Annual RATA And Compliance Testing Report

in accordance with 40CFR60 and 40CFR75

City of Tallahassee

Plant Purdom
Units 7 and 8
Saint Marks, Florida

July-August 2012

Prepared By:
Spectrum Systems, Inc.
Pensacola, Florida

Analyzers Tested:

	Purdom 7	**Purdom 8**
NOx Monitor:	42C-69073-362	42C-63473-339
CO2 Monitor:	41CHL-68207-359	N1-L5-02

City of Tallahassee
Your Own Utilities℠

2602 Jackson Bluff Road, Tallahassee, Florida 32304, (850) 891-4YOU (4968), talgov.com

CERTIFIED MAIL
RETURN/RECEIPT

RECEIVED
AUG 28 2012
DIVISION OF AIR
RESOURCE MANAGEMENT

August 23, 2012

Mr. David McNeal
USEPA Region IV
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, Georgia 30303-3104

Mr. Syed Arif
Florida DEP
2600 Blair Stone Road
Mail Station 5510
Tallahassee, Florida 32399-2400

Re: City of Tallahassee – Annual RATA Results
Sam O. Purdom Generating Station – Units 7 and 8 – ORIS Code 689

Gentlemen:

Enclosed please find the annual relative accuracy test audit report required by 40 CFR Part 75 for Sam O. Purdom Generating Station units 7 and 8 (ORIS Code 689).

I am authorized to make this submission on behalf of the owners and operators of the affected sources or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Sincerely,

Triveni Singh
Manager Electric Production
Designated Representative

cc: Florida Dept. of Environmental Protection
Northwest District Office
Air Resources Management
160 Governmental Center
Pensacola, Florida 32502-5794

TABLE OF CONTENTS

I. INTRODUCTION

City of Tallahassee contracted Spectrum Systems, Inc. of Pensacola, Florida to conduct Relative Accuracy Testing on Plant Purdom, Units 7 and 8. The Plant Purdom facility is located in St. Marks, Florida. RATA testing was conducted on the Nitrogen Oxides (NO_x) Continuous Emissions Monitoring Systems (CEMS). Testing was conducted in July on Unit 7 and August on Unit 8 by James Garrett of Spectrum Systems, Inc. This report contains the results of this testing.

Section II of this report, titled Installation and Source Description, gives a brief description of the Purdom Facility and how it was operated during the test program.

Section III of this report, titled Summary of Results, presents a discussion of the test results.

Section IV of this report contains the certification of authenticity for the testing.

Section V of this report contains the mathematical equations used to calculate the results.

Section VI of this report contains diagrams of Spectrum Systems' TCEMS.

Actual test data, materials, and test results are presented in the different appendices of this report.

II. INSTALLATION and SOURCE DESCRIPTION

The City of Tallahassee Purdom facility is located in Saint Marks, Florida. The probes are installed on the stacks of Units 7 and 8. The analyzers for the units are housed in a shelter at the base of each stack. Further installation information can be obtained from the affected facility or the City of Tallahassee's Electric Production Department located in Tallahassee, Florida. The monitoring system is used for compliance with the Clean Air Act of 1990 by reporting mass emissions of Carbon Dioxide and emission rates of Nitrogen Oxides released into the atmosphere.

City of Tallahassee utilizes Units 7 and Unit 8 for the purpose of generating electricity. The units are fired on natural gas. The Unit 7 boiler and Unit 8 combustion turbine burn natural gas as a primary fuel. Potential emissions include the products of complete and incomplete combustion of the fuels, as well as any extraneous material. The gases then pass through a series of ducts to the base of the stack and then exhaust into the atmosphere.

III. SUMMARY OF RESULTS

City of Tallahassee contracted Spectrum Systems, Inc. of Pensacola, Florida to conduct Relative Accuracy Testing on the NO_x CEMS on Units 7 and 8 at City of Tallahassee's Plant Purdom facility located in Saint Marks, Florida. All testing was performed at normal loads.

Testing was conducted according to the procedures in the Code of Federal Regulations, Title 40, Part 75 (40CFR75), Appendix A. Reference Method 7E, as defined in 40 CFR 60 Appendix A, was used to determine Nitrogen oxides.

The NO_x Relative Accuracies were performed using 40CFR75 Appendix A Section 6.5. NO_x Relative Accuracy results must meet the criteria of 40CFR75 Appendix A, Section 3.3 and shall not exceed 10.0% (or 7.5% to achieve reduced RATA frequency incentive for annual RATAs). Exceptions are as follows:

Low NO_x emitting units (≤0.2 lb/mmBtu): the difference between the mean value of the CEMS measurements and the reference method mean value is not to exceed ±0.02 lb/mmBtu whenever the Relative Accuracy is greater than 10% (or ±0.015 lb/mmBtu for reduced RATA frequency).

All monitors tested for Relative Accuracy meet the required criteria.

This report contains a summary of all the testing performed and the supporting data for all tests. Detailed test material is presented in the different appendices of this report. Within each appendix, data is presented by unit. Refer to the header or footer information to pinpoint or sequence a group of data.

40CFR75 test results are entered into the EPA ECMPS Software, Version. An electronic file is exported from this software and is made available for direct submittal to the EPA.

Appendix A of this report contains a printout of the detailed EPA testing results generated from ECMPS. This appendix includes summaries of the Relative Accuracy test data, as presented in the ECMPS-generated printout.

Appendix B of this report contains Gas Relative Accuracy and Compliance reference method data. Gas reference method data include sampling system bias and drift results, average emission calculations, calibration data, Compliance summary table, and minute data and run averages.

Appendix C of this report contains all plant CEMS data associated with RATA and Compliance testing.

Appendix D of this report contains Quality Assurance data for the gas reference methods.

Appendix E of this report contains copies of the EPA Protocol Gas Certificates for the gases used during this testing.

IV. STATEMENT OF AUTHENTICITY

The sampling and analysis for this report was carried out under my direction and supervision.

I have reviewed the testing details and results of this report and hereby certify that the data contained within is authentic and accurate to the best of my knowledge.

Date: August 9, 2012

Signature: _____

James Garrett
Testing Engineer

V. MATHEMATICAL EXPLANATION

The following equations are used in the Relative Accuracy monitor comparisons and the lbs/mmBtu emission calculations in compliance with 40CFR60 Appendix B, Performance Specification 2, Sections 7 and 8.

Arithmetic Mean:

$$\bar{d} = \frac{1}{n} \sum_{i=1}^{n} d_i$$

Where,

- n = Number of data points
- d = Arithmetic Mean
- di = The individual difference between the reference method and corresponding CEMS value for an individual data point.
- Σ = The summation of all the individual differences di for all points

Standard Deviation:

$$S_d = \sqrt{\frac{\sum_{i=1}^{n} d_i^2 - \left[\frac{\left(\sum_{i=1}^{n} d_i\right)^2}{n}\right]}{n-1}}$$

Where,

- n = Number of data points
- di = The individual difference between the reference method and corresponding CEMS value for an individual data point.
- Σ = The summation of all the individual differences di for all points

Confidence Coefficient:

$$CC = t_{0.025} \frac{S_d}{\sqrt{n}}$$

Where,

t 0.025 = T value from the table below:

n-1	$t_{0.025}$	n-1	$t_{0.025}$	n-1	$t_{0.025}$
1	12.706	12	2.179	23	2.069
2	4.303	13	2.160	24	2.064
3	3.182	14	2.145	25	2.060
4	2.776	15	2.131	26	2.056
5	2.571	16	2.120	27	2.052
6	2.447	17	2.110	28	2.048
7	2.365	18	2.101	29	2.045
8	2.306	19	2.093	30	2.042
9	2.262	20	2.086	40	2.021
10	2.228	21	2.080	60	2.000
11	2.201	22	2.074	>80	1.980

Relative Accuracy:

$$RA = \frac{|\overline{d}| + |\overline{cc}|}{\overline{RM}} \times 100$$

Where,

$|\overline{d}|$ = The absolute value of the mean difference between Reference Method values and CEMS Monitor Readings

$|\overline{cc}|$ = The absolute value of the confidence coefficient

$\overline{RM}$ = The absolute value of the reference method value or applicable standard

Emission Calculations

Reference method testing data analysis is performed using Title 40 of the Code of Federal Regulations, Part 60, Appendix A, Method 19. Measurements of pollutants and diluent gases in any combination of wet and dry instrument responses are detailed. "F" factor analysis techniques are used on both the CEMS and the TCEMS wherever possible. Plug values for moisture are applied when necessary, to compensate for ambient or added moisture gas phase dilution.

Purdom 8:

For pollutants measured on a wet basis with dry Oxygen diluent, emissions in pounds of pollutant per hour are calculated by the formula:

Emission Lbs/mmBtu= (PPMd x Fd x K x 20.9) / (20.9x %02d)

Where:

E	=	Emission in lbs/mmBtu
PPMd	=	Pollutant Concentration in dry ppm
Fd	=	Fuel Factor in dscf/mmBtu = 8710 for Natural Gas
%O2 d	=	Oxygen Fraction in Flue Gas in % by volume dry
K	=	Conversion Factor in lbs/scf.
		NOx Conversion Factor = 1.194 E-7

Purdom 7:

For the pollutants measured with a wet CO2 diluent measurement the following formula is used:

: Emission lbs/mmBtu= PPMw x Fc x K x (100 / %w CO2)

Where:

E	=	Pollutant Emission Concentration in lbs/mmBtu
PPMw	=	Pollutant Concentration in wet ppm
Fc	=	Fuel Factor in scf/mmBtu = 1040 for Natural Gas (1420 for Fuel Oil)
%wCO2	=	Wet Carbon Dioxide in Flue Gas in % by volume
K	=	Conversion Factor
		NOx Conversion Factor = 1.194 E-7

Corrected Gas Pollutant Concentration

Calculate the correction for the gas analyzer measured gas concentrations in ppm, using sampling bias and drift measurements of EPA Protocol 1 zero and higher calibration gas concentrations.

When CO2 is used as the diluent gas during analysis, NOx and CO2 ppm corrected readings are calculated using equation in 40 CFR 60 Appendix A Reference Method 6C Section 8 Equation 6C-1. (Reference 40 CFR 60 Appendix A Reference Method 3A Section 9 for CO2 AND 40 CFR Appendix A Reference Method 7E Section 8 for NOx BOTH reference procedure 40 CFR 60 Appendix A Reference Method 6C Section 8, Equation 6C-1.)

$$C_{gas} = C_{ma} * (C_{avg} - C_o) / (C_m - C_o)$$

Where:

C gas	=	Corrected effluent gas concentration in ppm
Cma	=	Actual upscale calibration gas concentration in ppm
Cavg	=	Gas analyzer reading in ppm
Co	=	Average of initial and final system calibration bias check response for the zero gas
Cm	=	Average of initial and final system calibration bias check response for the upscale gas

Sampling System Bias and Calibration Drift

Sampling system bias and calibration drift data corrections are applied to the run's analyzer measurements. The NOx emissions were computed from each set of NOx and O2 or NOx and CO2 analyzer measurements.

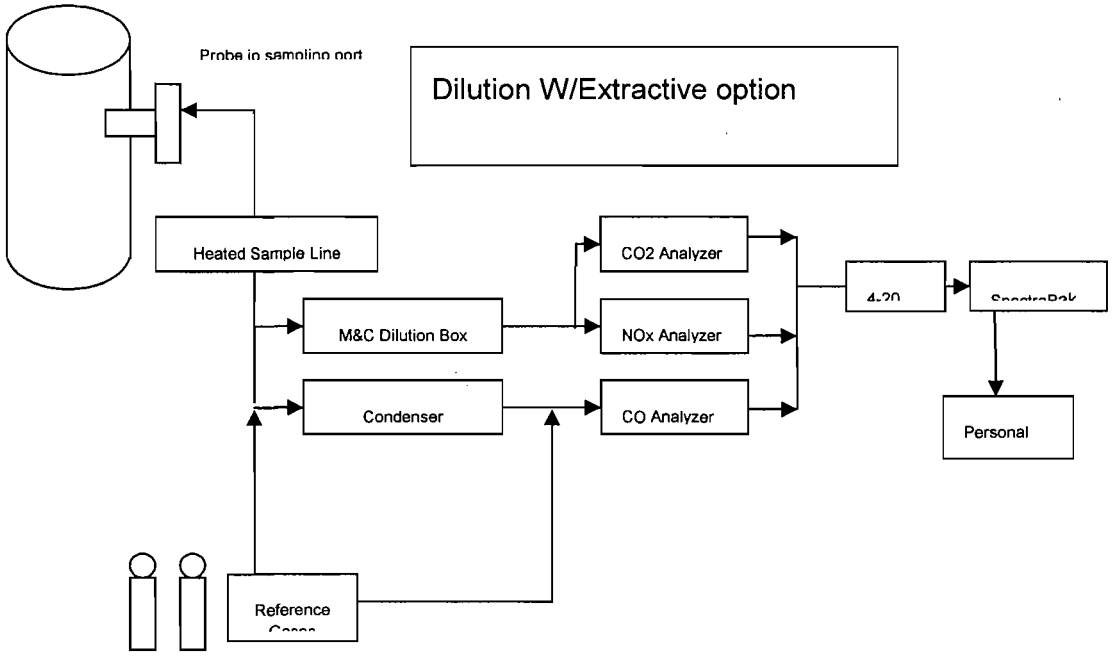
Sampling Bias in percent of span is calculated by the formula:

Sampling Bias = (100 (System Cal Response – Analyzer Cal Response))/Span

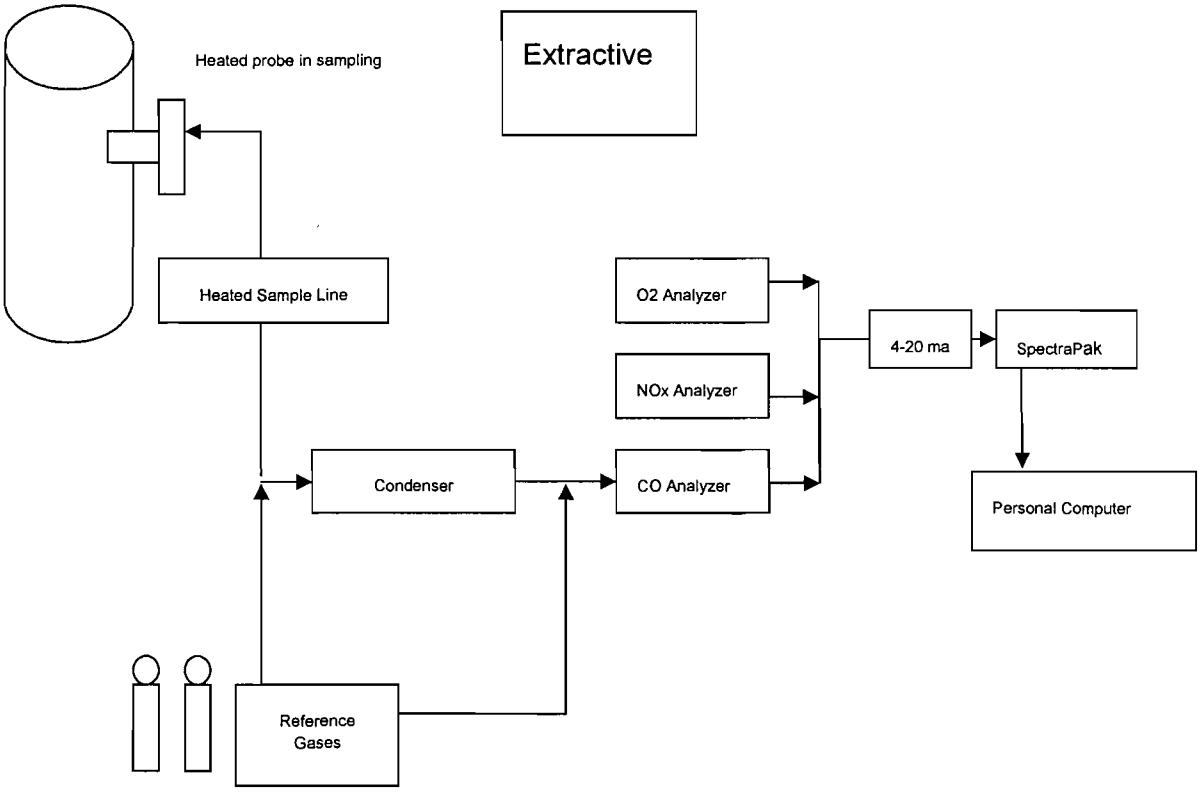
Calibration Drift in % of Span is calculated by the formula:

Calibration Drift = (100(Final System Cal Response –Initial System Cal Response)/Span

VI. TCEMS Gas Sample Train Schematic



VI. TCEMS Gas Sample Train Schematic



APPENDIX A

EPA Detailed Monitoring Report

ECMPS

(Includes Relative Accuracy Summaries)

ECMPS Client Tool
Version 1.0 2012 Q2

QA/Cert Test Detail Report
July 31, 2012 02:04 PM

Facility Name: S O Purdom

Facility Details

Facility ID (ORISPL):	689
State:	FL
County:	Wakulla

Unit/Stack/Pipe ID: 7

Relative Accuracy Test

System ID:	704	**System Parameter:**	NOX	**Test Completion:**	07/18/2012 13:13
Test Number:	01-704-20120718	**Reason for Test:**	QA	**Reported Test Results:**	*PASSED*
# of Op. Levels:	1	**Grace Period Test?**		**EPA Calculated Result:**	PASSED
Evaluation Status:	No Errors			**Reported BAF:**	1.000
Submission Status:	Not Submitted			**EPA Calculated BAF:**	1.000
Submission Date:				**RATA Frequency:**	4QTRS

Air Emissions Testing Data

QI Name:	Garrett, James L	**AETB Name:**	Spectrum Systems, Inc.
Exam Date:	02/17/2011	**AETB Phone Number:**	800-432-6119
Provider Name:	Source Evaluation Society	**AETB Email:**	jimmy@spectrumsystems.com
Provider Email:	qstiprogram@gmail.com		

Protocol Gas Data:

Gas Level Code	Gas Type Code	Vendor Identifier	Cylinder Identifier	Expiration Date
High	NC2	A12011	ALM026383	12/18/2013
Mid	NC2	A12011	ALM020362	12/18/2013
Low	ZERO			

Operating Level: Low
Reference Method Used: 7E,3A: NOX RM 7E and CO2/O2 RM 3A
Summary Statistics:

	Reported	Recalculated		Reported	Recalculated

Facility Name: S O Purdom

Facility ID (ORISPL): 689

QA/Cert Test Detail Report

July 31, 2012 02:04 PM

Mean of Monitoring System	0.228	0.228	**Relative Accuracy**	4.78	4.78
Mean of Reference Method Values	0.220	0.220	**Bias Adjustment Factor**	1.000	1.000
Mean of Difference	-0.007	-0.007	**APS Indicator**		
Standard Deviation of Difference	0.004	0.004	**T-Value**	2.306	2.306
Confidence Coefficient	0.003	0.003	**Gross Unit Load or Velocity**	21	21

Run Data:

Run	Start Date	End Date	Run Status	Monitoring System Value	Reference Method Value	Gross Load or Velocity
1	07/18/2012 07:57	07/18/2012 08:18	RUNUSED	0.236	0.222	21
2	07/18/2012 08:35	07/18/2012 08:56	RUNUSED	0.229	0.217	21
3	07/18/2012 09:17	07/18/2012 09:38	RUNUSED	0.220	0.218	21
4	07/18/2012 09:54	07/18/2012 10:15	RUNUSED	0.223	0.221	21
5	07/18/2012 10:30	07/18/2012 10:51	RUNUSED	0.227	0.218	21
6	07/18/2012 11:04	07/18/2012 11:25	RUNUSED	0.227	0.221	21
7	07/18/2012 11:41	07/18/2012 12:02	RUNUSED	0.230	0.222	21
8	07/18/2012 12:17	07/18/2012 12:38	RUNUSED	0.228	0.221	21
9	07/18/2012 12:52	07/18/2012 13:13	RUNUSED	0.229	0.222	21

Additional Information:

No comment.

*Performance Spec: RA <= 10% or Mean Difference <= +/- 2.0fps:
Reduced Frequency Spec: RA <= 7.5% or Mean Difference +/- 1.5 fps (Appendix A &3.3.4)

ECMPS Client Tool

Version 1.0 2012 Q2

QA/Cert Test Detail Report

August 13, 2012 10:06 AM

Facility Name: S O Purdom

Facility Details

Facility ID (ORISPL):	689
State:	FL
County:	Wakulla

Unit/Stack/Pipe ID: 8

Relative Accuracy Test

System ID:	801	**System Parameter:**	NOX	**Test Completion:**	08/07/2012 13:33
Test Number:	01-801-20120807	**Reason for Test:**	QA	**Reported Test Results:**	PASSED
# of Op. Levels:	1	**Grace Period Test?**		**EPA Calculated Result:**	
Evaluation Status:	Not Evaluated			**Reported BAF:**	1.000
Submission Status:	Not Submitted			**EPA Calculated BAF:**	
Submission Date:				**RATA Frequency:**	4QTRS

Operating Level: Mid
Reference Method Used: 7E,3A: NOX RM 7E and CO2/O2 RM 3A

Summary Statistics:

	Reported	Recalculated		Reported	Recalculated
Mean of Monitoring System	0.022		**Relative Accuracy**	7.43	
Mean of Reference Method Values	0.021		**Bias Adjustment Factor**	1.000	
Mean of Difference	-0.001		**APS Indicator**		
Standard Deviation of Difference	0.000		**T-Value**	2.306	
Confidence Coefficient	0.000		**Gross Unit Load or Velocity**	135	

Facility Name: S O Purdom

Facility ID (ORISPL): 689

QA/Cert Test Detail Report

August 13, 2012 10:06 AM

Run Data:

Run	Start Date	End Date	Run Status	Monitoring System Value	Reference Method Value	Gross Load or Velocity
1	08/07/2012 08:28	08/07/2012 08:49	RUNUSED	0.023	0.021	135
2	08/07/2012 09:02	08/07/2012 09:23	RUNUSED	0.022	0.021	135
3	08/07/2012 09:36	08/07/2012 09:57	RUNUSED	0.023	0.021	135
4	08/07/2012 10:11	08/07/2012 10:32	RUNUSED	0.022	0.021	135
5	08/07/2012 10:46	08/07/2012 11:07	RUNUSED	0.022	0.021	135
6	08/07/2012 11:27	08/07/2012 11:48	RUNUSED	0.022	0.021	135
7	08/07/2012 12:02	08/07/2012 12:23	RUNUSED	0.022	0.021	135
8	08/07/2012 12:37	08/07/2012 12:58	RUNUSED	0.022	0.021	136
9	08/07/2012 13:12	08/07/2012 13:33	RUNUSED	0.022	0.021	136

Additional Information:

No comment.

*Performance Spec: RA <= 10% or Mean Difference <= +/- 2.0fps:
Reduced Frequency Spec: RA <= 7.5% or Mean Difference +/- 1.5 fps (Appendix A &3.3.4)

APPENDIX B

Gas Relative Accuracy

Reference Method Data

Appendix B, Section 1

Gas Sampling Bias and Drift Results

Sampling System Bias and Drift

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	1 7:57:00 8:18:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
NOx						
ZERO	0.22	1.39	0.00	0.51	0.00	0.32%
MID	130.48	127.55	-0.01	127.62	-0.01	-0.03%
CO2						
ZERO	0.18	0.10	-0.01	0.17	0.00	-0.63%
MID	5.08	4.96	-0.01	4.86	-0.02	0.94%

Sampling System Bias and Drift

Performed By:	**Spectrum Systems**	Date Performed:	18-Jul-2012
	Pensacola, Florida	Test Number:	1
Performed For:	**City of Tallahassee**	Run Number:	2
	Purdom, Unit 7	Start Time:	8:35:00
	St. Marks, Florida	Stop Time:	8:56:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
NOx						
ZERO	0.22	0.51	0.00	0.73	0.00	-0.08%
MID	130.48	127.62	-0.01	126.81	-0.01	0.29%
CO2						
ZERO	0.18	0.17	0.00	0.21	0.00	-0.40%
MID	5.08	4.86	-0.02	4.74	-0.03	1.07%

Sampling System Bias and Drift

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	3 9:17:00 9:38:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
NOx						
ZERO	0.22	0.73	0.00	0.07	0.00	0.24%
MID	130.48	126.81	-0.01	126.81	-0.01	0.00%
CO2						
ZERO	0.18	0.21	0.00	-0.07	-0.02	2.59%
MID	5.08	4.74	-0.03	4.94	-0.01	-1.83%

Sampling System Bias and Drift

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	4 9:54:00 10:15:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
NOx						
ZERO	0.22	0.07	0.00	1.03	0.00	-0.35%
MID	130.48	126.81	-0.01	127.84	-0.01	-0.37%
CO2						
ZERO	0.18	-0.07	-0.02	0.15	0.00	-2.01%
MID	5.08	4.94	-0.01	5.01	-0.01	-0.63%

Sampling System Bias and Drift

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	5 10:30:00 10:51:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
NOx						
ZERO	0.22	1.03	0.00	0.44	0.00	0.21%
MID	130.48	127.84	-0.01	126.08	-0.02	0.64%
CO2						
ZERO	0.18	0.15	0.00	0.17	0.00	-0.13%
MID	5.08	5.01	-0.01	4.81	-0.03	1.83%

Sampling System Bias and Drift

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	6 11:04:00 11:25:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
NOx						
ZERO	0.22	0.44	0.00	0.88	0.00	-0.16%
MID	130.48	126.08	-0.02	127.11	-0.01	-0.37%
CO2						
ZERO	0.18	0.17	0.00	0.19	0.00	-0.22%
MID	5.08	4.81	-0.03	4.97	-0.01	-1.47%

Sampling System Bias and Drift

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	7 11:41:00 12:02:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
NOx						
ZERO	0.22	0.88	0.00	1.03	0.00	-0.05%
MID	130.48	127.11	-0.01	127.11	-0.01	0.00%
CO2						
ZERO	0.18	0.19	0.00	0.26	0.01	-0.63%
MID	5.08	4.97	-0.01	4.93	-0.01	0.36%

Sampling System Bias and Drift

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	8 12:17:00 12:38:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
NOx						
ZERO	0.22	1.03	0.00	1.68	0.01	-0.24%
MID	130.48	127.11	-0.01	126.37	-0.01	0.27%
CO2						
ZERO	0.18	0.26	0.01	0.23	0.00	0.27%
MID	5.08	4.93	-0.01	5.07	0.00	-1.29%

Sampling System Bias and Drift

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	9 12:52:00 13:13:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
NOx						
ZERO	0.22	1.68	0.01	1.47	0.00	0.08%
MID	130.48	126.37	-0.01	126.81	-0.01	-0.16%
CO2						
ZERO	0.18	0.23	0.00	0.27	0.01	-0.40%
MID	5.08	5.07	0.00	4.90	-0.02	1.61%

Sampling System Bias and Drift

Reference Method Quality Assurance

Unit 8

Performed By:	Spectrum Systems Pensacola, Florida	Date: Test:	7-Aug-12 1
Source:	City of Tallahassee, Plant Purdom, Unit 8 Unit 8 ST. Marks, Florida	Run: Start Time: Stop Time:	One 8:28 AM 8:49 AM

Calibration Analyzer	Analyzer Response	Initial Cal	Initial Bias	Final Cal	Final Bias %	Cal Drift %
CO	0.000	0.244	1.06	-0.073	-0.32	-1.38
CO	9.963	9.976	0.06	9.853	-0.48	-0.53
NOx	0.061	0.085	0.11	0.073	0.05	-0.05
NOx	10.024	9.951	-0.32	10.012	-0.05	0.27
O2	0.159	0.092	-0.32	0.098	-0.29	0.03
O2	11.068	11.074	0.03	11.074	0.03	0.00

Sampling System Bias and Drift

Reference Method Quality Assurance

Unit 8

Performed By:	Spectrum Systems Pensacola, Florida	Date: Test:	7-Aug-12 1
Source:	City of Tallahassee, Plant Purdom, Unit 8 Unit 8 ST. Marks, Florida	Run: Start Time: Stop Time:	Two 9:02 AM 9:23 AM

Calibration Analyzer	Analyzer Response	Initial Cal	Initial Bias	Final Cal	Final Bias %	Cal Drift %
CO	0.000	-0.073	-0.32	-0.122	-0.53	-0.21
CO	9.963	9.853	-0.48	9.853	-0.48	0.00
NOx	0.061	0.073	0.05	0.085	0.11	0.05
NOx	10.024	10.012	-0.05	9.963	-0.27	-0.22
O2	0.159	0.098	-0.29	0.098	-0.29	0.00
O2	11.068	11.074	0.03	11.038	-0.14	-0.17

Sampling System Bias and Drift

Reference Method Quality Assurance

Unit 8

Performed By:	Spectrum Systems Pensacola, Florida	Date: Test:	7-Aug-12 1
Source:	City of Tallahassee, Plant Purdom, Unit 8 Unit 8 ST. Marks, Florida	Run: Start Time: Stop Time:	Three 9:36 AM 9:57 AM

Calibration Analyzer	Analyzer Response	Initial Cal	Initial Bias	Final Cal	Final Bias %	Cal Drift %
CO	0.000	-0.122	-0.53	0.085	0.37	0.90
CO	9.963	9.853	-0.48	10.012	0.21	0.69
NOx	0.061	0.085	0.11	0.073	0.05	-0.05
NOx	10.024	9.963	-0.27	9.890	-0.59	-0.32
O2	0.159	0.098	-0.29	0.092	-0.32	-0.03
O2	11.068	11.038	-0.14	11.081	0.06	0.21

Sampling System Bias and Drift

Reference Method Quality Assurance

Unit 8

Performed By:	Spectrum Systems Pensacola, Florida	Date: Test:	7-Aug-12 1
Source:	City of Tallahassee, Plant Purdom, Unit 8 Unit 8 ST. Marks, Florida	Run: Start Time: Stop Time:	Four 10:11 AM 10:32 AM

Calibration Analyzer	Analyzer Response	Initial Cal	Initial Bias	Final Cal	Final Bias %	Cal Drift %
CO	0.000	0.085	0.37	0.024	0.10	-0.27
CO	9.963	10.012	0.21	10.061	0.43	0.21
NOx	0.061	0.073	0.05	0.085	0.11	0.05
NOx	10.024	9.890	-0.59	9.805	-0.96	-0.37
O2	0.159	0.092	-0.32	0.092	-0.32	0.00
O2	11.068	11.081	0.06	11.081	0.06	0.00

Sampling System Bias and Drift

Reference Method Quality Assurance

Unit 8

Performed By:	Spectrum Systems Pensacola, Florida	Date: Test:	7-Aug-12 1
Source:	City of Tallahassee, Plant Purdom, Unit 8 Unit 8 ST. Marks, Florida	Run: Start Time: Stop Time:	Five 10:46 AM 11:07 AM

Calibration Analyzer	Analyzer Response	Initial Cal	Initial Bias	Final Cal	Final Bias %	Cal Drift %
CO	0.000	0.024	0.10	-0.024	-0.10	-0.21
CO	9.963	10.061	0.43	9.951	-0.05	-0.48
NOx	0.061	0.085	0.11	0.024	-0.16	-0.27
NOx	10.024	9.805	-0.96	9.780	-1.07	-0.11
O2	0.159	0.092	-0.32	0.085	-0.35	-0.03
O2	11.068	11.081	0.06	11.044	-0.11	-0.18

Sampling System Bias and Drift

Reference Method Quality Assurance

Unit 8

Performed By:	Spectrum Systems Pensacola, Florida	Date: Test:	7-Aug-12 1
Source:	City of Tallahassee, Plant Purdom, Unit 8 Unit 8 ST. Marks, Florida	Run: Start Time: Stop Time:	Six 11:27 AM 11:48 AM

Calibration Analyzer	Analyzer Response	Initial Cal	Initial Bias	Final Cal	Final Bias %	Cal Drift %
CO	0.000	-0.024	-0.10	0.024	0.10	0.21
CO	9.963	9.951	-0.05	10.171	0.90	0.96
NOx	0.061	0.024	-0.16	0.024	-0.16	0.00
NOx	10.024	9.780	-1.07	9.780	-1.07	0.00
O2	0.159	0.085	-0.35	0.061	-0.47	-0.11
O2	11.068	11.044	-0.11	11.044	-0.11	0.00

Sampling System Bias and Drift

Reference Method Quality Assurance

Unit 8

Performed By:	Spectrum Systems Pensacola, Florida	Date: Test:	7-Aug-12 1
Source:	City of Tallahassee, Plant Purdom, Unit 8 Unit 8 ST. Marks, Florida	Run: Start Time: Stop Time:	Seven 12:02 PM 12:23 PM

Calibration Analyzer	Analyzer Response	Initial Cal	Initial Bias	Final Cal	Final Bias %	Cal Drift %
CO	0.000	0.024	0.10	-0.085	-0.37	-0.47
CO	9.963	10.171	0.90	9.963	0.00	-0.90
NOx	0.061	0.024	-0.16	0.037	-0.11	0.06
NOx	10.024	9.780	-1.07	9.817	-0.91	0.16
O2	0.159	0.061	-0.47	0.037	-0.58	-0.11
O2	11.068	11.044	-0.11	11.074	0.03	0.14

Sampling System Bias and Drift

Reference Method Quality Assurance

Unit 8

Performed By:	Spectrum Systems Pensacola, Florida	Date: Test:	7-Aug-12 1
Source:	City of Tallahassee, Plant Purdom, Unit 8 Unit 8 ST. Marks, Florida	Run: Start Time: Stop Time:	Eight 12:37 PM 12:58 PM

Calibration Analyzer	Analyzer Response	Initial Cal	Initial Bias	Final Cal	Final Bias %	Cal Drift %
CO	0.000	-0.085	-0.37	0.012	0.05	0.42
CO	9.963	9.963	0.00	9.963	0.00	0.00
NOx	0.061	0.037	-0.11	0.024	-0.16	-0.06
NOx	10.024	9.817	-0.91	9.805	-0.96	-0.05
O2	0.159	0.037	-0.58	0.085	-0.35	0.23
O2	11.068	11.074	0.03	11.099	0.15	0.12

Sampling System Bias and Drift

Reference Method Quality Assurance

Unit 8

Performed By: Spectrum Systems
Pensacola, Florida

Date: 7-Aug-12
Test: 1

Source: City of Tallahassee, Plant Purdom, Unit 8
Unit 8
ST. Marks, Florida

Run: Nine
Start Time: 1:12 PM
Stop Time: 1:33 PM

Calibration Analyzer	Analyzer Response	Initial Cal	Initial Bias	Final Cal	Final Bias %	Cal Drift %
CO	0.000	0.012	0.05	-0.073	-0.32	-0.37
CO	9.963	9.963	0.00	9.927	-0.16	-0.16
NOx	0.061	0.024	-0.16	0.098	0.16	0.33
NOx	10.024	9.805	-0.96	9.805	-0.96	0.00
O2	0.159	0.085	-0.35	0.098	-0.29	0.06
O2	11.068	11.099	0.15	11.013	-0.26	-0.41

Appendix B, Section 2

Gas Run Average Emission Calculations

Calculation of Average Emissions

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	1 7:57:00 8:18:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
NOx				
ZERO	0.00 ppm	1.39	0.51	0.95
MID	126.40 ppm	127.55	127.62	127.58
CO2				
ZERO	0.00 percent	0.10	0.17	0.14
MID	4.96 percent	4.96	4.86	4.91

Mean Reference Values:

102.68 ppm NOx
5.59 percent CO2

Corrected Results:

101.55 ppm NOx
5.67 percent CO2

Emission Calculations

0.222 lbs/mmBtu NOx

Calculation of Average Emissions

Performed By:	**Spectrum Systems**	Date Performed:	18-Jul-2012
	Pensacola, Florida	Test Number:	1
Performed For:	**City of Tallahassee**	Run Number:	2
	Purdom, Unit 7	Start Time:	8:35:00
	St. Marks, Florida	Stop Time:	8:56:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
NOx				
ZERO	0.00 ppm	0.51	0.73	0.62
MID	126.40 ppm	127.62	126.81	127.22
CO2				
ZERO	0.00 percent	0.17	0.21	0.19
MID	4.96 percent	4.86	4.74	4.80

Mean Reference Values:

102.26 ppm NOx
5.60 percent CO2

Corrected Results:

101.48 ppm NOx
5.82 percent CO2

Emission Calculations

0.217 lbs/mmBtu NOx

Calculation of Average Emissions

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	3 9:17:00 9:38:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
NOx				
ZERO	0.00 ppm	0.73	0.07	0.40
MID	126.40 ppm	126.81	126.81	126.81
CO2				
ZERO	0.00 percent	0.21	-0.07	0.07
MID	4.96 percent	4.74	4.94	4.84

Mean Reference Values:

103.26 ppm NOx
5.70 percent CO2

Corrected Results:

102.85 ppm NOx
5.85 percent CO2

Emission Calculations

0.218 lbs/mmBtu NOx

Calculation of Average Emissions

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	4 9:54:00 10:15:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
NOx				
ZERO	0.00 ppm	0.07	1.03	0.55
MID	126.40 ppm	126.81	127.84	127.33
CO2				
ZERO	0.00 percent	-0.07	0.15	0.04
MID	4.96 percent	4.94	5.01	4.98

Mean Reference Values:

101.63 ppm NOx
5.68 percent CO2

Corrected Results:

100.78 ppm NOx
5.66 percent CO2

Emission Calculations

0.221 lbs/mmBtu NOx

Calculation of Average Emissions

Performed By:	**Spectrum Systems**	Date Performed:	18-Jul-2012
	Pensacola, Florida	Test Number:	1
Performed For:	**City of Tallahassee**	Run Number:	5
	Purdom, Unit 7	Start Time:	10:30:00
	St. Marks, Florida	Stop Time:	10:51:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
NOx				
ZERO	0.00 ppm	1.03	0.44	0.73
MID	126.40 ppm	127.84	126.08	126.96
CO2				
ZERO	0.00 percent	0.15	0.17	0.16
MID	4.96 percent	5.01	4.81	4.91

Mean Reference Values:

101.68 ppm NOx
5.68 percent CO2

Corrected Results:

101.09 ppm NOx
5.76 percent CO2

Emission Calculations

0.218 lbs/mmBtu NOx

Calculation of Average Emissions

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	6 11:04:00 11:25:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
NOx				
ZERO	0.00 ppm	0.44	0.88	0.66
MID	126.40 ppm	126.08	127.11	126.59
CO2				
ZERO	0.00 percent	0.17	0.19	0.18
MID	4.96 percent	4.81	4.97	4.89

Mean Reference Values:

103.85 ppm NOx
5.72 percent CO2

Corrected Results:

103.58 ppm NOx
5.83 percent CO2

Emission Calculations

0.221 lbs/mmBtu NOx

Calculation of Average Emissions

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	7 11:41:00 12:02:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
NOx				
ZERO	0.00 ppm	0.88	1.03	0.95
MID	126.40 ppm	127.11	127.11	127.11
CO2				
ZERO	0.00 percent	0.19	0.26	0.22
MID	4.96 percent	4.97	4.93	4.95

Mean Reference Values:

104.08 ppm NOx
5.72 percent CO2

Corrected Results:

103.33 ppm NOx
5.77 percent CO2

Emission Calculations

0.222 lbs/mmBtu NOx

Calculation of Average Emissions

Performed By:	**Spectrum Systems**	Date Performed:	18-Jul-2012
	Pensacola, Florida	Test Number:	1
Performed For:	**City of Tallahassee**	Run Number:	8
	Purdom, Unit 7	Start Time:	12:17:00
	St. Marks, Florida	Stop Time:	12:38:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
NOx				
ZERO	0.00 ppm	1.03	1.68	1.36
MID	126.40 ppm	127.11	126.37	126.74
CO2				
ZERO	0.00 percent	0.26	0.23	0.24
MID	4.96 percent	4.93	5.07	5.00

Mean Reference Values:

102.54 ppm NOx
5.73 percent CO2

Corrected Results:

102.00 ppm NOx
5.72 percent CO2

Emission Calculations

0.221 lbs/mmBtu NOx

Calculation of Average Emissions

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	9 12:52:00 13:13:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
NOx				
ZERO	0.00 ppm	1.68	1.47	1.58
MID	126.40 ppm	126.37	126.81	126.59
CO2				
ZERO	0.00 percent	0.23	0.27	0.25
MID	4.96 percent	5.07	4.90	4.99

Mean Reference Values:

102.84 ppm NOx
5.73 percent CO2

Corrected Results:

102.39 ppm NOx
5.73 percent CO2

Emission Calculations

0.222 lbs/mmBtu NOx

Reference Method Gas

Average Run Emission Calculations

Unit 8

Performed By:	Spectrum Systems Pensacola, Florida	Date: Test:	7-Aug-12 1
Source:	City of Tallahassee, Plant Purdom, Unit 8 Unit 8 ST. Marks, Florida	Run: Start Time: Stop Time:	One 8:28 AM 8:49 AM

Calibration Gas Value	Initial Calibration	Final Calibration	Average
0.00 ppm CO	0.24	-0.07	0.09
10.20 ppm CO	9.98	9.85	9.91
0.00 ppm NOx	0.09	0.07	0.08
9.99 ppm NOx	9.95	10.01	9.98
0.00 percent O2	0.09	0.10	0.10
11.00 percent O2	11.07	11.07	11.07

Mean Reference Values:

0.498 ppm CO
7.059 ppm NOx
13.776 percent O2

Corrected Results:

0.424 ppmvd CO
7.042 ppmvd NOx
13.713 percent vd O2

Emission Calculations:

0.021 lbs/mmBtu NOx
5.781 ppm (dry) Nox @15% O2
0.348 ppm (dry) CO @15% O2

Reference Method Gas

Average Run Emission Calculations

Unit 8

Performed By: Spectrum Systems
Pensacola, Florida

Date: 7-Aug-12
Test: 1

Source: City of Tallahassee, Plant Purdom, Unit 8
Unit 8
ST. Marks, Florida

Run: Two
Start Time: 9:02 AM
Stop Time: 9:23 AM

Calibration Gas Value	Initial Calibration	Final Calibration	Average
0.00 ppm CO	-0.07	-0.12	-0.10
10.20 ppm CO	9.85	9.85	9.85
0.00 ppm NOx	0.07	0.09	0.08
9.99 ppm NOx	10.01	9.96	9.99
0.00 percent O2	0.10	0.10	0.10
11.00 percent O2	11.07	11.04	11.06

Mean Reference Values:

0.463 ppm CO
6.921 ppm NOx
13.780 percent O2

Corrected Results:

0.577 ppmvd CO
6.896 ppmvd NOx
13.730 percent vd O2

Emission Calculations:

0.021 lbs/mmBtu NOx
5.675 ppm (dry) Nox @15% O2
0.475 ppm (dry) CO @15% O2

Reference Method Gas

Average Run Emission Calculations

Unit 8

Performed By:	Spectrum Systems	Date:	7-Aug-12
	Pensacola, Florida	Test:	1
Source:	City of Tallahassee, Plant Purdom, Unit 8	Run:	Three
	Unit 8	Start Time:	9:36 AM
	ST. Marks, Florida	Stop Time:	9:57 AM

Calibration Gas Value	Initial Calibration	Final Calibration	Average
0.00 ppm CO	-0.12	0.09	-0.02
10.20 ppm CO	9.85	10.01	9.93
0.00 ppm NOx	0.09	0.07	0.08
9.99 ppm NOx	9.96	9.89	9.93
0.00 percent O2	0.10	0.09	0.10
11.00 percent O2	11.04	11.08	11.06

Mean Reference Values:

0.661 ppm CO
6.969 ppm NOx
13.797 percent O2

Corrected Results:

0.698 ppmvd CO
6.987 ppmvd NOx
13.747 percent vd O2

Emission Calculations:

0.021 lbs/mmBtu NOx
5.763 ppm (dry) Nox @15% O2
0.576 ppm (dry) CO @15% O2

Reference Method Gas

Average Run Emission Calculations

Unit 8

Performed By:	Spectrum Systems	Date:	7-Aug-12
	Pensacola, Florida	Test:	1
Source:	City of Tallahassee, Plant Purdom, Unit 8	Run:	Four
	Unit 8	Start Time:	10:11 AM
	ST. Marks, Florida	Stop Time:	10:32 AM

Calibration Gas Value	Initial Calibration	Final Calibration	Average
0.00 ppm CO	0.09	0.02	0.05
10.20 ppm CO	10.01	10.06	10.04
0.00 ppm NOx	0.07	0.09	0.08
9.99 ppm NOx	9.89	9.81	9.85
0.00 percent O2	0.09	0.09	0.09
11.00 percent O2	11.08	11.08	11.08

Mean Reference Values:

0.629 ppm CO
6.873 ppm NOx
13.795 percent O2

Corrected Results:

0.591 ppmvd CO
6.946 ppmvd NOx
13.717 percent vd O2

Emission Calculations:

0.021 lbs/mmBtu NOx
5.706 ppm (dry) Nox @15% O2
0.486 ppm (dry) CO @15% O2

Reference Method Gas

Average Run Emission Calculations

Unit 8

Performed By:	Spectrum Systems	Date:	7-Aug-12
	Pensacola, Florida	Test:	1
Source:	City of Tallahassee, Plant Purdom, Unit 8	Run:	Five
	Unit 8	Start Time:	10:46 AM
	ST. Marks, Florida	Stop Time:	11:07 AM

Calibration Gas Value	Initial Calibration	Final Calibration	Average
0.00 ppm CO	0.02	-0.02	0.00
10.20 ppm CO	10.06	9.95	10.01
0.00 ppm NOx	0.09	0.02	0.05
9.99 ppm NOx	9.81	9.78	9.79
0.00 percent O2	0.09	0.09	0.09
11.00 percent O2	11.08	11.04	11.06

Mean Reference Values:

0.601 ppm CO
6.706 ppm NOx
13.788 percent O2

Corrected Results:

0.612 ppmvd CO
6.827 ppmvd NOx
13.735 percent vd O2

Emission Calculations:

0.021 lbs/mmBtu NOx
5.622 ppm (dry) Nox @15% O2
0.504 ppm (dry) CO @15% O2

Reference Method Gas

Average Run Emission Calculations

Unit 8

Performed By:	Spectrum Systems	Date:	7-Aug-12
	Pensacola, Florida	Test:	1
Source:	City of Tallahassee, Plant Purdom, Unit 8	Run:	Six
	Unit 8	Start Time:	11:27 AM
	ST. Marks, Florida	Stop Time:	11:48 AM

Calibration Gas Value	Initial Calibration	Final Calibration	Average
0.00 ppm CO	-0.02	0.02	0.00
10.20 ppm CO	9.95	10.17	10.06
0.00 ppm NOx	0.02	0.02	0.02
9.99 ppm NOx	9.78	9.78	9.78
0.00 percent O2	0.09	0.06	0.07
11.00 percent O2	11.04	11.04	11.04

Mean Reference Values:

0.638 ppm CO
6.688 ppm NOx
13.785 percent O2

Corrected Results:

0.647 ppmvd CO
6.825 ppmvd NOx
13.753 percent vd O2

Emission Calculations:

0.021 lbs/mmBtu NOx
5.634 ppm (dry) Nox @15% O2
0.534 ppm (dry) CO @15% O2

Reference Method Gas

Average Run Emission Calculations

Unit 8

Performed By: Spectrum Systems
Pensacola, Florida

Date: 7-Aug-12
Test: 1

Source: City of Tallahassee, Plant Purdom, Unit 8
Unit 8
ST. Marks, Florida

Run: Seven
Start Time: 12:02 PM
Stop Time: 12:23 PM

Calibration Gas Value	Initial Calibration	Final Calibration	Average
0.00 ppm CO	0.02	-0.09	-0.03
10.20 ppm CO	10.17	9.96	10.07
0.00 ppm NOx	0.02	0.04	0.03
9.99 ppm NOx	9.78	9.82	9.80
0.00 percent O2	0.06	0.04	0.05
11.00 percent O2	11.04	11.07	11.06

Mean Reference Values:

0.610 ppm CO
6.708 ppm NOx
13.778 percent O2

Corrected Results:

0.646 ppmvd CO
6.828 ppmvd NOx
13.716 percent vd O2

Emission Calculations:

0.021 lbs/mmBtu NOx
5.608 ppm (dry) Nox @15% O2
0.531 ppm (dry) CO @15% O2

Reference Method Gas

Average Run Emission Calculations

Unit 8

Performed By:	Spectrum Systems Pensacola, Florida	Date: Test:	7-Aug-12 1
Source:	City of Tallahassee, Plant Purdom, Unit 8 Unit 8 ST. Marks, Florida	Run: Start Time: Stop Time:	Eight 12:37 PM 12:58 PM

Calibration Gas Value	Initial Calibration	Final Calibration	Average
0.00 ppm CO	-0.09	0.01	-0.04
10.20 ppm CO	9.96	9.96	9.96
0.00 ppm NOx	0.04	0.02	0.03
9.99 ppm NOx	9.82	9.81	9.81
0.00 percent O2	0.04	0.09	0.06
11.00 percent O2	11.07	11.10	11.09

Mean Reference Values:

0.625 ppm CO
6.746 ppm NOx
13.762 percent O2

Corrected Results:

0.678 ppmvd CO
6.860 ppmvd NOx
13.665 percent vd O2

Emission Calculations:

0.021 lbs/mmBtu NOx
5.594 ppm (dry) Nox @15% O2
0.553 ppm (dry) CO @15% O2

Reference Method Gas

Average Run Emission Calculations

Unit 8

Performed By:	Spectrum Systems	Date:	7-Aug-12
	Pensacola, Florida	Test:	1
Source:	City of Tallahassee, Plant Purdom, Unit 8	Run:	Nine
	Unit 8	Start Time:	1:12 PM
	ST. Marks, Florida	Stop Time:	1:33 PM

Calibration Gas Value	Initial Calibration	Final Calibration	Average
0.00 ppm CO	0.01	-0.07	-0.03
10.20 ppm CO	9.96	9.93	9.95
0.00 ppm NOx	0.02	0.10	0.06
9.99 ppm NOx	9.81	9.81	9.81
0.00 percent O2	0.09	0.10	0.09
11.00 percent O2	11.10	11.01	11.06

Mean Reference Values:

0.617 ppm CO
6.820 ppm NOx
13.773 percent O2

Corrected Results:

0.661 ppmvd CO
6.926 ppmvd NOx
13.720 percent vd O2

Emission Calculations:

0.021 lbs/mmBtu NOx
5.692 ppm (dry) Nox @15% O2
0.543 ppm (dry) CO @15% O2

Appendix B, Section 3

Gas Calibration Raw Data

Date/Time	Cylinder	Analyzer	Gas	Class	Type	Value	Expected	Status
7/18/2012 7:18	Dilution Air	CO2/A	CO2	BOTH	ZERO	0.181	0.000	PASS
7/18/2012 7:18	Dilution Air	NOx/A	NOx	BOTH	ZERO	0.220	0.000	PASS
7/18/2012 7:23	ALM020362	CO2/A	CO2	BOTH	MID	5.084	4.960	PASS
7/18/2012 7:23	ALM020362	NOx/A	NOx	BOTH	MID	130.476	126.400	PASS
7/18/2012 7:27	ALM026383	CO2/A	CO2	BOTH	HIGH	10.764	10.940	PASS
7/18/2012 7:27	ALM026383	NOx/A	NOx	BOTH	HIGH	272.674	276.000	PASS
7/18/2012 7:33	ALM064109	NOx/A	NOx	BIAS AND DRIFT	MID	43.004	46.600	PASS
7/18/2012 7:37	Dilution Air	CO2/A	CO2	BIAS AND DRIFT	ZERO	0.103	0.000	PASS
7/18/2012 7:37	Dilution Air	NOx/A	NOx	BIAS AND DRIFT	ZERO	1.392	0.000	PASS
7/18/2012 7:52	ALM020362	CO2/A	CO2	BIAS AND DRIFT	MID	4.962	4.960	PASS
7/18/2012 7:52	ALM020362	NOx/A	NOx	BIAS AND DRIFT	MID	127.546	126.400	PASS
7/18/2012 8:21	Dilution Air	CO2/A	CO2	BIAS AND DRIFT	ZERO	0.171	0.000	PASS
7/18/2012 8:21	Dilution Air	NOx/A	NOx	BIAS AND DRIFT	ZERO	0.513	0.000	PASS
7/18/2012 8:28	ALM020362	CO2/A	CO2	BIAS AND DRIFT	MID	4.860	4.960	PASS
7/18/2012 8:28	ALM020362	NOx/A	NOx	BIAS AND DRIFT	MID	127.619	126.400	PASS
7/18/2012 8:58	Dilution Air	CO2/A	CO2	BIAS AND DRIFT	ZERO	0.215	0.000	PASS
7/18/2012 8:58	Dilution Air	NOx/A	NOx	BIAS AND DRIFT	ZERO	0.733	0.000	PASS
7/18/2012 9:01	ALM020362	CO2/A	CO2	BIAS AND DRIFT	MID	4.742	4.960	PASS
7/18/2012 9:01	ALM020362	NOx/A	NOx	BIAS AND DRIFT	MID	126.813	126.400	PASS
7/18/2012 9:40	Dilution Air	CO2/A	CO2	BIAS AND DRIFT	ZERO	-0.068	0.000	PASS
7/18/2012 9:40	Dilution Air	NOx/A	NOx	BIAS AND DRIFT	ZERO	0.073	0.000	PASS
7/18/2012 9:45	ALM020362	CO2/A	CO2	BIAS AND DRIFT	MID	4.943	4.960	PASS
7/18/2012 9:45	ALM020362	NOx/A	NOx	BIAS AND DRIFT	MID	126.813	126.400	PASS
7/18/2012 10:17	Dilution Air	CO2/A	CO2	BIAS AND DRIFT	ZERO	0.151	0.000	PASS
7/18/2012 10:17	Dilution Air	NOx/A	NOx	BIAS AND DRIFT	ZERO	1.026	0.000	PASS
7/18/2012 10:21	ALM020362	CO2/A	CO2	BIAS AND DRIFT	MID	5.011	4.960	PASS
7/18/2012 10:21	ALM020362	NOx/A	NOx	BIAS AND DRIFT	MID	127.839	126.400	PASS
7/18/2012 10:54	Dilution Air	CO2/A	CO2	BIAS AND DRIFT	ZERO	0.166	0.000	PASS
7/18/2012 10:54	Dilution Air	NOx/A	NOx	BIAS AND DRIFT	ZERO	0.440	0.000	PASS
7/18/2012 10:58	ALM020362	CO2/A	CO2	BIAS AND DRIFT	MID	4.811	4.960	PASS
7/18/2012 10:58	ALM020362	NOx/A	NOx	BIAS AND DRIFT	MID	126.081	126.400	PASS
7/18/2012 11:27	Dilution Air	CO2/A	CO2	BIAS AND DRIFT	ZERO	0.190	0.000	PASS
7/18/2012 11:27	Dilution Air	NOx/A	NOx	BIAS AND DRIFT	ZERO	0.879	0.000	PASS
7/18/2012 11:31	ALM020362	CO2/A	CO2	BIAS AND DRIFT	MID	4.972	4.960	PASS
7/18/2012 11:31	ALM020362	NOx/A	NOx	BIAS AND DRIFT	MID	127.106	126.400	PASS
7/18/2012 12:04	Dilution Air	CO2/A	CO2	BIAS AND DRIFT	ZERO	0.259	0.000	PASS
7/18/2012 12:04	Dilution Air	NOx/A	NOx	BIAS AND DRIFT	ZERO	1.026	0.000	PASS
7/18/2012 12:08	ALM020362	CO2/A	CO2	BIAS AND DRIFT	MID	4.933	4.960	PASS
7/18/2012 12:08	ALM020362	NOx/A	NOx	BIAS AND DRIFT	MID	127.106	126.400	PASS
7/18/2012 12:41	Dilution Air	CO2/A	CO2	BIAS AND DRIFT	ZERO	0.230	0.000	PASS
7/18/2012 12:41	Dilution Air	NOx/A	NOx	BIAS AND DRIFT	ZERO	1.685	0.000	PASS
7/18/2012 12:45	ALM020362	CO2/A	CO2	BIAS AND DRIFT	MID	5.074	4.960	PASS
7/18/2012 12:45	ALM020362	NOx/A	NOx	BIAS AND DRIFT	MID	126.374	126.400	PASS
7/18/2012 13:15	Dilution Air	CO2/A	CO2	BIAS AND DRIFT	ZERO	0.274	0.000	PASS
7/18/2012 13:15	Dilution Air	NOx/A	NOx	BIAS AND DRIFT	ZERO	1.465	0.000	PASS
7/18/2012 13:18	ALM020362	CO2/A	CO2	BIAS AND DRIFT	MID	4.899	4.960	PASS
7/18/2012 13:18	ALM020362	NOx/A	NOx	BIAS AND DRIFT	MID	126.813	126.400	PASS
7/18/2012 13:26	**ALM064109**	**NOx/A**	**NOx**	**Nox Comverter**	**MID**	**42.959**	**46.600**	**PASS**

Reference Method
Calibration Data
Purdom, Unit '7

Date/Time	Cylinder	Analyzer	Gas	Class	Type	Value	Expected	Status
8/7/2012 7:44	ALM032048	NOX/A	NOx	BOTH	ZERO	0.061	0.000	PASS
8/7/2012 7:44	ALM032048	O2/A	O2	BOTH	ZERO	0.159	0.000	PASS
8/7/2012 7:44	ALM032048	CO/A	CO	BOTH	ZERO	0.000	0.000	PASS
8/7/2012 7:45	ALM028679	O2/A	O2	BOTH	MID	11.068	11.000	PASS
8/7/2012 7:46	Ambient Air	O2/A	O2	BOTH	HIGH	20.842	20.900	PASS
8/7/2012 7:48	AAL3287	NOX/A	NOx	BOTH	MID	10.024	9.990	PASS
8/7/2012 7:51	AAL069824	NOX/A	NOx	BOTH	HIGH	22.930	22.700	PASS
8/7/2012 8:00	AAL20222	CO/A	CO	BOTH	MID	9.963	10.200	PASS
8/7/2012 8:04	ALM025102	CO/A	CO	BOTH	HIGH	22.930	23.000	PASS
8/7/2012 8:14	ALM032048	NOX/A	NOx	BIAS AND DRIFT	ZERO	0.085	0.000	PASS
8/7/2012 8:14	ALM032048	O2/A	O2	BIAS AND DRIFT	ZERO	0.092	0.000	PASS
8/7/2012 8:14	ALM032048	CO/A	CO	BIAS AND DRIFT	ZERO	0.244	0.000	PASS
8/7/2012 8:17	ALM028679	O2/A	O2	BIAS AND DRIFT	MID	11.074	11.000	PASS
8/7/2012 8:19	AAL3287	NOX/A	NOx	BIAS AND DRIFT	MID	9.951	9.990	PASS
8/7/2012 8:22	AAL20222	CO/A	CO	BIAS AND DRIFT	MID	9.976	10.200	PASS
8/7/2012 8:50	ALM032048	NOX/A	NOx	BIAS AND DRIFT	ZERO	0.073	0.000	PASS
8/7/2012 8:50	ALM032048	O2/A	O2	BIAS AND DRIFT	ZERO	0.098	0.000	PASS
8/7/2012 8:50	ALM032048	CO/A	CO	BIAS AND DRIFT	ZERO	-0.073	0.000	PASS
8/7/2012 8:52	ALM028679	O2/A	O2	BIAS AND DRIFT	MID	11.074	11.000	PASS
8/7/2012 8:54	AAL3287	NOX/A	NOx	BIAS AND DRIFT	MID	10.012	9.990	PASS
8/7/2012 8:56	AAL20222	CO/A	CO	BIAS AND DRIFT	MID	9.853	10.200	PASS
8/7/2012 9:24	ALM032048	NOX/A	NOx	BIAS AND DRIFT	ZERO	0.085	0.000	PASS
8/7/2012 9:24	ALM032048	O2/A	O2	BIAS AND DRIFT	ZERO	0.098	0.000	PASS
8/7/2012 9:24	ALM032048	CO/A	CO	BIAS AND DRIFT	ZERO	-0.122	0.000	PASS
8/7/2012 9:26	ALM028679	O2/A	O2	BIAS AND DRIFT	MID	11.038	11.000	PASS
8/7/2012 9:28	AAL3287	NOX/A	NOx	BIAS AND DRIFT	MID	9.963	9.990	PASS
8/7/2012 9:30	AAL20222	CO/A	CO	BIAS AND DRIFT	MID	9.853	10.200	PASS
8/7/2012 9:58	ALM032048	NOX/A	NOx	BIAS AND DRIFT	ZERO	0.073	0.000	PASS
8/7/2012 9:58	ALM032048	O2/A	O2	BIAS AND DRIFT	ZERO	0.092	0.000	PASS
8/7/2012 9:58	ALM032048	CO/A	CO	BIAS AND DRIFT	ZERO	0.085	0.000	PASS
8/7/2012 10:00	ALM028679	O2/A	O2	BIAS AND DRIFT	MID	11.081	11.000	PASS
8/7/2012 10:02	AAL3287	NOX/A	NOx	BIAS AND DRIFT	MID	9.890	9.990	PASS
8/7/2012 10:04	AAL20222	CO/A	CO	BIAS AND DRIFT	MID	10.012	10.200	PASS
8/7/2012 10:33	ALM032048	NOX/A	NOx	BIAS AND DRIFT	ZERO	0.085	0.000	PASS
8/7/2012 10:33	ALM032048	O2/A	O2	BIAS AND DRIFT	ZERO	0.092	0.000	PASS
8/7/2012 10:33	ALM032048	CO/A	CO	BIAS AND DRIFT	ZERO	0.024	0.000	PASS
8/7/2012 10:35	ALM028679	O2/A	O2	BIAS AND DRIFT	MID	11.081	11.000	PASS
8/7/2012 10:37	AAL3287	NOX/A	NOx	BIAS AND DRIFT	MID	9.805	9.990	PASS
8/7/2012 10:39	AAL20222	CO/A	CO	BIAS AND DRIFT	MID	10.061	10.200	PASS

Date/Time	Cylinder	Analyzer	Gas	Class	Type	Value	Expected	Status
8/7/2012 11:08	ALM032048	NOX/A	NOx	BIAS AND DRIFT	ZERO	0.024	0.000	PASS
8/7/2012 11:08	ALM032048	O2/A	O2	BIAS AND DRIFT	ZERO	0.085	0.000	PASS
8/7/2012 11:08	ALM032048	CO/A	CO	BIAS AND DRIFT	ZERO	-0.024	0.000	PASS
8/7/2012 11:10	ALM028679	O2/A	O2	BIAS AND DRIFT	MID	11.044	11.000	PASS
8/7/2012 11:12	AAL3287	NOX/A	NOx	BIAS AND DRIFT	MID	9.780	9.990	PASS
8/7/2012 11:14	AAL20222	CO/A	CO	BIAS AND DRIFT	MID	9.951	10.200	PASS
8/7/2012 11:49	ALM032048	NOX/A	NOx	BIAS AND DRIFT	ZERO	0.024	0.000	PASS
8/7/2012 11:49	ALM032048	O2/A	O2	BIAS AND DRIFT	ZERO	0.061	0.000	PASS
8/7/2012 11:49	ALM032048	CO/A	CO	BIAS AND DRIFT	ZERO	0.024	0.000	PASS
8/7/2012 11:51	ALM028679	O2/A	O2	BIAS AND DRIFT	MID	11.044	11.000	PASS
8/7/2012 11:53	AAL3287	NOX/A	NOx	BIAS AND DRIFT	MID	9.780	9.990	PASS
8/7/2012 11:55	AAL20222	CO/A	CO	BIAS AND DRIFT	MID	10.171	10.200	PASS
8/7/2012 12:24	ALM032048	NOX/A	NOx	BIAS AND DRIFT	ZERO	0.037	0.000	PASS
8/7/2012 12:24	ALM032048	O2/A	O2	BIAS AND DRIFT	ZERO	0.037	0.000	PASS
8/7/2012 12:24	ALM032048	CO/A	CO	BIAS AND DRIFT	ZERO	-0.085	0.000	PASS
8/7/2012 12:26	ALM028679	O2/A	O2	BIAS AND DRIFT	MID	11.074	11.000	PASS
8/7/2012 12:28	AAL3287	NOX/A	NOx	BIAS AND DRIFT	MID	9.817	9.990	PASS
8/7/2012 12:30	AAL20222	CO/A	CO	BIAS AND DRIFT	MID	9.963	10.200	PASS
8/7/2012 12:59	ALM032048	NOX/A	NOx	BIAS AND DRIFT	ZERO	0.024	0.000	PASS
8/7/2012 12:59	ALM032048	O2/A	O2	BIAS AND DRIFT	ZERO	0.085	0.000	PASS
8/7/2012 12:59	ALM032048	CO/A	CO	BIAS AND DRIFT	ZERO	0.012	0.000	PASS
8/7/2012 13:01	ALM028679	O2/A	O2	BIAS AND DRIFT	MID	11.099	11.000	PASS
8/7/2012 13:03	AAL3287	NOX/A	NOx	BIAS AND DRIFT	MID	9.805	9.990	PASS
8/7/2012 13:05	AAL20222	CO/A	CO	BIAS AND DRIFT	MID	9.963	10.200	PASS
8/7/2012 13:34	ALM032048	NOX/A	NOx	BIAS AND DRIFT	ZERO	0.098	0.000	PASS
8/7/2012 13:34	ALM032048	O2/A	O2	BIAS AND DRIFT	ZERO	0.098	0.000	PASS
8/7/2012 13:34	ALM032048	CO/A	CO	BIAS AND DRIFT	ZERO	-0.073	0.000	PASS
8/7/2012 13:36	ALM028679	O2/A	O2	BIAS AND DRIFT	MID	11.013	11.000	PASS
8/7/2012 13:38	AAL3287	NOX/A	NOx	BIAS AND DRIFT	MID	9.805	9.990	PASS
8/7/2012 13:40	AAL20222	CO/A	CO	BIAS AND DRIFT	MID	9.927	10.200	PASS
8/7/2012 13:56	**ALM064109**	**NOX/A**	**NOx**	**Nox Converter**	**MID**	**44.139**	**46.600**	**PASS**

Appendix B, Section 4

Gas Minute and Run Averages Raw Data

Run #1

#	Date/Time	CO2/A	NOx/A
1	7/18/2012 7:57	5.517	102.990
2	7/18/2012 7:58	5.589	102.062
3	7/18/2012 7:59	5.540	102.697
4	7/18/2012 8:00	5.631	102.392
5	7/18/2012 8:01	5.625	102.990
6	7/18/2012 8:02	5.601	105.713
7	7/18/2012 8:03	5.564	102.819
8	7/18/2012 8:04	5.559	101.171
9	7/18/2012 8:05	5.531	102.770
10	7/18/2012 8:06	5.542	103.808
11	7/18/2012 8:07	5.591	102.600
12	7/18/2012 8:08	5.586	101.672
13	7/18/2012 8:09	5.605	102.233
14	7/18/2012 8:10	5.622	103.442
15	7/18/2012 8:11	5.583	104.455
16	7/18/2012 8:12	5.618	102.783
17	7/18/2012 8:13	5.600	100.560
18	7/18/2012 8:14	5.611	101.733
19	7/18/2012 8:15	5.695	104.346
20	7/18/2012 8:16	5.572	101.733
21	7/18/2012 8:17	5.591	101.269
Average		**5.589**	**102.678**

Reference Method
One Minute Averages
Purdom, Unit '7

Run #2

#	Date/Time	CO2/A	NOx/A
1	7/18/2012 8:35	5.581	100.657
2	7/18/2012 8:36	5.620	101.658
3	7/18/2012 8:37	5.637	101.316
4	7/18/2012 8:38	5.656	103.514
5	7/18/2012 8:39	5.592	104.051
6	7/18/2012 8:40	5.611	100.852
7	7/18/2012 8:41	5.622	99.485
8	7/18/2012 8:42	5.523	101.805
9	7/18/2012 8:43	5.545	104.063
10	7/18/2012 8:44	5.616	101.304
11	7/18/2012 8:45	5.570	100.230
12	7/18/2012 8:46	5.535	101.463
13	7/18/2012 8:47	5.598	104.479
14	7/18/2012 8:48	5.648	106.359
15	7/18/2012 8:49	5.628	103.978
16	7/18/2012 8:50	5.594	100.071
17	7/18/2012 8:51	5.591	100.791
18	7/18/2012 8:52	5.611	104.222
19	7/18/2012 8:53	5.600	102.842
20	7/18/2012 8:54	5.625	101.463
21	7/18/2012 8:55	5.622	102.794
Average		**5.601**	**102.257**

Reference Method
One Minute Averages
Purdom, Unit '7

Run #3

#	Date/Time	CO2/A	NOx/A
1	7/18/2012 9:17	5.712	102.796
2	7/18/2012 9:18	5.740	101.905
3	7/18/2012 9:19	5.740	104.249
4	7/18/2012 9:20	5.671	105.299
5	7/18/2012 9:21	5.671	103.211
6	7/18/2012 9:22	5.749	102.137
7	7/18/2012 9:23	5.708	102.430
8	7/18/2012 9:24	5.734	105.800
9	7/18/2012 9:25	5.718	104.408
10	7/18/2012 9:26	5.760	102.405
11	7/18/2012 9:27	5.728	103.407
12	7/18/2012 9:28	5.685	102.784
13	7/18/2012 9:29	5.714	104.298
14	7/18/2012 9:30	5.790	104.811
15	7/18/2012 9:31	5.741	104.530
16	7/18/2012 9:32	5.695	100.171
17	7/18/2012 9:33	5.689	102.784
18	7/18/2012 9:34	5.630	103.932
19	7/18/2012 9:35	5.567	104.518
20	7/18/2012 9:36	5.609	100.891
21	7/18/2012 9:37	5.648	101.722
Average		**5.700**	**103.261**

Reference Method
One Minute Averages
Purdom, Unit '7

Run #4

#	Date/Time	CO2/A	NOx/A
1	7/18/2012 9:54	5.673	100.745
2	7/18/2012 9:55	5.761	101.709
3	7/18/2012 9:56	5.696	102.479
4	7/18/2012 9:57	5.718	104.029
5	7/18/2012 9:58	5.716	101.050
6	7/18/2012 9:59	5.788	100.171
7	7/18/2012 10:00	5.706	102.271
8	7/18/2012 10:01	5.659	102.259
9	7/18/2012 10:02	5.724	102.711
10	7/18/2012 10:03	5.665	103.626
11	7/18/2012 10:04	5.662	100.415
12	7/18/2012 10:05	5.663	100.720
13	7/18/2012 10:06	5.663	100.232
14	7/18/2012 10:07	5.607	102.210
15	7/18/2012 10:08	5.644	100.342
16	7/18/2012 10:09	5.685	99.915
17	7/18/2012 10:10	5.697	100.391
18	7/18/2012 10:11	5.626	101.355
19	7/18/2012 10:12	5.699	102.076
20	7/18/2012 10:13	5.673	102.454
21	7/18/2012 10:14	5.630	102.967
Average		**5.684**	**101.625**

Reference Method
One Minute Averages
Purdom, Unit '7

Run #5

#	Date/Time	CO2/A	NOx/A
1	7/18/2012 10:30	5.669	99.170
2	7/18/2012 10:31	5.614	101.612
3	7/18/2012 10:32	5.674	103.358
4	7/18/2012 10:33	5.630	104.786
5	7/18/2012 10:34	5.686	102.161
6	7/18/2012 10:35	5.604	100.464
7	7/18/2012 10:36	5.623	102.930
8	7/18/2012 10:37	5.626	103.407
9	7/18/2012 10:38	5.672	102.137
10	7/18/2012 10:39	5.701	100.488
11	7/18/2012 10:40	5.670	103.004
12	7/18/2012 10:41	5.735	103.077
13	7/18/2012 10:42	5.639	102.149
14	7/18/2012 10:43	5.702	102.418
15	7/18/2012 10:44	5.675	102.149
16	7/18/2012 10:45	5.680	100.757
17	7/18/2012 10:46	5.677	100.464
18	7/18/2012 10:47	5.738	100.733
19	7/18/2012 10:48	5.815	101.612
20	7/18/2012 10:49	5.729	100.452
21	7/18/2012 10:50	5.717	97.924
Average		**5.680**	**101.679**

Reference Method
One Minute Averages
Purdom, Unit '7

Run #6

#	Date/Time	CO2/A	NOx/A
1	7/18/2012 11:04	5.641	104.518
2	7/18/2012 11:05	5.673	102.002
3	7/18/2012 11:06	5.691	102.772
4	7/18/2012 11:07	5.724	104.615
5	7/18/2012 11:08	5.732	104.554
6	7/18/2012 11:09	5.725	102.515
7	7/18/2012 11:10	5.774	101.502
8	7/18/2012 11:11	5.726	101.636
9	7/18/2012 11:12	5.676	103.883
10	7/18/2012 11:13	5.661	104.591
11	7/18/2012 11:14	5.751	106.459
12	7/18/2012 11:15	5.726	105.348
13	7/18/2012 11:16	5.763	105.372
14	7/18/2012 11:17	5.765	105.079
15	7/18/2012 11:18	5.656	104.774
16	7/18/2012 11:19	5.705	101.343
17	7/18/2012 11:20	5.734	103.053
18	7/18/2012 11:21	5.721	104.408
19	7/18/2012 11:22	5.707	101.233
20	7/18/2012 11:23	5.759	104.725
21	7/18/2012 11:24	5.776	106.496
Average		**5.718**	**103.851**

Reference Method
One Minute Averages
Purdom, Unit '7

Run #7

#	Date/Time	CO2/A	NOx/A
1	7/18/2012 11:41	5.748	105.702
2	7/18/2012 11:42	5.757	108.645
3	7/18/2012 11:43	5.743	108.144
4	7/18/2012 11:44	5.728	104.737
5	7/18/2012 11:45	5.771	103.468
6	7/18/2012 11:46	5.769	105.482
7	7/18/2012 11:47	5.677	104.982
8	7/18/2012 11:48	5.677	103.382
9	7/18/2012 11:49	5.681	103.077
10	7/18/2012 11:50	5.738	105.763
11	7/18/2012 11:51	5.799	107.973
12	7/18/2012 11:52	5.767	106.862
13	7/18/2012 11:53	5.740	103.443
14	7/18/2012 11:54	5.633	101.746
15	7/18/2012 11:55	5.725	102.711
16	7/18/2012 11:56	5.744	101.770
17	7/18/2012 11:57	5.689	101.551
18	7/18/2012 11:58	5.692	100.024
19	7/18/2012 11:59	5.674	99.951
20	7/18/2012 12:00	5.709	103.248
21	7/18/2012 12:01	5.682	103.089
Average		**5.721**	**104.083**

Reference Method
One Minute Averages
Purdom, Unit '7

Run #8

#	Date/Time	CO2/A	NOx/A
1	7/18/2012 12:17	5.657	103.492
2	7/18/2012 12:18	5.650	103.565
3	7/18/2012 12:19	5.674	101.404
4	7/18/2012 12:20	5.663	101.441
5	7/18/2012 12:21	5.691	101.551
6	7/18/2012 12:22	5.709	101.221
7	7/18/2012 12:23	5.664	102.845
8	7/18/2012 12:24	5.700	104.664
9	7/18/2012 12:25	5.700	103.944
10	7/18/2012 12:26	5.747	101.685
11	7/18/2012 12:27	5.801	100.330
12	7/18/2012 12:28	5.857	103.309
13	7/18/2012 12:29	5.775	102.002
14	7/18/2012 12:30	5.792	101.062
15	7/18/2012 12:31	5.850	104.908
16	7/18/2012 12:32	5.796	103.785
17	7/18/2012 12:33	5.719	103.578
18	7/18/2012 12:34	5.753	100.562
19	7/18/2012 12:35	5.773	101.746
20	7/18/2012 12:36	5.747	102.381
21	7/18/2012 12:37	5.708	103.895
Average		**5.735**	**102.541**

Reference Method
One Minute Averages
Purdom, Unit '7

Run #9

#	Date/Time	CO2/A	NOx/A
1	7/18/2012 12:52	5.731	101.819
2	7/18/2012 12:53	5.763	102.943
3	7/18/2012 12:54	5.808	103.040
4	7/18/2012 12:55	5.769	104.603
5	7/18/2012 12:56	5.761	104.103
6	7/18/2012 12:57	5.667	103.468
7	7/18/2012 12:58	5.649	100.916
8	7/18/2012 12:59	5.739	100.842
9	7/18/2012 13:00	5.721	102.576
10	7/18/2012 13:01	5.760	104.164
11	7/18/2012 13:02	5.828	105.763
12	7/18/2012 13:03	5.771	103.248
13	7/18/2012 13:04	5.734	102.063
14	7/18/2012 13:05	5.757	101.636
15	7/18/2012 13:06	5.747	102.222
16	7/18/2012 13:07	5.724	102.967
17	7/18/2012 13:08	5.676	103.480
18	7/18/2012 13:09	5.662	102.063
19	7/18/2012 13:10	5.649	101.233
20	7/18/2012 13:11	5.726	102.869
21	7/18/2012 13:12	5.693	103.651
Average		**5.730**	**102.841**

Run #1

#:	Date/Time	NOX/A	O2/A	CO/A
1	8/7/2012 8:28	6.956	13.778	0.460
2	8/7/2012 8:29	6.958	13.765	0.517
3	8/7/2012 8:30	6.978	13.784	0.462
4	8/7/2012 8:31	7.033	13.783	0.531
5	8/7/2012 8:32	7.013	13.769	0.509
6	8/7/2012 8:33	7.039	13.774	0.476
7	8/7/2012 8:34	7.066	13.752	0.527
8	8/7/2012 8:35	7.059	13.777	0.503
9	8/7/2012 8:36	7.068	13.768	0.470
10	8/7/2012 8:37	7.039	13.781	0.584
11	8/7/2012 8:38	7.053	13.778	0.490
12	8/7/2012 8:39	7.055	13.795	0.472
13	8/7/2012 8:40	7.043	13.765	0.472
14	8/7/2012 8:41	7.061	13.773	0.474
15	8/7/2012 8:42	7.066	13.772	0.507
16	8/7/2012 8:43	7.076	13.763	0.509
17	8/7/2012 8:44	7.082	13.784	0.470
18	8/7/2012 8:45	7.147	13.772	0.497
19	8/7/2012 8:46	7.175	13.769	0.484
20	8/7/2012 8:47	7.139	13.803	0.543
21	8/7/2012 8:48	7.143	13.800	0.499
Average		**7.059**	**13.776**	**0.498**

Reference Method
One Minute Averages
Purdom, Unit '8

Run #2

#	Date/Time	NOX/A	O2/A	CO/A
1	8/7/2012 9:02	6.913	13.786	0.517
2	8/7/2012 9:03	6.891	13.767	0.415
3	8/7/2012 9:04	6.891	13.778	0.470
4	8/7/2012 9:05	7.173	13.763	0.509
5	8/7/2012 9:06	6.943	13.768	0.490
6	8/7/2012 9:07	6.868	13.778	0.446
7	8/7/2012 9:08	6.862	13.765	0.438
8	8/7/2012 9:09	7.049	13.777	0.486
9	8/7/2012 9:10	6.986	13.783	0.466
10	8/7/2012 9:11	7.049	13.779	0.462
11	8/7/2012 9:12	7.037	13.796	0.474
12	8/7/2012 9:13	6.974	13.806	0.488
13	8/7/2012 9:14	6.939	13.775	0.468
14	8/7/2012 9:15	6.844	13.776	0.427
15	8/7/2012 9:16	6.815	13.766	0.446
16	8/7/2012 9:17	6.811	13.796	0.440
17	8/7/2012 9:18	6.827	13.780	0.456
18	8/7/2012 9:19	6.850	13.792	0.478
19	8/7/2012 9:20	6.864	13.800	0.435
20	8/7/2012 9:21	6.876	13.767	0.431
21	8/7/2012 9:22	6.880	13.782	0.474
Average		**6.921**	**13.780**	**0.463**

Reference Method
One Minute Averages
Purdom, Unit '8

Run #3

#	Date/Time	NOX/A	O2/A	CO/A
1	8/7/2012 9:36	7.011	13.790	0.663
2	8/7/2012 9:37	6.960	13.806	0.637
3	8/7/2012 9:38	7.002	13.814	0.680
4	8/7/2012 9:39	7.114	13.802	0.655
5	8/7/2012 9:40	7.053	13.804	0.621
6	8/7/2012 9:41	7.049	13.812	0.661
7	8/7/2012 9:42	7.061	13.807	0.724
8	8/7/2012 9:43	7.055	13.794	0.665
9	8/7/2012 9:44	7.033	13.815	0.643
10	8/7/2012 9:45	6.911	13.800	0.682
11	8/7/2012 9:46	6.827	13.783	0.670
12	8/7/2012 9:47	7.082	13.792	0.678
13	8/7/2012 9:48	6.980	13.798	0.657
14	8/7/2012 9:49	6.829	13.784	0.674
15	8/7/2012 9:50	6.844	13.783	0.641
16	8/7/2012 9:51	6.817	13.784	0.621
17	8/7/2012 9:52	7.002	13.785	0.659
18	8/7/2012 9:53	6.911	13.799	0.659
19	8/7/2012 9:54	6.903	13.804	0.655
20	8/7/2012 9:55	6.915	13.787	0.682
21	8/7/2012 9:56	6.986	13.793	0.661
Average		**6.969**	**13.797**	**0.661**

Reference Method
One Minute Averages
Purdom, Unit '8

Run #4

#	Date/Time	NOX/A	O2/A	CO/A
1	8/7/2012 10:11	6.886	13.780	0.631
2	8/7/2012 10:12	6.905	13.784	0.645
3	8/7/2012 10:13	6.915	13.785	0.623
4	8/7/2012 10:14	6.903	13.784	0.615
5	8/7/2012 10:15	6.864	13.799	0.625
6	8/7/2012 10:16	6.862	13.792	0.653
7	8/7/2012 10:17	6.862	13.799	0.637
8	8/7/2012 10:18	6.811	13.813	0.608
9	8/7/2012 10:19	6.795	13.818	0.590
10	8/7/2012 10:20	6.817	13.791	0.667
11	8/7/2012 10:21	6.848	13.785	0.625
12	8/7/2012 10:22	6.805	13.802	0.617
13	8/7/2012 10:23	6.791	13.804	0.641
14	8/7/2012 10:24	7.013	13.768	0.643
15	8/7/2012 10:25	6.897	13.797	0.653
16	8/7/2012 10:26	6.919	13.794	0.645
17	8/7/2012 10:27	6.915	13.789	0.615
18	8/7/2012 10:28	6.919	13.803	0.649
19	8/7/2012 10:29	6.895	13.812	0.651
20	8/7/2012 10:30	6.903	13.799	0.629
21	8/7/2012 10:31	6.819	13.793	0.551
Average		**6.873**	**13.795**	**0.629**

Reference Method
One Minute Averages
Purdom, Unit '8

Run #5

#	Date/Time	NOX/A	O2/A	CO/A
1	8/7/2012 10:46	6.785	13.777	0.617
2	8/7/2012 10:47	6.813	13.782	0.623
3	8/7/2012 10:48	6.832	13.774	0.621
4	8/7/2012 10:49	6.805	13.768	0.576
5	8/7/2012 10:50	6.803	13.790	0.576
6	8/7/2012 10:51	6.752	13.800	0.627
7	8/7/2012 10:52	6.677	13.780	0.586
8	8/7/2012 10:53	6.624	13.753	0.568
9	8/7/2012 10:54	6.616	13.765	0.590
10	8/7/2012 10:55	6.618	13.762	0.596
11	8/7/2012 10:56	6.779	13.732	0.608
12	8/7/2012 10:57	6.840	13.765	0.606
13	8/7/2012 10:58	6.775	13.794	0.596
14	8/7/2012 10:59	6.730	14.034	0.600
15	8/7/2012 11:00	6.671	13.786	0.560
16	8/7/2012 11:01	6.703	13.782	0.608
17	8/7/2012 11:02	6.659	13.785	0.629
18	8/7/2012 11:03	6.597	13.787	0.602
19	8/7/2012 11:04	6.553	13.774	0.576
20	8/7/2012 11:05	6.585	13.771	0.645
21	8/7/2012 11:06	6.616	13.784	0.615
Average		**6.706**	**13.788**	**0.601**

Reference Method
One Minute Averages
Purdom, Unit '8

Run #6

#	Date/Time	NOX/A	O2/A	CO/A
1	8/7/2012 11:27	6.514	13.780	0.562
2	8/7/2012 11:28	6.538	13.785	0.556
3	8/7/2012 11:29	6.819	13.772	0.554
4	8/7/2012 11:30	6.701	13.792	0.775
5	8/7/2012 11:31	6.732	13.785	0.698
6	8/7/2012 11:32	6.671	13.802	0.574
7	8/7/2012 11:33	6.648	13.799	0.655
8	8/7/2012 11:34	6.624	13.791	0.549
9	8/7/2012 11:35	6.659	13.769	0.547
10	8/7/2012 11:36	6.640	13.784	0.568
11	8/7/2012 11:37	6.671	13.780	0.576
12	8/7/2012 11:38	6.740	13.803	0.602
13	8/7/2012 11:39	6.724	13.784	0.574
14	8/7/2012 11:40	6.732	13.780	0.539
15	8/7/2012 11:41	6.752	13.777	0.572
16	8/7/2012 11:42	6.768	13.799	0.568
17	8/7/2012 11:43	6.766	13.793	1.028
18	8/7/2012 11:44	6.756	13.791	0.606
19	8/7/2012 11:45	6.736	13.785	0.564
20	8/7/2012 11:46	6.679	13.764	1.190
21	8/7/2012 11:47	6.573	13.761	0.533
Average		**6.688**	**13.785**	**0.638**

Reference Method
One Minute Averages
Purdom, Unit '8

Run #7

#	Date/Time	NOX/A	O2/A	CO/A
1	8/7/2012 12:02	6.585	13.782	0.560
2	8/7/2012 12:03	6.624	13.775	0.594
3	8/7/2012 12:04	6.589	13.786	0.602
4	8/7/2012 12:05	6.652	13.775	0.596
5	8/7/2012 12:06	6.683	13.779	0.556
6	8/7/2012 12:07	6.703	13.780	0.645
7	8/7/2012 12:08	6.691	13.779	0.613
8	8/7/2012 12:09	6.683	13.772	0.588
9	8/7/2012 12:10	6.604	13.784	0.531
10	8/7/2012 12:11	6.766	13.779	0.625
11	8/7/2012 12:12	6.724	13.781	0.814
12	8/7/2012 12:13	6.756	13.758	0.537
13	8/7/2012 12:14	6.781	13.787	0.615
14	8/7/2012 12:15	6.799	13.780	0.586
15	8/7/2012 12:16	6.834	13.783	0.637
16	8/7/2012 12:17	6.823	13.775	0.606
17	8/7/2012 12:18	6.730	13.786	0.611
18	8/7/2012 12:19	6.616	13.799	0.643
19	8/7/2012 12:20	6.604	13.771	0.635
20	8/7/2012 12:21	6.748	13.766	0.617
21	8/7/2012 12:22	6.872	13.768	0.608
Average		**6.708**	**13.778**	**0.610**

Reference Method
One Minute Averages
Purdom, Unit '8

Run #8

#	Date/Time	NOX/A	O2/A	CO/A
1	8/7/2012 12:37	6.534	13.773	0.633
2	8/7/2012 12:38	6.534	13.771	0.692
3	8/7/2012 12:39	6.604	13.757	0.672
4	8/7/2012 12:40	6.567	13.772	0.608
5	8/7/2012 12:41	6.681	13.769	0.562
6	8/7/2012 12:42	6.689	13.764	0.590
7	8/7/2012 12:43	6.736	13.753	0.621
8	8/7/2012 12:44	6.718	13.763	0.667
9	8/7/2012 12:45	6.738	13.767	0.670
10	8/7/2012 12:46	6.772	13.772	0.627
11	8/7/2012 12:47	6.775	13.762	0.627
12	8/7/2012 12:48	6.844	13.765	0.639
13	8/7/2012 12:49	6.880	13.761	0.619
14	8/7/2012 12:50	6.891	13.775	0.655
15	8/7/2012 12:51	6.882	13.773	0.572
16	8/7/2012 12:52	6.864	13.753	0.619
17	8/7/2012 12:53	6.785	13.745	0.637
18	8/7/2012 12:54	6.695	13.759	0.617
19	8/7/2012 12:55	6.829	13.744	0.596
20	8/7/2012 12:56	6.815	13.753	0.574
21	8/7/2012 12:57	6.840	13.762	0.639
Average		**6.746**	**13.762**	**0.625**

Reference Method
One Minute Averages
Purdom, Unit '8

Run #9

#	Date/Time	NOX/A	O2/A	CO/A
1	8/7/2012 13:12	6.787	13.744	0.602
2	8/7/2012 13:13	6.785	13.758	0.665
3	8/7/2012 13:14	6.772	13.782	0.676
4	8/7/2012 13:15	6.787	13.776	0.617
5	8/7/2012 13:16	6.783	13.771	0.649
6	8/7/2012 13:17	6.823	13.778	0.611
7	8/7/2012 13:18	6.799	13.771	0.678
8	8/7/2012 13:19	6.781	13.792	0.633
9	8/7/2012 13:20	6.775	13.772	0.667
10	8/7/2012 13:21	6.772	13.767	0.629
11	8/7/2012 13:22	6.791	13.787	0.592
12	8/7/2012 13:23	6.777	13.765	0.588
13	8/7/2012 13:24	6.801	13.779	0.576
14	8/7/2012 13:25	6.821	13.767	0.639
15	8/7/2012 13:26	6.825	13.772	0.594
16	8/7/2012 13:27	6.856	13.766	0.580
17	8/7/2012 13:28	6.909	13.775	0.592
18	8/7/2012 13:29	6.907	13.774	0.547
19	8/7/2012 13:30	6.923	13.772	0.576
20	8/7/2012 13:31	6.882	13.781	0.564
21	8/7/2012 13:32	6.868	13.776	0.686
Average		**6.820**	**13.773**	**0.617**

Reference Method
One Minute Averages
Purdom, Unit '8

Appendix B, Section 5

Compliance Summary Table

Purdom Unit 8
Annual Compliance Testing Results Summary

Fuel = Natural Gas

Unit 8

Run #	Run Start Date	Run Start Time	Run Stop Date	Run Stop Time	Run Min	CT Load Megawatts	NOx ppm	O2 %	NOx Emission ppmvd @15%O2	NOx lb/mmBtu	CO ppmvd @15%O2	CT Gas Flow SCFM	NOx lb/hr (LHV)	NOx lb/hr (HHV)	Heat Input mmBtu/hr * (LHV)	Heat Input mmBtu/hr * (HHV)	Percentage of heat input limit (LHV)
1	8/7/2012	8:28	8/7/2012	8:49	21	135	7.042	13.713	5.781	0.021	0.348	24721	28.5	31.6	1356.10	1502.56	84
2	8/7/2012	9:02	8/7/2012	9:23	21	135	6.896	13.730	5.675	0.021	0.475	24724	28.5	31.6	1356.25	1502.72	84
3	8/7/2012	9:36	8/7/2012	9:57	21	135	6.987	13.747	5.763	0.021	0.576	24715	28.5	31.5	1355.74	1502.16	84
4	8/7/2012	10:11	8/7/2012	10:32	21	135	6.946	13.717	5.706	0.021	0.486	24776	28.5	31.6	1359.10	1505.89	84
5	8/7/2012	10:46	8/7/2012	11:07	21	135	6.827	13.735	5.622	0.021	0.504	24713	28.5	31.5	1355.66	1502.08	84
6	8/7/2012	11:27	8/7/2012	11:48	21	135	6.825	13.753	5.634	0.021	0.534	24643	28.4	31.5	1351.79	1497.78	84
7	8/7/2012	12:02	8/7/2012	12:23	21	135	6.828	13.716	5.608	0.021	0.531	24651	28.4	31.5	1352.23	1498.27	84
8	8/7/2012	12:37	8/7/2012	12:58	21	136	6.860	13.665	5.608	0.021	0.553	24693	28.4	31.5	1354.57	1500.86	84
9	8/7/2012	13:12	8/7/2012	13:33	21	136	6.926	13.720	5.692	0.021	0.543	24523	28.2	31.3	1345.21	1490.49	83
			Averages:			**135**	**6.904**	**13.722**	**5.676**	**0.021**	**0.506**	**24684**	**28.4**	**31.5**	**1354.07**	**1500.31**	**84**
			Permit Limit:						**12 ppmvd**		**25 ppmvd**				**1618 mmBtu/hr**		

* Heat Input calculated using gas flow and both LHV and HHV GCV
(HHV GCV=1013 Btu/scf from fuel gas analysis for 8/7/12, LHV GCV = HHV GCV / 1.108)
Permit limit adjusted based on inlet air temperature. The inlet air temperature during testing ranged between 76F and 82F and averaged 79F. The correction curve is on file at FDEP.

APPENDIX C

Plant CEMS Data

Appendix C Section 1

CEMS Gas Data

DATE	TIME	NOX71	CO272	GEN73	NOXRT74
7/18/2012	075800	97.700	5.200	21	0.234
7/18/2012	075900	98.900	5.200	21	0.236
7/18/2012	080000	98.000	5.200	21	0.234
7/18/2012	080100	98.900	5.200	21	0.234
7/18/2012	080200	99.100	5.300	21	0.233
7/18/2012	080300	99.500	5.200	21	0.237
7/18/2012	080400	102.300	5.200	21	0.242
7/18/2012	080500	100.100	5.200	21	0.238
7/18/2012	080600	98.800	5.300	21	0.234
7/18/2012	080700	100.700	5.300	21	0.236
7/18/2012	080800	100.900	5.300	21	0.238
7/18/2012	080900	100.500	5.300	21	0.237
7/18/2012	081000	99.600	5.300	21	0.233
7/18/2012	081100	99.400	5.300	21	0.235
7/18/2012	081200	100.900	5.300	21	0.237
7/18/2012	081300	102.400	5.300	21	0.240
7/18/2012	081400	100.800	5.300	21	0.237
7/18/2012	081500	98.300	5.300	21	0.232
7/18/2012	081600	100.200	5.300	21	0.234
7/18/2012	081700	101.500	5.300	21	0.238
7/18/2012	081800	99.600	5.300	21	0.234
	AVG.	**99.910**	**5.267**	**21**	**0.236**
7/18/2012	083600	98.600	5.300	21	0.231
7/18/2012	083700	97.400	5.300	21	0.228
7/18/2012	083800	98.300	5.300	21	0.230
7/18/2012	083900	98.100	5.300	21	0.229
7/18/2012	084000	100.700	5.300	21	0.234
7/18/2012	084100	100.300	5.300	21	0.235
7/18/2012	084200	95.300	5.300	21	0.226
7/18/2012	084300	96.500	5.300	21	0.226
7/18/2012	084400	96.800	5.300	21	0.227
7/18/2012	084500	98.700	5.300	21	0.231
7/18/2012	084600	97.000	5.300	21	0.229
7/18/2012	084700	95.900	5.300	21	0.227
7/18/2012	084800	96.800	5.300	21	0.227
7/18/2012	084900	99.200	5.300	21	0.233
7/18/2012	085000	101.300	5.300	21	0.236
7/18/2012	085100	98.900	5.300	21	0.231
7/18/2012	085200	96.100	5.300	21	0.225
7/18/2012	085300	96.300	5.300	21	0.225
7/18/2012	085400	99.000	5.300	21	0.231
7/18/2012	085500	98.200	5.300	21	0.230
7/18/2012	085600	96.800	5.300	21	0.227
	AVG.	**97.914**	**5.300**	**21**	**0.229**

Plant Purdom
Unit 7
Gas CEMS Data

DATE	TIME	NOX71	CO272	GEN73	NOXRT74
7/18/2012	091800	100.400	5.300	21	0.235
7/18/2012	091900	99.400	5.300	21	0.232
7/18/2012	092000	100.200	5.400	21	0.232
7/18/2012	092100	94.800	5.400	21	0.218
7/18/2012	092200	96.000	5.400	21	0.221
7/18/2012	092300	94.700	5.400	21	0.218
7/18/2012	092400	92.800	5.400	21	0.213
7/18/2012	092500	93.700	5.400	21	0.216
7/18/2012	092600	95.300	5.300	21	0.223
7/18/2012	092700	95.400	5.400	21	0.219
7/18/2012	092800	93.200	5.400	21	0.214
7/18/2012	092900	93.400	5.400	21	0.215
7/18/2012	093000	94.100	5.400	21	0.217
7/18/2012	093100	95.000	5.400	21	0.218
7/18/2012	093200	95.400	5.400	21	0.219
7/18/2012	093300	95.300	5.400	21	0.219
7/18/2012	093400	92.600	5.400	21	0.213
7/18/2012	093500	93.000	5.400	21	0.215
7/18/2012	093600	95.300	5.400	21	0.220
7/18/2012	093700	95.400	5.400	21	0.221
7/18/2012	093800	92.800	5.300	21	0.217
	AVG.	**95.152**	**5.381**	**21**	**0.220**
7/18/2012	095500	96.500	5.400	21	0.221
7/18/2012	095600	94.400	5.400	21	0.217
7/18/2012	095700	94.800	5.400	21	0.216
7/18/2012	095800	97.200	5.500	21	0.220
7/18/2012	095900	98.900	5.400	21	0.226
7/18/2012	100000	96.300	5.400	21	0.222
7/18/2012	100100	95.600	5.400	21	0.220
7/18/2012	100200	97.000	5.400	21	0.221
7/18/2012	100300	97.500	5.400	21	0.224
7/18/2012	100400	98.200	5.400	21	0.226
7/18/2012	100500	98.300	5.400	21	0.227
7/18/2012	100600	96.100	5.400	21	0.223
7/18/2012	100700	96.000	5.400	21	0.222
7/18/2012	100800	96.100	5.400	21	0.221
7/18/2012	100900	97.000	5.300	21	0.227
7/18/2012	101000	96.800	5.400	21	0.223
7/18/2012	101100	95.800	5.400	21	0.220
7/18/2012	101200	96.100	5.400	21	0.222
7/18/2012	101300	96.900	5.400	21	0.224
7/18/2012	101400	98.100	5.400	21	0.226
7/18/2012	101500	98.500	5.400	21	0.226
	AVG.	**96.767**	**5.400**	**21**	**0.223**

Plant Purdom
Unit 7
Gas CEMS Data

DATE	TIME	NOX71	CO272	GEN73	NOXRT74
7/18/2012	103100	94.900	5.400	21	0.219
7/18/2012	103200	95.000	5.400	21	0.220
7/18/2012	103300	97.400	5.400	21	0.224
7/18/2012	103400	99.000	5.400	21	0.230
7/18/2012	103500	100.200	5.300	21	0.235
7/18/2012	103600	98.800	5.400	21	0.231
7/18/2012	103700	97.100	5.300	21	0.226
7/18/2012	103800	99.300	5.400	21	0.229
7/18/2012	103900	99.400	5.300	21	0.232
7/18/2012	104000	98.100	5.300	21	0.230
7/18/2012	104100	97.000	5.400	21	0.225
7/18/2012	104200	98.000	5.300	21	0.228
7/18/2012	104300	98.500	5.400	21	0.230
7/18/2012	104400	98.400	5.400	21	0.228
7/18/2012	104500	97.700	5.300	21	0.227
7/18/2012	104600	98.000	5.300	21	0.230
7/18/2012	104700	96.900	5.300	21	0.228
7/18/2012	104800	96.800	5.400	21	0.225
7/18/2012	104900	96.500	5.400	21	0.223
7/18/2012	105000	97.300	5.400	21	0.224
7/18/2012	105100	96.300	5.300	21	0.226
	AVG.	**97.648**	**5.357**	**21**	**0.227**
7/18/2012	110500	98.200	5.300	21	0.229
7/18/2012	110600	98.900	5.400	21	0.230
7/18/2012	110700	96.400	5.300	21	0.226
7/18/2012	110800	97.100	5.400	21	0.226
7/18/2012	110900	98.300	5.400	21	0.226
7/18/2012	111000	98.800	5.400	21	0.230
7/18/2012	111100	97.500	5.400	21	0.225
7/18/2012	111200	96.200	5.400	21	0.222
7/18/2012	111300	96.700	5.300	21	0.225
7/18/2012	111400	98.200	5.400	21	0.227
7/18/2012	111500	98.900	5.400	21	0.227
7/18/2012	111600	100.600	5.400	21	0.234
7/18/2012	111700	100.000	5.400	21	0.231
7/18/2012	111800	99.600	5.400	21	0.229
7/18/2012	111900	100.000	5.400	21	0.231
7/18/2012	112000	99.500	5.400	21	0.231
7/18/2012	112100	96.500	5.400	21	0.223
7/18/2012	112200	97.500	5.400	21	0.224
7/18/2012	112300	98.800	5.400	21	0.227
7/18/2012	112400	96.400	5.400	21	0.224
7/18/2012	112500	99.500	5.400	21	0.229
	AVG.	**98.267**	**5.386**	**21**	**0.227**

Plant Purdom
Unit 7
Gas CEMS Data

DATE	TIME	NOX71	CO272	GEN73	NOXRT74
7/18/2012	114200	98.000	5.400	21	0.227
7/18/2012	114300	100.300	5.400	21	0.231
7/18/2012	114400	102.700	5.400	21	0.238
7/18/2012	114500	102.900	5.400	21	0.239
7/18/2012	114600	99.800	5.400	21	0.232
7/18/2012	114700	98.300	5.400	21	0.226
7/18/2012	114800	100.200	5.400	21	0.230
7/18/2012	114900	99.700	5.300	21	0.232
7/18/2012	115000	98.700	5.400	21	0.227
7/18/2012	115100	98.000	5.400	21	0.226
7/18/2012	115200	100.100	5.300	21	0.233
7/18/2012	115300	102.000	5.400	21	0.235
7/18/2012	115400	100.900	5.300	21	0.234
7/18/2012	115500	98.400	5.300	21	0.231
7/18/2012	115600	96.900	5.300	21	0.227
7/18/2012	115700	97.500	5.300	21	0.228
7/18/2012	115800	96.800	5.300	21	0.227
7/18/2012	115900	96.900	5.300	21	0.227
7/18/2012	120000	95.400	5.300	21	0.225
7/18/2012	120100	95.600	5.200	21	0.225
7/18/2012	120200	97.700	5.300	21	0.231
	AVG.	**98.895**	**5.343**	**21**	**0.230**
7/18/2012	121800	98.000	5.300	21	0.229
7/18/2012	121900	98.600	5.300	21	0.229
7/18/2012	122000	97.900	5.300	21	0.230
7/18/2012	122100	97.000	5.300	21	0.228
7/18/2012	122200	96.800	5.300	21	0.227
7/18/2012	122300	96.700	5.300	21	0.227
7/18/2012	122400	96.400	5.300	21	0.228
7/18/2012	122500	98.000	5.300	21	0.230
7/18/2012	122600	99.000	5.300	21	0.232
7/18/2012	122700	99.100	5.300	21	0.232
7/18/2012	122800	96.900	5.300	21	0.227
7/18/2012	122900	95.900	5.300	21	0.224
7/18/2012	123000	97.900	5.300	21	0.228
7/18/2012	123100	96.900	5.300	21	0.227
7/18/2012	123200	96.600	5.400	21	0.223
7/18/2012	123300	98.700	5.400	21	0.229
7/18/2012	123400	98.600	5.400	21	0.228
7/18/2012	123500	98.300	5.300	21	0.230
7/18/2012	123600	95.900	5.300	21	0.224
7/18/2012	123700	96.000	5.300	21	0.225
7/18/2012	123800	97.200	5.400	21	0.226
	AVG.	**97.448**	**5.319**	**21**	**0.228**

Plant Purdom
Unit 7
Gas CEMS Data

DATE	TIME	NOX71	CO272	GEN73	NOXRT74
7/18/2012	125300	99.100	5.300	21	0.232
7/18/2012	125400	97.400	5.300	21	0.228
7/18/2012	125500	97.800	5.300	21	0.228
7/18/2012	125600	97.500	5.300	21	0.228
7/18/2012	125700	98.600	5.400	21	0.228
7/18/2012	125800	98.600	5.300	21	0.231
7/18/2012	125900	98.400	5.300	21	0.233
7/18/2012	130000	97.200	5.300	21	0.227
7/18/2012	130100	96.800	5.300	21	0.227
7/18/2012	130200	97.300	5.300	21	0.227
7/18/2012	130300	98.900	5.300	21	0.232
7/18/2012	130400	99.700	5.300	21	0.233
7/18/2012	130500	98.700	5.300	21	0.231
7/18/2012	130600	96.600	5.300	21	0.226
7/18/2012	130700	96.900	5.300	21	0.227
7/18/2012	130800	97.000	5.300	21	0.227
7/18/2012	130900	97.300	5.300	21	0.230
7/18/2012	131000	99.000	5.300	21	0.231
7/18/2012	131100	97.100	5.300	21	0.228
7/18/2012	131200	96.500	5.300	21	0.229
7/18/2012	131300	97.900	5.300	21	0.229
	AVG.	**97.824**	**5.305**	**21**	**0.229**

Plant Purdom
Unit 7
Gas CEMS Data

DATE	TIME	GAS81	NOXD82	NOXRT83	NOX84	CO285	GEN86
8/7/2012	082900	18.530	6.200	0.023	6.800	3.700	136
8/7/2012	083000	18.560	6.300	0.023	6.800	3.700	136
8/7/2012	083100	18.550	6.300	0.023	6.800	3.700	136
8/7/2012	083200	18.560	6.300	0.023	6.900	3.700	136
8/7/2012	083300	18.550	6.200	0.023	6.900	3.700	135
8/7/2012	083400	18.520	6.300	0.023	6.900	3.700	136
8/7/2012	083500	18.560	6.300	0.023	6.900	3.700	136
8/7/2012	083600	18.550	6.400	0.023	6.900	3.700	136
8/7/2012	083700	18.520	6.300	0.023	6.900	3.700	136
8/7/2012	083800	18.580	6.300	0.023	6.900	3.700	136
8/7/2012	083900	18.580	6.300	0.023	6.900	3.700	136
8/7/2012	084000	18.570	6.300	0.023	6.900	3.700	136
8/7/2012	084100	18.520	6.300	0.023	6.900	3.700	136
8/7/2012	084200	18.560	6.300	0.023	6.900	3.700	136
8/7/2012	084300	18.570	6.300	0.023	6.900	3.700	136
8/7/2012	084400	18.560	6.300	0.023	6.900	3.700	136
8/7/2012	084500	18.530	6.300	0.023	6.900	3.700	136
8/7/2012	084600	18.530	6.400	0.024	7.000	3.700	135
8/7/2012	084700	18.500	6.400	0.023	6.900	3.700	135
8/7/2012	084800	18.480	6.400	0.023	7.000	3.700	135
8/7/2012	084900	18.480	6.400	0.023	7.000	3.700	135
	AVG	**18.541**	**6.314**	**0.023**	**6.900**	**3.700**	**135**
8/7/2012	090300	18.630	5.900	0.022	6.500	3.700	136
8/7/2012	090400	18.640	5.900	0.022	6.500	3.700	136
8/7/2012	090500	18.490	5.900	0.022	6.500	3.700	135
8/7/2012	090600	18.390	6.100	0.022	6.700	3.700	134
8/7/2012	090700	18.620	5.900	0.022	6.500	3.700	136
8/7/2012	090800	18.630	5.800	0.021	6.400	3.700	136
8/7/2012	090900	18.520	5.900	0.022	6.600	3.700	135
8/7/2012	091000	18.470	6.000	0.022	6.600	3.700	135
8/7/2012	091100	18.460	6.000	0.022	6.600	3.700	135
8/7/2012	091200	18.460	6.100	0.022	6.600	3.700	135
8/7/2012	091300	18.360	6.000	0.022	6.600	3.700	134
8/7/2012	091400	18.490	6.000	0.022	6.600	3.700	135
8/7/2012	091500	18.540	5.900	0.022	6.500	3.700	136
8/7/2012	091600	18.580	5.800	0.021	6.400	3.700	136
8/7/2012	091700	18.580	5.900	0.021	6.400	3.700	136
8/7/2012	091800	18.590	5.800	0.021	6.400	3.700	136
8/7/2012	091900	18.610	5.800	0.021	6.400	3.700	136
8/7/2012	092000	18.590	5.900	0.022	6.500	3.700	136
8/7/2012	092100	18.620	5.900	0.022	6.500	3.700	136
8/7/2012	092200	18.560	6.000	0.022	6.600	3.700	136
8/7/2012	092300	18.570	6.000	0.022	6.600	3.700	136
	AVG	**18.543**	**5.929**	**0.022**	**6.524**	**3.700**	**135**

Plant Purdom
Unit 8
Gas CEMS Data

DATE	TIME	GAS81	NOXD82	NOXRT83	NOX84	CO285	GEN86
8/7/2012	093700	18.580	6.200	0.023	6.800	3.700	136
8/7/2012	093800	18.580	6.100	0.022	6.700	3.700	136
8/7/2012	093900	18.570	6.200	0.023	6.800	3.700	135
8/7/2012	094000	18.490	6.300	0.023	6.900	3.700	135
8/7/2012	094100	18.470	6.200	0.023	6.800	3.700	135
8/7/2012	094200	18.470	6.200	0.023	6.800	3.700	135
8/7/2012	094300	18.460	6.200	0.023	6.800	3.700	135
8/7/2012	094400	18.520	6.300	0.023	6.900	3.700	135
8/7/2012	094500	18.590	6.200	0.023	6.800	3.700	136
8/7/2012	094600	18.630	6.100	0.022	6.700	3.700	136
8/7/2012	094700	18.570	6.000	0.022	6.600	3.700	136
8/7/2012	094800	18.360	6.300	0.023	6.900	3.700	134
8/7/2012	094900	18.520	6.100	0.022	6.700	3.700	135
8/7/2012	095000	18.610	6.000	0.022	6.600	3.700	136
8/7/2012	095100	18.660	6.000	0.022	6.600	3.700	136
8/7/2012	095200	18.610	6.000	0.022	6.600	3.700	136
8/7/2012	095300	18.510	6.300	0.023	6.800	3.700	135
8/7/2012	095400	18.550	6.100	0.022	6.700	3.700	135
8/7/2012	095500	18.560	6.100	0.022	6.700	3.700	135
8/7/2012	095600	18.520	6.100	0.022	6.700	3.700	135
8/7/2012	095700	18.430	6.200	0.023	6.800	3.700	134
	AVG	**18.536**	**6.152**	**0.023**	**6.748**	**3.700**	**135**
8/7/2012	101200	18.520	6.100	0.022	6.700	3.700	135
8/7/2012	101300	18.540	6.200	0.023	6.800	3.700	135
8/7/2012	101400	18.580	6.200	0.023	6.800	3.700	136
8/7/2012	101500	18.610	6.100	0.022	6.700	3.700	136
8/7/2012	101600	18.630	6.100	0.022	6.700	3.700	136
8/7/2012	101700	18.620	6.100	0.022	6.700	3.700	136
8/7/2012	101800	18.640	6.100	0.022	6.700	3.700	136
8/7/2012	101900	18.630	6.000	0.022	6.600	3.700	136
8/7/2012	102000	18.660	6.000	0.022	6.600	3.700	136
8/7/2012	102100	18.650	6.100	0.022	6.700	3.700	136
8/7/2012	102200	18.670	6.100	0.022	6.700	3.700	136
8/7/2012	102300	18.650	6.000	0.022	6.600	3.700	136
8/7/2012	102400	18.590	6.000	0.022	6.700	3.700	136
8/7/2012	102500	18.540	6.300	0.023	6.900	3.700	135
8/7/2012	102600	18.530	6.100	0.022	6.700	3.700	135
8/7/2012	102700	18.510	6.100	0.022	6.800	3.700	135
8/7/2012	102800	18.510	6.100	0.022	6.800	3.700	135
8/7/2012	102900	18.510	6.200	0.023	6.800	3.700	135
8/7/2012	103000	18.560	6.100	0.022	6.700	3.700	135
8/7/2012	103100	18.550	6.100	0.022	6.700	3.700	135
8/7/2012	103200	18.530	6.100	0.022	6.600	3.700	135
	AVG	**18.582**	**6.105**	**0.022**	**6.714**	**3.700**	**135**

Plant Purdom
Unit 8
Gas CEMS Data

DATE	TIME	GAS81	NOXD82	NOXRT83	NOX84	CO285	GEN86
8/7/2012	104700	18.570	6.000	0.022	6.600	3.700	135
8/7/2012	104800	18.560	6.100	0.022	6.700	3.700	135
8/7/2012	104900	18.510	6.100	0.022	6.700	3.700	135
8/7/2012	105000	18.530	6.100	0.022	6.600	3.700	135
8/7/2012	105100	18.490	6.100	0.022	6.700	3.700	135
8/7/2012	105200	18.420	6.100	0.022	6.600	3.700	134
8/7/2012	105300	18.390	5.900	0.022	6.600	3.700	134
8/7/2012	105400	18.520	5.900	0.022	6.500	3.700	135
8/7/2012	105500	18.610	5.900	0.022	6.500	3.700	136
8/7/2012	105600	18.650	5.900	0.022	6.500	3.700	136
8/7/2012	105700	18.560	6.100	0.023	6.700	3.700	135
8/7/2012	105800	18.500	6.100	0.022	6.700	3.700	135
8/7/2012	105900	18.460	6.000	0.022	6.600	3.700	134
8/7/2012	110000	18.370	6.000	0.022	6.600	3.700	134
8/7/2012	110100	18.400	6.000	0.022	6.600	3.700	134
8/7/2012	110200	18.530	6.000	0.022	6.600	3.700	135
8/7/2012	110300	18.610	5.900	0.022	6.500	3.700	136
8/7/2012	110400	18.640	5.900	0.021	6.400	3.700	136
8/7/2012	110500	18.650	5.900	0.021	6.500	3.700	136
8/7/2012	110600	18.630	5.900	0.022	6.500	3.700	136
8/7/2012	110700	18.630	5.900	0.022	6.500	3.700	136
	AVG	**18.535**	**5.990**	**0.022**	**6.581**	**3.700**	**135**
8/7/2012	112800	18.680	5.800	0.021	6.400	3.700	136
8/7/2012	112900	18.590	5.800	0.021	6.400	3.700	136
8/7/2012	113000	18.510	6.100	0.022	6.800	3.700	135
8/7/2012	113100	18.450	6.000	0.022	6.600	3.700	135
8/7/2012	113200	18.380	6.100	0.022	6.700	3.700	134
8/7/2012	113300	18.440	6.000	0.022	6.600	3.700	134
8/7/2012	113400	18.460	6.000	0.022	6.600	3.700	135
8/7/2012	113500	18.510	5.900	0.022	6.500	3.700	135
8/7/2012	113600	18.530	6.000	0.022	6.600	3.700	135
8/7/2012	113700	18.480	6.000	0.022	6.600	3.700	135
8/7/2012	113800	18.520	6.000	0.022	6.600	3.700	135
8/7/2012	113900	18.510	6.100	0.022	6.700	3.700	135
8/7/2012	114000	18.510	6.100	0.022	6.600	3.700	135
8/7/2012	114100	18.500	6.100	0.022	6.700	3.700	135
8/7/2012	114200	18.440	6.100	0.022	6.700	3.700	135
8/7/2012	114300	18.460	6.100	0.022	6.700	3.700	135
8/7/2012	114400	18.410	6.100	0.022	6.700	3.700	135
8/7/2012	114500	18.430	6.100	0.022	6.700	3.700	135
8/7/2012	114600	18.330	6.100	0.022	6.700	3.700	134
8/7/2012	114700	18.460	6.000	0.022	6.600	3.700	135
8/7/2012	114800	18.530	5.900	0.022	6.500	3.700	136
	AVG	**18.482**	**6.019**	**0.022**	**6.619**	**3.700**	**135**

Plant Purdom
Unit 8
Gas CEMS Data

DATE	TIME	GAS81	NOXD82	NOXRT83	NOX84	CO285	GEN86
8/7/2012	120300	18.570	5.900	0.022	6.600	3.700	136
8/7/2012	120400	18.590	6.000	0.022	6.600	3.700	136
8/7/2012	120500	18.560	5.900	0.022	6.600	3.700	136
8/7/2012	120600	18.580	6.100	0.022	6.600	3.700	136
8/7/2012	120700	18.580	6.000	0.022	6.600	3.700	136
8/7/2012	120800	18.560	6.100	0.022	6.600	3.700	136
8/7/2012	120900	18.610	6.000	0.022	6.600	3.700	136
8/7/2012	121000	18.590	6.000	0.022	6.600	3.700	137
8/7/2012	121100	18.460	5.900	0.022	6.500	3.700	135
8/7/2012	121200	18.300	6.100	0.022	6.700	3.700	134
8/7/2012	121300	18.340	6.100	0.022	6.600	3.700	135
8/7/2012	121400	18.400	6.000	0.022	6.700	3.700	135
8/7/2012	121500	18.410	6.200	0.023	6.800	3.700	135
8/7/2012	121600	18.380	6.100	0.023	6.800	3.700	135
8/7/2012	121700	18.430	6.100	0.023	6.800	3.700	135
8/7/2012	121800	18.500	6.200	0.023	6.800	3.700	136
8/7/2012	121900	18.550	6.000	0.022	6.600	3.700	136
8/7/2012	122000	18.580	5.900	0.022	6.500	3.700	136
8/7/2012	122100	18.570	5.900	0.022	6.500	3.700	136
8/7/2012	122200	18.370	6.100	0.023	6.800	3.700	135
8/7/2012	122300	18.320	6.200	0.023	6.800	3.700	134
	AVG	**18.488**	**6.038**	**0.022**	**6.652**	**3.700**	**135**
8/7/2012	123800	18.590	5.800	0.021	6.400	3.700	136
8/7/2012	123900	18.550	5.900	0.022	6.500	3.700	136
8/7/2012	124000	18.510	5.900	0.022	6.500	3.700	136
8/7/2012	124100	18.540	5.800	0.021	6.400	3.700	136
8/7/2012	124200	18.550	6.000	0.022	6.600	3.700	136
8/7/2012	124300	18.540	6.000	0.022	6.600	3.700	136
8/7/2012	124400	18.530	6.000	0.022	6.600	3.700	136
8/7/2012	124500	18.520	6.000	0.022	6.600	3.700	136
8/7/2012	124600	18.540	6.000	0.022	6.600	3.700	136
8/7/2012	124700	18.520	6.100	0.022	6.700	3.700	136
8/7/2012	124800	18.510	6.100	0.022	6.700	3.700	136
8/7/2012	124900	18.560	6.100	0.022	6.700	3.700	136
8/7/2012	125000	18.520	6.200	0.023	6.800	3.700	136
8/7/2012	125100	18.500	6.200	0.023	6.800	3.700	135
8/7/2012	125200	18.310	6.100	0.022	6.700	3.700	134
8/7/2012	125300	18.420	6.100	0.022	6.700	3.700	135
8/7/2012	125400	18.580	6.100	0.022	6.600	3.700	136
8/7/2012	125500	18.550	6.000	0.022	6.600	3.700	136
8/7/2012	125600	18.490	6.200	0.023	6.800	3.700	135
8/7/2012	125700	18.510	6.100	0.022	6.700	3.700	136
8/7/2012	125800	18.590	6.100	0.022	6.700	3.700	136
	AVG	**18.520**	**6.038**	**0.022**	**6.633**	**3.700**	**136**

Plant Purdom
Unit 8
Gas CEMS Data

DATE	TIME	GAS81	NOXD82	NOXRT83	NOX84	CO285	GEN86
8/7/2012	131300	18.390	6.100	0.022	6.700	3.700	135
8/7/2012	131400	18.390	6.100	0.022	6.700	3.700	135
8/7/2012	131500	18.340	6.100	0.022	6.700	3.700	135
8/7/2012	131600	18.340	6.100	0.022	6.700	3.700	134
8/7/2012	131700	18.380	6.100	0.022	6.700	3.700	134
8/7/2012	131800	18.400	6.200	0.023	6.800	3.700	135
8/7/2012	131900	18.390	6.100	0.022	6.700	3.700	135
8/7/2012	132000	18.430	6.100	0.022	6.700	3.700	135
8/7/2012	132100	18.410	6.100	0.022	6.700	3.700	135
8/7/2012	132200	18.420	6.100	0.022	6.700	3.700	135
8/7/2012	132300	18.420	6.100	0.022	6.700	3.700	135
8/7/2012	132400	18.440	6.100	0.022	6.700	3.700	135
8/7/2012	132500	18.430	6.100	0.022	6.700	3.700	135
8/7/2012	132600	18.370	6.100	0.023	6.800	3.700	135
8/7/2012	132700	18.390	6.100	0.022	6.700	3.700	134
8/7/2012	132800	18.400	6.200	0.023	6.800	3.700	134
8/7/2012	132900	18.380	6.200	0.023	6.800	3.700	135
8/7/2012	133000	18.380	6.200	0.023	6.800	3.700	134
8/7/2012	133100	18.350	6.200	0.023	6.800	3.700	135
8/7/2012	133200	18.380	6.200	0.023	6.800	3.700	135
8/7/2012	133300	18.400	6.200	0.023	6.800	3.700	134
	AVG	**18.392**	**6.133**	**0.022**	**6.738**	**3.700**	**135**

Plant Purdom
Unit 8
Gas CEMS Data

APPENDIX D

Reference Method Quality Assurance Data

Appendix D Section 1

Gas Analyzer Calibration Error

Analyzer Calibration Error

Performed By:	**Spectrum Systems** Pensacola, Florida	Date Performed: Test Number:	18-Jul-2012 1
Performed For:	**City of Tallahassee** Purdom, Unit 7 St. Marks, Florida	Run Number: Start Time: Stop Time:	1 7:57:00 8:18:00

Nitrogen Oxides Monitor

NOx/A

Span: 276

Cylinder Number	Reference Gas Concentration	Analyzer Response	Difference (ppm NOx)	Calibration Error
Dilution Air	0.00	0.22	-0.22	-0.08%
ALM020362	126.40	130.48	-4.08	-1.48%
ALM026383	276.00	272.67	3.33	1.21%

Carbon Dioxide Monitor

CO2/A

Span: 11

Cylinder Number	Reference Gas Concentration	Analyzer Response	Difference (% CO2)	Calibration Error
Dilution Air	0.00	0.18	-0.18	-1.65%
ALM020362	4.96	5.08	-0.12	-1.14%
ALM026383	10.94	10.76	0.18	1.61%

Reference Analyzer Calibration Error

Reference Method Quality Assurance

Performed By:	Spectrum Systems Pensacola, Florida	Date: Test:	7-Aug-12 1
Source:	City of Tallahassee, Plant Purdom, Unit 8 Unit 8 ST. Marks, Florida	Run:	One

Carbon Monoxide Monitor

Full Scale: 23.00

Cylinder Number	Reference Gas Concentration	Analyzer Response	Difference	Calibration Error (%)
ALM032048	0.00	0.00	0.00	0.00
AAL20222	10.20	9.96	-0.24	-1.03
ALM025102	23.00	22.93	-0.07	-0.30

Nitrogen Oxides Monitor

Full Scale: 22.70

Cylinder Number	Reference Gas Concentration	Analyzer Response	Difference	Calibration Error (%)
ALM032048	0.00	0.06	0.06	0.27
AAL3287	9.99	10.02	0.03	0.15
AAL069824	22.70	22.93	0.23	1.01

Oxygen Monitor

Full Scale: 20.90

Cylinder Number	Reference Gas Concentration	Analyzer Response	Difference	Calibration Error (%)
ALM032048	0.00	0.16	0.16	0.76
ALM028679	11.00	11.07	0.07	0.33
Dilution Air	20.90	20.84	-0.06	-0.28

Appendix D Section 2

Gas Interference Tests

ThermoFisher
SCIENTIFIC

Thermo Scientific Model 42 NO-NO_2-NO_x Analyzer Potential Interference Gas Responses

Potential Interferent		*Model 42iLS*			*Model 42iHL*		
Test Gas	*Concentration*	*NO*	*NO_2*	*NO_x*	*NO*	*NO_2*	*NO_x*
CO_2	5.20%	0.001	0.004	0.004	0.001	0.003	0.004
CO_2	15.60%	0	0.003	0.003	0.001	0.004	0.005
H_2O	1.00%	0	0	0	0.003	0.001	0.004
NO	15 ppm	14.9	0.1	15	15	-0.06	14.99
NO_2	15 ppm	1.1	14	15	0.4	14.6	15
N_2O	10 ppm	0	0	0	0	0	0
CO	50 ppm	0	0	0	0	0	0
SO_2	21 ppm	-0.01	0	-0.01	0.007	0	0.007
CH_4	50 ppm	0	0	0	0	0	0
HCl	10 ppm	0	0.006	0.006	0	0.004	0.004
NH_3[1]	10 ppm	0	0	0	0.17	8.9	9.1
Sum of Responses		**0.011**	**0.01**	**0.02**	**0.011**	**0.009**	**0.02**
Span Value		**160**	**152**	**160**	**160**	**152**	**160**
% of Calibration Span		**0.01%**	**0.01%**	**0.01%**	**0.01%**	**0.01%**	**0.01%**

Acceptance Criteria found in Section 13.4 of Method 7E is the sum of responses must not be greater than 2.5% of the analyzer calibration span value.

[1]NH_3 interferent results shown for the Model 42iHL was not used in calculation of interference response check because it is a known interferent with an approximate 1 ppm to 1 ppm positive bias in analyzers using stainless steel NO_2 to NO converters. Thermo recommends that NO_x analyzers with stainless steel NO_2 to NO converters must use a NH_3 scrubber when testing sources with potential NH_3 in the flue gas.

This document is subject to change without notice.

ThermoFisher
SCIENTIFIC

Thermo Scientific Model 43 SO_2 and Model 410i CO_2 Analyzer Potential Interference Gas Responses

Potential Interferent		*Model 43iHL*	*Model 410iHL*
Test Gas	*Concentration*	*SO_2*	*CO_2*
CO_2	5.20%	0.03	5.2
CO_2	15.60%	0.14	15.6
H_2O	1.00%	-0.05	0
NO	15 ppm	0.2	0
NO_2	15 ppm	0.06	0
N_2O	10 ppm	0	0
CO	50 ppm	0	0
SO_2	21 ppm	21	0
CH_4	50 ppm	0	0
HCl	10 ppm	0	0
NH_3	10 ppm	0	0
Sum of Responses		**0.45**	**0**
Span Value		**800**	**16**
% of Calibration Span		**0.06%**	**0%**

Acceptance Criteria found in Section 13.4 of Method 7E is the sum of responses must not be greater than 2.5% of the analyzer calibration span value.

This document is subject to change without notice.

Carbon Dioxide Quality Assurance Interference Checks
Reference Method Analyzer CO2/A
Spectrum Systems, Incorporated

Test Location Spectrum Systems, Inc.
Date of Test 12/15/2006

Analyzer Model Siemens Ultramat 6
Serial Number N1-T8-0416
Analyzer ID CO2/A

Analyzer Span 20

Test Gas Type	Concentration	Analyzer Response	% of Span
CO	483.00	0.01	0.05
SO2	253.20	0.01	0.05
NOX	197.80	0.02	0.10
O2	20.90	0.01	0.05
		Percent of Span Sum	0.25

Carbon Monoxide Quality Assurance Interference Checks
Reference Method Analyzer CO/A-1
Spectrum Systems, Incorporated

Test Location Spectrum Systems, Inc.
Date of Test 3/12/2002

Analyzer Model TECO Model 48
Serial Number 48-24080-213
Analyzer ID CO/A-1

Analyzer Span 100

Test Gas Type	Concentration	Analyzer Response	% of Span
CO2	16.99	-0.05	0.05
SO2	399.30	-0.01	0.01
NOX	173.70	0.00	0.00
O2	12.00	-0.03	0.03
		Percent of Span Sum	0.09

Oxygen Quality Assurance Interference Checks
Reference Method Analyzer O2/A-1
Spectrum Systems, Incorporated

Test Location Spectrum Systems, Inc.
Date of Test 1/12/2004

Analyzer Model Servomex 1400 series
Serial Number 01420/701/527
Analyzer ID O2/A-1

Analyzer Span 25

Test Gas Type	Concentration	Analyzer Response	% of Span
CO	375.00	0.03	0.12
SO2	195.00	0.02	0.08
NOX	442.00	0.01	0.04
CO2	10.08	0.00	0.00
		Percent of Span Sum	0.24

Appendix D Section 3

NO_x Converter Efficiency Test

NOx Converter is logged as last calibration in
RM Gas Calibration Raw data
App B, Section 3

Appendix D Section 3

RM Response

RESPONSE TIME TEST

PURDOM 7

DATE **18-Jul-12**

UPSCALE (minutes)

	TIME
NOX	2:20
CO2	2:20

DOWNSCALE (minutes)

	TIME
NOX	2:20
CO2	2:30

RESPONSE TIME TEST

PURDOM 8

DATE **07-Aug-12**

UPSCALE (minutes)

	TIME
O2	1:20
NOX	1:40
CO	1:40

DOWNSCALE (minutes)

	TIME
O2	1:10
NOX	1:30
CO	1:40

APPENDIX E

EPA Protocol I Gas Certificates

Shipped from:
6141 EASTON ROAD, BLDG 1
PO BOX 310
PLUMSTEADVILLE PA 18949-0310
Phone: 800-331-4953 Fax: 215-766-7226

CERTIFICATE OF ANALYSIS

SPECTRUM SYSTEMS
SEAN MYRIC
3410 WEST NINE MILE ROAD
PENSACOLA FL 32526
US

DOCUMENT#: 43242720 -001
PO#: 1101189F
ITEM #: P811-30AL
DATE: 06Sep2011

CYLINDER #: ALM032048
FILL PRESSURE: 02000 PSIG
PURE MATERIAL: NITROGEN
GRADE: U Z A M
PURITY: 99.999%

PRODUCT EXPIRATION: 06Sep2014
CAS # 7727-37-9

IMPURITY	MAXIMUM CONCENTRATIONS	ACTUAL CONCENTRATIONS
THC	0.05 PPM	< 0.05 PPM
CO	0.10 PPM	< 0.10 PPM
O2	2 PPM	< 2 PPM
CO2	1 PPM	< 1 PPM
NOX	0.02 PPM	< 0.02 PPM
SF6	0.001 PPM	< 0.001 PPM
SO2	0.005 PPM	< 0.005 PPM
H2O	4 PPM	< 4 PPM

LOT # :49688

ANALYST: (signature on file)
STEVEN A JANKOWSKI

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A12011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
6141 EASTON ROAD, BLDG 1
PLUMSTEADVILLE, PA 18949-0310

P.O. No.: 1100569F
Document # : 41577193-002

Customer
SPECTRUM SYSTEMS
LORI LEACH
3410 WEST NINE MILE ROAD
PENSACOLA FL 32526
US

ANALYTICAL INFORMATION Gas Type : O2

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

Cylinder Number: ALM028679
Cylinder Pressure*:** 2000 PSIG

Certification Date: 04Apr2011

Exp. Date: 03Apr2014
Batch No: PLU0033716

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

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2350	01Dec2011	K008902	23.20 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
SIEMENS/OXYMAT 61/V1-0407	16Mar2011	PARAMAGNETIC

ANALYZER READINGS

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

First Triad Analysis
OXYGEN
Date: 04Apr2011 Response Unit: VOLTS
Z1=-0.00170 R1=4.58580 T1=2.18060
R2=4.58420 Z2=-0.00160 T2=2.18120
Z3=-0.00240 T3=2.18100 R3=4.58570
Avg. Concentration: 11.00 %

Second Triad Analysis

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999997791 2350
Constants: A=0.01732571
B=5.052260437 C=
D= E=

QUALITY ASSURANCE

APPROVED BY: DAVID ASHNOFF
(signature on file)

AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott™

RATA CLASS

Dual-Analyzed Calibration Standard

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A12011

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
6141 EASTON ROAD, BLDG 1
PLUMSTEADVILLE, PA 18949-0310

P.O. No.: 1110888F
Document # : 42360956-001

Customer
SPECTRUM SYSTEMS

3410 WEST NINE MILE ROAD
PENSACOLA FL 32526
US

ANALYTICAL INFORMATION Gas Type : NO

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

Cylinder Number: AAL3287 **Certification Date:** 13Jul2011 **Exp. Date:** 12Jul2013
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
NITRIC OXIDE	9.98	PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	9.99	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 2628	20Jul2012	KAL004113	10.12 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
HORIBA/CLA220/5708850810	23Jun2011	CHEMILUMINESCENCE

ANALYZER READINGS

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

First Triad Analysis

NITRIC OXIDE
Date: 06Jul2011 Response Unit:VOLTS
Z1 = -0.00050 R1 = 2.32620 T1 = 2.29420
R2 = 2.32460 Z2 = -0.00070 T2 = 2.29270
Z3 = 0.00010 T3 = 2.29200 R3 = 2.32320
Avg. Concentration: 9.983 PPM

Second Triad Analysis

Date: 13Jul2011 Response Unit: VOLTS
Z1 = -0.00010 R1 = 2.31530 T1 = 2.28410
R2 = 2.31430 Z2 = -0.00130 T2 = 2.28390
Z3 = -0.00010 T3 = 2.28370 R3 = 2.31410
Avg. Concentration: 9.987 PPM

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999989632
Constants: A = 0.06977162
B = 4.458448742 C =
D = E =

APPROVED BY: JAMES L. MCHALE

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A12011
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
6141 EASTON ROAD, BLDG 1
PLUMSTEADVILLE, PA 18949-0310

P.O. No.: 1200183F
Document # : 45117259-003

Customer
SPECTRUM SYSTEMS
TEST GROUP/J GARRETT
3410 WEST NINE MILE ROAD
PENSACOLA FL 32526
US

ANALYTICAL INFORMATION Gas Type : NO

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

Cylinder Number: AAL069824
Cylinder Pressure*: 2009 PSIG
Certification Date: 21Sep2011
Exp. Date: 20Sep2013
Batch No: PLU0083565

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
NITRIC OXIDE	22.7 PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE	BALANCE		
TOTAL OXIDES OF NITROGEN	22.8 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 2629	14Jan2013	KAL004234	20.34 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000928781	02Sep2011	FTIR

ANALYZER READINGS

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

First Triad Analysis
NITRIC OXIDE
Date: 13Sep2011 Response Unit: PPM
Z1=-0.09492 R1=20.32294 T1=22.71288
R2=20.37191 Z2=-0.02899 T2=22.80139
Z3=0.05801 T3=22.85156 R3=20.42274
Avg. Concentration: 22.75 PPM

Second Triad Analysis
Date: 21Sep2011 Response Unit: PPM
Z1=-0.04173 R1=20.30180 T1=22.58330
R2=20.45998 Z2=-0.00735 T2=22.66024
Z3=0.05658 T3=22.68099 R3=20.49968
Avg. Concentration: 22.55 PPM

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99999E-1
Constants: A=0.00000E+0
B=9.55805E-1 C=1.78000E-4
D=0.00000E+0 E=0.00000E+0

QUALITY ASSURANCE

APPROVED BY: Michael A. Kuhns
(signature on file)

AIR LIQUIDE Air Liquide America Specialty Gases LLC

Scott™

RATA CLASS

Dual-Analyzed Calibration Standard

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A12011

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
6141 EASTON ROAD, BLDG 1
PLUMSTEADVILLE, PA 18949-0310

P.O. No.: 1100589F
Document # : 41568918-001

Customer
SPECTRUM SYSTEMS
LORI LEACH
3410 WEST NINE MILE ROAD
PENSACOLA FL 32526
US

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: AAL20222 **Certification Date:** 12May2011 **Exp. Date:** 11May2014
Cylinder Pressure*:** 2015 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON MONOXIDE	10.2	PPM	+/- 1%	Direct NIST and VSL
NITROGEN		BALANCE		

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2635	05May2016	KAL003140	25.21 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
SIEMENS/6E/KN-240	06May2011	NDIR

ANALYZER READINGS

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

First Triad Analysis

CARBON MONOXIDE
Date: 05May2011 Response Unit:VOLTS
Z1=0.00350 R1=2.49930 T1=1.01040
R2=2.49390 Z2=0.00730 T2=1.01230
Z3=0.00460 T3=1.01090 R3=2.49690
Avg. Concentration: 10.20 PPM

Second Triad Analysis

Date: 12May2011 Response Unit: VOLTS
Z1=0.00030 R1=2.49700 T1=1.01010
R2=2.49780 Z2=0.00030 T2=1.00990
Z3=-0.00120 T3=1.00730 R3=2.49780
Avg. Concentration: 10.20 PPM

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999994257
Constants: A=0.05089485
B=10.10138685 C=
D= E=

APPROVED BY: JOE SMITH

AIR LIQUIDE Air Liquide America Specialty Gases LLC

Scott™

KATA CLASS

Dual-Analyzed Calibration Standard

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A12012

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
6141 EASTON ROAD, BLDG 1
PLUMSTEADVILLE, PA 18949-0310

P.O. No.: 1200183F
Document # : 45117259-009

Customer
SPECTRUM SYSTEMS

TEST GROUP/J GARRETT
3410 WEST NINE MILE ROAD
PENSACOLA FL 32526
US

ANALYTICAL INFORMATION Gas Type : NONE

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

Cylinder Number: ALM025102 **Certification Date:** 27Feb2012 **Exp. Date:** 26Feb2015
Cylinder Pressure*:** 1919 PSIG **Batch No:** PLU0081243

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON MONOXIDE	23.0	PPM	+/- 1%	Direct NIST and VSL
NITROGEN		BALANCE		

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2635	05May2016	KAL003191	25.21 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000928781	24Feb2012	FTIR

ANALYZER READINGS

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

First Triad Analysis

CARBON MONOXIDE
Date: 20Feb2012 Response Unit:PPM
Z1 = 0.00539 R1 = 25.33535 T1 = 23.12298
R2 = 25.35264 Z2 = 0.02652 T2 = 23.13704
Z3 = 0.03939 T3 = 23.19377 R3 = 25.37177
Avg. Concentration: 23.02 PPM

Second Triad Analysis

Date: 27Feb2012 Response Unit: PPM
Z1 = -0.00975 R1 = 25.29848 T1 = 23.13249
R2 = 25.30853 Z2 = 0.00842 T2 = 23.14008
Z3 = 0.02066 T3 = 23.14888 R3 = 25.33887
Avg. Concentration: 23.04 PPM

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99990E-1
Constants: A = 0.00000E+0
B = 9.73184E-1 C = 1.04200E-3
D = 0.00000E+0 E = 0.00000E+0

APPROVED BY: Michael A. Kuhns
Michael A. Kuhns

AIR LIQUIDE Air Liquide America Specialty Gases LLC | Scott™

RATA CLASS

Dual-Analyzed Calibration Standard

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

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

Assay Laboratory - PGVP Vendor ID: A12011

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
6141 EASTON ROAD, BLDG 1
PLUMSTEADVILLE, PA 18949-0310

P.O. No.: 1101130F
Document # : 44273710-001

Customer
SPECTRUM SYSTEMS

C/O CITY OF TALLAHASSEE
3410 W NINE MILE ROAD
PENSACOLA FL 32526
US

ANALYTICAL INFORMATION Gas Type : NC2

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

Cylinder Number: ALM020362 **Certification Date:** 19Dec2011 **Exp. Date:** 18Dec2013
Cylinder Pressure*:** 1949 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
NITRIC OXIDE	126.4	PPM	+/- 1%	Direct NIST and VSL
CARBON DIOXIDE	4.96	%	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	127.2	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	19May2016	KAL004374	96.91 PPM	NITRIC OXIDE
NTRM 2000	15Dec2011	K014221	4.954 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000928781	29Nov2011	FTIR
FTIR//000928781	17Nov2011	FTIR

ANALYZER READINGS

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

First Triad Analysis

NITRIC OXIDE
Date: 12Dec2011 Response Unit:PPM
Z1 = -0.14407 R1 = 96.95251 T1 = 126.2412
R2 = 96.95977 Z2 = 0.21610 T2 = 126.4419
Z3 = 0.57072 T3 = 126.5787 R3 = 97.00006
Avg. Concentration: 126.4 PPM

CARBON DIOXIDE
Date: 12Dec2011 Response Unit:%
Z1 = -0.00621 R1 = 4.95379 T1 = 4.96026
R2 = 4.95671 Z2 = -0.00427 T2 = 4.96539
Z3 = 0.00497 T3 = 4.96791 R3 = 4.96146
Avg. Concentration: 4.961 %

Second Triad Analysis

Date: 19Dec2011 Response Unit: PPM
Z1 = -0.34330 R1 = 96.77036 T1 = 126.3971
R2 = 96.81710 Z2 = -0.15839 T2 = 126.4379
Z3 = -0.15691 T3 = 126.5727 R3 = 97.25461
Avg. Concentration: 126.3 PPM

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99999E-1
Constants: A = 0.00000E+0
B = 9.79948E-1 C = 4.60000E-5
D = 0.00000E+0 E = 0.00000E+0

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99996E-1
Constants: A = 0.00000E+0
B = 9.11998E-1 C = 1.18140E-2
D = 0.00000E+0 E = 0.00000E+0

APPROVED BY: Michael A. Kuhns

AIR LIQUIDE Air Liquide America Specialty Gases LLC | Scott™

RATA CLASS

Dual-Analyzed Calibration Standard

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

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

Assay Laboratory - PGVP Vendor ID: A12011

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
6141 EASTON ROAD, BLDG 1
PLUMSTEADVILLE, PA 18949-0310

P.O. No.: 1101130F
Document # : 44273710-002

Customer
SPECTRUM SYSTEMS

C/O CITY OF TALLAHASSEE
3410 W NINE MILE ROAD
PENSACOLA FL 32526
US

ANALYTICAL INFORMATION Gas Type : NC2

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

Cylinder Number: ALM026383 **Certification Date:** 19Dec2011 **Exp. Date:** 18Dec2013
Cylinder Pressure*:** 1925 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
NITRIC OXIDE	276	PPM	+/- 1%	Direct NIST and VSL
CARBON DIOXIDE	10.94	%	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	277.	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 1685	01Jun2012	KAL004331	242.0 PPM	NITRIC OXIDE
NTRM 1675	15Dec2011	K016692	13.94 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000928781	29Nov2011	FTIR
FTIR//000928781	17Nov2011	FTIR

ANALYZER READINGS

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

First Triad Analysis

NITRIC OXIDE
Date: 12Dec2011 Response Unit:PPM
Z1 = -0.17747 R1 = 241.4795 T1 = 275.3858
R2 = 241.6461 Z2 = 0.03613 T2 = 275.6505
Z3 = 0.21910 T3 = 276.0204 R3 = 242.1503
Avg. Concentration: 276.0 PPM

CARBON DIOXIDE
Date: 12Dec2011 Response Unit:%
Z1 = -0.00149 R1 = 13.84446 T1 = 10.86730
R2 = 13.85741 Z2 = 0.00320 T2 = 10.88173
Z3 = 0.00501 T3 = 10.88459 R3 = 13.87083
Avg. Concentration: 10.94 %

Second Triad Analysis

Date: 19Dec2011 Response Unit: PPM
Z1 = -0.29991 R1 = 240.8302 T1 = 275.0162
R2 = 241.7289 Z2 = 0.05872 T2 = 275.0349
Z3 = 0.16288 T3 = 275.2240 R3 = 242.0118
Avg. Concentration: 275.6 PPM

Calibration Curve

Concentration = A + 8x + Cx2 + Dx3 + Ex4
r = 9.99999E-1
Constants: A = 0.00000E + 0
B = 9.87564E-1 C = 4.70000E-5
D = 0.00000E + 0 E = 0.00000E + 0

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99996E-1
Constants: A = 0.00000E + 0
B = 9.11998E-1 C = 1.18140E-2
D = 0.00000E + 0 E = 0.00000E + 0

APPROVED BY: Michael A. Kuhns

AIR LIQUIDE SPECIALTY GASES Scott™

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

COMPLIANCE CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A12012
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
6141 EASTON ROAD, BLDG 1
PLUMSTEADVILLE, PA 18949-0310

P.O. No.: 1210408F
Document # : 45660738-001

Customer
SPECTRUM SYSTEMS
SEAN MYRICK/JIMMY
3410 WEST NINE MILE ROAD
PENSACOLA FL 32526
US

ANALYTICAL INFORMATION Gas Type : NO2

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

Cylinder Number: ALM064109
Cylinder Pressure***: 2000 PSIG
Certification Date: 20Apr2012
Exp. Date: 19Oct2012
Batch No: PLU0093365

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
NITROGEN DIOXIDE	46.6 PPM	+/- 2%	NIST and VSL
NITROGEN	BALANCE		

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2660	02Oct2013	KAL003878	107.9 PPM	NITROGEN DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
HORIBA/CLA220/5708850810	13Apr2012	CHEMILUMINESCENCE

QUALITY ASSURANCE

APPROVED BY: JOHN OSHEA
(signature on file)