
02/27/07	17:20:30	2.62	4.46	51.16	20.62	83.21	
02/27/07	17:20:45	2.56	4.46	51.37	20.60	73.96	
02/27/07	17:21:00	2.43	4.50	51.93	20.57	74.11	
02/27/07	17:21:15	2.43	4.49	52.53	20.70	77.56	
02/27/07	17:21:30	2.51	4.49	52.64	20.72	63.26	
02/27/07	17:21:45	2.53	4.47	52.45	20.60	90.15	
02/27/07	17:22:00	2.83	4.45	52.30	20.62	91.85	
02/27/07	17:22:15	2.65	4.44	52.28	20.87	86.25	
02/27/07	17:22:30	2.65	4.44	52.28	20.87	86.25	

End Run 12

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/27/07	17:23:30	0.49	0.38	42.70	16.77	2.08	
02/27/07	17:23:45	0.08	0.12	43.34	8.87	1.18	
02/27/07	17:24:00	0.04	0.09	44.09	1.72	1.08	
02/27/07	17:24:15	0.04	0.08	44.53	0.57	1.08	
02/27/07	17:24:30	0.04	0.07	44.80	0.27	1.08	
02/27/07	17:24:45	0.03	0.07	45.03	0.20	1.08	
02/27/07	17:25:00	0.03	0.07	45.23	0.12	0.88	
02/27/07	17:25:15	0.03	0.06	45.39	0.12	0.88	
02/27/07	17:25:30	0.03	0.06	45.51	0.12	0.81	System Bias
02/27/07	17:25:45	0.03	0.06	45.54	0.12	1.08	45.0ppm SO ₂ Injection
02/27/07	17:26:00	0.03	0.06	45.50	0.12	0.88	45.50 ppm SO ₂
02/27/07	17:26:15	0.03	0.06	45.48	0.13	0.73	
02/27/07	17:26:30	0.03	0.05	45.50	0.12	4.18	
02/27/07	17:26:45	0.04	0.12	45.17	0.12	8.88	
02/27/07	17:27:00	0.42	0.88	40.98	0.17	24.08	
02/27/07	17:27:15	0.34	0.41	28.88	0.75	77.01	
02/27/07	17:27:30	0.11	0.13	17.85	2.87	111.70	
02/27/07	17:27:45	0.06	0.07	11.50	1.72	118.60	System Bias
02/27/07	17:28:00	0.84	0.08	8.03	0.42	119.55	120.0ppm CO Injection
02/27/07	17:28:15	0.83	0.05	5.95	0.12	119.85	0.83 % Oxygen
02/27/07	17:28:30	0.83	0.05	4.51	0.12	120.00	0.05 % CO ₂
02/27/07	17:28:45	6.03	0.05	3.81	0.12	120.00	0.28 ppm NO _x
02/27/07	17:29:00	0.02	0.05	2.84	0.12	119.00	119.85 ppm CO
02/27/07	17:29:15	0.03	0.06	2.30	0.02	115.55	
02/27/07	17:29:30	0.24	0.50	2.13	0.02	112.95	
02/27/07	17:29:45	0.29	0.35	2.08	1.12	101.40	
02/27/07	17:30:00	2.46	0.09	1.83	1.57	68.08	
02/27/07	17:30:15	4.82	0.08	1.88	1.27	23.88	
02/27/07	17:30:30	0.97	0.06	1.53	1.37	4.18	
02/27/07	17:30:45	0.11	0.04	1.42	22.80	1.78	
02/27/07	17:31:00	0.04	0.04	1.21	37.07	1.48	
02/27/07	17:31:15	0.04	0.04	1.12	42.32	1.31	
02/27/07	17:31:30	0.03	0.04	1.05	42.82	1.28	
02/27/07	17:31:45	0.03	0.06	0.95	43.84	1.26	
02/27/07	17:32:00	0.03	0.05	0.98	44.27	1.08	
02/27/07	17:32:15	0.03	0.05	0.98	45.08	1.21	
02/27/07	17:32:30	0.03	0.05	0.88	45.47	1.08	
02/27/07	17:32:45	0.03	0.05	0.89	45.74	1.08	System Bias
02/27/07	17:33:00	0.03	0.04	0.89	45.82	1.08	45.0ppm NO _x Injection
02/27/07	17:33:15	0.03	0.04	0.85	45.92	0.91	0.83 ppm SO ₂
02/27/07	17:33:30	0.03	0.04	0.82	45.92	1.01	45.89 ppm NO _x
02/27/07	17:33:45	0.02	0.04	0.77	45.92	1.01	1.88 ppm CO
02/27/07	17:34:00	0.03	0.04	0.75	45.92	1.08	
02/27/07	17:34:15	2.16	0.05	0.74	45.88	2.41	
02/27/07	17:34:30	11.49	0.25	0.87	45.82	2.58	
02/27/07	17:34:45	10.85	4.39	0.88	28.72	1.18	
02/27/07	17:35:00	9.53	8.25	0.88	18.92	-0.24	
02/27/07	17:35:15	9.89	9.78	0.85	10.92	-0.49	
02/27/07	17:35:30	9.98	9.88	0.81	4.87	-0.64	System Bias
02/27/07	17:35:45	9.99	9.82	0.55	1.20	-0.74	10.0% Oxygen Injection
02/27/07	17:36:00	10.00	9.89	0.48	0.47	-0.74	10.00 % Oxygen
02/27/07	17:36:15	10.01	10.03	0.40	0.30	-0.59	
02/27/07	17:36:30	10.01	10.12	0.38	0.22	-0.74	
02/27/07	17:36:45	10.01	10.18	0.30	0.22	-0.74	
02/27/07	17:37:00	10.02	10.18	0.24	0.22	-0.24	
02/27/07	17:37:15	10.22	9.54	0.18	0.12	1.01	
02/27/07	17:37:30	12.05	7.03	0.24	0.12	0.88	
02/27/07	17:37:45	11.52	8.93	0.18	0.12	-0.34	
02/27/07	17:38:00	10.11	9.89	0.11	0.12	-0.74	System Bias
02/27/07	17:38:15	9.88	10.00	0.11	0.12	-0.74	10.0% CO ₂ Injection
02/27/07	17:38:30	9.88	10.01	0.10	0.12	-0.74	10.02 % CO ₂
02/27/07	17:38:45	9.85	10.02	0.11	0.12	-0.74	
02/27/07	17:39:00	9.88	10.03	0.13	0.12	-0.74	
02/27/07	17:39:15	9.85	10.03	0.12	0.12	-0.74	
02/27/07	17:39:30	9.88	10.03	0.11	0.12	-0.74	
02/27/07	17:39:45	9.90	9.88	0.05	0.14	-0.41	
02/27/07	17:40:00	9.79	8.77	0.08	0.12	0.18	

Reference Method 15-second Averages

Scale		0 - 20	0 - 20	0 - 88.67	0 - 88.99	0 - 500	
Units		%v db	%v db	ppmv db	ppmv db	ppmv db	
Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	6:31:15	0.07	0.01	0.65	0.02	0.12	
02/28/07	6:31:30	0.04	0.01	0.67	0.02	0.11	
02/28/07	6:31:45	0.02	0.01	0.33	0.02	0.11	
02/28/07	6:32:00	0.01	0.01	0.04	0.02	0.11	Calibration Error
02/28/07	6:32:15	0.02	0.01	0.02	0.02	0.11	Zero Nitrogen Injection
02/28/07	6:32:30	0.01	0.01	0.07	0.02	0.11	0.01 % Oxygen
02/28/07	6:32:45	0.01	0.01	0.04	0.02	0.11	0.01 % CO ₂
02/28/07	6:33:00	0.01	0.01	0.04	0.02	0.11	0.04 ppm SO ₂
02/28/07	6:33:15	0.00	0.01	0.04	0.02	0.11	0.02 ppm NO _x
02/28/07	6:33:30	0.00	0.01	0.02	0.02	0.11	0.11 ppm CO
02/28/07	6:33:45	0.00	0.01	-0.01	0.02	0.37	
02/28/07	6:34:00	1.48	0.67	0.05	0.02	0.24	
02/28/07	6:34:15	10.09	7.69	0.04	1.17	-1.13	
02/28/07	6:34:30	15.82	13.35	0.07	8.14	-1.76	
02/28/07	6:34:45	18.42	16.47	0.08	6.67	-2.13	
02/28/07	6:35:00	19.25	18.77	0.08	3.97	-2.38	
02/28/07	6:35:15	19.47	20.21	0.04	0.99	-2.38	
02/28/07	6:35:30	19.52	20.65	0.06	0.24	-2.39	
02/28/07	6:35:45	19.54	20.75	0.04	0.09	-2.39	
02/28/07	6:36:00	19.58	20.79	0.07	0.02	-2.39	
02/28/07	6:36:15	19.64	20.83	0.03	0.02	-2.38	Calibration Error
02/28/07	6:36:30	19.93	20.83	0.03	0.02	-2.38	20.0% Oxygen Injection
02/28/07	6:36:45	19.93	20.84	0.01	0.02	-2.39	19.93 % Oxygen
02/28/07	6:37:00	19.93	20.88	0.03	0.02	-2.39	
02/28/07	6:37:15	19.93	20.86	0.01	0.02	-2.38	
02/28/07	6:37:30	19.93	20.87	0.05	0.02	-2.38	
02/28/07	6:37:45	19.38	19.35	0.01	0.02	-1.89	
02/28/07	6:38:00	15.09	14.17	0.03	0.02	-1.88	
02/28/07	6:38:15	11.33	10.96	0.01	0.02	-1.88	
02/28/07	6:38:30	10.20	10.20	-0.01	0.02	-1.88	
02/28/07	6:38:45	10.10	10.14	0.01	0.02	-1.88	
02/28/07	6:39:00	10.10	10.13	0.09	0.02	-1.88	Calibration Error
02/28/07	6:39:15	10.10	10.11	0.09	0.02	-1.88	10.0% Oxygen Injection
02/28/07	6:39:30	10.09	10.11	0.05	0.02	-1.88	10.09 % Oxygen
02/28/07	6:39:45	10.09	10.10	0.05	0.02	-1.88	
02/28/07	6:40:00	10.09	10.11	0.07	0.02	-1.88	
02/28/07	6:40:15	10.09	10.11	0.06	0.02	-1.88	
02/28/07	6:40:30	10.09	10.10	0.05	0.02	-2.26	
02/28/07	6:40:45	11.78	12.07	0.01	0.02	-2.39	
02/28/07	6:41:00	16.75	16.99	-0.04	1.22	-2.38	
02/28/07	6:41:15	19.27	19.65	-0.01	2.92	-2.38	
02/28/07	6:41:30	19.88	20.79	0.02	2.24	-2.38	
02/28/07	6:41:45	19.94	20.23	0.07	0.72	-2.63	Calibration Error
02/28/07	6:42:00	19.94	19.99	0.10	0.14	-2.76	20.0% CO ₂ Injection
02/28/07	6:42:15	19.94	19.99	0.05	0.02	-2.38	19.99 % CO ₂
02/28/07	6:42:30	19.94	19.96	0.07	0.02	-2.38	
02/28/07	6:42:45	19.94	19.99	0.05	0.02	-2.63	
02/28/07	6:43:00	19.94	19.99	0.07	0.02	-2.51	
02/28/07	6:43:15	18.95	17.84	0.10	0.02	-2.14	
02/28/07	6:43:30	14.33	12.93	0.13	0.02	-1.89	
02/28/07	6:43:45	11.00	10.22	0.09	0.02	-1.88	
02/28/07	6:44:00	10.17	9.80	0.08	0.02	-1.88	
02/28/07	6:44:15	10.11	9.94	0.05	0.02	-1.88	Calibration Error
02/28/07	6:44:30	10.11	9.95	0.08	0.02	-1.88	10.0% CO ₂ Injection
02/28/07	6:44:45	10.10	9.94	0.03	0.02	-1.88	9.94 % CO ₂
02/28/07	6:45:00	10.10	9.93	0.00	0.02	-1.88	
02/28/07	6:45:15	10.10	9.93	0.03	0.02	-2.13	
02/28/07	6:45:30	10.10	9.91	3.14	0.02	-1.88	
02/28/07	6:45:45	6.55	7.06	26.44	0.02	-1.14	
02/28/07	6:46:00	3.61	2.61	40.25	0.02	-0.51	
02/28/07	6:46:15	0.64	0.41	45.34	0.07	-0.39	
02/28/07	6:46:30	0.08	0.13	48.66	0.02	-0.39	
02/28/07	6:46:45	0.02	0.11	56.72	0.02	-0.39	
02/28/07	6:47:00	0.03	0.10	82.46	0.02	-0.39	
02/28/07	6:47:15	0.01	0.08	90.84	0.02	-0.38	
02/28/07	6:47:30	0.00	0.07	92.62	0.02	-0.38	
02/28/07	6:47:45	0.00	0.07	93.11	0.02	-0.39	
02/28/07	6:48:00	0.00	0.06	93.24	0.02	-0.39	
02/28/07	6:48:15	0.00	0.06	88.87	0.02	-0.39	
02/28/07	6:48:30	-0.01	0.06	89.00	0.02	-0.39	
02/28/07	6:48:45	-0.01	0.05	88.97	0.02	-0.38	Calibration Error
02/28/07	6:49:00	-0.01	0.05	88.89	0.02	-0.39	88.67ppm SO ₂ Injection
02/28/07	6:49:15	-0.01	0.05	88.89	0.02	-0.39	88.90 ppm SO ₂ Injection
02/28/07	6:49:30	-0.01	0.05	88.87	0.02	-0.39	
02/28/07	6:49:45	-0.01	0.04	88.93	0.02	-0.39	
02/28/07	6:50:00	-0.01	0.04	85.79	0.02	-0.39	
02/28/07	6:50:15	0.00	0.06	61.67	0.02	-0.39	
02/28/07	6:50:30	0.00	0.05	46.32	0.02	-0.39	
02/28/07	6:50:45	-0.01	0.04	48.75	0.02	-0.39	
02/28/07	6:51:00	-0.01	0.04	48.15	0.02	-0.39	
02/28/07	6:51:15	-0.01	0.04	45.92	0.02	-0.39	Calibration Error
02/28/07	6:51:30	-0.02	0.03	45.80	0.02	-0.39	45.0ppm SO ₂ Injection
02/28/07	6:51:45	-0.01	0.03	45.77	0.02	-0.39	45.77 ppm SO ₂ Injection
02/28/07	6:52:00	-0.01	0.03	45.77	0.02	-0.39	
02/28/07	6:52:15	-0.02	0.03	45.74	0.02	-0.39	
02/28/07	6:52:30	-0.02	0.03	45.29	0.02	-0.39	
02/28/07	6:52:45	-0.01	0.04	32.58	0.02	-0.39	
02/28/07	6:53:00	0.00	0.04	22.76	0.02	-0.39	
02/28/07	6:53:15	-0.01	0.03	21.18	0.02	-0.39	
02/28/07	6:53:30	-0.02	0.03	20.77	0.02	-0.39	
02/28/07	6:53:45	-0.02	0.03	20.65	0.02	-0.63	
02/28/07	6:54:00	-0.02	0.03	20.64	0.02	-0.39	Calibration Error
02/28/07	6:54:15	-0.02	0.03	20.57	0.02	-0.39	20.0ppm SO ₂ Injection
02/28/07	6:54:30	-0.02	0.03	20.56	0.02	-0.39	20.59 ppm SO ₂ Injection
02/28/07	6:54:45	-0.02	0.03	20.60	0.02	-0.38	
02/28/07	6:55:00	-0.02	0.03	20.60	0.02	-0.39	
02/28/07	6:55:15	-0.02	0.02	20.53	0.02	-0.39	
02/28/07	6:55:30	0.04	0.07	19.14	0.02	-0.39	
02/28/07	6:55:45	0.41	0.13	6.50	-0.18	-0.39	
02/28/07	6:56:00	0.15	0.04	2.20	34.64	-0.39	
02/28/07	6:56:15	0.01	0.03	0.89	91.70	-0.39	
02/28/07	6:56:30	-0.01	0.02	0.57	89.48	-0.39	
02/28/07	6:56:45	-0.01	0.02	0.43	88.31	-0.39	
02/28/07	6:57:00	-0.01	0.02	0.34	88.28	-0.39	
02/28/07	6:57:15	-0.01	0.02	0.33	88.48	-0.39	
02/28/07	6:57:30	-0.01	0.02	0.30	89.63	-0.39	
02/28/07	6:57:45	-0.01	0.02	0.22	90.91	-0.39	
02/28/07	6:58:00	-0.01	0.02	0.18	90.93	-0.39	Calibration Error

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	6:58:15	-0.01	0.02	0.22	90.10	-0.39	
02/28/07	6:59:30	0.00	0.04	0.21	90.03	-0.39	
02/28/07	6:59:45	0.00	0.03	0.21	88.61	-0.38	
02/28/07	7:00:00	-0.01	0.02	0.17	73.01	-0.64	
02/28/07	7:00:15	-0.01	0.02	0.13	50.41	-0.39	
02/28/07	7:00:30	-0.01	0.02	0.14	46.76	-0.39	
02/28/07	7:00:45	-0.02	0.02	0.19	45.71	-0.39	
02/28/07	7:01:00	-0.02	0.02	0.17	45.54	-0.38	
02/28/07	7:01:15	-0.02	0.02	0.18	45.41	-0.39	Calibration Error
02/28/07	7:01:30	-0.01	0.02	0.22	45.41	-0.51	45.0ppm NO _x Injection
02/28/07	7:01:45	-0.02	0.02	0.21	45.28	-0.60	45.28 ppm NO _x
02/28/07	7:02:00	-0.02	0.02	0.11	45.21	-0.51	
02/28/07	7:02:15	-0.02	0.02	0.09	45.16	-0.39	
02/28/07	7:02:30	-0.02	0.02	0.09	45.11	-0.64	
02/28/07	7:02:45	0.00	0.03	0.13	43.16	-0.39	
02/28/07	7:03:00	-0.01	0.02	0.19	32.71	-0.76	
02/28/07	7:03:15	-0.02	0.02	0.15	16.87	-0.64	
02/28/07	7:03:30	-0.02	0.02	0.17	19.25	-0.64	Calibration Error
02/28/07	7:03:45	-0.02	0.02	0.16	20.01	-0.39	20.0ppm NO _x Injection
02/28/07	7:04:00	-0.02	0.02	0.16	20.11	-0.64	20.09 ppm NO _x
02/28/07	7:04:15	-0.02	0.02	0.12	20.11	-0.64	
02/28/07	7:04:30	-0.02	0.02	0.14	20.11	-0.64	
02/28/07	7:04:45	0.02	0.02	0.19	20.06	24.11	
02/28/07	7:05:00	2.42	0.03	0.26	20.01	142.61	
02/28/07	7:05:15	3.13	0.10	0.29	22.46	256.10	
02/28/07	7:05:30	0.80	0.06	0.17	25.99	289.71	
02/28/07	7:05:45	0.23	0.02	0.13	13.92	296.09	
02/28/07	7:06:00	0.03	0.02	0.04	4.79	297.35	
02/28/07	7:06:15	-0.01	0.01	0.05	0.77	297.84	Calibration Error
02/28/07	7:06:30	-0.01	0.01	0.14	0.39	299.59	300.0ppm CO Injection
02/28/07	7:06:45	-0.01	0.01	0.17	0.27	300.09	300.06 ppm CO
02/28/07	7:07:00	0.00	0.01	0.14	0.22	300.47	
02/28/07	7:07:15	0.00	0.01	0.17	0.22	300.09	
02/28/07	7:07:30	0.00	0.01	0.12	0.14	273.72	
02/28/07	7:07:45	0.00	0.01	0.07	0.12	177.66	
02/28/07	7:08:00	-0.01	0.01	0.12	0.12	140.61	
02/28/07	7:08:15	-0.01	0.02	0.14	0.12	166.36	Calibration Error
02/28/07	7:08:30	-0.01	0.02	0.13	0.12	179.61	160.0ppm CO Injection
02/28/07	7:08:45	-0.02	0.01	0.11	0.12	181.11	160.95 ppm CO
02/28/07	7:09:00	-0.02	0.01	0.07	0.12	181.49	
02/28/07	7:09:15	-0.02	0.01	0.08	0.12	181.61	
02/28/07	7:09:30	-0.02	0.01	0.16	0.12	170.66	
02/28/07	7:09:45	-0.02	0.02	0.11	0.12	131.11	
02/28/07	7:10:00	0.10	0.19	0.24	0.12	98.73	
02/28/07	7:10:15	0.16	0.15	0.21	0.17	90.61	
02/28/07	7:10:30	0.02	0.03	0.12	0.34	89.65	
02/28/07	7:10:45	-0.02	0.02	0.10	0.27	89.65	Calibration Error
02/28/07	7:11:00	-0.02	0.01	0.10	0.14	89.61	90.0ppm CO Injection
02/28/07	7:11:15	-0.02	0.01	0.16	0.07	89.61	89.67 ppm CO
02/28/07	7:11:30	-0.02	0.01	0.09	0.02	89.60	
02/28/07	7:11:45	-0.02	0.01	0.06	0.02	89.65	
02/28/07	7:12:00	-0.02	0.01	0.06	0.02	91.11	
02/28/07	7:12:15	-0.02	0.01	0.12	0.02	82.61	
02/28/07	7:12:30	-0.01	0.02	0.34	0.04	41.74	
02/28/07	7:12:45	0.04	0.03	0.90	-0.06	8.37	
02/28/07	7:13:00	0.01	0.02	0.95	31.64	1.11	
02/28/07	7:13:15	-0.01	0.01	0.91	58.91	0.11	
02/28/07	7:13:30	-0.02	0.01	0.92	45.91	-0.26	
02/28/07	7:13:45	-0.02	0.01	0.95	41.01	-0.39	
02/28/07	7:14:00	-0.02	0.01	0.97	40.99	-0.39	
02/28/07	7:14:15	-0.02	0.01	0.98	41.66	-0.39	
02/28/07	7:14:30	-0.01	0.01	1.01	42.76	-0.39	
02/28/07	7:14:45	-0.02	0.01	1.03	44.01	-0.39	
02/28/07	7:15:00	-0.02	0.01	1.06	45.01	-0.39	
02/28/07	7:15:15	-0.02	0.01	1.04	45.61	-0.39	
02/28/07	7:15:30	-0.02	0.01	1.13	46.41	-0.51	
02/28/07	7:15:45	-0.02	0.01	1.17	46.96	-0.64	
02/28/07	7:16:00	-0.01	0.01	1.20	47.29	-0.64	
02/28/07	7:16:15	-0.02	0.01	1.23	47.46	-0.39	
02/28/07	7:16:30	-0.02	0.01	1.18	47.69	-0.64	
02/28/07	7:16:45	-0.02	0.01	1.19	47.66	-0.39	
02/28/07	7:17:00	-0.02	0.01	1.20	48.01	-0.64	
02/28/07	7:17:15	-0.02	0.01	1.10	48.16	-0.64	
02/28/07	7:17:30	-0.02	0.01	1.14	48.29	-0.64	
02/28/07	7:17:45	-0.02	0.01	1.15	46.31	-0.64	
02/28/07	7:18:00	-0.02	0.01	1.14	46.41	-0.64	
02/28/07	7:18:15	-0.02	0.01	1.15	48.51	-0.64	
02/28/07	7:18:30	-0.02	0.01	1.17	48.61	-0.63	
02/28/07	7:18:45	-0.02	0.01	1.18	48.76	-0.64	
02/28/07	7:19:00	-0.02	0.01	1.17	48.84	-0.64	NO _x Converter Check
02/28/07	7:19:15	-0.02	0.01	1.14	48.91	-0.64	Cylinder No. ALM-013266
02/28/07	7:19:30	-0.02	0.01	1.14	49.01	-0.68	52.4ppm Cylinder
02/28/07	7:19:45	-0.02	0.01	1.11	49.16	-0.69	
02/28/07	7:20:00	-0.02	0.01	1.10	49.21	-0.64	System Response
02/28/07	7:20:15	-0.02	0.01	1.17	49.26	-0.69	49.13 ppm NO _x
02/28/07	7:20:30	-0.02	0.01	1.22	49.31	-0.69	
02/28/07	7:20:45	-0.02	0.01	1.24	49.31	-0.69	93.8 % Conversion
02/28/07	7:21:00	-0.02	0.01	1.21	49.31	-0.64	
02/28/07	7:21:15	-0.02	0.01	1.20	49.31	19.39	
02/28/07	7:21:30	0.29	0.01	1.01	49.39	97.23	
02/28/07	7:21:45	0.51	0.03	0.49	49.46	182.39	
02/28/07	7:22:00	0.08	0.01	0.17	35.08	177.98	
02/28/07	7:22:15	-0.01	0.01	0.13	16.22	160.11	
02/28/07	7:22:30	-0.02	0.01	0.11	4.42	160.48	
02/28/07	7:22:45	-0.02	0.01	0.19	1.12	160.36	
02/28/07	7:23:00	-0.02	0.01	0.21	0.59	160.49	
02/28/07	7:23:15	-0.02	0.01	0.11	0.42	160.61	
02/28/07	7:23:30	-0.02	0.01	0.09	0.39	160.61	
02/28/07	7:23:45	-0.02	0.01	0.11	0.32	160.61	
02/28/07	7:24:00	-0.02	0.01	0.14	0.32	174.73	
02/28/07	7:24:15	-0.02	0.01	0.13	0.27	130.66	
02/28/07	7:24:30	1.60	0.04	0.07	0.22	74.74	
02/28/07	7:24:45	11.25	0.12	0.16	0.22	93.61	
02/28/07	7:25:00	14.79	0.12	0.17	0.29	150.23	
02/28/07	7:25:15	5.45	0.04	0.17	0.32	177.11	
02/28/07	7:25:30	0.62	0.01	0.15	0.32	180.36	
02/28/07	7:25:45	0.10	0.01	0.17	0.27	180.66	
02/28/07	7:26:00	0.06	0.01	0.13	0.22	181.24	
02/28/07	7:26:15	0.04	0.01	0.11	0.22	181.36	
02/28/07	7:26:30	0.04	0.01	0.10	0.22	181.11	System Bias

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	7:28:00	0.02	0.01	0.17	0.12	161.61	
02/28/07	7:28:15	0.02	0.01	0.16	0.12	178.66	
02/28/07	7:28:30	0.02	0.01	0.13	0.12	151.11	
02/28/07	7:28:45	1.34	0.01	0.08	0.12	99.81	
02/28/07	7:29:00	4.41	0.02	0.50	0.12	31.17	
02/28/07	7:29:15	1.24	0.01	0.49	5.07	5.36	
02/28/07	7:29:30	0.13	0.01	0.31	30.27	1.12	
02/28/07	7:29:45	0.03	0.01	0.20	45.56	0.87	
02/28/07	7:30:00	0.02	0.01	0.18	46.00	0.61	
02/28/07	7:30:15	0.02	0.01	0.21	42.06	0.61	
02/28/07	7:30:30	0.02	0.01	0.21	41.17	0.62	
02/28/07	7:30:45	0.01	0.01	0.16	43.92	0.62	
02/28/07	7:31:00	0.02	0.00	0.17	44.39	0.49	
02/28/07	7:31:15	0.01	0.00	0.19	44.76	0.11	
02/28/07	7:31:30	0.01	0.01	0.19	45.29	0.11	System Bias
02/28/07	7:31:45	0.01	0.00	0.15	44.94	0.11	45.0ppm NO _x Injection
02/28/07	7:32:00	0.01	0.01	0.10	45.26	0.12	6.14 ppm SO ₂
02/28/07	7:32:15	0.01	0.00	0.14	45.24	0.11	45.11 ppm NO _x
02/28/07	7:32:30	0.01	0.00	0.18	45.01	0.11	0.11 ppm CO
02/28/07	7:32:45	0.01	0.00	0.13	45.06	0.36	
02/28/07	7:33:00	0.61	0.01	0.47	45.24	0.99	
02/28/07	7:33:15	3.68	0.01	14.63	44.26	0.62	
02/28/07	7:33:30	1.21	0.01	34.24	38.34	0.11	
02/28/07	7:33:45	0.13	0.00	40.07	24.01	0.11	
02/28/07	7:34:00	0.02	0.00	41.79	8.24	0.11	
02/28/07	7:34:15	0.01	0.00	42.66	1.67	0.11	
02/28/07	7:34:30	0.01	0.00	43.15	0.59	0.11	
02/28/07	7:34:45	0.01	0.00	43.49	0.47	0.11	
02/28/07	7:35:00	0.01	0.00	43.73	0.32	0.11	
02/28/07	7:35:15	0.01	0.00	43.93	0.32	0.11	
02/28/07	7:35:30	0.01	0.00	43.99	0.29	0.11	
02/28/07	7:35:45	0.01	0.00	44.16	0.22	-0.14	
02/28/07	7:36:00	0.00	0.00	44.65	0.22	0.11	System Bias
02/28/07	7:36:15	0.01	0.00	45.13	0.22	-0.14	45.0ppm SO ₂ Injection
02/28/07	7:36:30	0.01	0.00	45.16	0.22	0.11	45.11 ppm SO ₂
02/28/07	7:36:45	0.01	0.00	45.05	0.22	0.12	
02/28/07	7:37:00	0.01	0.00	45.12	0.19	-0.26	
02/28/07	7:37:15	0.00	0.00	45.18	0.12	-0.14	
02/28/07	7:37:30	0.10	0.00	43.39	0.12	1.99	
02/28/07	7:37:45	5.95	0.02	31.45	0.12	10.11	
02/28/07	7:38:00	9.73	0.02	16.74	0.22	10.74	
02/28/07	7:38:15	2.59	0.17	6.75	0.22	4.37	
02/28/07	7:38:30	0.61	0.59	2.83	0.24	0.49	
02/28/07	7:38:45	0.95	0.78	1.61	0.32	-0.14	
02/28/07	7:39:00	1.00	0.64	1.18	0.29	-0.39	
02/28/07	7:39:15	1.01	0.65	0.95	0.17	-0.39	
02/28/07	7:39:30	1.02	0.66	0.79	0.12	-0.39	
02/28/07	7:39:45	1.06	0.66	0.71	0.12	-0.64	
02/28/07	7:40:00	4.08	1.91	0.98	0.12	-1.01	
02/28/07	7:40:15	7.88	6.18	1.01	0.12	-1.39	
02/28/07	7:40:30	9.63	8.92	0.74	0.12	-1.51	
02/28/07	7:40:45	10.16	9.63	0.55	0.12	-1.69	
02/28/07	7:41:00	10.22	9.65	0.49	0.12	-1.76	
02/28/07	7:41:15	10.24	9.73	0.46	0.12	-1.64	
02/28/07	7:41:30	10.24	9.85	0.36	0.12	-1.66	
02/28/07	7:41:45	10.17	9.93	0.33	0.12	-1.66	
02/28/07	7:42:00	10.06	9.97	0.36	0.12	-1.66	
02/28/07	7:42:15	10.07	9.98	0.39	0.12	-1.69	
02/28/07	7:42:30	10.03	9.99	0.33	0.12	-1.69	
02/28/07	7:42:45	10.03	10.00	0.34	0.12	-1.69	System Bias
02/28/07	7:43:00	10.03	10.01	0.33	0.12	-1.66	10.0% O ₂ /CO ₂ Injection
02/28/07	7:43:15	10.03	10.01	0.32	0.12	-1.66	10.03 % Oxygen
02/28/07	7:43:30	10.03	10.01	0.31	0.12	-1.69	10.01 % CO ₂
02/28/07	7:43:45	10.04	10.01	0.27	0.12	-1.69	
02/28/07	7:44:00	10.04	10.02	0.27	0.12	-1.69	
02/28/07	7:44:15	10.04	10.02	0.29	0.07	-1.63	
02/28/07	7:44:30	10.47	9.04	0.42	0.02	-0.76	
02/28/07	7:44:45	15.37	3.79	0.60	0.02	-0.14	
02/28/07	7:45:00	19.71	0.63	1.01	0.12	0.11	
02/28/07	8:21:30	3.32	4.23	14.68			Change Scale for CO
02/28/07	8:21:45	2.37	4.34	42.72			
02/28/07	8:22:00	2.14	4.41	44.76			
02/28/07	8:22:15	2.03	4.42	41.35			
02/28/07	8:22:30	2.15	4.39	41.74			
02/28/07	8:22:45	2.08	4.43	41.47			
02/28/07	8:23:00	2.12	4.40	71.16			
02/28/07	8:23:15	2.15	4.39	60.68			
02/28/07	8:23:30	2.08	4.42	63.56			
02/28/07	8:23:45	2.02	4.44	66.41			
02/28/07	8:24:00	2.03	4.42	67.99			
02/28/07	8:24:15	2.10	4.42	67.13			
02/28/07	8:24:30	2.02	4.44	65.43			Down-scale response
02/28/07	8:24:45	2.11	4.40	66.12			
02/28/07	8:25:00	2.25	4.38	65.71			
02/28/07	8:25:15	2.12	4.43	66.44			
02/28/07	8:25:30	1.93	4.47	39.77			
02/28/07	8:25:45	2.07	4.43	38.75			90 seconds
02/28/07	8:26:00	2.13	4.43	38.94			
02/28/07	8:26:15	2.02	4.46	38.94			
02/28/07	8:26:30	2.12	4.41	38.07			
02/28/07	8:26:45	2.23	4.39	38.70			
02/28/07	8:27:00	2.22	4.39	38.00			
02/28/07	8:27:15	2.21	4.40	19.99			
02/28/07	8:27:30	2.18	4.39	8.11			
02/28/07	8:27:45	2.20	4.38	4.45			
02/28/07	8:28:00	2.18	4.39	2.95			
02/28/07	8:28:15	2.26	4.38	2.22			Up-scale response
02/28/07	8:28:30	2.27	4.39	2.68			
02/28/07	8:28:45	2.21	4.41	6.58			
02/28/07	8:29:00	2.15	4.42	12.42			
02/28/07	8:29:15	2.12	4.43	36.53			
02/28/07	8:29:30	2.09	4.44	38.56			90 seconds
02/28/07	8:29:45	1.68	4.51	39.52			
02/28/07	8:30:00	1.74	4.53	39.83			
02/28/07	8:30:15	1.67	4.46	39.97			
02/28/07	8:30:30	2.02	4.44	42.29			
02/28/07	8:30:45	2.07	4.42	49.79			
02/28/07	8:31:00	2.14	4.41	73.29			
02/28/07	8:31:15	2.10	4.43	80.76			
02/28/07	8:31:30	1.92	4.46	83.43			
02/28/07	8:31:45	1.84	4.46	81.45			

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	8:33:00	2.16	4.39	40.33			
02/28/07	8:33:15	2.03	4.42	39.35			90 seconds
02/28/07	8:33:30	2.06	4.40	39.75			
02/28/07	8:33:45	2.21	4.38	39.77			
02/28/07	8:34:00	2.20	4.40	40.19			
02/28/07	8:34:15	2.29	4.39	39.66			
02/28/07	8:34:30	2.26	4.41	39.58			
02/28/07	8:34:45	2.21	4.41	39.33			
02/28/07	8:35:00	2.05	4.46	39.17			
02/28/07	8:35:15	2.01	4.46	40.03			
02/28/07	8:35:30	1.99	4.46	40.26			
02/28/07	8:35:45	1.77	4.52	28.32			
02/28/07	8:36:00	1.71	4.52	18.95			
02/28/07	8:36:15	1.83	4.49	9.81			
02/28/07	8:36:30	1.97	4.46	5.91			
02/28/07	8:36:45	1.99	4.45	4.99			
02/28/07	8:37:00	2.00	4.44	3.18			
02/28/07	8:37:15	2.05	4.43	2.58			
02/28/07	8:37:30	2.11	4.42	2.19			
02/28/07	8:37:45	2.08	4.44	2.15			Up-scale response
02/28/07	8:38:00	1.95	4.48	3.95			
02/28/07	8:38:15	1.92	4.48	9.05			
02/28/07	8:38:30	2.14	4.43	14.22			
02/28/07	8:38:45	2.22	4.42	37.36			
02/28/07	8:39:00	2.05	4.46	39.03			90 seconds
02/28/07	8:39:15	2.05	4.44	39.98			
02/28/07	8:39:30	2.07	4.41	40.88			
02/28/07	8:39:45	2.08	4.42	41.33			
02/28/07	8:40:00	1.90	4.47	41.53			
02/28/07	8:40:15	1.88	4.45	41.42			
02/28/07	8:40:30	1.99	4.44	41.41			
02/28/07	8:40:45	1.98	4.44	47.91			
02/28/07	8:41:00	2.02	4.42	58.15			
02/28/07	8:41:15	2.02	4.42	75.13			
02/28/07	8:41:30	2.10	4.41	80.61			
02/28/07	8:41:45	2.10	4.39	82.82			
02/28/07	8:42:00	2.07	4.41	84.14			
02/28/07	8:42:15	2.10	4.39	85.09			Down-scale response
02/28/07	8:42:30	2.17	4.39	83.67			
02/28/07	8:42:45	2.22	4.37	82.71			
02/28/07	8:43:00	2.28	4.35	39.01			
02/28/07	8:43:15	2.18	4.39	36.91			
02/28/07	8:43:30	2.02	4.43	36.65			90 seconds
02/28/07	8:43:45	2.04	4.42	37.55			
02/28/07	8:44:00	2.12	4.39	37.00			
02/28/07	8:44:15	2.18	4.38	30.94			
02/28/07	8:44:30	2.18	4.38	27.28			
02/28/07	8:44:45	2.15	4.39	13.65			
02/28/07	8:45:00	2.14	4.39	7.78			
02/28/07	8:45:15	1.99	4.45	5.21			
02/28/07	8:45:30	2.03	4.44	3.96			
02/28/07	8:45:45	2.01	4.46	3.11			
02/28/07	8:46:00	2.11	4.42	2.58			
02/28/07	8:46:15	2.21	4.41	2.29			Up-scale response
02/28/07	8:46:30	1.99	4.46	3.30			
02/28/07	8:46:45	1.98	4.45	8.40			
02/28/07	8:47:00	1.95	4.45	15.65			
02/28/07	8:47:15	1.95	4.45	20.19			
02/28/07	8:47:30	1.99	4.43	42.08			90 seconds
02/28/07	8:47:45	1.93	4.46	43.04			
02/28/07	8:48:00	2.02	4.44	43.85			
02/28/07	8:48:15	2.03	4.42	44.39			
02/28/07	8:48:30	2.08	4.42	44.49			
02/28/07	8:48:45	2.09	4.41	44.55			
02/28/07	8:49:00	2.15	4.38	44.84			
02/28/07	8:49:15	2.05	4.42	44.75			
02/28/07	8:49:30	2.06	4.40	44.75			
02/28/07	8:49:45	2.19	4.36	44.37			
02/28/07	8:50:00	2.16	4.37	44.06			
02/28/07	8:50:15	2.16	4.36	44.81			
02/28/07	8:50:30	2.22	4.35	47.80			
02/28/07	8:50:45	2.25	4.34	53.11			
02/28/07	8:51:00	2.23	4.35	57.80			
02/28/07	8:51:15	2.14	4.38	59.51			
02/28/07	8:51:30	1.97	4.43	58.64			
02/28/07	8:51:45	2.02	4.41	56.26			
02/28/07	8:52:00	2.20	4.37	53.74			
02/28/07	8:52:15	2.23	4.37	51.41			
02/28/07	8:52:30	2.24	4.36	49.42			
02/28/07	8:52:45	2.25	4.34	47.99			
02/28/07	8:53:00	2.25	4.35	48.20			
02/28/07	8:53:15	2.18	4.37	45.24	14.27	493.31	
02/28/07	8:53:30	2.25	4.36	44.65	14.17	428.57	
02/28/07	8:53:45	2.12	4.41	42.40	14.27	384.71	
02/28/07	8:54:00	2.07	4.41	37.57	14.37	391.95	
02/28/07	8:54:15	2.17	4.39	34.57	14.24	385.70	
02/28/07	8:54:30	2.20	4.40	34.29	14.47	337.97	
02/28/07	8:54:45	2.04	4.45	38.02	14.52	365.21	
02/28/07	8:55:00	1.98	4.46	43.53	14.42	404.37	
02/28/07	8:55:15	2.09	4.41	45.78	14.17	399.95	
02/28/07	8:55:30	2.17	4.37	47.78	14.12	339.59	
02/28/07	8:55:45	2.16	4.38	49.09	14.19	337.21	
02/28/07	8:56:00	2.09	4.40	49.72	14.22	338.88	
02/28/07	8:56:15	2.13	4.39	50.24	14.29	334.08	
02/28/07	8:56:30	2.06	4.40	50.60	14.32	350.82	
02/28/07	8:56:45	2.07	4.40	50.58	14.32	365.82	
02/28/07	8:57:00	2.11	4.39	50.49	14.22	400.32	
02/28/07	8:57:15	2.08	4.40	50.49	14.22	421.20	
02/28/07	8:57:30	2.10	4.38	50.52	14.22	395.58	
02/28/07	8:57:45	2.07	4.40	50.47	14.22	397.83	
02/28/07	8:58:00	1.97	4.41	50.47	14.17	440.32	
02/28/07	8:58:15	2.09	4.37	48.12	14.04	432.32	
02/28/07	8:58:30	2.08	4.38	47.21	14.07	478.56	
02/28/07	8:58:45	2.02	4.39	46.81	14.19	499.43	
02/28/07	8:59:00	2.21	4.35	46.40	14.32	481.80	
02/28/07	8:59:15	2.19	4.37	46.11	14.32	483.19	
02/28/07	8:59:30	2.19	4.39	45.90	14.32	459.61	
02/28/07	8:59:45	2.07	4.44	45.30	14.39	466.31	
02/28/07	9:00:00	2.11	4.42	44.58	14.52	414.32	
02/28/07	9:00:15	2.05	4.43	44.20	14.27	360.70	
02/28/07	9:00:30	2.05	4.43	44.20	14.27	360.70	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	9:01:45	2.11	4.39	43.27	14.57	377.45	
02/28/07	9:02:00	2.03	4.40	43.12	14.72	410.57	
02/28/07	9:02:15	2.09	4.38	43.00	14.47	426.35	
02/28/07	9:02:30	2.21	4.36	42.82	14.27	382.58	
02/28/07	9:02:45	2.19	4.37	42.33	14.37	341.95	
02/28/07	9:03:00	2.00	4.43	42.51	14.47	331.08	
02/28/07	9:03:15	1.99	4.42	42.81	14.34	332.71	
02/28/07	9:03:30	2.01	4.42	42.80	14.32	335.08	
02/28/07	9:03:45	2.09	4.39	42.73	14.32	328.33	
02/28/07	9:04:00	2.13	4.39	42.40	14.42	337.83	
02/28/07	9:04:15	2.09	4.38	41.74	14.42	350.45	
02/28/07	9:04:30	2.11	4.38	41.28	14.42	343.08	
02/28/07	9:04:45	2.12	4.37	41.24	14.49	350.07	
02/28/07	9:05:00	2.09	4.37	41.55	14.62	379.58	
02/28/07	9:05:15	2.12	4.37	41.81	14.69	387.08	
02/28/07	9:05:30	2.18	4.35	41.79	14.57	380.08	
02/28/07	9:05:45	2.15	4.38	41.79	14.52	315.34	
02/28/07	9:06:00	2.08	4.39	41.99	14.82	305.58	
02/28/07	9:06:15	1.91	4.42	42.14	14.82	354.08	
02/28/07	9:06:30	2.00	4.38	41.45	14.42	405.57	
02/28/07	9:06:45	2.07	4.37	41.00	14.39	448.57	
02/28/07	9:07:00	2.03	4.39	41.25	14.52	500.08	
02/28/07	9:07:15	2.12	4.35	41.65	14.44	500.08	
02/28/07	9:07:30	2.21	4.34	41.82	14.42	500.08	
02/28/07	9:07:45	2.29	4.31	41.85	14.42	500.08	
02/28/07	9:08:00	2.32	4.29	42.23	14.52	500.05	
02/28/07	9:08:15	2.28	4.31	42.88	14.59	500.08	
02/28/07	9:08:30	2.21	4.33	43.07	14.57	500.08	
02/28/07	9:08:45	2.18	4.34	43.03	14.44	500.08	
02/28/07	9:09:00	2.21	4.35	42.82	14.47	500.05	
02/28/07	9:09:15	2.18	4.38	42.73	14.57	492.59	
02/28/07	9:09:30	2.19	4.38	42.71	14.52	415.33	
02/28/07	9:09:45	2.07	4.39	42.78	14.52	388.33	
02/28/07	9:10:00	1.95	4.41	42.81	14.47	358.32	
02/28/07	9:10:15	2.05	4.40	42.94	14.29	395.82	
02/28/07	9:10:30	2.05	4.41	42.59	14.37	383.07	
02/28/07	9:10:45	1.99	4.44	42.21	14.42	392.33	
02/28/07	9:11:00	1.95	4.43	42.18	14.42	414.82	
02/28/07	9:11:15	2.13	4.38	42.02	14.37	477.81	
02/28/07	9:11:30	2.10	4.38	42.21	14.47	500.05	
02/28/07	9:11:45	2.33	4.21	47.73	14.52	500.08	
02/28/07	9:12:00	2.71	4.03	51.55	14.42	500.08	
02/28/07	9:12:15	2.58	4.08	50.83	14.09	500.05	
02/28/07	9:12:30	2.42	4.15	49.04	13.82	500.05	
02/28/07	9:12:45	2.31	4.19	48.98	13.52	500.05	
02/28/07	9:13:00	2.42	4.17	48.30	13.87	500.05	
02/28/07	9:13:15	2.48	4.19	48.77	13.82	500.05	
02/28/07	9:13:30	2.35	4.22	48.03	14.02	500.05	
02/28/07	9:13:45	2.35	4.25	47.27	14.02	500.05	
02/28/07	9:14:00	2.29	4.30	45.85	14.02	500.05	
02/28/07	9:14:15	2.25	4.30	44.78	14.29	500.05	
02/28/07	9:14:30	2.19	4.32	44.45	14.52	500.08	
02/28/07	9:14:45	2.14	4.33	44.41	14.52	500.08	
02/28/07	9:15:00	2.08	4.35	44.82	14.42	500.05	
02/28/07	9:15:15	2.08	4.35	44.97	14.39	500.05	
02/28/07	9:15:30	2.10	4.37	44.84	14.27	500.10	
02/28/07	9:15:45	2.03	4.37	44.40	14.34	500.08	
02/28/07	9:16:00	2.17	4.33	44.08	14.43	500.10	
02/28/07	9:16:15	2.22	4.33	43.98	14.29	500.08	
02/28/07	9:16:30	2.24	4.33	44.05	14.52	500.07	
02/28/07	9:16:45	2.25	4.33	44.22	14.72	500.08	
02/28/07	9:17:00	2.11	4.39	44.65	14.82	500.10	
02/28/07	9:17:15	2.02	4.41	45.15	14.74	500.05	
02/28/07	9:17:30	2.03	4.42	45.29	14.37	500.05	
02/28/07	9:17:45	2.11	4.38	45.24	14.29	500.05	
02/28/07	9:18:00	2.21	4.37	44.81	14.42	500.05	
02/28/07	9:18:15	2.11	4.40	43.99	14.59	500.05	
02/28/07	9:18:30	2.18	4.37	43.90	14.82	499.05	
02/28/07	9:18:45	2.21	4.38	43.38	14.72	474.43	
02/28/07	9:19:00	2.13	4.41	43.24	14.82	445.31	
02/28/07	9:19:15	2.12	4.44	43.29	14.84	422.31	
02/28/07	9:19:30	2.08	4.44	43.88	14.97	350.08	
02/28/07	9:19:45	2.05	4.45	43.88	14.79	294.33	
02/28/07	9:20:00	1.97	4.46	43.99	14.57	248.84	
02/28/07	9:20:15	1.87	4.48	44.27	14.59	227.84	
02/28/07	9:20:30	1.88	4.46	44.95	14.47	188.88	
02/28/07	9:20:45	1.82	4.48	45.50	14.49	188.10	
02/28/07	9:21:00	1.73	4.50	46.01	14.47	262.34	
02/28/07	9:21:15	1.89	4.46	46.27	14.37	299.58	
02/28/07	9:21:30	2.06	4.40	45.84	14.42	311.83	
02/28/07	9:21:45	2.11	4.40	45.31	14.69	318.71	
02/28/07	9:22:00	2.10	4.41	45.02	14.97	345.83	
02/28/07	9:22:15	2.01	4.42	45.01	15.07	337.20	
02/28/07	9:22:30	2.04	4.41	45.24	14.97	323.08	
02/28/07	9:22:45	2.01	4.44	44.84	14.82	339.45	
02/28/07	9:23:00	2.07	4.42	43.78	14.77	358.57	
02/28/07	9:23:15	2.09	4.41	43.24	14.84	355.32	
02/28/07	9:23:30	2.11	4.41	43.04	15.02	325.83	
02/28/07	9:23:45	2.04	4.44	43.14	15.14	334.70	
02/28/07	9:24:00	1.99	4.44	43.87	15.07	357.07	
02/28/07	9:24:15	2.03	4.42	44.05	14.99	355.57	
02/28/07	9:24:30	2.05	4.41	44.27	14.87	343.57	
02/28/07	9:24:45	1.98	4.43	44.63	14.72	346.82	
02/28/07	9:25:00	1.94	4.44	45.07	14.87	346.82	
02/28/07	9:25:15	1.98	4.43	45.38	14.57	368.43	
02/28/07	9:25:30	1.99	4.44	45.48	14.82	479.81	
02/28/07	9:25:45	2.13	4.38	44.87	14.72	500.05	
02/28/07	9:26:00	2.45	4.30	44.03	14.82	500.05	
02/28/07	9:26:15	2.52	4.28	43.79	14.84	500.05	
02/28/07	9:26:30	2.40	4.31	43.83	14.92	500.05	
02/28/07	9:26:45	2.45	4.29	43.88	14.72	500.05	
02/28/07	9:27:00	2.46	4.31	43.82	14.82	500.05	
02/28/07	9:27:15	2.82	4.24	44.05	14.79	500.05	
02/28/07	9:27:30	2.82	4.19	44.18	14.82	500.05	
02/28/07	9:27:45	2.81	4.21	44.28	14.82	500.05	
02/28/07	9:28:00	2.73	4.29	43.34	14.82	500.08	
02/28/07	9:28:15	2.79	4.32	41.88	14.79	500.05	
02/28/07	9:28:30	2.79	4.32	40.74	15.02	499.80	
02/28/07	9:28:45	2.77	4.31	40.38	15.22	499.92	
02/28/07	9:29:00	2.79	4.29	40.29	15.27	500.05	
02/28/07	9:29:15	2.79	4.29	40.29	15.27	500.05	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	9:30:30	3.17	4.12	42.80	15.02	500.05	
02/28/07	9:30:45	3.20	4.11	43.31	14.92	500.05	
02/28/07	9:31:00	3.26	4.10	43.79	14.82	500.05	
02/28/07	9:31:15	3.26	4.11	44.32	14.74	500.05	
02/28/07	9:31:30	3.23	4.11	43.85	14.72	500.05	
02/28/07	9:31:45	3.15	4.13	42.70	14.72	500.05	
02/28/07	9:32:00	3.13	4.13	42.53	14.72	500.05	
02/28/07	9:32:15	3.18	4.12	42.77	14.72	500.05	
02/28/07	9:32:30	3.18	4.12	42.98	14.72	500.05	
02/28/07	9:32:45	3.17	4.17	42.83	14.69	500.05	
02/28/07	9:33:00	3.10	4.22	42.27	14.67	500.05	
02/28/07	9:33:15	3.06	4.24	41.97	14.67	500.05	
02/28/07	9:33:30	2.98	4.27	41.50	14.67	500.05	
02/28/07	9:33:45	2.94	4.27	41.24	15.12	500.05	
02/28/07	9:34:00	2.98	4.27	41.19	16.22	500.05	
02/28/07	9:34:15	2.95	4.28	40.48	15.30	500.05	
02/28/07	9:34:30	2.95	4.28	39.81	15.32	500.05	
02/28/07	9:34:45	2.98	4.29	39.89	15.31	500.05	
02/28/07	9:35:00	2.98	4.30	39.87	15.31	500.05	
02/28/07	9:35:15	3.00	4.28	39.87	15.31	487.88	
02/28/07	9:35:30	2.98	4.28	39.88	15.37	471.06	
02/28/07	9:35:45	2.93	4.29	39.81	15.44	484.43	
02/28/07	9:36:00	2.95	4.28	39.59	15.51	442.58	
02/28/07	9:36:15	2.98	4.28	39.87	15.52	399.32	
02/28/07	9:36:30	2.94	4.29	39.74	15.47	380.07	
02/28/07	9:36:45	2.90	4.30	39.80	15.42	337.70	
02/28/07	9:37:00	2.85	4.32	40.03	15.42	343.82	
02/28/07	9:37:15	2.84	4.32	40.04	15.52	370.57	
02/28/07	9:37:30	2.85	4.30	39.98	15.51	362.32	
02/28/07	9:37:45	2.88	4.29	40.07	15.51	407.07	
02/28/07	9:38:00	2.88	4.29	40.34	15.52	429.57	
02/28/07	9:38:15	2.88	4.27	40.88	15.42	451.58	
02/28/07	9:38:30	2.91	4.28	40.80	15.48	485.08	
02/28/07	9:38:45	2.94	4.28	40.92	15.42	471.80	
02/28/07	9:39:00	2.94	4.27	41.04	15.42	481.30	
02/28/07	9:39:15	2.90	4.27	41.24	15.42	500.05	
02/28/07	9:39:30	2.98	4.28	41.38	15.42	500.05	
02/28/07	9:39:45	3.00	4.28	41.58	15.42	500.05	
02/28/07	9:40:00	2.98	4.28	41.24	15.42	498.31	
02/28/07	9:40:15	2.94	4.28	40.87	15.34	498.55	
02/28/07	9:40:30	2.95	4.27	40.83	15.42	498.30	
02/28/07	9:40:45	2.94	4.29	40.84	15.51	500.05	
02/28/07	9:41:00	2.98	4.28	40.92	15.47	493.55	
02/28/07	9:41:15	2.93	4.29	41.00	15.39	481.93	
02/28/07	9:41:30	2.92	4.30	40.90	15.31	481.81	
02/28/07	9:41:45	2.91	4.29	39.88	15.34	473.68	
02/28/07	9:42:00	2.94	4.28	38.78	15.42	478.29	
02/28/07	9:42:15	2.98	4.27	38.42	15.34	454.43	
02/28/07	9:42:30	2.97	4.27	38.20	15.42	418.32	
02/28/07	9:42:45	2.90	4.29	38.33	15.42	398.07	
02/28/07	9:43:00	2.88	4.28	38.84	15.42	387.32	
02/28/07	9:43:15	2.85	4.28	38.96	15.42	408.44	
02/28/07	9:43:30	2.87	4.28	39.18	15.37	412.58	
02/28/07	9:43:45	2.90	4.28	39.38	15.31	402.32	
02/28/07	9:44:00	2.92	4.28	39.49	15.31	392.82	
02/28/07	9:44:15	2.88	4.27	39.59	15.32	404.07	
02/28/07	9:44:30	2.88	4.27	39.84	15.32	415.57	
02/28/07	9:44:45	2.93	4.28	39.74	15.22	442.58	
02/28/07	9:45:00	2.98	4.25	39.88	15.28	478.55	
02/28/07	9:45:15	3.02	4.24	39.81	15.42	481.17	
02/28/07	9:45:30	3.08	4.24	39.84	15.42	484.80	
02/28/07	9:45:45	3.08	4.24	39.49	15.31	478.42	
02/28/07	9:46:00	3.02	4.25	38.82	15.31	445.31	
02/28/07	9:46:15	2.98	4.28	37.89	15.37	432.81	
02/28/07	9:46:30	2.97	4.25	37.63	15.18	410.32	
02/28/07	9:46:45	2.95	4.25	37.74	15.24	400.57	
02/28/07	9:47:00	2.88	4.25	38.29	15.31	418.08	
02/28/07	9:47:15	2.91	4.23	38.95	15.21	445.18	
02/28/07	9:47:30	2.98	4.22	38.27	15.18	455.55	
02/28/07	9:47:45	2.98	4.22	38.52	15.11	445.93	
02/28/07	9:48:00	2.94	4.23	38.72	15.11	428.81	
02/28/07	9:48:15	2.92	4.24	38.84	15.12	402.57	
02/28/07	9:48:30	2.87	4.28	38.97	15.18	388.57	
02/28/07	9:48:45	2.84	4.28	40.10	15.09	387.57	
02/28/07	9:49:00	2.88	4.29	40.24	15.07	405.83	
02/28/07	9:49:15	2.91	4.30	40.31	15.12	388.70	
02/28/07	9:49:30	2.90	4.29	40.22	15.11	382.57	
02/28/07	9:49:45	2.85	4.31	40.18	15.11	353.58	
02/28/07	9:50:00	2.82	4.32	40.10	15.11	348.82	
02/28/07	9:50:15	2.80	4.33	40.10	15.22	339.57	
02/28/07	9:50:30	2.78	4.34	40.13	15.21	318.57	
02/28/07	9:50:45	2.81	4.34	40.04	15.24	282.83	
02/28/07	9:51:00	2.80	4.36	39.47	15.31	281.33	
02/28/07	9:51:15	2.81	4.37	38.58	15.34	284.82	
02/28/07	9:51:30	2.80	4.38	38.11	15.48	282.58	
02/28/07	9:51:45	2.82	4.38	37.98	15.54	282.34	
02/28/07	9:52:00	2.80	4.39	38.14	15.82	234.84	
02/28/07	9:52:15	2.78	4.38	38.43	15.89	218.47	
02/28/07	9:52:30	2.78	4.38	38.58	15.82	188.35	
02/28/07	9:52:45	2.74	4.38	38.77	15.82	189.23	
02/28/07	9:53:00	2.81	4.40	39.33	15.57	175.85	
02/28/07	9:53:15	2.84	4.39	39.81	15.51	190.22	
02/28/07	9:53:30	2.70	4.37	39.97	15.48	188.10	
02/28/07	9:53:45	2.74	4.38	40.03	15.41	188.85	
02/28/07	9:54:00	2.74	4.38	40.17	15.48	195.10	
02/28/07	9:54:15	2.78	4.35	40.31	15.59	200.35	
02/28/07	9:54:30	2.72	4.38	40.43	15.51	214.59	
02/28/07	9:54:45	2.78	4.35	40.88	15.84	211.34	
02/28/07	9:55:00	2.78	4.38	40.50	16.88	213.84	
02/28/07	9:55:15	2.71	4.38	39.55	16.82	202.10	
02/28/07	9:55:30	2.71	4.35	38.87	15.81	180.10	
02/28/07	9:55:45	2.82	4.37	39.01	15.51	184.22	
02/28/07	9:56:00	2.81	4.38	39.94	15.57	202.85	
02/28/07	9:56:15	2.88	4.34	41.30	16.84	228.55	
02/28/07	9:56:30	2.74	4.32	41.87	15.71	241.59	
02/28/07	9:56:45	2.80	4.32	41.88	15.74	258.80	
02/28/07	9:57:00	2.80	4.34	41.78	15.77	278.08	
02/28/07	9:57:15	2.80	4.35	41.78	15.71	288.70	
02/28/07	9:57:30	2.82	4.34	41.85	15.71	280.33	
02/28/07	9:57:45	2.83	4.33	41.51	15.59	258.74	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	9:59:15	2.74	4.34	41.01	15.41	178.72	
02/28/07	9:59:30	2.74	4.34	41.19	15.41	181.10	
02/28/07	9:59:45	2.78	4.34	40.92	15.41	145.48	
02/28/07	10:00:00	2.69	4.38	40.22	15.41	149.60	
02/28/07	10:00:15	2.67	4.35	39.93	15.51	152.60	
02/28/07	10:00:30	2.68	4.38	40.02	15.51	168.35	
02/28/07	10:00:45	2.67	4.35	40.28	15.39	215.09	
02/28/07	10:01:00	2.77	4.33	40.55	15.39	232.84	
02/28/07	10:01:15	2.83	4.31	40.68	15.39	229.72	
02/28/07	10:01:30	2.84	4.31	40.88	15.31	211.10	
02/28/07	10:01:45	2.78	4.33	40.79	15.31	195.47	
02/28/07	10:02:00	2.70	4.35	41.15	15.31	196.64	
02/28/07	10:02:15	2.74	4.34	41.10	15.21	189.72	
02/28/07	10:02:30	2.74	4.34	41.06	15.29	180.35	
02/28/07	10:02:45	2.73	4.35	41.21	15.31	183.35	
02/28/07	10:03:00	2.72	4.34	41.35	15.31	189.60	
02/28/07	10:03:15	2.69	4.34	41.38	15.41	202.10	
02/28/07	10:03:30	2.72	4.35	41.10	15.41	209.10	
02/28/07	10:03:45	2.77	4.35	40.54	15.42	214.72	
02/28/07	10:04:00	2.71	4.37	40.23	15.41	225.34	
02/28/07	10:04:15	2.72	4.37	40.01	15.51	235.34	
02/28/07	10:04:30	2.76	4.37	39.88	15.51	248.34	
02/28/07	10:04:45	2.77	4.36	39.89	15.62	238.48	
02/28/07	10:05:00	2.80	4.35	39.75	15.61	234.64	
02/28/07	10:05:15	2.78	4.36	39.39	15.61	238.08	
02/28/07	10:05:30	2.73	4.38	39.27	15.54	249.59	
02/28/07	10:05:45	2.74	4.38	39.18	15.49	247.21	
02/28/07	10:06:00	2.80	4.38	39.21	15.41	227.59	
02/28/07	10:06:15	2.78	4.38	39.55	15.51	182.72	
02/28/07	10:06:30	2.73	4.38	39.99	15.51	150.65	
02/28/07	10:06:45	2.69	4.37	40.25	15.41	138.98	
02/28/07	10:07:00	2.58	4.37	40.85	15.41	142.10	
02/28/07	10:07:15	2.85	4.35	41.00	15.31	144.98	
02/28/07	10:07:30	2.69	4.33	41.05	15.24	144.60	
02/28/07	10:07:45	2.71	4.33	41.08	15.34	151.10	
02/28/07	10:08:00	2.68	4.38	41.49	15.41	174.35	
02/28/07	10:08:15	2.68	4.35	42.00	15.49	164.22	
02/28/07	10:08:30	2.70	4.34	42.27	15.41	181.35	
02/28/07	10:08:45	2.71	4.34	42.32	15.29	177.10	
02/28/07	10:09:00	2.69	4.33	42.35	15.21	179.10	
02/28/07	10:09:15	2.67	4.33	41.92	15.29	201.72	
02/28/07	10:09:30	2.71	4.31	41.07	15.21	210.35	
02/28/07	10:09:45	2.74	4.30	40.59	15.21	223.34	
02/28/07	10:10:00	2.70	4.30	41.77	15.21	249.59	
02/28/07	10:10:15	2.74	4.30	46.40	15.21	285.58	
02/28/07	10:10:30	2.78	4.31	46.50	15.21	284.57	
02/28/07	10:10:45	2.78	4.32	44.97	15.21	262.96	
02/28/07	10:11:00	2.74	4.34	43.85	15.21	263.08	
02/28/07	10:11:15	2.75	4.34	43.08	15.21	275.58	
02/28/07	10:11:30	2.79	4.33	42.63	15.21	294.58	
02/28/07	10:11:45	2.78	4.33	42.32	15.31	319.57	
02/28/07	10:12:00	2.85	4.32	42.13	15.31	308.82	
02/28/07	10:12:15	2.85	4.31	42.04	15.21	302.08	
02/28/07	10:12:30	2.80	4.32	41.83	15.21	432.55	
02/28/07	10:12:45	2.82	4.27	42.32	15.19	500.04	
02/28/07	10:13:00	3.05	4.12	43.74	15.04	500.04	
02/28/07	10:13:15	3.01	4.15	43.51	14.89	488.67	
02/28/07	10:13:30	2.94	4.19	42.92	14.49	462.05	
02/28/07	10:13:45	2.90	4.20	42.73	14.54	417.93	
02/28/07	10:14:00	2.89	4.22	42.49	14.61	341.82	
02/28/07	10:14:15	2.85	4.26	41.87	14.64	287.44	
02/28/07	10:14:30	2.78	4.30	40.26	14.71	288.57	
02/28/07	10:14:45	2.77	4.30	39.69	14.64	274.45	
02/28/07	10:15:00	2.79	4.31	39.62	14.91	235.59	
02/28/07	10:15:15	2.75	4.33	39.82	14.91	189.59	
02/28/07	10:15:30	2.69	4.37	40.12	14.91	148.60	
02/28/07	10:15:45	2.84	4.40	40.31	15.18	139.60	
02/28/07	10:16:00	2.84	4.38	40.42	15.39	122.85	
02/28/07	10:16:15	2.63	4.39	40.62	15.49	107.22	
02/28/07	10:16:30	2.57	4.43	40.72	15.41	114.10	
02/28/07	10:16:45	2.57	4.42	40.51	15.44	120.48	
02/28/07	10:17:00	2.65	4.38	40.22	15.51	113.60	
02/28/07	10:17:15	2.71	4.37	39.94	15.54	112.35	
02/28/07	10:17:30	2.70	4.39	39.95	15.61	119.68	
02/28/07	10:17:45	2.72	4.39	40.10	15.71	121.98	
02/28/07	10:18:00	2.72	4.39	40.20	15.79	112.85	
02/28/07	10:18:15	2.68	4.41	40.48	15.81	95.96	
02/28/07	10:18:30	2.63	4.42	40.51	15.74	95.34	
02/28/07	10:18:45	2.60	4.42	40.14	15.71	99.34	
02/28/07	10:19:00	2.63	4.41	39.86	15.79	101.09	
02/28/07	10:19:15	2.63	4.39	40.01	15.81	109.47	
02/28/07	10:19:30	2.65	4.37	40.24	15.81	114.65	
02/28/07	10:19:45	2.68	4.38	40.49	15.81	125.88	
02/28/07	10:20:00	2.69	4.38	40.78	15.81	190.35	
02/28/07	10:20:15	2.71	4.15	30.74	15.79	385.31	
02/28/07	10:20:30	1.64	1.88	9.40	15.71	470.29	
02/28/07	10:20:45	0.36	0.28	2.15	11.38	498.79	
02/28/07	10:21:00	0.03	0.07	0.90	5.89	497.79	Calibration Error
02/28/07	10:21:15	0.00	0.05	0.56	0.84	498.41	500.0ppm CO Injection
02/28/07	10:21:30	-0.01	0.04	0.47	0.32	497.79	497.88 ppm CO
02/28/07	10:21:45	-0.01	0.04	0.40	0.19	497.54	
02/28/07	10:22:00	-0.01	0.03	0.37	0.12	497.78	
02/28/07	10:22:15	-0.02	0.03	0.37	0.12	498.16	
02/28/07	10:22:30	-0.02	0.03	0.34	0.12	498.54	
02/28/07	10:22:45	-0.02	0.03	0.27	0.12	497.91	
02/28/07	10:23:00	-0.02	0.03	0.27	0.12	497.58	
02/28/07	10:23:15	-0.02	0.02	0.20	0.12	481.92	
02/28/07	10:23:30	-0.02	0.02	0.19	0.12	367.56	
02/28/07	10:23:45	-0.02	0.02	0.25	0.12	111.35	
02/28/07	10:24:00	0.00	0.10	2.52	0.12	70.85	
02/28/07	10:24:15	1.02	1.96	15.62	0.19	90.72	
02/28/07	10:24:30	3.43	3.67	25.32	0.64	107.59	
02/28/07	10:24:45	3.70	4.38	32.16	6.49	115.73	
02/28/07	10:25:00	2.87	4.35	35.52	11.51	109.84	Start Run 1
02/28/07	10:25:15	2.72	4.36	36.84	14.28	121.60	Point 1
02/28/07	10:25:30	2.70	4.38	37.89	15.18	133.85	Point 1 Average
02/28/07	10:25:45	2.75	4.35	39.84	15.55	133.60	Run Average
02/28/07	10:26:00	2.78	4.34	39.67	15.54	127.35	Percent Difference
02/28/07	10:26:15	2.74	4.35	40.32	15.48	128.60	
02/28/07	10:26:30	2.71	4.38	40.67	15.41	138.35	1.6 % difference from avg.

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	10:27:45	2.78	4.34	42.91	15.31	193.10	
02/28/07	10:28:00	2.80	4.33	42.91	15.39	141.78	
02/28/07	10:28:15	2.78	4.34	42.69	15.41	104.47	
02/28/07	10:28:30	2.70	4.38	41.78	15.49	94.92	
02/28/07	10:28:45	2.62	4.39	41.00	15.51	100.48	
02/28/07	10:29:00	2.65	4.38	40.99	15.51	105.71	
02/28/07	10:29:15	2.68	4.35	41.30	15.61	108.97	
02/28/07	10:29:30	2.70	4.34	41.74	15.54	107.47	
02/28/07	10:29:45	2.70	4.35	42.21	15.51	112.22	
02/28/07	10:30:00	2.83	4.37	42.61	15.44	123.47	
02/28/07	10:30:15	2.65	4.37	42.79	15.41	124.47	
02/28/07	10:30:30	2.88	4.38	42.90	15.41	128.22	
02/28/07	10:30:45	2.88	4.37	42.90	15.41	132.47	
02/28/07	10:31:00	2.72	4.38	42.80	15.49	132.85	
02/28/07	10:31:15	2.70	4.36	42.74	15.51	133.60	
02/28/07	10:31:30	2.70	4.38	42.71	15.51	132.85	
02/28/07	10:31:45	2.73	4.35	42.59	15.51	147.97	
02/28/07	10:32:00	2.74	4.35	41.71	15.51	148.85	
02/28/07	10:32:15	2.74	4.34	41.04	15.48	111.85	
02/28/07	10:32:30	2.70	4.37	40.86	15.34	83.09	
02/28/07	10:32:45	2.53	4.40	41.19	15.48	88.09	
02/28/07	10:33:00	2.57	4.37	41.48	15.51	104.72	
02/28/07	10:33:15	2.63	4.35	41.62	15.58	106.97	
02/28/07	10:33:30	2.61	4.35	41.85	15.44	131.85	
02/28/07	10:33:45	2.62	4.34	42.26	15.41	161.34	
02/28/07	10:34:00	2.69	4.33	42.35	15.34	198.22	
02/28/07	10:34:15	2.74	4.32	42.36	15.28	231.08	
02/28/07	10:34:30	2.78	4.31	42.18	15.21	248.83	
02/28/07	10:34:45	2.80	4.31	41.81	15.21	240.21	
02/28/07	10:35:00	2.80	4.30	41.51	15.14	222.58	
02/28/07	10:35:15	2.77	4.31	41.33	15.11	202.34	
02/28/07	10:35:30	2.74	4.31	41.13	15.11	187.71	
02/28/07	10:35:45	2.70	4.34	40.45	15.01	162.47	
02/28/07	10:36:00	2.71	4.33	39.78	15.01	179.09	
02/28/07	10:36:15	2.69	4.33	39.59	15.11	168.59	
02/28/07	10:36:30	2.72	4.32	39.57	15.11	151.98	
02/28/07	10:36:45	2.65	4.34	39.77	15.11	148.09	
02/28/07	10:37:00	2.84	4.34	40.06	15.11	150.34	
02/28/07	10:37:15	2.84	4.36	40.39	15.11	151.22	
02/28/07	10:37:30	2.85	4.36	40.23	15.04	160.59	
02/28/07	10:37:45	2.65	4.36	39.89	15.18	158.84	
02/28/07	10:38:00	2.85	4.35	39.81	15.21	157.34	
02/28/07	10:38:15	2.66	4.35	39.71	15.21	169.34	
02/28/07	10:38:30	2.69	4.34	39.85	15.14	166.72	
02/28/07	10:38:45	2.72	4.33	39.96	15.16	151.72	
02/28/07	10:39:00	2.65	4.35	40.16	15.14	137.10	
02/28/07	10:39:15	2.80	4.36	40.56	15.11	136.85	
02/28/07	10:39:30	2.58	4.37	40.83	15.11	152.97	
02/28/07	10:39:45	2.81	4.38	40.88	15.21	165.72	
02/28/07	10:40:00	2.68	4.34	40.72	15.21	178.59	
02/28/07	10:40:15	2.68	4.33	40.85	15.18	200.98	
02/28/07	10:40:30	2.87	4.31	40.73	15.11	216.71	
02/28/07	10:40:45	2.73	4.30	40.72	14.98	208.48	
02/28/07	10:41:00	2.73	4.30	40.53	14.91	186.72	
02/28/07	10:41:15	2.72	4.31	40.28	15.01	172.33	
02/28/07	10:41:30	2.68	4.33	40.05	14.99	167.77	
02/28/07	10:41:45	2.86	4.38	40.03	15.01	179.09	
02/28/07	10:42:00	2.64	4.38	39.97	15.09	193.34	
02/28/07	10:42:15	2.72	4.35	39.83	15.11	200.34	
02/28/07	10:42:30	2.72	4.35	39.48	15.19	217.85	
02/28/07	10:42:45	2.74	4.33	39.47	15.06	227.20	
02/28/07	10:43:00	2.75	4.32	39.48	15.01	228.33	
02/28/07	10:43:15	2.74	4.32	39.47	15.15	220.29	
02/28/07	10:43:30	2.75	4.31	39.20	14.94	218.98	
02/28/07	10:43:45	2.74	4.31	38.36	14.82	235.28	
02/28/07	10:44:00	2.78	4.29	37.82	14.91	234.45	
02/28/07	10:44:15	2.85	4.28	37.86	14.91	219.08	
02/28/07	10:44:30	2.81	4.30	38.09	14.91	213.48	
02/28/07	10:44:45	2.79	4.30	38.45	14.91	199.21	
02/28/07	10:45:00	2.78	4.31	38.83	14.91	173.34	
02/28/07	10:45:15	2.67	4.35	38.90	14.98	158.08	Point 2 Average
02/28/07	10:45:30	2.62	4.35	38.92	15.01	148.47	39.55 ppm SO ₂
02/28/07	10:45:45	2.68	4.34	38.57	14.91	147.84	Run Average
02/28/07	10:46:00	2.64	4.34	38.39	14.91	157.98	40.08 ppm SO ₂
02/28/07	10:46:15	2.85	4.34	38.61	14.99	167.34	Percent Difference
02/28/07	10:46:30	2.85	4.34	39.12	14.91	158.34	-1.3 % difference from avg.
02/28/07	10:46:45	2.84	4.34	39.57	14.86	153.34	
02/28/07	10:47:00	2.65	4.33	39.89	14.81	148.84	
02/28/07	10:47:15	2.85	4.32	40.22	14.91	159.21	
02/28/07	10:47:30	2.84	4.33	40.60	14.91	181.84	
02/28/07	10:47:45	2.70	4.33	40.37	14.91	221.33	
02/28/07	10:48:00	2.75	4.32	39.67	14.91	252.82	
02/28/07	10:48:15	2.78	4.31	39.24	14.98	274.07	
02/28/07	10:48:30	2.84	4.30	39.09	14.91	289.43	
02/28/07	10:48:45	2.85	4.28	39.06	14.91	281.31	
02/28/07	10:49:00	2.85	4.29	39.09	14.91	284.44	
02/28/07	10:49:15	2.80	4.31	39.14	14.81	243.58	
02/28/07	10:49:30	2.80	4.31	39.13	14.81	217.33	
02/28/07	10:49:45	2.76	4.33	38.89	14.86	216.71	
02/28/07	10:50:00	2.73	4.32	38.89	14.91	217.83	
02/28/07	10:50:15	2.78	4.31	38.62	14.91	229.45	
02/28/07	10:50:30	2.72	4.31	38.62	14.91	251.94	
02/28/07	10:50:45	2.76	4.29	38.81	14.91	255.19	
02/28/07	10:51:00	2.62	4.28	39.09	14.91	233.08	
02/28/07	10:51:15	2.80	4.30	39.29	14.91	211.33	
02/28/07	10:51:30	2.77	4.32	39.32	14.84	203.83	
02/28/07	10:51:45	2.75	4.34	39.23	14.81	202.33	
02/28/07	10:52:00	2.75	4.34	38.89	14.90	198.98	
02/28/07	10:52:15	2.73	4.32	38.66	15.01	199.21	
02/28/07	10:52:30	2.73	4.32	38.55	14.84	203.83	
02/28/07	10:52:45	2.76	4.31	38.81	14.91	210.33	
02/28/07	10:53:00	2.80	4.30	38.88	14.91	214.45	
02/28/07	10:53:15	2.79	4.29	38.88	14.91	244.82	
02/28/07	10:53:30	2.81	4.28	38.19	14.91	291.31	
02/28/07	10:53:45	2.90	4.25	38.49	14.91	281.68	
02/28/07	10:54:00	2.90	4.25	38.74	14.81	248.45	
02/28/07	10:54:15	2.81	4.27	38.71	14.78	233.82	
02/28/07	10:54:30	2.77	4.27	38.89	14.91	212.83	
02/28/07	10:54:45	2.76	4.29	38.78	14.92	199.23	
02/28/07	10:55:00	2.71	4.30	38.87	14.74	188.84	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	10:56:30	2.78	4.25	40.28	14.58	291.18	
02/28/07	10:56:45	2.81	4.26	40.23	14.61	292.43	
02/28/07	10:57:00	2.82	4.26	40.05	14.61	291.93	
02/28/07	10:57:15	2.82	4.26	40.01	14.61	284.94	
02/28/07	10:57:30	2.82	4.26	40.03	14.66	251.07	
02/28/07	10:57:45	2.77	4.28	40.02	14.61	257.81	
02/28/07	10:58:00	2.76	4.27	39.90	14.61	258.89	
02/28/07	10:58:15	2.82	4.27	39.75	14.61	241.03	
02/28/07	10:58:30	2.79	4.28	38.16	14.61	225.57	
02/28/07	10:58:45	2.70	4.30	38.86	14.61	226.19	
02/28/07	10:59:00	2.73	4.29	38.95	14.64	224.32	
02/28/07	10:59:15	2.75	4.29	39.27	14.71	228.55	
02/28/07	10:59:30	2.72	4.29	39.50	14.71	242.07	
02/28/07	10:59:45	2.74	4.28	39.64	14.71	259.28	
02/28/07	11:00:00	2.75	4.28	39.69	14.71	262.19	
02/28/07	11:00:15	2.77	4.29	39.78	14.71	277.56	
02/28/07	11:00:30	2.80	4.28	39.19	14.71	283.93	
02/28/07	11:00:45	2.85	4.26	38.82	14.71	248.32	
02/28/07	11:01:00	2.83	4.27	38.79	14.71	209.71	
02/28/07	11:01:15	2.72	4.30	38.13	14.71	182.33	
02/28/07	11:01:30	2.82	4.32	38.79	14.71	198.96	
02/28/07	11:01:45	2.84	4.31	40.29	14.66	228.32	
02/28/07	11:02:00	2.74	4.28	40.45	14.74	231.58	
02/28/07	11:02:15	2.76	4.28	40.51	14.66	218.07	
02/28/07	11:02:30	2.72	4.27	40.75	14.74	206.45	
02/28/07	11:02:45	2.69	4.27	40.86	14.71	214.62	
02/28/07	11:03:00	2.67	4.28	40.82	14.71	232.45	
02/28/07	11:03:15	2.70	4.28	40.82	14.71	284.81	
02/28/07	11:03:30	2.72	4.27	40.99	14.79	296.43	
02/28/07	11:03:45	2.78	4.27	41.27	14.78	321.30	
02/28/07	11:04:00	2.81	4.27	41.15	14.71	323.05	
02/28/07	11:04:15	2.80	4.29	40.96	14.66	330.80	
02/28/07	11:04:30	2.82	4.30	40.35	14.61	338.05	
02/28/07	11:04:45	2.82	4.29	39.51	14.61	333.55	
02/28/07	11:05:00	2.82	4.28	39.21	14.61	321.80	Point 3
02/28/07	11:05:15	2.81	4.27	39.24	14.61	299.81	Point 3 Average
02/28/07	11:05:30	2.78	4.27	38.50	14.69	283.58	39.94 ppm SO ₂
02/28/07	11:05:45	2.77	4.27	38.85	14.71	268.31	Run Average
02/28/07	11:06:00	2.72	4.28	39.68	14.71	255.57	40.06 ppm SO ₂
02/28/07	11:06:15	2.72	4.29	39.86	14.78	229.32	Percent Difference
02/28/07	11:06:30	2.71	4.29	39.77	14.81	228.32	-0.3 % difference from avg.
02/28/07	11:06:45	2.69	4.29	39.55	14.81	229.82	
02/28/07	11:07:00	2.67	4.30	39.58	14.74	238.57	Passed Stratification Test
02/28/07	11:07:15	2.82	4.30	39.63	14.71	269.56	Single Point Sampling acceptable
02/28/07	11:07:30	2.85	4.30	39.83	14.71	287.55	
02/28/07	11:07:45	2.70	4.29	40.15	14.71	288.06	
02/28/07	11:08:00	2.74	4.28	40.08	14.71	282.18	
02/28/07	11:08:15	2.74	4.27	40.04	14.71	278.81	
02/28/07	11:08:30	2.73	4.28	40.24	14.71	256.69	
02/28/07	11:08:45	2.70	4.27	40.43	14.71	225.07	
02/28/07	11:09:00	2.82	4.29	40.68	14.69	212.45	
02/28/07	11:09:15	2.82	4.29	40.70	14.66	208.58	
02/28/07	11:09:30	2.85	4.29	40.60	14.71	205.58	
02/28/07	11:09:45	2.87	4.28	40.50	14.71	211.32	
02/28/07	11:10:00	2.85	4.30	40.57	14.71	219.44	
02/28/07	11:10:15	2.87	4.29	40.72	14.71	214.82	
02/28/07	11:10:30	2.70	4.29	40.53	14.64	210.08	
02/28/07	11:10:45	2.86	4.28	40.38	14.66	209.62	
02/28/07	11:11:00	2.84	4.29	39.97	14.71	221.84	
02/28/07	11:11:15	2.84	4.29	39.28	14.71	248.06	
02/28/07	11:11:30	2.84	4.28	39.82	14.64	270.93	
02/28/07	11:11:45	2.68	4.27	39.08	14.61	284.56	
02/28/07	11:12:00	2.69	4.28	39.54	14.54	282.31	
02/28/07	11:12:15	2.86	4.26	39.99	14.51	302.60	
02/28/07	11:12:30	2.67	4.26	40.27	14.59	300.18	
02/28/07	11:12:45	2.86	4.27	40.41	14.61	308.55	
02/28/07	11:13:00	2.86	4.27	40.44	14.61	331.17	
02/28/07	11:13:15	2.71	4.28	40.48	14.61	351.28	
02/28/07	11:13:30	2.72	4.27	40.48	14.69	335.79	
02/28/07	11:13:45	2.70	4.27	40.55	14.68	253.31	
02/28/07	11:14:00	2.66	4.31	40.37	14.61	193.33	
02/28/07	11:14:15	2.58	4.35	40.26	14.66	145.59	
02/28/07	11:14:30	2.50	4.38	40.28	14.81	148.09	
02/28/07	11:14:45	2.48	4.37	40.33	14.81	159.63	
02/28/07	11:15:00	2.53	4.36	40.35	14.94	159.70	
02/28/07	11:15:15	2.58	4.35	39.74	14.96	157.09	
02/28/07	11:15:30	2.52	4.38	38.13	14.64	182.58	
02/28/07	11:15:45	2.52	4.34	38.78	14.81	189.58	
02/28/07	11:16:00	2.58	4.33	38.95	14.81	187.95	
02/28/07	11:16:15	2.57	4.33	39.31	14.81	170.33	
02/28/07	11:16:30	2.58	4.38	39.81	14.74	174.45	
02/28/07	11:16:45	2.53	4.37	39.90	14.78	190.63	
02/28/07	11:17:00	2.55	4.34	40.05	14.81	199.20	
02/28/07	11:17:15	2.82	4.32	39.90	14.81	246.81	
02/28/07	11:17:30	2.83	4.31	39.88	14.81	288.18	
02/28/07	11:17:45	2.70	4.27	40.04	14.81	323.04	
02/28/07	11:18:00	2.74	4.28	40.32	14.72	310.17	
02/28/07	11:18:15	2.71	4.28	40.31	14.66	282.05	
02/28/07	11:18:30	2.68	4.28	40.22	14.51	287.06	
02/28/07	11:18:45	2.71	4.28	40.25	14.48	283.58	
02/28/07	11:19:00	2.71	4.28	39.79	14.54	258.58	
02/28/07	11:19:15	2.87	4.29	39.09	14.61	255.81	
02/28/07	11:19:30	2.87	4.29	38.57	14.54	252.89	
02/28/07	11:19:45	2.89	4.29	38.45	14.61	240.07	
02/28/07	11:20:00	2.84	4.30	38.84	14.61	237.82	
02/28/07	11:20:15	2.82	4.30	38.34	14.61	228.57	
02/28/07	11:20:30	2.85	4.30	39.59	14.81	225.19	
02/28/07	11:20:45	2.62	4.30	39.71	14.61	243.58	
02/28/07	11:21:00	2.63	4.28	39.88	14.61	244.82	
02/28/07	11:21:15	2.84	4.29	40.21	14.81	241.57	
02/28/07	11:21:30	2.81	4.31	40.31	14.61	248.69	
02/28/07	11:21:45	2.81	4.32	40.43	14.81	285.06	
02/28/07	11:22:00	2.83	4.31	40.69	14.59	287.19	
02/28/07	11:22:15	2.65	4.29	40.89	14.51	285.58	
02/28/07	11:22:30	2.62	4.29	41.20	14.51	280.18	
02/28/07	11:22:45	2.94	4.29	41.23	14.51	318.55	
02/28/07	11:23:00	2.67	4.28	40.43	14.51	322.04	
02/28/07	11:23:15	2.67	4.28	39.80	14.48	302.30	
02/28/07	11:23:30	2.60	4.30	39.56	14.41	300.30	
02/28/07	11:23:45	2.81	4.28	39.65	14.41	301.05	

Reference Method 15-second Averages

Data	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	11:25:00	2.70	4.29	39.92	14.51	333.04	
02/28/07	11:25:15	2.73	4.29	39.88	14.51	311.30	
02/28/07	11:25:30	2.72	4.28	39.87	14.51	239.81	
02/28/07	11:25:45	2.69	4.22	38.05	14.51	162.58	
02/28/07	11:26:00	2.93	2.45	28.26	14.41	162.08	
02/28/07	11:26:15	0.91	0.52	17.03	12.21	176.58	
02/28/07	11:26:30	0.12	0.11	11.20	5.01	177.95	
02/28/07	11:26:45	0.02	0.06	8.08	1.91	178.33	
02/28/07	11:27:00	0.01	0.05	6.07	0.36	178.58	
02/28/07	11:27:15	0.00	0.04	4.88	0.22	178.83	
02/28/07	11:27:30	0.00	0.04	3.98	0.11	179.08	
02/28/07	11:27:45	0.00	0.03	3.36	0.11	179.58	
02/28/07	11:28:00	0.00	0.03	2.68	0.11	179.58	
02/28/07	11:28:15	-0.01	0.03	2.44	0.11	179.58	
02/28/07	11:28:30	0.00	0.03	2.12	0.11	179.58	
02/28/07	11:28:45	-0.01	0.02	1.62	0.11	179.83	
02/28/07	11:29:00	-0.01	0.02	1.78	0.11	180.08	System Bias
02/28/07	11:29:15	-0.01	0.02	1.60	0.11	180.08	180.0ppm CO Injection
02/28/07	11:29:30	-0.01	0.02	1.44	0.11	180.08	-0.01 % Oxygen
02/28/07	11:29:45	-0.01	0.02	1.32	0.11	180.08	0.02 % CO ₂
02/28/07	11:30:00	-0.01	0.02	1.20	0.11	180.54	0.11 ppm NO _x
02/28/07	11:30:15	0.01	0.10	1.14	0.11	136.83	180.08 ppm CO
02/28/07	11:30:30	0.47	0.84	1.15	0.28	65.83	
02/28/07	11:30:45	0.42	0.37	1.19	1.01	14.84	
02/28/07	11:31:00	0.09	0.06	1.12	13.21	2.34	
02/28/07	11:31:15	0.00	0.02	1.07	25.41	0.84	
02/28/07	11:31:30	-0.01	0.01	0.98	41.73	0.59	
02/28/07	11:31:45	-0.01	0.01	0.93	42.81	0.59	
02/28/07	11:32:00	-0.01	0.01	0.77	43.93	0.59	
02/28/07	11:32:15	-0.01	0.01	0.79	44.60	0.59	
02/28/07	11:32:30	-0.01	0.01	0.76	45.81	0.34	System Bias
02/28/07	11:32:45	-0.01	0.01	0.72	46.10	0.34	45.0ppm NO _x Injection
02/28/07	11:33:00	-0.01	0.01	0.70	46.43	0.89	6.65 ppm SO ₂
02/28/07	11:33:15	-0.01	0.01	0.61	46.50	0.89	46.39 ppm NO _x
02/28/07	11:33:30	-0.01	0.01	0.58	46.50	0.34	0.22 ppm CO
02/28/07	11:33:45	-0.01	0.01	0.58	46.50	6.34	
02/28/07	11:34:00	-0.01	0.01	0.52	46.50	27.71	
02/28/07	11:34:15	0.27	0.66	0.58	46.50	25.09	
02/28/07	11:34:30	0.68	0.83	3.22	45.28	7.34	
02/28/07	11:34:45	0.22	0.14	16.45	39.31	0.84	
02/28/07	11:35:00	0.02	0.02	28.17	19.76	0.22	
02/28/07	11:35:15	-0.01	0.01	34.64	7.41	0.09	
02/28/07	11:35:30	-0.01	0.01	37.95	1.04	0.09	
02/28/07	11:35:45	-0.01	0.01	39.82	0.66	0.09	
02/28/07	11:36:00	-0.01	0.01	41.03	0.39	0.09	
02/28/07	11:36:15	-0.01	0.00	41.66	0.31	0.09	
02/28/07	11:36:30	-0.01	0.00	42.42	0.29	0.09	
02/28/07	11:36:45	-0.01	0.00	42.87	0.22	0.09	
02/28/07	11:37:00	-0.01	0.00	43.24	0.22	0.09	
02/28/07	11:37:15	-0.01	0.00	43.58	0.22	0.09	
02/28/07	11:37:30	-0.01	0.00	43.66	0.22	0.09	
02/28/07	11:37:45	-0.01	0.00	44.00	0.16	0.09	
02/28/07	11:38:00	-0.01	0.00	44.06	0.11	-0.04	
02/28/07	11:38:15	-0.01	0.00	44.19	0.11	-0.16	
02/28/07	11:38:30	-0.01	0.00	44.22	0.11	0.09	
02/28/07	11:38:45	-0.02	0.00	44.26	0.11	0.09	
02/28/07	11:39:00	-0.01	0.00	44.32	0.11	0.09	
02/28/07	11:39:15	-0.02	0.00	44.41	0.11	0.09	System Bias
02/28/07	11:39:30	-0.02	0.00	44.71	0.11	-0.29	45.0ppm SO ₂ Injection
02/28/07	11:39:45	-0.02	0.00	44.89	0.11	-0.16	44.82 ppm SO ₂
02/28/07	11:40:00	-0.01	0.00	44.89	0.11	0.09	
02/28/07	11:40:15	-0.01	0.00	44.90	0.11	11.59	
02/28/07	11:40:30	-0.01	0.03	44.64	0.11	33.21	
02/28/07	11:40:45	0.47	1.12	39.72	0.11	25.34	
02/28/07	11:41:00	3.60	4.40	29.03	1.47	7.22	
02/28/07	11:41:15	7.79	7.66	18.70	2.26	-0.16	
02/28/07	11:41:30	9.51	9.27	11.69	2.16	-1.28	
02/28/07	11:41:45	9.79	9.31	8.23	0.92	-1.41	
02/28/07	11:42:00	9.81	9.17	6.22	0.28	-1.41	
02/28/07	11:42:15	9.83	9.29	4.96	0.11	-1.41	
02/28/07	11:42:30	9.85	9.57	4.06	0.11	-1.53	
02/28/07	11:42:45	9.98	9.77	3.47	0.11	-1.91	
02/28/07	11:43:00	9.98	9.86	2.95	0.02	-1.66	
02/28/07	11:43:15	9.99	9.89	2.52	0.02	-1.66	
02/28/07	11:43:30	9.99	9.91	2.21	0.02	-1.66	
02/28/07	11:43:45	9.99	9.91	2.01	0.02	-1.66	
02/28/07	11:44:00	9.99	9.92	1.62	0.02	-1.66	System Bias
02/28/07	11:44:15	9.99	9.92	1.72	0.02	-1.63	10.0% O ₂ /CO ₂ Injection
02/28/07	11:44:30	9.99	9.93	1.59	0.02	-1.62	9.99 % Oxygen
02/28/07	11:44:45	10.00	9.93	1.47	0.02	-1.62	9.93 % CO ₂
02/28/07	11:45:00	9.99	9.93	1.44	0.02	-0.53	
02/28/07	11:45:15	10.00	9.94	1.37	0.02	36.84	
02/28/07	11:45:30	9.94	9.78	1.34	0.02	173.69	
02/28/07	11:45:45	7.60	7.15	3.98	0.02	294.04	
02/28/07	11:46:00	3.96	4.87	16.21	2.49	335.04	
02/28/07	11:46:15	2.86	4.34	25.29	7.06	342.54	
02/28/07	11:46:30	2.74	4.28	28.68	12.54	331.79	
02/28/07	11:46:45	2.73	4.28	30.24	13.36	316.04	
02/28/07	11:47:00	2.70	4.28	31.22	13.61	310.67	
02/28/07	11:47:15	2.67	4.29	32.44	13.69	325.04	
02/28/07	11:47:30	2.68	4.28	33.69	13.84	342.28	
02/28/07	11:47:45	2.71	4.26	34.93	13.91	352.78	
02/28/07	11:48:00	2.73	4.25	35.66	13.91	355.15	
02/28/07	11:48:15	2.75	4.26	36.47	13.84	366.28	
02/28/07	11:48:30	2.73	4.26	37.42	13.81	327.66	
02/28/07	11:48:45	2.74	4.25	38.31	13.89	307.36	
02/28/07	11:49:00	2.72	4.26	38.62	13.91	316.79	
02/28/07	11:49:15	2.72	4.26	39.37	13.99	321.29	
02/28/07	11:49:30	2.73	4.25	39.77	14.09	316.42	
02/28/07	11:49:45	2.70	4.27	40.08	13.94	311.79	
02/28/07	11:50:00	2.70	4.27	40.26	13.91	287.55	
02/28/07	11:50:15	2.89	4.26	40.43	13.91	298.05	
02/28/07	11:50:30	2.64	4.26	40.79	14.01	265.80	
02/28/07	11:50:45	2.66	4.25	41.01	14.01	271.05	
02/28/07	11:51:00	2.70	4.24	41.23	14.04	277.92	
02/28/07	11:51:15	2.66	4.24	41.46	14.11	284.05	
02/28/07	11:51:30	2.66	4.23	41.76	14.11	298.29	
02/28/07	11:51:45	2.66	4.23	42.02	14.04	310.29	
02/28/07	11:52:00	2.67	4.23	42.17	14.11	324.66	
02/28/07	11:52:15	2.84	4.24	42.27	14.11	348.53	
02/28/07	11:52:30	2.88	4.26	42.44	14.11	370.44	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	11:53:45	2.69	4.24	42.77	13.91	417.77	
02/28/07	11:54:00	2.69	4.24	42.47	13.94	396.15	
02/28/07	11:54:15	2.72	4.24	42.24	14.01	378.29	
02/28/07	11:54:30	2.71	4.26	41.83	14.04	384.91	
02/28/07	11:54:45	2.71	4.25	41.42	14.11	388.53	
02/28/07	11:55:00	2.71	4.25	41.47	14.11	367.90	
02/28/07	11:55:15	2.69	4.25	41.55	14.04	343.03	
02/28/07	11:55:30	2.70	4.26	41.53	13.91	331.29	
02/28/07	11:55:45	2.70	4.25	41.47	13.91	332.29	
02/28/07	11:56:00	2.68	4.25	41.45	14.04	348.78	
02/28/07	11:56:15	2.68	4.25	41.57	14.11	373.28	
02/28/07	11:56:30	2.71	4.25	41.83	14.11	380.91	
02/28/07	11:56:45	2.75	4.25	41.87	14.11	372.28	
02/28/07	11:57:00	2.72	4.26	41.87	14.11	377.03	
02/28/07	11:57:15	2.72	4.26	41.54	14.11	379.78	
02/28/07	11:57:30	2.79	4.25	41.80	14.11	380.78	
02/28/07	11:57:45	2.80	4.25	41.66	14.11	377.78	
02/28/07	11:58:00	2.75	4.25	41.57	14.14	369.28	
02/28/07	11:58:15	2.74	4.24	41.45	14.14	355.03	
02/28/07	11:58:30	2.76	4.24	41.35	14.01	329.29	
02/28/07	11:58:45	2.72	4.25	41.33	14.01	305.54	
02/28/07	11:59:00	2.67	4.25	41.48	14.01	293.54	
02/28/07	11:59:15	2.65	4.26	41.59	14.01	295.29	
02/28/07	11:59:30	2.65	4.25	41.60	14.01	302.18	
02/28/07	11:59:45	2.68	4.25	41.82	14.01	315.29	
02/28/07	12:00:00	2.63	4.26	41.77	14.01	366.14	
02/28/07	12:00:15	2.63	4.25	42.04	14.01	403.77	
02/28/07	12:00:30	2.67	4.25	42.28	13.99	415.89	
02/28/07	12:00:45	2.67	4.26	42.33	13.91	410.02	
02/28/07	12:01:00	2.66	4.26	42.27	13.91	390.54	
02/28/07	12:01:15	2.71	4.26	42.17	13.91	397.52	
02/28/07	12:01:30	2.66	4.27	41.80	13.94	444.46	
02/28/07	12:01:45	2.65	4.26	41.52	14.09	483.75	
02/28/07	12:02:00	2.75	4.23	41.45	14.09	500.00	
02/28/07	12:02:15	2.63	4.21	41.46	14.01	500.00	
02/28/07	12:02:30	2.79	4.22	41.68	14.01	458.63	
02/28/07	12:02:45	2.74	4.23	41.72	13.94	411.52	
02/28/07	12:03:00	2.70	4.25	41.70	13.99	385.78	Start Run 2
02/28/07	12:03:15	2.65	4.26	41.79	13.99	400.03	
02/28/07	12:03:30	2.65	4.24	41.92	14.01	408.52	
02/28/07	12:03:45	2.69	4.24	41.98	14.01	410.27	
02/28/07	12:04:00	2.67	4.26	42.02	13.99	418.65	
02/28/07	12:04:15	2.69	4.25	41.91	13.91	395.27	
02/28/07	12:04:30	2.71	4.25	41.65	13.91	355.65	
02/28/07	12:04:45	2.69	4.25	41.51	13.91	329.54	
02/28/07	12:05:00	2.67	4.26	41.42	13.91	338.91	
02/28/07	12:05:15	2.62	4.26	41.11	13.99	348.27	
02/28/07	12:05:30	2.65	4.26	40.91	14.01	333.28	
02/28/07	12:05:45	2.65	4.29	40.80	14.01	311.03	
02/28/07	12:06:00	2.64	4.29	40.73	13.99	288.92	
02/28/07	12:06:15	2.59	4.30	40.85	13.99	297.29	
02/28/07	12:06:30	2.57	4.29	41.15	14.09	308.92	
02/28/07	12:06:45	2.58	4.29	41.44	14.01	297.79	
02/28/07	12:07:00	2.57	4.29	41.43	13.99	299.04	
02/28/07	12:07:15	2.58	4.28	41.41	13.91	312.54	
02/28/07	12:07:30	2.59	4.25	41.30	13.91	349.28	
02/28/07	12:07:45	2.64	4.23	41.24	13.91	378.28	
02/28/07	12:08:00	2.68	4.21	41.17	13.94	411.77	
02/28/07	12:08:15	2.69	4.22	41.27	13.94	403.02	
02/28/07	12:08:30	2.69	4.23	41.42	13.99	377.78	
02/28/07	12:08:45	2.64	4.27	41.20	13.91	360.28	
02/28/07	12:09:00	2.61	4.29	40.65	13.91	352.28	
02/28/07	12:09:15	2.62	4.27	40.25	13.91	324.53	
02/28/07	12:09:30	2.59	4.29	40.09	13.91	301.79	
02/28/07	12:09:45	2.57	4.29	40.08	13.91	311.79	
02/28/07	12:10:00	2.54	4.30	40.17	13.91	323.68	
02/28/07	12:10:15	2.60	4.28	40.34	13.91	321.28	
02/28/07	12:10:30	2.57	4.29	40.65	13.91	307.18	
02/28/07	12:10:45	2.57	4.28	40.61	13.91	312.79	
02/28/07	12:11:00	2.58	4.27	40.35	13.98	311.91	
02/28/07	12:11:15	2.68	4.28	40.01	14.01	291.79	
02/28/07	12:11:30	2.61	4.29	39.85	13.99	271.80	
02/28/07	12:11:45	2.55	4.29	40.00	13.91	296.04	
02/28/07	12:12:00	2.56	4.28	40.40	14.01	324.29	
02/28/07	12:12:15	2.63	4.27	40.49	14.01	327.78	
02/28/07	12:12:30	2.67	4.29	40.24	14.01	340.93	
02/28/07	12:12:45	2.69	4.28	39.64	14.01	342.78	
02/28/07	12:13:00	2.71	4.27	39.33	13.98	310.41	
02/28/07	12:13:15	2.67	4.28	39.09	13.99	308.04	
02/28/07	12:13:30	2.62	4.28	38.97	14.01	319.86	
02/28/07	12:13:45	2.69	4.25	39.05	13.94	313.54	
02/28/07	12:14:00	2.68	4.24	39.23	13.91	285.29	
02/28/07	12:14:15	2.68	4.24	39.52	13.91	282.05	
02/28/07	12:14:30	2.60	4.27	39.85	14.01	247.43	
02/28/07	12:14:45	2.52	4.29	39.72	14.09	243.58	
02/28/07	12:15:00	2.53	4.29	39.64	14.08	249.93	
02/28/07	12:15:15	2.51	4.28	39.79	14.01	291.79	
02/28/07	12:15:30	2.53	4.29	39.88	14.08	315.98	
02/28/07	12:15:45	2.63	4.28	40.03	14.01	319.04	
02/28/07	12:16:00	2.59	4.31	40.04	13.98	328.16	
02/28/07	12:16:15	2.62	4.30	40.01	13.99	334.78	
02/28/07	12:16:30	2.65	4.29	39.68	14.01	328.16	
02/28/07	12:16:45	2.89	4.28	39.31	14.01	319.03	
02/28/07	12:17:00	2.65	4.28	39.17	14.01	318.54	
02/28/07	12:17:15	2.85	4.28	39.08	14.01	314.79	
02/28/07	12:17:30	2.63	4.28	38.95	13.91	291.78	
02/28/07	12:17:45	2.64	4.29	38.79	13.91	276.54	
02/28/07	12:18:00	2.57	4.31	38.63	14.01	270.30	
02/28/07	12:18:15	2.54	4.32	38.96	14.01	275.80	
02/28/07	12:18:30	2.53	4.32	39.30	14.11	281.79	
02/28/07	12:18:45	2.59	4.29	39.63	14.04	271.29	
02/28/07	12:19:00	2.64	4.29	39.67	13.98	228.44	
02/28/07	12:19:15	2.61	4.30	39.60	13.91	198.61	
02/28/07	12:19:30	2.50	4.33	39.71	13.91	180.19	
02/28/07	12:19:45	2.47	4.33	39.72	13.99	164.57	
02/28/07	12:20:00	2.48	4.34	39.81	14.01	167.19	
02/28/07	12:20:15	2.44	4.38	39.85	14.09	190.57	
02/28/07	12:20:30	2.50	4.33	39.52	14.16	208.94	
02/28/07	12:20:45	2.55	4.31	39.27	14.21	207.61	
02/28/07	12:21:00	2.59	4.30	39.14	14.11	191.69	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	12:22:15	2.51	4.32	40.26	14.11	204.62	
02/28/07	12:22:30	2.53	4.31	40.75	14.08	215.31	
02/28/07	12:22:45	2.55	4.31	40.84	14.01	225.30	
02/28/07	12:23:00	2.54	4.31	40.82	14.02	225.83	
02/28/07	12:23:15	2.56	4.31	40.55	14.01	231.58	
02/28/07	12:23:30	2.54	4.32	40.45	14.01	242.81	
02/28/07	12:23:45	2.60	4.31	40.38	14.01	224.56	
02/28/07	12:24:00	2.61	4.31	40.14	14.11	194.07	
02/28/07	12:24:15	2.53	4.35	39.72	14.11	185.57	
02/28/07	12:24:30	2.46	4.37	39.42	14.11	188.69	
02/28/07	12:24:45	2.43	4.38	39.30	14.11	196.31	
02/28/07	12:25:00	2.52	4.36	39.14	14.11	184.89	
02/28/07	12:25:15	2.54	4.35	39.08	14.11	183.32	
02/28/07	12:25:30	2.50	4.35	39.20	14.01	150.57	
02/28/07	12:25:45	2.50	4.34	39.19	13.94	147.07	
02/28/07	12:26:00	2.52	4.33	39.20	14.06	132.33	
02/28/07	12:26:15	2.50	4.34	39.36	14.11	133.62	
02/28/07	12:26:30	2.47	4.35	39.70	14.11	148.95	
02/28/07	12:26:45	2.52	4.35	39.80	14.11	160.82	
02/28/07	12:27:00	2.54	4.36	39.86	14.16	184.69	
02/28/07	12:27:15	2.56	4.35	39.77	14.21	150.62	
02/28/07	12:27:30	2.51	4.37	39.69	14.21	149.57	
02/28/07	12:27:45	2.44	4.37	39.53	14.21	155.32	
02/28/07	12:28:00	2.54	4.35	39.39	14.21	142.95	
02/28/07	12:28:15	2.57	4.34	39.27	14.21	128.08	
02/28/07	12:28:30	2.52	4.35	39.44	14.21	181.31	
02/28/07	12:28:45	2.50	4.33	39.84	14.21	238.30	
02/28/07	12:29:00	2.62	4.26	40.27	14.21	242.60	
02/28/07	12:29:15	2.61	4.23	40.42	14.14	229.05	
02/28/07	12:29:30	2.59	4.25	40.52	13.96	158.32	
02/28/07	12:29:45	2.58	4.28	40.40	13.84	103.32	
02/28/07	12:30:00	2.38	4.38	39.99	13.86	85.87	
02/28/07	12:30:15	2.34	4.38	39.76	13.99	86.88	
02/28/07	12:30:30	2.38	4.38	39.82	14.21	97.82	
02/28/07	12:30:45	2.37	4.38	39.78	14.21	109.34	
02/28/07	12:31:00	2.46	4.37	39.60	14.26	124.20	
02/28/07	12:31:15	2.48	4.37	39.41	14.31	148.51	
02/28/07	12:31:30	2.52	4.35	39.13	14.37	173.36	
02/28/07	12:31:45	2.59	4.34	39.16	14.41	174.62	
02/28/07	12:32:00	2.60	4.34	39.45	14.26	164.62	
02/28/07	12:32:15	2.55	4.36	39.56	14.21	160.68	
02/28/07	12:32:30	2.50	4.36	39.52	14.21	155.57	
02/28/07	12:32:45	2.51	4.34	39.43	14.21	140.85	
02/28/07	12:33:00	2.50	4.35	39.43	14.16	134.70	
02/28/07	12:33:15	2.50	4.34	39.39	14.11	126.45	
02/28/07	12:33:30	2.56	4.33	39.10	14.06	117.32	
02/28/07	12:33:45	2.55	4.35	38.56	14.19	110.94	
02/28/07	12:34:00	2.48	4.36	38.52	14.11	113.57	
02/28/07	12:34:15	2.47	4.36	38.68	14.19	110.57	
02/28/07	12:34:30	2.49	4.39	38.68	14.21	105.95	
02/28/07	12:34:45	2.46	4.41	39.09	14.21	97.69	
02/28/07	12:35:00	2.49	4.39	39.23	14.21	82.07	
02/28/07	12:35:15	2.46	4.39	39.39	14.21	67.45	
02/28/07	12:35:30	2.41	4.39	39.85	14.21	63.11	
02/28/07	12:35:45	2.40	4.39	40.53	14.21	82.33	
02/28/07	12:36:00	2.40	4.38	41.68	14.21	88.95	
02/28/07	12:36:15	2.40	4.37	41.35	14.21	77.57	
02/28/07	12:36:30	2.44	4.38	41.45	14.21	82.95	
02/28/07	12:36:45	2.46	4.37	41.43	14.24	97.56	
02/28/07	12:37:00	2.40	4.37	41.40	14.31	111.69	
02/28/07	12:37:15	2.47	4.35	40.94	14.24	119.58	
02/28/07	12:37:30	2.49	4.34	40.43	14.21	138.20	
02/28/07	12:37:45	2.49	4.33	40.21	14.18	152.62	
02/28/07	12:38:00	2.56	4.31	39.98	14.21	141.58	
02/28/07	12:38:15	2.57	4.33	39.73	14.21	125.63	
02/28/07	12:38:30	2.48	4.36	39.73	14.21	128.32	
02/28/07	12:38:45	2.48	4.38	39.83	14.14	135.08	
02/28/07	12:39:00	2.48	4.37	40.01	14.11	140.56	
02/28/07	12:39:15	2.51	4.35	40.19	14.19	140.20	
02/28/07	12:39:30	2.52	4.34	40.40	14.21	135.33	
02/28/07	12:39:45	2.51	4.34	40.51	14.14	118.94	
02/28/07	12:40:00	2.48	4.35	40.58	14.06	97.19	
02/28/07	12:40:15	2.38	4.36	40.75	14.09	102.07	
02/28/07	12:40:30	2.30	4.38	41.06	14.18	112.45	
02/28/07	12:40:45	2.38	4.35	41.04	14.21	117.33	
02/28/07	12:41:00	2.41	4.36	40.49	14.18	99.94	
02/28/07	12:41:15	2.41	4.37	40.24	14.11	94.31	
02/28/07	12:41:30	2.31	4.40	40.36	14.11	106.07	
02/28/07	12:41:45	2.38	4.37	40.40	14.19	107.69	
02/28/07	12:42:00	2.43	4.37	40.47	14.21	117.69	
02/28/07	12:42:15	2.36	4.38	40.72	14.14	137.57	
02/28/07	12:42:30	2.48	4.38	40.95	14.11	211.31	
02/28/07	12:42:45	2.51	4.33	41.19	14.11	302.79	
02/28/07	12:43:00	2.65	4.25	41.40	14.06	310.65	
02/28/07	12:43:15	2.73	4.24	41.36	13.99	296.41	
02/28/07	12:43:30	2.69	4.27	41.07	13.91	233.80	
02/28/07	12:43:45	2.65	4.28	40.70	13.86	221.43	
02/28/07	12:44:00	2.61	4.28	40.60	13.91	206.83	
02/28/07	12:44:15	2.62	4.28	40.34	13.91	180.82	
02/28/07	12:44:30	2.59	4.29	39.60	13.91	172.32	
02/28/07	12:44:45	2.46	4.31	39.21	13.91	182.44	
02/28/07	12:45:00	2.50	4.30	39.14	13.86	192.68	
02/28/07	12:45:15	2.55	4.29	39.23	13.88	198.69	
02/28/07	12:45:30	2.53	4.29	39.53	13.91	212.81	
02/28/07	12:45:45	2.50	4.30	40.00	13.91	231.83	
02/28/07	12:46:00	2.54	4.29	40.37	13.91	240.30	
02/28/07	12:46:15	2.57	4.27	40.64	13.84	242.18	
02/28/07	12:46:30	2.59	4.27	40.90	13.81	230.31	
02/28/07	12:46:45	2.58	4.28	41.13	13.81	217.16	
02/28/07	12:47:00	2.52	4.31	41.39	13.81	216.55	
02/28/07	12:47:15	2.49	4.33	41.69	13.88	231.88	
02/28/07	12:47:30	2.50	4.34	41.75	13.91	248.05	
02/28/07	12:47:45	2.54	4.33	41.70	13.91	224.43	
02/28/07	12:48:00	2.58	4.34	40.92	13.91	202.81	
02/28/07	12:48:15	2.49	4.35	39.97	13.99	200.19	
02/28/07	12:48:30	2.48	4.33	39.82	14.01	185.44	
02/28/07	12:48:45	2.51	4.32	39.36	14.01	159.94	
02/28/07	12:49:00	2.48	4.32	39.30	14.01	138.70	
02/28/07	12:49:15	2.44	4.34	39.56	14.04	139.45	
02/28/07	12:49:30	2.41	4.35	39.96	14.11	152.07	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	12:51:00	2.83	4.27	40.68	14.08	201.93	
02/28/07	12:51:15	2.82	4.28	40.90	14.01	171.57	
02/28/07	12:51:30	2.98	4.30	41.07	14.01	151.45	
02/28/07	12:51:45	2.51	4.32	40.78	14.01	145.82	
02/28/07	12:52:00	2.48	4.34	40.54	14.08	144.82	
02/28/07	12:52:15	2.49	4.35	40.58	14.11	142.95	
02/28/07	12:52:30	2.52	4.35	40.57	14.11	130.83	
02/28/07	12:52:45	2.48	4.38	40.68	14.11	127.63	
02/28/07	12:53:00	2.41	4.37	40.88	14.11	139.33	
02/28/07	12:53:15	2.48	4.34	41.16	14.11	139.32	
02/28/07	12:53:30	2.51	4.33	41.38	14.11	146.21	
02/28/07	12:53:45	2.52	4.32	41.53	14.11	153.32	
02/28/07	12:54:00	2.54	4.32	41.71	14.18	148.95	
02/28/07	12:54:15	2.47	4.33	41.81	14.14	158.81	
02/28/07	12:54:30	2.43	4.34	41.93	14.11	171.81	
02/28/07	12:54:45	2.48	4.33	42.01	14.11	182.69	
02/28/07	12:55:00	2.53	4.31	42.07	14.08	174.31	
02/28/07	12:55:15	2.54	4.31	41.77	14.01	188.69	
02/28/07	12:55:30	2.52	4.31	41.04	14.01	158.82	
02/28/07	12:55:45	2.51	4.30	40.88	14.09	132.20	
02/28/07	12:56:00	2.48	4.32	40.94	14.11	114.07	
02/28/07	12:56:15	2.40	4.33	41.34	14.11	102.44	
02/28/07	12:56:30	2.37	4.34	41.82	14.11	94.32	
02/28/07	12:56:45	2.38	4.35	42.05	14.11	98.07	
02/28/07	12:57:00	2.37	4.35	42.33	14.11	101.45	
02/28/07	12:57:15	2.41	4.33	42.60	14.11	104.07	
02/28/07	12:57:30	2.39	4.35	42.88	14.18	107.82	
02/28/07	12:57:45	2.40	4.36	43.34	14.21	112.70	
02/28/07	12:58:00	2.43	4.35	43.53	14.18	123.58	
02/28/07	12:58:15	2.45	4.34	43.53	14.11	128.57	
02/28/07	12:58:30	2.52	4.32	43.53	14.11	127.45	
02/28/07	12:58:45	2.54	4.31	43.43	14.11	124.45	
02/28/07	12:59:00	2.51	4.32	43.47	14.11	123.96	
02/28/07	12:59:15	2.50	4.32	43.62	14.14	124.33	
02/28/07	12:59:30	2.50	4.33	43.81	14.18	134.33	
02/28/07	12:59:45	2.47	4.33	44.02	14.11	146.57	
02/28/07	13:00:00	2.50	4.31	44.33	14.08	160.44	
02/28/07	13:00:15	2.52	4.29	44.81	14.01	172.07	
02/28/07	13:00:30	2.52	4.30	44.47	14.01	201.19	
02/28/07	13:00:45	2.59	4.28	43.87	13.93	212.61	
02/28/07	13:01:00	2.61	4.28	43.88	13.98	209.20	
02/28/07	13:01:15	2.55	4.31	43.78	13.99	210.32	
02/28/07	13:01:30	2.51	4.31	44.18	13.81	200.71	
02/28/07	13:01:45	2.50	4.31	44.59	13.92	202.28	
02/28/07	13:02:00	2.51	4.31	44.79	13.91	217.38	
02/28/07	13:02:15	2.57	4.29	45.03	13.81	210.75	
02/28/07	13:02:30	2.57	4.29	45.46	13.81	193.74	
02/28/07	13:02:45	2.54	4.31	45.88	13.91	191.81	End Run 2
02/28/07	13:03:00	2.51	4.32	46.47	13.91	194.58	
02/28/07	13:03:15	2.52	4.32	47.04	14.01	195.08	
02/28/07	13:03:30	2.54	4.32	47.37	14.01	190.31	
02/28/07	13:03:45	2.55	4.32	47.53	14.01	188.32	
02/28/07	13:04:00	2.58	4.32	47.17	14.08	198.82	
02/28/07	13:04:15	2.80	4.32	48.68	14.11	173.82	
02/28/07	13:04:30	2.89	4.45	45.40	14.11	70.82	
02/28/07	13:04:45	5.49	8.38	34.12	13.79	19.71	
02/28/07	13:05:00	8.89	8.78	20.12	12.21	-0.16	
02/28/07	13:05:15	9.81	9.71	12.37	5.86	-1.79	
02/28/07	13:05:30	9.90	9.71	8.38	1.92	-1.91	
02/28/07	13:05:45	9.90	9.59	8.19	0.29	-1.91	
02/28/07	13:06:00	9.91	9.82	4.82	0.17	-1.91	
02/28/07	13:06:15	9.92	9.75	3.93	0.11	-1.91	
02/28/07	13:06:30	9.92	9.86	3.24	0.11	-1.91	
02/28/07	13:06:45	9.92	9.92	2.78	0.12	-1.91	
02/28/07	13:07:00	9.93	9.93	2.40	0.12	-1.91	System Bias
02/28/07	13:07:15	9.93	9.94	2.11	0.11	-1.91	10.0% O ₂ /CO ₂ Injection
02/28/07	13:07:30	9.93	9.94	1.90	0.12	-1.91	9.93 % Oxygen
02/28/07	13:07:45	9.93	9.94	1.72	0.12	-1.54	9.94 % CO ₂
02/28/07	13:08:00	9.93	9.95	1.58	0.07	24.09	
02/28/07	13:08:15	9.40	9.14	1.58	0.02	49.98	
02/28/07	13:08:30	8.78	8.50	1.98	0.82	128.83	
02/28/07	13:08:45	3.32	2.84	2.22	2.31	159.82	
02/28/07	13:09:00	0.75	0.57	2.17	2.38	174.82	
02/28/07	13:09:15	0.11	0.17	1.95	1.14	175.94	
02/28/07	13:09:30	0.03	0.11	1.85	0.27	176.32	
02/28/07	13:09:45	0.02	0.09	1.50	0.12	176.57	
02/28/07	13:10:00	0.01	0.08	1.38	0.12	176.82	
02/28/07	13:10:15	0.01	0.07	1.28	0.11	179.07	
02/28/07	13:10:30	0.00	0.06	1.16	0.12	179.07	
02/28/07	13:10:45	-0.01	0.05	1.11	0.11	179.07	System Bias
02/28/07	13:11:00	0.00	0.05	1.05	0.87	179.32	180.0ppm CO Injection
02/28/07	13:11:15	0.00	0.04	1.02	0.82	179.57	-0.01 % Oxygen
02/28/07	13:11:30	-0.01	0.04	0.99	0.82	179.82	0.04 % CO ₂
02/28/07	13:11:45	-0.01	0.04	0.91	0.82	179.89	0.83 ppm NO _x
02/28/07	13:12:00	-0.01	0.03	0.90	0.02	158.82	179.60 ppm CO
02/28/07	13:12:15	0.09	0.38	0.89	0.02	109.95	
02/28/07	13:12:30	0.49	0.81	0.87	0.42	30.84	
02/28/07	13:12:45	0.21	0.20	0.99	4.38	5.72	
02/28/07	13:13:00	0.02	0.04	0.95	19.08	0.59	
02/28/07	13:13:15	-0.01	0.03	0.87	34.88	0.21	
02/28/07	13:13:30	-0.01	0.02	0.84	41.01	0.09	
02/28/07	13:13:45	-0.01	0.02	0.84	41.88	-0.29	
02/28/07	13:14:00	-0.02	0.02	0.82	42.81	0.09	
02/28/07	13:14:15	-0.01	0.02	0.76	43.88	0.09	
02/28/07	13:14:30	-0.01	0.02	0.82	44.30	-0.16	System Bias
02/28/07	13:14:45	-0.02	0.01	0.79	44.83	-0.29	45.0ppm NO _x Injection
02/28/07	13:15:00	-0.02	0.01	0.75	44.98	0.12	0.77 ppm SO ₂
02/28/07	13:15:15	-0.01	0.01	0.75	45.11	-0.28	45.00 ppm NO _x
02/28/07	13:15:30	-0.01	0.01	0.78	45.11	0.09	-0.89 ppm CO
02/28/07	13:15:45	-0.02	0.01	0.75	45.10	14.84	
02/28/07	13:16:00	0.08	0.28	0.79	45.11	22.34	
02/28/07	13:16:15	0.89	1.22	1.83	45.01	10.59	
02/28/07	13:16:30	0.40	0.38	11.88	41.81	0.59	
02/28/07	13:16:45	0.04	0.05	25.38	29.13	-0.41	
02/28/07	13:17:00	-0.01	0.02	33.27	12.88	-0.41	
02/28/07	13:17:15	-0.02	0.01	37.19	2.84	-0.41	
02/28/07	13:17:30	-0.02	0.01	39.42	0.72	-0.41	
02/28/07	13:17:45	-0.02	0.01	41.07	0.39	-0.41	
02/28/07	13:18:00	-0.02	0.01	42.08	0.32	-0.41	
02/28/07	13:18:15	-0.02	0.01	43.58	0.29	-0.41	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	13:19:30	-0.02	0.00	45.29	0.12	-0.41	
02/28/07	13:19:45	-0.02	0.00	45.43	0.12	-0.41	
02/28/07	13:20:00	-0.02	0.00	45.54	0.12	-0.41	
02/28/07	13:20:15	-0.02	0.00	45.67	0.12	34.84	
02/28/07	13:20:30	0.01	0.14	45.12	0.12	216.58	
02/28/07	13:20:45	0.05	2.07	43.30	0.34	323.17	
02/28/07	13:21:00	2.22	3.77	44.22	1.47	367.54	
02/28/07	13:21:15	2.59	4.16	44.73	7.81	371.03	
02/28/07	13:21:30	2.65	4.20	44.16	11.00	387.03	
02/28/07	13:21:45	2.68	4.22	44.13	13.59	376.53	
02/28/07	13:22:00	2.69	4.21	45.13	13.91	333.26	
02/28/07	13:22:15	2.63	4.24	46.55	14.01	328.54	
02/28/07	13:22:30	2.60	4.25	47.91	14.06	345.78	
02/28/07	13:22:45	2.67	4.23	49.01	14.14	344.53	
02/28/07	13:23:00	2.70	4.23	49.86	14.28	340.29	Start Run 3
02/28/07	13:23:15	2.70	4.24	50.38	14.21	344.16	
02/28/07	13:23:30	2.70	4.24	50.66	14.26	311.80	
02/28/07	13:23:45	2.72	4.23	50.77	14.29	262.81	
02/28/07	13:24:00	2.68	4.26	50.91	14.21	214.07	
02/28/07	13:24:15	2.58	4.28	51.09	14.21	201.20	
02/28/07	13:24:30	2.54	4.29	51.47	14.28	196.82	
02/28/07	13:24:45	2.54	4.29	51.88	14.41	206.45	
02/28/07	13:25:00	2.55	4.28	52.59	14.46	215.32	
02/28/07	13:25:15	2.58	4.28	53.11	14.41	221.19	
02/28/07	13:25:30	2.58	4.28	53.31	14.41	242.06	
02/28/07	13:25:45	2.60	4.28	53.59	14.34	261.18	
02/28/07	13:26:00	2.58	4.28	53.84	14.41	282.05	
02/28/07	13:26:15	2.61	4.25	54.01	14.41	323.17	
02/28/07	13:26:30	2.63	4.25	54.14	14.41	361.78	
02/28/07	13:26:45	2.67	4.24	54.11	14.41	367.91	
02/28/07	13:27:00	2.69	4.24	54.05	14.48	388.04	
02/28/07	13:27:15	2.84	4.26	54.05	14.39	423.65	
02/28/07	13:27:30	2.67	4.25	54.15	14.38	432.27	
02/28/07	13:27:45	2.72	4.25	54.01	14.41	435.27	
02/28/07	13:28:00	2.69	4.26	53.90	14.41	417.53	
02/28/07	13:28:15	2.71	4.26	53.85	14.41	393.29	
02/28/07	13:28:30	2.84	4.28	53.67	14.49	341.54	
02/28/07	13:28:45	2.60	4.29	53.71	14.51	298.30	
02/28/07	13:29:00	2.55	4.30	53.40	14.44	262.31	
02/28/07	13:29:15	2.53	4.31	53.25	14.51	258.56	
02/28/07	13:29:30	2.57	4.31	53.01	14.51	268.31	
02/28/07	13:29:45	2.62	4.31	52.49	14.51	255.94	
02/28/07	13:30:00	2.63	4.30	52.07	14.51	230.62	
02/28/07	13:30:15	2.61	4.31	51.63	14.51	222.94	
02/28/07	13:30:30	2.59	4.31	51.74	14.59	226.07	
02/28/07	13:30:45	2.61	4.30	51.74	14.71	224.44	
02/28/07	13:31:00	2.60	4.30	52.08	14.71	209.07	
02/28/07	13:31:15	2.56	4.31	52.42	14.59	207.20	
02/28/07	13:31:30	2.53	4.31	52.56	14.59	232.81	
02/28/07	13:31:45	2.56	4.29	52.48	14.61	248.67	
02/28/07	13:32:00	2.61	4.27	52.44	14.61	275.08	
02/28/07	13:32:15	2.62	4.28	52.89	14.61	303.13	
02/28/07	13:32:30	2.67	4.24	53.07	14.61	320.54	
02/28/07	13:32:45	2.69	4.24	52.61	14.51	321.23	
02/28/07	13:33:00	2.65	4.26	52.51	14.51	318.54	
02/28/07	13:33:15	2.65	4.27	52.41	14.51	317.46	
02/28/07	13:33:30	2.67	4.27	52.20	14.51	305.60	
02/28/07	13:33:45	2.66	4.29	52.03	14.51	292.62	
02/28/07	13:34:00	2.60	4.30	52.06	14.51	274.80	
02/28/07	13:34:15	2.60	4.31	52.12	14.51	260.61	
02/28/07	13:34:30	2.55	4.32	52.03	14.51	237.61	
02/28/07	13:34:45	2.55	4.31	51.93	14.51	200.33	
02/28/07	13:35:00	2.51	4.32	51.89	14.51	182.58	
02/28/07	13:35:15	2.41	4.34	52.01	14.61	200.57	
02/28/07	13:35:30	2.43	4.33	52.22	14.61	220.07	
02/28/07	13:35:45	2.47	4.33	52.23	14.89	223.69	
02/28/07	13:36:00	2.49	4.33	52.38	14.61	240.57	
02/28/07	13:36:15	2.52	4.31	52.36	14.59	251.69	
02/28/07	13:36:30	2.59	4.29	51.94	14.59	254.31	
02/28/07	13:36:45	2.59	4.29	51.65	14.61	251.56	
02/28/07	13:37:00	2.63	4.28	51.41	14.61	225.62	
02/28/07	13:37:15	2.60	4.30	51.30	14.94	196.70	
02/28/07	13:37:30	2.50	4.32	51.22	14.84	177.33	
02/28/07	13:37:45	2.49	4.32	51.21	14.51	189.46	
02/28/07	13:38:00	2.46	4.31	51.26	14.51	162.63	
02/28/07	13:38:15	2.51	4.31	51.32	14.61	159.58	
02/28/07	13:38:30	2.49	4.31	51.44	14.61	162.33	
02/28/07	13:38:45	2.51	4.31	51.42	14.61	152.96	
02/28/07	13:39:00	2.53	4.31	51.45	14.89	147.84	
02/28/07	13:39:15	2.50	4.32	51.35	14.71	150.21	
02/28/07	13:39:30	2.46	4.33	51.09	14.71	161.58	
02/28/07	13:39:45	2.44	4.33	51.25	14.71	165.08	
02/28/07	13:40:00	2.47	4.31	51.54	14.71	208.62	
02/28/07	13:40:15	2.49	4.30	51.66	14.69	235.07	
02/28/07	13:40:30	2.51	4.28	51.62	14.61	249.08	
02/28/07	13:40:45	2.57	4.26	51.78	14.54	238.62	
02/28/07	13:41:00	2.56	4.27	51.70	14.61	231.07	
02/28/07	13:41:15	2.50	4.28	51.74	14.71	231.20	
02/28/07	13:41:30	2.47	4.28	52.00	14.71	224.31	
02/28/07	13:41:45	2.46	4.28	52.25	14.89	223.62	
02/28/07	13:42:00	2.46	4.28	52.17	14.54	224.57	
02/28/07	13:42:15	2.51	4.26	51.92	14.51	223.57	
02/28/07	13:42:30	2.51	4.26	51.58	14.59	231.32	
02/28/07	13:42:45	2.52	4.26	51.34	14.61	237.32	
02/28/07	13:43:00	2.51	4.28	51.39	14.61	229.07	
02/28/07	13:43:15	2.49	4.27	51.53	14.51	209.95	
02/28/07	13:43:30	2.49	4.29	51.75	14.44	204.58	
02/28/07	13:43:45	2.45	4.30	51.58	14.44	212.45	
02/28/07	13:44:00	2.45	4.29	51.17	14.59	214.32	
02/28/07	13:44:15	2.46	4.27	50.90	14.61	212.57	
02/28/07	13:44:30	2.49	4.26	50.69	14.54	207.58	
02/28/07	13:44:45	2.50	4.27	50.70	14.51	192.83	
02/28/07	13:45:00	2.46	4.27	50.61	14.44	165.08	
02/28/07	13:45:15	2.39	4.30	51.12	14.51	202.33	
02/28/07	13:45:30	2.40	4.29	51.61	14.51	208.58	
02/28/07	13:45:45	2.43	4.28	51.65	14.59	208.20	
02/28/07	13:46:00	2.38	4.28	51.62	14.51	231.32	
02/28/07	13:46:15	2.43	4.28	52.25	14.49	246.95	
02/28/07	13:46:30	2.51	4.26	52.40	14.41	250.57	
02/28/07	13:46:45	2.51	4.27	52.42	14.41	245.32	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	13:48:00	2.38	4.31	52.13	14.31	190.08	
02/28/07	13:48:15	2.38	4.30	51.90	14.41	206.08	
02/28/07	13:48:30	2.38	4.30	51.88	14.41	221.82	
02/28/07	13:48:45	2.37	4.29	51.79	14.41	223.57	
02/28/07	13:49:00	2.41	4.29	51.74	14.41	240.81	
02/28/07	13:49:15	2.37	4.29	52.19	14.41	280.08	
02/28/07	13:49:30	2.45	4.27	52.54	14.41	311.05	
02/28/07	13:49:45	2.50	4.28	52.69	14.41	317.55	
02/28/07	13:50:00	2.49	4.28	52.68	14.41	312.05	
02/28/07	13:50:15	2.47	4.28	52.61	14.39	307.88	
02/28/07	13:50:30	2.48	4.28	52.59	14.31	306.30	
02/28/07	13:50:45	2.50	4.25	52.48	14.31	292.81	
02/28/07	13:51:00	2.47	4.25	52.60	14.39	281.08	
02/28/07	13:51:15	2.45	4.25	52.81	14.31	230.57	
02/28/07	13:51:30	2.39	4.29	52.62	14.24	241.31	
02/28/07	13:51:45	2.34	4.29	52.75	14.24	278.16	
02/28/07	13:52:00	2.43	4.27	52.77	14.48	285.56	
02/28/07	13:52:15	2.50	4.27	52.18	14.51	300.60	
02/28/07	13:52:30	2.47	4.27	51.60	14.51	335.04	
02/28/07	13:52:45	2.44	4.28	51.67	14.48	385.28	
02/28/07	13:53:00	2.50	4.26	51.60	14.34	415.76	
02/28/07	13:53:15	2.55	4.25	51.89	14.31	392.29	
02/28/07	13:53:30	2.53	4.24	52.08	14.31	358.04	
02/28/07	13:53:45	2.49	4.25	52.05	14.38	331.80	
02/28/07	13:54:00	2.49	4.25	51.99	14.41	304.55	
02/28/07	13:54:15	2.45	4.27	52.10	14.41	273.89	
02/28/07	13:54:30	2.38	4.30	52.33	14.41	259.32	
02/28/07	13:54:45	2.31	4.31	52.51	14.48	248.57	
02/28/07	13:55:00	2.34	4.29	52.53	14.59	226.32	
02/28/07	13:55:15	2.35	4.29	52.60	14.58	198.33	
02/28/07	13:55:30	2.33	4.29	52.84	14.51	191.58	
02/28/07	13:55:45	2.30	4.30	53.09	14.41	198.08	
02/28/07	13:56:00	2.37	4.29	53.15	14.49	194.83	
02/28/07	13:56:15	2.35	4.29	53.21	14.51	178.95	
02/28/07	13:56:30	2.33	4.31	52.94	14.51	182.33	
02/28/07	13:56:45	2.29	4.32	52.42	14.48	201.98	
02/28/07	13:57:00	2.30	4.31	52.26	14.51	215.33	
02/28/07	13:57:15	2.35	4.29	52.10	14.41	210.95	
02/28/07	13:57:30	2.36	4.29	52.17	14.41	191.33	
02/28/07	13:57:45	2.32	4.30	52.41	14.38	175.83	
02/28/07	13:58:00	2.27	4.32	52.70	14.41	191.08	
02/28/07	13:58:15	2.25	4.31	53.14	14.48	234.20	
02/28/07	13:58:30	2.32	4.28	53.54	14.51	281.81	
02/28/07	13:58:45	2.40	4.27	53.78	14.51	320.68	
02/28/07	13:59:00	2.48	4.24	53.95	14.51	342.80	
02/28/07	13:59:15	2.47	4.23	53.84	14.51	350.42	
02/28/07	13:59:30	2.48	4.24	53.71	14.44	372.55	
02/28/07	13:59:45	2.48	4.23	53.11	14.38	414.28	
02/28/07	14:00:00	2.51	4.23	52.88	14.31	448.78	
02/28/07	14:00:15	2.53	4.23	52.57	14.38	484.77	
02/28/07	14:00:30	2.52	4.23	52.71	14.41	495.77	
02/28/07	14:00:45	2.53	4.24	52.98	14.38	475.52	
02/28/07	14:01:00	2.53	4.24	52.99	14.31	438.53	
02/28/07	14:01:15	2.52	4.25	52.81	14.38	388.91	
02/28/07	14:01:30	2.46	4.27	52.70	14.41	355.54	
02/28/07	14:01:45	2.39	4.28	53.03	14.38	327.80	
02/28/07	14:02:00	2.37	4.29	53.29	14.31	301.56	
02/28/07	14:02:15	2.35	4.29	53.30	14.31	271.94	
02/28/07	14:02:30	2.37	4.28	53.39	14.39	259.81	
02/28/07	14:02:45	2.33	4.29	53.38	14.51	289.60	
02/28/07	14:03:00	2.39	4.27	53.27	14.59	274.31	
02/28/07	14:03:15	2.40	4.28	53.24	14.81	274.48	
02/28/07	14:03:30	2.38	4.30	53.34	14.81	280.81	
02/28/07	14:03:45	2.37	4.30	53.28	14.81	288.44	
02/28/07	14:04:00	2.43	4.29	52.99	14.81	248.82	
02/28/07	14:04:15	2.41	4.30	52.38	14.81	238.77	
02/28/07	14:04:30	2.44	4.28	51.71	14.81	240.83	
02/28/07	14:04:45	2.39	4.29	51.72	14.51	238.20	
02/28/07	14:05:00	2.40	4.28	51.70	14.44	237.32	
02/28/07	14:05:15	2.41	4.27	51.75	14.41	253.94	
02/28/07	14:05:30	2.39	4.27	51.94	14.49	256.07	
02/28/07	14:05:45	2.42	4.28	52.01	14.58	228.82	
02/28/07	14:06:00	2.42	4.28	52.18	14.44	214.33	
02/28/07	14:06:15	2.34	4.29	52.95	14.58	208.95	
02/28/07	14:06:30	2.32	4.31	53.51	14.54	212.08	
02/28/07	14:06:45	2.32	4.31	53.54	14.41	205.33	
02/28/07	14:07:00	2.32	4.31	53.32	14.41	206.08	
02/28/07	14:07:15	2.29	4.31	53.26	14.41	213.58	
02/28/07	14:07:30	2.31	4.30	53.21	14.41	216.07	
02/28/07	14:07:45	2.33	4.29	53.38	14.41	215.57	
02/28/07	14:08:00	2.30	4.31	53.48	14.49	232.83	
02/28/07	14:08:15	2.30	4.31	53.54	14.51	276.44	
02/28/07	14:08:30	2.35	4.30	53.53	14.51	287.08	
02/28/07	14:08:45	2.42	4.28	53.27	14.51	253.57	
02/28/07	14:09:00	2.44	4.28	52.69	14.59	233.07	
02/28/07	14:09:15	2.39	4.31	51.72	14.51	218.20	
02/28/07	14:09:30	2.34	4.30	51.45	14.51	210.83	
02/28/07	14:09:45	2.33	4.31	51.42	14.58	208.33	
02/28/07	14:10:00	2.32	4.31	51.58	14.81	215.33	
02/28/07	14:10:15	2.31	4.31	51.85	14.81	220.57	
02/28/07	14:10:30	2.34	4.31	51.70	14.81	229.82	
02/28/07	14:10:45	2.33	4.31	51.85	14.81	247.07	
02/28/07	14:11:00	2.37	4.30	51.97	14.54	237.06	
02/28/07	14:11:15	2.38	4.31	52.08	14.48	209.21	
02/28/07	14:11:30	2.31	4.32	52.40	14.49	208.58	
02/28/07	14:11:45	2.25	4.33	52.87	14.51	225.70	
02/28/07	14:12:00	2.27	4.32	53.00	14.51	248.57	
02/28/07	14:12:15	2.29	4.31	53.23	14.81	292.93	
02/28/07	14:12:30	2.39	4.29	53.75	14.54	311.56	
02/28/07	14:12:45	2.42	4.28	53.78	14.41	304.56	
02/28/07	14:13:00	2.45	4.27	53.02	14.41	318.81	
02/28/07	14:13:15	2.45	4.29	51.79	14.48	325.30	
02/28/07	14:13:30	2.47	4.28	51.34	14.51	314.55	
02/28/07	14:13:45	2.39	4.32	51.38	14.58	355.18	
02/28/07	14:14:00	2.38	4.31	51.74	14.44	380.54	
02/28/07	14:14:15	2.47	4.28	52.08	14.48	281.81	
02/28/07	14:14:30	2.41	4.30	52.02	14.44	252.32	
02/28/07	14:14:45	2.31	4.33	51.58	14.41	285.08	
02/28/07	14:15:00	2.35	4.31	50.53	14.49	274.06	
02/28/07	14:15:15	2.37	4.30	49.85	14.58	283.43	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	14:16:45	2.38	4.30	48.85	14.71	283.31	
02/28/07	14:17:00	2.37	4.31	48.83	14.71	300.31	
02/28/07	14:17:15	2.41	4.31	48.88	14.66	334.18	
02/28/07	14:17:30	2.46	4.29	48.54	14.69	330.30	
02/28/07	14:17:45	2.50	4.29	48.51	14.76	284.18	
02/28/07	14:18:00	2.44	4.31	48.59	14.81	261.57	
02/28/07	14:18:15	2.40	4.31	48.68	14.68	241.95	
02/28/07	14:18:30	2.43	4.30	48.81	14.81	237.62	
02/28/07	14:18:45	2.41	4.31	48.60	14.81	261.69	
02/28/07	14:19:00	2.44	4.30	48.30	14.81	271.57	
02/28/07	14:19:15	2.47	4.30	47.95	14.66	261.07	
02/28/07	14:19:30	2.47	4.29	47.31	14.84	257.32	
02/28/07	14:19:45	2.47	4.28	48.70	14.81	278.94	
02/28/07	14:20:00	2.47	4.28	48.54	14.69	285.56	
02/28/07	14:20:15	2.53	4.27	48.54	14.76	263.62	
02/28/07	14:20:30	2.46	4.31	48.81	14.74	248.32	
02/28/07	14:20:45	2.38	4.34	47.28	14.71	254.32	
02/28/07	14:21:00	2.37	4.33	47.48	14.79	243.32	
02/28/07	14:21:15	2.44	4.30	47.48	14.81	218.95	
02/28/07	14:21:30	2.41	4.30	47.63	14.81	202.33	
02/28/07	14:21:45	2.38	4.31	48.12	14.76	203.09	
02/28/07	14:22:00	2.37	4.31	48.52	14.84	218.62	
02/28/07	14:22:15	2.41	4.31	48.06	14.68	241.57	
02/28/07	14:22:30	2.43	4.31	47.55	14.74	252.07	
02/28/07	14:22:45	2.45	4.30	47.42	14.81	245.45	End Run 3
02/28/07	14:23:00	2.47	4.30	47.48	14.81	214.08	
02/28/07	14:23:15	2.45	4.24	47.35	14.81	96.96	
02/28/07	14:23:30	2.02	2.52	44.97	14.81	29.85	
02/28/07	14:23:45	0.68	0.52	43.30	12.71	1.73	
02/28/07	14:24:00	0.08	0.10	43.49	6.82	0.60	
02/28/07	14:24:15	0.01	0.06	43.89	2.17	0.10	
02/28/07	14:24:30	0.00	0.05	44.27	0.49	0.10	
02/28/07	14:24:45	0.00	0.04	44.49	0.22	0.10	
02/28/07	14:25:00	0.00	0.04	44.61	0.14	0.10	
02/28/07	14:25:15	-0.01	0.03	44.74	0.12	0.10	
02/28/07	14:25:30	-0.01	0.03	44.85	0.12	0.10	
02/28/07	14:25:45	-0.01	0.03	44.97	0.12	0.10	System Bias
02/28/07	14:26:00	-0.01	0.03	45.10	0.12	0.10	45.0ppm SO ₂ Injection
02/28/07	14:26:15	-0.01	0.03	45.55	0.12	0.10	45.62 ppm SO ₂
02/28/07	14:26:30	-0.01	0.02	45.90	0.12	0.10	
02/28/07	14:26:45	-0.01	0.02	45.93	0.12	2.10	
02/28/07	14:27:00	-0.01	0.02	45.76	0.12	11.60	
02/28/07	14:27:15	0.15	0.52	43.58	0.12	51.47	
02/28/07	14:27:30	0.49	0.84	34.74	0.62	115.09	
02/28/07	14:27:45	0.18	0.21	20.81	1.42	170.59	
02/28/07	14:28:00	0.04	0.05	12.41	1.99	177.34	
02/28/07	14:28:15	0.00	0.02	8.42	0.87	178.71	
02/28/07	14:28:30	-0.01	0.02	6.20	0.22	179.08	
02/28/07	14:28:45	-0.01	0.02	4.90	0.12	179.09	
02/28/07	14:29:00	-0.01	0.02	4.00	0.12	179.09	
02/28/07	14:29:15	-0.01	0.02	3.33	0.12	179.59	
02/28/07	14:29:30	-0.01	0.02	2.91	0.09	179.64	
02/28/07	14:29:45	-0.01	0.01	1.53	0.02	179.96	
02/28/07	14:30:00	-0.01	0.01	1.20	0.02	179.59	
02/28/07	14:30:15	-0.01	0.01	0.99	0.02	179.71	
02/28/07	14:30:30	-0.01	0.01	0.83	0.02	180.09	
02/28/07	14:30:45	-0.01	0.01	0.71	0.02	180.09	
02/28/07	14:31:00	-0.01	0.01	0.60	0.02	180.09	System Bias
02/28/07	14:31:15	-0.01	0.01	0.54	0.02	180.09	180.0ppm CO Injection
02/28/07	14:31:30	-0.01	0.01	0.49	0.02	180.09	-0.01 % Oxygen
02/28/07	14:31:45	-0.01	0.01	0.40	0.02	180.09	0.01 % CO ₂
02/28/07	14:32:00	-0.01	0.01	0.29	0.02	180.08	0.02 ppm NO _x
02/28/07	14:32:15	-0.01	0.01	0.22	0.02	174.08	180.09 ppm CO
02/28/07	14:32:30	-0.01	0.02	0.25	0.02	150.59	
02/28/07	14:32:45	0.27	0.76	0.24	0.07	76.72	
02/28/07	14:33:00	0.43	0.62	0.27	1.09	26.10	
02/28/07	14:33:15	0.09	0.09	0.21	5.87	2.22	
02/28/07	14:33:30	0.00	0.02	0.21	23.06	0.84	
02/28/07	14:33:45	-0.01	0.01	0.13	39.31	0.60	
02/28/07	14:34:00	-0.01	0.01	0.13	41.51	0.60	
02/28/07	14:34:15	-0.01	0.01	0.08	42.56	0.10	
02/28/07	14:34:30	-0.01	0.01	0.02	43.43	0.10	
02/28/07	14:34:45	-0.01	0.01	0.04	44.31	0.10	
02/28/07	14:35:00	-0.01	0.01	0.02	44.63	0.10	System Bias
02/28/07	14:35:15	-0.01	0.01	0.94	45.31	0.10	45.0ppm NO _x Injection
02/28/07	14:35:30	-0.01	0.01	0.89	45.41	0.10	0.59 ppm SO ₂
02/28/07	14:35:45	-0.01	0.01	0.41	45.46	0.10	45.42 ppm NO _x
02/28/07	14:36:00	-0.01	0.01	0.11	45.51	0.10	0.10 ppm CO
02/28/07	14:36:15	-0.01	0.01	0.04	45.51	7.48	
02/28/07	14:36:30	0.01	0.12	-0.01	45.48	16.65	
02/28/07	14:36:45	0.76	1.72	-0.02	45.16	9.35	
02/28/07	14:37:00	4.59	5.49	0.04	42.28	1.10	
02/28/07	14:37:15	8.34	8.44	0.01	30.61	-1.03	
02/28/07	14:37:30	9.69	9.55	0.03	16.09	-1.40	
02/28/07	14:37:45	9.88	9.55	0.07	4.82	-1.40	
02/28/07	14:38:00	9.90	9.51	0.01	1.44	-1.40	
02/28/07	14:38:15	9.91	9.84	-0.03	0.47	-1.53	
02/28/07	14:38:30	9.92	9.78	-0.07	0.29	-1.90	
02/28/07	14:38:45	9.93	9.85	-0.04	0.22	-1.90	
02/28/07	14:39:00	9.93	9.90	-0.07	0.22	-1.90	
02/28/07	14:39:15	9.93	9.92	-0.05	0.22	-1.90	
02/28/07	14:39:30	9.94	9.93	-0.07	0.14	-1.90	System Bias
02/28/07	14:39:45	9.94	9.93	-0.13	0.12	-1.90	10.0% O ₂ /CO ₂ Injection
02/28/07	14:40:00	9.94	9.94	-0.15	0.12	-1.90	9.94 % Oxygen
02/28/07	14:40:15	9.94	9.95	-0.17	0.12	5.97	9.94 % CO ₂
02/28/07	14:40:30	9.94	9.95	-0.20	0.12	79.09	
02/28/07	14:40:45	9.01	8.60	1.12	0.12	176.46	
02/28/07	14:41:00	5.07	5.57	13.58	1.02	216.20	
02/28/07	14:41:15	2.89	4.49	27.53	5.52	221.20	
02/28/07	14:41:30	2.56	4.37	32.79	10.54	214.45	
02/28/07	14:41:45	2.53	4.35	35.36	13.97	190.58	
02/28/07	14:42:00	2.52	4.35	38.12	14.34	199.21	
02/28/07	14:42:15	2.48	4.34	41.27	14.48	156.08	
02/28/07	14:42:30	2.46	4.33	44.09	14.61	147.47	
02/28/07	14:42:45	2.44	4.34	46.13	14.72	148.61	
02/28/07	14:43:00	2.42	4.34	47.30	14.71	153.84	Start Run 4
02/28/07	14:43:15	2.44	4.33	47.80	14.71	160.83	
02/28/07	14:43:30	2.45	4.34	48.17	14.71	175.09	
02/28/07	14:43:45	2.45	4.33	48.81	14.71	170.34	
02/28/07	14:44:00	2.46	4.32	49.35	14.72	156.10	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	14:45:15	2.45	4.34	51.49	14.71	157.98	
02/28/07	14:45:30	2.43	4.34	51.87	14.81	148.59	
02/28/07	14:45:45	2.38	4.34	52.44	14.86	143.84	
02/28/07	14:46:00	2.35	4.35	53.19	14.99	158.58	
02/28/07	14:46:15	2.40	4.34	53.57	14.91	173.34	
02/28/07	14:46:30	2.45	4.33	53.61	14.91	180.09	
02/28/07	14:46:45	2.44	4.35	53.54	14.99	162.71	
02/28/07	14:47:00	2.46	4.33	53.40	15.02	157.58	
02/28/07	14:47:15	2.44	4.33	53.35	15.01	127.47	
02/28/07	14:47:30	2.31	4.35	53.57	14.89	111.74	
02/28/07	14:47:45	2.28	4.37	53.99	14.88	123.35	
02/28/07	14:48:00	2.24	4.37	54.22	14.91	148.59	
02/28/07	14:48:15	2.35	4.33	54.22	14.97	167.22	
02/28/07	14:48:30	2.40	4.33	54.00	14.91	181.84	
02/28/07	14:48:45	2.41	4.32	53.88	14.88	183.98	
02/28/07	14:49:00	2.44	4.32	53.58	14.74	202.96	
02/28/07	14:49:15	2.47	4.33	53.30	14.81	210.96	
02/28/07	14:49:30	2.47	4.33	53.17	14.91	223.70	
02/28/07	14:49:45	2.47	4.33	53.04	14.91	232.45	
02/28/07	14:50:00	2.50	4.32	52.88	14.89	222.70	
02/28/07	14:50:15	2.54	4.32	52.84	14.78	181.71	
02/28/07	14:50:30	2.49	4.35	52.58	14.84	168.84	
02/28/07	14:50:45	2.38	4.37	52.87	14.91	158.34	
02/28/07	14:51:00	2.36	4.36	52.71	15.01	154.21	
02/28/07	14:51:15	2.37	4.38	52.78	15.01	150.98	
02/28/07	14:51:30	2.38	4.38	52.74	15.01	144.22	
02/28/07	14:51:45	2.37	4.36	52.87	15.01	134.35	
02/28/07	14:52:00	2.36	4.36	52.82	15.01	122.35	
02/28/07	14:52:15	2.34	4.36	52.58	14.99	118.72	
02/28/07	14:52:30	2.31	4.35	52.51	14.89	126.87	
02/28/07	14:52:45	2.33	4.35	52.61	14.81	142.52	
02/28/07	14:53:00	2.37	4.34	52.87	14.91	153.59	
02/28/07	14:53:15	2.42	4.34	52.58	14.88	149.30	
02/28/07	14:53:30	2.41	4.35	52.45	14.81	135.84	
02/28/07	14:53:45	2.36	4.36	52.35	14.78	132.74	
02/28/07	14:54:00	2.32	4.36	52.28	14.71	138.34	
02/28/07	14:54:15	2.34	4.37	52.38	14.71	141.74	
02/28/07	14:54:30	2.38	4.38	52.41	14.81	149.98	
02/28/07	14:54:45	2.36	4.37	52.39	14.91	150.09	
02/28/07	14:55:00	2.39	4.38	52.30	14.84	148.34	
02/28/07	14:55:15	2.35	4.37	52.34	14.98	145.09	
02/28/07	14:55:30	2.37	4.36	52.46	15.01	137.97	
02/28/07	14:55:45	2.33	4.37	52.62	14.98	140.84	
02/28/07	14:56:00	2.33	4.37	52.70	14.81	141.09	
02/28/07	14:56:15	2.40	4.35	52.52	14.88	119.34	
02/28/07	14:56:30	2.38	4.38	52.49	14.91	182.58	
02/28/07	14:56:45	2.32	4.38	52.31	14.91	88.88	
02/28/07	14:57:00	2.25	4.37	52.39	14.81	77.72	
02/28/07	14:57:15	2.19	4.40	52.78	14.81	81.58	
02/28/07	14:57:30	2.13	4.41	53.17	14.91	88.71	
02/28/07	14:57:45	2.14	4.40	53.45	14.91	108.59	
02/28/07	14:58:00	2.18	4.38	53.67	14.91	128.47	
02/28/07	14:58:15	2.24	4.38	53.60	14.98	148.89	
02/28/07	14:58:30	2.31	4.38	53.43	14.89	183.84	
02/28/07	14:58:45	2.32	4.37	53.31	14.76	196.33	
02/28/07	14:59:00	2.37	4.37	53.18	14.71	209.21	
02/28/07	14:59:15	2.43	4.35	52.90	14.71	207.08	
02/28/07	14:59:30	2.44	4.33	52.39	14.84	205.08	
02/28/07	14:59:45	2.40	4.33	51.82	14.88	218.83	
02/28/07	15:00:00	2.40	4.33	51.58	14.79	238.33	
02/28/07	15:00:15	2.42	4.31	51.82	14.85	253.57	
02/28/07	15:00:30	2.48	4.31	51.81	14.74	242.95	
02/28/07	15:00:45	2.42	4.33	52.01	14.81	224.88	
02/28/07	15:01:00	2.38	4.34	52.00	14.79	293.09	
02/28/07	15:01:15	2.37	4.34	51.82	14.84	190.09	
02/28/07	15:01:30	2.33	4.35	52.20	14.74	184.59	
02/28/07	15:01:45	2.34	4.35	52.35	14.81	178.34	
02/28/07	15:02:00	2.30	4.38	52.61	14.82	172.59	
02/28/07	15:02:15	2.30	4.38	52.67	14.81	155.34	
02/28/07	15:02:30	2.31	4.35	52.71	14.82	145.34	
02/28/07	15:02:45	2.28	4.38	52.67	14.74	147.84	
02/28/07	15:03:00	2.24	4.38	53.19	14.71	153.21	
02/28/07	15:03:15	2.24	4.38	53.42	14.84	191.09	
02/28/07	15:03:30	2.28	4.35	53.51	14.82	211.08	
02/28/07	15:03:45	2.38	4.33	53.38	14.82	219.08	
02/28/07	15:04:00	2.38	4.34	53.05	14.89	218.33	
02/28/07	15:04:15	2.37	4.33	52.74	14.82	205.84	
02/28/07	15:04:30	2.40	4.34	52.60	14.82	189.71	
02/28/07	15:04:45	2.37	4.35	52.31	14.89	173.34	
02/28/07	15:05:00	2.32	4.37	52.12	14.89	155.98	
02/28/07	15:05:15	2.25	4.38	52.04	14.82	153.34	
02/28/07	15:05:30	2.25	4.38	52.07	14.84	154.98	
02/28/07	15:05:45	2.28	4.38	52.16	14.79	174.34	
02/28/07	15:06:00	2.28	4.35	52.36	14.82	168.34	
02/28/07	15:06:15	2.35	4.32	52.45	14.74	200.84	
02/28/07	15:06:30	2.37	4.32	52.47	14.72	208.89	
02/28/07	15:06:45	2.38	4.31	52.44	14.71	229.33	
02/28/07	15:07:00	2.38	4.31	52.41	14.89	225.70	
02/28/07	15:07:15	2.40	4.30	52.34	14.54	218.58	
02/28/07	15:07:30	2.35	4.33	52.37	14.84	232.08	
02/28/07	15:07:45	2.36	4.32	52.46	14.71	231.33	
02/28/07	15:08:00	2.42	4.33	52.80	14.71	242.70	
02/28/07	15:08:15	2.37	4.35	52.83	14.84	254.57	
02/28/07	15:08:30	2.38	4.35	52.82	14.74	251.20	
02/28/07	15:08:45	2.32	4.35	52.77	14.74	258.62	
02/28/07	15:09:00	2.35	4.34	52.58	14.88	261.70	
02/28/07	15:09:15	2.37	4.33	52.44	14.82	258.07	
02/28/07	15:09:30	2.34	4.33	52.55	14.82	249.20	
02/28/07	15:09:45	2.34	4.33	52.38	14.82	245.08	
02/28/07	15:10:00	2.32	4.33	52.21	14.84	235.46	
02/28/07	15:10:15	2.31	4.34	52.16	14.71	225.58	
02/28/07	15:10:30	2.30	4.35	52.04	14.82	214.98	
02/28/07	15:10:45	2.32	4.34	51.82	14.82	220.08	
02/28/07	15:11:00	2.31	4.34	52.08	14.82	236.98	
02/28/07	15:11:15	2.38	4.33	52.19	14.82	244.58	
02/28/07	15:11:30	2.42	4.32	52.18	14.84	233.08	
02/28/07	15:11:45	2.41	4.33	51.98	14.84	208.33	
02/28/07	15:12:00	2.38	4.34	51.88	14.84	189.98	
02/28/07	15:12:15	2.35	4.35	51.80	14.72	189.59	
02/28/07	15:12:30	2.31	4.38	51.85	14.72	183.21	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	15:14:00	2.27	4.35	51.49	14.74	210.96	
02/28/07	15:14:15	2.39	4.33	51.50	14.82	213.59	
02/28/07	15:14:30	2.39	4.34	51.55	14.82	207.21	
02/28/07	15:14:45	2.38	4.36	51.55	14.82	219.83	
02/28/07	15:15:00	2.33	4.36	51.44	14.82	226.07	
02/28/07	15:15:15	2.39	4.34	51.33	14.82	216.08	
02/28/07	15:15:30	2.43	4.34	51.04	14.71	194.72	
02/28/07	15:15:45	2.41	4.35	50.94	14.72	146.10	
02/28/07	15:16:00	2.27	4.38	51.37	14.72	138.10	
02/28/07	15:16:15	2.28	4.38	51.75	14.72	147.35	
02/28/07	15:16:30	2.35	4.35	51.75	14.72	150.72	
02/28/07	15:16:45	2.38	4.35	51.35	14.71	151.59	
02/28/07	15:17:00	2.38	4.34	51.26	14.82	148.47	
02/28/07	15:17:15	2.35	4.34	51.19	14.82	144.34	
02/28/07	15:17:30	2.30	4.36	51.32	14.82	144.85	
02/28/07	15:17:45	2.31	4.36	51.48	14.74	161.59	
02/28/07	15:18:00	2.32	4.36	51.60	14.72	171.46	
02/28/07	15:18:15	2.38	4.35	51.68	14.72	178.09	
02/28/07	15:18:30	2.35	4.36	51.85	14.72	180.34	
02/28/07	15:18:45	2.36	4.35	51.71	14.72	183.84	
02/28/07	15:19:00	2.37	4.35	51.91	14.82	186.34	
02/28/07	15:19:15	2.37	4.35	51.91	14.82	176.59	
02/28/07	15:19:30	2.37	4.36	51.91	14.89	185.97	
02/28/07	15:19:45	2.30	4.36	52.10	14.82	156.59	
02/28/07	15:20:00	2.28	4.37	52.20	14.72	145.80	
02/28/07	15:20:15	2.28	4.38	52.26	14.79	138.10	
02/28/07	15:20:30	2.31	4.35	52.16	14.72	150.09	
02/28/07	15:20:45	2.34	4.35	52.07	14.72	183.09	
02/28/07	15:21:00	2.37	4.33	52.03	14.82	174.34	
02/28/07	15:21:15	2.37	4.34	52.07	14.82	183.59	
02/28/07	15:21:30	2.39	4.35	52.23	14.84	187.34	
02/28/07	15:21:45	2.41	4.36	51.73	14.84	165.09	
02/28/07	15:22:00	2.33	4.36	50.87	14.82	157.50	
02/28/07	15:22:15	2.29	4.37	50.82	14.82	141.09	
02/28/07	15:22:30	2.33	4.36	50.53	14.72	122.78	
02/28/07	15:22:45	2.23	4.36	50.96	14.79	126.60	
02/28/07	15:23:00	2.21	4.37	51.46	14.89	149.24	
02/28/07	15:23:15	2.30	4.35	51.61	14.82	171.84	
02/28/07	15:23:30	2.37	4.34	51.62	14.82	185.00	
02/28/07	15:23:45	2.38	4.33	51.52	14.82	199.08	
02/28/07	15:24:00	2.41	4.33	51.32	14.89	217.83	
02/28/07	15:24:15	2.44	4.33	51.31	14.74	222.83	
02/28/07	15:24:30	2.46	4.33	51.59	14.72	215.83	
02/28/07	15:24:45	2.44	4.35	51.82	14.72	212.09	
02/28/07	15:25:00	2.43	4.36	51.40	14.72	188.08	
02/28/07	15:25:15	2.43	4.35	51.16	14.76	148.84	
02/28/07	15:25:30	2.34	4.38	51.06	14.82	137.85	
02/28/07	15:25:45	2.27	4.39	50.78	14.82	142.60	
02/28/07	15:26:00	2.32	4.36	50.73	14.82	141.72	
02/28/07	15:26:15	2.34	4.34	50.94	14.82	144.34	
02/28/07	15:26:30	2.34	4.33	51.13	14.77	161.09	
02/28/07	15:26:45	2.33	4.33	51.36	14.79	187.84	
02/28/07	15:27:00	2.38	4.32	51.43	14.82	204.96	
02/28/07	15:27:15	2.41	4.33	51.50	14.82	216.33	
02/28/07	15:27:30	2.39	4.32	51.82	14.77	227.20	
02/28/07	15:27:45	2.41	4.31	51.78	14.72	237.08	
02/28/07	15:28:00	2.43	4.32	51.91	14.87	252.58	
02/28/07	15:28:15	2.39	4.32	52.10	14.72	269.32	
02/28/07	15:28:30	2.36	4.34	52.81	14.72	288.94	
02/28/07	15:28:45	2.36	4.33	52.94	14.84	288.07	
02/28/07	15:29:00	2.39	4.32	52.84	14.52	241.08	
02/28/07	15:29:15	2.30	4.35	52.69	14.59	225.33	
02/28/07	15:29:30	2.37	4.33	52.35	14.67	199.09	
02/28/07	15:29:45	2.33	4.36	52.10	14.72	199.84	
02/28/07	15:30:00	2.28	4.37	52.04	14.82	210.96	
02/28/07	15:30:15	2.36	4.35	52.03	14.74	196.84	
02/28/07	15:30:30	2.38	4.34	51.89	14.72	170.47	
02/28/07	15:30:45	2.32	4.35	52.36	14.72	157.09	
02/28/07	15:31:00	2.25	4.36	53.41	14.67	161.46	
02/28/07	15:31:15	2.29	4.35	53.45	14.72	165.84	
02/28/07	15:31:30	2.32	4.35	53.09	14.62	168.72	
02/28/07	15:31:45	2.30	4.37	52.89	14.82	164.09	
02/28/07	15:32:00	2.32	4.37	51.76	14.87	184.59	
02/28/07	15:32:15	2.34	4.35	50.30	14.82	178.34	
02/28/07	15:32:30	2.35	4.33	49.94	14.87	198.59	
02/28/07	15:32:45	2.37	4.33	50.10	14.84	193.09	
02/28/07	15:33:00	2.35	4.35	50.49	14.82	202.09	
02/28/07	15:33:15	2.34	4.35	50.94	14.82	213.33	
02/28/07	15:33:30	2.32	4.35	51.28	14.52	214.68	
02/28/07	15:33:45	2.35	4.34	51.33	14.52	215.33	
02/28/07	15:34:00	2.33	4.33	51.43	14.57	212.46	
02/28/07	15:34:15	2.33	4.32	51.84	14.82	204.59	
02/28/07	15:34:30	2.29	4.34	51.96	14.57	201.59	
02/28/07	15:34:45	2.29	4.35	52.09	14.59	208.83	
02/28/07	15:35:00	2.28	4.36	51.84	14.82	240.85	
02/28/07	15:35:15	2.34	4.34	50.86	14.82	250.83	
02/28/07	15:35:30	2.41	4.33	50.32	14.82	224.70	
02/28/07	15:35:45	2.38	4.33	50.32	14.82	261.59	
02/28/07	15:36:00	2.32	4.34	50.47	14.82	198.34	
02/28/07	15:36:15	2.34	4.34	50.88	14.54	193.34	
02/28/07	15:36:30	2.35	4.34	51.03	14.87	177.84	
02/28/07	15:36:45	2.32	4.36	51.46	14.72	168.34	
02/28/07	15:37:00	2.25	4.38	51.71	14.67	188.09	
02/28/07	15:37:15	2.28	4.36	51.65	14.72	151.34	
02/28/07	15:37:30	2.30	4.37	51.82	14.77	144.22	
02/28/07	15:37:45	2.28	4.37	51.80	14.74	148.84	
02/28/07	15:38:00	2.31	4.35	51.93	14.72	149.59	
02/28/07	15:38:15	2.34	4.35	52.15	14.72	148.84	
02/28/07	15:38:30	2.30	4.37	52.39	14.72	152.22	
02/28/07	15:38:45	2.31	4.35	52.37	14.72	152.34	
02/28/07	15:39:00	2.33	4.34	52.38	14.67	155.59	
02/28/07	15:39:15	2.32	4.33	52.56	14.82	150.34	
02/28/07	15:39:30	2.33	4.34	52.82	14.82	142.10	
02/28/07	15:39:45	2.24	4.36	53.24	14.82	148.09	
02/28/07	15:40:00	2.20	4.37	53.43	14.82	160.34	
02/28/07	15:40:15	2.21	4.36	53.46	14.82	174.84	
02/28/07	15:40:30	2.22	4.34	53.56	14.82	184.84	
02/28/07	15:40:45	2.26	4.31	53.72	14.82	211.34	
02/28/07	15:41:00	2.28	4.30	54.10	14.52	221.33	
02/28/07	15:41:15	2.30	4.31	54.50	14.52	237.83	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	15:42:45	2.41	4.31	53.54	14.59	285.07	End Run 4
02/28/07	15:43:00	2.41	4.30	53.41	14.62	286.71	
02/28/07	15:43:15	2.79	4.69	48.83	14.54	84.10	
02/28/07	15:43:30	0.02	7.08	32.84	14.62	19.48	
02/28/07	15:43:45	0.09	9.17	18.17	11.36	0.85	
02/28/07	15:44:00	0.82	9.73	11.01	5.12	-0.90	
02/28/07	15:44:15	0.88	9.69	7.32	1.47	-1.40	
02/28/07	15:44:30	0.89	9.63	5.30	0.37	-1.40	
02/28/07	15:44:45	0.89	9.67	3.95	0.19	-1.40	
02/28/07	15:45:00	0.90	9.78	3.05	0.12	-1.40	
02/28/07	15:45:15	0.90	9.85	2.40	0.12	-1.40	
02/28/07	15:45:30	0.90	9.88	1.93	0.12	-1.40	
02/28/07	15:45:45	0.90	9.89	1.54	0.12	-1.40	
02/28/07	15:46:00	0.90	9.90	1.21	0.12	-1.40	
02/28/07	15:46:15	0.90	9.91	1.02	0.12	-1.40	System Bias
02/28/07	15:46:30	0.91	9.91	0.86	0.12	-1.40	10.0% O ₂ /CO ₂ Injection
02/28/07	15:46:45	0.91	9.92	0.73	0.12	-1.40	9.91 % Oxygen
02/28/07	15:47:00	0.91	9.92	0.60	0.07	13.73	9.91 % CO ₂
02/28/07	15:47:15	0.91	9.90	0.51	0.02	42.85	
02/28/07	15:47:30	8.68	8.38	0.73	0.02	43.85	
02/28/07	15:47:45	5.65	4.68	1.18	1.37	69.10	
02/28/07	15:48:00	2.08	1.77	1.17	2.52	166.47	
02/28/07	15:48:15	0.44	0.37	0.93	1.97	177.60	
02/28/07	15:48:30	0.10	0.16	0.80	0.72	179.60	
02/28/07	15:48:45	0.05	0.11	0.59	0.19	179.85	
02/28/07	15:49:00	0.03	0.10	0.48	0.12	180.23	
02/28/07	15:49:15	0.02	0.09	0.37	0.12	180.60	
02/28/07	15:49:30	0.02	0.07	0.22	0.12	180.60	
02/28/07	15:49:45	0.02	0.07	0.16	0.12	180.60	
02/28/07	15:50:00	0.01	0.06	0.16	0.12	180.73	
02/28/07	15:50:15	0.01	0.06	0.09	0.12	180.65	System Bias
02/28/07	15:50:30	0.01	0.05	0.03	0.12	181.10	180.0ppm CO Injection
02/28/07	15:50:45	0.01	0.05	-0.03	0.04	181.10	0.01 % Oxygen
02/28/07	15:51:00	0.00	0.05	-0.09	0.02	181.11	0.05 % CO ₂
02/28/07	15:51:15	0.00	0.05	-0.07	0.02	181.10	0.05 ppm NO _x
02/28/07	15:51:30	0.00	0.04	-0.15	0.02	179.72	181.10 ppm CO
02/28/07	15:51:45	0.02	0.13	-0.13	0.02	108.84	
02/28/07	15:52:00	0.44	0.90	-0.14	0.12	48.80	
02/28/07	15:52:15	0.37	0.40	-0.10	2.02	13.35	
02/28/07	15:52:30	0.08	0.08	-0.03	10.42	1.35	
02/28/07	15:52:45	0.01	0.03	-0.07	26.81	0.60	
02/28/07	15:53:00	0.00	0.03	-0.14	40.26	0.48	
02/28/07	15:53:15	0.00	0.03	-0.23	41.96	0.48	
02/28/07	15:53:30	0.00	0.03	-0.27	42.66	0.48	
02/28/07	15:53:45	0.00	0.02	-0.24	43.76	0.48	
02/28/07	15:54:00	0.00	0.02	-0.20	44.41	0.10	
02/28/07	15:54:15	0.00	0.02	-0.18	45.03	0.10	System Bias
02/28/07	15:54:30	0.00	0.02	-0.24	45.16	0.10	45.0ppm NO _x Injection
02/28/07	15:54:45	0.00	0.02	-0.23	45.31	0.10	-0.23 ppm SO ₂
02/28/07	15:55:00	0.00	0.02	-0.25	45.31	0.10	45.30 ppm NO _x
02/28/07	15:55:15	0.00	0.02	-0.22	45.41	0.10	0.10 ppm CO
02/28/07	15:55:30	0.00	0.02	-0.24	46.41	5.60	
02/28/07	15:55:45	0.00	0.03	-0.26	45.41	25.47	
02/28/07	15:56:00	0.28	0.67	-0.19	45.36	18.35	
02/28/07	15:56:15	0.47	0.61	5.40	44.11	3.74	
02/28/07	15:56:30	0.10	0.11	19.95	38.21	0.10	
02/28/07	15:56:45	0.01	0.03	30.19	17.91	0.14	
02/28/07	15:57:00	-0.01	0.02	35.59	5.62	0.10	
02/28/07	15:57:15	-0.01	0.01	38.58	0.67	0.10	
02/28/07	15:57:30	-0.01	0.01	40.41	0.57	0.10	
02/28/07	15:57:45	-0.01	0.01	41.81	0.39	0.10	
02/28/07	15:58:00	-0.01	0.01	42.70	0.32	0.10	
02/28/07	15:58:15	-0.01	0.01	43.24	0.22	-0.27	
02/28/07	15:58:30	-0.01	0.01	43.53	0.22	0.10	
02/28/07	15:58:45	-0.01	0.01	43.78	0.22	0.10	
02/28/07	15:59:00	-0.01	0.01	43.96	0.22	0.10	
02/28/07	15:59:15	-0.01	0.01	44.13	0.12	0.10	System Bias
02/28/07	15:59:30	-0.01	0.01	45.14	0.12	-0.27	45.0ppm SO ₂ Injection
02/28/07	15:59:45	-0.01	0.01	45.14	0.12	0.10	45.13 ppm SO ₂
02/28/07	16:00:00	-0.01	0.01	45.14	0.12	0.10	
02/28/07	16:00:15	-0.01	0.01	45.68	0.12	7.23	
02/28/07	16:00:30	-0.01	0.03	44.99	0.12	85.59	
02/28/07	16:00:45	0.41	1.27	43.94	0.12	177.84	
02/28/07	16:01:00	1.64	3.47	44.89	1.32	227.58	
02/28/07	16:01:15	2.18	4.20	45.60	5.82	270.76	
02/28/07	16:01:30	2.29	4.28	45.10	10.62	290.06	
02/28/07	16:01:45	2.30	4.29	45.19	13.67	294.21	
02/28/07	16:02:00	2.37	4.30	47.32	14.12	293.94	
02/28/07	16:02:15	2.36	4.30	49.82	14.22	272.57	
02/28/07	16:02:30	2.34	4.31	51.22	14.22	252.20	
02/28/07	16:02:45	2.27	4.34	51.58	14.22	273.94	
02/28/07	16:03:00	2.22	4.35	51.64	14.22	328.05	Start Run 5
02/28/07	16:03:15	2.32	4.32	51.74	14.24	359.17	
02/28/07	16:03:30	2.42	4.30	52.67	14.37	345.17	
02/28/07	16:03:45	2.43	4.30	52.42	14.44	331.31	
02/28/07	16:04:00	2.42	4.32	52.64	14.52	312.06	
02/28/07	16:04:15	2.38	4.34	52.99	14.52	302.31	
02/28/07	16:04:30	2.35	4.36	53.24	14.52	308.19	
02/28/07	16:04:45	2.36	4.35	53.32	14.49	294.68	
02/28/07	16:05:00	2.41	4.33	53.32	14.42	262.82	
02/28/07	16:05:15	2.38	4.33	53.28	14.42	234.33	
02/28/07	16:05:30	2.39	4.33	53.27	14.42	208.46	
02/28/07	16:05:45	2.34	4.34	53.49	14.52	196.09	
02/28/07	16:06:00	2.30	4.34	53.89	14.52	182.59	
02/28/07	16:06:15	2.31	4.35	54.17	14.54	179.97	
02/28/07	16:06:30	2.28	4.36	54.51	14.62	174.34	
02/28/07	16:06:45	2.29	4.36	54.85	14.72	165.71	
02/28/07	16:07:00	2.26	4.36	54.94	14.72	153.59	
02/28/07	16:07:15	2.28	4.36	54.82	14.72	147.97	
02/28/07	16:07:30	2.23	4.37	55.16	14.72	154.97	
02/28/07	16:07:45	2.27	4.36	55.43	14.69	168.97	
02/28/07	16:08:00	2.28	4.36	55.55	14.69	161.71	
02/28/07	16:08:15	2.27	4.38	55.44	14.82	194.46	
02/28/07	16:08:30	2.29	4.34	55.37	14.74	181.59	
02/28/07	16:08:45	2.29	4.34	55.57	14.69	182.72	
02/28/07	16:09:00	2.21	4.36	55.68	14.62	230.33	
02/28/07	16:09:15	2.23	4.35	56.13	14.62	259.95	
02/28/07	16:09:30	2.30	4.33	56.17	14.82	258.40	
02/28/07	16:09:45	2.28	4.34	56.06	14.52	247.58	
02/28/07	16:10:00	2.22	4.37	55.95	14.52	251.82	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	16:11:15	2.23	4.38	55.51	14.52	256.83	
02/28/07	16:11:30	2.26	4.38	55.33	14.52	272.07	
02/28/07	16:11:45	2.36	4.35	55.00	14.62	262.57	
02/28/07	16:12:00	2.38	4.34	54.81	14.62	228.33	
02/28/07	16:12:15	2.37	4.35	54.75	14.69	190.64	
02/28/07	16:12:30	2.38	4.36	54.52	14.62	174.64	
02/28/07	16:12:45	2.24	4.38	54.00	14.64	180.98	
02/28/07	16:13:00	2.26	4.36	53.50	14.64	153.58	
02/28/07	16:13:15	2.29	4.38	53.14	14.62	132.97	
02/28/07	16:13:30	2.17	4.38	53.15	14.62	138.85	
02/28/07	16:13:45	2.16	4.37	53.14	14.72	155.59	
02/28/07	16:14:00	2.27	4.35	53.28	14.64	174.59	
02/28/07	16:14:15	2.34	4.34	53.21	14.62	178.64	
02/28/07	16:14:30	2.38	4.34	53.12	14.62	194.34	
02/28/07	16:14:45	2.32	4.35	53.21	14.64	211.48	
02/28/07	16:15:00	2.31	4.35	53.51	14.64	235.33	
02/28/07	16:15:15	2.32	4.33	53.54	14.62	257.45	
02/28/07	16:15:30	2.36	4.31	53.59	14.62	292.62	
02/28/07	16:15:45	2.38	4.30	53.56	14.62	330.81	
02/28/07	16:16:00	2.40	4.29	53.64	14.54	372.30	
02/28/07	16:16:15	2.46	4.27	53.58	14.52	374.56	
02/28/07	16:16:30	2.51	4.28	53.28	14.52	348.05	
02/28/07	16:16:45	2.46	4.31	53.86	14.52	329.08	
02/28/07	16:17:00	2.40	4.33	52.86	14.51	301.07	
02/28/07	16:17:15	2.38	4.34	52.78	14.54	290.94	
02/28/07	16:17:30	2.35	4.33	52.88	14.62	245.83	
02/28/07	16:17:45	2.40	4.34	52.94	14.62	231.29	
02/28/07	16:18:00	2.32	4.38	52.59	14.62	235.58	
02/28/07	16:18:15	2.35	4.35	52.10	14.64	226.33	
02/28/07	16:18:30	2.33	4.38	52.00	14.72	228.33	
02/28/07	16:18:45	2.31	4.35	52.05	14.72	221.95	
02/28/07	16:19:00	2.38	4.33	51.83	14.64	200.34	
02/28/07	16:19:15	2.36	4.32	51.83	14.62	190.21	
02/28/07	16:19:30	2.34	4.33	51.86	14.62	192.64	
02/28/07	16:19:45	2.31	4.33	52.27	14.64	186.21	
02/28/07	16:20:00	2.31	4.35	52.60	14.64	214.33	
02/28/07	16:20:15	2.31	4.38	52.79	14.62	215.33	
02/28/07	16:20:30	2.38	4.35	52.71	14.62	193.59	
02/28/07	16:20:45	2.36	4.35	52.67	14.62	164.64	
02/28/07	16:21:00	2.36	4.35	52.92	14.62	170.64	
02/28/07	16:21:15	2.38	4.34	53.32	14.62	154.71	
02/28/07	16:21:30	2.27	4.38	53.80	14.69	164.09	
02/28/07	16:21:45	2.22	4.36	53.74	14.72	174.64	
02/28/07	16:22:00	2.27	4.35	53.83	14.64	164.64	
02/28/07	16:22:15	2.28	4.34	53.64	14.52	185.96	
02/28/07	16:22:30	2.27	4.35	53.87	14.59	211.58	
02/28/07	16:22:45	2.25	4.34	53.89	14.62	231.33	
02/28/07	16:23:00	2.34	4.33	53.97	14.62	235.33	
02/28/07	16:23:15	2.33	4.34	54.16	14.51	257.45	
02/28/07	16:23:30	2.31	4.35	54.24	14.52	262.32	
02/28/07	16:23:45	2.39	4.34	53.99	14.51	233.45	
02/28/07	16:24:00	2.32	4.38	53.74	14.59	191.59	
02/28/07	16:24:15	2.24	4.38	53.73	14.62	187.71	
02/28/07	16:24:30	2.25	4.39	53.53	14.62	166.34	
02/28/07	16:24:45	2.30	4.38	53.00	14.62	148.47	
02/28/07	16:25:00	2.16	4.43	52.84	14.62	148.85	
02/28/07	16:25:15	2.20	4.41	52.89	14.62	142.22	
02/28/07	16:25:30	2.24	4.40	53.16	14.62	130.85	
02/28/07	16:25:45	2.24	4.39	53.25	14.64	120.10	
02/28/07	16:26:00	2.25	4.38	53.16	14.72	104.34	
02/28/07	16:26:15	2.28	4.38	53.25	14.74	90.34	
02/28/07	16:26:30	2.24	4.39	53.40	14.62	79.60	
02/28/07	16:26:45	2.15	4.41	53.87	14.62	62.34	
02/28/07	16:27:00	2.13	4.42	54.14	14.62	95.89	
02/28/07	16:27:15	2.15	4.41	54.37	14.78	111.21	
02/28/07	16:27:30	2.23	4.38	54.51	14.72	128.10	
02/28/07	16:27:45	2.29	4.35	54.76	14.72	139.97	
02/28/07	16:28:00	2.30	4.35	54.88	14.72	163.64	
02/28/07	16:28:15	2.31	4.34	54.86	14.72	169.59	
02/28/07	16:28:30	2.33	4.33	54.94	14.72	159.34	
02/28/07	16:28:45	2.25	4.38	54.89	14.72	181.21	
02/28/07	16:29:00	2.22	4.37	54.96	14.71	229.63	
02/28/07	16:29:15	2.31	4.34	54.62	14.72	251.20	
02/28/07	16:29:30	2.38	4.33	54.57	14.84	245.83	
02/28/07	16:29:45	2.40	4.33	54.33	14.46	223.58	
02/28/07	16:30:00	2.33	4.35	54.16	14.49	215.83	
02/28/07	16:30:15	2.27	4.37	54.23	14.52	219.70	
02/28/07	16:30:30	2.32	4.38	54.16	14.59	232.63	
02/28/07	16:30:45	2.34	4.37	53.19	14.62	213.83	
02/28/07	16:31:00	2.31	4.38	52.42	14.62	183.34	
02/28/07	16:31:15	2.31	4.37	51.94	14.72	164.09	
02/28/07	16:31:30	2.31	4.39	51.89	14.72	150.64	
02/28/07	16:31:45	2.29	4.38	51.88	14.77	142.10	
02/28/07	16:32:00	2.29	4.37	52.00	14.62	132.84	
02/28/07	16:32:15	2.24	4.38	52.21	14.67	139.22	
02/28/07	16:32:30	2.22	4.37	52.42	14.82	166.09	
02/28/07	16:32:45	2.28	4.35	52.53	14.67	162.96	
02/28/07	16:33:00	2.39	4.33	52.55	14.69	191.58	
02/28/07	16:33:15	2.41	4.32	52.54	14.67	180.98	
02/28/07	16:33:30	2.43	4.34	52.49	14.62	163.34	
02/28/07	16:33:45	2.35	4.38	52.61	14.62	158.34	
02/28/07	16:34:00	2.35	4.38	53.00	14.62	158.09	
02/28/07	16:34:15	2.36	4.37	53.06	14.72	152.09	
02/28/07	16:34:30	2.37	4.37	53.15	14.72	138.85	
02/28/07	16:34:45	2.33	4.38	53.16	14.72	132.47	
02/28/07	16:35:00	2.33	4.35	53.13	14.72	129.85	
02/28/07	16:35:15	2.34	4.35	53.30	14.72	129.22	
02/28/07	16:35:30	2.32	4.35	53.58	14.72	121.95	
02/28/07	16:35:45	2.28	4.37	53.77	14.62	125.85	
02/28/07	16:36:00	2.20	4.39	53.88	14.62	158.60	
02/28/07	16:36:15	2.27	4.38	53.63	14.62	176.86	
02/28/07	16:36:30	2.39	4.33	53.21	14.69	190.34	
02/28/07	16:36:45	2.42	4.32	52.67	14.62	196.09	
02/28/07	16:37:00	2.41	4.32	52.75	14.62	167.09	
02/28/07	16:37:15	2.38	4.33	52.76	14.62	166.21	
02/28/07	16:37:30	2.30	4.35	52.91	14.62	192.59	
02/28/07	16:37:45	2.31	4.35	52.95	14.57	196.21	
02/28/07	16:38:00	2.27	4.36	52.67	14.52	166.59	
02/28/07	16:38:15	2.30	4.35	52.83	14.57	162.46	
02/28/07	16:38:30	2.30	4.36	52.41	14.52	203.08	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	16:40:00	2.31	4.36	49.47	14.51	152.09	
02/28/07	16:40:15	2.29	4.37	49.75	14.57	153.22	
02/28/07	16:40:30	2.29	4.37	50.07	14.69	155.34	
02/28/07	16:40:45	2.31	4.37	50.16	14.72	160.46	
02/28/07	16:41:00	2.31	4.37	50.20	14.84	165.09	
02/28/07	16:41:15	2.37	4.35	50.21	14.62	148.97	
02/28/07	16:41:30	2.40	4.36	50.29	14.62	131.80	
02/28/07	16:41:45	2.28	4.39	50.42	14.71	121.60	
02/28/07	16:42:00	2.25	4.40	50.90	14.72	121.10	
02/28/07	16:42:15	2.18	4.41	51.29	14.67	133.65	
02/28/07	16:42:30	2.23	4.38	51.16	14.62	139.10	
02/28/07	16:42:45	2.30	4.35	50.77	14.57	138.85	
02/28/07	16:43:00	2.29	4.35	50.61	14.59	149.09	
02/28/07	16:43:15	2.28	4.35	50.84	14.67	167.59	
02/28/07	16:43:30	2.35	4.33	50.69	14.62	181.84	
02/28/07	16:43:45	2.37	4.33	50.78	14.52	199.09	
02/28/07	16:44:00	2.33	4.34	50.65	14.52	216.33	
02/28/07	16:44:15	2.36	4.33	50.60	14.62	225.57	
02/28/07	16:44:30	2.39	4.32	50.74	14.62	225.33	
02/28/07	16:44:45	2.39	4.33	50.69	14.62	216.58	
02/28/07	16:45:00	2.34	4.35	50.81	14.62	203.09	
02/28/07	16:45:15	2.31	4.36	50.89	14.52	196.71	
02/28/07	16:45:30	2.31	4.37	50.68	14.44	160.59	
02/28/07	16:45:45	2.29	4.38	50.47	14.52	178.09	
02/28/07	16:46:00	2.28	4.37	50.23	14.59	174.34	
02/28/07	16:46:15	2.35	4.35	49.91	14.62	168.33	
02/28/07	16:46:30	2.36	4.35	49.85	14.62	178.09	
02/28/07	16:46:45	2.32	4.36	49.67	14.57	181.46	
02/28/07	16:47:00	2.34	4.35	49.88	14.52	206.08	
02/28/07	16:47:15	2.34	4.36	49.78	14.57	216.20	
02/28/07	16:47:30	2.40	4.35	49.50	14.62	205.59	
02/28/07	16:47:45	2.36	4.35	49.40	14.62	194.71	
02/28/07	16:48:00	2.35	4.35	49.58	14.54	174.09	
02/28/07	16:48:15	2.36	4.35	49.79	14.51	152.72	
02/28/07	16:48:30	2.29	4.38	49.86	14.59	158.59	
02/28/07	16:48:45	2.29	4.36	48.80	14.51	173.34	
02/28/07	16:49:00	2.33	4.37	47.49	14.52	178.64	
02/28/07	16:49:15	2.35	4.35	48.42	14.52	181.22	
02/28/07	16:49:30	2.39	4.35	48.08	14.52	178.34	
02/28/07	16:49:45	2.40	4.35	49.13	14.52	155.21	
02/28/07	16:50:00	2.39	4.34	49.42	14.52	121.34	
02/28/07	16:50:15	2.29	4.38	48.93	14.57	117.72	
02/28/07	16:50:30	2.17	4.41	47.59	14.44	139.65	
02/28/07	16:50:45	2.23	4.38	48.15	14.47	138.80	
02/28/07	16:51:00	2.35	4.35	48.35	14.52	124.10	
02/28/07	16:51:15	2.27	4.36	48.55	14.62	138.80	
02/28/07	16:51:30	2.23	4.36	49.02	14.54	189.09	
02/28/07	16:51:45	2.30	4.35	49.27	14.47	207.96	
02/28/07	16:52:00	2.36	4.34	49.26	14.42	233.08	
02/28/07	16:52:15	2.43	4.32	49.00	14.42	235.70	
02/28/07	16:52:30	2.46	4.30	48.69	14.42	246.33	
02/28/07	16:52:45	2.47	4.30	48.58	14.42	258.20	
02/28/07	16:53:00	2.51	4.30	48.63	14.49	252.57	
02/28/07	16:53:15	2.47	4.32	48.61	14.52	256.62	
02/28/07	16:53:30	2.42	4.34	48.67	14.52	269.57	
02/28/07	16:53:45	2.47	4.33	49.46	14.52	259.20	
02/28/07	16:54:00	2.46	4.33	48.26	14.51	228.58	
02/28/07	16:54:15	2.47	4.33	48.01	14.51	185.96	
02/28/07	16:54:30	2.40	4.38	48.03	14.52	166.84	
02/28/07	16:54:45	2.29	4.38	48.39	14.52	190.46	
02/28/07	16:55:00	2.33	4.37	48.52	14.51	214.08	
02/28/07	16:55:15	2.46	4.34	48.36	14.56	208.96	
02/28/07	16:55:30	2.47	4.34	48.18	14.62	197.59	
02/28/07	16:55:45	2.41	4.36	48.07	14.62	194.58	
02/28/07	16:56:00	2.39	4.36	48.07	14.69	189.59	
02/28/07	16:56:15	2.39	4.35	48.16	14.72	181.21	
02/28/07	16:56:30	2.42	4.34	48.29	14.69	171.34	
02/28/07	16:56:45	2.40	4.38	48.59	14.57	170.34	
02/28/07	16:57:00	2.37	4.36	48.83	14.51	190.34	
02/28/07	16:57:15	2.39	4.35	48.67	14.51	202.09	
02/28/07	16:57:30	2.47	4.32	48.65	14.52	201.34	
02/28/07	16:57:45	2.47	4.32	47.19	14.51	192.96	
02/28/07	16:58:00	2.38	4.33	48.71	14.52	197.33	
02/28/07	16:58:15	2.35	4.33	48.70	14.51	215.21	
02/28/07	16:58:30	2.38	4.31	48.67	14.44	242.08	
02/28/07	16:58:45	2.40	4.30	47.20	14.42	269.95	
02/28/07	16:59:00	2.43	4.31	47.42	14.42	290.56	
02/28/07	16:59:15	2.44	4.31	47.45	14.42	303.93	
02/28/07	16:59:30	2.47	4.31	47.46	14.44	307.31	
02/28/07	16:59:45	2.46	4.31	47.62	14.57	307.06	
02/28/07	17:00:00	2.47	4.32	47.73	14.51	307.56	
02/28/07	17:00:15	2.46	4.33	47.73	14.47	300.94	
02/28/07	17:00:30	2.48	4.33	47.71	14.52	302.81	
02/28/07	17:00:45	2.45	4.34	47.94	14.47	308.94	
02/28/07	17:01:00	2.46	4.33	48.27	14.42	289.31	
02/28/07	17:01:15	2.50	4.32	48.14	14.42	238.83	
02/28/07	17:01:30	2.45	4.33	47.84	14.42	200.58	
02/28/07	17:01:45	2.38	4.35	47.80	14.42	179.96	
02/28/07	17:02:00	2.38	4.35	47.58	14.42	174.84	
02/28/07	17:02:15	2.35	4.35	47.55	14.47	184.84	
02/28/07	17:02:30	2.39	4.34	47.64	14.52	184.84	
02/28/07	17:02:45	2.36	4.35	47.81	14.47	172.09	End Run 5
02/28/07	17:03:00	2.31	4.37	47.79	14.49	161.59	
02/28/07	17:03:15	2.33	4.36	47.72	14.51	146.22	
02/28/07	17:03:30	2.28	4.38	47.91	14.49	156.59	
02/28/07	17:03:45	2.28	4.36	48.28	14.42	166.84	
02/28/07	17:04:00	2.40	4.35	48.52	14.39	119.84	
02/28/07	17:04:15	2.30	3.51	47.16	14.37	37.84	
02/28/07	17:04:30	1.17	1.09	44.60	13.67	5.86	
02/28/07	17:04:45	0.19	0.17	44.12	8.97	0.80	
02/28/07	17:05:00	0.02	0.07	44.14	3.99	0.35	
02/28/07	17:05:15	0.00	0.06	44.29	0.67	0.10	
02/28/07	17:05:30	0.00	0.05	44.40	0.29	0.10	System Bias
02/28/07	17:05:45	0.00	0.04	44.88	0.17	0.10	45.0ppm SO ₂ Injection
02/28/07	17:06:00	0.00	0.04	45.19	0.12	0.10	45.10 ppm SO ₂
02/28/07	17:06:15	-0.01	0.03	45.18	0.12	10.23	
02/28/07	17:06:30	0.00	0.04	45.17	0.12	40.35	
02/28/07	17:06:45	0.30	0.82	42.44	0.12	74.47	
02/28/07	17:07:00	0.70	1.12	34.26	0.99	123.34	
02/28/07	17:07:15	0.24	0.26	20.50	2.17	171.22	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	17:08:30	-0.01	0.02	3.47	0.12	179.09	180.0ppm CO Injection
02/28/07	17:08:45	-0.01	0.02	2.80	0.12	179.09	
02/28/07	17:09:00	-0.01	0.02	2.21	0.12	179.09	
02/28/07	17:09:15	-0.01	0.02	1.77	0.12	179.59	
02/28/07	17:09:30	-0.01	0.02	1.51	0.12	171.59	179.21 ppm CO
02/28/07	17:09:45	-0.01	0.05	1.24	0.12	139.34	
02/28/07	17:10:00	0.31	0.89	1.10	0.09	80.10	
02/28/07	17:10:15	0.39	0.59	1.03	1.12	14.98	
02/28/07	17:10:30	0.08	0.09	0.96	7.94	2.85	
02/28/07	17:10:45	0.00	0.02	0.78	27.01	0.98	
02/28/07	17:11:00	0.00	0.01	0.62	38.79	0.80	
02/28/07	17:11:15	0.00	0.01	0.68	41.71	0.82	
02/28/07	17:11:30	-0.01	0.01	0.40	42.99	0.80	
02/28/07	17:11:45	-0.01	0.01	0.38	43.47	0.50	
02/28/07	17:12:00	-0.01	0.01	0.32	44.43	0.10	
02/28/07	17:12:15	-0.01	0.01	0.29	44.91	0.81	
02/28/07	17:12:30	-0.01	0.01	0.25	45.23	0.35	System Bias
02/28/07	17:12:45	-0.01	0.01	0.27	45.31	0.10	45.0ppm NO _x Injection
02/28/07	17:13:00	-0.01	0.01	0.24	45.41	0.10	
02/28/07	17:13:15	-0.01	0.01	0.16	45.41	0.10	
02/28/07	17:13:30	-0.01	0.01	0.12	45.41	0.11	
02/28/07	17:13:45	-0.01	0.01	0.09	45.41	1.80	
02/28/07	17:14:00	-0.01	0.01	0.08	45.41	14.10	
02/28/07	17:14:15	0.11	0.39	0.08	45.41	21.47	
02/28/07	17:14:30	1.65	2.85	0.08	44.48	10.80	
02/28/07	17:14:45	5.44	8.66	0.13	39.99	0.80	
02/28/07	17:15:00	8.61	9.04	0.09	23.74	-1.15	
02/28/07	17:15:15	9.76	9.80	0.07	11.99	-1.40	
02/28/07	17:15:30	9.87	9.54	0.03	2.19	-1.40	
02/28/07	17:15:45	9.89	9.56	-0.03	1.02	-1.77	
02/28/07	17:16:00	9.90	9.70	0.02	0.39	-1.40	
02/28/07	17:16:15	9.91	9.81	-0.03	0.32	-1.40	
02/28/07	17:16:30	9.91	9.87	-0.04	0.22	-1.40	
02/28/07	17:16:45	9.92	9.89	-0.04	0.22	-1.52	
02/28/07	17:17:00	9.92	9.89	-0.10	0.22	-1.52	
02/28/07	17:17:15	9.92	9.90	-0.15	0.17	-1.90	
02/28/07	17:17:30	9.92	9.91	-0.16	0.12	-1.52	System Bias
02/28/07	17:17:45	9.92	9.91	-0.15	0.12	-1.40	10.0% O ₂ /CO ₂ Injection
02/28/07	17:18:00	9.93	9.91	-0.13	0.12	-1.39	
02/28/07	17:18:15	9.93	9.92	-0.13	0.12	-1.38	
02/28/07	17:18:30	9.93	9.92	-0.16	0.12	25.97	
02/28/07	17:18:45	9.89	9.74	-0.10	0.12	86.22	
02/28/07	17:19:00	8.22	7.08	3.16	0.12	145.47	
02/28/07	17:19:15	3.97	4.91	15.88	1.87	172.34	
02/28/07	17:19:30	2.49	4.43	24.45	7.97	184.71	
02/28/07	17:19:45	2.39	4.39	29.30	11.76	202.59	
02/28/07	17:20:00	2.38	4.38	33.85	13.59	219.45	
02/28/07	17:20:15	2.37	4.37	37.84	13.87	233.70	
02/28/07	17:20:30	2.36	4.36	40.88	13.94	259.20	
02/28/07	17:20:45	2.40	4.33	42.38	14.02	276.69	
02/28/07	17:21:00	2.47	4.31	43.47	14.02	275.94	Start Run 6
02/28/07	17:21:15	2.49	4.32	44.21	14.02	278.69	
02/28/07	17:21:30	2.48	4.32	45.04	13.94	302.69	
02/28/07	17:21:45	2.48	4.33	45.76	14.02	333.81	
02/28/07	17:22:00	2.48	4.33	46.20	14.02	338.72	
02/28/07	17:22:15	2.52	4.32	46.29	14.04	323.39	
02/28/07	17:22:30	2.54	4.31	46.04	14.02	291.47	
02/28/07	17:22:45	2.50	4.31	46.03	14.02	258.07	
02/28/07	17:23:00	2.47	4.33	46.09	14.04	244.95	
02/28/07	17:23:15	2.43	4.34	46.27	14.11	244.95	
02/28/07	17:23:30	2.44	4.33	46.38	14.22	237.48	
02/28/07	17:23:45	2.48	4.33	46.41	14.22	201.98	
02/28/07	17:24:00	2.43	4.34	46.84	14.22	172.72	
02/28/07	17:24:15	2.32	4.36	46.98	14.22	176.84	
02/28/07	17:24:30	2.37	4.34	47.06	14.24	188.59	
02/28/07	17:24:45	2.46	4.33	47.13	14.32	200.59	
02/28/07	17:25:00	2.44	4.34	47.28	14.44	212.98	
02/28/07	17:25:15	2.49	4.33	47.32	14.44	203.59	
02/28/07	17:25:30	2.51	4.33	47.15	14.34	199.09	
02/28/07	17:25:45	2.45	4.35	47.10	14.42	193.34	
02/28/07	17:26:00	2.48	4.34	47.16	14.42	159.22	
02/28/07	17:26:15	2.48	4.34	47.31	14.42	128.47	
02/28/07	17:26:30	2.38	4.38	47.44	14.44	130.97	
02/28/07	17:26:45	2.24	4.38	47.55	14.51	158.84	
02/28/07	17:27:00	2.30	4.37	47.39	14.49	190.71	
02/28/07	17:27:15	2.38	4.33	47.19	14.34	195.94	
02/28/07	17:27:30	2.45	4.31	47.01	14.22	189.96	
02/28/07	17:27:45	2.39	4.32	47.13	14.22	220.33	
02/28/07	17:28:00	2.39	4.32	47.52	14.22	239.83	
02/28/07	17:28:15	2.43	4.30	47.77	14.22	242.08	
02/28/07	17:28:30	2.47	4.30	47.92	14.29	242.09	
02/28/07	17:28:45	2.43	4.31	46.12	14.22	258.57	
02/28/07	17:29:00	2.44	4.30	48.24	14.32	248.95	
02/28/07	17:29:15	2.48	4.30	48.22	14.32	233.06	
02/28/07	17:29:30	2.35	4.34	48.32	14.22	259.33	
02/28/07	17:29:45	2.38	4.32	48.38	14.22	285.94	
02/28/07	17:30:00	2.44	4.32	48.25	14.22	243.83	
02/28/07	17:30:15	2.40	4.34	48.21	14.22	239.83	
02/28/07	17:30:30	2.31	4.37	48.32	14.22	252.57	
02/28/07	17:30:45	2.33	4.36	48.28	14.22	281.07	
02/28/07	17:31:00	2.45	4.32	47.84	14.32	253.95	
02/28/07	17:31:15	2.53	4.31	47.29	14.31	227.45	
02/28/07	17:31:30	2.48	4.33	46.95	14.39	205.71	
02/28/07	17:31:45	2.43	4.34	48.73	14.32	188.96	
02/28/07	17:32:00	2.45	4.34	48.63	14.32	159.97	
02/28/07	17:32:15	2.43	4.34	48.47	14.31	138.22	
02/28/07	17:32:30	2.39	4.34	48.40	14.42	130.72	
02/28/07	17:32:45	2.34	4.35	48.52	14.34	130.80	
02/28/07	17:33:00	2.36	4.35	48.71	14.31	125.35	
02/28/07	17:33:15	2.28	4.37	47.11	14.39	138.10	
02/28/07	17:33:30	2.27	4.37	47.44	14.42	142.94	
02/28/07	17:33:45	2.35	4.37	47.89	14.42	150.72	
02/28/07	17:34:00	2.33	4.36	47.90	14.32	165.34	
02/28/07	17:34:15	2.39	4.35	47.98	14.24	170.34	
02/28/07	17:34:30	2.43	4.34	48.29	14.22	189.09	
02/28/07	17:34:45	2.38	4.35	48.58	14.29	189.59	
02/28/07	17:35:00	2.39	4.34	47.76	14.31	195.98	
02/28/07	17:35:15	2.41	4.33	47.99	14.31	195.59	
02/28/07	17:35:30	2.35	4.34	46.89	14.32	198.59	
02/28/07	17:35:45	2.37	4.33	46.88	14.24	204.96	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	17:37:00	2.43	4.31	47.32	14.19	269.82	
02/28/07	17:37:15	2.44	4.31	47.22	14.11	269.07	
02/28/07	17:37:30	2.42	4.31	47.18	14.11	255.95	
02/28/07	17:37:45	2.41	4.31	47.06	14.19	243.96	
02/28/07	17:38:00	2.43	4.32	46.87	14.22	245.45	
02/28/07	17:38:15	2.37	4.33	46.90	14.22	269.72	
02/28/07	17:38:30	2.42	4.32	46.99	14.24	301.19	
02/28/07	17:38:45	2.50	4.30	46.81	14.32	305.61	
02/28/07	17:39:00	2.53	4.31	46.68	14.31	287.69	
02/28/07	17:39:15	2.49	4.32	46.58	14.24	280.75	
02/28/07	17:39:30	2.52	4.31	46.38	14.19	252.32	
02/28/07	17:39:45	2.51	4.31	46.33	14.11	232.67	
02/28/07	17:40:00	2.44	4.33	46.38	14.22	236.58	
02/28/07	17:40:15	2.44	4.32	46.50	14.22	221.95	
02/28/07	17:40:30	2.47	4.33	46.71	14.22	210.48	
02/28/07	17:40:45	2.40	4.34	46.90	14.14	191.58	
02/28/07	17:41:00	2.38	4.33	46.91	14.22	180.58	
02/28/07	17:41:15	2.36	4.32	46.92	14.22	166.85	
02/28/07	17:41:30	2.37	4.32	47.07	14.22	171.84	
02/28/07	17:41:45	2.33	4.34	47.42	14.29	205.83	
02/28/07	17:42:00	2.39	4.33	47.69	14.22	233.58	
02/28/07	17:42:15	2.44	4.33	47.74	14.22	270.07	
02/28/07	17:42:30	2.49	4.31	47.67	14.22	273.19	
02/28/07	17:42:45	2.54	4.30	47.72	14.22	240.58	
02/28/07	17:43:00	2.51	4.32	47.85	14.24	228.08	
02/28/07	17:43:15	2.42	4.32	47.17	14.31	247.83	
02/28/07	17:43:30	2.40	4.31	46.72	14.29	267.45	
02/28/07	17:43:45	2.44	4.30	46.55	14.14	280.32	
02/28/07	17:44:00	2.46	4.30	46.46	14.06	268.04	
02/28/07	17:44:15	2.46	4.29	46.51	14.02	292.56	
02/28/07	17:44:30	2.50	4.30	46.46	14.11	299.19	
02/28/07	17:44:45	2.49	4.31	46.45	14.11	286.82	
02/28/07	17:45:00	2.51	4.32	46.45	14.16	281.57	
02/28/07	17:45:15	2.45	4.34	46.56	14.22	281.07	
02/28/07	17:45:30	2.46	4.34	46.59	14.32	256.45	
02/28/07	17:45:45	2.48	4.34	46.42	14.24	224.83	
02/28/07	17:46:00	2.40	4.34	46.26	14.31	209.09	
02/28/07	17:46:15	2.41	4.33	46.35	14.24	184.58	
02/28/07	17:46:30	2.38	4.32	46.69	14.22	178.97	
02/28/07	17:46:45	2.38	4.32	46.84	14.22	181.58	
02/28/07	17:47:00	2.40	4.32	46.89	14.27	201.34	
02/28/07	17:47:15	2.38	4.32	46.91	14.32	209.09	
02/28/07	17:47:30	2.46	4.31	46.77	14.32	197.09	
02/28/07	17:47:45	2.41	4.34	46.69	14.31	186.09	
02/28/07	17:48:00	2.37	4.35	46.88	14.37	167.21	
02/28/07	17:48:15	2.36	4.36	46.91	14.42	142.85	
02/28/07	17:48:30	2.30	4.37	46.86	14.32	135.10	
02/28/07	17:48:45	2.37	4.35	46.87	14.24	118.09	
02/28/07	17:49:00	2.38	4.34	46.84	14.22	102.97	
02/28/07	17:49:15	2.32	4.36	47.20	14.22	106.58	
02/28/07	17:49:30	2.26	4.36	47.65	14.32	127.47	
02/28/07	17:49:45	2.30	4.35	46.85	14.32	152.84	
02/28/07	17:50:00	2.36	4.33	46.81	14.27	155.47	
02/28/07	17:50:15	2.39	4.32	47.78	14.22	161.34	
02/28/07	17:50:30	2.36	4.33	47.88	14.22	184.34	
02/28/07	17:50:45	2.37	4.32	46.16	14.22	216.33	
02/28/07	17:51:00	2.45	4.30	46.27	14.27	228.96	
02/28/07	17:51:15	2.44	4.30	46.26	14.24	260.83	
02/28/07	17:51:30	2.48	4.31	46.92	14.12	277.07	
02/28/07	17:51:45	2.49	4.30	45.22	14.12	283.32	
02/28/07	17:52:00	2.43	4.31	44.50	14.12	273.82	
02/28/07	17:52:15	2.41	4.30	44.37	14.11	278.07	
02/28/07	17:52:30	2.49	4.29	44.55	14.17	268.20	
02/28/07	17:52:45	2.49	4.31	44.79	14.04	255.32	
02/28/07	17:53:00	2.46	4.32	45.25	14.07	250.20	
02/28/07	17:53:15	2.45	4.32	45.66	14.19	256.32	
02/28/07	17:53:30	2.44	4.32	45.83	14.22	264.70	
02/28/07	17:53:45	2.46	4.32	45.87	14.22	256.07	
02/28/07	17:54:00	2.47	4.31	45.82	14.22	240.21	
02/28/07	17:54:15	2.47	4.31	45.83	14.22	211.09	
02/28/07	17:54:30	2.43	4.33	45.92	14.11	199.59	
02/28/07	17:54:45	2.39	4.33	45.91	14.04	201.09	
02/28/07	17:55:00	2.38	4.34	45.90	14.02	201.09	
02/28/07	17:55:15	2.41	4.33	45.93	14.09	192.34	
02/28/07	17:55:30	2.41	4.32	46.10	14.11	190.71	
02/28/07	17:55:45	2.40	4.31	46.06	14.11	188.84	
02/28/07	17:56:00	2.42	4.30	46.00	14.11	178.59	
02/28/07	17:56:15	2.42	4.32	45.96	14.11	159.59	
02/28/07	17:56:30	2.37	4.32	45.67	14.11	151.34	
02/28/07	17:56:45	2.33	4.35	44.72	14.11	170.84	
02/28/07	17:57:00	2.29	4.36	44.34	14.11	189.09	
02/28/07	17:57:15	2.37	4.34	44.23	14.11	191.59	
02/28/07	17:57:30	2.42	4.33	44.26	14.11	197.97	
02/28/07	17:57:45	2.36	4.34	44.91	14.11	193.58	
02/28/07	17:58:00	2.39	4.34	45.46	14.11	184.96	
02/28/07	17:58:15	2.42	4.33	45.85	14.11	164.58	
02/28/07	17:58:30	2.36	4.35	45.85	14.17	178.59	
02/28/07	17:58:45	2.32	4.35	45.97	14.11	171.34	
02/28/07	17:59:00	2.33	4.34	46.07	14.02	182.22	
02/28/07	17:59:15	2.35	4.32	46.06	14.02	206.09	
02/28/07	17:59:30	2.44	4.31	46.10	14.11	221.57	
02/28/07	17:59:45	2.45	4.31	46.13	14.11	248.33	
02/28/07	18:00:00	2.43	4.32	46.35	14.11	284.57	
02/28/07	18:00:15	2.45	4.32	46.37	14.11	280.32	
02/28/07	18:00:30	2.44	4.30	46.12	14.17	274.07	
02/28/07	18:00:45	2.49	4.29	45.89	14.11	251.57	
02/28/07	18:01:00	2.43	4.31	46.00	14.11	259.20	
02/28/07	18:01:15	2.42	4.30	46.10	14.12	247.33	
02/28/07	18:01:30	2.46	4.30	46.23	14.17	224.21	
02/28/07	18:01:45	2.40	4.32	46.42	14.12	207.59	
02/28/07	18:02:00	2.36	4.33	46.71	14.12	216.06	
02/28/07	18:02:15	2.40	4.32	46.81	14.11	234.58	
02/28/07	18:02:30	2.42	4.31	46.78	14.17	243.70	
02/28/07	18:02:45	2.44	4.30	46.77	14.11	263.32	
02/28/07	18:03:00	2.48	4.30	46.65	14.07	270.45	
02/28/07	18:03:15	2.47	4.30	46.72	14.09	282.82	
02/28/07	18:03:30	2.48	4.31	46.71	14.17	274.20	
02/28/07	18:03:45	2.44	4.31	46.87	14.11	256.32	
02/28/07	18:04:00	2.41	4.32	46.74	14.02	265.32	
02/28/07	18:04:15	2.39	4.33	46.83	14.02	286.57	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	18:05:45	2.24	4.38	50.52	14.02	148.09	
02/28/07	18:06:00	2.24	4.36	48.90	14.02	192.47	
02/28/07	18:06:15	2.23	4.34	48.45	14.02	245.83	
02/28/07	18:06:30	2.33	4.31	48.26	13.97	288.20	
02/28/07	18:06:45	2.38	4.31	48.29	13.92	361.56	
02/28/07	18:07:00	2.46	4.30	48.39	13.87	394.67	
02/28/07	18:07:15	2.48	4.31	48.34	13.82	413.04	
02/28/07	18:07:30	2.47	4.31	48.17	13.82	414.54	
02/28/07	18:07:45	2.47	4.31	48.12	13.89	414.54	
02/28/07	18:08:00	2.47	4.31	47.93	13.91	421.39	
02/28/07	18:08:15	2.52	4.30	47.69	13.92	423.54	
02/28/07	18:08:30	2.50	4.31	48.07	14.02	403.89	
02/28/07	18:08:45	2.48	4.32	48.30	14.02	359.56	
02/28/07	18:09:00	2.48	4.31	48.32	13.97	294.44	
02/28/07	18:09:15	2.42	4.32	48.31	13.99	267.57	
02/28/07	18:09:30	2.35	4.33	48.29	14.07	281.32	
02/28/07	18:09:45	2.41	4.31	48.22	14.11	277.82	
02/28/07	18:10:00	2.45	4.30	48.00	14.11	257.57	
02/28/07	18:10:15	2.41	4.31	47.74	14.14	253.07	
02/28/07	18:10:30	2.38	4.31	47.55	14.22	249.08	
02/28/07	18:10:45	2.43	4.31	47.34	14.14	235.83	
02/28/07	18:11:00	2.41	4.32	47.32	14.11	226.98	
02/28/07	18:11:15	2.36	4.34	47.45	14.18	227.33	
02/28/07	18:11:30	2.37	4.35	47.49	14.22	226.98	
02/28/07	18:11:45	2.39	4.33	47.45	14.14	214.59	
02/28/07	18:12:00	2.36	4.33	47.52	14.12	200.84	
02/28/07	18:12:15	2.35	4.34	47.69	14.09	198.59	
02/28/07	18:12:30	2.32	4.36	47.91	14.07	230.33	
02/28/07	18:12:45	2.29	4.35	48.88	14.19	281.32	
02/28/07	18:13:00	2.41	4.33	48.74	14.22	312.44	
02/28/07	18:13:15	2.49	4.30	45.56	14.14	292.82	
02/28/07	18:13:30	2.44	4.30	45.38	14.07	275.95	
02/28/07	18:13:45	2.38	4.31	45.35	14.02	282.82	
02/28/07	18:14:00	2.40	4.30	45.45	14.02	297.06	
02/28/07	18:14:15	2.44	4.29	45.56	14.02	301.81	
02/28/07	18:14:30	2.48	4.29	45.72	14.02	304.69	
02/28/07	18:14:45	2.48	4.30	45.90	14.02	310.81	
02/28/07	18:15:00	2.50	4.29	48.03	14.02	309.44	
02/28/07	18:15:15	2.49	4.30	48.10	14.02	314.08	
02/28/07	18:15:30	2.46	4.30	48.14	14.02	322.31	
02/28/07	18:15:45	2.47	4.31	48.31	14.02	324.56	
02/28/07	18:16:00	2.44	4.32	48.82	13.97	323.81	
02/28/07	18:16:15	2.39	4.33	48.71	13.91	329.81	
02/28/07	18:16:30	2.40	4.31	48.53	13.92	323.94	
02/28/07	18:16:45	2.43	4.31	48.32	13.92	305.82	
02/28/07	18:17:00	2.42	4.32	48.10	13.97	297.82	
02/28/07	18:17:15	2.40	4.32	48.10	14.02	302.56	
02/28/07	18:17:30	2.42	4.33	48.22	14.02	311.19	
02/28/07	18:17:45	2.44	4.33	48.31	14.02	308.32	
02/28/07	18:18:00	2.44	4.34	48.39	14.02	294.57	
02/28/07	18:18:15	2.44	4.33	48.42	14.02	270.57	
02/28/07	18:18:30	2.42	4.33	48.40	14.02	246.33	
02/28/07	18:18:45	2.39	4.34	48.44	14.07	242.88	
02/28/07	18:19:00	2.36	4.35	48.68	14.02	262.95	
02/28/07	18:19:15	2.40	4.34	48.87	14.02	273.57	
02/28/07	18:19:30	2.41	4.33	47.19	14.02	253.33	
02/28/07	18:19:45	2.40	4.33	47.02	14.02	223.08	
02/28/07	18:20:00	2.36	4.33	48.57	14.02	221.33	
02/28/07	18:20:15	2.35	4.34	45.24	14.04	223.08	
02/28/07	18:20:30	2.38	4.33	44.48	14.11	239.70	
02/28/07	18:20:45	2.32	4.34	44.40	14.11	254.08	End Run 6
02/28/07	18:21:00	2.40	4.33	44.41	14.12	173.98	
02/28/07	18:21:15	3.06	4.93	40.14	14.09	63.10	
02/28/07	18:21:30	5.98	7.43	28.75	13.22	13.11	
02/28/07	18:21:45	9.07	9.31	15.38	10.19	0.35	
02/28/07	18:22:00	9.82	9.73	9.70	4.32	-0.77	
02/28/07	18:22:15	9.87	9.86	6.49	1.22	-1.14	
02/28/07	18:22:30	9.88	9.82	4.61	0.27	-1.40	
02/28/07	18:22:45	9.89	9.71	3.41	0.14	-1.40	
02/28/07	18:23:00	9.91	9.81	2.55	0.12	-1.40	
02/28/07	18:23:15	9.93	9.88	1.99	0.12	-1.39	
02/28/07	18:23:30	9.93	9.92	1.66	0.12	-1.40	
02/28/07	18:23:45	9.93	9.93	1.27	0.12	-1.40	System Bias
02/28/07	18:24:00	9.93	9.93	1.03	0.12	-1.39	10.0% O ₂ /CO ₂ injection
02/28/07	18:24:15	9.93	9.94	0.77	0.12	-1.40	9.93 % Oxygen
02/28/07	18:24:30	9.94	9.94	0.59	0.12	-1.02	9.94 % CO ₂
02/28/07	18:24:45	9.94	9.95	0.51	0.12	8.86	
02/28/07	18:25:00	9.92	9.84	0.37	0.12	30.80	
02/28/07	18:25:15	8.80	7.68	0.45	0.09	82.10	
02/28/07	18:25:30	5.74	4.44	0.73	1.07	142.72	
02/28/07	18:25:45	1.58	1.25	0.78	3.22	173.59	
02/28/07	18:26:00	0.24	0.25	0.88	1.77	177.97	
02/28/07	18:26:15	0.08	0.14	0.46	0.59	178.59	
02/28/07	18:26:30	0.04	0.12	0.31	0.12	178.97	
02/28/07	18:26:45	0.03	0.10	0.23	0.12	179.35	System Bias
02/28/07	18:27:00	0.02	0.04	0.18	0.12	179.59	160.0ppm CO injection
02/28/07	18:27:15	0.02	0.03	0.09	0.12	178.59	0.02 % Oxygen
02/28/07	18:27:30	0.02	0.02	0.00	0.12	178.59	0.03 % CO ₂
02/28/07	18:27:45	0.02	0.01	-0.04	0.02	179.59	0.08 ppm NO _x
02/28/07	18:28:00	0.01	0.02	-0.07	0.02	178.97	179.59 ppm CO
02/28/07	18:28:15	0.01	0.01	-0.10	0.02	174.35	
02/28/07	18:28:30	0.04	0.13	-0.08	0.02	126.97	
02/28/07	18:28:45	0.48	0.81	-0.03	0.24	60.80	
02/28/07	18:29:00	0.33	0.30	-0.06	1.27	7.48	
02/28/07	18:29:15	0.05	0.83	-0.08	17.06	1.85	
02/28/07	18:29:30	0.01	-0.01	-0.14	29.81	0.61	
02/28/07	18:29:45	0.00	-0.01	-0.20	41.08	0.61	
02/28/07	18:30:00	0.00	-0.01	-0.16	41.86	0.61	
02/28/07	18:30:15	0.00	-0.01	-0.16	42.96	0.61	
02/28/07	18:30:30	0.00	-0.01	-0.13	43.71	0.61	
02/28/07	18:30:45	0.00	-0.01	-0.21	44.88	0.61	
02/28/07	18:31:00	0.00	-0.01	-0.23	46.06	0.61	
02/28/07	18:31:15	0.00	-0.01	-0.22	46.23	0.36	
02/28/07	18:31:30	0.00	-0.02	-0.26	46.31	0.11	
02/28/07	18:31:45	0.00	-0.02	-0.29	46.31	0.10	System Bias
02/28/07	18:32:00	0.00	-0.02	-0.32	45.36	0.10	45.0ppm NO _x injection
02/28/07	18:32:15	0.00	-0.02	-0.32	45.41	0.38	-0.32 ppm SO ₂
02/28/07	18:32:30	0.00	-0.03	-0.34	45.41	0.48	45.40 ppm NO _x
02/28/07	18:32:45	0.00	-0.02	-0.31	45.41	0.11	0.26 ppm CO
02/28/07	18:33:00	0.00	-0.02	-0.31	45.41	4.98	
02/28/07	18:33:15	0.00	---	---	---	---	
02/28/07	18:33:30	0.00	---	---	---	---	
02/28/07	18:33:45	0.00	---	---	---	---	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	18:34:15	0.01	-0.01	32.92	16.94	0.11	
02/28/07	18:34:30	0.00	-0.03	37.96	5.17	0.10	
02/28/07	18:34:45	0.00	-0.03	40.58	0.84	0.11	
02/28/07	18:35:00	0.00	-0.03	42.23	0.52	0.11	
02/28/07	18:35:15	0.00	-0.03	43.14	0.40	0.16	
02/28/07	18:35:30	-0.01	-0.03	43.80	0.32	0.10	
02/28/07	18:35:45	0.00	-0.03	44.25	0.22	0.10	
02/28/07	18:36:00	0.00	-0.03	44.76	0.22	0.10	
02/28/07	18:36:15	-0.01	-0.04	45.18	0.22	0.10	System Bias
02/28/07	18:36:30	-0.01	-0.03	45.30	0.22	0.10	45.0ppm SO ₂ Injection
02/28/07	18:36:45	0.00	-0.03	45.42	0.12	0.10	45.36 ppm SO ₂
02/28/07	18:37:00	0.00	-0.03	45.54	0.12	0.10	
02/28/07	18:37:15	0.00	-0.03	45.63	0.12	4.36	
02/28/07	18:37:30	0.00	-0.03	45.59	0.12	63.00	
02/28/07	18:37:45	0.33	1.02	43.30	0.14	137.59	
02/28/07	18:38:00	1.50	3.29	41.66	0.22	203.09	
02/28/07	18:38:15	2.19	4.11	40.61	5.72	210.35	
02/28/07	18:38:30	2.25	4.24	39.07	10.07	242.95	
02/28/07	18:38:45	2.28	4.24	38.67	13.27	253.58	
02/28/07	18:39:00	2.37	4.23	39.67	13.57	224.48	
02/28/07	18:39:15	2.36	4.24	42.09	13.72	210.34	
02/28/07	18:39:30	2.29	4.25	43.84	13.71	188.21	
02/28/07	18:39:45	2.29	4.25	44.61	13.84	185.84	
02/28/07	18:40:00	2.23	4.27	45.30	13.77	207.59	Start Run 7
02/28/07	18:40:15	2.27	4.28	45.85	13.82	228.83	
02/28/07	18:40:30	2.27	4.27	46.19	13.82	256.45	
02/28/07	18:40:45	2.37	4.25	46.31	13.82	256.08	
02/28/07	18:41:00	2.40	4.25	46.38	13.82	246.33	
02/28/07	18:41:15	2.36	4.26	46.49	13.82	238.59	
02/28/07	18:41:30	2.39	4.26	46.72	13.82	232.84	
02/28/07	18:41:45	2.36	4.26	46.79	13.82	233.59	
02/28/07	18:42:00	2.38	4.26	46.97	13.82	228.83	
02/28/07	18:42:15	2.35	4.28	47.19	13.82	233.84	
02/28/07	18:42:30	2.30	4.28	47.40	13.82	243.98	
02/28/07	18:42:45	2.32	4.28	47.38	13.82	268.83	
02/28/07	18:43:00	2.38	4.23	47.40	13.82	282.95	
02/28/07	18:43:15	2.45	4.22	47.39	13.94	288.07	
02/28/07	18:43:30	2.42	4.23	47.55	13.94	303.19	
02/28/07	18:43:45	2.40	4.24	47.79	13.82	324.58	
02/28/07	18:44:00	2.48	4.23	48.51	13.82	323.81	
02/28/07	18:44:15	2.47	4.24	48.91	13.94	312.29	
02/28/07	18:44:30	2.48	4.24	48.48	14.02	281.94	
02/28/07	18:44:45	2.47	4.24	48.06	13.92	277.43	
02/28/07	18:45:00	2.45	4.25	47.89	13.82	288.69	
02/28/07	18:45:15	2.43	4.25	47.77	14.04	289.07	
02/28/07	18:45:30	2.47	4.25	47.94	14.12	280.07	
02/28/07	18:45:45	2.48	4.25	47.69	14.09	256.06	
02/28/07	18:46:00	2.45	4.26	47.85	14.02	231.48	
02/28/07	18:46:15	2.39	4.26	47.52	14.12	217.59	
02/28/07	18:46:30	2.42	4.25	47.45	14.12	191.34	
02/28/07	18:46:45	2.39	4.27	47.85	14.12	180.09	
02/28/07	18:47:00	2.28	4.29	48.09	14.04	179.65	
02/28/07	18:47:15	2.27	4.30	48.41	14.02	180.22	
02/28/07	18:47:30	2.27	4.30	48.57	14.02	185.22	
02/28/07	18:47:45	2.28	4.29	48.58	14.12	211.09	
02/28/07	18:48:00	2.31	4.28	48.52	14.12	234.71	
02/28/07	18:48:15	2.39	4.27	48.47	14.14	234.71	
02/28/07	18:48:30	2.39	4.28	48.45	14.14	241.71	
02/28/07	18:48:45	2.36	4.28	48.42	14.12	241.71	
02/28/07	18:49:00	2.38	4.27	48.34	14.12	233.71	
02/28/07	18:49:15	2.39	4.28	48.25	14.09	211.98	
02/28/07	18:49:30	2.40	4.25	48.03	14.02	197.47	
02/28/07	18:49:45	2.34	4.27	47.95	14.02	181.84	
02/28/07	18:50:00	2.30	4.28	48.02	14.02	199.47	
02/28/07	18:50:15	2.28	4.28	48.12	14.02	212.96	
02/28/07	18:50:30	2.28	4.29	48.80	14.02	256.45	
02/28/07	18:50:45	2.39	4.28	48.69	14.02	269.58	
02/28/07	18:51:00	2.43	4.25	47.43	14.09	244.08	
02/28/07	18:51:15	2.37	4.27	48.57	14.12	225.71	
02/28/07	18:51:30	2.38	4.26	48.22	14.04	198.34	
02/28/07	18:51:45	2.33	4.28	45.88	14.02	188.72	
02/28/07	18:52:00	2.26	4.31	45.85	14.02	189.09	
02/28/07	18:52:15	2.25	4.30	45.86	14.12	202.22	
02/28/07	18:52:30	2.26	4.29	45.84	14.04	227.71	
02/28/07	18:52:45	2.33	4.26	45.79	14.02	240.09	
02/28/07	18:53:00	2.42	4.24	45.77	14.02	216.83	
02/28/07	18:53:15	2.44	4.24	45.87	14.02	188.21	
02/28/07	18:53:30	2.28	4.30	49.11	14.02	185.48	
02/28/07	18:53:45	2.15	4.31	48.44	14.02	192.48	
02/28/07	18:54:00	2.27	4.28	48.51	14.02	212.34	
02/28/07	18:54:15	2.32	4.28	48.30	13.82	216.84	
02/28/07	18:54:30	2.36	4.25	45.91	13.99	221.58	
02/28/07	18:54:45	2.35	4.26	45.84	14.12	235.83	
02/28/07	18:55:00	2.37	4.28	48.06	14.12	229.98	
02/28/07	18:55:15	2.37	4.27	48.26	13.99	239.71	
02/28/07	18:55:30	2.32	4.29	48.28	13.92	235.58	
02/28/07	18:55:45	2.36	4.28	48.35	13.92	213.09	
02/28/07	18:56:00	2.27	4.31	48.42	13.99	224.58	
02/28/07	18:56:15	2.33	4.28	48.00	14.02	235.48	
02/28/07	18:56:30	2.37	4.26	45.71	13.94	227.29	
02/28/07	18:56:45	2.38	4.27	45.51	13.92	228.33	
02/28/07	18:57:00	2.36	4.26	45.44	13.84	250.33	
02/28/07	18:57:15	2.41	4.24	45.42	13.82	268.45	
02/28/07	18:57:30	2.48	4.23	45.34	13.82	249.58	
02/28/07	18:57:45	2.44	4.24	45.32	13.82	210.22	
02/28/07	18:58:00	2.37	4.28	45.58	13.82	193.09	
02/28/07	18:58:15	2.27	4.29	45.88	13.94	207.72	
02/28/07	18:58:30	2.30	4.28	48.13	14.02	236.59	
02/28/07	18:58:45	2.34	4.28	48.85	14.02	252.71	
02/28/07	18:59:00	2.40	4.28	48.76	13.94	234.58	
02/28/07	18:59:15	2.38	4.26	48.53	13.82	212.09	
02/28/07	18:59:30	2.32	4.27	48.49	13.92	205.22	
02/28/07	18:59:45	2.28	4.28	48.93	13.82	213.84	
02/28/07	19:00:00	2.30	4.28	47.04	13.82	224.71	
02/28/07	19:00:15	2.32	4.28	47.09	13.82	240.84	
02/28/07	19:00:30	2.30	4.28	47.13	13.99	249.71	
02/28/07	19:00:45	2.32	4.27	48.95	14.02	257.58	
02/28/07	19:01:00	2.38	4.28	48.71	13.94	247.33	
02/28/07	19:01:15	2.36	4.28	48.69	13.84	228.71	
02/28/07	19:01:30	2.32	4.28	48.71	13.84	214.63	

Reference Method 15-second Averages						
Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO
02/28/07	19:02:45	2.34	4.28	44.89	14.02	192.34
02/28/07	19:03:00	2.35	4.28	45.13	13.94	188.97
02/28/07	19:03:15	2.32	4.27	45.52	14.02	181.84
02/28/07	19:03:30	2.32	4.28	45.84	14.02	179.47
02/28/07	19:03:45	2.23	4.31	46.11	14.02	208.34
02/28/07	19:04:00	2.27	4.29	46.18	13.94	211.59
02/28/07	19:04:15	2.38	4.28	45.98	14.02	190.59
02/28/07	19:04:30	2.33	4.29	45.65	14.02	178.97
02/28/07	19:04:45	2.31	4.29	45.56	14.02	183.59
02/28/07	19:05:00	2.32	4.29	45.81	14.02	155.85
02/28/07	19:05:15	2.28	4.32	46.23	14.02	170.09
02/28/07	19:05:30	2.27	4.31	46.28	14.09	151.10
02/28/07	19:05:45	2.30	4.31	46.20	14.12	131.80
02/28/07	19:06:00	2.18	4.34	46.40	14.04	128.48
02/28/07	19:06:15	2.17	4.33	46.88	14.02	135.80
02/28/07	19:06:30	2.18	4.31	46.83	14.02	151.84
02/28/07	19:06:45	2.25	4.28	46.97	14.12	170.22
02/28/07	19:07:00	2.28	4.27	47.04	14.12	191.97
02/28/07	19:07:15	2.33	4.28	46.97	14.12	210.34
02/28/07	19:07:30	2.38	4.28	46.31	14.04	249.83
02/28/07	19:07:45	2.42	4.25	44.91	14.02	238.59
02/28/07	19:08:00	2.44	4.23	44.27	14.02	213.84
02/28/07	19:08:15	2.35	4.28	44.12	13.82	228.21
02/28/07	19:08:30	2.35	4.28	44.30	13.89	237.33
02/28/07	19:08:45	2.43	4.28	44.54	14.07	233.21
02/28/07	19:09:00	2.42	4.27	44.71	14.12	225.96
02/28/07	19:09:15	2.40	4.28	44.94	14.12	209.48
02/28/07	19:09:30	2.38	4.28	45.12	13.97	213.22
02/28/07	19:09:45	2.32	4.27	45.12	13.87	219.58
02/28/07	19:10:00	2.35	4.25	45.83	13.89	225.33
02/28/07	19:10:15	2.37	4.24	44.91	14.02	233.96
02/28/07	19:10:30	2.41	4.24	44.91	14.02	231.96
02/28/07	19:10:45	2.40	4.25	45.03	14.02	253.33
02/28/07	19:11:00	2.38	4.25	45.23	14.02	280.20
02/28/07	19:11:15	2.48	4.24	45.19	14.02	283.57
02/28/07	19:11:30	2.48	4.24	44.94	14.02	249.70
02/28/07	19:11:45	2.48	4.25	44.75	13.82	208.47
02/28/07	19:12:00	2.38	4.28	45.02	13.82	187.22
02/28/07	19:12:15	2.30	4.30	45.58	14.02	183.21
02/28/07	19:12:30	2.29	4.30	46.05	13.84	188.34
02/28/07	19:12:45	2.35	4.28	46.13	13.82	188.72
02/28/07	19:13:00	2.34	4.28	45.83	13.82	174.10
02/28/07	19:13:15	2.29	4.29	45.88	13.87	185.72
02/28/07	19:13:30	2.29	4.28	45.81	13.82	214.47
02/28/07	19:13:45	2.42	4.25	44.15	13.82	230.58
02/28/07	19:14:00	2.44	4.25	43.38	13.89	219.78
02/28/07	19:14:15	2.39	4.27	43.38	13.87	218.71
02/28/07	19:14:30	2.32	4.29	43.44	13.89	228.86
02/28/07	19:14:45	2.35	4.27	43.87	14.02	240.50
02/28/07	19:15:00	2.36	4.27	43.91	14.02	246.86
02/28/07	19:15:15	2.40	4.25	44.10	14.02	236.96
02/28/07	19:15:30	2.42	4.25	44.27	14.02	225.18
02/28/07	19:15:45	2.41	4.28	44.56	13.87	220.83
02/28/07	19:16:00	2.41	4.28	44.84	14.09	215.33
02/28/07	19:16:15	2.40	4.28	45.05	14.02	195.59
02/28/07	19:16:30	2.38	4.28	45.27	14.02	189.59
02/28/07	19:16:45	2.29	4.28	45.41	14.02	203.34
02/28/07	19:17:00	2.37	4.28	45.35	14.18	214.42
02/28/07	19:17:15	2.42	4.25	45.48	14.02	208.48
02/28/07	19:17:30	2.38	4.27	45.84	14.09	214.34
02/28/07	19:17:45	2.33	4.27	45.94	14.12	218.23
02/28/07	19:18:00	2.34	4.27	46.22	14.12	241.33
02/28/07	19:18:15	2.34	4.27	46.32	13.97	244.33
02/28/07	19:18:30	2.42	4.25	46.28	13.82	210.84
02/28/07	19:18:45	2.35	4.27	46.28	13.82	210.34
02/28/07	19:19:00	2.30	4.27	46.28	13.82	214.34
02/28/07	19:19:15	2.37	4.28	46.18	13.82	191.09
02/28/07	19:19:30	2.31	4.29	45.82	13.82	181.09
02/28/07	19:19:45	2.28	4.29	44.87	13.82	187.97
02/28/07	19:20:00	2.32	4.26	44.16	13.89	198.34
02/28/07	19:20:15	2.38	4.28	43.71	14.12	194.47
02/28/07	19:20:30	2.35	4.27	43.85	14.12	181.85
02/28/07	19:20:45	2.27	4.29	44.23	14.02	177.85
02/28/07	19:21:00	2.25	4.31	44.50	13.94	198.84
02/28/07	19:21:15	2.19	4.31	45.15	14.02	223.34
02/28/07	19:21:30	2.28	4.28	45.56	14.02	236.84
02/28/07	19:21:45	2.39	4.25	45.55	14.02	221.59
02/28/07	19:22:00	2.42	4.25	45.63	13.94	188.84
02/28/07	19:22:15	2.35	4.28	45.78	13.82	173.47
02/28/07	19:22:30	2.22	4.32	46.17	13.89	203.34
02/28/07	19:22:45	2.18	4.31	46.35	14.07	238.71
02/28/07	19:23:00	2.32	4.28	46.21	14.02	247.58
02/28/07	19:23:15	2.43	4.24	45.92	14.02	249.96
02/28/07	19:23:30	2.47	4.24	45.72	14.02	243.09
02/28/07	19:23:45	2.48	4.24	45.84	13.97	219.84
02/28/07	19:24:00	2.40	4.27	45.73	14.02	187.84
02/28/07	19:24:15	2.29	4.30	45.82	14.02	171.84
02/28/07	19:24:30	2.31	4.28	45.63	14.02	143.35
02/28/07	19:24:45	2.24	4.31	45.81	14.02	134.98
02/28/07	19:25:00	2.17	4.32	45.93	14.09	135.10
02/28/07	19:25:15	2.17	4.31	48.14	13.97	155.97
02/28/07	19:25:30	2.19	4.31	48.32	13.89	180.59
02/28/07	19:25:45	2.28	4.29	48.37	14.12	183.72
02/28/07	19:26:00	2.27	4.29	46.28	14.19	205.34
02/28/07	19:26:15	2.31	4.27	46.10	14.12	210.09
02/28/07	19:26:30	2.37	4.25	46.00	14.04	189.10
02/28/07	19:26:45	2.28	4.28	46.44	14.02	158.84
02/28/07	19:27:00	2.18	4.32	46.82	14.02	187.10
02/28/07	19:27:15	2.20	4.30	47.08	14.07	189.10
02/28/07	19:27:30	2.20	4.32	48.65	14.04	222.59
02/28/07	19:27:45	2.28	4.29	45.81	14.02	259.96
02/28/07	19:28:00	2.41	4.24	45.28	14.02	258.83
02/28/07	19:28:15	2.49	4.24	44.53	14.02	284.21
02/28/07	19:28:30	2.44	4.25	44.29	14.02	251.84
02/28/07	19:28:45	2.43	4.24	44.48	13.97	234.34
02/28/07	19:29:00	2.37	4.28	44.55	14.02	244.08
02/28/07	19:29:15	2.37	4.25	44.89	14.02	252.21
02/28/07	19:29:30	2.44	4.24	45.07	14.02	248.09
02/28/07	19:29:45	2.42	4.26	45.52	13.97	229.96
02/28/07	19:30:00	2.40	4.25	45.52	14.02	235.84

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	19:31:30	2.31	4.28	45.88	14.09	120.35	
02/28/07	19:31:45	2.24	4.30	48.19	14.12	118.85	
02/28/07	19:32:00	2.19	4.31	48.78	14.12	149.80	
02/28/07	19:32:15	2.23	4.31	47.01	14.17	178.35	
02/28/07	19:32:30	2.32	4.29	47.84	14.14	188.59	
02/28/07	19:32:45	2.35	4.29	48.91	14.12	197.34	
02/28/07	19:33:00	2.29	4.29	48.80	14.12	202.84	
02/28/07	19:33:15	2.30	4.27	48.81	14.07	192.22	
02/28/07	19:33:30	2.27	4.29	48.81	13.99	219.34	
02/28/07	19:33:45	2.27	4.29	47.05	13.82	250.33	
02/28/07	19:34:00	2.38	4.28	48.88	13.82	229.83	
02/28/07	19:34:15	2.40	4.26	48.82	13.87	195.47	
02/28/07	19:34:30	2.27	4.29	48.78	13.82	192.34	
02/28/07	19:34:45	2.25	4.29	48.69	13.87	184.59	
02/28/07	19:35:00	2.34	4.29	48.59	13.99	181.09	
02/28/07	19:35:15	2.30	4.30	48.12	14.07	201.22	
02/28/07	19:35:30	2.38	4.28	45.48	14.12	185.85	
02/28/07	19:35:45	2.37	4.28	45.14	14.12	155.10	
02/28/07	19:36:00	2.29	4.30	44.81	14.04	141.10	
02/28/07	19:36:15	2.23	4.30	44.54	14.07	143.10	
02/28/07	19:36:30	2.29	4.28	44.79	14.12	141.35	
02/28/07	19:36:45	2.31	4.28	44.99	14.12	143.98	
02/28/07	19:37:00	2.27	4.28	45.31	14.09	142.35	
02/28/07	19:37:15	2.25	4.30	45.78	13.97	168.09	
02/28/07	19:37:30	2.18	4.31	48.12	13.99	240.83	
02/28/07	19:37:45	2.37	4.25	48.19	14.02	287.20	
02/28/07	19:38:00	2.49	4.22	48.08	14.02	293.82	
02/28/07	19:38:15	2.48	4.23	45.98	14.02	329.44	
02/28/07	19:38:30	2.52	4.21	48.02	14.02	318.32	
02/28/07	19:38:45	2.53	4.22	48.11	14.02	301.45	
02/28/07	19:39:00	2.50	4.24	45.94	14.02	292.32	
02/28/07	19:39:15	2.49	4.25	45.75	14.02	275.83	
02/28/07	19:39:30	2.45	4.27	45.59	14.02	248.09	
02/28/07	19:39:45	2.43	4.27	45.60	14.02	233.21	End Run 7
02/28/07	19:40:00	2.37	4.28	45.69	13.99	210.84	
02/28/07	19:40:15	2.38	4.27	45.72	13.92	158.72	
02/28/07	19:40:30	2.31	3.76	45.20	13.94	53.35	
02/28/07	19:40:45	1.38	1.38	43.59	13.32	10.73	
02/28/07	19:41:00	0.27	0.18	43.45	10.47	1.38	
02/28/07	19:41:15	0.03	0.03	43.89	4.22	0.74	
02/28/07	19:41:30	0.00	0.01	44.30	1.09	0.81	
02/28/07	19:41:45	0.00	0.00	44.67	0.27	0.81	
02/28/07	19:42:00	0.00	-0.01	44.99	0.19	0.81	
02/28/07	19:42:15	0.00	-0.01	45.22	0.12	0.81	System Bias
02/28/07	19:42:30	0.00	-0.01	45.31	0.12	0.81	45.0ppm SO ₂ Injection
02/28/07	19:42:45	0.00	-0.02	45.44	0.12	0.49	45.47 ppm SO ₂
02/28/07	19:43:00	0.00	-0.02	45.54	0.12	0.11	
02/28/07	19:43:15	0.00	-0.02	45.58	0.12	1.98	
02/28/07	19:43:30	0.00	-0.02	45.60	0.12	24.81	
02/28/07	19:43:45	0.05	0.20	44.87	0.12	58.48	
02/28/07	19:44:00	0.88	1.32	40.01	0.47	104.10	
02/28/07	19:44:15	0.48	0.51	27.84	2.17	154.72	
02/28/07	19:44:30	0.10	0.06	18.30	2.57	178.10	
02/28/07	19:44:45	0.02	-0.01	10.35	1.92	178.35	
02/28/07	19:45:00	0.00	-0.02	7.11	0.29	178.85	System Bias
02/28/07	19:45:15	0.00	-0.02	5.15	0.17	179.47	180.0ppm CO Injection
02/28/07	19:45:30	0.00	-0.02	3.84	0.12	179.35	0.00 % Oxygen
02/28/07	19:45:45	0.00	-0.03	2.94	0.12	179.22	-0.03 % CO ₂
02/28/07	19:46:00	0.00	-0.03	2.34	0.12	179.60	0.13 ppm NO _x
02/28/07	19:46:15	0.00	-0.03	1.80	0.07	177.47	179.41 ppm CO
02/28/07	19:46:30	0.00	-0.03	1.45	0.02	185.80	
02/28/07	19:46:45	0.09	0.29	1.15	0.02	117.35	
02/28/07	19:47:00	0.59	0.99	0.97	0.42	47.10	
02/28/07	19:47:15	0.27	0.23	0.95	2.32	9.88	
02/28/07	19:47:30	0.03	0.00	0.78	19.99	1.81	
02/28/07	19:47:45	0.00	-0.02	0.82	32.81	1.11	
02/28/07	19:48:00	0.00	-0.03	0.52	41.38	0.88	
02/28/07	19:48:15	-0.01	-0.03	0.41	42.11	0.81	
02/28/07	19:48:30	0.00	-0.03	0.28	43.19	0.81	
02/28/07	19:48:45	0.00	-0.04	0.20	43.98	0.81	
02/28/07	19:49:00	0.00	-0.04	0.18	44.88	0.81	System Bias
02/28/07	19:49:15	0.00	-0.04	0.07	45.18	0.81	45.0ppm NO _x Injection
02/28/07	19:49:30	0.00	-0.03	0.84	45.33	0.81	0.04 ppm SO ₂
02/28/07	19:49:45	0.00	-0.03	0.84	45.41	0.49	45.33 ppm NO _x
02/28/07	19:50:00	0.00	-0.04	0.01	45.41	0.38	0.51 ppm CO
02/28/07	19:50:15	0.00	-0.03	-0.05	45.41	7.98	
02/28/07	19:50:30	0.00	0.00	-0.08	45.51	22.35	
02/28/07	19:50:45	0.48	1.10	-0.09	45.48	14.11	
02/28/07	19:51:00	3.49	4.78	-0.11	43.74	4.11	
02/28/07	19:51:15	7.19	7.97	-0.14	35.01	-0.88	
02/28/07	19:51:30	9.43	9.40	-0.16	17.44	-0.88	
02/28/07	19:51:45	9.87	9.50	-0.14	8.97	-1.27	
02/28/07	19:52:00	9.91	9.45	-0.20	1.12	-1.14	
02/28/07	19:52:15	9.92	9.55	-0.20	0.82	-1.02	
02/28/07	19:52:30	9.93	9.99	-0.23	0.32	-1.39	
02/28/07	19:52:45	9.94	9.77	-0.27	0.27	-1.39	
02/28/07	19:53:00	9.94	9.80	-0.25	0.22	-1.39	
02/28/07	19:53:15	9.95	9.81	-0.27	0.22	-1.39	
02/28/07	19:53:30	9.95	9.93	-0.29	0.19	-1.39	System Bias
02/28/07	19:53:45	9.95	9.94	-0.22	0.12	-1.40	10.0% O ₂ /CO ₂ Injection
02/28/07	19:54:00	9.95	9.95	-0.28	0.12	-1.38	9.95 % Oxygen
02/28/07	19:54:15	9.95	9.95	-0.28	0.12	-1.13	9.95 % CO ₂
02/28/07	19:54:30	9.95	9.95	-0.28	0.12	20.81	
02/28/07	19:54:45	9.94	9.88	-0.25	0.12	148.22	
02/28/07	19:55:00	8.85	7.48	2.18	0.24	218.34	
02/28/07	19:55:15	4.48	5.02	14.42	0.92	258.71	
02/28/07	19:55:30	2.57	4.41	23.99	8.89	284.33	
02/28/07	19:55:45	2.50	4.34	28.81	11.42	250.58	
02/28/07	19:56:00	2.50	4.33	32.83	13.24	228.34	
02/28/07	19:56:15	2.41	4.35	38.94	13.30	219.34	
02/28/07	19:56:30	2.33	4.35	40.18	13.57	220.84	
02/28/07	19:56:45	2.41	4.32	41.51	13.72	218.71	
02/28/07	19:57:00	2.44	4.32	42.54	13.82	217.83	Start Run 8
02/28/07	19:57:15	2.42	4.33	43.85	13.89	238.48	
02/28/07	19:57:30	2.39	4.33	44.59	13.89	258.83	
02/28/07	19:57:45	2.40	4.33	45.00	13.92	269.33	
02/28/07	19:58:00	2.45	4.31	45.09	13.89	259.08	
02/28/07	19:58:15	2.44	4.30	45.25	13.82	250.48	
02/28/07	19:58:30	2.41	4.30	45.48	13.82	255.58	
02/28/07	19:58:45	2.44	4.30	45.54	13.82	247.84	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	20:00:00	2.31	4.35	46.80	14.12	171.60	
02/28/07	20:00:15	2.27	4.36	47.07	14.12	171.47	
02/28/07	20:00:30	2.28	4.36	47.45	13.99	177.59	
02/28/07	20:00:45	2.34	4.34	47.64	13.82	181.97	
02/28/07	20:01:00	2.38	4.33	47.81	14.02	179.60	
02/28/07	20:01:15	2.35	4.33	46.02	14.02	168.72	
02/28/07	20:01:30	2.34	4.34	50.59	13.92	156.09	
02/28/07	20:01:45	2.30	4.34	51.67	14.22	136.98	
02/28/07	20:02:00	2.27	4.35	51.89	14.72	128.10	
02/28/07	20:02:15	2.21	4.37	51.81	14.72	134.98	
02/28/07	20:02:30	2.18	4.37	51.76	14.59	141.85	
02/28/07	20:02:45	2.25	4.36	51.52	14.52	146.85	
02/28/07	20:03:00	2.22	4.35	51.23	14.42	181.35	
02/28/07	20:03:15	2.19	4.33	51.16	14.42	179.65	
02/28/07	20:03:30	2.27	4.31	51.15	14.29	185.10	
02/28/07	20:03:45	2.28	4.34	51.07	14.22	220.09	
02/28/07	20:04:00	2.26	4.33	50.83	14.22	262.58	
02/28/07	20:04:15	2.34	4.31	50.42	14.22	305.94	
02/28/07	20:04:30	2.42	4.29	50.02	14.09	296.07	
02/28/07	20:04:45	2.47	4.29	49.89	14.02	280.33	
02/28/07	20:05:00	2.42	4.31	49.38	14.02	227.84	
02/28/07	20:05:15	2.38	4.33	49.21	14.09	160.22	
02/28/07	20:05:30	2.30	4.36	49.27	14.02	164.59	
02/28/07	20:05:45	2.28	4.36	49.54	14.02	160.84	
02/28/07	20:06:00	2.25	4.36	49.61	14.02	171.84	
02/28/07	20:06:15	2.28	4.35	49.58	14.02	173.09	
02/28/07	20:06:30	2.31	4.34	48.52	14.04	158.59	
02/28/07	20:06:45	2.27	4.34	48.46	14.04	157.47	
02/28/07	20:07:00	2.22	4.34	48.50	14.02	178.59	
02/28/07	20:07:15	2.30	4.33	48.23	13.94	201.10	
02/28/07	20:07:30	2.37	4.32	48.88	13.94	200.34	
02/28/07	20:07:45	2.34	4.33	48.51	13.94	181.72	
02/28/07	20:08:00	2.29	4.34	48.31	13.92	170.09	
02/28/07	20:08:15	2.28	4.35	48.22	13.99	152.85	
02/28/07	20:08:30	2.27	4.37	48.23	14.04	162.35	
02/28/07	20:08:45	2.28	4.37	48.00	14.12	173.09	
02/28/07	20:09:00	2.31	4.35	47.97	14.12	160.85	
02/28/07	20:09:15	2.29	4.35	47.32	14.12	120.10	
02/28/07	20:09:30	2.17	4.39	47.07	14.12	113.35	
02/28/07	20:09:45	2.06	4.40	48.85	14.12	117.85	
02/28/07	20:10:00	2.13	4.37	48.69	14.12	118.85	
02/28/07	20:10:15	2.14	4.37	48.71	14.12	144.47	
02/28/07	20:10:30	2.17	4.37	48.84	14.09	154.10	
02/28/07	20:10:45	2.25	4.34	48.84	14.02	144.98	
02/28/07	20:11:00	2.14	4.38	48.85	14.02	148.10	
02/28/07	20:11:15	2.11	4.37	48.97	13.94	175.97	
02/28/07	20:11:30	2.18	4.35	48.88	14.02	201.44	
02/28/07	20:11:45	2.27	4.32	48.69	14.02	207.47	
02/28/07	20:12:00	2.29	4.33	48.53	14.09	211.08	
02/28/07	20:12:15	2.23	4.36	48.22	14.02	237.21	
02/28/07	20:12:30	2.25	4.35	45.98	14.02	250.27	
02/28/07	20:12:45	2.33	4.32	45.85	14.02	252.96	
02/28/07	20:13:00	2.35	4.32	45.33	13.84	259.39	
02/28/07	20:13:15	2.34	4.32	45.21	14.09	249.71	
02/28/07	20:13:30	2.33	4.33	45.45	14.02	238.97	
02/28/07	20:13:45	2.31	4.34	45.64	14.02	244.64	
02/28/07	20:14:00	2.30	4.34	45.71	14.02	239.59	
02/28/07	20:14:15	2.34	4.32	45.68	14.02	221.09	
02/28/07	20:14:30	2.28	4.33	45.68	13.89	233.46	
02/28/07	20:14:45	2.27	4.33	45.74	13.92	263.20	
02/28/07	20:15:00	2.37	4.31	45.64	14.02	277.82	
02/28/07	20:15:15	2.42	4.30	45.46	14.02	287.33	
02/28/07	20:15:30	2.40	4.30	45.38	13.92	239.21	
02/28/07	20:15:45	2.41	4.30	45.13	13.92	203.97	
02/28/07	20:16:00	2.31	4.33	45.00	14.02	197.22	
02/28/07	20:16:15	2.25	4.33	45.35	14.02	213.09	
02/28/07	20:16:30	2.29	4.32	45.90	13.92	219.09	
02/28/07	20:16:45	2.35	4.31	48.21	13.84	214.96	
02/28/07	20:17:00	2.35	4.31	48.31	13.74	218.34	
02/28/07	20:17:15	2.32	4.32	48.18	13.89	232.33	
02/28/07	20:17:30	2.39	4.31	45.77	13.92	254.08	
02/28/07	20:17:45	2.43	4.30	45.88	13.92	252.21	
02/28/07	20:18:00	2.44	4.30	45.79	13.98	243.96	
02/28/07	20:18:15	2.38	4.32	45.85	13.92	256.33	
02/28/07	20:18:30	2.41	4.31	46.04	13.89	282.57	
02/28/07	20:18:45	2.44	4.30	45.98	13.89	281.57	
02/28/07	20:19:00	2.46	4.29	45.96	13.92	247.46	
02/28/07	20:19:15	2.42	4.30	48.16	13.84	231.21	
02/28/07	20:19:30	2.38	4.30	48.38	13.85	240.59	
02/28/07	20:19:45	2.40	4.29	48.75	13.99	240.21	
02/28/07	20:20:00	2.42	4.28	47.18	14.07	244.34	
02/28/07	20:20:15	2.36	4.30	47.24	14.02	269.83	
02/28/07	20:20:30	2.35	4.30	47.24	14.02	282.70	
02/28/07	20:20:45	2.35	4.29	47.32	14.02	288.82	
02/28/07	20:21:00	2.35	4.29	47.33	14.02	264.45	
02/28/07	20:21:15	2.33	4.30	47.39	13.94	248.58	
02/28/07	20:21:30	2.22	4.35	47.74	13.92	277.08	
02/28/07	20:21:45	2.22	4.34	47.91	13.92	287.84	
02/28/07	20:22:00	2.30	4.34	47.80	13.92	325.32	
02/28/07	20:22:15	2.27	4.34	47.57	13.92	368.31	
02/28/07	20:22:30	2.35	4.30	47.19	13.82	372.61	
02/28/07	20:22:45	2.44	4.28	46.84	13.69	333.56	
02/28/07	20:23:00	2.48	4.29	48.76	13.97	282.69	
02/28/07	20:23:15	2.41	4.32	47.94	13.92	258.21	
02/28/07	20:23:30	2.34	4.34	47.17	13.92	215.47	
02/28/07	20:23:45	2.25	4.38	47.28	13.92	196.59	
02/28/07	20:24:00	2.17	4.36	47.24	13.92	205.22	
02/28/07	20:24:15	2.27	4.33	47.19	13.92	186.47	
02/28/07	20:24:30	2.35	4.32	47.17	13.92	179.34	
02/28/07	20:24:45	2.32	4.34	47.28	13.92	192.47	
02/28/07	20:25:00	2.22	4.36	47.69	13.97	238.21	
02/28/07	20:25:15	2.31	4.32	47.99	14.09	228.34	
02/28/07	20:25:30	2.38	4.30	47.74	14.02	187.10	
02/28/07	20:25:45	2.25	4.33	47.60	13.94	200.59	
02/28/07	20:26:00	2.14	4.34	47.77	13.92	237.71	
02/28/07	20:26:15	2.28	4.31	47.54	13.89	266.95	
02/28/07	20:26:30	2.30	4.30	47.35	13.82	284.94	
02/28/07	20:26:45	2.33	4.30	47.39	13.82	288.20	
02/28/07	20:27:00	2.32	4.32	47.42	13.82	310.32	
02/28/07	20:27:15	2.33	4.31	47.38	13.82	337.44	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	20:28:45	2.35	4.32	48.90	13.92	285.95	
02/28/07	20:29:00	2.28	4.24	47.30	13.92	302.07	
02/28/07	20:29:15	2.30	4.33	47.44	13.92	332.81	
02/28/07	20:29:30	2.31	4.33	47.19	13.92	338.19	
02/28/07	20:29:45	2.41	4.30	48.83	13.92	285.57	
02/28/07	20:30:00	2.38	4.31	48.51	13.92	244.71	
02/28/07	20:30:15	2.29	4.34	48.60	13.74	235.21	
02/28/07	20:30:30	2.27	4.35	48.96	13.87	221.71	
02/28/07	20:30:45	2.28	4.34	47.12	13.92	282.35	
02/28/07	20:31:00	2.28	4.35	47.32	13.92	198.97	
02/28/07	20:31:15	2.25	4.36	47.21	13.84	211.59	
02/28/07	20:31:30	2.32	4.33	48.88	13.92	204.84	
02/28/07	20:31:45	2.38	4.31	48.78	13.92	163.98	
02/28/07	20:32:00	2.33	4.34	47.88	13.92	148.73	
02/28/07	20:32:15	2.17	4.39	47.79	13.92	170.97	
02/28/07	20:32:30	2.22	4.37	48.13	13.97	190.84	
02/28/07	20:32:45	2.31	4.34	47.94	14.02	182.80	
02/28/07	20:33:00	2.33	4.32	47.97	13.97	173.80	
02/28/07	20:33:15	2.26	4.34	48.38	13.84	178.47	
02/28/07	20:33:30	2.27	4.33	48.69	13.97	202.72	
02/28/07	20:33:45	2.27	4.34	48.91	14.02	228.21	
02/28/07	20:34:00	2.33	4.32	48.98	13.97	231.84	
02/28/07	20:34:15	2.33	4.34	48.78	13.92	243.34	
02/28/07	20:34:30	2.34	4.32	48.38	13.87	237.71	
02/28/07	20:34:45	2.37	4.31	48.39	13.89	228.96	
02/28/07	20:35:00	2.31	4.32	48.52	13.92	215.09	
02/28/07	20:35:15	2.31	4.32	48.56	13.92	235.08	
02/28/07	20:35:30	2.23	4.35	48.59	13.97	288.82	
02/28/07	20:35:45	2.37	4.31	48.23	13.82	301.32	
02/28/07	20:36:00	2.48	4.30	47.57	13.82	294.19	
02/28/07	20:36:15	2.41	4.31	47.23	13.82	273.58	
02/28/07	20:36:30	2.39	4.32	47.05	13.82	250.71	
02/28/07	20:36:45	2.35	4.32	47.24	13.82	233.34	
02/28/07	20:37:00	2.33	4.33	47.38	13.92	220.59	
02/28/07	20:37:15	2.30	4.33	47.47	13.92	235.59	
02/28/07	20:37:30	2.31	4.33	47.62	13.92	254.71	
02/28/07	20:37:45	2.40	4.30	47.26	13.92	253.08	
02/28/07	20:38:00	2.42	4.30	48.91	13.82	247.08	
02/28/07	20:38:15	2.42	4.30	48.80	13.89	244.21	
02/28/07	20:38:30	2.41	4.30	48.84	13.92	226.96	
02/28/07	20:38:45	2.43	4.30	47.09	13.92	213.71	
02/28/07	20:39:00	2.33	4.33	47.37	13.82	211.84	
02/28/07	20:39:15	2.34	4.34	47.26	13.82	201.47	
02/28/07	20:39:30	2.28	4.36	47.23	13.92	198.97	
02/28/07	20:39:45	2.27	4.35	47.14	13.92	202.84	
02/28/07	20:40:00	2.34	4.32	47.05	13.92	205.47	
02/28/07	20:40:15	2.36	4.32	47.87	13.84	208.77	
02/28/07	20:40:30	2.37	4.32	47.18	13.92	199.34	
02/28/07	20:40:45	2.37	4.33	47.11	13.92	192.47	
02/28/07	20:41:00	2.27	4.36	47.28	13.87	209.72	
02/28/07	20:41:15	2.25	4.35	47.48	13.99	221.24	
02/28/07	20:41:30	2.32	4.32	47.83	13.97	223.09	
02/28/07	20:41:45	2.32	4.32	47.78	13.92	227.07	
02/28/07	20:42:00	2.33	4.31	48.04	13.92	228.84	
02/28/07	20:42:15	2.31	4.32	48.18	13.92	258.08	
02/28/07	20:42:30	2.30	4.32	48.14	13.82	281.82	
02/28/07	20:42:45	2.34	4.30	47.97	13.90	276.33	
02/28/07	20:43:00	2.35	4.30	48.01	14.02	276.33	
02/28/07	20:43:15	2.31	4.31	48.13	14.02	316.57	
02/28/07	20:43:30	2.35	4.31	48.10	13.97	332.94	
02/28/07	20:43:45	2.43	4.30	47.87	13.92	333.81	
02/28/07	20:44:00	2.37	4.33	47.93	13.92	333.32	
02/28/07	20:44:15	2.38	4.32	47.88	13.89	315.07	
02/28/07	20:44:30	2.39	4.31	47.49	13.82	280.45	
02/28/07	20:44:45	2.39	4.32	47.53	13.92	288.94	
02/28/07	20:45:00	2.30	4.35	47.94	13.87	190.47	
02/28/07	20:45:15	2.15	4.38	48.49	13.92	233.58	
02/28/07	20:45:30	2.19	4.36	48.69	13.92	227.58	
02/28/07	20:45:45	2.32	4.35	48.48	13.92	197.84	
02/28/07	20:46:00	2.22	4.37	47.87	13.92	183.10	
02/28/07	20:46:15	2.26	4.38	47.59	13.87	177.35	
02/28/07	20:46:30	2.25	4.37	47.58	13.97	176.85	
02/28/07	20:46:45	2.26	4.36	47.85	13.99	160.10	
02/28/07	20:47:00	2.24	4.38	48.26	13.92	205.34	
02/28/07	20:47:15	2.28	4.36	48.68	13.92	231.09	
02/28/07	20:47:30	2.39	4.33	48.46	13.97	232.48	
02/28/07	20:47:45	2.39	4.32	48.04	13.94	232.09	
02/28/07	20:48:00	2.38	4.31	48.06	13.87	214.59	
02/28/07	20:48:15	2.38	4.32	48.23	13.82	208.59	
02/28/07	20:48:30	2.22	4.37	48.84	13.82	232.98	
02/28/07	20:48:45	2.18	4.37	48.94	13.84	296.07	
02/28/07	20:49:00	2.28	4.34	48.87	13.87	312.20	
02/28/07	20:49:15	2.40	4.32	48.05	13.82	276.07	
02/28/07	20:49:30	2.39	4.32	47.55	13.87	260.33	
02/28/07	20:49:45	2.27	4.36	47.82	13.92	303.57	
02/28/07	20:50:00	2.25	4.35	47.87	13.92	347.19	
02/28/07	20:50:15	2.38	4.32	47.85	13.92	380.06	
02/28/07	20:50:30	2.43	4.31	47.77	13.92	383.81	
02/28/07	20:50:45	2.43	4.30	47.51	13.84	374.31	
02/28/07	20:51:00	2.47	4.29	47.11	13.82	381.08	
02/28/07	20:51:15	2.51	4.30	46.94	13.89	318.82	
02/28/07	20:51:30	2.45	4.32	47.08	13.92	285.70	
02/28/07	20:51:45	2.39	4.35	47.33	13.99	273.83	
02/28/07	20:52:00	2.38	4.36	47.45	14.02	258.45	
02/28/07	20:52:15	2.28	4.39	47.43	14.04	251.83	
02/28/07	20:52:30	2.28	4.37	47.26	14.12	259.71	
02/28/07	20:52:45	2.35	4.33	48.79	13.94	254.83	
02/28/07	20:53:00	2.40	4.33	48.88	13.87	247.33	
02/28/07	20:53:15	2.40	4.33	48.87	13.99	235.09	
02/28/07	20:53:30	2.38	4.33	48.99	14.07	226.71	
02/28/07	20:53:45	2.31	4.36	47.80	14.04	220.34	
02/28/07	20:54:00	2.33	4.37	48.80	14.02	201.59	
02/28/07	20:54:15	2.32	4.37	48.57	13.97	174.34	
02/28/07	20:54:30	2.23	4.38	48.45	14.02	170.22	
02/28/07	20:54:45	2.21	4.39	48.74	13.99	185.83	
02/28/07	20:55:00	2.25	4.38	47.88	13.92	189.59	
02/28/07	20:55:15	2.32	4.36	47.34	13.94	216.34	
02/28/07	20:55:30	2.35	4.36	47.56	14.02	224.58	
02/28/07	20:55:45	2.31	4.37	47.96	14.02	241.59	
02/28/07	20:56:00	2.31	4.38	48.17	13.97	254.08	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
02/28/07	20:57:15	2.65	4.81	43.33	13.82	75.35	
02/28/07	20:57:30	5.63	7.26	27.75	13.82	18.88	
02/28/07	20:57:45	8.95	9.27	14.82	10.04	0.38	
02/28/07	20:58:00	9.83	9.78	8.82	4.87	-0.77	
02/28/07	20:58:15	9.88	9.71	5.80	1.07	-0.89	
02/28/07	20:58:30	9.90	9.88	4.16	0.37	-0.89	
02/28/07	20:58:45	9.91	9.75	3.07	0.19	-1.14	
02/28/07	20:59:00	9.91	9.85	2.43	0.12	-1.39	
02/28/07	20:59:15	9.91	9.91	1.87	0.12	-1.39	
02/28/07	20:59:30	9.92	9.92	1.49	0.12	-1.39	
02/28/07	20:59:45	9.92	9.93	1.17	0.12	-1.39	
02/28/07	21:00:00	9.92	9.93	0.95	0.12	-1.39	
02/28/07	21:00:15	9.92	9.95	0.78	0.12	-1.39	
02/28/07	21:00:30	9.92	9.95	0.65	0.12	-1.39	
02/28/07	21:00:45	9.93	9.96	0.48	0.12	-1.39	System Bias
02/28/07	21:01:00	9.93	9.97	0.39	0.12	-1.39	10.0% O ₂ /CO ₂ Injection
02/28/07	21:01:15	9.93	9.96	0.31	0.12	-1.39	9.93 % Oxygen
02/28/07	21:01:30	9.93	9.96	0.25	0.12	-0.52	9.96 % CO ₂
02/28/07	21:01:45	9.93	9.96	0.16	0.09	12.38	
02/28/07	21:02:00	9.91	9.88	0.12	0.02	24.11	
02/28/07	21:02:15	8.82	7.84	0.23	0.19	36.36	
02/28/07	21:02:30	5.25	4.01	0.38	1.02	139.10	
02/28/07	21:02:45	1.51	1.21	0.40	1.84	172.10	
02/28/07	21:03:00	0.30	0.25	0.33	1.72	178.73	
02/28/07	21:03:15	0.08	0.11	0.28	0.30	179.88	
02/28/07	21:03:30	0.05	0.08	0.15	0.17	180.23	
02/28/07	21:03:45	0.03	0.06	0.14	0.12	180.61	System Bias
02/28/07	21:04:00	0.03	0.04	0.10	0.12	180.73	180.0ppm CO Injection
02/28/07	21:04:15	0.02	0.04	0.02	0.02	181.11	0.02 % Oxygen
02/28/07	21:04:30	0.02	0.03	-0.83	0.02	180.88	0.03 % CO ₂
02/28/07	21:04:45	0.02	0.02	-0.04	0.02	180.88	0.04 ppm NO _x
02/28/07	21:05:00	0.01	0.02	-0.08	0.02	182.61	180.89 ppm CO
02/28/07	21:05:15	0.07	0.26	-0.10	0.02	173.69	
02/28/07	21:05:30	0.69	1.44	-0.02	0.02	117.10	
02/28/07	21:05:45	0.48	0.54	0.19	2.87	71.61	
02/28/07	21:06:00	0.08	0.08	0.22	11.27	2.23	
02/28/07	21:06:15	0.01	0.01	0.16	32.61	1.11	
02/28/07	21:06:30	0.01	0.00	0.10	38.71	0.73	
02/28/07	21:06:45	0.00	0.00	0.03	41.94	0.81	
02/28/07	21:07:00	0.01	0.00	0.02	42.68	0.81	
02/28/07	21:07:15	0.00	-0.01	-0.05	43.83	0.81	
02/28/07	21:07:30	0.00	-0.01	-0.10	44.46	0.81	
02/28/07	21:07:45	0.00	-0.01	-0.06	45.06	0.81	
02/28/07	21:08:00	0.00	-0.01	-0.07	45.26	0.81	
02/28/07	21:08:15	0.00	-0.01	-0.10	45.31	0.81	
02/28/07	21:08:30	0.00	-0.02	-0.07	45.31	0.81	
02/28/07	21:08:45	0.00	-0.02	-0.13	45.33	0.81	
02/28/07	21:09:00	0.00	-0.02	-0.11	45.41	0.81	System Bias
02/28/07	21:09:15	0.00	-0.02	-0.11	45.31	0.81	45.0ppm NO _x Injection
02/28/07	21:09:30	0.00	-0.02	-0.12	45.31	0.81	-0.10 ppm SO ₂
02/28/07	21:09:45	0.00	-0.03	-0.13	45.31	0.81	45.31 ppm NO _x
02/28/07	21:10:00	1.05	-0.02	-0.05	45.31	0.81	0.61 ppm CO
02/28/07	21:10:15	4.48	-0.01	4.39	44.14	0.36	
02/28/07	21:10:30	1.48	-0.02	21.27	37.24	0.23	
02/28/07	21:10:45	0.13	-0.02	32.82	20.64	0.36	
02/28/07	21:11:00	0.01	-0.03	38.60	7.87	0.11	
02/28/07	21:11:15	0.00	-0.02	41.30	1.22	0.11	
02/28/07	21:11:30	0.00	-0.02	42.72	0.54	0.11	
02/28/07	21:11:45	0.00	-0.02	43.60	0.39	0.10	
02/28/07	21:12:00	0.00	-0.02	44.24	0.32	0.11	
02/28/07	21:12:15	0.00	-0.02	44.69	0.22	0.11	
02/28/07	21:12:30	0.00	-0.03	45.14	0.22	0.11	System Bias
02/28/07	21:12:45	-0.01	-0.03	45.44	0.22	0.11	45.0ppm SO ₂ Injection
02/28/07	21:13:00	0.00	-0.03	45.71	0.22	0.11	45.77 ppm SO ₂
02/28/07	21:13:15	0.00	-0.03	45.91	0.12	0.11	
02/28/07	21:13:30	0.00	-0.03	46.03	0.12	0.49	
02/28/07	21:13:45	0.00	-0.03	45.15	0.12	0.11	
02/28/07	21:14:00	0.00	-0.03	45.36	0.12	0.10	
03/01/07	6:56:00	0.04	-0.05	-0.02	0.02	-2.35	
03/01/07	6:56:15	0.10	-0.06	-0.02	0.02	-2.38	
03/01/07	6:56:30	0.01	-0.06	-0.07	0.02	-2.38	
03/01/07	6:56:45	0.00	-0.06	-0.08	0.02	-2.38	
03/01/07	6:57:00	-0.01	-0.06	-0.05	0.02	-2.38	
03/01/07	6:57:15	-0.01	-0.06	-0.02	0.02	-2.38	
03/01/07	6:57:30	-0.02	-0.06	-0.01	0.02	-2.38	
03/01/07	6:57:45	-0.02	-0.06	-0.01	0.02	-1.76	Calibration Error
03/01/07	6:58:00	-0.02	-0.06	-0.02	0.02	0.12	Zero Nitrogen Injection
03/01/07	6:58:15	-0.02	-0.06	-0.01	0.02	0.12	-0.03 % Oxygen
03/01/07	6:58:30	-0.03	-0.06	-0.04	0.02	0.12	-0.06 % CO ₂
03/01/07	6:58:45	-0.03	-0.06	-0.05	0.02	0.12	-0.03 ppm SO ₂
03/01/07	6:59:00	-0.03	-0.06	-0.10	0.02	0.12	0.02 ppm NO _x
03/01/07	6:59:15	-0.03	-0.06	-0.01	0.02	1.24	0.12 ppm CO
03/01/07	6:59:30	0.99	1.86	0.13	0.02	0.87	
03/01/07	6:59:45	8.77	9.36	0.17	0.02	-0.83	
03/01/07	7:00:00	15.15	14.21	0.11	0.10	-1.78	
03/01/07	7:00:15	18.35	18.95	0.07	0.17	-2.38	
03/01/07	7:00:30	19.31	18.95	-0.02	0.12	-2.38	
03/01/07	7:00:45	19.52	19.62	-0.05	0.07	-2.38	
03/01/07	7:01:00	19.55	20.09	-0.02	0.02	-2.38	
03/01/07	7:01:15	19.59	19.89	-0.02	0.02	-2.38	
03/01/07	7:01:30	19.93	19.93	-0.07	0.02	-2.38	
03/01/07	7:01:45	19.95	19.94	-0.08	0.02	-2.38	Calibration Error
03/01/07	7:02:00	19.96	19.93	-0.05	0.02	-2.38	20.0% O ₂ /CO ₂ Injection
03/01/07	7:02:15	19.96	19.92	-0.14	0.02	-2.38	19.96 % Oxygen
03/01/07	7:02:30	19.96	19.93	-0.08	0.02	-2.38	19.93 % CO ₂
03/01/07	7:02:45	19.99	19.93	-0.04	0.02	-2.38	
03/01/07	7:03:00	19.98	19.95	-0.05	0.02	-2.38	
03/01/07	7:03:15	19.98	19.98	0.01	0.02	-1.88	
03/01/07	7:03:30	18.57	17.27	0.03	0.02	-1.51	
03/01/07	7:03:45	13.98	12.67	0.00	0.02	-1.88	
03/01/07	7:04:00	10.62	10.19	-0.02	0.02	-1.88	
03/01/07	7:04:15	10.16	9.99	-0.09	0.02	-1.88	
03/01/07	7:04:30	10.09	9.95	-0.07	0.02	-1.88	
03/01/07	7:04:45	10.09	9.93	-0.05	0.02	-1.88	Calibration Error
03/01/07	7:05:00	10.08	10.01	-0.05	0.02	-1.88	10.0% O ₂ /CO ₂ Injection
03/01/07	7:05:15	10.08	10.01	-0.14	0.02	-1.88	10.08 % Oxygen
03/01/07	7:05:30	10.08	10.01	-0.09	0.02	-1.88	10.01 % CO ₂
03/01/07	7:05:45	10.08	10.01	-0.02	0.02	-1.88	
03/01/07	7:06:00	10.08	10.00	0.00	0.02	-1.88	
03/01/07	7:06:15	10.08	10.01	0.24	0.02	-1.76	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	7:07:45	-0.01	0.01	89.78	0.02	-0.01	
03/01/07	7:08:00	-0.02	0.00	89.88	0.02	-0.38	Calibration Error
03/01/07	7:08:15	-0.02	0.00	90.03	0.02	-0.38	85.67ppm SO ₂ Injection
03/01/07	7:08:30	-0.03	-0.01	90.06	0.02	-0.38	90.08 ppm SO ₂ Injection
03/01/07	7:08:45	-0.02	-0.01	90.08	0.02	-0.39	
03/01/07	7:09:00	-0.03	-0.02	90.15	0.02	-0.39	
03/01/07	7:09:15	-0.03	-0.02	90.13	0.02	-0.38	
03/01/07	7:09:30	-0.03	-0.02	89.82	0.02	-0.38	
03/01/07	7:09:45	-0.02	-0.01	58.90	0.02	-0.38	
03/01/07	7:10:00	-0.03	-0.03	49.19	0.02	-0.38	
03/01/07	7:10:15	-0.03	-0.03	47.21	0.02	-0.38	
03/01/07	7:10:30	-0.04	-0.03	45.83	0.02	-0.38	
03/01/07	7:10:45	-0.03	-0.03	45.24	0.02	-0.38	Calibration Error
03/01/07	7:11:00	-0.03	-0.04	45.23	0.02	-0.38	45.0ppm SO ₂ Injection
03/01/07	7:11:15	-0.04	-0.04	45.18	0.02	-0.38	45.18 ppm SO ₂ Injection
03/01/07	7:11:30	-0.04	-0.04	45.18	0.02	-0.38	
03/01/07	7:11:45	-0.04	-0.04	45.14	0.02	-0.38	
03/01/07	7:12:00	-0.04	-0.04	37.39	0.02	-0.38	
03/01/07	7:12:15	-0.03	-0.03	23.09	0.02	-0.38	
03/01/07	7:12:30	-0.03	-0.04	20.80	0.02	-0.38	
03/01/07	7:12:45	-0.04	-0.04	20.09	0.02	-0.38	Calibration Error
03/01/07	7:13:00	-0.04	-0.04	19.90	0.02	-0.38	20.0ppm SO ₂ Injection
03/01/07	7:13:15	-0.04	-0.05	19.81	0.02	-0.38	19.79 ppm SO ₂ Injection
03/01/07	7:13:30	-0.04	-0.05	19.73	0.02	-0.39	
03/01/07	7:13:45	-0.04	-0.05	19.72	0.02	-0.39	
03/01/07	7:14:00	-0.04	-0.05	20.71	0.02	-0.38	
03/01/07	7:14:15	0.02	-0.03	16.59	0.02	-0.01	
03/01/07	7:14:30	0.14	-0.02	5.48	-0.20	-0.01	
03/01/07	7:14:45	0.01	-0.04	1.44	56.75	-0.26	
03/01/07	7:15:00	-0.03	-0.05	0.85	78.45	0.11	
03/01/07	7:15:15	-0.03	-0.05	0.38	84.14	0.12	
03/01/07	7:15:30	-0.04	-0.05	0.25	84.19	0.12	
03/01/07	7:15:45	-0.03	-0.05	0.13	85.89	0.12	
03/01/07	7:16:00	-0.04	-0.05	0.12	88.34	-0.19	
03/01/07	7:16:15	-0.03	-0.05	0.14	86.52	-0.26	Calibration Error
03/01/07	7:16:30	-0.04	-0.05	0.11	89.34	-0.26	89.99ppm NO _x Injection
03/01/07	7:16:45	-0.04	-0.05	0.13	89.18	-0.07	89.22 ppm NO _x
03/01/07	7:17:00	-0.04	-0.05	0.15	89.19	-0.01	
03/01/07	7:17:15	-0.04	-0.05	0.09	89.14	0.12	
03/01/07	7:17:30	-0.03	-0.05	0.10	89.09	0.12	
03/01/07	7:17:45	-0.03	-0.05	0.09	89.04	-0.38	
03/01/07	7:18:00	-0.03	-0.05	0.11	88.77	-0.38	
03/01/07	7:18:15	-0.03	-0.05	0.05	80.50	-0.38	
03/01/07	7:18:30	-0.04	-0.06	0.08	80.50	-0.38	
03/01/07	7:18:45	-0.04	-0.06	0.08	48.46	-0.39	
03/01/07	7:19:00	-0.04	-0.06	0.08	45.41	-0.38	Calibration Error
03/01/07	7:19:15	-0.04	-0.06	0.04	44.88	-0.38	45.0ppm NO _x Injection
03/01/07	7:19:30	-0.04	-0.06	0.02	44.81	-0.38	44.75 ppm NO _x
03/01/07	7:19:45	-0.04	-0.06	0.03	44.71	-0.39	
03/01/07	7:20:00	-0.04	-0.06	0.05	44.63	-0.38	
03/01/07	7:20:15	-0.04	-0.06	0.08	44.56	-0.38	
03/01/07	7:20:30	-0.04	-0.05	0.10	44.41	-0.38	
03/01/07	7:20:45	-0.04	-0.05	0.04	43.38	-0.38	
03/01/07	7:21:00	-0.04	-0.06	0.05	33.05	-0.38	
03/01/07	7:21:15	-0.04	-0.06	-0.01	21.22	-0.38	
03/01/07	7:21:30	-0.04	-0.06	0.02	20.02	-0.38	Calibration Error
03/01/07	7:21:45	-0.05	-0.06	0.03	19.87	-0.38	20.0ppm NO _x Injection
03/01/07	7:22:00	-0.04	-0.06	0.03	19.69	-0.38	19.72 ppm NO _x
03/01/07	7:22:15	-0.05	-0.06	-0.02	19.72	-0.38	
03/01/07	7:22:30	-0.04	-0.06	0.00	19.82	-0.38	
03/01/07	7:22:45	-0.04	-0.06	0.05	19.97	129.34	
03/01/07	7:23:00	-0.03	-0.05	0.00	20.14	321.42	
03/01/07	7:23:15	0.16	-0.03	0.05	20.17	468.75	
03/01/07	7:23:30	0.07	-0.05	0.10	17.97	467.99	
03/01/07	7:23:45	-0.01	-0.06	0.14	8.07	469.75	
03/01/07	7:24:00	-0.02	-0.06	0.13	2.32	493.87	
03/01/07	7:24:15	-0.04	-0.06	0.05	0.47	500.00	Calibration Error
03/01/07	7:24:30	-0.04	-0.06	0.00	0.27	499.99	500.0ppm CO Injection
03/01/07	7:24:45	-0.04	-0.06	-0.01	0.22	499.99	499.88 ppm CO
03/01/07	7:25:00	-0.04	-0.06	0.05	0.20	499.99	
03/01/07	7:25:15	-0.04	-0.06	0.02	0.12	499.94	
03/01/07	7:25:30	-0.04	-0.06	-0.01	0.12	467.12	
03/01/07	7:25:45	-0.04	-0.06	0.01	0.12	382.52	
03/01/07	7:26:00	-0.04	-0.06	0.08	0.12	321.54	
03/01/07	7:26:15	-0.04	-0.06	0.01	0.12	301.30	
03/01/07	7:26:30	-0.04	-0.06	0.02	0.12	300.18	Calibration Error
03/01/07	7:26:45	-0.04	-0.06	0.03	0.12	300.55	300.0ppm CO Injection
03/01/07	7:27:00	-0.04	-0.06	-0.04	0.12	300.55	300.64 ppm CO
03/01/07	7:27:15	-0.04	-0.06	-0.01	0.12	300.55	
03/01/07	7:27:30	-0.04	-0.06	0.02	0.12	300.82	
03/01/07	7:27:45	-0.05	-0.06	0.00	0.12	300.05	
03/01/07	7:28:00	-0.04	-0.06	-0.01	0.10	290.80	
03/01/07	7:28:15	-0.04	-0.06	0.02	0.02	214.33	
03/01/07	7:28:30	-0.04	-0.06	0.08	0.03	182.84	
03/01/07	7:28:45	-0.04	-0.06	0.07	0.02	161.34	
03/01/07	7:29:00	-0.05	-0.06	0.04	0.02	182.09	Calibration Error
03/01/07	7:29:15	-0.05	-0.06	0.08	0.02	182.09	180.0ppm CO Injection
03/01/07	7:29:30	-0.04	-0.06	0.06	0.02	182.46	182.34 ppm CO
03/01/07	7:29:45	-0.04	-0.06	0.05	0.02	182.59	
03/01/07	7:30:00	-0.04	-0.06	0.02	0.02	182.21	
03/01/07	7:30:15	-0.05	-0.06	-0.01	0.02	184.34	
03/01/07	7:30:30	-0.04	-0.06	0.12	0.02	101.97	
03/01/07	7:30:45	0.01	-0.04	0.59	0.03	21.18	
03/01/07	7:31:00	-0.01	-0.05	0.88	15.69	2.86	
03/01/07	7:31:15	-0.04	-0.06	0.96	34.31	0.23	
03/01/07	7:31:30	-0.04	-0.06	0.84	42.41	-0.24	
03/01/07	7:31:45	-0.04	-0.06	0.99	43.08	-0.35	
03/01/07	7:32:00	-0.04	-0.06	1.08	43.53	-0.38	
03/01/07	7:32:15	-0.04	-0.06	1.09	44.88	-0.13	
03/01/07	7:32:30	-0.04	-0.06	1.12	45.83	-0.38	
03/01/07	7:32:45	-0.04	-0.06	1.17	46.58	-0.38	
03/01/07	7:33:00	-0.04	-0.06	1.19	47.01	-0.38	
03/01/07	7:33:15	-0.04	-0.06	1.12	47.31	-0.38	
03/01/07	7:33:30	-0.04	-0.06	1.15	47.51	-0.39	
03/01/07	7:33:45	-0.04	-0.06	1.16	47.68	-0.38	
03/01/07	7:34:00	-0.04	-0.06	1.21	47.78	-0.38	
03/01/07	7:34:15	-0.04	-0.06	1.18	47.86	-0.38	
03/01/07	7:34:30	-0.04	-0.06	1.18	47.98	-0.38	
03/01/07	7:34:45	-0.04	-0.06	1.18	48.01	-0.38	
03/01/07	7:35:00	-0.04	-0.06	1.22	48.03	-0.38	
03/01/07	7:35:15	-0.04	-0.06	1.22	48.03	-0.38	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	7:36:30	-0.04	-0.06	1.25	48.31	-0.38	
03/01/07	7:36:45	-0.04	-0.06	1.14	48.36	-0.38	
03/01/07	7:37:00	-0.04	-0.06	1.16	48.41	-0.38	
03/01/07	7:37:15	-0.04	-0.06	1.12	48.41	-0.38	
03/01/07	7:37:30	-0.04	-0.06	1.13	48.41	-0.38	NO _x Converter Check Cylinder No. ALM-013266 52.4ppm Cylinder System Response 48.46 ppm NO _x 92.5 % Conversion
03/01/07	7:37:45	-0.04	-0.06	1.12	48.41	-0.38	
03/01/07	7:38:00	-0.04	-0.06	1.15	48.46	-0.38	
03/01/07	7:38:15	-0.04	-0.06	1.22	48.51	-0.38	
03/01/07	7:38:30	-0.05	-0.06	1.25	48.51	-0.38	
03/01/07	7:38:45	-0.04	-0.06	1.19	48.51	-0.38	
03/01/07	7:39:00	-0.04	-0.06	1.19	48.51	2.25	
03/01/07	7:39:15	0.05	-0.05	1.21	48.51	17.36	
03/01/07	7:39:30	5.56	0.09	0.87	47.61	20.86	
03/01/07	7:39:45	14.44	0.22	0.61	42.66	30.61	
03/01/07	7:40:00	10.16	0.10	0.52	25.04	69.35	
03/01/07	7:40:15	2.04	-0.01	0.43	6.97	112.65	
03/01/07	7:40:30	0.21	-0.04	0.37	2.42	120.48	
03/01/07	7:40:45	0.05	-0.05	0.31	1.37	122.10	
03/01/07	7:41:00	0.03	-0.05	0.31	0.95	122.23	
03/01/07	7:41:15	0.02	-0.05	0.29	0.57	122.36	
03/01/07	7:41:30	0.01	-0.05	0.28	0.45	122.61	
03/01/07	7:41:45	0.01	-0.05	0.22	0.42	116.60	
03/01/07	7:42:00	0.05	-0.05	0.22	0.40	109.10	
03/01/07	7:42:15	1.65	-0.05	0.24	0.32	143.84	
03/01/07	7:42:30	1.48	-0.05	0.22	0.32	170.59	
03/01/07	7:42:45	0.19	-0.05	0.20	0.32	160.59	
03/01/07	7:43:00	0.01	-0.05	0.22	0.30	161.47	
03/01/07	7:43:15	0.00	-0.05	0.19	0.22	161.59	System Bias
03/01/07	7:43:30	-0.01	-0.05	0.20	0.22	161.59	160.0ppm CO Injection
03/01/07	7:43:45	-0.01	-0.05	0.21	0.22	161.59	-0.01 % Oxygen
03/01/07	7:44:00	-0.01	-0.05	0.20	0.22	161.59	-0.05 % CO ₂
03/01/07	7:44:15	-0.01	-0.05	0.25	0.22	161.64	0.22 ppm NO _x
03/01/07	7:44:30	-0.01	-0.05	0.22	0.22	162.09	161.65 ppm CO
03/01/07	7:44:45	-0.01	-0.05	0.25	0.22	199.34	
03/01/07	7:45:00	0.06	0.25	6.48	0.15	163.35	
03/01/07	7:45:15	0.41	0.81	11.97	0.42	62.86	
03/01/07	7:45:30	0.18	0.18	6.41	6.45	11.49	
03/01/07	7:45:45	0.01	-0.03	3.28	33.26	2.62	
03/01/07	7:46:00	-0.01	-0.05	2.08	43.96	0.74	
03/01/07	7:46:15	-0.01	-0.05	1.54	43.31	0.62	
03/01/07	7:46:30	-0.01	-0.05	1.12	40.32	0.62	
03/01/07	7:46:45	-0.01	-0.05	0.89	40.21	0.62	
03/01/07	7:47:00	-0.01	-0.05	0.72	40.99	0.62	
03/01/07	7:47:15	-0.01	-0.05	0.62	41.78	0.62	
03/01/07	7:47:30	-0.01	-0.05	0.59	42.55	0.62	
03/01/07	7:47:45	-0.01	-0.05	0.52	42.81	0.62	
03/01/07	7:48:00	-0.01	-0.05	0.45	43.09	0.62	
03/01/07	7:48:15	-0.01	-0.05	0.40	44.83	0.62	System Bias
03/01/07	7:48:30	-0.01	-0.05	0.28	45.01	0.62	45.0ppm NO _x Injection
03/01/07	7:48:45	-0.01	-0.05	0.32	45.01	0.62	0.31 ppm SO ₂
03/01/07	7:49:00	-0.01	-0.05	0.30	45.01	0.62	45.01 ppm NO _x
03/01/07	7:49:15	-0.01	-0.05	0.33	45.01	0.24	0.53 ppm CO
03/01/07	7:49:30	-0.01	-0.05	0.29	45.03	4.49	
03/01/07	7:49:45	0.00	0.03	0.35	45.11	12.62	
03/01/07	7:50:00	0.30	0.69	2.69	45.11	7.50	
03/01/07	7:50:15	0.31	0.49	16.51	42.91	1.37	
03/01/07	7:50:30	0.05	0.02	31.80	33.08	0.24	
03/01/07	7:50:45	-0.01	-0.04	37.32	15.82	0.12	
03/01/07	7:51:00	-0.01	-0.04	40.02	4.12	0.12	
03/01/07	7:51:15	-0.01	-0.05	41.80	0.97	0.12	
03/01/07	7:51:30	-0.02	-0.05	42.55	0.50	0.12	
03/01/07	7:51:45	-0.01	-0.05	43.24	0.37	-0.13	
03/01/07	7:52:00	-0.01	-0.05	43.90	0.32	-0.01	
03/01/07	7:52:15	-0.02	-0.05	43.94	0.32	0.12	System Bias
03/01/07	7:52:30	-0.02	-0.05	45.17	0.22	0.12	45.0ppm SO ₂ Injection
03/01/07	7:52:45	-0.01	-0.05	45.26	0.22	0.12	45.26 ppm SO ₂
03/01/07	7:53:00	-0.02	-0.05	45.50	0.22	0.12	
03/01/07	7:53:15	-0.02	-0.05	45.12	0.22	0.12	
03/01/07	7:53:30	-0.02	-0.05	45.29	0.22	13.37	
03/01/07	7:53:45	0.04	0.22	45.12	0.17	21.37	
03/01/07	7:54:00	1.03	2.25	36.31	0.22	10.74	
03/01/07	7:54:15	5.21	8.00	22.85	1.27	1.82	
03/01/07	7:54:30	8.71	8.88	11.45	4.12	-0.76	
03/01/07	7:54:45	9.82	9.54	6.54	2.12	-1.38	
03/01/07	7:55:00	9.97	9.52	4.42	0.67	-1.38	
03/01/07	7:55:15	10.00	9.49	3.29	0.22	-1.38	
03/01/07	7:55:30	10.00	9.75	2.59	0.12	-1.38	
03/01/07	7:55:45	10.00	10.04	2.09	0.12	-1.38	
03/01/07	7:56:00	10.00	10.07	1.68	0.12	-1.38	System Bias
03/01/07	7:56:15	10.01	10.03	1.42	0.12	-1.38	10.0% O ₂ /CO ₂ Injection
03/01/07	7:56:30	10.01	10.02	1.27	0.12	-1.38	10.01 % Oxygen
03/01/07	7:56:45	10.01	10.03	1.06	0.12	-1.63	10.03 % CO ₂
03/01/07	7:57:00	10.01	10.03	0.83	0.12	-1.50	
03/01/07	7:57:15	10.01	10.03	0.85	0.12	0.88	
03/01/07	7:57:30	10.02	10.05	0.76	0.14	58.65	
03/01/07	7:57:45	9.57	9.34	8.03	0.12	154.85	
03/01/07	7:58:00	5.77	6.35	32.56	0.25	208.08	
03/01/07	7:58:15	2.70	4.81	48.34	2.57	215.08	
03/01/07	7:58:30	2.11	4.55	52.08	9.92	242.83	
03/01/07	7:58:45	2.06	4.51	54.77	12.42	285.32	
03/01/07	7:59:00	2.19	4.48	58.51	13.57	263.57	
03/01/07	7:59:15	2.25	4.45	60.21	13.72	231.08	
03/01/07	7:59:30	2.13	4.49	59.77	13.62	229.45	
03/01/07	7:59:45	2.17	4.47	58.64	13.87	229.58	
03/01/07	8:00:00	2.21	4.48	57.96	14.02	221.46	Start Run 9
03/01/07	8:00:15	2.20	4.48	58.00	14.02	226.08	
03/01/07	8:00:30	2.21	4.44	58.20	14.12	212.46	
03/01/07	8:00:45	2.23	4.43	58.55	14.12	173.85	
03/01/07	8:01:00	2.11	4.47	59.86	14.12	180.85	
03/01/07	8:01:15	1.96	4.48	60.83	14.12	155.35	
03/01/07	8:01:30	2.01	4.46	61.69	14.02	164.84	
03/01/07	8:01:45	1.93	4.49	62.25	14.07	169.60	
03/01/07	8:02:00	1.99	4.48	62.54	14.12	134.75	
03/01/07	8:02:15	1.99	4.50	62.77	14.12	91.61	
03/01/07	8:02:30	1.78	4.57	63.92	14.04	105.46	
03/01/07	8:02:45	1.62	4.58	64.69	14.12	148.10	
03/01/07	8:03:00	1.89	4.50	63.97	14.12	149.80	
03/01/07	8:03:15	2.02	4.49	63.27	14.12	125.86	
03/01/07	8:03:30	1.93	4.52	63.27	14.12	114.23	
03/01/07	8:03:45	1.85	4.52	63.55	14.12	103.35	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	8:05:00	1.77	4.52	68.45	14.08	175.47	
03/01/07	8:05:15	1.85	4.47	68.24	14.07	165.84	
03/01/07	8:05:30	1.83	4.50	68.34	14.12	182.10	
03/01/07	8:05:45	1.78	4.54	68.48	14.12	201.84	
03/01/07	8:06:00	1.87	4.51	68.44	14.08	226.71	
03/01/07	8:06:15	1.76	4.54	68.56	14.02	295.57	
03/01/07	8:06:30	1.93	4.48	65.59	14.02	347.80	
03/01/07	8:06:45	2.16	4.43	64.14	14.02	343.30	
03/01/07	8:07:00	2.23	4.41	62.85	14.02	304.89	
03/01/07	8:07:15	2.19	4.44	62.19	14.07	295.33	
03/01/07	8:07:30	2.14	4.45	61.80	14.14	192.09	
03/01/07	8:07:45	1.96	4.51	62.10	14.27	153.80	
03/01/07	8:08:00	1.89	4.52	62.59	14.19	155.48	
03/01/07	8:08:15	1.84	4.53	62.98	14.17	174.35	
03/01/07	8:08:30	1.85	4.49	62.65	14.19	165.22	
03/01/07	8:08:45	1.99	4.48	62.30	14.12	158.85	
03/01/07	8:09:00	1.88	4.50	62.47	14.12	202.87	
03/01/07	8:09:15	1.94	4.48	62.26	14.17	228.84	
03/01/07	8:09:30	2.13	4.43	61.78	14.22	232.59	
03/01/07	8:09:45	2.10	4.43	61.34	14.17	218.84	
03/01/07	8:10:00	2.14	4.43	60.92	14.12	191.34	
03/01/07	8:10:15	2.00	4.47	61.33	14.17	195.34	
03/01/07	8:10:30	1.85	4.49	61.84	14.22	238.96	
03/01/07	8:10:45	2.05	4.45	61.91	14.17	228.84	
03/01/07	8:11:00	2.12	4.43	62.10	14.22	203.35	
03/01/07	8:11:15	1.95	4.47	62.82	14.17	198.60	
03/01/07	8:11:30	2.00	4.49	63.30	14.12	222.09	
03/01/07	8:11:45	2.01	4.44	64.18	14.17	255.08	
03/01/07	8:12:00	2.11	4.41	64.58	14.12	261.58	
03/01/07	8:12:15	2.12	4.43	64.87	14.12	248.08	
03/01/07	8:12:30	2.01	4.44	65.61	14.12	242.08	
03/01/07	8:12:45	1.92	4.47	66.30	14.12	258.33	
03/01/07	8:13:00	1.97	4.46	66.38	14.12	297.44	
03/01/07	8:13:15	2.01	4.45	65.79	14.19	304.57	
03/01/07	8:13:30	2.07	4.44	64.86	14.22	291.89	
03/01/07	8:13:45	2.05	4.46	63.49	14.22	289.36	
03/01/07	8:14:00	2.12	4.45	62.66	14.22	203.63	
03/01/07	8:14:15	1.97	4.51	62.80	14.22	188.85	
03/01/07	8:14:30	1.80	4.54	63.11	14.22	212.09	
03/01/07	8:14:45	1.90	4.49	63.23	14.22	195.60	
03/01/07	8:15:00	1.97	4.46	63.10	14.22	184.87	
03/01/07	8:15:15	1.92	4.50	63.37	14.22	208.84	
03/01/07	8:15:30	1.97	4.48	63.43	14.22	244.63	
03/01/07	8:15:45	2.08	4.47	63.32	14.22	291.57	
03/01/07	8:16:00	2.12	4.44	63.18	14.22	291.57	
03/01/07	8:16:15	2.21	4.43	62.98	14.22	265.08	
03/01/07	8:16:30	2.12	4.48	62.84	14.22	198.84	
03/01/07	8:16:45	2.04	4.46	63.09	14.29	145.86	
03/01/07	8:17:00	1.77	4.55	64.05	14.29	154.35	
03/01/07	8:17:15	1.82	4.53	64.20	14.22	147.86	
03/01/07	8:17:30	1.93	4.50	63.84	14.22	137.23	
03/01/07	8:17:45	1.83	4.51	64.14	14.22	139.86	
03/01/07	8:18:00	1.89	4.49	64.30	14.22	137.57	
03/01/07	8:18:15	1.85	4.51	64.85	14.22	128.86	
03/01/07	8:18:30	1.85	4.50	64.85	14.12	104.29	
03/01/07	8:18:45	1.76	4.52	65.49	14.12	94.35	
03/01/07	8:19:00	1.61	4.57	66.36	14.22	161.73	
03/01/07	8:19:15	1.61	4.55	66.82	14.22	245.33	
03/01/07	8:19:30	1.98	4.46	65.67	14.22	291.08	
03/01/07	8:19:45	2.12	4.45	64.80	14.22	309.82	
03/01/07	8:20:00	2.05	4.46	64.49	14.25	354.50	
03/01/07	8:20:15	2.16	4.44	64.16	14.32	324.58	
03/01/07	8:20:30	2.19	4.46	63.88	14.30	284.07	
03/01/07	8:20:45	2.10	4.47	63.88	14.22	244.59	
03/01/07	8:21:00	2.07	4.49	63.49	14.32	178.47	
03/01/07	8:21:15	1.95	4.53	63.72	14.32	188.10	
03/01/07	8:21:30	1.82	4.55	64.36	14.32	158.47	
03/01/07	8:21:45	1.89	4.52	64.84	14.32	145.38	
03/01/07	8:22:00	1.80	4.58	64.84	14.32	197.73	
03/01/07	8:22:15	1.83	4.53	64.91	14.32	238.84	
03/01/07	8:22:30	2.12	4.48	63.82	14.42	237.09	
03/01/07	8:22:45	2.19	4.45	63.16	14.42	227.09	
03/01/07	8:23:00	2.11	4.48	63.13	14.42	250.71	
03/01/07	8:23:15	2.12	4.45	63.21	14.42	234.09	
03/01/07	8:23:30	2.20	4.45	63.04	14.42	175.85	
03/01/07	8:23:45	2.02	4.50	63.04	14.35	175.85	
03/01/07	8:24:00	1.89	4.53	63.23	14.32	205.60	
03/01/07	8:24:15	2.00	4.49	63.13	14.32	206.09	
03/01/07	8:24:30	2.11	4.47	62.82	14.25	181.85	
03/01/07	8:24:45	2.03	4.52	63.24	14.40	138.11	
03/01/07	8:25:00	1.84	4.55	64.16	14.32	128.48	
03/01/07	8:25:15	1.62	4.54	64.71	14.32	108.11	
03/01/07	8:25:30	1.84	4.53	65.08	14.32	98.10	
03/01/07	8:25:45	1.70	4.57	65.85	14.25	138.60	
03/01/07	8:26:00	1.77	4.54	65.85	14.35	210.47	
03/01/07	8:26:15	2.00	4.46	65.10	14.42	231.09	
03/01/07	8:26:30	2.14	4.45	64.53	14.42	210.09	
03/01/07	8:26:45	2.03	4.49	64.35	14.42	248.63	
03/01/07	8:27:00	1.98	4.49	64.29	14.39	324.69	
03/01/07	8:27:15	2.17	4.43	63.78	14.40	319.56	
03/01/07	8:27:30	2.28	4.42	63.21	14.42	213.86	
03/01/07	8:27:45	2.06	4.50	63.27	14.42	199.85	
03/01/07	8:28:00	1.83	4.55	63.59	14.32	254.46	
03/01/07	8:28:15	2.01	4.49	63.17	14.32	284.63	
03/01/07	8:28:30	2.15	4.47	62.46	14.42	291.44	
03/01/07	8:28:45	2.21	4.45	61.79	14.42	270.33	
03/01/07	8:29:00	2.30	4.43	61.20	14.52	186.60	
03/01/07	8:29:15	2.04	4.52	61.72	14.52	137.61	
03/01/07	8:29:30	1.82	4.58	62.81	14.42	156.48	
03/01/07	8:29:45	1.89	4.53	62.94	14.42	186.35	
03/01/07	8:30:00	2.01	4.51	62.67	14.42	217.72	
03/01/07	8:30:15	2.07	4.50	62.90	14.42	232.34	
03/01/07	8:30:30	2.13	4.48	62.91	14.42	218.84	
03/01/07	8:30:45	2.15	4.48	62.40	14.42	202.10	
03/01/07	8:31:00	2.12	4.48	62.06	14.45	174.48	
03/01/07	8:31:15	2.07	4.51	62.00	14.45	153.11	
03/01/07	8:31:30	2.00	4.53	62.28	14.42	173.80	
03/01/07	8:31:45	1.93	4.54	62.58	14.42	175.35	
03/01/07	8:32:00	2.10	4.50	62.39	14.52	127.11	
03/01/07	8:32:15	1.97	4.58	62.68	14.45	126.11	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	8:33:45	2.20	4.44	62.71	14.49	220.34	
03/01/07	8:34:00	2.15	4.44	62.77	14.50	252.72	
03/01/07	8:34:15	2.23	4.44	62.78	14.49	272.33	
03/01/07	8:34:30	2.21	4.45	62.78	14.52	289.20	
03/01/07	8:34:45	2.19	4.47	62.72	14.52	317.32	
03/01/07	8:35:00	2.21	4.48	62.56	14.52	318.57	
03/01/07	8:35:15	2.22	4.48	62.30	14.52	282.58	
03/01/07	8:35:30	2.17	4.48	62.23	14.52	229.84	
03/01/07	8:35:45	2.07	4.52	62.24	14.45	229.84	
03/01/07	8:36:00	2.01	4.53	62.23	14.42	258.08	
03/01/07	8:36:15	2.18	4.48	61.81	14.49	234.83	
03/01/07	8:36:30	2.25	4.48	61.47	14.52	173.98	
03/01/07	8:36:45	2.11	4.50	61.46	14.60	150.36	
03/01/07	8:37:00	2.04	4.52	61.47	14.52	172.73	
03/01/07	8:37:15	2.04	4.51	61.49	14.52	174.85	
03/01/07	8:37:30	2.18	4.48	61.28	14.52	144.11	
03/01/07	8:37:45	2.11	4.50	61.41	14.45	153.86	
03/01/07	8:38:00	2.07	4.50	61.59	14.52	194.60	
03/01/07	8:38:15	2.20	4.48	61.52	14.60	219.84	
03/01/07	8:38:30	2.25	4.48	61.48	14.62	240.59	
03/01/07	8:38:45	2.28	4.45	61.35	14.62	238.34	
03/01/07	8:39:00	2.25	4.45	61.22	14.57	234.99	
03/01/07	8:39:15	2.24	4.45	61.18	14.52	230.59	
03/01/07	8:39:30	2.23	4.45	61.18	14.47	252.48	
03/01/07	8:39:45	2.15	4.47	61.49	14.52	287.33	
03/01/07	8:40:00	2.22	4.45	61.51	14.52	229.84	
03/01/07	8:40:15	2.15	4.49	61.52	14.45	238.84	
03/01/07	8:40:30	2.09	4.49	61.55	14.47	277.33	
03/01/07	8:40:45	2.24	4.48	61.38	14.52	293.32	
03/01/07	8:41:00	2.30	4.45	61.09	14.62	281.49	
03/01/07	8:41:15	2.31	4.47	60.91	14.62	223.34	
03/01/07	8:41:30	2.15	4.52	61.19	14.62	215.84	
03/01/07	8:41:45	2.08	4.52	61.33	14.55	219.59	
03/01/07	8:42:00	2.14	4.49	61.24	14.62	227.72	
03/01/07	8:42:15	2.21	4.47	60.93	14.62	212.84	
03/01/07	8:42:30	2.22	4.47	60.84	14.62	208.22	
03/01/07	8:42:45	2.17	4.47	60.85	14.69	218.09	
03/01/07	8:43:00	2.25	4.45	60.75	14.62	200.87	
03/01/07	8:43:15	2.30	4.44	60.67	14.62	147.61	
03/01/07	8:43:30	2.18	4.50	61.42	14.62	104.60	
03/01/07	8:43:45	1.84	4.57	62.59	14.62	130.11	
03/01/07	8:44:00	1.90	4.53	62.60	14.57	152.11	
03/01/07	8:44:15	2.11	4.49	62.48	14.52	127.36	
03/01/07	8:44:30	2.08	4.52	62.64	14.62	85.99	
03/01/07	8:44:45	1.87	4.58	63.85	14.62	77.86	
03/01/07	8:45:00	1.76	4.58	64.70	14.52	94.10	
03/01/07	8:45:15	1.75	4.58	65.11	14.52	107.88	
03/01/07	8:45:30	1.82	4.57	65.18	14.52	119.73	
03/01/07	8:45:45	1.87	4.56	65.07	14.52	148.86	
03/01/07	8:46:00	1.89	4.56	64.92	14.52	173.98	
03/01/07	8:46:15	2.00	4.54	64.88	14.52	182.85	
03/01/07	8:46:30	1.99	4.53	64.32	14.52	172.73	
03/01/07	8:46:45	2.05	4.52	64.09	14.52	153.86	
03/01/07	8:47:00	1.97	4.55	64.18	14.52	135.74	
03/01/07	8:47:15	1.88	4.56	64.21	14.52	148.38	
03/01/07	8:47:30	1.88	4.54	63.97	14.62	163.10	
03/01/07	8:47:45	1.97	4.52	63.51	14.62	210.10	
03/01/07	8:48:00	2.11	4.47	62.88	14.62	209.47	
03/01/07	8:48:15	2.15	4.48	62.39	14.62	204.35	
03/01/07	8:48:30	2.10	4.49	62.46	14.62	195.35	
03/01/07	8:48:45	2.12	4.50	62.44	14.54	206.90	
03/01/07	8:49:00	2.14	4.48	62.08	14.57	178.10	
03/01/07	8:49:15	2.21	4.48	61.61	14.62	141.85	
03/01/07	8:49:30	2.07	4.50	61.98	14.67	124.74	
03/01/07	8:49:45	2.04	4.51	61.89	14.72	119.93	
03/01/07	8:50:00	2.00	4.52	61.49	14.72	125.24	
03/01/07	8:50:15	1.94	4.53	61.72	14.72	148.84	
03/01/07	8:50:30	2.01	4.50	61.68	14.62	168.80	
03/01/07	8:50:45	2.08	4.48	61.39	14.62	183.21	
03/01/07	8:51:00	2.09	4.48	61.51	14.62	212.85	
03/01/07	8:51:15	2.15	4.48	61.41	14.55	208.85	
03/01/07	8:51:30	2.28	4.44	60.79	14.52	181.98	
03/01/07	8:51:45	2.18	4.48	60.85	14.52	178.73	
03/01/07	8:52:00	2.10	4.48	60.85	14.52	196.47	
03/01/07	8:52:15	2.13	4.47	60.34	14.52	182.72	
03/01/07	8:52:30	2.28	4.44	59.92	14.57	156.10	
03/01/07	8:52:45	2.16	4.48	60.30	14.62	153.86	
03/01/07	8:53:00	2.03	4.50	60.84	14.57	181.85	
03/01/07	8:53:15	2.11	4.48	61.16	14.60	228.47	
03/01/07	8:53:30	2.15	4.48	61.29	14.62	270.83	
03/01/07	8:53:45	2.23	4.44	61.24	14.62	289.57	
03/01/07	8:54:00	2.27	4.43	61.08	14.62	290.45	
03/01/07	8:54:15	2.26	4.43	60.81	14.54	251.21	
03/01/07	8:54:30	2.19	4.46	60.88	14.47	276.20	
03/01/07	8:54:45	2.18	4.47	60.57	14.52	332.44	
03/01/07	8:55:00	2.28	4.44	60.02	14.62	364.83	
03/01/07	8:55:15	2.32	4.44	59.78	14.62	359.31	
03/01/07	8:55:30	2.33	4.45	59.50	14.62	332.08	
03/01/07	8:55:45	2.32	4.44	59.34	14.55	258.86	
03/01/07	8:56:00	2.26	4.45	59.43	14.52	201.10	
03/01/07	8:56:15	2.05	4.50	58.85	14.52	171.10	
03/01/07	8:56:30	2.00	4.51	60.28	14.42	157.23	
03/01/07	8:56:45	1.98	4.51	60.66	14.42	153.49	
03/01/07	8:57:00	1.88	4.52	60.92	14.52	137.61	
03/01/07	8:57:15	1.93	4.55	61.01	14.52	140.24	
03/01/07	8:57:30	1.86	4.56	61.12	14.62	183.98	
03/01/07	8:57:45	2.01	4.52	60.85	14.82	189.61	
03/01/07	8:58:00	2.11	4.50	60.52	14.82	159.80	
03/01/07	8:58:15	2.08	4.51	60.65	14.62	150.23	
03/01/07	8:58:30	2.05	4.51	60.93	14.87	143.49	
03/01/07	8:58:45	2.03	4.51	60.64	14.72	134.87	
03/01/07	8:59:00	2.04	4.51	60.00	14.62	159.73	
03/01/07	8:59:15	2.01	4.50	60.09	14.62	224.59	
03/01/07	8:59:30	2.15	4.45	60.43	14.87	251.83	
03/01/07	8:59:45	2.27	4.43	61.00	14.62	201.87	End Run 9
03/01/07	9:00:00	2.18	4.47	62.00	14.52	158.11	
03/01/07	9:00:15	2.19	4.74	58.39	14.62	77.49	
03/01/07	9:00:30	5.66	6.78	36.26	14.12	18.25	
03/01/07	9:00:45	9.07	9.04	17.72	13.20	1.75	
03/01/07	9:01:00	9.90	9.83	9.75	5.62	-0.50	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	9:02:15	9.99	10.00	1.73	0.12	-0.88	
03/01/07	9:02:30	10.00	10.04	1.30	0.12	-0.87	
03/01/07	9:02:45	10.00	10.05	1.03	0.12	-0.87	
03/01/07	9:03:00	10.00	10.06	0.72	0.12	-0.88	
03/01/07	9:03:15	10.00	10.06	0.53	0.12	-0.88	
03/01/07	9:03:30	10.00	10.07	0.42	0.12	-0.87	
03/01/07	9:03:45	10.01	10.07	0.30	0.12	-0.87	10.0% O ₂ /CO ₂ Injection
03/01/07	9:04:00	10.01	10.07	0.21	0.12	-0.12	10.01 % Oxygen
03/01/07	9:04:15	10.01	10.07	0.13	0.12	12.62	10.07 % CO ₂
03/01/07	9:04:30	9.86	9.81	0.19	0.12	17.50	
03/01/07	9:04:45	7.82	7.29	1.13	0.40	38.49	
03/01/07	9:05:00	3.81	3.47	1.57	2.07	85.88	
03/01/07	9:05:15	1.21	0.67	1.21	2.15	173.99	
03/01/07	9:05:30	0.24	0.21	0.81	1.27	176.74	
03/01/07	9:05:45	0.07	0.10	0.47	0.37	180.49	
03/01/07	9:06:00	0.04	0.07	0.25	0.12	180.74	
03/01/07	9:06:15	0.03	0.06	0.10	0.12	181.12	
03/01/07	9:06:30	0.02	0.04	-0.05	0.12	181.12	System Bias
03/01/07	9:06:45	0.02	0.04	-0.16	0.05	181.12	180.0ppm CO Injection
03/01/07	9:07:00	0.01	0.03	-0.21	0.02	181.62	0.02 % Oxygen
03/01/07	9:07:15	0.01	0.02	-0.27	0.02	181.24	0.03 % CO ₂
03/01/07	9:07:30	0.01	0.04	-0.24	0.02	180.49	0.05 ppm NO _x
03/01/07	9:07:45	0.23	0.54	-0.29	0.12	204.11	181.27 ppm CO
03/01/07	9:08:00	0.24	0.33	-0.34	0.57	231.36	
03/01/07	9:08:15	0.05	0.05	-0.36	1.00	179.23	
03/01/07	9:08:30	0.01	0.01	-0.41	0.97	163.48	
03/01/07	9:08:45	0.05	0.24	-0.36	0.27	122.61	
03/01/07	9:09:00	0.45	1.27	0.52	0.07	54.49	
03/01/07	9:09:15	0.29	0.42	0.94	2.85	11.00	
03/01/07	9:09:30	0.05	0.05	0.69	12.82	2.00	
03/01/07	9:09:45	0.00	0.00	0.38	32.76	1.25	
03/01/07	9:10:00	0.00	-0.01	0.17	39.86	1.13	
03/01/07	9:10:15	0.00	-0.01	-0.01	41.91	1.13	
03/01/07	9:10:30	0.00	-0.01	-0.16	42.96	1.12	
03/01/07	9:10:45	0.00	-0.01	-0.25	44.06	1.13	System Bias
03/01/07	9:11:00	0.00	-0.01	-0.36	44.99	1.00	45.0ppm NO _x Injection
03/01/07	9:11:15	0.00	-0.01	-0.36	45.41	0.83	-0.33 ppm SO ₂
03/01/07	9:11:30	0.00	-0.02	-0.42	45.66	0.62	45.02 ppm NO _x
03/01/07	9:11:45	0.00	-0.02	-0.43	45.74	3.25	0.65 ppm CO
03/01/07	9:12:00	0.00	-0.02	-0.45	45.81	18.37	
03/01/07	9:12:15	0.20	0.57	-0.35	45.84	15.25	
03/01/07	9:12:30	0.48	0.88	4.86	44.26	4.25	
03/01/07	9:12:45	0.12	0.10	19.69	37.04	0.68	
03/01/07	9:13:00	0.01	-0.01	30.51	19.67	0.63	
03/01/07	9:13:15	-0.01	-0.02	36.05	7.27	0.63	
03/01/07	9:13:30	-0.01	-0.02	36.07	1.17	0.63	
03/01/07	9:13:45	-0.01	-0.02	40.99	0.55	0.63	
03/01/07	9:14:00	-0.01	-0.02	42.08	0.37	0.63	
03/01/07	9:14:15	-0.01	-0.02	42.73	0.30	0.63	
03/01/07	9:14:30	-0.01	-0.02	43.29	0.22	0.63	
03/01/07	9:14:45	-0.01	-0.02	43.71	0.22	0.63	
03/01/07	9:15:00	-0.01	-0.02	43.98	0.22	0.63	
03/01/07	9:15:15	-0.01	-0.02	44.23	0.15	0.63	
03/01/07	9:15:30	-0.01	-0.02	44.39	0.12	0.63	
03/01/07	9:15:45	-0.01	-0.03	44.53	0.12	0.63	System Bias
03/01/07	9:16:00	-0.01	-0.03	44.64	0.12	0.63	45.0ppm SO ₂ Injection
03/01/07	9:16:15	-0.01	-0.03	44.72	0.12	0.63	44.67 ppm SO ₂
03/01/07	9:16:30	-0.01	-0.03	44.79	0.12	21.50	
03/01/07	9:16:45	0.03	0.17	44.24	0.12	42.49	
03/01/07	9:17:00	1.02	2.16	38.64	0.12	22.25	
03/01/07	9:17:15	5.10	6.16	27.03	2.12	4.62	
03/01/07	9:17:30	8.64	8.94	15.48	3.47	-0.12	
03/01/07	9:17:45	9.82	9.85	9.15	1.75	-0.88	
03/01/07	9:18:00	9.97	9.95	6.20	0.57	-0.88	
03/01/07	9:18:15	10.00	9.98	4.46	0.20	-1.25	
03/01/07	9:18:30	10.00	10.01	3.22	0.12	-0.87	
03/01/07	9:18:45	10.01	10.04	2.38	0.12	-0.87	
03/01/07	9:19:00	10.01	10.06	1.83	0.12	-0.87	
03/01/07	9:19:15	10.02	10.06	1.41	0.12	-0.88	
03/01/07	9:19:30	10.02	10.06	1.00	0.12	5.05	
03/01/07	9:19:45	10.02	10.06	0.75	0.05	70.49	
03/01/07	9:20:00	9.22	8.96	2.88	0.02	188.13	
03/01/07	9:20:15	5.11	5.92	17.50	0.60	248.21	
03/01/07	9:20:30	2.54	4.69	31.49	3.57	310.40	
03/01/07	9:20:45	2.19	4.51	36.20	10.10	335.81	
03/01/07	9:21:00	2.31	4.45	43.52	13.02	306.07	
03/01/07	9:21:15	2.28	4.48	46.52	13.79	314.19	
03/01/07	9:21:30	2.20	4.47	52.79	13.67	361.32	
03/01/07	9:21:45	2.26	4.42	55.18	14.07	376.43	
03/01/07	9:22:00	2.33	4.41	58.62	14.17	317.82	Start Run 10
03/01/07	9:22:15	2.26	4.43	58.34	14.14	309.32	
03/01/07	9:22:30	2.19	4.44	59.30	14.17	322.57	
03/01/07	9:22:45	2.26	4.42	59.50	14.29	332.94	
03/01/07	9:23:00	2.29	4.41	59.43	14.32	294.82	
03/01/07	9:23:15	2.30	4.41	59.44	14.35	255.34	
03/01/07	9:23:30	2.16	4.48	60.12	14.37	294.63	
03/01/07	9:23:45	2.08	4.48	61.22	14.32	327.19	
03/01/07	9:24:00	2.21	4.41	61.94	14.32	302.57	
03/01/07	9:24:15	2.25	4.41	62.10	14.22	282.07	
03/01/07	9:24:30	2.24	4.41	62.05	14.17	278.08	
03/01/07	9:24:45	2.22	4.42	62.15	14.30	276.70	
03/01/07	9:25:00	2.22	4.42	62.28	14.37	287.07	
03/01/07	9:25:15	2.19	4.43	62.48	14.42	281.32	
03/01/07	9:25:30	2.21	4.44	62.52	14.47	257.63	
03/01/07	9:25:45	2.19	4.44	62.38	14.52	242.46	
03/01/07	9:26:00	2.17	4.44	62.39	14.52	225.34	
03/01/07	9:26:15	2.15	4.44	62.76	14.52	227.22	
03/01/07	9:26:30	2.16	4.44	63.09	14.47	252.63	
03/01/07	9:26:45	2.13	4.43	63.23	14.42	256.45	
03/01/07	9:27:00	2.13	4.44	63.49	14.42	306.82	
03/01/07	9:27:15	2.09	4.45	63.71	14.42	333.06	
03/01/07	9:27:30	2.20	4.40	63.69	14.42	331.81	
03/01/07	9:27:45	2.20	4.40	63.44	14.49	333.31	
03/01/07	9:28:00	2.20	4.40	63.24	14.47	326.06	
03/01/07	9:28:15	2.16	4.41	63.21	14.49	337.19	
03/01/07	9:28:30	2.13	4.44	63.14	14.47	379.31	
03/01/07	9:28:45	2.18	4.42	62.77	14.42	327.82	
03/01/07	9:29:00	2.23	4.42	62.40	14.42	262.34	
03/01/07	9:29:15	1.82	4.52	62.52	14.42	261.73	
03/01/07	9:29:30	1.78	4.54	62.70	14.42	285.33	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	9:30:45	2.19	4.43	60.14	14.52	382.84	
03/01/07	9:31:00	2.30	4.41	59.67	14.52	365.08	
03/01/07	9:31:15	2.28	4.41	59.54	14.52	335.94	
03/01/07	9:31:30	2.24	4.42	59.55	14.52	290.07	
03/01/07	9:31:45	2.21	4.43	59.47	14.45	265.45	
03/01/07	9:32:00	2.17	4.43	59.40	14.52	228.34	
03/01/07	9:32:15	2.14	4.45	59.53	14.52	210.65	
03/01/07	9:32:30	2.01	4.47	59.97	14.52	248.09	
03/01/07	9:32:45	2.01	4.48	60.44	14.52	284.20	
03/01/07	9:33:00	2.12	4.42	60.72	14.47	301.32	
03/01/07	9:33:15	2.19	4.41	60.83	14.42	314.07	
03/01/07	9:33:30	2.21	4.40	60.88	14.42	283.08	
03/01/07	9:33:45	2.17	4.43	61.21	14.42	265.71	
03/01/07	9:34:00	2.00	4.47	61.77	14.42	241.94	
03/01/07	9:34:15	1.99	4.46	61.89	14.40	248.46	
03/01/07	9:34:30	1.97	4.46	61.81	14.37	298.07	
03/01/07	9:34:45	2.08	4.46	61.67	14.42	325.32	
03/01/07	9:35:00	2.18	4.43	61.37	14.42	332.81	
03/01/07	9:35:15	2.22	4.43	60.93	14.52	357.93	
03/01/07	9:35:30	2.19	4.43	60.78	14.52	361.31	
03/01/07	9:35:45	2.21	4.41	60.81	14.52	348.08	
03/01/07	9:36:00	2.17	4.42	60.62	14.47	350.05	
03/01/07	9:36:15	2.23	4.41	60.26	14.45	331.89	
03/01/07	9:36:30	2.24	4.41	60.04	14.52	309.57	
03/01/07	9:36:45	2.15	4.44	59.88	14.62	268.45	
03/01/07	9:37:00	2.18	4.43	59.97	14.62	233.09	
03/01/07	9:37:15	1.97	4.51	60.36	14.62	273.95	
03/01/07	9:37:30	2.01	4.46	60.60	14.62	268.83	
03/01/07	9:37:45	2.17	4.45	60.60	14.60	237.59	
03/01/07	9:38:00	2.03	4.46	61.15	14.47	227.09	
03/01/07	9:38:15	2.05	4.47	61.55	14.42	238.09	
03/01/07	9:38:30	2.11	4.45	61.28	14.47	211.84	
03/01/07	9:38:45	2.13	4.44	61.09	14.52	226.48	
03/01/07	9:39:00	2.11	4.44	61.59	14.57	219.08	
03/01/07	9:39:15	2.11	4.44	62.16	14.60	218.21	
03/01/07	9:39:30	2.03	4.44	62.89	14.52	174.35	
03/01/07	9:39:45	2.04	4.45	63.17	14.52	162.23	
03/01/07	9:40:00	1.67	4.50	63.42	14.52	264.62	
03/01/07	9:40:15	1.91	4.47	63.41	14.52	327.44	
03/01/07	9:40:30	2.18	4.42	62.81	14.52	390.29	
03/01/07	9:40:45	2.22	4.40	61.96	14.52	366.43	
03/01/07	9:41:00	2.30	4.39	61.19	14.52	275.07	
03/01/07	9:41:15	2.08	4.46	60.96	14.52	289.31	
03/01/07	9:41:30	2.00	4.47	60.85	14.52	370.60	
03/01/07	9:41:45	2.20	4.42	60.58	14.52	377.04	
03/01/07	9:42:00	2.30	4.40	60.09	14.57	311.58	
03/01/07	9:42:15	2.33	4.40	59.55	14.52	298.19	
03/01/07	9:42:30	2.24	4.42	59.37	14.52	204.58	
03/01/07	9:42:45	2.20	4.43	60.25	14.52	178.96	
03/01/07	9:43:00	2.07	4.45	61.38	14.57	151.35	
03/01/07	9:43:15	2.08	4.44	61.43	14.52	146.35	
03/01/07	9:43:30	2.03	4.45	61.09	14.52	165.85	
03/01/07	9:43:45	2.11	4.45	60.75	14.52	181.24	
03/01/07	9:44:00	2.14	4.45	60.52	14.52	197.88	
03/01/07	9:44:15	2.17	4.44	60.43	14.52	187.21	
03/01/07	9:44:30	2.17	4.44	60.53	14.57	173.09	
03/01/07	9:44:45	2.11	4.46	60.85	14.62	192.09	
03/01/07	9:45:00	2.09	4.46	61.19	14.62	216.08	
03/01/07	9:45:15	2.14	4.45	61.17	14.62	229.33	
03/01/07	9:45:30	2.14	4.45	61.13	14.57	243.32	
03/01/07	9:45:45	2.15	4.44	61.00	14.45	252.45	
03/01/07	9:46:00	2.18	4.44	60.79	14.52	288.08	
03/01/07	9:46:15	2.18	4.43	60.44	14.54	315.80	
03/01/07	9:46:30	2.22	4.41	60.29	14.62	325.31	
03/01/07	9:46:45	2.24	4.41	60.11	14.69	313.05	
03/01/07	9:47:00	2.23	4.42	59.91	14.62	340.58	
03/01/07	9:47:15	2.22	4.41	59.64	14.62	311.07	
03/01/07	9:47:30	2.23	4.43	59.39	14.57	285.08	
03/01/07	9:47:45	2.17	4.45	59.25	14.54	254.46	
03/01/07	9:48:00	2.15	4.48	59.07	14.62	263.08	
03/01/07	9:48:15	2.16	4.47	59.02	14.72	290.07	
03/01/07	9:48:30	2.17	4.46	59.04	14.72	310.57	
03/01/07	9:48:45	2.25	4.44	59.03	14.72	283.82	
03/01/07	9:49:00	2.26	4.44	59.03	14.67	167.10	
03/01/07	9:49:15	2.12	4.49	59.24	14.85	124.48	
03/01/07	9:49:30	1.82	4.58	60.17	14.72	122.81	
03/01/07	9:49:45	1.88	4.59	61.33	14.89	172.23	
03/01/07	9:50:00	1.83	4.53	61.68	14.62	201.60	
03/01/07	9:50:15	2.10	4.47	60.91	14.62	178.53	
03/01/07	9:50:30	2.05	4.51	60.48	14.82	173.85	
03/01/07	9:50:45	1.97	4.52	60.31	14.72	193.67	
03/01/07	9:51:00	2.06	4.49	60.14	14.72	223.94	
03/01/07	9:51:15	2.14	4.48	59.89	14.72	215.44	
03/01/07	9:51:30	2.20	4.45	59.27	14.72	196.35	
03/01/07	9:51:45	2.14	4.47	59.82	14.74	182.32	
03/01/07	9:52:00	2.15	4.46	59.83	14.82	168.35	
03/01/07	9:52:15	2.15	4.48	59.82	14.60	196.10	
03/01/07	9:52:30	2.14	4.46	59.78	14.77	213.34	
03/01/07	9:52:45	2.15	4.45	59.85	14.82	222.34	
03/01/07	9:53:00	2.23	4.42	59.71	14.82	231.35	
03/01/07	9:53:15	2.21	4.42	59.72	14.79	233.47	
03/01/07	9:53:30	2.25	4.41	59.67	14.72	245.09	
03/01/07	9:53:45	2.25	4.42	59.51	14.72	262.58	
03/01/07	9:54:00	2.25	4.41	59.50	14.77	290.57	
03/01/07	9:54:15	2.23	4.42	59.38	14.72	270.20	
03/01/07	9:54:30	2.28	4.42	59.22	14.72	224.84	
03/01/07	9:54:45	2.16	4.47	59.27	14.60	230.71	
03/01/07	9:55:00	2.01	4.50	59.83	14.72	268.33	
03/01/07	9:55:15	2.18	4.45	59.58	14.62	252.21	
03/01/07	9:55:30	2.28	4.44	59.23	14.62	227.09	
03/01/07	9:55:45	2.18	4.48	59.10	14.62	214.72	
03/01/07	9:56:00	2.21	4.44	59.04	14.82	200.60	
03/01/07	9:56:15	2.22	4.43	57.96	14.82	165.10	
03/01/07	9:56:30	2.21	4.43	57.73	14.82	151.11	
03/01/07	9:56:45	2.18	4.45	57.71	14.82	120.48	
03/01/07	9:57:00	1.98	4.51	58.28	14.82	123.11	
03/01/07	9:57:15	1.90	4.52	59.08	14.72	137.38	
03/01/07	9:57:30	2.05	4.49	58.89	14.72	139.81	
03/01/07	9:57:45	2.07	4.49	58.51	14.82	155.86	
03/01/07	9:58:00	2.11	4.48	57.86	14.82	170.66	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	9:59:30	1.91	4.49	60.16	14.65	192.85	
03/01/07	9:59:45	2.15	4.45	59.78	14.62	211.22	
03/01/07	10:00:00	2.21	4.44	59.36	14.69	208.59	
03/01/07	10:00:15	2.25	4.42	58.96	14.75	183.88	
03/01/07	10:00:30	2.21	4.44	58.70	14.74	133.12	
03/01/07	10:00:45	2.03	4.48	59.10	14.72	158.48	
03/01/07	10:01:00	2.04	4.47	59.56	14.60	180.10	
03/01/07	10:01:15	2.16	4.44	58.48	14.72	173.48	
03/01/07	10:01:30	2.13	4.48	59.25	14.72	154.88	
03/01/07	10:01:45	2.02	4.49	59.23	14.69	183.48	
03/01/07	10:02:00	1.93	4.49	59.29	14.54	205.80	
03/01/07	10:02:15	2.19	4.43	58.80	14.64	199.60	
03/01/07	10:02:30	2.24	4.44	57.96	14.72	195.34	
03/01/07	10:02:45	2.28	4.43	57.64	14.74	194.85	
03/01/07	10:03:00	2.28	4.44	57.47	14.89	192.85	
03/01/07	10:03:15	2.24	4.45	57.04	14.82	175.85	
03/01/07	10:03:30	2.19	4.48	57.13	14.82	154.35	
03/01/07	10:03:45	2.10	4.47	57.49	14.89	147.88	
03/01/07	10:04:00	2.06	4.47	57.91	14.82	141.81	
03/01/07	10:04:15	2.08	4.47	58.24	14.82	180.48	
03/01/07	10:04:30	2.03	4.47	58.52	14.74	189.35	
03/01/07	10:04:45	2.16	4.43	58.47	14.72	185.97	
03/01/07	10:05:00	2.28	4.42	57.88	14.72	177.10	
03/01/07	10:05:15	2.18	4.45	57.90	14.82	174.35	
03/01/07	10:05:30	2.20	4.43	57.95	14.89	169.35	
03/01/07	10:05:45	2.20	4.45	57.95	14.82	168.23	
03/01/07	10:06:00	2.22	4.44	58.01	14.85	157.60	
03/01/07	10:06:15	2.24	4.43	58.01	14.82	142.23	
03/01/07	10:06:30	2.20	4.48	58.14	14.82	124.87	
03/01/07	10:06:45	2.15	4.47	58.47	14.75	103.89	
03/01/07	10:07:00	2.05	4.50	58.87	14.82	99.60	
03/01/07	10:07:15	1.99	4.50	59.24	14.82	100.38	
03/01/07	10:07:30	2.04	4.49	59.44	14.82	95.10	
03/01/07	10:07:45	2.03	4.50	58.73	14.82	92.88	
03/01/07	10:08:00	1.93	4.52	60.44	14.82	103.86	
03/01/07	10:08:15	1.89	4.52	60.93	14.82	120.38	
03/01/07	10:08:30	1.91	4.50	60.94	14.74	147.11	
03/01/07	10:08:45	1.89	4.47	60.52	14.72	151.23	
03/01/07	10:09:00	2.09	4.45	60.13	14.72	133.11	
03/01/07	10:09:15	2.01	4.48	59.98	14.72	141.86	
03/01/07	10:09:30	1.94	4.50	59.59	14.72	174.36	
03/01/07	10:09:45	1.99	4.47	59.22	14.72	168.48	
03/01/07	10:10:00	2.06	4.47	58.88	14.80	172.80	
03/01/07	10:10:15	1.94	4.51	59.14	14.82	214.09	
03/01/07	10:10:30	2.07	4.48	58.95	14.82	228.59	
03/01/07	10:10:45	2.22	4.45	58.38	14.82	213.97	
03/01/07	10:11:00	2.25	4.43	57.97	14.82	199.10	
03/01/07	10:11:15	2.29	4.42	58.04	14.82	195.80	
03/01/07	10:11:30	2.22	4.43	58.22	14.75	177.10	
03/01/07	10:11:45	2.24	4.43	58.82	14.72	147.38	
03/01/07	10:12:00	2.06	4.49	59.42	14.72	129.61	
03/01/07	10:12:15	2.08	4.48	59.34	14.72	134.24	
03/01/07	10:12:30	2.03	4.47	59.34	14.80	140.86	
03/01/07	10:12:45	2.08	4.48	59.31	14.80	135.11	
03/01/07	10:13:00	2.07	4.47	59.31	14.85	142.11	
03/01/07	10:13:15	2.08	4.48	59.31	14.72	160.10	
03/01/07	10:13:30	2.15	4.44	59.19	14.80	178.60	
03/01/07	10:13:45	2.16	4.44	59.33	14.82	200.23	
03/01/07	10:14:00	2.20	4.43	59.54	14.89	214.85	
03/01/07	10:14:15	2.21	4.42	59.69	14.80	224.94	
03/01/07	10:14:30	2.19	4.40	59.78	14.72	242.09	
03/01/07	10:14:45	2.22	4.39	59.64	14.82	234.48	
03/01/07	10:15:00	2.25	4.39	59.49	14.55	206.10	
03/01/07	10:15:15	2.12	4.43	58.82	14.52	228.08	
03/01/07	10:15:30	2.07	4.44	59.79	14.80	287.83	
03/01/07	10:15:45	2.20	4.42	59.49	14.65	276.95	
03/01/07	10:16:00	2.25	4.41	59.38	14.72	281.57	
03/01/07	10:16:15	2.22	4.44	59.33	14.72	303.82	
03/01/07	10:16:30	2.24	4.42	59.04	14.72	288.57	
03/01/07	10:16:45	2.28	4.41	58.69	14.80	249.34	
03/01/07	10:17:00	2.19	4.44	58.39	14.72	239.94	
03/01/07	10:17:15	2.18	4.45	58.16	14.72	227.97	
03/01/07	10:17:30	2.22	4.43	58.10	14.72	203.80	
03/01/07	10:17:45	2.13	4.48	58.28	14.72	206.35	
03/01/07	10:18:00	2.11	4.45	58.32	14.72	224.84	
03/01/07	10:18:15	2.16	4.44	58.28	14.72	225.21	
03/01/07	10:18:30	2.25	4.43	58.28	14.72	205.35	
03/01/07	10:18:45	2.21	4.44	58.20	14.72	185.23	
03/01/07	10:19:00	2.17	4.45	58.40	14.72	161.38	
03/01/07	10:19:15	2.11	4.48	58.81	14.72	138.88	
03/01/07	10:19:30	1.97	4.52	59.28	14.72	128.38	
03/01/07	10:19:45	1.97	4.51	59.40	14.65	143.48	
03/01/07	10:20:00	1.88	4.51	59.31	14.60	186.60	
03/01/07	10:20:15	2.09	4.47	58.85	14.82	149.48	
03/01/07	10:20:30	2.12	4.49	58.48	14.82	146.11	
03/01/07	10:20:45	1.98	4.52	58.81	14.82	143.11	
03/01/07	10:21:00	2.08	4.48	58.74	14.82	123.88	
03/01/07	10:21:15	1.97	4.51	59.34	14.78	127.29	
03/01/07	10:21:30	1.91	4.51	59.96	14.72	158.11	
03/01/07	10:21:45	1.97	4.49	60.01	14.72	184.91	End Run 10
03/01/07	10:22:00	2.07	4.48	59.51	14.72	141.10	
03/01/07	10:22:15	2.05	5.17	49.74	14.72	49.68	
03/01/07	10:22:30	7.03	7.63	28.00	13.97	9.88	
03/01/07	10:22:45	9.49	9.40	14.46	10.37	0.00	
03/01/07	10:23:00	9.93	9.80	8.14	4.17	-0.38	
03/01/07	10:23:15	9.98	9.74	5.26	1.07	-0.88	
03/01/07	10:23:30	9.98	9.68	3.56	0.36	-0.87	
03/01/07	10:23:45	9.98	9.75	2.52	0.17	-0.87	
03/01/07	10:24:00	9.97	9.85	1.74	0.12	-0.88	
03/01/07	10:24:15	9.97	9.91	1.19	0.12	-0.88	
03/01/07	10:24:30	9.98	9.94	0.74	0.12	-0.88	
03/01/07	10:24:45	9.98	9.94	0.51	0.12	-0.87	System Bias
03/01/07	10:25:00	9.98	9.95	0.28	0.12	-0.87	10.0% O ₂ /CO ₂ Injection
03/01/07	10:25:15	9.98	9.95	0.11	0.12	-0.88	9.98 % Oxygen
03/01/07	10:25:30	9.98	9.98	-0.04	0.12	-0.88	9.95 % CO ₂
03/01/07	10:25:45	9.99	9.98	-0.15	0.12	14.50	
03/01/07	10:26:00	9.98	9.88	-0.15	0.12	35.67	
03/01/07	10:26:15	8.19	8.04	2.28	0.12	86.12	
03/01/07	10:26:30	5.28	5.07	4.50	1.70	135.88	
03/01/07	10:26:45	2.05	1.87	3.29	3.82	173.48	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	10:28:00	0.02	0.06	-0.15	0.12	179.85	System Bias
03/01/07	10:28:15	0.02	0.04	-0.31	0.12	179.98	180.0ppm CO Injection 0.01 % Oxygen 0.03 % CO ₂ 0.12 ppm NO _x 179.63 ppm CO
03/01/07	10:28:30	0.02	0.03	-0.40	0.12	179.60	
03/01/07	10:28:45	0.01	0.02	-0.40	0.12	179.60	
03/01/07	10:29:00	0.01	0.01	-0.52	0.12	179.35	
03/01/07	10:29:15	0.01	0.05	-0.56	0.12	157.68	
03/01/07	10:29:30	0.36	0.64	-0.57	0.12	88.62	
03/01/07	10:29:45	0.42	0.52	-0.44	1.57	14.75	
03/01/07	10:30:00	0.09	0.08	-0.48	5.22	3.38	
03/01/07	10:30:15	0.01	0.01	-0.54	29.67	1.50	
03/01/07	10:30:30	0.00	0.00	-0.68	39.09	1.13	
03/01/07	10:30:45	0.00	-0.01	-0.67	42.21	1.13	
03/01/07	10:31:00	0.00	0.00	-0.70	43.14	1.13	
03/01/07	10:31:15	0.00	-0.01	-0.71	44.61	1.13	
03/01/07	10:31:30	0.00	-0.01	-0.71	45.29	0.63	System Bias
03/01/07	10:31:45	0.00	-0.01	-0.81	45.98	0.83	45.0ppm NO _x Injection -0.83 ppm SO ₂ 45.45 ppm NO _x 0.83 ppm CO
03/01/07	10:32:00	0.00	-0.02	-0.80	45.18	0.88	
03/01/07	10:32:15	-0.01	-0.02	-0.84	45.21	0.75	
03/01/07	10:32:30	0.00	-0.01	-0.87	45.46	0.87	
03/01/07	10:32:45	0.08	0.30	-0.80	45.61	17.62	
03/01/07	10:33:00	0.47	0.84	2.89	45.61	7.62	
03/01/07	10:33:15	0.20	0.19	19.31	40.01	1.00	
03/01/07	10:33:30	0.02	0.00	31.33	26.23	0.63	
03/01/07	10:33:45	-0.01	-0.02	37.06	8.47	0.62	
03/01/07	10:34:00	0.00	-0.02	39.84	2.35	0.62	
03/01/07	10:34:15	-0.01	-0.02	41.44	0.62	0.63	
03/01/07	10:34:30	-0.01	-0.02	42.36	0.40	0.63	
03/01/07	10:34:45	0.00	-0.02	42.93	0.32	0.63	
03/01/07	10:35:00	0.00	-0.02	43.39	0.25	0.63	
03/01/07	10:35:15	-0.01	-0.02	43.70	0.22	0.64	
03/01/07	10:35:30	0.00	-0.02	43.95	0.22	0.63	
03/01/07	10:35:45	-0.01	-0.03	44.15	0.17	0.63	
03/01/07	10:36:00	-0.01	-0.03	44.26	0.12	0.62	System Bias
03/01/07	10:36:15	-0.01	-0.03	44.47	0.12	0.63	45.0ppm SO ₂ Injection 44.74 ppm SO ₂
03/01/07	10:36:30	0.00	-0.03	44.75	0.12	0.62	
03/01/07	10:36:45	-0.01	-0.03	44.92	0.12	6.00	
03/01/07	10:37:00	-0.01	-0.03	44.81	0.12	54.80	
03/01/07	10:37:15	0.31	1.07	43.92	0.12	106.39	
03/01/07	10:37:30	1.48	3.41	45.74	1.20	124.74	
03/01/07	10:37:45	2.08	4.29	46.97	4.67	135.49	
03/01/07	10:38:00	2.14	4.40	47.01	11.12	153.48	
03/01/07	10:38:15	2.17	4.42	48.08	13.67	172.65	
03/01/07	10:38:30	2.21	4.41	50.43	14.35	179.60	
03/01/07	10:38:45	2.16	4.43	53.07	14.47	189.35	
03/01/07	10:39:00	2.14	4.42	55.19	14.42	201.72	
03/01/07	10:39:15	2.18	4.42	56.67	14.42	218.59	
03/01/07	10:39:30	2.21	4.41	57.39	14.42	229.48	
03/01/07	10:39:45	2.22	4.42	57.76	14.47	228.21	
03/01/07	10:40:00	2.24	4.43	57.74	14.57	225.59	Start Run 11
03/01/07	10:40:15	2.19	4.44	57.68	14.52	287.35	
03/01/07	10:40:30	2.19	4.43	57.59	14.52	193.10	
03/01/07	10:40:45	2.18	4.44	57.53	14.57	217.59	
03/01/07	10:41:00	2.18	4.44	57.68	14.62	243.46	
03/01/07	10:41:15	2.26	4.41	57.62	14.62	242.34	
03/01/07	10:41:30	2.34	4.41	57.43	14.60	212.34	
03/01/07	10:41:45	2.26	4.44	57.80	14.52	233.21	
03/01/07	10:42:00	2.20	4.44	58.28	14.54	248.96	
03/01/07	10:42:15	2.36	4.41	58.11	14.62	229.09	
03/01/07	10:42:30	2.38	4.42	57.90	14.69	185.23	
03/01/07	10:42:45	2.32	4.44	57.92	14.72	141.86	
03/01/07	10:43:00	2.15	4.48	58.38	14.72	137.74	
03/01/07	10:43:15	2.07	4.46	58.86	14.72	136.11	
03/01/07	10:43:30	2.18	4.45	59.09	14.72	118.46	
03/01/07	10:43:45	2.18	4.45	59.42	14.72	118.74	
03/01/07	10:44:00	2.09	4.46	59.92	14.77	133.36	
03/01/07	10:44:15	2.17	4.43	60.23	14.72	139.24	
03/01/07	10:44:30	2.20	4.42	60.72	14.72	161.73	
03/01/07	10:44:45	2.15	4.43	61.68	14.72	192.35	
03/01/07	10:45:00	2.19	4.43	61.78	14.70	215.59	
03/01/07	10:45:15	2.26	4.41	61.24	14.62	224.34	
03/01/07	10:45:30	2.27	4.43	60.78	14.65	199.22	
03/01/07	10:45:45	2.23	4.45	60.52	14.72	175.10	
03/01/07	10:46:00	2.10	4.46	60.35	14.72	189.35	
03/01/07	10:46:15	2.08	4.49	60.27	14.72	221.09	
03/01/07	10:46:30	2.19	4.47	60.47	14.65	224.46	
03/01/07	10:46:45	2.26	4.44	60.56	14.67	221.21	
03/01/07	10:47:00	2.25	4.44	60.11	14.80	211.47	
03/01/07	10:47:15	2.28	4.44	59.37	14.67	184.10	
03/01/07	10:47:30	2.18	4.47	58.95	14.92	182.60	
03/01/07	10:47:45	2.10	4.47	58.79	14.92	191.85	
03/01/07	10:48:00	2.18	4.45	58.59	14.92	168.60	
03/01/07	10:48:15	2.24	4.46	58.34	14.92	154.11	
03/01/07	10:48:30	2.07	4.50	58.68	14.92	158.60	
03/01/07	10:48:45	2.07	4.46	59.04	14.92	150.61	
03/01/07	10:49:00	2.08	4.49	59.37	14.89	144.99	
03/01/07	10:49:15	2.04	4.49	59.43	14.77	137.24	
03/01/07	10:49:30	2.12	4.47	59.24	14.72	111.73	
03/01/07	10:49:45	2.05	4.51	59.41	14.72	107.24	
03/01/07	10:50:00	1.94	4.52	59.75	14.75	124.11	
03/01/07	10:50:15	2.05	4.49	59.53	14.82	120.12	
03/01/07	10:50:30	2.16	4.47	59.34	14.62	117.11	
03/01/07	10:50:45	2.10	4.49	59.39	14.62	122.49	
03/01/07	10:51:00	2.19	4.48	59.17	14.62	132.61	
03/01/07	10:51:15	2.22	4.45	58.97	14.62	147.46	
03/01/07	10:51:30	2.22	4.45	58.89	14.60	146.73	
03/01/07	10:51:45	2.24	4.45	58.79	14.77	141.61	
03/01/07	10:52:00	2.15	4.47	58.95	14.82	171.23	
03/01/07	10:52:15	2.13	4.48	59.10	14.77	159.85	
03/01/07	10:52:30	2.21	4.44	59.11	14.72	118.23	
03/01/07	10:52:45	1.96	4.50	59.86	14.72	135.11	
03/01/07	10:53:00	1.89	4.50	60.55	14.70	164.73	
03/01/07	10:53:15	2.09	4.48	60.43	14.62	226.22	
03/01/07	10:53:30	2.13	4.45	60.25	14.65	252.09	
03/01/07	10:53:45	2.31	4.41	59.85	14.72	229.84	
03/01/07	10:54:00	2.25	4.44	59.27	14.64	220.49	
03/01/07	10:54:15	2.20	4.44	59.17	14.62	229.34	
03/01/07	10:54:30	2.23	4.43	58.99	14.62	211.47	
03/01/07	10:54:45	2.27	4.43	58.90	14.62	188.85	
03/01/07	10:55:00	2.18	4.45	59.31	14.62	206.10	
03/01/07	10:55:15	2.19	4.44	59.03	14.62	198.97	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	10:56:30	2.18	4.47	58.11	14.72	122.23	
03/01/07	10:56:45	2.19	4.48	58.22	14.72	83.88	
03/01/07	10:57:00	1.89	4.55	58.47	14.72	86.88	
03/01/07	10:57:15	1.87	4.53	60.12	14.87	118.23	
03/01/07	10:57:30	2.04	4.49	58.97	14.85	158.11	
03/01/07	10:57:45	2.18	4.45	59.57	14.72	174.23	
03/01/07	10:58:00	2.28	4.42	59.27	14.60	153.61	
03/01/07	10:58:15	2.28	4.42	58.15	14.72	134.38	
03/01/07	10:58:30	2.13	4.45	59.53	14.72	147.11	
03/01/07	10:58:45	2.09	4.45	59.88	14.72	197.47	
03/01/07	10:59:00	2.15	4.43	59.85	14.72	242.84	
03/01/07	10:59:15	2.27	4.39	59.69	14.72	247.21	
03/01/07	10:59:30	2.27	4.41	59.55	14.72	272.70	
03/01/07	10:59:45	2.21	4.41	59.33	14.87	280.45	
03/01/07	11:00:00	2.33	4.41	58.88	14.62	292.07	
03/01/07	11:00:15	2.35	4.42	58.55	14.62	291.70	
03/01/07	11:00:30	2.39	4.40	58.33	14.62	237.21	
03/01/07	11:00:45	2.35	4.42	58.31	14.62	178.10	
03/01/07	11:01:00	2.24	4.45	58.34	14.55	131.48	
03/01/07	11:01:15	2.14	4.48	58.50	14.62	108.41	
03/01/07	11:01:30	1.86	4.52	59.01	14.85	111.73	
03/01/07	11:01:45	2.04	4.50	59.14	14.72	101.11	
03/01/07	11:02:00	2.08	4.50	58.84	14.72	86.48	
03/01/07	11:02:15	1.85	4.55	59.39	14.72	104.11	
03/01/07	11:02:30	1.92	4.53	59.76	14.72	130.49	
03/01/07	11:02:45	2.12	4.47	59.37	14.72	134.38	
03/01/07	11:03:00	2.22	4.45	59.04	14.72	126.11	
03/01/07	11:03:15	2.14	4.48	58.21	14.72	142.38	
03/01/07	11:03:30	2.09	4.47	59.59	14.72	149.11	
03/01/07	11:03:45	2.18	4.44	59.69	14.72	132.88	
03/01/07	11:04:00	2.18	4.44	59.85	14.60	126.61	
03/01/07	11:04:15	2.09	4.48	60.26	14.87	129.11	
03/01/07	11:04:30	2.09	4.44	60.47	14.62	135.88	
03/01/07	11:04:45	2.07	4.48	60.61	14.62	181.10	
03/01/07	11:05:00	2.10	4.45	60.41	14.62	236.72	
03/01/07	11:05:15	2.22	4.43	59.98	14.62	259.58	
03/01/07	11:05:30	2.28	4.42	59.58	14.62	277.45	
03/01/07	11:05:45	2.28	4.42	59.08	14.62	301.32	
03/01/07	11:06:00	2.35	4.40	58.61	14.62	307.45	
03/01/07	11:06:15	2.38	4.40	58.36	14.62	301.62	
03/01/07	11:06:30	2.38	4.40	58.23	14.62	284.07	
03/01/07	11:06:45	2.37	4.40	58.14	14.62	244.33	
03/01/07	11:07:00	2.35	4.41	57.79	14.85	213.09	
03/01/07	11:07:15	2.30	4.43	57.88	14.72	179.35	
03/01/07	11:07:30	2.28	4.44	57.77	14.72	154.73	
03/01/07	11:07:45	2.17	4.48	58.34	14.72	125.11	
03/01/07	11:08:00	2.15	4.48	59.15	14.62	111.73	
03/01/07	11:08:15	2.13	4.48	59.42	14.62	112.61	
03/01/07	11:08:30	2.14	4.48	59.47	14.62	118.88	
03/01/07	11:08:45	2.20	4.44	59.45	14.67	147.11	
03/01/07	11:09:00	2.22	4.43	59.40	14.60	169.23	
03/01/07	11:09:15	2.29	4.41	59.34	14.67	176.35	
03/01/07	11:09:30	2.32	4.41	59.15	14.72	177.48	
03/01/07	11:09:45	2.24	4.42	58.20	14.72	182.85	
03/01/07	11:10:00	2.22	4.42	58.47	14.72	188.60	
03/01/07	11:10:15	2.21	4.43	58.66	14.67	158.35	
03/01/07	11:10:30	2.18	4.44	58.71	14.60	189.88	
03/01/07	11:10:45	2.16	4.43	58.77	14.57	205.09	
03/01/07	11:11:00	2.15	4.43	59.99	14.87	224.09	
03/01/07	11:11:15	2.18	4.42	60.08	14.47	240.58	
03/01/07	11:11:30	2.19	4.45	59.88	14.42	230.86	
03/01/07	11:11:45	2.22	4.45	59.69	14.42	186.88	
03/01/07	11:12:00	2.18	4.47	58.88	14.45	132.74	
03/01/07	11:12:15	1.94	4.53	60.37	14.52	151.38	
03/01/07	11:12:30	1.94	4.50	60.85	14.55	172.60	
03/01/07	11:12:45	2.09	4.46	60.88	14.62	203.10	
03/01/07	11:13:00	2.16	4.45	60.37	14.52	220.84	
03/01/07	11:13:15	2.21	4.42	60.07	14.57	218.58	
03/01/07	11:13:30	2.23	4.41	59.81	14.52	196.22	
03/01/07	11:13:45	2.23	4.41	59.69	14.47	141.11	
03/01/07	11:14:00	2.14	4.44	59.95	14.42	108.49	
03/01/07	11:14:15	1.91	4.50	61.16	14.47	122.61	
03/01/07	11:14:30	1.85	4.50	61.84	14.52	148.38	
03/01/07	11:14:45	1.98	4.46	61.83	14.47	173.10	
03/01/07	11:15:00	2.05	4.48	61.50	14.35	188.22	
03/01/07	11:15:15	2.12	4.43	60.99	14.42	194.10	
03/01/07	11:15:30	2.16	4.42	60.83	14.42	142.88	
03/01/07	11:15:45	1.99	4.47	61.05	14.42	171.85	
03/01/07	11:16:00	1.97	4.48	61.36	14.42	194.22	
03/01/07	11:16:15	2.18	4.44	61.83	14.42	189.60	
03/01/07	11:16:30	2.13	4.48	60.89	14.42	195.10	
03/01/07	11:16:45	2.07	4.47	60.82	14.42	206.10	
03/01/07	11:17:00	2.13	4.43	60.74	14.42	197.10	
03/01/07	11:17:15	2.16	4.42	61.60	14.42	171.60	
03/01/07	11:17:30	2.11	4.43	62.72	14.42	165.85	
03/01/07	11:17:45	2.03	4.45	62.89	14.47	226.59	
03/01/07	11:18:00	2.03	4.43	62.66	14.52	288.71	
03/01/07	11:18:15	2.19	4.39	62.60	14.47	285.88	
03/01/07	11:18:30	2.19	4.41	62.29	14.42	273.70	
03/01/07	11:18:45	2.14	4.43	62.12	14.42	299.57	
03/01/07	11:19:00	2.19	4.42	62.03	14.42	290.19	
03/01/07	11:19:15	2.14	4.44	62.13	14.42	288.62	
03/01/07	11:19:30	2.09	4.48	62.15	14.32	338.81	
03/01/07	11:19:45	2.16	4.44	61.95	14.32	368.05	
03/01/07	11:20:00	2.27	4.41	61.84	14.35	371.93	
03/01/07	11:20:15	2.28	4.42	61.87	14.42	383.58	
03/01/07	11:20:30	2.31	4.42	60.72	14.54	344.44	
03/01/07	11:20:45	2.30	4.42	60.63	14.55	217.84	
03/01/07	11:21:00	2.18	4.46	60.89	14.50	160.98	
03/01/07	11:21:15	1.98	4.50	61.21	14.42	181.61	
03/01/07	11:21:30	1.99	4.46	62.11	14.55	175.23	
03/01/07	11:21:45	2.11	4.44	62.33	14.62	192.65	
03/01/07	11:22:00	2.17	4.44	62.26	14.52	184.60	
03/01/07	11:22:15	2.17	4.44	62.10	14.60	147.38	
03/01/07	11:22:30	2.04	4.46	62.21	14.62	187.61	
03/01/07	11:22:45	1.92	4.49	62.55	14.62	250.88	
03/01/07	11:23:00	2.05	4.44	62.70	14.60	269.70	
03/01/07	11:23:15	2.19	4.41	62.48	14.52	284.07	
03/01/07	11:23:30	2.12	4.44	62.28	14.52	284.95	
03/01/07	11:23:45	2.18	4.43	62.19	14.45	291.57	
03/01/07	11:24:00	2.25	4.45	62.25	14.45	297.00	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	11:25:15	2.06	4.48	61.79	14.42	289.83	
03/01/07	11:25:30	2.06	4.44	61.60	14.42	337.93	
03/01/07	11:25:45	2.27	4.38	62.21	14.42	350.60	
03/01/07	11:26:00	2.34	4.37	62.14	14.35	325.69	
03/01/07	11:26:15	2.34	4.38	61.43	14.50	281.57	
03/01/07	11:26:30	2.28	4.41	60.87	14.52	265.45	
03/01/07	11:26:45	2.25	4.43	60.44	14.52	252.33	
03/01/07	11:27:00	2.28	4.43	60.00	14.55	235.48	
03/01/07	11:27:15	2.28	4.44	60.24	14.62	202.10	
03/01/07	11:27:30	2.23	4.45	60.66	14.65	182.23	
03/01/07	11:27:45	2.13	4.48	60.62	14.65	170.10	
03/01/07	11:28:00	2.13	4.44	60.52	14.52	179.10	
03/01/07	11:28:15	2.16	4.43	60.43	14.52	173.35	
03/01/07	11:28:30	2.19	4.42	60.64	14.52	181.10	
03/01/07	11:28:45	2.00	4.48	61.55	14.52	196.10	
03/01/07	11:29:00	1.97	4.45	61.98	14.49	259.50	
03/01/07	11:29:15	2.13	4.41	61.78	14.42	327.32	
03/01/07	11:29:30	2.27	4.39	61.35	14.45	321.00	
03/01/07	11:29:45	2.22	4.41	61.09	14.45	353.06	
03/01/07	11:30:00	2.14	4.43	61.10	14.42	399.30	
03/01/07	11:30:15	2.30	4.39	61.14	14.49	345.31	
03/01/07	11:30:30	2.37	4.40	60.97	14.52	277.58	
03/01/07	11:30:45	2.14	4.47	60.76	14.52	291.07	
03/01/07	11:31:00	2.16	4.45	60.34	14.52	291.69	
03/01/07	11:31:15	2.34	4.41	59.48	14.60	260.63	
03/01/07	11:31:30	2.29	4.43	59.76	14.47	233.47	
03/01/07	11:31:45	2.29	4.42	58.51	14.32	207.59	
03/01/07	11:32:00	2.27	4.42	58.52	14.35	182.60	
03/01/07	11:32:15	2.19	4.46	58.84	14.49	119.61	
03/01/07	11:32:30	2.00	4.52	59.60	14.54	126.98	
03/01/07	11:32:45	1.87	4.55	60.17	14.54	133.61	
03/01/07	11:33:00	2.12	4.48	59.98	14.52	97.66	
03/01/07	11:33:15	2.06	4.52	60.30	14.52	79.36	
03/01/07	11:33:30	1.86	4.55	61.33	14.62	88.66	
03/01/07	11:33:45	1.91	4.52	61.87	14.62	110.11	
03/01/07	11:34:00	1.98	4.49	61.99	14.62	128.24	
03/01/07	11:34:15	2.12	4.45	61.62	14.54	132.11	
03/01/07	11:34:30	2.08	4.45	62.13	14.54	171.38	
03/01/07	11:34:45	1.98	4.47	62.48	14.62	207.35	
03/01/07	11:35:00	2.18	4.43	61.96	14.62	211.47	
03/01/07	11:35:15	2.17	4.45	61.64	14.62	220.64	
03/01/07	11:35:30	2.16	4.45	61.59	14.60	241.21	
03/01/07	11:35:45	2.17	4.45	61.59	14.52	254.08	
03/01/07	11:36:00	2.22	4.44	61.28	14.60	260.58	
03/01/07	11:36:15	2.27	4.43	60.90	14.52	265.58	
03/01/07	11:36:30	2.30	4.43	60.43	14.52	245.96	
03/01/07	11:36:45	2.34	4.42	59.79	14.52	201.84	
03/01/07	11:37:00	2.25	4.44	59.46	14.60	154.11	
03/01/07	11:37:15	2.07	4.48	60.29	14.52	129.66	
03/01/07	11:37:30	1.97	4.50	60.94	14.52	148.73	
03/01/07	11:37:45	1.95	4.51	61.00	14.52	179.10	
03/01/07	11:38:00	2.10	4.46	60.28	14.62	192.35	
03/01/07	11:38:15	2.26	4.45	59.37	14.62	209.59	
03/01/07	11:38:30	2.24	4.45	58.95	14.72	240.33	
03/01/07	11:38:45	2.31	4.43	58.51	14.72	240.64	
03/01/07	11:39:00	2.42	4.40	58.15	14.70	197.60	
03/01/07	11:39:15	2.37	4.41	57.82	14.54	150.11	
03/01/07	11:39:30	2.24	4.44	57.98	14.52	126.38	
03/01/07	11:39:45	2.09	4.46	58.47	14.60	119.11	End Run 11
03/01/07	11:40:00	2.04	4.50	58.78	14.62	68.66	
03/01/07	11:40:15	2.02	4.07	58.34	14.60	38.37	
03/01/07	11:40:30	1.35	1.63	48.69	14.62	2.13	
03/01/07	11:40:45	0.31	0.23	45.20	11.10	1.38	
03/01/07	11:41:00	0.03	0.04	44.41	4.82	1.00	
03/01/07	11:41:15	0.00	0.02	44.12	1.22	0.88	
03/01/07	11:41:30	0.00	0.01	44.09	0.37	1.00	System Bias
03/01/07	11:41:45	0.00	0.00	44.15	0.22	0.63	45.0ppm SO ₂ injection
03/01/07	11:42:00	0.00	0.00	44.15	0.12	0.63	44.20 ppm SO ₂
03/01/07	11:42:15	0.00	0.00	44.26	0.12	0.63	
03/01/07	11:42:30	0.00	-0.01	44.25	0.12	0.62	
03/01/07	11:42:45	-0.01	-0.01	44.27	0.12	0.63	
03/01/07	11:43:00	0.00	-0.02	44.27	0.12	20.62	
03/01/07	11:43:15	-0.01	0.01	44.05	0.12	80.11	
03/01/07	11:43:30	0.51	1.55	43.52	0.12	131.48	
03/01/07	11:43:45	1.80	3.73	49.28	1.77	175.35	
03/01/07	11:44:00	1.97	4.37	54.71	6.62	219.71	
03/01/07	11:44:15	2.25	4.30	56.26	11.87	226.58	
03/01/07	11:44:30	2.32	4.40	56.63	14.07	219.34	
03/01/07	11:44:45	2.25	4.41	57.30	14.42	213.59	
03/01/07	11:45:00	2.27	4.41	57.37	14.42	189.97	
03/01/07	11:45:15	2.28	4.41	57.40	14.42	184.60	
03/01/07	11:45:30	2.24	4.42	57.47	14.52	176.97	
03/01/07	11:45:45	2.21	4.42	57.62	14.52	177.35	
03/01/07	11:46:00	2.20	4.42	57.69	14.47	140.48	
03/01/07	11:46:15	2.19	4.00	55.79	14.42	79.86	
03/01/07	11:46:30	1.17	1.58	36.75	14.57	83.36	
03/01/07	11:46:45	0.24	0.26	20.24	11.32	109.35	
03/01/07	11:47:00	0.05	0.04	11.25	4.62	113.36	
03/01/07	11:47:15	0.03	0.05	7.06	1.37	115.11	
03/01/07	11:47:30	0.20	0.47	4.90	0.32	143.98	
03/01/07	11:47:45	0.14	0.19	3.50	0.82	171.35	
03/01/07	11:48:00	0.01	0.01	2.55	1.52	177.73	
03/01/07	11:48:15	0.00	-0.01	1.83	0.70	178.85	System Bias
03/01/07	11:48:30	-0.01	-0.02	1.35	0.22	179.23	180.0ppm CO injection
03/01/07	11:48:45	-0.01	-0.02	0.91	0.12	179.60	-0.01 % Oxygen
03/01/07	11:49:00	-0.01	-0.02	0.86	0.12	179.48	-0.02 % CO ₂
03/01/07	11:49:15	-0.01	-0.02	0.45	0.12	179.35	0.15 ppm NO _x
03/01/07	11:49:30	0.00	-0.03	0.16	0.12	179.32	179.41 ppm CO
03/01/07	11:49:45	-0.01	-0.03	0.09	0.12	178.10	
03/01/07	11:50:00	-0.01	-0.03	-0.01	0.12	168.04	
03/01/07	11:50:15	0.09	0.36	-0.11	0.12	118.86	
03/01/07	11:50:30	0.45	0.84	-0.14	0.12	37.31	
03/01/07	11:50:45	0.18	0.17	-0.09	3.50	7.63	
03/01/07	11:51:00	0.02	-0.01	-0.17	16.22	1.62	
03/01/07	11:51:15	0.00	-0.03	-0.20	34.87	1.37	
03/01/07	11:51:30	-0.01	-0.03	-0.29	40.96	1.13	
03/01/07	11:51:45	-0.01	-0.03	-0.43	42.34	1.13	
03/01/07	11:52:00	-0.01	-0.02	-0.46	44.61	1.13	System Bias
03/01/07	11:52:15	-0.01	-0.03	-0.50	45.54	1.12	45.0ppm NO _x injection
03/01/07	11:52:30	-0.01	-0.03	-0.57	45.41	1.12	-0.59 ppm SO ₂

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	11:53:45	0.79	1.03	1.34	45.74	38.87	
03/01/07	11:54:00	3.34	4.88	3.24	41.76	7.37	
03/01/07	11:54:15	7.46	8.01	2.64	31.97	0.67	
03/01/07	11:54:30	9.53	9.44	1.59	15.82	-0.75	
03/01/07	11:54:45	9.90	9.54	0.77	7.35	-0.83	
03/01/07	11:55:00	9.94	9.48	0.31	1.27	-0.88	
03/01/07	11:55:15	9.95	9.60	0.01	0.56	-0.88	
03/01/07	11:55:30	9.97	9.76	-0.17	0.32	-0.87	
03/01/07	11:55:45	9.97	9.85	-0.30	0.30	-0.87	
03/01/07	11:56:00	9.98	9.87	-0.40	0.22	-0.88	
03/01/07	11:56:15	9.98	9.90	-0.54	0.22	-0.88	
03/01/07	11:56:30	9.98	9.91	-0.59	0.17	-0.88	
03/01/07	11:56:45	9.99	9.92	-0.68	0.12	-0.87	
03/01/07	11:57:00	9.99	9.92	-0.71	0.12	-0.88	System Bias
03/01/07	11:57:15	9.98	9.83	-0.87	0.12	-0.88	10.0% O ₂ /CO ₂ Injection
03/01/07	11:57:30	9.99	9.83	-0.81	0.12	-1.25	9.99 % Oxygen
03/01/07	11:57:45	9.99	9.83	-0.70	0.12	-0.88	9.93 % CO ₂
03/01/07	11:58:00	9.57	9.25	0.00	0.12	19.72	
03/01/07	11:58:15	5.85	6.34	11.10	0.67	199.89	
03/01/07	11:58:30	2.83	4.78	27.05	3.72	179.84	
03/01/07	11:58:45	2.27	4.54	34.49	8.92	200.65	
03/01/07	11:59:00	2.17	4.52	39.45	13.17	250.57	
03/01/07	11:59:15	2.24	4.48	43.50	13.89	286.76	
03/01/07	11:59:30	2.38	4.44	46.85	14.17	295.58	
03/01/07	11:59:45	2.45	4.43	49.66	14.22	273.90	
03/01/07	12:00:00	2.46	4.44	51.82	14.22	260.07	
03/01/07	12:00:15	2.44	4.44	53.18	14.32	239.83	
03/01/07	12:00:30	2.40	4.44	53.86	14.47	240.08	
03/01/07	12:00:45	2.34	4.45	54.53	14.44	232.58	
03/01/07	12:01:00	2.39	4.43	55.24	14.42	189.59	Start Run 12
03/01/07	12:01:15	2.33	4.44	55.87	14.42	149.10	
03/01/07	12:01:30	2.19	4.48	56.44	14.42	156.47	
03/01/07	12:01:45	2.13	4.46	57.16	14.44	190.58	
03/01/07	12:02:00	2.25	4.43	57.37	14.52	215.71	
03/01/07	12:02:15	2.35	4.41	57.46	14.52	219.08	
03/01/07	12:02:30	2.37	4.41	57.87	14.47	211.96	
03/01/07	12:02:45	2.31	4.43	56.16	14.49	191.34	
03/01/07	12:03:00	2.25	4.45	58.56	14.52	189.09	
03/01/07	12:03:15	2.10	4.46	59.18	14.52	212.09	
03/01/07	12:03:30	2.18	4.44	58.23	14.47	214.83	
03/01/07	12:03:45	2.28	4.41	58.10	14.42	190.46	
03/01/07	12:04:00	2.22	4.44	59.31	14.42	209.48	
03/01/07	12:04:15	2.18	4.43	59.28	14.42	241.70	
03/01/07	12:04:30	2.31	4.40	59.07	14.37	252.20	
03/01/07	12:04:45	2.35	4.40	58.96	14.32	246.20	
03/01/07	12:05:00	2.30	4.42	59.18	14.32	250.08	
03/01/07	12:05:15	2.25	4.45	59.35	14.32	296.94	
03/01/07	12:05:30	2.27	4.43	59.35	14.32	319.05	
03/01/07	12:05:45	2.39	4.39	59.09	14.34	301.81	
03/01/07	12:06:00	2.39	4.41	56.83	14.37	304.18	
03/01/07	12:06:15	2.36	4.42	58.67	14.32	381.83	
03/01/07	12:06:30	2.39	4.41	58.59	14.37	271.82	
03/01/07	12:06:45	2.36	4.42	58.24	14.39	255.70	
03/01/07	12:07:00	2.31	4.42	57.92	14.32	225.08	
03/01/07	12:07:15	2.31	4.43	57.74	14.32	205.59	
03/01/07	12:07:30	2.22	4.45	57.53	14.32	192.71	
03/01/07	12:07:45	2.29	4.44	57.20	14.32	190.84	
03/01/07	12:08:00	2.28	4.45	57.21	14.32	185.72	
03/01/07	12:08:15	2.34	4.42	57.10	14.38	184.34	
03/01/07	12:08:30	2.33	4.43	57.05	14.27	144.22	
03/01/07	12:08:45	2.21	4.48	57.59	14.31	145.72	
03/01/07	12:09:00	2.15	4.47	58.19	14.32	149.85	
03/01/07	12:09:15	2.15	4.45	58.52	14.32	171.58	
03/01/07	12:09:30	2.14	4.44	58.76	14.32	205.21	
03/01/07	12:09:45	2.23	4.41	58.86	14.32	206.71	
03/01/07	12:10:00	2.25	4.41	59.27	14.32	181.34	
03/01/07	12:10:15	2.16	4.45	59.67	14.29	193.71	
03/01/07	12:10:30	2.05	4.47	60.32	14.22	282.19	
03/01/07	12:10:45	2.12	4.45	60.52	14.24	381.82	
03/01/07	12:11:00	2.32	4.39	60.07	14.32	417.16	
03/01/07	12:11:15	2.41	4.37	59.49	14.32	378.54	
03/01/07	12:11:30	2.40	4.40	59.09	14.27	370.17	
03/01/07	12:11:45	2.34	4.42	58.72	14.24	340.82	
03/01/07	12:12:00	2.37	4.42	58.32	14.32	318.55	
03/01/07	12:12:15	2.28	4.45	58.18	14.32	315.83	
03/01/07	12:12:30	2.29	4.43	57.98	14.32	310.14	
03/01/07	12:12:45	2.31	4.43	57.68	14.32	284.94	
03/01/07	12:13:00	2.36	4.41	57.36	14.32	241.70	
03/01/07	12:13:15	2.36	4.41	57.13	14.32	224.08	
03/01/07	12:13:30	2.25	4.43	57.38	14.37	211.58	
03/01/07	12:13:45	2.24	4.44	57.74	14.42	228.83	
03/01/07	12:14:00	2.18	4.45	57.84	14.42	258.94	
03/01/07	12:14:15	2.29	4.41	57.89	14.39	245.83	
03/01/07	12:14:30	2.34	4.41	57.90	14.32	240.33	
03/01/07	12:14:45	2.27	4.43	58.11	14.22	239.20	
03/01/07	12:15:00	2.29	4.41	58.25	14.17	215.21	
03/01/07	12:15:15	2.24	4.41	58.72	14.12	212.96	
03/01/07	12:15:30	2.18	4.41	59.33	14.07	236.71	
03/01/07	12:15:45	2.21	4.40	59.68	14.02	292.19	
03/01/07	12:16:00	2.26	4.38	59.92	14.02	341.55	
03/01/07	12:16:15	2.35	4.37	59.94	14.02	384.67	
03/01/07	12:16:30	2.33	4.38	59.92	14.02	434.40	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	12:16:45	2.38	4.37	59.85	14.02	440.40	
03/01/07	12:17:00	2.48	4.35	59.44	14.02	395.67	
03/01/07	12:17:15	2.49	4.35	58.41	14.02	333.80	
03/01/07	12:17:30	2.49	4.34	57.58	14.02	282.06	
03/01/07	12:17:45	2.46	4.36	56.93	14.04	262.85	
03/01/07	12:18:00	2.50	4.35	56.18	14.12	246.20	
03/01/07	12:18:15	2.56	4.35	55.49	14.24	208.48	
03/01/07	12:18:30	2.55	4.36	54.73	14.32	173.34	
03/01/07	12:18:45	2.54	4.36	54.08	14.32	156.10	
03/01/07	12:19:00	2.59	4.38	53.58	14.37	118.48	
03/01/07	12:19:15	2.61	4.37	53.41	14.44	101.60	
03/01/07	12:19:30	2.55	4.40	53.47	14.57	104.22	
03/01/07	12:19:45	2.60	4.40	53.37	14.64	112.47	
03/01/07	12:20:00	2.66	4.42	53.00	14.72	127.85	
03/01/07	12:20:15	2.73	4.42	52.60	14.84	167.97	
03/01/07	12:20:30	2.78	4.40	52.25	14.97	107.09	
03/01/07	12:20:45	2.89	4.37	51.77	15.04	102.09	
03/01/07	12:21:00	3.00	4.41	51.60	15.12	196.83	
03/01/07	12:21:15	2.91	4.44	51.63	15.12	236.58	
03/01/07	12:21:30	3.07	4.41	51.19	15.17	258.32	
03/01/07	12:21:45	3.21	4.40	50.72	15.12	269.62	
03/01/07	12:22:00	3.22	4.41	50.52	15.17	284.58	
03/01/07	12:22:15	3.20	4.43	50.25	15.22	319.68	
03/01/07	12:22:30	3.20	4.42	49.93	15.22	369.29	
03/01/07	12:22:45	3.25	4.42	49.71	15.09	391.67	
03/01/07	12:23:00	3.32	4.42	49.52	15.02	438.03	
03/01/07	12:23:15	3.28	4.44	49.39	15.04	392.39	
03/01/07	12:23:30	3.48	4.40	49.18	15.17	197.09	
03/01/07	12:23:45	3.50	4.43	48.97	15.37	192.09	
03/01/07	12:24:00	3.55	4.41	48.99	15.57	196.70	
03/01/07	12:24:15	3.84	4.40	48.93	15.62	236.44	
03/01/07	12:24:30	3.69	4.38	48.89	15.62	259.19	
03/01/07	12:24:45	3.60	4.35	48.59	15.72	269.68	
03/01/07	12:25:00	3.78	4.39	48.21	15.72	284.43	
03/01/07	12:25:15	3.61	4.42	48.08	15.82	319.67	
03/01/07	12:25:30	3.73	4.40	47.72	15.82	369.16	
03/01/07	12:25:45	3.62	4.44	47.25	15.84	391.54	
03/01/07	12:26:00	3.96	4.43	46.73	15.82	443.02	
03/01/07	12:26:15	3.94	4.46	46.21	16.04	391.16	
03/01/07	12:26:30	3.88	4.47	45.69	16.17	301.66	
03/01/07	12:26:45	3.83	4.46	45.20	16.19	201.33	
03/01/07	12:27:00	3.88	4.50	44.80	16.07	124.71	
03/01/07	12:27:15	3.53	4.52	44.58	15.92	68.84	
03/01/07	12:27:30	3.40	4.58	44.76	15.92	31.10	
03/01/07	12:27:45	3.24	4.59	45.70	16.02	13.46	
03/01/07	12:28:00	3.04	4.66	47.66	16.07	8.73	
03/01/07	12:28:15	3.03	4.69	51.41	16.22	11.86	
03/01/07	12:28:30	3.03	4.68	55.54	16.17	17.73	
03/01/07	12:28:45	3.17	4.63	56.68	16.22	28.23	
03/01/07	12:29:00	3.29	4.56	60.48	16.22	42.13	
03/01/07	12:29:15	3.40	4.51	60.96	16.12	43.98	
03/01/07	12:29:30	3.43	4.48	60.97	16.12	39.11	
03/01/07	12:29:45	3.31	4.50	60.57	16.12	33.61	
03/01/07	12:30:00	3.28	4.51	60.12	16.12	27.41	
03/01/07	12:30:15	3.24	4.53	59.99	16.02	23.73	
03/01/07	12:30:30	3.23	4.54	60.22	16.02	20.40	
03/01/07	12:30:45	3.28	4.55	60.67	16.14	17.99	
03/01/07	12:31:00	3.27	4.56	61.45	16.22	15.61	
03/01/07	12:31:15	3.25	4.57	63.14	16.22	15.61	
03/01/07	12:31:30	3.15	4.60	65.70	16.22	15.38	
03/01/07	12:31:45	3.15	4.60	68.02	16.32	17.49	
03/01/07	12:32:00	3.11	4.60	69.59	16.27	18.61	
03/01/07	12:32:15	3.16	4.58	70.56	16.19	21.11	
03/01/07	12:32:30	3.17	4.54	71.27	16.12	24.38	
03/01/07	12:32:45	3.19	4.51	71.41	16.12	26.24	
03/01/07	12:33:00	3.21	4.49	70.99	16.02	28.38	
03/01/07	12:33:15	3.21	4.48	70.51	15.82	32.60	
03/01/07	12:33:30	3.24	4.47	69.86	15.82	37.10	
03/01/07	12:33:45	3.25	4.48	68.74	15.82	42.61	
03/01/07	12:34:00	3.25	4.45	68.17	15.82	52.11	
03/01/07	12:34:15	3.31	4.44	67.32	15.84	57.38	
03/01/07	12:34:30	3.34	4.43	66.01	15.92	52.61	
03/01/07	12:34:45	3.34	4.43	64.52	15.89	41.11	
03/01/07	12:35:00	3.22	4.46	64.08	15.82	33.11	
03/01/07	12:35:15	3.08	4.51	64.31	15.74	35.48	
03/01/07	12:35:30	3.12	4.50	63.80	15.82	31.86	
03/01/07	12:35:45	3.20	4.49	62.70	15.92	23.24	
03/01/07	12:36:00	3.10	4.54	62.38	15.92	19.66	
03/01/07	12:36:15	2.92	4.57	62.39	15.92	24.49	
03/01/07	12:36:30	3.00	4.54	61.50	15.92	26.66	
03/01/07	12:36:45	3.14	4.50	60.11	15.94	23.38	
03/01/07	12:37:00	3.11	4.53	59.45	16.02	27.38	
03/01/07	12:37:15	3.01	4.53	58.93	15.82	31.10	
03/01/07	12:37:30	3.15	4.49	58.11	15.82	28.11	
03/01/07	12:37:45	3.11	4.50	57.71	15.89	27.61	
03/01/07	12:38:00	3.03	4.51	57.25	15.62	26.61	
03/01/07	12:38:15	3.02	4.51	56.73	15.84	35.98	
03/01/07	12:38:30	3.01	4.49	55.99	15.92	54.88	
03/01/07	12:38:45	3.12	4.46	54.67	15.92	59.73	
03/01/07	12:39:00	3.24	4.43	53.94	15.92	77.10	
03/01/07	12:39:15	3.17	4.48	52.67	15.89	100.10	
03/01/07	12:39:30	3.31	4.42	51.12	15.82	114.65	
03/01/07	12:39:45	3.43	4.42	50.14	15.82	126.48	
03/01/07	12:40:00	3.42	4.42	49.51	15.82	144.60	
03/01/07	12:40:15	3.47	4.41	48.92	15.68	153.35	
03/01/07	12:40:30	3.48	4.42	48.36	15.82	152.60	
03/01/07	12:40:45	3.49	4.41	48.15	15.74	142.60	
03/01/07	12:41:00	3.47	4.41	47.99	15.74	121.85	
03/01/07	12:41:15	3.43	4.41	47.46	15.72	100.97	
03/01/07	12:41:30	3.35	4.44	47.23	15.72	93.59	
03/01/07	12:41:45	3.25	4.47	47.18	15.74	96.34	
03/01/07	12:42:00	3.31	4.45	47.12	15.82	97.34	
03/01/07	12:42:15	3.30	4.45	48.94	15.89	103.60	
03/01/07	12:42:30	3.35	4.43	48.70	15.62	114.35	
03/01/07	12:42:45	3.44	4.41	48.27	15.64	117.11	
03/01/07	12:43:00	3.49	4.41	45.78	15.92	98.60	
03/01/07	12:43:15	3.44	4.43	45.48	15.92	88.47	
03/01/07	12:43:30	3.31	4.48	45.54	15.92	89.35	
03/01/07	12:43:45	3.33	4.45	45.51	16.04	67.10	
03/01/07	12:44:00	3.39	4.44	45.37	16.12	82.10	

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	12:45:30	3.33	4.40	45.48	15.84	129.10	
03/01/07	12:45:45	3.37	4.37	45.57	15.82	132.85	
03/01/07	12:46:00	3.39	4.37	45.56	15.74	152.35	
03/01/07	12:46:15	3.33	4.38	45.54	15.74	169.22	
03/01/07	12:46:30	3.46	4.37	45.31	15.82	178.34	
03/01/07	12:46:45	3.47	4.40	44.86	15.79	168.71	
03/01/07	12:47:00	3.50	4.40	44.31	15.72	161.10	
03/01/07	12:47:15	3.52	4.42	43.94	15.74	133.23	
03/01/07	12:47:30	3.33	4.46	43.99	15.82	138.85	
03/01/07	12:47:45	3.32	4.46	43.99	15.84	145.73	
03/01/07	12:48:00	3.40	4.46	43.74	16.02	139.36	
03/01/07	12:48:15	3.45	4.44	43.47	16.02	125.03	
03/01/07	12:48:30	3.43	4.45	43.19	16.02	83.10	
03/01/07	12:48:45	3.37	4.48	43.21	16.02	79.73	
03/01/07	12:49:00	3.25	4.48	43.35	16.02	77.10	
03/01/07	12:49:15	3.31	4.47	43.57	16.02	71.10	
03/01/07	12:49:30	3.31	4.47	43.96	16.02	74.10	
03/01/07	12:49:45	3.22	4.46	44.55	15.92	101.97	
03/01/07	12:50:00	3.24	4.45	45.01	15.92	141.85	
03/01/07	12:50:15	3.41	4.39	45.08	15.69	149.35	
03/01/07	12:50:30	3.41	4.39	45.00	15.74	163.34	
03/01/07	12:50:45	3.40	4.38	44.99	15.82	173.59	
03/01/07	12:51:00	3.42	4.39	44.85	15.74	162.85	
03/01/07	12:51:15	3.40	4.40	44.60	15.72	183.87	
03/01/07	12:51:30	3.46	4.40	44.17	15.84	194.34	
03/01/07	12:51:45	3.45	4.43	43.76	15.82	208.74	
03/01/07	12:52:00	3.50	4.41	43.24	15.70	197.65	
03/01/07	12:52:15	3.53	4.41	42.93	15.82	190.34	
03/01/07	12:52:30	3.47	4.42	42.67	15.82	191.84	
03/01/07	12:52:45	3.54	4.41	42.28	15.84	185.59	
03/01/07	12:53:00	3.58	4.41	41.98	15.84	163.84	
03/01/07	12:53:15	3.56	4.42	41.74	15.72	139.10	
03/01/07	12:53:30	3.45	4.49	41.82	15.72	116.85	
03/01/07	12:53:45	3.29	4.50	42.19	15.82	118.48	
03/01/07	12:54:00	3.28	4.49	42.51	15.82	117.35	
03/01/07	12:54:15	3.39	4.45	42.55	15.79	97.85	
03/01/07	12:54:30	3.35	4.45	42.49	15.72	79.60	
03/01/07	12:54:45	3.22	4.47	42.75	15.69	86.97	
03/01/07	12:55:00	3.20	4.45	43.24	15.69	119.85	
03/01/07	12:55:15	3.27	4.42	43.49	15.79	149.97	
03/01/07	12:55:30	3.35	4.39	43.44	15.72	198.34	
03/01/07	12:55:45	3.44	4.38	43.28	15.72	224.34	
03/01/07	12:56:00	3.49	4.38	43.08	15.72	241.08	
03/01/07	12:56:15	3.51	4.37	42.67	15.72	247.58	
03/01/07	12:56:30	3.52	4.39	42.22	15.79	261.57	
03/01/07	12:56:45	3.52	4.41	42.04	15.82	280.44	
03/01/07	12:57:00	3.57	4.42	41.95	15.74	309.08	
03/01/07	12:57:15	3.84	4.42	41.83	15.74	320.88	
03/01/07	12:57:30	3.68	4.42	41.45	15.82	310.31	
03/01/07	12:57:45	3.69	4.42	41.27	15.82	292.56	
03/01/07	12:58:00	3.69	4.44	41.06	15.82	284.31	
03/01/07	12:58:15	3.88	4.45	40.92	15.84	267.45	
03/01/07	12:58:30	3.71	4.43	40.53	15.89	225.34	
03/01/07	12:58:45	3.71	4.42	39.89	15.82	196.09	
03/01/07	12:59:00	3.68	4.43	39.55	15.82	140.35	
03/01/07	12:59:15	3.61	4.45	39.53	15.92	105.50	
03/01/07	12:59:30	3.42	4.49	39.82	15.92	79.10	
03/01/07	12:59:45	3.38	4.49	40.20	16.02	70.73	
03/01/07	13:00:00	3.29	4.51	40.79	16.02	72.61	
03/01/07	13:00:15	3.28	4.50	41.88	16.02	86.60	
03/01/07	13:00:30	3.35	4.49	42.55	16.02	122.85	
03/01/07	13:00:45	3.42	4.45	43.00	15.92	130.89	End Run 12
03/01/07	13:01:00	3.56	4.46	42.52	15.92	71.85	
03/01/07	13:01:15	5.25	6.01	32.11	15.77	21.11	
03/01/07	13:01:30	8.58	8.60	17.41	15.47	1.86	
03/01/07	13:01:45	9.77	9.77	9.17	7.32	-0.26	
03/01/07	13:02:00	9.91	9.84	5.53	3.12	-0.83	
03/01/07	13:02:15	9.93	9.75	3.53	0.52	-0.88	
03/01/07	13:02:30	9.93	9.79	2.31	0.27	-0.88	
03/01/07	13:02:45	9.93	9.91	1.53	0.17	-0.89	
03/01/07	13:03:00	9.94	9.99	0.99	0.12	-0.88	System Bias
03/01/07	13:03:15	9.94	10.00	0.64	0.12	-0.88	10.0% O ₂ /CO ₂ Injection
03/01/07	13:03:30	9.94	10.01	0.39	0.12	-0.88	9.94 % Oxygen
03/01/07	13:03:45	9.94	10.02	0.21	0.12	6.99	10.02 % CO ₂
03/01/07	13:04:00	9.94	10.04	0.01	0.12	26.61	
03/01/07	13:04:15	9.08	6.65	0.67	0.12	33.99	
03/01/07	13:04:30	6.27	6.05	3.44	0.12	55.11	
03/01/07	13:04:45	3.29	2.89	3.73	5.57	94.72	
03/01/07	13:05:00	0.62	0.68	2.37	5.39	115.85	
03/01/07	13:05:15	0.16	0.16	1.26	1.67	118.98	
03/01/07	13:05:30	0.08	0.08	0.70	0.47	119.60	
03/01/07	13:05:45	0.03	0.06	0.33	0.17	119.73	
03/01/07	13:06:00	0.02	0.04	0.07	0.12	120.11	
03/01/07	13:06:15	0.02	0.03	-0.08	0.12	115.88	
03/01/07	13:06:30	0.02	0.02	-0.19	0.12	107.65	
03/01/07	13:06:45	1.35	0.02	-0.28	0.12	132.60	
03/01/07	13:07:00	2.02	0.03	-0.36	0.12	166.34	
03/01/07	13:07:15	0.37	0.02	-0.40	0.12	176.97	
03/01/07	13:07:30	0.04	0.01	-0.51	0.12	178.60	
03/01/07	13:07:45	0.01	0.00	-0.66	0.12	178.72	
03/01/07	13:08:00	0.00	0.00	-0.64	0.12	179.09	
03/01/07	13:08:15	0.00	0.00	-0.67	0.12	179.10	
03/01/07	13:08:30	0.00	-0.01	-0.74	0.12	179.10	
03/01/07	13:08:45	0.00	-0.01	-0.75	0.12	179.09	System Bias
03/01/07	13:09:00	0.00	-0.01	-0.74	0.12	178.84	180.0ppm CO Injection
03/01/07	13:09:15	0.00	-0.01	-0.77	0.12	178.97	0.00 % Oxygen
03/01/07	13:09:30	0.00	-0.02	-0.82	0.12	179.10	-0.01 % CO ₂
03/01/07	13:09:45	0.00	-0.02	-0.82	0.12	179.10	0.12 ppm NO _x
03/01/07	13:10:00	0.00	-0.02	-0.84	0.12	166.84	179.00 ppm CO
03/01/07	13:10:15	0.06	-0.02	-0.79	0.12	127.72	
03/01/07	13:10:30	3.36	0.00	-0.85	0.12	64.35	
03/01/07	13:10:45	3.40	0.02	-0.89	0.07	16.12	
03/01/07	13:11:00	0.62	-0.01	-0.89	8.04	2.87	
03/01/07	13:11:15	0.04	-0.02	-0.90	25.87	1.74	
03/01/07	13:11:30	0.00	-0.03	-0.90	38.29	1.37	
03/01/07	13:11:45	0.00	-0.03	-0.89	42.06	1.12	
03/01/07	13:12:00	0.00	-0.03	-0.88	43.04	1.12	
03/01/07	13:12:15	0.00	-0.03	-0.86	44.21	1.12	
03/01/07	13:12:30	0.00	-0.03	-0.86	45.04	1.12	System Bias
03/01/07	13:12:45	-0.01	-0.03	-0.88	45.51	1.12	45.0ppm NO _x Injection

Reference Method 15-second Averages

Date	Time	Oxygen	CO ₂	SO ₂	NO _x	CO	Comments
03/01/07	13:14:00	0.28	-0.03	-0.89	45.78	1.62	
03/01/07	13:14:15	3.85	-0.02	0.46	45.01	1.49	
03/01/07	13:14:30	2.26	-0.03	14.20	43.09	1.12	
03/01/07	13:14:45	0.26	-0.03	28.37	26.91	0.74	
03/01/07	13:15:00	0.02	-0.03	35.54	14.59	0.62	
03/01/07	13:15:15	0.00	-0.03	38.98	2.02	0.87	
03/01/07	13:15:30	0.00	-0.03	40.67	0.77	0.62	
03/01/07	13:15:45	-0.01	-0.03	41.80	0.37	0.62	
03/01/07	13:16:00	-0.01	-0.03	42.60	0.32	0.62	
03/01/07	13:16:15	-0.01	-0.04	43.13	0.27	0.62	
03/01/07	13:16:30	-0.01	-0.04	43.52	0.22	0.62	
03/01/07	13:16:45	-0.01	-0.04	43.81	0.22	0.62	
03/01/07	13:17:00	-0.01	-0.04	44.06	0.22	0.62	
03/01/07	13:17:15	-0.01	-0.04	44.29	0.17	0.62	
03/01/07	13:17:30	-0.01	-0.04	44.59	0.12	0.62	
03/01/07	13:17:45	-0.01	-0.04	44.78	0.12	0.62	System Bias
03/01/07	13:18:00	-0.01	-0.04	44.84	0.12	0.62	45.0ppm SO ₂ Injection
03/01/07	13:18:15	-0.01	-0.04	44.89	0.12	0.62	44.94 ppm SO ₂
03/01/07	13:18:30	-0.01	-0.04	44.95	0.12	0.62	
03/01/07	13:18:45	-0.01	-0.04	45.11	0.12	0.74	
03/01/07	13:19:00	-0.01	-0.04	45.08	0.12	1.37	
03/01/07	13:19:15	1.17	-0.03	42.09	0.12	1.49	
03/01/07	13:19:30	1.80	-0.01	25.51	0.12	0.87	
03/01/07	13:19:45	0.30	-0.03	12.47	0.22	0.64	
03/01/07	13:20:00	0.01	-0.04	7.26	0.22	0.62	



MPCLLC: Robinson, Illinois
SRU 66F-3 and 66F-5 Stacks
Test Dates: 2/26 – 3/1/07

APPENDIX F

Calibration Data



CEM Calibration Error Data Sheet **Analyzer Response**

Plant Name:	MPCLLC	ANALYZER SPAN VALUE (% or ppm)		ANALYZER SPAN VALUE (% or ppm)	
Sampling Location:	SRU Stack: 66F-5	Inlet Oxygen	NA	Stack Oxygen	20.00
Date:	2/26/2007	Inlet Carbon Dioxide	NA	Stack Carbon Dioxide	20.00
Plant Rep.:	Wendy Robinson	Inlet Carbon Monoxide	NA	Stack Carbon Monoxide	180.00
Team Leader:	Steve Flaherty	Inlet Oxides of Nitrogen	NA	Stack Oxides of Nitrogen	88.99
CEM Operator:	Steve Flaherty	Inlet Sulfur Dioxide	NA	Stack Sulfur Dioxide	88.67
Time:	Pre-Test Cals	Inlet VOM (as CH4)	NA	Stack VOM (as CH4)	NA

		CYLINDER NUMBER	CYLINDER VALUE (% or ppm)	ANALYZER CALIBRATION RESPONSE	DIFFERENCE (% OF GAS/SPAN)
Stack Oxygen	Zero	ALM-037422	0.0	-0.03	-0.13
Stack Oxygen	Mid	ALM-042545: 22.69%	10.0	10.10	0.51
Stack Oxygen	High	ALM-042545: 22.69%	20.0	19.96	-0.18
Stack Carbon Dioxide	Zero	ALM-037422	0.0	-0.01	-0.06
Stack Carbon Dioxide	Mid	ALM-042545: 23.15%	10.0	10.03	0.13
Stack Carbon Dioxide	High	ALM-042545: 23.15%	20.0	19.98	-0.12
Stack Carbon Monoxide	Zero	ALM-037422	0.0	-0.03	-0.02
Stack Carbon Monoxide	Low	ALM-036256: 915.4ppm	60.0	59.38	-0.35
Stack Carbon Monoxide	Mid	ALM-036256: 915.4ppm	120.0	120.29	0.16
Stack Carbon Monoxide	High	ALM-036256: 915.4ppm	180.0	180.10	0.06
Stack Oxides of Nitrogen	Zero	ALM-037422	0.0	0.02	0.02
Stack Oxides of Nitrogen	Low	ALM-027015: 88.99ppm	20.0	19.78	-0.25
Stack Oxides of Nitrogen	Mid	ALM-027015: 88.99ppm	45.0	44.73	-0.30
Stack Oxides of Nitrogen	High	ALM-027015: 88.99ppm	88.99	89.77	0.87
Stack Sulfur Dioxide	Zero	ALM-037422	0.0	0.07	0.08
Stack Sulfur Dioxide	Low	ALM-014270: 88.67ppm	20.0	20.66	0.74
Stack Sulfur Dioxide	Mid	ALM-014270: 88.67ppm	45.0	45.56	0.63
Stack Sulfur Dioxide	High	ALM-014270: 88.67ppm	88.67	89.08	0.47



CEM Calibration Error Data Sheet **Analyzer Response**

Plant Name:	MPCLLC	ANALYZER SPAN VALUE (% or ppm)		ANALYZER SPAN VALUE (% or ppm)	
Sampling Location:	SRU Stack: 66F-5	Inlet Oxygen	NA	Stack Oxygen	20.00
Date:	2/27/2007	Inlet Carbon Dioxide	NA	Stack Carbon Dioxide	20.00
Plant Rep.:	Wendy Robinson	Inlet Carbon Monoxide	NA	Stack Carbon Monoxide	180.00
Team Leader:	Steve Flaherty	Inlet Oxides of Nitrogen	NA	Stack Oxides of Nitrogen	88.99
CEM Operator:	Steve Flaherty	Inlet Sulfur Dioxide	NA	Stack Sulfur Dioxide	88.67
Time:	Pre-Test Cals	Inlet VOM (as CH4)	NA	Stack VOM (as CH4)	NA

		CYLINDER NUMBER	CYLINDER VALUE (% or ppm)	ANALYZER CALIBRATION RESPONSE	DIFFERENCE (% OF GAS/SPAN)
Stack Oxygen	Zero	ALM-037422	0.0	0.01	0.07
Stack Oxygen	Mid	ALM-042545: 22.69%	10.0	10.15	0.76
Stack Oxygen	High	ALM-042545: 22.69%	20.0	20.04	0.22
Stack Carbon Dioxide	Zero	ALM-037422	0.0	0.01	0.06
Stack Carbon Dioxide	Mid	ALM-042545: 23.15%	10.0	9.95	-0.25
Stack Carbon Dioxide	High	ALM-042545: 23.15%	20.0	19.98	-0.09
Stack Carbon Monoxide	Zero	ALM-037422	0.0	-0.10	-0.06
Stack Carbon Monoxide	Low	ALM-036256: 915.4ppm	60.0	59.67	-0.18
Stack Carbon Monoxide	Mid	ALM-036256: 915.4ppm	120.0	120.92	0.51
Stack Carbon Monoxide	High	ALM-036256: 915.4ppm	180.0	180.36	0.20
Stack Oxides of Nitrogen	Zero	ALM-037422	0.0	0.02	0.02
Stack Oxides of Nitrogen	Low	ALM-027015: 88.99ppm	20.0	20.02	0.02
Stack Oxides of Nitrogen	Mid	ALM-027015: 88.99ppm	45.0	45.26	0.29
Stack Oxides of Nitrogen	High	ALM-027015: 88.99ppm	88.99	90.60	1.81
Stack Sulfur Dioxide	Zero	ALM-037422	0.0	0.17	0.19
Stack Sulfur Dioxide	Low	ALM-014270: 88.67ppm	20.0	20.07	0.08
Stack Sulfur Dioxide	Mid	ALM-014270: 88.67ppm	45.0	45.19	0.22
Stack Sulfur Dioxide	High	ALM-014270: 88.67ppm	88.67	88.99	0.36



Analyzer Span Value (% or ppm)
Oxygen
Carbon Dioxide
Carbon Monoxide
Oxides of Nitrogen
Sulfur Dioxide

F-3



CEM CALIBRATION DATA
System Bias and Drift

Company: MPCLLC
Location: Robinson, IL
SRU Stack: 66F-5

Analyzer Span Value (% or ppm)	
Oxygen	20.0
Carbon Dioxide	20.0
Carbon Monoxide	180.0
Oxides of Nitrogen	88.99
Sulfur Dioxide	88.67

4				5				6				
Run: 2/26/2007				2/27/2007				2/27/2007				
Date: 19:56-20:56				06:41-07:41				08:03-09:03				
Time:												
Oxygen	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.01	0.02	0.00	0.04	0.02	-0.02	0.02	0.01	-0.01	0.02	0.01	-0.01
Zero Bias, % of Span	0.07	0.10	0.02	0.19	0.09	-0.09	0.09	0.07	-0.03	0.09	0.07	-0.03
Mid-Range Calibration Conc.	10.00	10.00		10.00	10.00		10.00	10.00		10.00	10.00	
System Response to Cal	10.04	10.05	0.01	10.03	9.98	-0.05	9.98	9.95	-0.04	9.98	9.95	-0.04
Cal Bias, % of Span	0.19	0.26	0.07	0.14	-0.09	-0.23	-0.09	-0.27	-0.18	-0.09	-0.27	-0.18
Cabon Dioxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.03	0.05	0.02	0.01	0.05	0.04	0.05	0.05	0.00	0.05	0.05	0.00
Zero Bias, % of Span	0.17	0.26	0.10	0.04	0.23	0.19	0.23	0.24	0.01	0.23	0.24	0.01
Mid-Range Calibration Conc.	10.00	10.00		10.00	10.00		10.00	10.00		10.00	10.00	
System Response to Cal	10.06	10.14	0.07	9.98	9.97	-0.01	9.97	10.00	0.04	9.97	10.00	0.04
Cal Bias, % of Span	0.32	0.69	0.37	-0.12	-0.17	-0.04	-0.17	0.02	0.19	-0.17	0.02	0.19
Carbon Monoxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.45	0.47	0.03	0.13	0.91	0.77	0.91	0.34	-0.57	0.91	0.34	-0.57
Zero Bias, % of Span	0.25	0.26	0.01	0.07	0.50	0.43	0.50	0.19	-0.31	0.50	0.19	-0.31
Mid-Range Calibration Conc.	120.0	120.0		120.0	120.0		120.0	120.0		120.0	120.0	
System Response to Cal	120.25	119.84	-0.40	119.91	119.83	-0.08	119.83	120.39	0.56	119.83	120.39	0.56
Cal Bias, % of Span	0.14	-0.09	-0.22	-0.05	-0.10	-0.05	-0.10	0.22	0.31	-0.10	0.22	0.31
Oxides of Nitrogen	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.02	0.12	0.10	0.31	0.12	-0.19	0.12	0.12	0.00	0.12	0.12	0.00
Zero Bias, % of Span	0.03	0.13	0.11	0.34	0.13	-0.21	0.13	0.13	0.00	0.13	0.13	0.00
Mid-Range Calibration Conc.	45.00	45.00		45.00	45.00		45.00	45.00		45.00	45.00	
System Response to Cal	44.54	44.86	0.32	44.92	45.41	0.49	45.41	45.75	0.34	45.41	45.75	0.34
Cal Bias, % of Span	-0.51	-0.16	0.35	-0.09	0.46	0.55	0.46	0.84	0.38	0.46	0.84	0.38
Sulfur Dioxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.34	0.49	0.14	0.45	0.91	0.46	0.91	1.06	0.15	0.91	1.06	0.15
Zero Bias, % of Span	0.39	0.55	0.16	0.51	1.03	0.52	1.03	1.19	0.17	1.03	1.19	0.17
Mid-Range Calibration Conc.	45.00	45.00		45.00	45.00		45.00	45.00		45.00	45.00	
System Response to Cal	44.88	44.51	-0.37	44.87	44.91	0.04	44.91	44.77	-0.13	44.91	44.77	-0.13
Cal Bias, % of Span	-0.13	-0.55	-0.42	-0.15	-0.11	0.04	-0.11	-0.26	-0.15	-0.11	-0.26	-0.15



Company: MPC LLC
Location: Robinson, IL
Source: SRU Stack: 66F-5

Analyzer Span Value (% or ppm)
Oxygen
Carbon Dioxide
Carbon Monoxide
Oxides of Nitrogen
Sulfur Dioxide

F-5



Analyzer	Span Value (% or ppm)
Oxygen	20.0
Carbon Dioxide	20.0
Carbon Monoxide	180.0
Oxides of Nitrogen	88.99
Sulfur Dioxide	88.67

F-6



CEM Calibration Error Data Sheet **Analyzer Response**

Plant Name:	MPCLLC	ANALYZER SPAN VALUE (% or ppm)		ANALYZER SPAN VALUE (% or ppm)	
Sampling Location:	SRU Stack: 66F-3	Inlet Oxygen	NA	Stack Oxygen	20.00
Date:	2/28/2007	Inlet Carbon Dioxide	NA	Stack Carbon Dioxide	20.00
Plant Rep.:	Wendy Robinson	Inlet Carbon Monoxide	NA	Stack Carbon Monoxide	500.00
Team Leader:	Steve Flaherty	Inlet Oxides of Nitrogen	NA	Stack Oxides of Nitrogen	88.99
CEM Operator:	Steve Flaherty	Inlet Sulfur Dioxide	NA	Stack Sulfur Dioxide	88.67
Time:	Pre-Test Cals	Inlet VOM (as CH4)	NA	Stack VOM (as CH4)	NA

		CYLINDER NUMBER	CYLINDER VALUE (% or ppm)	ANALYZER CALIBRATION RESPONSE	DIFFERENCE (% OF GAS/SPAN)
Stack Oxygen	Zero	ALM-037422	0.0	0.01	0.05
Stack Oxygen	Mid	ALM-042545: 22.69%	10.0	10.09	0.47
Stack Oxygen	High	ALM-042545: 22.69%	20.0	19.93	-0.36
Stack Carbon Dioxide	Zero	ALM-037422	0.0	0.01	0.04
Stack Carbon Dioxide	Mid	ALM-042545: 23.15%	10.0	9.94	-0.32
Stack Carbon Dioxide	High	ALM-042545: 23.15%	20.0	19.99	-0.06
Stack Carbon Monoxide	Zero	ALM-037422	0.0	0.11	0.02
Stack Carbon Monoxide	Low	ALM-036256: 915.4ppm	180.0	180.95	0.19
Stack Carbon Monoxide	Mid	ALM-036256: 915.4ppm	300.0	300.06	0.01
Stack Carbon Monoxide	High	ALM-036256: 915.4ppm	500.0	497.88	-0.42
Stack Oxides of Nitrogen	Zero	ALM-037422	0.0	0.02	0.02
Stack Oxides of Nitrogen	Low	ALM-027015: 88.99ppm	20.0	20.09	0.10
Stack Oxides of Nitrogen	Mid	ALM-027015: 88.99ppm	45.0	45.26	0.29
Stack Oxides of Nitrogen	High	ALM-027015: 88.99ppm	88.99	89.87	0.99
Stack Sulfur Dioxide	Zero	ALM-037422	0.0	0.04	0.05
Stack Sulfur Dioxide	Low	ALM-014270: 88.67ppm	20.0	20.59	0.66
Stack Sulfur Dioxide	Mid	ALM-014270: 88.67ppm	45.0	45.77	0.87
Stack Sulfur Dioxide	High	ALM-014270: 88.67ppm	88.67	88.90	0.25



CEM Calibration Error Data Sheet **Analyzer Response**

Plant Name:	MPCLLC	ANALYZER SPAN VALUE (% or ppm)		ANALYZER SPAN VALUE (% or ppm)	
Sampling Location:	SRU Stack: 62F-3	Inlet Oxygen	NA	Stack Oxygen	20.00
Date:	3/1/2007	Inlet Carbon Dioxide	NA	Stack Carbon Dioxide	20.00
Plant Rep.:	Wendy Robinson	Inlet Carbon Monoxide	NA	Stack Carbon Monoxide	500.00
Team Leader:	Steve Flaherty	Inlet Oxides of Nitrogen	NA	Stack Oxides of Nitrogen	88.99
CEM Operator:	Steve Flaherty	Inlet Sulfur Dioxide	NA	Stack Sulfur Dioxide	88.67
Time:	Pre-Test Cals	Inlet VOM (as CH4)	NA	Stack VOM (as CH4)	NA

		CYLINDER NUMBER	CYLINDER VALUE (% or ppm)	ANALYZER CALIBRATION RESPONSE	DIFFERENCE (% OF GAS/SPAN)
Stack Oxygen	Zero	ALM-037422	0.0	-0.03	-0.13
Stack Oxygen	Mid	ALM-042545: 22.69%	10.0	10.08	0.42
Stack Oxygen	High	ALM-042545: 22.69%	20.0	19.96	-0.22
Stack Carbon Dioxide	Zero	ALM-037422	0.0	-0.06	-0.29
Stack Carbon Dioxide	Mid	ALM-042545: 23.15%	10.0	10.01	0.04
Stack Carbon Dioxide	High	ALM-042545: 23.15%	20.0	19.93	-0.36
Stack Carbon Monoxide	Zero	ALM-037422	0.0	0.12	0.02
Stack Carbon Monoxide	Low	ALM-036256: 915.4ppm	180.0	182.34	0.47
Stack Carbon Monoxide	Mid	ALM-036256: 915.4ppm	300.0	300.64	0.13
Stack Carbon Monoxide	High	ALM-036256: 915.4ppm	500.0	499.98	0.00
Stack Oxides of Nitrogen	Zero	ALM-037422	0.0	0.02	0.03
Stack Oxides of Nitrogen	Low	ALM-027015: 88.99ppm	20.0	19.72	-0.31
Stack Oxides of Nitrogen	Mid	ALM-027015: 88.99ppm	45.0	44.75	-0.28
Stack Oxides of Nitrogen	High	ALM-027015: 88.99ppm	88.99	89.22	0.25
Stack Sulfur Dioxide	Zero	ALM-037422	0.0	-0.03	-0.03
Stack Sulfur Dioxide	Low	ALM-014270: 88.67ppm	20.0	19.79	-0.24
Stack Sulfur Dioxide	Mid	ALM-014270: 88.67ppm	45.0	45.18	0.20
Stack Sulfur Dioxide	High	ALM-014270: 88.67ppm	88.67	90.08	1.59



CEM CALIBRATION DATA System Bias and Drift

Company: MPCLLC
Location: Robinson, IL
SRU Stack: 66F-3

Analyzer Span Value (% or ppm)	
Oxygen	20.0
Carbon Dioxide	20.0
Carbon Monoxide	500.0
Oxides of Nitrogen	88.99
Sulfur Dioxide	88.67

1			2			3			
Run:	2/28/2007			2/28/2007			2/28/2007		
Date:	10:25-11:25			12:03-13:03			13:23-14:23		
Time:									
Oxygen	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.03	-0.01	-0.04	-0.01	-0.01	0.00	-0.01	-0.01	-0.01
Zero Bias, % of Span	0.14	-0.04	-0.19	-0.04	-0.03	0.01	-0.03	-0.05	-0.03
Mid-Range Calibration Conc.	10.00	10.00		10.00	10.00		10.00	10.00	
System Response to Cal	10.03	9.99	-0.04	9.99	9.93	-0.06	9.93	9.94	0.01
Cal Bias, % of Span	0.16	-0.03	-0.19	-0.03	-0.35	-0.32	-0.35	-0.30	0.06
Carbon Dioxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.01	0.02	0.01	0.02	0.04	0.02	0.04	0.01	-0.03
Zero Bias, % of Span	0.04	0.10	0.06	0.10	0.22	0.12	0.22	0.06	-0.16
Mid-Range Calibration Conc.	10.00	10.00		10.00	10.00		10.00	10.00	
System Response to Cal	10.01	9.93	-0.08	9.93	9.94	0.02	9.94	9.94	0.00
Cal Bias, % of Span	0.05	-0.37	-0.41	-0.37	-0.28	0.09	-0.28	-0.28	0.00
Carbon Monoxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.11	0.22	0.10	0.22	-0.09	-0.31	-0.09	0.10	0.19
Zero Bias, % of Span	0.02	0.04	0.02	0.04	-0.02	-0.06	-0.02	0.02	0.04
Mid-Range Calibration Conc.	180.0	180.0		180.0	180.0		180.0	180.0	
System Response to Cal	181.52	180.08	-1.44	180.08	179.60	-0.47	179.60	180.09	0.48
Cal Bias, % of Span	0.30	0.02	-0.29	0.02	-0.08	-0.09	-0.08	0.02	0.10
Oxides of Nitrogen	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.18	0.11	-0.06	0.11	0.03	-0.09	0.03	0.02	-0.01
Zero Bias, % of Span	0.20	0.13	-0.07	0.13	0.03	-0.10	0.03	0.02	-0.01
Mid-Range Calibration Conc.	45.00	45.00		45.00	45.00		45.00	45.00	
System Response to Cal	45.11	46.39	1.27	46.39	45.00	-1.39	45.00	45.42	0.42
Cal Bias, % of Span	0.13	1.56	1.43	1.56	0.00	-1.56	0.00	0.47	0.47
Sulfur Dioxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.14	0.65	0.51	0.65	0.77	0.12	0.77	0.59	-0.18
Zero Bias, % of Span	0.16	0.73	0.57	0.73	0.87	0.13	0.87	0.66	-0.21
Mid-Range Calibration Conc.	45.00	45.00		45.00	45.00		45.00	45.00	
System Response to Cal	45.10	44.82	-0.27	44.82	45.36	0.54	45.36	45.62	0.26
Cal Bias, % of Span	0.11	-0.20	-0.31	-0.20	0.41	0.60	0.41	0.70	0.29



Company: MPCLLC
Location: Robinson, IL
SRU Stack: 66F-3

Analyzer Span Value (% or ppm)
Oxygen
Carbon Dioxide
Carbon Monoxide
Oxides of Nitrogen
Sulfur Dioxide

Run: Date: Time:	4			5			6		
	2/28/2007			2/28/2007			2/28/2007		
	14:43-15:43			16:03-17:03			17:21-18:21		
Oxygen	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	-0.01	0.01	0.02	0.01	-0.01	-0.01	-0.01	0.02	0.03
Zero Bias, % of Span	-0.05	0.03	0.08	0.03	-0.03	-0.06	-0.03	0.09	0.13
Mid-Range Calibration Conc.	10.00	10.00		10.00	10.00		10.00	10.00	
System Response to Cal	9.94	9.91	-0.03	9.91	9.93	0.02	9.93	9.93	0.01
Cal Bias, % of Span	-0.30	-0.46	-0.16	-0.46	-0.36	0.09	-0.36	-0.33	0.04
Cabon Dioxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.01	0.05	0.04	0.05	0.02	-0.03	0.02	0.03	0.01
Zero Bias, % of Span	0.06	0.25	0.19	0.25	0.10	-0.15	0.10	0.14	0.03
Mid-Range Calibration Conc.	10.00	10.00		10.00	10.00		10.00	10.00	
System Response to Cal	9.94	9.91	-0.03	9.91	9.92	0.00	9.92	9.94	0.03
Cal Bias, % of Span	-0.28	-0.44	-0.16	-0.44	-0.42	0.02	-0.42	-0.29	0.14
Carbon Monoxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.10	0.10	0.00	0.10	0.10	0.00	0.10	0.26	0.16
Zero Bias, % of Span	0.02	0.02	0.00	0.02	0.02	0.00	0.02	0.05	0.03
Mid-Range Calibration Conc.	180.0	180.0		180.0	180.0		180.0	180.0	
System Response to Cal	180.09	181.10	1.02	181.10	179.21	-1.89	179.21	179.59	0.38
Cal Bias, % of Span	0.02	0.22	0.20	0.22	-0.16	-0.38	-0.16	-0.08	0.08
Oxides of Nitrogen	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.02	0.05	0.03	0.05	0.12	0.07	0.12	0.09	-0.02
Zero Bias, % of Span	0.02	0.06	0.04	0.06	0.13	0.08	0.13	0.10	-0.03
Mid-Range Calibration Conc.	45.00	45.00		45.00	45.00		45.00	45.00	
System Response to Cal	45.42	45.30	-0.12	45.30	45.38	0.09	45.38	45.40	0.01
Cal Bias, % of Span	0.47	0.33	-0.14	0.33	0.43	0.10	0.43	0.45	0.01
Sulfur Dioxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.59	-0.23	-0.82	-0.23	0.20	0.43	0.20	-0.32	-0.52
Zero Bias, % of Span	0.66	-0.26	-0.93	-0.26	0.22	0.49	0.22	-0.36	-0.59
Mid-Range Calibration Conc.	45.00	45.00		45.00	45.00		45.00	45.00	
System Response to Cal	45.62	45.13	-0.49	45.13	45.10	-0.02	45.10	45.36	0.25
Cal Bias, % of Span	0.70	0.14	-0.56	0.14	0.12	-0.03	0.12	0.40	0.28



CEM CALIBRATION DATA System Bias and Drift

Company: MPC LLC
Location: Robinson, IL
Source: SRU Stack: 66F-3

Analyzer Span Value (% or ppm)	
Oxygen	20.0
Carbon Dioxide	20.0
Carbon Monoxide	500.0
Oxides of Nitrogen	88.99
Sulfur Dioxide	88.67

7			8			9		
Run: 2/28/2007			2/28/2007			3/1/2007		
Date: 18:40-19:40			19:57-20:57			08:00-09:00		
Time:								
Oxygen	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest
Zero Reading	0.02	0.00	-0.02	0.00	0.02	0.02	-0.01	0.02
Zero Bias, % of Span	0.09	-0.01	-0.10	-0.01	0.10	0.11	0.10	0.09
Mid-Range Calibration Conc.	10.00	10.00		10.00	10.00		10.00	10.00
System Response to Cal	9.93	9.95	0.02	9.95	9.93	-0.02	10.01	10.01
Cal Bias, % of Span	-0.33	-0.24	0.08	-0.24	-0.35	-0.10	-0.35	0.04
Carbon Dioxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest
Zero Reading	0.03	-0.03	-0.05	-0.03	-0.05	-0.03	-0.05	0.03
Zero Bias, % of Span	0.14	-0.13	-0.27	-0.13	-0.26	-0.13	-0.26	0.16
Mid-Range Calibration Conc.	10.00	10.00		10.00	10.00		10.00	10.00
System Response to Cal	9.94	9.95	0.01	9.95	9.96	0.02	10.03	10.07
Cal Bias, % of Span	-0.29	-0.25	0.03	-0.25	-0.18	0.08	-0.18	0.35
Carbon Monoxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest
Zero Reading	0.26	0.51	0.25	0.51	0.61	0.09	0.53	0.85
Zero Bias, % of Span	0.05	0.10	0.05	0.10	0.12	0.02	0.12	0.17
Mid-Range Calibration Conc.	180.0	180.0		180.0	180.0		180.0	180.0
System Response to Cal	179.59	179.41	-0.18	179.41	180.89	1.48	181.65	181.27
Cal Bias, % of Span	-0.08	-0.12	-0.04	-0.12	0.18	0.30	0.18	0.25
Oxides of Nitrogen	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest
Zero Reading	0.09	0.13	0.04	0.13	0.04	-0.09	0.22	0.05
Zero Bias, % of Span	0.10	0.15	0.04	0.15	0.05	-0.10	0.25	0.06
Mid-Range Calibration Conc.	45.00	45.00		45.00	45.00		45.00	45.00
System Response to Cal	45.40	45.33	-0.07	45.33	45.31	-0.02	45.01	45.02
Cal Bias, % of Span	0.45	0.37	-0.08	0.37	0.35	-0.02	0.01	0.03
Sulfur Dioxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest
Zero Reading	-0.32	0.04	0.37	0.04	-0.10	-0.14	0.31	-0.33
Zero Bias, % of Span	-0.37	0.05	0.41	0.05	-0.12	-0.16	0.35	-0.37
Mid-Range Calibration Conc.	45.00	45.00		45.00	45.00		45.00	45.00
System Response to Cal	45.36	45.47	0.11	45.47	45.77	0.30	45.26	44.67
Cal Bias, % of Span	0.40	0.53	0.12	0.53	0.87	0.34	0.30	-0.37



F-12

Run: Date: Time:	10			11			12		
	3/1/2007			3/1/2007			3/1/2007		
	09:22-10:22			10:40-11:40			12:01-13:01		
Oxygen	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.02	0.01	0.00	0.01	-0.01	-0.02	-0.01	0.00	0.00
Zero Bias, % of Span	0.09	0.07	-0.02	0.07	-0.04	-0.11	-0.04	-0.01	0.02
Mid-Range Calibration Conc.	10.00	10.00		10.00	10.00		10.00	10.00	
System Response to Cal	10.01	9.98	-0.02	9.98	9.99	0.01	9.99	9.94	-0.05
Cal Bias, % of Span	0.04	-0.09	-0.12	-0.09	-0.04	0.04	-0.04	-0.31	-0.26
Carbon Dioxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.03	0.03	-0.01	0.03	-0.02	-0.05	-0.02	-0.01	0.00
Zero Bias, % of Span	0.16	0.13	-0.04	0.13	-0.10	-0.23	-0.10	-0.07	0.02
Mid-Range Calibration Conc.	10.00	10.00		10.00	10.00		10.00	10.00	
System Response to Cal	10.07	9.95	-0.12	9.95	9.93	-0.03	9.93	10.02	0.09
Cal Bias, % of Span	0.35	-0.23	-0.59	-0.23	-0.36	-0.13	-0.36	0.09	0.46
Carbon Monoxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.85	0.83	-0.01	0.83	1.09	0.26	1.09	1.12	0.02
Zero Bias, % of Span	0.17	0.17	0.00	0.17	0.22	0.05	0.22	0.22	0.00
Mid-Range Calibration Conc.	180.0	180.0		180.0	180.0		180.0	180.0	
System Response to Cal	181.27	179.63	-1.64	179.63	179.41	-0.22	179.41	179.00	-0.41
Cal Bias, % of Span	0.25	-0.07	-0.33	-0.07	-0.12	-0.04	-0.12	-0.20	-0.08
Oxides of Nitrogen	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	0.05	0.12	0.07	0.12	0.15	0.03	0.15	0.12	-0.03
Zero Bias, % of Span	0.06	0.14	0.08	0.14	0.17	0.03	0.17	0.14	-0.03
Mid-Range Calibration Conc.	45.00	45.00		45.00	45.00		45.00	45.00	
System Response to Cal	45.02	45.45	0.42	45.45	45.60	0.15	45.60	45.69	0.09
Cal Bias, % of Span	0.03	0.50	0.48	0.50	0.67	0.17	0.67	0.78	0.10
Sulfur Dioxide	Pretest	Posttest	Drift	Pretest	Posttest	Drift	Pretest	Posttest	Drift
Zero Reading	-0.33	-0.83	-0.50	-0.83	-0.59	0.24	-0.59	-0.87	-0.28
Zero Bias, % of Span	-0.38	-0.94	-0.56	-0.94	-0.66	0.27	-0.66	-0.98	-0.31
Mid-Range Calibration Conc.	45.00	45.00		45.00	45.00		45.00	45.00	
System Response to Cal	44.67	44.74	0.07	44.74	44.20	-0.53	44.20	44.94	0.74
Cal Bias, % of Span	-0.37	-0.30	0.08	-0.30	-0.90	-0.60	-0.90	-0.06	0.84

**ARI REFERENCE METHOD CEMS DATA
USEPA METHOD 205
DILUTION SYSTEM VERIFICATION**

Company: MPCLLC
Location: Illinois
Dilution System ID: 3600
Dilution Flow Rate: 3.0 LPM
Verification date: 2/26/2007

Analyzer Info
Monitor type: Servomex Oxygen Analyzer
Monitor range: 25
Monitor Serial No.: 1420C/2738

Initial Calibration Data

<u>Calibration Concentration</u>	<u>Calibration results</u>	<u>% Difference</u>
Zero: 0.0	Zero: -0.03	Zero: 0.00
Mid: 10.0	Mid: 10.10	Mid: 1.03
High: 20.0	High: 19.96	High: 0.18

Dilution System Verification

Mid level gas type: <u>USEPA Protocol 1</u>	High level dilution gas type: <u>USEPA Protocol 1</u>
Mid level concentration: <u>12.51</u>	High level concentration: <u>22.69</u>
Mid level tank serial #: <u>ALM-045107</u>	High level tank serial #: <u>ALM-042545</u>
	Target concentration No. 1: <u>20.00</u>
	Target concentration No. 2: <u>12.51</u>

Dilution System Results

Target Concentration No. 1

	<u>Instrument Response</u>	<u>% difference from average*</u>
Trial No. 1:	19.97	0.02
Trial No. 2:	19.98	0.04
Trial No. 3:	19.97	0.01
Average:	19.976	

Target Concentration No. 2

	<u>Instrument Response</u>	<u>% difference from average*</u>
Trial No. 1:	12.59	0.03
Trial No. 2:	12.58	0.03
Trial No. 3:	12.59	0.01
Average:	12.588	

% Difference from target concentration: 0.12% % Difference from target concentration: 0.63%

Mid Level Calibration Gas Results

<u>Instrument Response</u>	
Trial No. 1: 12.48	Mid Level calibration gas concentration: 12.51
Trial No. 2: 12.49	Average analyzer response: 12.487
Trial No. 3: 12.49	Percent difference: 0.18 *

* Must be less than 2 %


Interference Response

Analyzer Type: Oxygen (O₂)
 Manufacturer: Servomex
 Detector Type: Paramagnetic
 Model No.: 1440
 Serial No.: 1420C/2765
 Calibration Span (%): 11.27

Test Gas	Test Gas Conc.	High Standard		Zero		Maximum % Interference
		O ₂ without interferent	O ₂ with interferent	Zero without interferent	Zero with interferent	
NH ₃	10 ppm	11.27	11.27	0.03	0.01	0.18
SO ₂	20 ppm	11.25	11.25	0.01	0.01	0.00
CH ₄	50 ppm	11.24	11.25	0.02	0.04	0.18
CO	50 ppm	11.23	11.24	0.00	0.01	0.09
CO ₂	5%	11.23	11.26	0.00	-0.01	0.27
CO ₂	12.55%	11.25	11.27	0.03	-0.02	0.44
NO ₂	15 ppm	11.22	11.24	0.01	0.00	0.18
NO _x	15 ppm	11.22	11.25	0.01	0.01	0.27
H ₂	1,020 ppm	11.24	11.23	0.02	0.01	0.09
HCl	10 ppm	11.29	11.31	0.00	-0.01	0.18

Sum of the highest absolute value obtained with and without the pollutant present: 1.88 %
 Allowable interference response: 2.5 %

Certification Date: 8/9/2006

Operator: 

Interference Response

Analyzer Type: Carbon Dioxide (CO₂)
 Manufacturer: Servomex
 Detector Type: Paramagnetic
 Model No.: 1440
 Serial No.: 1415C
 Calibration Span (%): 11.41

Test Gas		Test Gas Conc.		High Standard			Zero			Maximum % Interference
				CO ₂ without interferent	CO ₂ with interferent	% Interference	Zero without interferent	Zero with interferent	% Interference	
NH ₃		10 ppm		11.41	11.39	-0.18	0.01	0.01	0.00	0.18
SO ₂		20 ppm		11.37	11.37	0.00	0.01	0.01	0.00	0.00
CH ₄		50 ppm		11.37	11.37	0.00	0.01	0.01	0.00	0.00
CO		50 ppm		11.41	11.41	0.00	0.01	0.01	0.00	0.00
NO ₂		15 ppm		11.37	11.37	0.00	0.01	0.01	0.00	0.00
NO _x		15 ppm		11.37	11.37	0.00	0.01	0.01	0.00	0.00
H ₂		1,020 ppm		11.37	11.37	0.00	0.01	0.01	0.00	0.00
HCl		10 ppm		11.41	11.38	-0.26	0.01	0.01	0.00	0.26

Sum of the highest absolute value obtained with and without the pollutant present: 0.44 %
 Allowable interference response: 2.5 %

Certification Date: 8-9-06
 Operator: *[Signature]*


Interference Response

Analyzer Type: Sulfur Dioxide (SO₂)
 Manufacturer: Bova Engineering Products (Western Research)
 Detector Type: Pulsed Fluorescence
 Model No.: 721-ATM
 Serial No.: 92-721ATM-7947-1-1
 Calibration Span (%): 100

Test Gas	Test Gas Conc.	High Standard		Zero		Maximum % Interference
		SO ₂ without interferent	SO ₂ with interferent	Zero without interferent	Zero with interferent	
NH ₃	10 ppm	100.1	100.1	0.1	0.1	0.0
CH ₄	50 ppm	102.6	103.1	0.1	0.3	0.5
CO	50 ppm	100.5	100.5	0.3	0.3	0.0
CO ₂	5%	100.9	101.1	0.1	0.1	0.2
CO ₂	12.55%	100.9	101.2	0.1	0.2	0.3
NO ₂	15 ppm	101.6	102.2	0.3	0.5	0.6
NO _x	15 ppm	101.4	101.4	0.3	0.3	0.0
H ₂	1020 ppm	100.6	100.6	0.4	0.4	0.0
HCl	10 ppm	100.8	100.6	0.1	0.3	0.2

Sum of the highest absolute value obtained with and without the pollutant present: 1.80 %
 Allowable interference response: 2.5 %

Certification Date: 8/9/2006

Operator: 

Interference Response

Analyzer Type: Oxides of Nitrogen (NO_x)
 Manufacturer: Thermo Environmental Instruments Inc.
 Detector Type: Chemiluminescent
 Model No.: 42C
 Serial No.: 42CHL64932-345
 Calibration Span (ppm): 100

Test Gas	Test Gas Conc.	High Standard			Zero			Maximum % Interference
		NO _x without interferent	NO _x with interferent	% Interference	Zero without interferent	Zero with interferent	% Interference	
NH ₃	10 ppm	100.02	100.00	-0.02	0.08	-0.06	-0.14	0.14
CH ₄	50 ppm	100.10	100.04	-0.06	0.08	0.05	-0.03	0.06
CO ₂	5%	100.07	99.92	-0.15	0.08	-0.13	-0.21	0.21
CO ₂	12.55%	100.11	99.07	-1.04	0.08	-0.42	-0.50	1.04
SO ₂	20 ppm	100.10	100.08	-0.02	0.08	0.09	0.01	0.02
CO	50 ppm	100.09	99.96	-0.13	0.08	0.07	-0.01	0.13
H ₂	1,020 ppm	100.11	100.10	-0.01	0.08	0.01	-0.07	0.07
HCl	10 ppm	100.02	99.94	-0.08	0.08	0.01	-0.07	0.08

Sum of the highest absolute value obtained with and without the pollutant present: 1.75 %
 Allowable interference response: 2.5 %

Certification Date: 8/9/2006
 Operator: 



Scott Specialty Gases

ped 1290 COMBERMERE STREET

TROY

MI 48083

Phone: 248-589-2950

Fax: 248-589-2134

C E R T I F I C A T E O F A N A L Y S I S

ARI ENVIRONMENTAL, INC.

951 OLD RAND ROAD #106

WAUCONDA

IL 60084

PROJECT #: 05-48834-002

PO#: IL-364-06

ITEM #: 0501813 AL

DATE: 08Nov2006

CYLINDER #: ALM037422

FILL PRESSURE: 02000 PSIG

PURE MATERIAL: NITROGEN

CAS# 7727-37-9

GRADE: ZERO GAS

PURITY: 99.998%

IMPURITY

THC

MAXIMUM
CONCENTRATIONS

0.5 PPM

ANALYST: 



CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: IL-178-04
Project No.: 05-16626-002

Customer

ARI ENVIRONMENTAL
951 OLD RAND ROAD #106
WAUCONDA IL 60084

ANALYTICAL INFORMATION

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

Cylinder Number: ALM036256 Certification Date: 23Mar2004 Exp. Date: 23Mar2007
Cylinder Pressure***: 1900 PSIG

COMPONENT

CARBON MONOXIDE
NITROGEN

CERTIFIED CONCENTRATION (Moles)

915.4 PPM
BALANCE

ANALYTICAL

ACCURACY**

+/- 1%

TRACEABILITY

Direct NIST and NMI

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMI standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1681	01Mar2007	ALM016397	977.1 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#

HORIBA/A1A-220/57297601

DATE LAST CALIBRATED

24Feb2004

ANALYTICAL PRINCIPLE

NDIR

ANALYZER READINGS

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

First Triad Analysis

Second Triad Analysis

Calibration Curve

CARBON MONOXIDE

Date: 15Mar2004 Response Unit: MV
Z1 = 0.00000 R1 = 100.0000 T1 = 95.30000
R2 = 100.0000 Z2 = 0.00000 T2 = 95.30000
Z3 = 0.00000 T3 = 95.30000 R3 = 100.0000
Avg. Concentration: 915.4 PPM

Date: 23Mar2004 Response Unit: MV
Z1 = 0.00000 R1 = 100.0000 T1 = 95.30000
R2 = 100.0000 Z2 = 0.00000 T2 = 95.30000
Z3 = 0.00000 T3 = 95.30000 R3 = 100.0000
Avg. Concentration: 915.4 PPM

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999999
Constants: A = -0.1307606
B = 7.17E+00 C = 1.71E-02
D = 8.89E-05 E = 0.00

APPROVED BY: 17



Scott Specialty Gases

1290 COMBERMERE STREET, TROY, MI 48083

Dual-Analyzed Calibration Standard

Phone: 248-589-2950

Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: IL-330-06
Project No.: 05-47370-005

Customer

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD #106
WAUCONDA IL 60084

ANALYTICAL INFORMATION

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

Cylinder Number: ALM014270 Certification Date: 25Sep2006 Exp. Date: 24Sep2008
Cylinder Pressure***: 1816 PSIG

ANALYTICAL

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
SULFUR DIOXIDE *	88.67 PPM	+/- 1%	Direct NIST and NMI
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.

* This Protocol has been certified using corrected NIST SO2 standard values, per EPA guidance dated 7/24/96 and will not correlate with uncorrected

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1694	01Sep2007	ALM011366	98.10 PPM	SULFUR DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	21Sep2006	FTIR

ANALYZER READINGS

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

First Triad Analysis

Second Triad Analysis

Calibration Curve

SULFUR DIOXIDE *

Date: 18Sep2006 Response Unit: PPM
Z1 = -0.05741 R1 = 102.3190 T1 = 92.55750
R2 = 102.4410 Z2 = -0.01234 T2 = 92.58564
Z3 = 0.01801 T3 = 92.63427 R3 = 102.7754
Avg. Concentration: 88.61 PPM

Date: 25Sep2006 Response Unit: PPM
Z1 = -0.01079 R1 = 99.79372 T1 = 90.26811
R2 = 99.90860 Z2 = 0.06476 T2 = 90.32360
Z3 = 0.12945 T3 = 90.47074 R3 = 99.95313
Avg. Concentration: 88.73 PPM

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 9.99994E-1
Constants: A = 0.00000E+0
B = 9.97784E-1 C = 6.00000E-6
D = 0.00000E+0 E = 0.00000E+0

APPROVED BY:

JEFF CROTEAU



Scott Specialty Gases

1290 COMBERMERE STREET, TROY, MI 48083

Dual-Analyzed Calibration Standard

Phone: 248-589-2950

Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: IL-364-06
Project No.: 05-48834-001

Customer

ARI ENVIRONMENTAL, INC.

951 OLD RAND ROAD #106
WAUCONDA IL 60084

ANALYTICAL INFORMATION

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

Cylinder Number: ALM042545 Certification Date: 08Nov2006 Exp. Date: 07Nov2009
Cylinder Pressure***: 1950 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	23.15 %	+/- 1%	Direct NIST and NMi
OXYGEN	22.69 %	+/- 1%	Direct NIST and NMi
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 2300	01Jan2008	ALM049142	23.34 %	CARBON DIOXIDE
NTRM 2350	01May2009	KO26542	23.48 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#

VARIAN/3400/10693

CALIFORNIA/110P/S02041

DATE LAST CALIBRATED

25Oct2006

08Nov2006

ANALYTICAL PRINCIPLE

THERMAL CONDUCTIVITY

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: 07Nov2006 Response Unit: AREA
Z1 = 0.00000 R1 = 1166950. T1 = 1160985.
R2 = 1168739. Z2 = 0.00000 T2 = 1159644.
Z3 = 0.00000 T3 = 1160329. R3 = 1168513.
Avg. Concentration: 23.15 %

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 0.999995
Constants: A = -0.019547
B = 0.00002 C = 0
D = 0 E = 0

OXYGEN

Date: 08Nov2006 Response Unit: MV
Z1 = 0.00000 R1 = 23.48000 T1 = 22.70000
R2 = 23.48000 Z2 = 0.02000 T2 = 22.70000
Z3 = 0.02000 T3 = 22.70000 R3 = 23.48000
Avg. Concentration: 22.69 %

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 1.00000
Constants: A = -0.001901
B = 0.999856 C = 0
D = 0 E = 0

APPROVED BY:

HILARY THATCHER



Scott Specialty Gases

1290 COMBERMERE STREET, TROY, MI 48083

Dual-Analyzed Calibration Standard

Phone: 248-589-2950

Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: IL-435-05
05-35949-001

Customer

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD #106
WAUCONDA IL 60084

ANALYTICAL INFORMATION

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

Cylinder Number: ALM045107 Certification Date: 17Oct2005 Exp. Date: 16Oct2008
Cylinder Pressure***: 1900 PSIG

COMPONENT

OXYGEN
NITROGEN

CERTIFIED CONCENTRATION (Moles)

12.51 %
BALANCE

ANALYTICAL

ACCURACY**
+/- 1%

TRACEABILITY

Direct NIST and NMI

*** 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	01May2009	K026542	23.48 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#
ROSEMOUNT/755R/1000430

DATE LAST CALIBRATED
17Oct2005

ANALYTICAL PRINCIPLE
PARAMAGNETIC

ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)
First Triad Analysis Second Triad Analysis Calibration Curve

OXYGEN

Date: 17Oct2005 Response Unit: MV
Z1 = 0.00000 R1 = 23.48000 T1 = 12.52000
R2 = 23.48000 Z2 = 0.03000 T2 = 12.52000
Z3 = 0.02000 T3 = 12.52000 R3 = 23.48000
Avg. Concentration: 12.51 %

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 0.99999
Constants: A = -0.001723
B = 0.999609 C = 0
D = 0 E = 0

APPROVED BY:

HILARY THATCHER



Scott Specialty Gases

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**SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY, MI 48083P.O. No.: IL-358-05
Project No.: 05-33525-003**Customer**

ARI ENVIRONMENTAL, INC.

951 OLD RAND ROAD #106
WAUCONDA IL 60084**ANALYTICAL INFORMATION**

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

Cylinder Number: ALM013266

Certification Date: 10Aug2005

Exp. Date: 10Feb2006

Cylinder Pressure***: 1980 PSIG

COMPONENT**CERTIFIED CONCENTRATION (Moles)****ANALYTICAL****ACCURACY******TRACEABILITY**

NITROGEN DIOXIDE

52.3 PPM

+/- 2%

GMIS

NITROGEN

BALANCE

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol procedures, September 1997.

REFERENCE STANDARD**TYPE/SRM NO.****EXPIRATION DATE****CYLINDER NUMBER****CONCENTRATION****COMPONENT**

3MIS NO2/AIR

09Nov2005

ALM019150

106.0 PPM

NITROGEN DIOXIDE

INSTRUMENTATION**INSTRUMENT/MODEL/SERIAL#****DATE LAST CALIBRATED****ANALYTICAL PRINCIPLE**

BECKMAN/951/010177

10Aug2005

CHEMILUMINESCENCE

APPROVED BY:



Scott Specialty Gases

1290 COMBERMERE STREET, TROY, MI 48083

Dual-Analyzed Calibration Standard

Phone: 248-589-2950

Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: IL-128-07
Project No.: 05-51731-006

Customer

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD #106
WAUCONDA IL 60084

ANALYTICAL INFORMATION

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

Cylinder Number: ALM027015 Certification Date: 05Feb2007 Exp. Date: 04Feb2009
Cylinder Pressure***: 1914 PSIG

ANALYTICAL

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
NITRIC OXIDE	88.98 PPM	+/- 1%	Direct NIST and NMI
NITROGEN - OXYGEN FREE	BALANCE		
TOTAL OXIDES OF NITROGEN	88.99 PPM		Reference Value Only

*** 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 1684	01Jun2009	AAL070944	98.40 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	15Jan2007	FTIR

ANALYZER READINGS

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

First Triad Analysis

Second Triad Analysis

Calibration Curve

NITRIC OXIDE

Date: 28Jan2007 Response Unit: PPM
Z1 = 0.01868 R1 = 97.61883 T1 = 88.32379
R2 = 98.00741 Z2 = 0.19010 T2 = 88.50212
Z3 = 0.26167 T3 = 88.64807 R3 = 98.18493
Avg. Concentration: 88.89 PPM

Date: 05Feb2007 Response Unit: PPM
Z1 = -0.14891 R1 = 97.10913 T1 = 87.96520
R2 = 97.40254 Z2 = -0.08419 T2 = 88.08845
Z3 = -0.07440 T3 = 88.24948 R3 = 97.50939
Avg. Concentration: 89.07 PPM

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 9.99999E-1
Constants: A = 0.00000E+0
B = 9.85324E-1 C = 5.10000E-5
D = 0.00000E+0 E = 0.00000E+0

APPROVED BY:

Scott King

**APEX INSTRUMENTS METHOD 5 PRE-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
5-POINT ENGLISH UNITS**

Calibration Conditions		
Date	Time	
Barometric Pressure	28.98	10:00 in Hg
Theoretical Critical Vacuum ¹	13.7	in Hg
Calibration Technician	J. Goldfine	

Factors/Conversions	
Std Temp	528 °R
Std Press	29.92 in Hg
K ₁	17.647 oR/in Hg

The Critical Orifice Coefficient, K' , must be entered in English units, $(ft^3 \cdot s^2 \cdot R^{1/2}) / (in. \cdot Hg \cdot min)$.

Run Time		Calibration Data									
		Metering Console					Critical Office				
Elapsed (θ) min	DGM Office ΔH (P_m) in H_2O	Volume Initial (V_{mi}) cubic feet	Volume Final (V_{mf}) cubic feet	Outlet Temp Initial (t_{mi}) °F	Outlet Temp Final (t_{mf}) °F	Serial Number	Coefficient	Amb Temp Initial (t_{amb}) °F	Amb Temp Final (t_{amb}) °F	Actual Vacuum in Hg	
11.00	0.48	334.300	339.075	81.0	81.0	47	0.3286	70	70	23	
10.25	0.93	340.400	346.570	81.0	81.0	55	0.4497	70	70	22	
10.75	1.80	348.000	356.820	81.0	82.5	63	0.6235	70	72	20	
10.50	3.00	361.500	372.490	86.5	89.0	73	0.7777	71	71	17	
10.50	4.40	374.600	387.840	89.0	92.5	81	0.9354	71	71	15	

Standardized Data					Results				
Dry Gas Meter			Critical Orifice		Dry Gas Meter				
(V_{meas}) cubic feet	(Q_{meas}) cfm	$(V_{Cr, (gas)})$ cubic feet	$(Q_{Cr, (gas)})$ cfm	Value (γ)	Calibration Factor Variation ($\Delta \gamma$)	Flowrate Std & Corr ($Q_{meas, (corr)}$) cfm	0.75 SCFM ($\Delta H @$) in H ₂ O	$\Delta H @$ Variation ($\Delta \Delta H @$)	
4.519	0.411	4.522	0.411	1.001	0.003	0.411	1.515	-0.087	
5.846	0.570	5.802	0.566	0.992	-0.005	0.566	1.552	-0.050	
8.364	0.778	8.429	0.784	1.008	0.010	0.784	1.570	-0.032	
10.339	0.985	10.270	0.978	0.993	-0.004	0.978	1.674	0.072	
12.432	1.184	12.352	1.176	0.994	-0.004	1.176	1.699	0.097	
				0.998	V. Average		1.602	$\Delta H @$ Average	

certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, CFR Title 40, Part 60, Appendix A-3, Method 5, 16.2.3

Date 5-9-07



ARI Environmental, Inc.
Gas Meter Thermometer Calibration Data Form
Pre-Test

Meter Box: 40827
Calibrator: J. Goldfine
Date: 12/14/06
Barometric: 28.98
Amb. Temp: 71

Reference Thermometer: Altek Thermocouple Source

Reference Temperature Altek	Thermometer Temperature Inlet	Difference (%) mean Inlet	Thermometer Temperature Outlet	Difference (%) mean Outlet	Thermometer Temperature Probe	Difference (%) mean Probe	Thermometer Temperature Stack	Difference (%) mean Stack
0	1	0.22	1	0.22	1	0.22	1	0.22
100	99	-0.18	99	-0.18	100	0.00	100	0.00
200	201	0.15	201	0.15	201	0.15	201	0.15
300	300	0.00	300	0.00	300	0.00	300	0.00
400	396	-0.47	396	-0.47	396	-0.47	396	-0.47
500	496	-0.42	496	-0.42	496	-0.42	501	0.10

Reference Temperature Altek	Thermometer Temperature Filter	Difference (%) mean Filter	Thermometer Temperature Exit	Difference (%) mean Exit	Thermometer Temperature Aux	Difference (%) mean Aux
0	1	0.22	1	0.22	1	0.22
100	100	0.00	100	0.00	100	0.00
200	201	0.15	201	0.15	201	0.15
300	300	0.00	300	0.00	300	0.00
400	396	-0.47	396	-0.47	396	-0.47
500	496	-0.42	496	-0.42	496	-0.42

APEX INSTRUMENTS METHOD 5 POST-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
3-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	MC522
Console Serial Number	40827
DGM Model Number	MS-4
DGM Serial Number	600396

Calibration Conditions	
Date	12-Feb-07
Time	12:00
Barometric Pressure	29.5 in Hg
Theoretical Critical Vacuum ¹	13.9 in Hg
Calibration Technician	J. Clark

Factors/Conversions	
Std Temp	528 °R
Std Press	29.92 in Hg
K ₁	17.647 or/in Hg

¹For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

²The Critical Orifice Coefficient, K', must be entered in English units, (ft³·s⁻²·R^{-1/2})/(in·Hg^{1/2}·min).

Calibration Data									
Metering Console					Critical Orifice				
Run Time	DGM Orifice	Volume	Volume	Outlet Temp	Serial	Coefficient	Amb Temp	Amb Temp	Actual
Elapsed	ΔH	Initial	Final	Initial	Number	K'	Final	(t _{amb})	Vacuum
(@)	(P _m)	(V _m)	(V _m)	(t _m)			(t _{amb})	°F	
min	in H ₂ O	cubic feet	cubic feet	°F		see above ²	°F		in Hg
10.0	1.8	633.000	641.041	70	63	0.6235	70	70	21
10.0	1.8	641.041	649.075	70	63	0.6235	70	71	21
10.0	1.8	649.075	657.143	71	63	0.6235	71	71	21

Results									
Standardized Data					Dry Gas Meter				
Dry Gas Meter		Critical Orifice		Calibration Factor		Flowrate		ΔH @	
(V _{test})	(Q _{test})	(V _{crit})	(Q _{crit})	Value	Variation	Std & Corr	7.5 SCFM	ΔH @	Variation
cubic feet	cfm	cubic feet	cfm	(Y)	(ΔY)	(Q _{meas/corr})	(ΔH@)	(ΔH@)	(ΔΔH@)
7.928	0.793	7.984	0.798	1.007	0.000	0.798	1.574	1.574	0.000
7.914	0.791	7.980	0.798	1.008	0.001	0.798	1.574	1.574	0.000
7.932	0.793	7.977	0.798	1.006	-0.001	0.798	1.573	1.573	-0.001
Pretest Gamma	0.998	% Deviation	0.9	1.007	Y Average		1.574	1.574	ΔH@ Average

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is ±0.02.

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, CFR Title 40, Part 60, Appendix A-3, Method 5, 16.2.3

Signature

Date

3-9-07

ARI Environmental, Inc.

Gas Meter Thermometer Calibration Data Form

Post - Test

Meter Box: 40827

Calibrator: J. Clark

Date: 2/12/07

Barometric: 29.48

Ambient Temp: 70

Reference Thermometer: Altek Thermocouple Source

Reference Temperature Altek	Thermometer Temperature Inlet	Difference (%) mean Inlet	Thermometer Temperature Outlet	Difference (%) mean Outlet	Thermometer Temperature Probe	Difference (%) mean Probe	Thermometer Temperature Stack	Difference (%) mean Stack
0	1	0.22	1	0.22	2	0.43	1	0.22
100	99	-0.18	99	-0.18	100	0.00	100	0.00
200	200	0.00	200	0.00	201	0.15	201	0.15
300	300	0.00	300	0.00	301	0.13	300	0.00
400	396	-0.47	396	-0.47	396	-0.47	396	-0.47
500	496	-0.42	496	-0.42	497	-0.31	496	-0.42

Reference Temperature Altek	Thermometer Temperature Filter	Difference (%) mean Filter	Thermometer Temperature Exit	Difference (%) mean Exit	Thermometer Temperature Aux	Difference (%) mean Aux
0	1	0.22	1	0.22	1	0.22
100	100	0.00	100	0.00	100	0.00
200	201	0.15	201	0.15	201	0.15
300	301	0.13	301	0.13	301	0.13
400	396	-0.47	396	-0.47	396	-0.47
500	497	-0.31	497	-0.31	497	-0.31



APEX INSTRUMENTS METHOD 5 PRE-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
5-POINT ENGLISH UNITS

Meter Console Information		Calibration Conditions		Factors/Conversions	
Console Model Number	MC522	Date	19-Dec-08	Std Temp	528 °R
Console Serial Number	611209	Barometric Pressure	29.7 in Hg	Std Press	29.92 in Hg
DGM Model Number	MS-4	Theoretical Critical Vacuum ¹	14.0 in Hg	K ₁	17.647
DGM Serial Number	971831	Calibration Technician	J. Clark		

¹For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

²The Critical Orifice Coefficient, K', must be entered in English units, (ft³·s^{1/2})/(in.²·Hg^{1/2}·min).

Calibration Data				
Metering Console			Critical Orifice	
Run Time	DGM Orifice ΔH (P _m in H ₂ O)	Volume Initial (V _{mi}) cubic feet	Volume Final (V _{mf}) cubic feet	Actual Vacuum
Elapsed (t)				
min				
10.0	0.5	132.600	136.899	72
11.0	1.1	218.000	224.567	70
10.0	2.0	123.600	131.775	72
10.0	3.2	241.100	251.558	69
10.0	4.8	193.000	205.859	65

Results				
Standardized Data		Dry Gas Meter		
Dry Gas Meter (V _{meas}) cubic feet	(Q _{cr(gas)}) cfm	Critical Orifice (V _{cr(gas)}) cubic feet		ΔH @ (ΔΔH@)
		Value (V)	Variation (ΔV)	
4.201	0.420	4.207	0.008	1.649
6.444	0.586	6.390	-0.002	1.806
7.991	0.799	8.035	0.012	1.713
10.122	1.012	10.051	0.000	1.740
12.415	1.241	12.112	-0.018	1.799
		Y Average		ΔH@ Average
		0.993		1.741

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is ±0.02.

I certify that the above Dry Gas Meter was calibrated in accordance with EPA Methods, CFR Title 40, Part 60, Appendix A-3, Method 5, 16.2.3

Signature:  Date: 3-9-07

ARI Environmental, Inc.

Gas Meter Thermometer Calibration Data Form

Pre-Test

Meter Box: 611209

Calibrator: J. Clark

Date: 12/19/06

Barometric: 29.71

Ambient Temp: 68

Reference Thermometer: Altek Thermocouple Source



Reference Temperature Altek	Thermometer Temperature Inlet	Difference (%) mean Inlet	Thermometer Temperature Outlet	Difference (%) mean Outlet	Thermometer Temperature Probe	Difference (%) mean Probe	Thermometer Temperature Stack	Difference (%) mean Stack
0	1	0.22	1	0.22	1	0.22	1	0.22
100	100	0.00	100	0.00	100	0.00	100	0.00
200	202	0.30	202	0.30	202	0.30	202	0.30
300	299	-0.13	299	-0.13	299	-0.13	299	-0.13
400	399	-0.12	399	-0.12	399	-0.12	399	-0.12
500	499	-0.10	499	-0.10	499	-0.10	499	-0.10

Reference Temperature Altek	Thermometer Temperature Filter	Difference (%) mean Filter	Thermometer Temperature Exit	Difference (%) mean Exit	Thermometer Temperature Aux	Difference (%) mean Aux
0	1	0.22	1	0.22	1	0.22
100	100	0.00	100	0.00	100	0.00
200	202	0.30	202	0.30	202	0.30
300	299	-0.13	302	0.26	302	0.26
400	399	-0.12	398	-0.23	399	-0.12
500	499	-0.10	500	0.00	499	-0.10

APEX INSTRUMENTS METHOD 5 POST-TEST CONSOLE CALIBRATION

USING CALIBRATED CRITICAL ORIFICES

3-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	MC522
Console Serial Number	611209
DGM Model Number	MS-4
DGM Serial Number	971831

Calibration Conditions	
Date	9-Mar-07
Time	10:30
Barometric Pressure	29.3 in Hg
Theoretical Critical Vacuum ¹	13.8 in Hg
Calibration Technician	R. Burton

Factors/Conversions	
Std Temp	528 °R
Std Press	29.92 in Hg
K ₁	17.647 or/in Hg

¹For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

²The Critical Orifice Coefficient, K', must be entered in English units, (ft³·s^{1/2})/(in·Hg·min).

Calibration Data											
Run Time		Metering Console					Critical Orifice				
Elapsed		DGM Orifice ΔH	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(e)		(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})		K'	(t_{amb})	(t_{amb})	
min		in H ₂ O	cubic feet	cubic feet	°F	°F		see above ²	°F	°F	in Hg
10.0		2.0	517.000	525.185	69	71	63	0.6235	66	70	20
10.0		2.0	525.185	533.370	71	72	63	0.6235	70	70	20
10.0		2.0	533.370	541.570	72	73	63	0.6235	70	72	20

Results									
Standardized Data					Dry Gas Meter				
Dry Gas Meter (V _{meas}) cubic feet	(Q _{meas}) cfm	Critical Orifice (V _{cr(Std)}) cubic feet		1 cfm	Calibration Factor Value (Y)		Variation (ΔY)		ΔH @ 0.75 SCFM (ΔH@) in H ₂ O
		7.950	7.935		0.991	0.992	0.000	0.001	
8.025	0.803			0.795					1.755
8.003	0.800			0.794					1.757
8.002	0.800			0.793					1.757
Pretest Gamma	0.993	% Deviation	0.2		0.991	Y Average			1.756 ΔH@ Average

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is ±0.02.

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, CFR Title 40, Part 60, Appendix A-3, Method 5, 16.2.3

Signature *R. Burton*

Date 3-9-07

ARI Environmental, Inc.
Gas Meter Thermometer Calibration Data Form

Post-Test

Meter Box: 611209
Calibrator: R. Burton
Date: 3/9/07
Barometric: 29.3
Ambient Temp: 72

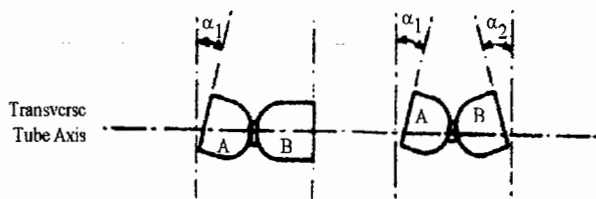
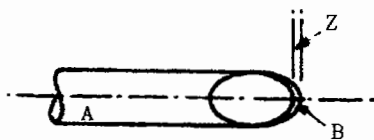
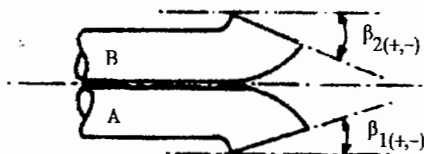
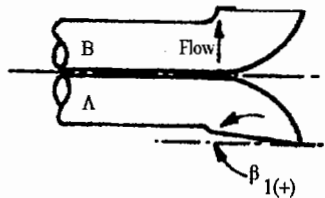
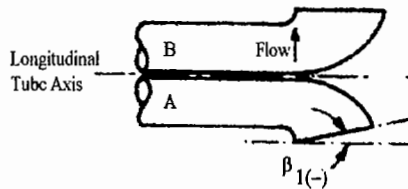
Reference Thermometer: Altek Thermocouple Source

Reference Temperature Altek	Thermometer Temperature Inlet	Difference (%) mean Inlet	Thermometer Temperature Outlet	Difference (%) mean Outlet	Thermometer Temperature Probe	Difference (%) mean Probe	Thermometer Temperature Stack	Difference (%) mean Stack
0	1	0.22	1	0.22	1	0.22	1	0.22
100	100	0.00	100	0.00	101	0.18	101	0.18
200	202	0.30	202	0.30	202	0.30	202	0.30
300	303	0.39	303	0.39	303	0.39	303	0.39
400	398	-0.23	398	-0.23	399	-0.12	398	-0.23
500	500	0.00	500	0.00	500	0.00	500	0.00

Reference Temperature Altek	Thermometer Temperature Filter	Difference (%) mean Filter	Thermometer Temperature Exit	Difference (%) mean Exit	Thermometer Temperature Aux	Difference (%) mean Aux
0	1	0.22	1	0.22	0	0.00
100	101	0.18	100	0.00	101	0.18
200	202	0.30	202	0.30	202	0.30
300	303	0.39	302	0.26	303	0.39
400	398	-0.23	398	-0.23	398	-0.23
500	500	0.00	498	-0.21	499	-0.10



Pitot Tube Inspection Data

Client Name: MPLLC RobinsonPre-Sample
Date: 2/15/07Post-Sample
Date: 3/9/07

y	level?	y
n	obstructions?	n
n	damaged?	n
1	$-10^\circ < \alpha_1 < +10^\circ$	1
1	$-10^\circ < \alpha_2 < +10^\circ$	0
0	$-5^\circ < \beta_1 < +5^\circ$	0
2	$-5^\circ < \beta_2 < +5^\circ$	2
2	γ	0
1	θ	1
0.725	A	0.73
0.362	$0.2625 < P_A < 0.375$	0.365
0.363	$0.2625 < P_B < 0.375$	0.365
0.250	$0.1875 \leq D_t \leq 0.375$	0.250
0.025	$A \tan \gamma < 0.125''$	0.000
0.01265	$A \tan \theta < 0.03125''$	0.01274
TRUE	$P_A = P_B \pm 0.063$	TRUE
PASS	PASS/FAIL	PASS

Comments: 96" E. L. Pressure pitot with k-type TCs

Pitot tube/probe number 839 meets or exceeds all specifications and criteria and/or applicable design features (per 40CFR60 Appendix A; Method 2) and is hereby assigned a pitot tube calibration factor of 0.84.

Signature:
Date:

3-9-07

ARI Environmental Inc.
Thermocouple Calibration Data Form

Calibrator: R. Burton

Thermocouple ID. 839

	pretest	posttest
Date:	2/15/07	3/9/07

Barometric:	29.50	29.3
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Reference Thermometer = Mercury in glass

	Reference Point Number	Source	Reference Thermometer Temperature	Meter Readout Temperature	Difference (%)
Pre- Test	T.C	Ice Water	38.0	38.6	-0.12
		Ambient	68.0	68.4	-0.08
		Hot Water	202.0	202.8	-0.12
Post- Test	T.C	Ice Water	37.0	37.8	-0.16
		Ambient	67.0	67.7	-0.13
		Hot Water	200.0	201.1	-0.17

$$a \text{ (temp. diff.)} = (\text{ref.temp} + 460) - (\text{Thermo. temp.} + 460) / (\text{ref. temp.} + 460) \times 10$$

Where $-1.5 < a < 1.5$