April 9, 2013

Mr. David McNeal
USEPA, Region 4
Sam Nunn Federal Center
61 Forsyth Street, SW
Atlanta, Georgia USA 30303-3104

Subject: NOx Analyzer Re-certification – Manatee Plant Unit 3D (ORIS code 006042)

Dear Mr. McNeal:

In compliance with the Acid Rain Continuous Emission Monitoring Program (40 CFR Part 75.63), Florida Power & Light Company (FPL) is submitting the Continuous Emissions Monitoring System Re-certification Application for the NOx and O2 analyzer replacement on Manatee Unit 3D. In order to continue to ensure CEMS data integrity and analyzer availability, FPL is currently replacing CEMS NOx & O2 analyzers on thirty-eight units throughout the State.

Manatee Unit 3D NOx analyzer, serial number 0415906622 was removed from service on February 19, 2013 at 9:00 am and replaced by serial number 1233555758. Unit 3D O2 analyzer, serial number 2856 was removed from service on February 19, 2013 at 9:00 am and replaced by serial number 01440D1/4707. Re-certification test period requirements and data validation, which includes a probationary calibration error test, in accordance with 40 CFR Part 75.20(b)(3)(ii) were performed to initiate a conditional valid data period.

The re-certification of the NOx System was performed in accordance with 40 CFR Part 75, Appendix A during the period of February 19 – February 28, 2013. Enclosed are required quality assurance audits which include a RATA Report, 7 Day Calibration Error Test, Linearity, updated Monitoring Plan and ECMPS evaluation reports.

If you have any questions with the attached, please feel free to contact me at (561) 691-2781 or Elisa Ostertag at (561) 691-2341.

I am authorized to make this submission of behalf of the owners and operators of the affected source 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,

Christian Kiernan
Designated Representative

Attachment

cc: Jeff Koerner - Division of Air Resource Management, FDEP Tallahassee
Erin DiBacco, FDEP Southwest District

ECMPS Client Tool

Version 1.0 2013 Q1

Monitoring Plan Printout Report

April 11, 2013 01:27 PM

Facility Name: Manatee

Facility Details

Facility ID (ORISPL):	6042
Monitoring Plan Location IDs:	MTCT3D
State:	FL
County:	Manatee
Latitude:	27.6058
Longitude:	-82.3456

Reporting Frequency

Monitoring Plan Location IDs	Reporting Frequency	Begin Quarter	End Quarter
MTCT3D	Q - Quarterly	2005 QTR 2	

Monitoring Location Attributes

Unit/Stack/Pipe Identifier	Duct Indicator	Ground Elevation	Stack Height	Cross Area Exit	Cross Area Flow	Material Code	Shape Code	Begin Date	End Date
MTCT3D		55	145	284				12/16/2004	

Unit Operation Information

Unit Identifier	Non-Load Based Ind	Commence Commercial Operation Date	Commence Operation Date	Boiler/Turbine Type			Max Heat Input		
				Code	Begin Date	End Date	Value (mmBtu)	Begin Date	End Date
MTCT3D		05/23/2005	12/16/2004	CC	12/16/2004		2095.0	12/16/2004	12/31/2010
		05/23/2005	12/16/2004	CC	12/16/2004		2294.5	01/01/2011	

Unit Type Codes: CC - Combined cycle

Unit Program Information

Unit Identifier	Program Code	Unit Class	Unit Monitor Certification Begin Date	Unit Monitor Certification Deadline
MTCT3D	ARP	P2	05/23/2005	11/19/2005
	CAIRNOX	A	01/01/2008	01/01/2008
	CAIROS	A	05/01/2008	05/01/2008
	CAIRSO2	A	01/01/2009	01/01/2009
	TRNOXOS	A	05/01/2012	05/01/2012

Facility Name: **Manatee**

Facility ID (ORISPL): 6042

Monitoring Plan Printout Report

April 11, 2013 01:27 PM

Unit Fuel

Unit Identifier	Fuel Type	Fuel Indicator	Demonstration Method for GCV	Demonstration Method for Daily Sulfur	Ozone Season Indicator	Begin Date	End Date
MTCT3D	PNG	P				04/01/2005	

Fuel Type Codes: PNG - Pipeline Natural Gas

Fuel Indicator Codes: P - Primary

Unit Controls

Unit Identifier	Parameter	Control Equipment	Original Ind	Seasonal Ind	Installation Date	Optimization Date	Retirement Date
MTCT3D	NOX	DLNB	Y				
	NOX	SCR	Y				

Control Equipment Descriptions: SCR - Selective Catalytic Reduction

DLNB - Dry Low NOx Burners

Monitoring Method

Unit/Stack/Pipe Identifier	Parameter	Methodology	Substitute Data Approach	Bypass Approach Code	Begin Date/Hour	End Date/Hour
MTCT3D	CO2	AD	SPTS		04/01/2005 00	
	HI	AD	SPTS		04/01/2005 00	
	NOX	NOXR			01/01/2008 00	
	NOXR	CEM	SPTS		04/01/2005 00	
	OP	EXP			04/01/2005 00	
	SO2	AD	SPTS		04/01/2005 00	

Parameter Codes: SO2 - SO2 Hourly Mass Rate (lb/hr)

OP - Opacity

NOXR - NOx Emission Rate (lb/mmBtu)

NOX - NOx Hourly Mass Rate (lb/hr)

HI - Heat Input Rate (mmBtu/hr)

CO2 - CO2 Hourly Mass Rate (ton/hr)

Methodology Codes: NOXR - NOx Mass Calculated from NOx Emission Rate

EXP - Exempt

CEM - Continuous Emission Monitor

AD - Appendix D

Substitute Data Codes: SPTS - Standard Part 75 for Missing Data

Facility Name: **Manatee**

Facility ID (ORISPL): 6042

Monitoring Plan Printout Report

April 11, 2013 01:27 PM

Monitoring System / Analytical Components

Unit/Stack /Pipe Identifier	System					Component								
	ID	Type	Des	Begin Date/Hour	End Date/Hour	ID	Type	SAM	BAS	Manufacturer	Model or Version	Serial Number	Begin Date/Hour	End Date/Hour
MTCT3D	D02	NOX	P	04/01/2005 00		002	NOX	EXT	D	TEI	42CLS	00415906622	04/01/2005 00	02/19/2013 09
						003	O2	EXT	D	SERVOMEX	1440C	2856	04/01/2005 00	02/19/2013 09
						888	PRB	EXT		CISCO	PMT3DPRB04	PMT3DPRB04	04/01/2005 00	
						999	DAHS			BABCOCK & WILCOX	8.2.001	NETDAHS-MTCT 3D	04/01/2005 00	
						A02	NOX	EXT	D	THERMO	42I	1233555758	02/19/2013 10	
						A03	O2	EXT	D	SERVOMEX	1440	01440D1/4707	02/19/2013 10	
	D08	GAS	P	04/01/2005 00		007	GFFM	ORF		ROSEMOUNT	3095	0093318	04/01/2005 00	
						008	GFFM	ORF		ROSEMOUNT	3095	0094710	04/01/2005 00	
						999	DAHS			BABCOCK & WILCOX	8.2.001	NETDAHS-MTCT 3D	04/01/2005 00	

System Types Descriptions: NOX - NOx Emission Rate
GAS - Gas Fuel Flow

System Designations Descriptions: P - Primary

Sample Acquisition Method (SAM): ORF - Orifice
EXT - Dry Extractive

Component Types Descriptions: NOX - NOx Concentration
O2 - O2 Concentration
PRB - Probe
DAHS - Data Acquisition and Handling System
GFFM - Gas Fuel Flowmeter

Monitoring System Fuel Flow

Unit/Stack/Pipe Identifier	System ID	Fuel Code	Max Fuel Flow Rate	Units of Measure	Source Code	Begin Date/Hour	End Date/Hour
MTCT3D	D08	PNG	22606.0	HSCF	URV	04/01/2005 00	

System Fuel Codes Descriptions: PNG - Pipeline Natural Gas

Units of Measure Descriptions: HSCF - Hundred Standard Cubic Feet / Hour

Source Codes Descriptions: URV - Upper Range Value

Facility Name: **Manatee**

Facility ID (ORISPL): **6042**

Monitoring Plan Printout Report

April 11, 2013 01:27 PM

Analyzer Range Data

Unit/Stack/Pipe Identifier	Component Type	Component ID	Range Code	Dual Range Indicator	Begin Date/Hour	End Date/Hour
MTCT3D	NOX	A02	Auto Ranging	Y	02/19/2013 10	
	NOX	002	Auto Ranging	Y	04/01/2005 00	02/19/2013 09
	O2	A03	High Range		02/19/2013 10	
	O2	003	High Range		04/01/2005 00	02/19/2013 09

Component Types Descriptions:
NOX - NOx Concentration
O2 - O2 Concentration

Emissions Formulas

Unit/Stack/Pipe Identifier	Parameter	Formula ID	Formula Code	Formula	Begin Date/Hour	End Date/Hour
MTCT3D	NOXR	001	F-5	NOX LB/MMBTU = 1.194 * 10**- 7 * S#(A02-D02) * 8710 * (20.9 / (20.9-S#(A03-D02)))	01/01/1995 00	
	CO2	002	G-4	CO2 TONS_GAS = (1040 * F#(003) * (1/385) * 44) / 2000	01/01/1995 00	
	HI	003	F-20	HI_GAS = F#(005) * GCV_GAS / 10**6	01/01/1995 00	
	SO2	004	D-5	SO2_GAS LB/HR = 0.0006 * F#(003)	01/01/1995 00	
	FGAS	005	N-GAS	FGAS = S#(007-D08) + S#(008-D08)	01/01/1995 00	
	NOX	006	F-24A	NOX_MASS = F#(001) * F#(003) * T_UNIT	01/01/2008 00	

Parameter Codes Descriptions:
NOXR - NOx Emission Rate (lb/mmBtu)
CO2 - CO2 Hourly Mass Rate (ton/hr)
HI - Heat Input Rate (mmBtu/hr)
SO2 - SO2 Hourly Mass Rate (lb/hr)
FGAS - Gas Hourly Flow Rate (hscf)
NOX - NOx Hourly Mass Rate (lb/hr)

Formula Codes Descriptions:
N-GAS - FGAS (net gas flow rate)
G-4 - CO2 (from HI, Fc)
F-5 - NOXR/SO2R (from NOX or SO2 dry, O2 dry, Fd)
F-24A - NOX (from NOX rate, HI)
F-20 - HI (same as D-6)
D-5 - SO2 (from gas SO2 emission rate, HI)

Facility Name: **Manatee**

Facility ID (ORISPL): 6042

Monitoring Plan Printout Report

April 11, 2013 01:27 PM

Span Values

Unit/Stack /Pipe Identifier	Comp Type	Scale	Method	MPC/ MPF	MEC	Span Value	Full-Scale Range	Units of Measure	Scale Transition Point	Def. High Range Value	Flow Full Range (SCFH)	Flow Span Value (SCFH)	Begin Date/Hour	End Date/Hour
MTCT3D	NOX	H	TB	150.0	10.0	200.000	200.000	PPM	10.0				04/01/2005 00	
	NOX	L	OL		10.0	10.000	10.000	PPM	10.0				04/01/2005 00	
	O2	H				25.000	25.000	PCT	10.0				04/01/2005 00	

Component Types Descriptions: NOX - NOx Concentration
O2 - O2 Concentration

Span Method Codes Descriptions: TB - Table Defaults from Part 75
OL - Other Limit

Units of Measure Descriptions: PPM - Parts per Million
PCT - Percentage

Unit/Stack/Pipe Load or Operating Level Information

Unit/Stack/Pipe Identifier	Maximum Hourly Load	Units of Measure	Upper Bound of Range of Operation	Lower Bound of Range of Operation	Designated Normal Op. Level	Second Most Frequently Used Op. Level	Second Normal Indicator	Load Analysis Date	Begin Date/Hour	End Date/Hour
MTCT3D	288	MW	288	85	High	Mid	Yes	04/01/2005	04/01/2005 00	12/31/2010 23
	310	MW	310	85	High	Low	Yes	01/01/2011	01/01/2011 00	

Units of Measure Descriptions: MW - Megawatt

Facility Name: **Manatee**

Facility ID (ORISPL): 6042

Monitoring Plan Printout Report

April 11, 2013 01:27 PM

Monitoring Defaults

Unit/Stack/Pipe Identifier	Parameter	Value	Units of Measure	Purpose Code	Fuel Type	Operating Condition	Source of Value	Begin Date/Hour	End Date/Hour
MTCT3D	NORX	1.7160	LBMMBTU	MD	NFS	A	DEF	04/01/2005 00	
	O2X	19.0000	PCT	DC	NFS	A	DEF	04/01/2005 00	

Parameter Codes Descriptions: O2X - Maximum O2 Concentration (pct)
NORX - Maximum NOx Emission Rate (lb/mmBtu)

Units of Measure Descriptions: PCT - Percentage
LBMMBTU - Pounds / mmBtu

Purpose Codes Descriptions: MD - Missing Data (or Unmonitored Bypass Stack or Emergency Fuel) Default
DC - Diluent Cap

Fuel Type Codes Descriptions: NFS - Non-Fuel Specific

Operating Conditions Descriptions: A - Any Hour

Source Codes Descriptions: DEF - Default Value from Part 75

Qualifications

Unit/Stack/Pipe Identifier	Qualification Type	Begin Date	End Date
MTCT3D	GF	01/01/2005	12/31/2007

Qualification Percentages for Qualification Type Code GF Begin Date 01/01/2005

Qualification Year	Average Percent Value	Year 1			Year 2			Year 3		
		Data Year	Data Type Cd	Percent Value	Data Year	Data Type Cd	Percent Value	Data Year	Data Type Cd	Percent Value
2005	100.0	2005	P	100.0	2006	P	100.0	2007	P	100.0

Qualification Types Descriptions: GF - Gas-Fired Unit

Data Type Codes Descriptions: A - Actual
D - Demonstration
P - Projected

CONTINUOUS EMISSION MONITORING SYSTEM
RELATIVE ACCURACY TEST AUDIT
FLORIDA POWER & LIGHT COMPANY
MANATEE POWER PLANT
UNIT No. 3D
February 28, 2013

TEST PERFORMED BY:
FLORIDA POWER & LIGHT
EMISSION TEST GROUP
700 UNIVERSE BLVD.
JUNO BEACH, FLORIDA 33408

CERTIFICATION OF VALIDITY

Relative Accuracy Test Audit
Plant: Manatee
Unit: 3D
Test Date(s): February 28, 2013

I hereby certify the information and data provided in this emission test report for tests conducted at the above facility on the above date are true and correct, to the best of my knowledge.

Arturo J. Mocha

Emission Test Coordinator

PERSONNEL AND PROCEDURES

Manatee Unit 3D - 2/28/13

SCOPE OF WORK

The Technical Services Emission Test Group of Florida Power & Light conducted a relative accuracy test on the Nitrogen Oxides (NOx), Carbon Monoxide (CO) and Oxygen (O2) continuous emission monitoring system (CEM) which is installed at the Manatee Plant Unit No. 3D. Said test was performed on February 28, 2013 to evaluate the relative accuracy of this Nox analyzer in accordance with EPA 40 CFR 75, Appendix A.

TEST CREW:

A. J. Mocha (Test Coordinator)

M. L. Crosby

S. C. Webb

J. R. Schwartz

REPORT COMPILATION:

M. L. Crosby

SUMMARY OF RESULTS

	PERFORMANCE REQUIRED	PERFORMANCE DEMONSTRATED
NOx (lb/mmBtu)	+ or - 0.015 LB/MMBTU OF REFERENCE VALUE	0.000
CO (ppm)	< or = 5 PPM OF REFERENCE VALUE	0.178
O2 (percent)	< or = 0.7% OF REFERENCE VALUE	-0.057

Facility Description

Each unit consists of a nominal 170 MW General Electric Model PG7241(FA) gas turbine-electrical generator set, an automated gas turbine control system, an inlet air filtration system, an evaporative inlet air cooling system, a heat recovery steam generator (HRSG) each equipped with a 495 MMBtu/hr natural gas fired duct burner, a stack, and associated support equipment. Steam from each HRSG is delivered to the single steam turbine-electrical generator, which has a nominal capacity of 470 MW. The total nominal generating capacity of the "4 on 1" combined cycle unit system is 1150 MW. Each stack is 120 ft tall (19 ft diameter). At a compressor inlet air temperature of 59 deg F, each gas turbine heat input is approximately 1600 MMBtu (LHV) per hour.

The units are fired exclusively with natural gas. The efficient combustion of natural gas at high temperatures minimizes emissions of CO, PM/PM10, SAM, SO2 and VOC. NOx emissions are reduced by Dry Low-NOx (DLN) combustion technology (simple cycle mode). A selective catalytic reduction (SCR) system combined with Dry Low-NOx (DLN) combustion technology further reduces NOx emissions during combined cycle mode.

Reference Method Analyzer Principles of Operation

Method 3A: Determination of Oxygen and Carbon Dioxide (O2/CO2)

Flue gas is continuously analyzed for oxygen and carbon dioxide using a Servomex O2 1400 series analyzer using the electron paramagnetic principle and a CO2 Servomex 1440 series analyzer using the Non-Dispersive Infrared principle.

Method 7E: Determination of Nitrogen Oxides (Nox)

Flue gas is continuously analyzed for nitrogen oxides using a Thermo Electron 42C or Rosemount Analytical 951A analyzer utilizing the Chemiluminescence principle. A NO2 in nitrogen certified gas cylinder is use to verify at least 90% converter efficiency.

Method 10: Determination of Carbon Monoxide (CO)

Flue gas is continuously analyzed for carbon monoxide using a Thermo Electron 48C Non-Dispersive Infrared analyzer.

Field Procedures

The Flue gas is continuously withdrawn from the stack exhaust at a constant rate thru a stainless steel heated filter, probe and 3/8-inch O.D. Teflon sample line to a moisture removal system. The moisture removal system (gas conditioner) is

designed for minimal contact between the condensate and sample gas in order to prevent any reaction between the moisture and measured pollutants. All the components of the sampling system are constructed of Teflon and stainless steel.

The gas conditioning section of the sampling system is fabricated with a stainless steel coil and moisture collection vessel to prevent bubbling. The coil and collection vessel are cooled in an enclosed ice water bath to ensure complete moisture removal. The moisture is drained from the vessel at the end of the test.

The dry sample gas exiting the gas conditioning section is transported thru a 3/8-inch O.D Teflon unheated line to a climate controlled environment (test truck). Inside the test truck the sample gas goes into a second gas conditioning chiller to remove any potential pass thru moisture, then to a diaphragm pump. The moisture is continuously drained via an external peristaltic pump. The Teflon lined diaphragm pump delivers positive pressure to the instrument system.

The instrument system consists of a stainless steel manifold, analyzers and sample panel which house the flow control valves and rotameters. The control valves are used to deliver a constant sample flow and pressure to the analyzers. Rotameters and pressure gauges are used to monitor the sample flow and pressure. Before each test, the sampling system is leaked checked by closing the end at the sample probe. The system pressure is brought to 20 inches of vacuum. Acceptable system leak check is less than 2 inches pressure drop in one minute.

Analyzer calibration error is calculated by the difference between the known calibration gas concentration and the concentration exhibited by each analyzer. Bias checks are preformed by comparing calibration responses through the entire sampling system to these exhibited at the analyzer. EPA 1 protocol gases are used to calibrate and check the analyzers. Acceptable system performance checks must not exceed +/-2% calibration error, +/-5% system bias check, +/-3% upscale span drift.

To determine the sampling location a stratification test is conducted per method 7E. During the stratification test three points are traversed from each of the four ports. From these traverse points a single sampling point is selected.

Data Acquisition

The Teloger data recording system is designed to perform automatic data collection from remote locations using analog channels measuring analog signal inputs. Depending on analyzer, the analog output signals may be 0-1, or 0-10 volts. The system consists of a Telog recorder and Telogers for Windows software running on a personal computer.

The Telog recorder monitors the analyzer input signals at a programmed sample rate of once per second. Once a sample has been taken, the recorder saves the results in a temporary buffer. After a user-programmable recording interval, one or two minute average depending on type of test (RATA, Gas Compliance) the recorder analyzes the samples. Summary statistics are computed by the recorder and stored into the recorder's memory. These 'recorded values' are the values that are collected and displayed for analysis.

Whenever data is collected from any Telog recorder, the recording process continues. No data is lost during the process of collecting the data from the recorder. Typically, the recorder buffers any data that is collected during the communications session, and stores this new data into memory after the data collection process has completed. After the completion of the communications session, Telogers stores the collected data into the currently active Telogers database. After each test run the averages are generated and copied into an excel field data sheet.

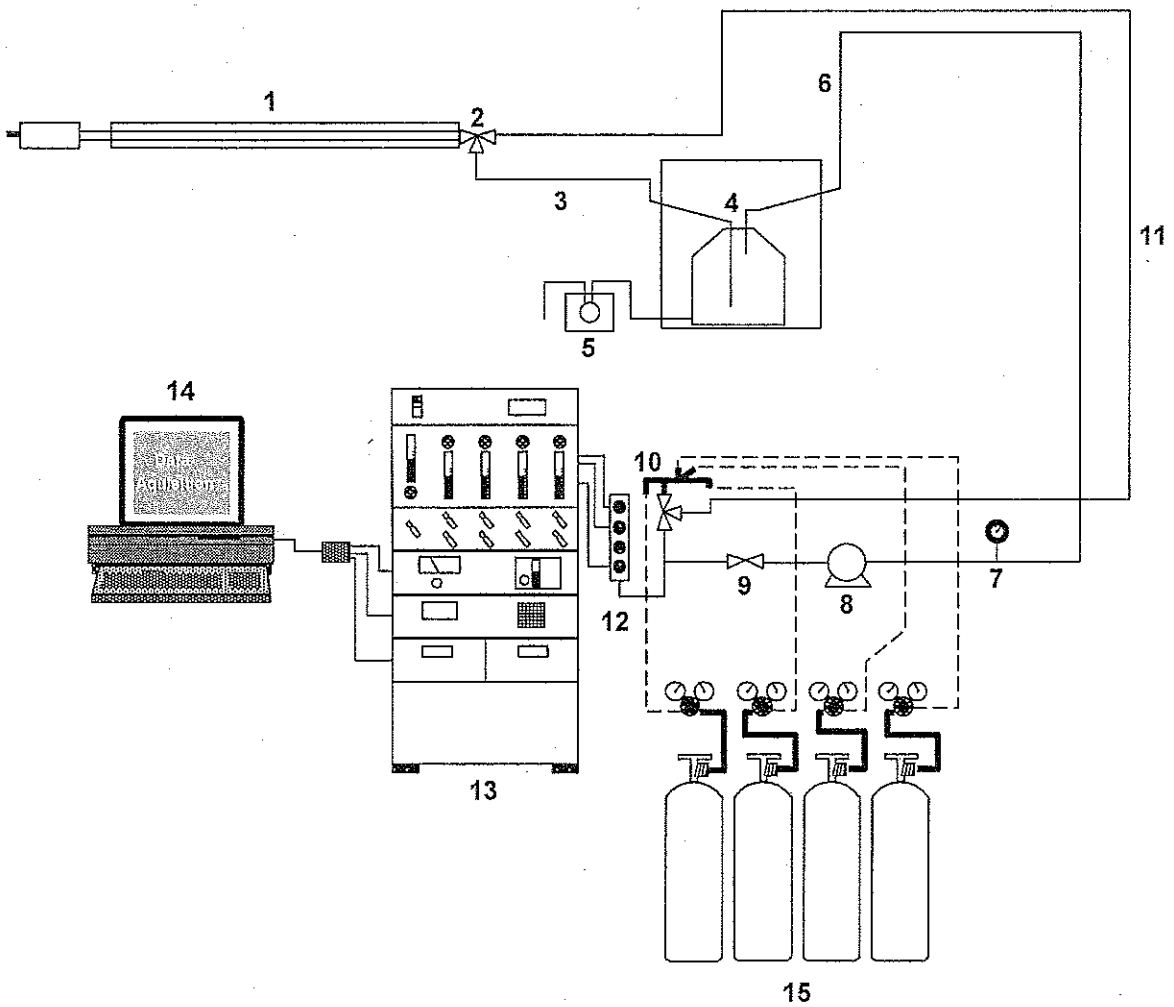
Continuous Emission Monitoring System (CEMS) Description

Florida Power & Light facilities use two different types of CEMS. Combustion turbine units are typically equipped with dry-extractive CEMS whereas all other units are equipped with dilution CEMS. However, all flue gas pollutant and diluent measurements are made on a wet basis. Effluent gas withdrawn from the sampling source is filtered and transported through a heated sample line to a sampling conditioning system. The conditioning system is located in a climate enclosed shelter and filtered a second time. A chiller inside the shelter removes the flue gas moisture and supplies it to analyzers housed in cabinet racks.

The CEMS Data Acquisition and Reporting are controlled by a Data Acquisition and Handling System (DAHS). The DAHS provides automated data monitoring and management capabilities to the CEMS. The CEMS has a Programmable Logic Controller (PLC). The PLC transmits data from the analyzers to the DAHS and generates and logs one minute averages. In the DAHS, necessary reports are generated for use in the compliance and Relative Accuracy Test Audit (RATA) reports.

Automatic zero and span calibrations are performed on the CEMS system every 24 hours and stored in the DAHS. All calibration gases are manufactured to EPA Traceability Protocol Assay and Certification of Gaseous Calibration Standards and are certified by the vendor to meet such criteria.

EPA Method 3A,7E & 10 Sampling Train



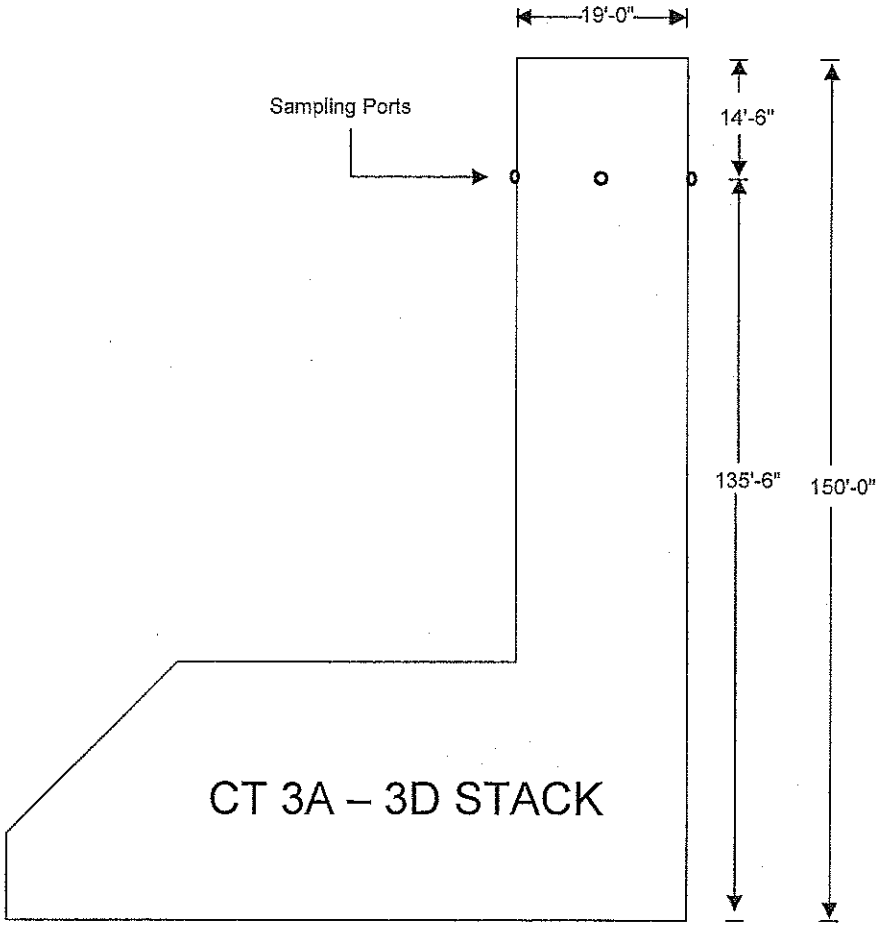
1. HEATED STAINLESS STEEL PROBE WITH FILTER
2. THREE WAY VALVE
3. HEATED SAMPLE LINE
4. MOISTURE REMOVAL SAMPLING CHILLER
5. MOISTURE REMOVAL PUMP
6. 3/8" O.D. SAMPLE LINE
7. VACUUM GAUGE
8. VACUUM PUMP
9. SAMPLE VALVE
10. CALIBRATION MANIFOLD
11. CALIBRATION GAS LINE
12. GAS MANIFOLD
13. O2/CO2, NOX & CO ANALYZERS
14. DATA ACQUISITION SYSTEM
15. EPA PROTOCOL 1 CALIBRATION GASES

PMT COMBUSTION TURBINE 3A – 3D STACK
FLORIDA POWER & LIGHT CO.
SAMPLING SPECIFICATIONS

Pollutant and diluent sampling is conducted at one point based on a twelve point traverse as per 40 CFR part 60, App. A-4, Method 7E 8.1.2.

STACK SPECIFICATIONS

SAMPLING DIAMETER: 228.25 in.
SAMPLING AREA: 284.2 sq. ft.
SAMPLING PORT DEPTH: 19.0 in.
NOTE: DRAWING IS NOT TO SCALE



SAMPLE CALCULATIONS

CORRECTED CONCENTRATIONS, DRY BASIS:

$$\overline{C} = \frac{(C - Co)}{(Cm - Co)} * Cma$$

$\overline{C}$ = Average gas concentration indicated by analyzer, dry basis.

Co = Average of initial and final system calibration bias check responses for the zero gas.

Cm = Average of initial and final system calibration bias check responses for the upscale gas.

Cma = Actual concentration of the upscale gas.

Pollutant Concentration, LB/DSCF:

$$C\ (lb/dscf) = C\ (ppm) * (2.59 * 10^{-9}) * (molecular\ wt.)$$

C (ppm) = Corrected concentration dry basis, ppm.

Molecular weight = 46.01 for NOx, 64.06 for SO2.

EMISSION RATE, LB/MM BTU:

$$E = C\ (lb/dscf) * Fc * \frac{100}{CO2}$$

C (lb/dscf) = pollutant concentration, lb / dscf.

Fc = 1040 dscf/mmbtu gas.

CO2 = Percent carbon dioxide by volume, dry basis.

FLORIDA POWER & LIGHT

Unit: PMT 3A - 3D
Checked by: John Mirino

Test Date: 2/25-28/2013
Check Date: 3/26/2013

NO_2 to NO Converter Efficiency Check

Analyzer : Thermo 42C

Serial Number: 0600314587

Method: 7E

NO_2 Audit Gas Value (C_v): 51.6
cylinder ID ALM039021

NO Calibration Gas Value: 55.1
cylinder ID ALM042785

Date & Time	NO & Zero Calibration
3/26/2013 8:40	0.10
3/26/2013 8:43	54.88
	NO_2 Audit Gas
3/26/2013 8:48	51.50
3/26/2013 8:49	51.53
3/26/2013 8:50	51.55
3/26/2013 8:51	51.55
AVERAGE	51.53 (C_{Dir})

NO_2 to NO Conversion Efficiency Test using Equation 7E-7

$$Eff_{NO_2} = \frac{C_{Dir}}{C_v} \times 100$$

Eff_{NO_2} = 99.9

Method 7E NO_2 to NO Conversion Efficiency Test

8.2.4.1. Introduce NO_2 converter efficiency gas to the analyzer in direct calibration mode and record the NOX concentration displayed by the analyzer. Calculate the converter efficiency using Equation 7E–7 in Section 12.7. The specification for converter efficiency in Section 13.5 must be met. The NO2 to NO conversion efficiency, calculated according to Equation 7E-7, must be greater than or equal to 90 percent.

Eff_{NO_2} = NO_2 to NO converter efficiency, percent.
CDir = Measured concentration of a calibration gas when introduced in direct calibration mode, ppmv.
Cv = Manufacturer certified concentration of a calibration gas, ppmv.

FLORIDA POWER & LIGHT

Unit PMT 3 Date 2/25/13

SYSTEM RESPONSE TIME

Analyzer Type: CO

Span Gas value: 5.56

Serial Number: 0000 4483

Analyzer Range: 0-10

Method: 10

Sampling Train Length: 200"

Upscale Response Time: 121 seconds
(high or mid level gas)

Low-Level Response Time: 123 seconds
(zero gas)

System Response Time: 123 seconds
(longer time interval)

Method 6C, 7E, 10 & 20 system response procedure:
Introduce the upscale calibration gas until stable reading is achieved, record value.
Next introduce low level zero gas until stable reading is achieved, record value.
The longer interval is the response time.

file system response

SOURCE EVALUATION SOCIETY

Qualified Source Testing Individual

LET IT BE KNOWN THAT

ARTURO J. MOCHA

HAS SUCCESSFULLY PASSED A COMPREHENSIVE EXAMINATION AND SATISFIED EXPERIENCE REQUIREMENTS IN ACCORDANCE WITH THE GUIDELINES ISSUED BY THE SES QUALIFIED SOURCE TEST INDIVIDUAL REVIEW BOARD FOR

GASEOUS POLLUTANTS INSTRUMENTAL SAMPLING METHODS

ISSUED THIS 29TH DAY OF NOVEMBER 2011 AND EFFECTIVE UNTIL NOVEMBER 28TH, 2016

Peter R. Westlin, QSTI/QSTO Review Board

Peter S. Pakalnis, QSTI/QSTO Review Board

LeRoy Owens, QSTI/QSTO Review Board

C. David Bagwell, QSTI/QSTO Review Board

Karen D. Kajiya-Mills , QSTI/QSTO Review Board

Glenn C. England, QSTI/QSTO Review Board

APPLICATION NO. 2010-444

APPENDIX A

RELATIVE ACCURACY SHEETS

FLORIDA POWER AND LIGHT COMPANY
EMISSION TEST GROUP
700 UNIVERSE BLVD.
JUNO BEACH, FLORIDA 33408

NOx LBS/MMBTU RELATIVE ACCURACY

PLANT: MANATEE UNIT NO. CT-3D
LOAD MW: 265
DATE: 2/28/2013

NOX ANALYZER: TECO 42-ILS
SERIAL # 1233555758

RUN	TIME START	TIME END	REFERENCE METHOD (lb/mmBTU)	CEM RESPONSE (lb/mmBTU)	ARITHMETIC DIFFERENCE	DIFFERENCE SQUARED
1	09:14	09:36	0.009	0.008	0.0010	0.000001
2	09:46	10:08	0.009	0.008	0.0010	0.000001
3	10:18	10:40	0.008	0.008	0.0000	0.000000
4	10:50	11:12	0.009	0.008	0.0010	0.000001
5	11:22	11:44	0.009	0.009	0.0000	0.000000
6	11:54	12:16	0.009	0.009	0.0000	0.000000
7	12:26	12:48	0.009	0.009	0.0000	0.000000
8	12:58	13:20	0.009	0.009	0.0000	0.000000
9	13:30	13:52	0.009	0.008	0.0010	0.000001
			AVERAGE	AVERAGE	SUM OF DIFF.	SUM OF THE SQUARES
			0.0089	0.0084	0.00400	0.000004

**MEAN DIFFERENCE, d (Eq. A-7)	0.000
**STANDARD DEVIATION, Sd (Eq. A-8)	0.0
**CONFIDENCE COEFFICIENT, |CC| (Eq. A-9)	0.0
PERCENT (%) RELATIVE ACCURACY, RA (Eq. A-10)	9.56
OR	
***RELATIVE ACCURACY + or - 0.015 LB/MMBTU OF THE REFERENCE VALUE**	0.000
**CALCULATED BIAS ADJUSTMENT FACTOR, BAF (Eq. A-12)	1.053
**APPLIED BIAS ADJUSTMENT FACTOR, BAF (LOW EMITTER)	1.053

** 40 CFR 75, Appendix A, 7.6.5
*** 40 CFR 75, Appendix B, 2.3.1.2 (e & f)

FLORIDA POWER AND LIGHT COMPANY
EMISSION TEST GROUP
700 UNIVERSE BLVD.
JUNO BEACH, FLORIDA 33408

CO PPM RELATIVE ACCURACY

PLANT: MANATEE UNIT NO. CT-3D
LOAD MW 265
DATE: 2/28/2013

CO ANALYZER: TECO 48C
SERIAL # 0335003689

RUN	TIME START	TIME END	REFERENCE METHOD (ppm)	CEM RESPONSE (ppm)	ARITHMETIC DIFFERENCE	DIFFERENCE SQUARED
1	09:14	09:36	0.49	0.30	0.19	0.0358
2	09:46	10:08	0.46	0.30	0.16	0.0260
3	10:18	10:40	0.46	0.30	0.16	0.0268
4	10:50	11:12	0.47	0.30	0.17	0.0274
5	11:22	11:44	0.46	0.30	0.16	0.0255
6	11:54	12:16	0.47	0.30	0.17	0.0285
7	12:26	12:48	0.47	0.30	0.17	0.0306
8	12:58	13:20	0.48	0.30	0.18	0.0321
9	13:30	13:52	0.47	0.30	0.17	0.0299
			AVERAGE	AVERAGE	SUM OF DIFF.	SUM OF THE SQUARES
			0.47	0.30	1.54	0.2625

**MEAN DIFFERENCE, d (Eq. A-7)	0.17
**STANDARD DEVIATION, Sd (Eq. A-8)	0.009570
**CONFIDENCE COEFFICIENT, |CC| (Eq. A-9)	0.007356
***PERCENT (%) RELATIVE ACCURACY, RA (Eq. A-10)	37.81
RA < or = 10 %	
OR	
***DIFFERENCE (d) + 2.5% (CC), < OR = 5 PPMV	0.178

** 40 CFR 75, Appendix A, 7.6.5
*** 40 CFR 60, Appendix B, PS 4 & 4A, Section 13.2

FLORIDA POWER AND LIGHT COMPANY
EMISSION TEST GROUP
700 UNIVERSE BLVD.
JUNO BEACH, FLORIDA 33408

O2 % RELATIVE ACCURACY

PLANT: MANATEE UNIT NO. CT-3D
LOAD: 265
DATE: 2/28/2013

O2 ANALYZER: SERVOMEX
SERIAL # 01440D1/4707

RUN	TIME START	TIME END	REFERENCE METHOD (%)	CEM RESPONSE (%)	ARITHMETIC DIFFERENCE	DIFFERENCE SQUARED
1	09:14	09:36	13.69	13.70	-0.01	0.0002
2	09:46	10:08	13.69	13.70	-0.01	0.0001
3	10:18	10:40	13.71	13.80	-0.09	0.0075
4	10:50	11:12	13.73	13.80	-0.07	0.0053
5	11:22	11:44	13.74	13.80	-0.06	0.0042
6	11:54	12:16	13.74	13.80	-0.06	0.0040
7	12:26	12:48	13.74	13.80	-0.06	0.0038
8	12:58	13:20	13.73	13.80	-0.07	0.0049
9	13:30	13:52	13.73	13.80	-0.07	0.0052
			AVERAGE	AVERAGE	SUM OF DIFF.	SUM OF THE SQUARES
			13.72	13.78	-0.51	0.0351

**MEAN DIFFERENCE, d (Eq. A-7)	-0.057
**STANDARD DEVIATION, Sd (Eq. A-8)	0.0
**CONFIDENCE COEFFICIENT, |CC| (Eq. A-9)	0.0
PERCENT (%) RELATIVE ACCURACY, RA (Eq. A-10)	0.57
***DIFFERENCE BETWEEN RM AND CEMS VALUE DIFFERENCE (d) < OR = 0.7%	-0.057

** 40 CFR 75, Appendix A, 7.6.5
*** 40 CFR 60, Appendix B, PS 3, Section 13.2

APPENDIX B

POLLUTANT FIELD DATA SHEETS

FLORIDA POWER AND LIGHT CO.
MANATEE UNIT NO. CT-3D

Test Date: 02/28/13 **Run 1**

ANALYZER CALIBRATION ERROR DATA

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	≤ 0.5 DIFF PPM	OR	± 2% SPAN	ANALYZER SERIAL #
	ppm NOx	0.00	0.00	0.0		0.0	
10	ppm NOx	5.51	5.54	0.0		0.3	0600314587
	ppm NOx	9.72	9.78	0.1		0.6	
	% O2	0.00	0.01	0.0		0.0	
25	% O2	14.00	14.00	0.0		0.0	1420/B701/932
	% O2	24.36	24.39	0.0		0.1	
	% CO2	0.00	0.01	0.0		0.1	
10	% CO2	5.07	5.07	0.0		0.0	1415D3453
	% CO2	9.588	9.62	0.0		0.3	
	ppm CO	0.00	0.01	0.0		0.1	
10	ppm CO	5.56	5.54	0.0		-0.2	00004483
	ppm CO	9.98	10.00	0.0		0.2	

SYSTEM BIAS AND CALBRATION DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	≤ 0.5 DIFF PPM	OR ± 5% SPAN	POSTTEST CHECK	≤ 0.5 DIFF PPM	OR ± 5% SPAN	≤ 0.5 DIFF PPM	OR ≤ 0.3% DRIFT
ppm NOx	0.00	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.0
ppm NOx	5.52	5.56	0.04	0.4	5.54	0.02	0.2	0.02	-0.2
% O2	0.01	0.01	0.00	0.0	0.02	0.01	0.0	-0.01	0.0
% O2	14.00	14.00	0.00	0.0	14.00	0.00	0.0	0.00	0.0
% CO2	0.01	0.01	0.00	0.0	0.02	0.01	0.1	-0.01	0.1
% CO2	5.07	5.05	-0.02	-0.2	5.05	-0.02	-0.2	0.00	0.0
ppm CO	0.01	0.02	0.01	0.1	-0.01	-0.02	-0.2	0.03	-0.3
ppm CO	5.54	5.53	-0.01	-0.1	5.54	0.00	0.0	-0.01	0.1

UNCORRECTED REFERENCE DATA

Date / Time	NOx PPM	% O2	% CO2	CO PPM
2/28/2013 9:14	2.88	13.69	4.11	0.48
2/28/2013 9:16	2.93	13.68	4.11	0.49
2/28/2013 9:18	2.89	13.68	4.11	0.48
2/28/2013 9:20	2.89	13.68	4.11	0.48
2/28/2013 9:22	2.89	13.68	4.11	0.52
2/28/2013 9:24	2.89	13.69	4.11	0.50
2/28/2013 9:26	2.89	13.69	4.11	0.49
2/28/2013 9:28	2.89	13.69	4.11	0.49
2/28/2013 9:30	2.89	13.69	4.11	0.49
2/28/2013 9:32	2.89	13.69	4.11	0.46
2/28/2013 9:34	2.88	13.68	4.11	0.55
2/28/2013 9:36	2.87	13.71	4.11	0.47
AVERAGE	2.89	13.69	4.11	0.49

CORRECTED RESULTS	
NOx PPM	2.87
% O2	13.69
% CO2	4.12
CO PPM	0.49
CORRECTED NOx PPM	2.35
LB/MMBTU NOx	0.009

F Factor 8710

FLORIDA POWER AND LIGHT CO.
MANATEE UNIT NO. CT-3D

Test Date: 02/28/13 **Run 2**

ANALYZER CALIBRATION ERROR DATA

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	≤ 0.5 DIFF PPM	OR ± 2% % SPAN	ANALYZER SERIAL #
	ppm NOx	0.00	0.00	0.0	0.0	
10	ppm NOx	5.51	5.54	0.0	0.3	0600314587
	ppm NOx	9.72	9.78	0.1	0.6	
	% O2	0.00	0.01	0.0	0.0	
25	% O2	14.00	14.00	0.0	0.0	1420/B701/932
	% O2	24.36	24.39	0.0	0.1	
	% CO2	0.00	0.01	0.0	0.1	
10	% CO2	5.07	5.07	0.0	0.0	1415D3453
	% CO2	9.59	9.62	0.0	0.3	
	ppm CO	0.00	0.01	0.0	0.1	
10	ppm CO	5.56	5.54	0.0	-0.2	00004483
	ppm CO	9.98	10.00	0.0	0.2	

SYSTEM BIAS AND CALBRATION DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	≤ 0.5 DIFF PPM	OR ± 5% SPAN	POSTTEST CHECK	≤ 0.5 DIFF PPM	OR ± 5% SPAN	≤ 0.5 DIFF PPM	OR ≤ 0.3% DRIFT
ppm NOx	0.00	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.0
ppm NOx	5.54	5.54	0.00	0.0	5.54	0.00	0.0	0.00	0.0
% O2	0.01	0.02	0.01	0.0	0.02	0.01	0.0	0.00	0.0
% O2	14.00	14.00	0.00	0.0	13.99	-0.01	0.0	0.01	0.0
% CO2	0.01	0.02	0.01	0.1	0.02	0.01	0.1	0.00	0.0
% CO2	5.07	5.05	-0.02	-0.2	5.06	-0.01	-0.1	-0.01	0.1
ppm CO	0.01	-0.01	-0.02	-0.2	-0.02	-0.03	-0.3	0.01	-0.1
ppm CO	5.54	5.54	0.00	0.0	5.54	0.00	0.0	0.00	0.0

UNCORRECTED REFERENCE DATA

Date / Time	NOx PPM	% O2	% CO2	CO PPM
2/28/2013 9:46	2.86	13.67	4.11	0.47
2/28/2013 9:48	2.89	13.68	4.11	0.47
2/28/2013 9:50	2.88	13.68	4.11	0.47
2/28/2013 9:52	2.90	13.68	4.11	0.46
2/28/2013 9:54	2.88	13.68	4.11	0.45
2/28/2013 9:56	2.90	13.68	4.11	0.48
2/28/2013 9:58	2.89	13.69	4.11	0.45
2/28/2013 10:00	2.90	13.69	4.11	0.44
2/28/2013 10:02	2.91	13.69	4.11	0.42
2/28/2013 10:04	2.90	13.69	4.11	0.42
2/28/2013 10:06	2.88	13.69	4.11	0.41
2/28/2013 10:08	2.91	13.70	4.10	0.41
AVERAGE	2.89	13.69	4.11	0.45

CORRECTED RESULTS	
NOx PPM	2.88
% O2	13.69
% CO2	4.12
CO PPM	0.46
CORRECTED NOx PPM	2.35
LB/MMBTU NOx	0.009

F Factor 8710

FLORIDA POWER AND LIGHT CO.
MANATEE UNIT NO. CT-3D

Test Date: 02/28/13 **Run 3**

ANALYZER CALIBRATION ERROR DATA

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	≤ 0.5 DIFF PPM	OR ± 2% % SPAN	ANALYZER SERIAL #
	ppm NOx	0.00	0.00	0.0	0.0	
10	ppm NOx	5.51	5.54	0.0	0.3	0600314587
	ppm NOx	9.72	9.78	0.1	0.6	
	% O2	0.00	0.01	0.0	0.0	
25	% O2	14.00	14.00	0.0	0.0	1420/B701/932
	% O2	24.36	24.39	0.0	0.1	
	% CO2	0.00	0.01	0.0	0.1	
10	% CO2	5.07	5.07	0.0	0.0	1415D3453
	% CO2	9.59	9.62	0.0	0.3	
	ppm CO	0.00	0.01	0.0	0.1	
10	ppm CO	5.56	5.54	0.0	-0.2	00004483
	ppm CO	9.98	10.00	0.0	0.2	

SYSTEM BIAS AND CALBRATION DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	≤ 0.5 DIFF PPM	OR ± 5% SPAN	POSTTEST CHECK	≤ 0.5 DIFF PPM	OR ± 5% SPAN	≤ 0.5 DIFF PPM	OR ≤ 0.3% DRIFT
ppm NOx	0.00	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.0
ppm NOx	5.54	5.54	0.00	0.0	5.56	0.02	0.2	-0.02	0.2
% O2	0.01	0.02	0.01	0.0	0.02	0.01	0.0	0.00	0.0
% O2	14.00	13.99	-0.01	0.0	13.98	-0.02	-0.1	0.01	0.0
% CO2	0.01	0.02	0.01	0.1	0.02	0.01	0.1	0.00	0.0
% CO2	5.07	5.06	-0.01	-0.1	5.05	-0.02	-0.2	0.01	-0.1
ppm CO	0.01	-0.02	-0.03	-0.3	-0.04	-0.05	-0.5	0.02	-0.2
ppm CO	5.54	5.54	0.00	0.0	5.51	-0.03	-0.3	0.03	-0.3

UNCORRECTED REFERENCE DATA

Date / Time	NOx PPM	% O2	% CO2	CO PPM
2/28/2013 10:18	2.80	13.70	4.09	0.44
2/28/2013 10:20	2.78	13.71	4.09	0.44
2/28/2013 10:22	2.79	13.71	4.09	0.42
2/28/2013 10:24	2.81	13.71	4.09	0.42
2/28/2013 10:26	2.83	13.71	4.09	0.44
2/28/2013 10:28	2.82	13.71	4.09	0.44
2/28/2013 10:30	2.82	13.71	4.09	0.43
2/28/2013 10:32	2.82	13.71	4.09	0.43
2/28/2013 10:34	2.84	13.71	4.09	0.44
2/28/2013 10:36	2.84	13.71	4.09	0.45
2/28/2013 10:38	2.88	13.71	4.09	0.43
2/28/2013 10:40	2.87	13.61	4.07	0.42
AVERAGE	2.82	13.70	4.09	0.43

CORRECTED RESULTS	
NOx PPM	2.80
% O2	13.71
% CO2	4.10
CO PPM	0.46
CORRECTED NOx PPM	2.30
LB/MMBTU NOx	0.008

F Factor 8710

FLORIDA POWER AND LIGHT CO.
MANATEE UNIT NO. CT-3D

Test Date: 02/28/13 **Run 4**

ANALYZER CALIBRATION ERROR DATA

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	≤ 0.5 DIFF PPM	OR ± 2% % SPAN	ANALYZER SERIAL #
	ppm NOx	0.00	0.00	0.0	0.0	
10	ppm NOx	5.51	5.54	0.0	0.3	0600314587
	ppm NOx	9.72	9.78	0.1	0.6	
	% O2	0.00	0.01	0.0	0.0	
25	% O2	14.00	14.00	0.0	0.0	1420/B701/932
	% O2	24.36	24.39	0.0	0.1	
	% CO2	0.00	0.01	0.0	0.1	
10	% CO2	5.07	5.07	0.0	0.0	1415D3453
	% CO2	9.59	9.62	0.0	0.3	
	ppm CO	0.00	0.01	0.0	0.1	
10	ppm CO	5.56	5.54	0.0	-0.2	00004483
	ppm CO	9.98	10.00	0.0	0.2	

SYSTEM BIAS AND CALBRATION DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	OR ≤ 0.5 DIFF PPM	± 5% SPAN	POSTTEST CHECK	OR ≤ 0.5 DIFF PPM	± 5% SPAN	OR ≤ 0.5 DIFF PPM	≤ 0.3% DRIFT
ppm NOx	0.00	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.0
ppm NOx	5.54	5.56	0.02	0.2	5.55	0.01	0.1	0.01	-0.1
% O2	0.01	0.02	0.01	0.0	0.02	0.01	0.0	0.00	0.0
% O2	14.00	13.98	-0.02	-0.1	13.99	-0.01	0.0	-0.01	0.0
% CO2	0.01	0.02	0.01	0.1	0.02	0.01	0.1	0.00	0.0
% CO2	5.07	5.05	-0.02	-0.2	5.05	-0.02	-0.2	0.00	0.0
ppm CO	0.01	-0.04	-0.05	-0.5	-0.04	-0.05	-0.5	0.00	0.0
ppm CO	5.54	5.51	-0.03	-0.3	5.52	-0.02	-0.2	-0.01	0.1

UNCORRECTED REFERENCE DATA

Date / Time	NOx PPM	% O2	% CO2	CO PPM
2/28/2013 10:50	2.86	13.70	4.09	0.39
2/28/2013 10:52	2.89	13.71	4.09	0.44
2/28/2013 10:54	2.94	13.71	4.09	0.43
2/28/2013 10:56	2.94	13.71	4.09	0.43
2/28/2013 10:58	2.93	13.71	4.09	0.43
2/28/2013 11:00	2.91	13.71	4.09	0.42
2/28/2013 11:02	2.91	13.71	4.09	0.43
2/28/2013 11:04	2.87	13.71	4.09	0.44
2/28/2013 11:06	2.86	13.71	4.09	0.44
2/28/2013 11:08	2.88	13.72	4.09	0.44
2/28/2013 11:10	2.89	13.72	4.09	0.41
2/28/2013 11:12	2.88	13.72	4.09	0.40
AVERAGE	2.89	13.71	4.09	0.43

CORRECTED RESULTS	
NOx PPM	2.87
% O2	13.73
% CO2	4.10
CO PPM	0.47
CORRECTED NOx PPM	2.36
LB/MMBTU NOx	0.009

F Factor 8710

FLORIDA POWER AND LIGHT CO.
MANATEE UNIT NO. CT-3D

Test Date: 02/28/13 **Run 5**

ANALYZER CALIBRATION ERROR DATA

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	≤ 0.5 DIFF PPM	OR	± 2% % SPAN	ANALYZER SERIAL #
	ppm NOx	0.00	0.00	0.0		0.0	
10	ppm NOx	5.51	5.54	0.0		0.3	0600314587
	ppm NOx	9.72	9.78	0.1		0.6	
	% O2	0.00	0.01	0.0		0.0	
25	% O2	14.00	14.00	0.0		0.0	1420/B701/932
	% O2	24.36	24.39	0.0		0.1	
	% CO2	0.00	0.01	0.0		0.1	
10	% CO2	5.07	5.07	0.0		0.0	1415D3453
	% CO2	9.59	9.62	0.0		0.3	
	ppm CO	0.00	0.01	0.0		0.1	
10	ppm CO	5.56	5.54	0.0		-0.2	00004483
	ppm CO	9.98	10.00	0.0		0.2	

SYSTEM BIAS AND CALBRATION DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	OR ≤ 0.5 DIFF PPM	± 5% SPAN	POSTTEST CHECK	OR ≤ 0.5 DIFF PPM	± 5% SPAN	OR ≤ 0.5 DIFF PPM	≤ 0.3% DRIFT
ppm NOx	0.00	0.00	0.00	0.0	-0.01	-0.01	-0.1	0.01	-0.1
ppm NOx	5.54	5.55	0.01	0.1	5.56	0.02	0.2	-0.01	0.1
% O2	0.01	0.02	0.01	0.0	0.02	0.01	0.0	0.00	0.0
% O2	14.00	13.99	-0.01	0.0	13.98	-0.02	-0.1	0.01	0.0
% CO2	0.01	0.02	0.01	0.1	0.02	0.01	0.1	0.00	0.0
% CO2	5.07	5.05	-0.02	-0.2	5.04	-0.03	-0.3	0.01	-0.1
ppm CO	0.01	-0.04	-0.05	-0.5	-0.06	-0.07	-0.7	0.02	-0.2
ppm CO	5.54	5.52	-0.02	-0.2	5.51	-0.03	-0.3	0.01	-0.1

UNCORRECTED REFERENCE DATA

Date / Time	NOx PPM	% O2	% CO2	CO PPM
2/28/2013 11:22	2.94	13.71	4.08	0.41
2/28/2013 11:24	2.92	13.72	4.08	0.40
2/28/2013 11:26	2.90	13.73	4.08	0.41
2/28/2013 11:28	2.87	13.73	4.08	0.40
2/28/2013 11:30	2.85	13.71	4.09	0.41
2/28/2013 11:32	2.88	13.72	4.08	0.43
2/28/2013 11:34	2.89	13.73	4.08	0.41
2/28/2013 11:36	2.86	13.73	4.08	0.41
2/28/2013 11:38	2.85	13.73	4.07	0.42
2/28/2013 11:40	2.84	13.73	4.07	0.41
2/28/2013 11:42	2.83	13.72	4.08	0.40
2/28/2013 11:44	2.86	13.73	4.08	0.41
AVERAGE	2.87	13.72	4.08	0.41

CORRECTED RESULTS	
NOx PPM	2.85
% O2	13.74
% CO2	4.10
CO PPM	0.46
CORRECTED NOx PPM	2.35
LB/MMBTU NOx	0.009

F Factor 8710

FLORIDA POWER AND LIGHT CO.
MANATEE UNIT NO. CT-3D

Test Date: 02/28/13

Run 6

ANALYZER CALIBRATION ERROR DATA

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	≤ 0.5 DIFF PPM	OR	± 2% % SPAN	ANALYZER SERIAL #
	ppm NOx	0.00	0.00	0.0		0.0	
10	ppm NOx	5.51	5.54	0.0		0.3	0600314587
	ppm NOx	9.72	9.78	0.1		0.6	
	% O2	0.00	0.01	0.0		0.0	
25	% O2	14.00	14.00	0.0		0.0	1420/B701/932
	% O2	24.36	24.39	0.0		0.1	
	% CO2	0.00	0.01	0.0		0.1	
10	% CO2	5.07	5.07	0.0		0.0	1415D3453
	% CO2	9.59	9.62	0.0		0.3	
	ppm CO	0.00	0.01	0.0		0.1	
10	ppm CO	5.56	5.54	0.0		-0.2	00004483
	ppm CO	9.98	10.00	0.0		0.2	

SYSTEM BIAS AND CALBRATION DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	≤ 0.5 DIFF PPM	OR ± 5% SPAN	POSTTEST CHECK	≤ 0.5 DIFF PPM	OR ± 5% SPAN	≤ 0.5 DIFF PPM	OR ≤ 0.3% DRIFT
ppm NOx	0.00	-0.01	-0.01	-0.1	-0.01	-0.01	-0.1	0.00	0.0
ppm NOx	5.54	5.56	0.02	0.2	5.56	0.02	0.2	0.00	0.0
% O2	0.01	0.02	0.01	0.0	0.02	0.01	0.0	0.00	0.0
% O2	14.00	13.98	-0.02	-0.1	13.98	-0.02	-0.1	0.00	0.0
% CO2	0.01	0.02	0.01	0.1	0.02	0.01	0.1	0.00	0.0
% CO2	5.07	5.04	-0.03	-0.3	5.05	-0.02	-0.2	-0.01	0.1
ppm CO	0.01	-0.06	-0.07	-0.7	-0.06	-0.07	-0.7	0.00	0.0
ppm CO	5.54	5.51	-0.03	-0.3	5.52	-0.02	-0.2	-0.01	0.1

UNCORRECTED REFERENCE DATA

Date / Time	NOx PPM	% O2	% CO2	CO PPM
2/28/2013 11:54	2.86	13.71	4.07	0.36
2/28/2013 11:56	2.85	13.72	4.07	0.39
2/28/2013 11:58	2.87	13.71	4.07	0.39
2/28/2013 12:00	2.87	13.72	4.07	0.41
2/28/2013 12:02	2.88	13.73	4.07	0.42
2/28/2013 12:04	2.88	13.72	4.07	0.42
2/28/2013 12:06	2.85	13.71	4.07	0.43
2/28/2013 12:08	2.81	13.71	4.07	0.42
2/28/2013 12:10	2.80	13.72	4.07	0.43
2/28/2013 12:12	2.83	13.73	4.07	0.42
2/28/2013 12:14	2.88	13.73	4.07	0.41
2/28/2013 12:16	2.86	13.71	4.07	0.42
AVERAGE	2.85	13.72	4.07	0.41

CORRECTED RESULTS	
NOx PPM	2.83
% O2	13.74
% CO2	4.09
CO PPM	0.47
CORRECTED NOx PPM	2.33
LB/MMBTU NOx	0.009

F Factor 8710

FLORIDA POWER AND LIGHT CO.
MANATEE UNIT NO. CT-3D

Test Date: 02/28/13 **Run 7**

ANALYZER CALIBRATION ERROR DATA

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	≤ 0.5 DIFF PPM	OR ± 2% % SPAN	ANALYZER SERIAL #
	ppm NOx	0.00	0.00	0.0	0.0	
10	ppm NOx	5.51	5.54	0.0	0.3	0600314587
	ppm NOx	9.72	9.78	0.1	0.6	
	% O2	0.00	0.01	0.0	0.0	
25	% O2	14.00	14.00	0.0	0.0	1420/B701/932
	% O2	24.36	24.39	0.0	0.1	
	% CO2	0.00	0.01	0.0	0.1	
10	% CO2	5.07	5.07	0.0	0.0	1415D3453
	% CO2	9.59	9.62	0.0	0.3	
	ppm CO	0.00	0.01	0.0	0.1	
10	ppm CO	5.56	5.54	0.0	-0.2	00004483
	ppm CO	9.98	10.00	0.0	0.2	

SYSTEM BIAS AND CALBRATION DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	OR ≤ 0.5 DIFF PPM	± 5% SPAN	POSTTEST CHECK	OR ≤ 0.5 DIFF PPM	± 5% SPAN	OR ≤ 0.5 DIFF PPM	≤ 0.3% DRIFT
ppm NOx	0.00	-0.01	-0.01	-0.1	-0.01	-0.01	-0.1	0.00	0.0
ppm NOx	5.54	5.56	0.02	0.2	5.55	0.01	0.1	0.01	-0.1
% O2	0.01	0.02	0.01	0.0	0.02	0.01	0.0	0.00	0.0
% O2	14.00	13.98	-0.02	-0.1	13.97	-0.03	-0.1	0.01	0.0
% CO2	0.01	0.02	0.01	0.1	0.02	0.01	0.1	0.00	0.0
% CO2	5.07	5.05	-0.02	-0.2	5.06	-0.01	-0.1	-0.01	0.1
ppm CO	0.01	-0.06	-0.07	-0.7	-0.05	-0.06	-0.6	-0.01	0.1
ppm CO	5.54	5.52	-0.02	-0.2	5.53	-0.01	-0.1	-0.01	0.1

UNCORRECTED REFERENCE DATA

Date / Time	NOx PPM	% O2	% CO2	CO PPM
2/28/2013 12:26	2.86	13.72	4.06	0.42
2/28/2013 12:28	2.89	13.71	4.07	0.42
2/28/2013 12:30	2.88	13.71	4.06	0.41
2/28/2013 12:32	2.87	13.72	4.07	0.43
2/28/2013 12:34	2.86	13.73	4.06	0.42
2/28/2013 12:36	2.88	13.72	4.07	0.43
2/28/2013 12:38	2.88	13.71	4.07	0.41
2/28/2013 12:40	2.87	13.71	4.07	0.42
2/28/2013 12:42	2.87	13.71	4.07	0.42
2/28/2013 12:44	2.85	13.71	4.07	0.42
2/28/2013 12:46	2.88	13.71	4.06	0.42
2/28/2013 12:48	2.92	13.71	4.07	0.44
AVERAGE	2.87	13.71	4.07	0.42

CORRECTED RESULTS	
NOx PPM	2.85
% O2	13.74
% CO2	4.07
CO PPM	0.47
CORRECTED NOx PPM	2.35
LB/MMBTU NOx	0.009

F Factor 8710

FLORIDA POWER AND LIGHT CO.
MANATEE UNIT NO. CT-3D

Test Date: 02/28/13 **Run 8**

ANALYZER CALIBRATION ERROR DATA

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	≤ 0.5 DIFF PPM	OR ± 2% % SPAN	ANALYZER SERIAL #
	ppm NOx	0.00	0.00	0.0	0.0	
10	ppm NOx	5.51	5.54	0.0	0.3	0600314587
	ppm NOx	9.72	9.78	0.1	0.6	
	% O2	0.00	0.01	0.0	0.0	
25	% O2	14.00	14.00	0.0	0.0	1420/B701/932
	% O2	24.36	24.39	0.0	0.1	
	% CO2	0.00	0.01	0.0	0.1	
10	% CO2	5.07	5.07	0.0	0.0	1415D3453
	% CO2	9.59	9.62	0.0	0.3	
	ppm CO	0.00	0.01	0.0	0.1	
10	ppm CO	5.56	5.54	0.0	-0.2	00004483
	ppm CO	9.98	10.00	0.0	0.2	

SYSTEM BIAS AND CALBRATION DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	≤ 0.5 DIFF PPM	OR ± 5% SPAN	POSTTEST CHECK	≤ 0.5 DIFF PPM	OR ± 5% SPAN	≤ 0.5 DIFF PPM	OR ≤ 0.3% DRIFT
ppm NOx	0.00	-0.01	-0.01	-0.1	0.00	0.00	0.0	-0.01	0.1
ppm NOx	5.54	5.55	0.01	0.1	5.56	0.02	0.2	-0.01	0.1
% O2	0.01	0.02	0.01	0.0	0.02	0.01	0.0	0.00	0.0
% O2	14.00	13.97	-0.03	-0.1	13.97	-0.03	-0.1	0.00	0.0
% CO2	0.01	0.02	0.01	0.1	0.02	0.01	0.1	0.00	0.0
% CO2	5.07	5.06	-0.01	-0.1	5.04	-0.03	-0.3	0.02	-0.2
ppm CO	0.01	-0.05	-0.06	-0.6	-0.06	-0.07	-0.7	0.01	-0.1
ppm CO	5.54	5.53	-0.01	-0.1	5.52	-0.02	-0.2	0.01	-0.1

UNCORRECTED REFERENCE DATA

Date / Time	NOx PPM	% O2	% CO2	CO PPM
2/28/2013 12:58	2.89	13.71	4.06	0.41
2/28/2013 13:00	2.89	13.71	4.06	0.40
2/28/2013 13:02	2.86	13.71	4.06	0.41
2/28/2013 13:04	2.87	13.70	4.06	0.43
2/28/2013 13:06	2.93	13.70	4.06	0.45
2/28/2013 13:08	2.90	13.69	4.06	0.45
2/28/2013 13:10	2.86	13.70	4.06	0.44
2/28/2013 13:12	2.84	13.70	4.06	0.42
2/28/2013 13:14	2.88	13.70	4.06	0.42
2/28/2013 13:16	2.85	13.69	4.06	0.44
2/28/2013 13:18	2.84	13.70	4.06	0.43
2/28/2013 13:20	2.85	13.69	4.06	0.41
AVERAGE	2.87	13.70	4.06	0.43

CORRECTED RESULTS	
NOx PPM	2.85
% O2	13.73
% CO2	4.07
CO PPM	0.48
CORRECTED NOx PPM	2.34
LB/MMBTU NOx	0.009

F Factor 8710

FLORIDA POWER AND LIGHT CO.
MANATEE UNIT NO. CT-3D

Test Date: 02/28/13 **Run 9**

ANALYZER CALIBRATION ERROR DATA

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	≤ 0.5 DIFF PPM	OR ± 2% % SPAN	ANALYZER SERIAL #
	ppm NOx	0.00	0.00	0.0	0.0	
10	ppm NOx	5.51	5.54	0.0	0.3	0600314587
	ppm NOx	9.72	9.78	0.1	0.6	
	% O2	0.00	0.01	0.0	0.0	
25	% O2	14.00	14.00	0.0	0.0	1420/B701/932
	% O2	24.36	24.39	0.0	0.1	
	% CO2	0.00	0.01	0.0	0.1	
10	% CO2	5.07	5.07	0.0	0.0	1415D3453
	% CO2	9.59	9.62	0.0	0.3	
	ppm CO	0.00	0.01	0.0	0.1	
10	ppm CO	5.56	5.54	0.0	-0.2	00004483
	ppm CO	9.98	10.00	0.0	0.2	

SYSTEM BIAS AND CALBRATION DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	≤ 0.5 DIFF PPM	OR ± 5% SPAN	POSTTEST CHECK	≤ 0.5 DIFF PPM	OR ± 5% SPAN	≤ 0.5 DIFF PPM	OR ≤ 0.3% DRIFT
ppm NOx	0.00	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.0
ppm NOx	5.54	5.56	0.02	0.2	5.57	0.03	0.3	-0.01	0.1
% O2	0.01	0.02	0.01	0.0	0.02	0.01	0.0	0.00	0.0
% O2	14.00	13.97	-0.03	-0.1	13.96	-0.04	-0.2	0.01	0.0
% CO2	0.01	0.02	0.01	0.1	0.02	0.01	0.1	0.00	0.0
% CO2	5.07	5.04	-0.03	-0.3	5.05	-0.02	-0.2	-0.01	0.1
ppm CO	0.01	-0.06	-0.07	-0.7	-0.07	-0.08	-0.8	0.01	-0.1
ppm CO	5.54	5.52	-0.02	-0.2	5.46	-0.08	-0.8	0.06	-0.6

UNCORRECTED REFERENCE DATA

Date / Time	NOx PPM	% O2	% CO2	CO PPM
2/28/2013 13:30	2.87	13.68	4.05	0.38
2/28/2013 13:32	2.85	13.69	4.06	0.41
2/28/2013 13:34	2.91	13.69	4.06	0.42
2/28/2013 13:36	2.93	13.69	4.06	0.41
2/28/2013 13:38	2.91	13.70	4.05	0.41
2/28/2013 13:40	2.86	13.69	4.05	0.43
2/28/2013 13:42	2.82	13.69	4.05	0.44
2/28/2013 13:44	2.86	13.69	4.05	0.43
2/28/2013 13:46	2.85	13.70	4.06	0.41
2/28/2013 13:48	2.85	13.70	4.06	0.39
2/28/2013 13:50	2.86	13.70	4.06	0.37
2/28/2013 13:52	2.86	13.70	4.06	0.39
AVERAGE	2.87	13.69	4.06	0.41

CORRECTED RESULTS	
NOx PPM	2.84
% O2	13.73
% CO2	4.07
CO PPM	0.47
CORRECTED NOx PPM	2.34
LB/MMBTU NOx	0.009

F Factor 8710

APPENDIX C

PROTOCOL GAS CERTIFICATIONS

AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott™

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

FLORIDA P&L EMISSIONS TEST GROUP
14925 SW 67TH AVENUE
ATTN: ARTURO MOCHA
MIAMI FL 33158

PROJECT #: 01-25155-002
PO#: CEM6035
ITEM #: 0101841 AL
DATE: 07Jun2010

CYLINDER #: AAL12781
FILL PRESSURE: 02000 PSIG PRODUCT EXPIRATION: 07Jun2013

PURE MATERIAL: NITROGEN CAS# 7727-37-9

GRADE: ACID RAIN CEM 0

PURITY: 99.9995%

IMPURITY	MAXIMUM CONCENTRATIONS	ACTUAL CONCENTRATIONS
SO2	0.1 PPM	< 0.1 PPM
NOX	0.1 PPM	< 0.1 PPM
CO	0.5 PPM	< 0.5 PPM
CO2	1 PPM	< 1 PPM
THC	0.1 PPM	< 0.1 PPM
H2O	2 PPM	< 2 PPM
O2	0.5 PPM	< 0.5 PPM

QC BATCH : 26252B

ANALYST: STEVEN A JANKOWSKI

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: A12012

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

P.O. No.: CEM6035
Document # : 44454188-007

Customer
FLORIDA POWER & LIGHT-TURKEY PT FOS

9700 SW 344 ST
HOMESTEAD FL 33035
US

ANALYTICAL INFORMATION Gas Type : NC

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

Cylinder Number: AAL070858 **Certification Date:** 03Jan2012 **Exp. Date:** 02Jan2014
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
NITRIC OXIDE	9.72	PPM	+/- 1%	Direct NIST and VSL
CARBON MONOXIDE	9.98	PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	9.75	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	KAL004096	10.12 PPM	NITRIC OXIDE
NTRM 1677	01Jun2012	KAL003966	9.855 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
HORIBA/CLA220/5708850810	19Dec2011	CHEMILUMINESCENCE
SIEMENS/ULTRAMAT 6E/R8-236	21Dec2011	CO/CO2 ANALYZER

ANALYZER READINGS

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

NITRIC OXIDE

First Triad Analysis
Date: 27Dec2011 Response Unit:VOLTS
Z1=-0.00280 R1=4.70020 T1=2.23770
R2=4.69380 Z2=-0.00140 T2=2.24010
Z3=0.00380 T3=2.23850 R3=4.69380
Avg. Concentration: 9.721 PPM

Second Triad Analysis
Date: 03Jan2012 Response Unit: VOLTS
Z1=0.00270 R1=2.31650 T1=2.22390
R2=2.31260 Z2=-0.00160 T2=2.22010
Z3=0.00480 T3=2.22410 R3=2.31130
Avg. Concentration: 9.724 PPM

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999994485
Constants: A=0.03982551
B=4.395950883 C=
D= E=

CARBON MONOXIDE

First Triad Analysis
Date: 27Dec2011 Response Unit:VOLTS
Z1=-0.07330 R1=4.84910 T1=4.90970
R2=4.85120 Z2=-0.05900 T2=4.91300
Z3=-0.04600 T3=4.91280 R3=4.84770
Avg. Concentration: 9.970 PPM

Second Triad Analysis
Date: 03Jan2012 Response Unit: VOLTS
Z1=-0.00590 R1=4.86130 T1=4.91410
R2=4.84760 Z2=-0.00610 T2=4.91730
Z3=0.00490 T3=4.93160 R3=4.86050
Avg. Concentration: 9.980 PPM

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999993964
Constants: A=0.06775407
B=2.081049812 C=-0.0135039
D= E=

APPROVED BY: JAMES L. MCHALE

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: A12013

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

P.O. No.: CEM6035
Document # : 48971265-005

Customer
FLORIDA POWER & LIGHT - EMISSIONS T

14925 SW 67TH AVENUE
ATTN: ARTURO MOCHA
MIAMI FL 33158
US

ANALYTICAL INFORMATION Gas Type : CO,NO,BALN

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

Cylinder Number: AAL13304 **Certification Date:** 03Jan2013 **Exp. Date:** 04Jan2016
Cylinder Pressure*:** 2000 PSIG **Batch No:** PLU0154723

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
NITRIC OXIDE	5.51	PPM	+/- 1%	Direct NIST and VSL
CARBON MONOXIDE	5.56	PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	5.51	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	31May2016	KAL004319	20.34 PPM	NITRIC OXIDE
NTRM 1677	14Mar2018	KAL003977	9.855 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
HORIBA/CLA220/5708850810	03Dec2012	CHEMILUMINESCENCE
SIEMENS/ULTRAMAT 6E/R8-236	28Dec2012	CO/CO2 ANALYZER

ANALYZER READINGS

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

NITRIC OXIDE

First Triad Analysis	Second Triad Analysis	Calibration Curve
Date: 04Dec2012 Response Unit:VOLTS	Date: 31Dec2012 Response Unit: VOLTS	Concentration=A+Bx+Cx2+Dx3+Ex4
Z1=0.01050 R1=4.50170 T1=1.22020	Z1=-0.00050 R1=4.48550 T1=1.21220	r=0.999995361 2629
R2=4.50050 Z2=0.00890 T2=1.22140	R2=4.48140 Z2=0.01040 T2=1.21050	Constants: A=0.003794196
Z3=0.00940 T3=1.21900 R3=4.49910	Z3=0.00440 T3=1.20860 R3=4.48070	B=4.663715258 C=
Avg. Concentration: 5.520 PPM	Avg. Concentration: 5.510 PPM	D= E=

CARBON MONOXIDE

First Triad Analysis	Second Triad Analysis	Calibration Curve
Date: 27Dec2012 Response Unit:VOLTS	Date: 03Jan2013 Response Unit: VOLTS	Concentration=A+Bx+Cx2+Dx3+Ex4
Z1=0.03920 R1=4.84960 T1=2.71430	Z1=-0.02270 R1=4.88590 T1=2.69170	r=0.999994308 1677
R2=4.86370 Z2=0.03250 T2=2.72000	R2=4.87010 Z2=-0.04520 T2=2.69330	Constants: A=-0.02076432
Z3=0.03380 T3=2.70690 R3=4.85470	Z3=-0.02270 T3=2.70470 R3=4.87620	B=2.063698238 C=-0.0105004
Avg. Concentration: 5.570 PPM	Avg. Concentration: 5.540 PPM	D= E=

APPROVED BY: DAVID ASHNOFF

Airgas

Airgas Specialty Gases
630 United Drive
Durham, NC 27713
919-544-3773 Fax: 919-544-3774
www.airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E03NI65E15AC425	Reference Number:	122-124295483-1
Cylinder Number:	CC354935	Cylinder Volume:	152 Cu.Ft.
Laboratory:	ASG - Durham - NC	Cylinder Pressure:	2015 PSIG
PGVP Number:	B22011	Valve Outlet:	296
		Analysis Date:	Dec 22, 2011

Expiration Date: Dec 22, 2014

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON DIOXIDE	9.750 %	9.585 %	G1	+/- 1% NIST Traceable
OXYGEN	24.38 %	24.36 %	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	060608	CC207968	22.51% OXYGEN/NITROGEN	May 01, 2016
090606	090606	CC262103	9.921% CARBON DIOXIDE/NITROGEN	Apr 10, 2013

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Horiba VIA-510 CO2	Infrared	Nov 30, 2011
Horiba MPA-510 O2 (0-25%)	Paramagnetic	Nov 30, 2011

Triad Data Available Upon Request

Notes:

Approved for Release

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: A12012

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

P.O. No.: CEM6035
Document # : 45397554-003

Customer
FLORIDA P&L

EMISSIONS TEST GROUP
14925 SW 67TH AVENUE
MIAMI FL 33158
US

ANALYTICAL INFORMATION Gas Type : OC2

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

Cylinder Number: ALM003011 **Certification Date:** 19Mar2012 **Exp. Date:** 18Mar2015
Cylinder Pressure*:** 2000 PSIG **Batch No:** PLU0087372

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
OXYGEN	14.0	%	+/- 1%	Direct NIST and VSL
CARBON DIOXIDE	5.07	%	+/- 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 2658	01Feb2016	K024803	10.03 %	OXYGEN
NTRM 1800	02Oct2012	K004903	17.87 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
MTI/M200/170927	23Feb2012	GC-TCD
MTI/M200/170927	07Mar2012	GC-TCD

ANALYZER READINGS

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

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

OXYGEN
Date: 19Mar2012 Response Unit:AREA
Z1=0.00000 R1=163423.0 T1=228573.0
R2=163363.0 Z2=0.00000 T2=228441.0
Z3=0.00000 T3=228366.0 R3=163139.0
Avg. Concentration: 14.00 %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=.999998459 2659
Constants: A=-0.00334264
B=6.14749E-05 C=
D= E=

CARBON DIOXIDE
Date: 19Mar2012 Response Unit:AREA
Z1=0.00000 R1=186687.0 T1=189039.0
R2=186692.0 Z2=0.00000 T2=188931.0
Z3=0.00000 T3=188887.0 R3=186641.0
Avg. Concentration: 5.070 %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=.999999008 1800
Constants: A=-0.0057696
B=2.67913E-05 C=
D= E=

APPROVED BY: JOHN C. FITZ

APPENDIX D

CEM DATA SHEETS

Babcock & Wilcox Power Generation Group NetDAHS© Version 46.0

Average Values Report
Generated: 2/28/2013 09:38

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/28/2013 09:14
Period End: 2/28/2013 09:36
Validation Type: 1/2 min
Averaging Period: 2 min
Type: Block Avg

Period Start:	Average 3D_O2 %	Average 3D_NOX ppm	Average 3D_NOXCORR ppm	Average 3DNOXMMBTU #/MBTU	Average 3D_CO ppm	Average 3D_MW_TOT MW
02/28/2013 09:14	13.7	2.8	2.3	0.008	0.3	271.1
02/28/2013 09:16	13.7	2.8	2.3	0.008	0.3	270.4
02/28/2013 09:18	13.7	2.8	2.3	0.008	0.3	272.8
02/28/2013 09:20	13.7	2.8	2.3	0.008	0.3	274.2
02/28/2013 09:22	13.7	2.8	2.3	0.008	0.3	274.4
02/28/2013 09:24	13.7	2.8	2.3	0.008	0.3	277.2
02/28/2013 09:26	13.7	2.8	2.3	0.008	0.3	277.6
02/28/2013 09:28	13.7	2.8	2.3	0.008	0.3	276.7
02/28/2013 09:30	13.7	2.8	2.3	0.008	0.3	275.7
02/28/2013 09:32	13.7	2.8	2.3	0.008	0.3	273.7
02/28/2013 09:34	13.7	2.8	2.3	0.008	0.4	274.0
02/28/2013 09:36	13.7	2.8	2.3	0.008	0.3	273.7
Daily Average*	**13.7**	**2.8**	**2.3**	**0.008**	**0.3**	**274.3**
Maximum*	**13.7**	**2.8**	**2.3**	**0.008**	**0.4**	**277.6**
	02/28/2013 9:36	02/28/2013 9:36	02/28/2013 9:36	02/28/2013 9:36	02/28/2013 9:34	02/28/2013 9:26
Minimum*	**13.7**	**2.8**	**2.3**	**0.008**	**0.3**	**270.4**
	02/28/2013 9:36	02/28/2013 9:36	02/28/2013 9:36	02/28/2013 9:36	02/28/2013 9:36	02/28/2013 9:16

* Does not include Invalid Averaging Periods ("N/A")

Average Values Report
Generated: 2/28/2013 10:51

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/28/2013 09:46
Period End: 2/28/2013 10:08
Validation Type: 1/2 min
Averaging Period: 2 min
Type: Block Avg

Period Start:	Average 3D_O2 %	Average 3D_NOX ppm	Average 3D_NOXCORR ppm	Average 3DNOXMMBTU #/MBTU	Average 3D_CO ppm	Average 3D_MW_TOT MW
02/28/2013 09:46	13.7	2.8	2.3	0.008	0.3	274.1
02/28/2013 09:48	13.7	2.8	2.3	0.008	0.3	273.5
02/28/2013 09:50	13.7	2.8	2.3	0.008	0.3	274.0
02/28/2013 09:52	13.7	2.8	2.3	0.008	0.3	273.8
02/28/2013 09:54	13.7	2.8	2.3	0.008	0.3	273.3
02/28/2013 09:56	13.7	2.8	2.3	0.008	0.3	273.1
02/28/2013 09:58	13.7	2.8	2.3	0.008	0.3	272.8
02/28/2013 10:00	13.7	2.8	2.3	0.008	0.3	273.0
02/28/2013 10:02	13.7	2.8	2.3	0.008	0.3	273.2
02/28/2013 10:04	13.7	2.8	2.3	0.008	0.3	272.9
02/28/2013 10:06	13.7	2.8	2.3	0.008	0.3	273.1
02/28/2013 10:08	13.8	2.8	2.3	0.009	0.3	272.3
Daily Average*	**13.7**	**2.8**	**2.3**	**0.008**	**0.3**	**273.3**
Maximum*	**13.8**	**2.8**	**2.3**	**0.009**	**0.3**	**274.1**
	02/28/2013 10:08	02/28/2013 10:08	02/28/2013 10:08	02/28/2013 10:08	02/28/2013 10:08	02/28/2013 9:46
Minimum*	**13.7**	**2.8**	**2.3**	**0.008**	**0.3**	**272.3**
	02/28/2013 10:06	02/28/2013 10:08	02/28/2013 10:08	02/28/2013 10:06	02/28/2013 10:08	02/28/2013 10:08

* Does not include Invalid Averaging Periods ("N/A")

Average Values Report
Generated: 2/28/2013 10:54

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/28/2013 10:18
Period End: 2/28/2013 10:40
Validation Type: 1/2 min
Averaging Period: 2 min
Type: Block Avg

Period Start:	Average 3D_O2 %	Average 3D_NOX ppm	Average 3D_NOXCORR ppm	Average 3DNOXMMBTU #/MBTU	Average 3D_CO ppm	Average 3D_MW_TOT MW
02/28/2013 10:18	13.8	2.7	2.2	0.008	0.3	270.6
02/28/2013 10:20	13.8	2.7	2.2	0.008	0.3	268.7
02/28/2013 10:22	13.8	2.7	2.2	0.008	0.3	264.5
02/28/2013 10:24	13.8	2.7	2.2	0.008	0.3	265.6
02/28/2013 10:26	13.8	2.7	2.2	0.008	0.3	267.0
02/28/2013 10:28	13.8	2.7	2.2	0.008	0.3	266.7
02/28/2013 10:30	13.8	2.7	2.2	0.008	0.3	265.3
02/28/2013 10:32	13.8	2.7	2.2	0.008	0.3	265.1
02/28/2013 10:34	13.8	2.7	2.2	0.008	0.3	266.4
02/28/2013 10:36	13.8	2.7	2.2	0.008	0.3	265.8
02/28/2013 10:38	13.8	2.7	2.2	0.008	0.3	266.3
02/28/2013 10:40	13.8	2.8	2.3	0.009	0.3	266.8
Daily Average*	**13.8**	**2.7**	**2.2**	**0.008**	**0.3**	**266.6**
Maximum*	**13.8**	**2.8**	**2.3**	**0.009**	**0.3**	**270.6**
	02/28/2013 10:40	02/28/2013 10:40	02/28/2013 10:40	02/28/2013 10:40	02/28/2013 10:40	02/28/2013 10:18
Minimum*	**13.8**	**2.7**	**2.2**	**0.008**	**0.3**	**264.5**
	02/28/2013 10:40	02/28/2013 10:38	02/28/2013 10:38	02/28/2013 10:38	02/28/2013 10:40	02/28/2013 10:22

* Does not include Invalid Averaging Periods ("N/A")

Average Values Report
Generated: 2/28/2013 11:30

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/28/2013 10:50
Period End: 2/28/2013 11:12
Validation Type: 1/2 min
Averaging Period: 2 min
Type: Block Avg

Period Start:	Average 3D_O2 %	Average 3D_NOX ppm	Average 3D_NOXCORR ppm	Average 3DNOXMMBTU #/MBTU	Average 3D_CO ppm	Average 3D_MW_TOT MW
02/28/2013 10:50	13.8	2.7	2.2	0.008	0.3	264.0
02/28/2013 10:52	13.8	2.7	2.2	0.008	0.3	264.2
02/28/2013 10:54	13.8	2.8	2.3	0.009	0.3	264.8
02/28/2013 10:56	13.8	2.8	2.3	0.009	0.3	265.0
02/28/2013 10:58	13.8	2.8	2.3	0.009	0.3	264.5
02/28/2013 11:00	13.8	2.8	2.3	0.009	0.3	264.1
02/28/2013 11:02	13.8	2.8	2.3	0.009	0.3	263.1
02/28/2013 11:04	13.8	2.7	2.2	0.008	0.3	263.6
02/28/2013 11:06	13.8	2.7	2.2	0.008	0.3	263.5
02/28/2013 11:08	13.8	2.7	2.2	0.008	0.3	264.2
02/28/2013 11:10	13.8	2.8	2.3	0.009	0.3	264.4
02/28/2013 11:12	13.8	2.7	2.2	0.008	0.3	263.7
Daily Average*	**13.8**	**2.8**	**2.3**	**0.008**	**0.3**	**264.1**
Maximum*	**13.8**	**2.8**	**2.3**	**0.009**	**0.3**	**265.0**
	02/28/2013 11:12	02/28/2013 11:10	02/28/2013 11:10	02/28/2013 11:10	02/28/2013 11:12	02/28/2013 10:56
Minimum*	**13.8**	**2.7**	**2.2**	**0.008**	**0.3**	**263.1**
	02/28/2013 11:12	02/28/2013 11:12	02/28/2013 11:12	02/28/2013 11:12	02/28/2013 11:12	02/28/2013 11:02

* Does not include Invalid Averaging Periods ("N/A")

Average Values Report
Generated: 2/28/2013 11:55

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/28/2013 11:22
Period End: 2/28/2013 11:44
Validation Type: 1/2 min
Averaging Period: 2 min
Type: Block Avg

Period Start:	Average 3D_O2 %	Average 3D_NOX ppm	Average 3D_NOXCORR ppm	Average 3DNOXMMBTU #/MBTU	Average 3D_CO ppm	Average 3D_MW_TOT MW
02/28/2013 11:22	13.8	2.8	2.3	0.009	0.3	262.5
02/28/2013 11:24	13.8	2.8	2.3	0.009	0.3	262.0
02/28/2013 11:26	13.8	2.8	2.3	0.009	0.3	262.1
02/28/2013 11:28	13.8	2.8	2.3	0.009	0.3	262.0
02/28/2013 11:30	13.8	2.7	2.2	0.008	0.3	261.5
02/28/2013 11:32	13.8	2.8	2.3	0.009	0.3	261.5
02/28/2013 11:34	13.8	2.8	2.3	0.009	0.3	262.1
02/28/2013 11:36	13.8	2.8	2.3	0.009	0.3	262.0
02/28/2013 11:38	13.8	2.8	2.3	0.009	0.3	261.9
02/28/2013 11:40	13.8	2.7	2.2	0.008	0.3	262.3
02/28/2013 11:42	13.8	2.7	2.2	0.008	0.3	261.0
02/28/2013 11:44	13.8	2.8	2.3	0.009	0.3	261.5
Daily Average*	**13.8**	**2.8**	**2.3**	**0.009**	**0.3**	**261.9**
Maximum*	**13.8**	**2.8**	**2.3**	**0.009**	**0.3**	**262.5**
	02/28/2013 11:44	02/28/2013 11:44	02/28/2013 11:44	02/28/2013 11:44	02/28/2013 11:44	02/28/2013 11:22
Minimum*	**13.8**	**2.7**	**2.2**	**0.008**	**0.3**	**261.0**
	02/28/2013 11:44	02/28/2013 11:42	02/28/2013 11:42	02/28/2013 11:42	02/28/2013 11:44	02/28/2013 11:42

* Does not include Invalid Averaging Periods ("N/A")

Average Values Report
Generated: 2/28/2013 12:22

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/28/2013 11:54
Period End: 2/28/2013 12:16
Validation Type: 1/2 min
Averaging Period: 2 min
Type: Block Avg

Period Start:	Average 3D_O2 %	Average 3D_NOX ppm	Average 3D_NOXCORR ppm	Average 3DNOXMMBTU #/MBTU	Average 3D_CO ppm	Average 3D_MW_TOT MW
02/28/2013 11:54	13.8	2.8	2.3	0.009	0.3	261.3
02/28/2013 11:56	13.8	2.7	2.2	0.008	0.3	262.3
02/28/2013 11:58	13.8	2.8	2.3	0.009	0.3	261.0
02/28/2013 12:00	13.8	2.8	2.3	0.009	0.3	260.0
02/28/2013 12:02	13.8	2.8	2.3	0.009	0.3	260.7
02/28/2013 12:04	13.8	2.8	2.3	0.009	0.3	261.4
02/28/2013 12:06	13.8	2.8	2.3	0.009	0.3	261.8
02/28/2013 12:08	13.8	2.7	2.2	0.008	0.3	261.0
02/28/2013 12:10	13.8	2.7	2.2	0.008	0.3	260.8
02/28/2013 12:12	13.8	2.7	2.2	0.008	0.3	261.0
02/28/2013 12:14	13.8	2.8	2.3	0.009	0.3	261.3
02/28/2013 12:16	13.8	2.7	2.2	0.008	0.3	260.4
Daily Average*	**13.8**	**2.8**	**2.3**	**0.009**	**0.3**	**261.1**
Maximum*	**13.8**	**2.8**	**2.3**	**0.009**	**0.3**	**262.3**
	02/28/2013 12:16	02/28/2013 12:14	02/28/2013 12:14	02/28/2013 12:14	02/28/2013 12:16	02/28/2013 11:56
Minimum*	**13.8**	**2.7**	**2.2**	**0.008**	**0.3**	**260.0**
	02/28/2013 12:16	02/28/2013 12:16	02/28/2013 12:16	02/28/2013 12:16	02/28/2013 12:16	02/28/2013 12:00

* Does not include Invalid Averaging Periods ("N/A")

Average Values Report
Generated: 2/28/2013 12:53

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/28/2013 12:26
Period End: 2/28/2013 12:48
Validation Type: 1/2 min
Averaging Period: 2 min
Type: Block Avg

Period Start:	Average 3D_O2 %	Average 3D_NOX ppm	Average 3D_NOXCORR ppm	Average 3DNOXMMBTU #/MBTU	Average 3D_CO ppm	Average 3D_MW_TOT MW
02/28/2013 12:26	13.8	2.8	2.3	0.009	0.3	261.3
02/28/2013 12:28	13.8	2.8	2.3	0.009	0.3	261.5
02/28/2013 12:30	13.8	2.8	2.3	0.009	0.3	259.8
02/28/2013 12:32	13.8	2.8	2.3	0.009	0.3	258.8
02/28/2013 12:34	13.8	2.8	2.3	0.009	0.3	259.3
02/28/2013 12:36	13.8	2.8	2.3	0.009	0.3	259.4
02/28/2013 12:38	13.8	2.8	2.3	0.009	0.3	259.8
02/28/2013 12:40	13.8	2.7	2.2	0.008	0.3	260.4
02/28/2013 12:42	13.8	2.8	2.3	0.009	0.3	260.9
02/28/2013 12:44	13.8	2.7	2.2	0.008	0.3	258.4
02/28/2013 12:46	13.8	2.8	2.3	0.009	0.3	260.5
02/28/2013 12:48	13.8	2.8	2.3	0.009	0.3	259.8
Daily Average*	**13.8**	**2.8**	**2.3**	**0.009**	**0.3**	**260.0**
Maximum*	**13.8**	**2.8**	**2.3**	**0.009**	**0.3**	**261.5**
	02/28/2013 12:48	02/28/2013 12:48	02/28/2013 12:48	02/28/2013 12:48	02/28/2013 12:48	02/28/2013 12:28
Minimum*	**13.8**	**2.7**	**2.2**	**0.008**	**0.3**	**258.4**
	02/28/2013 12:48	02/28/2013 12:44	02/28/2013 12:44	02/28/2013 12:44	02/28/2013 12:48	02/28/2013 12:44

* Does not include Invalid Averaging Periods ("N/A")

Average Values Report
Generated: 2/28/2013 13:24

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/28/2013 12:58
Period End: 2/28/2013 13:20
Validation Type: 1/2 min
Averaging Period: 2 min
Type: Block Avg

Period Start:	Average 3D_O2 %	Average 3D_NOX ppm	Average 3D_NOXCORR ppm	Average 3DNOXMMBTU #/MBTU	Average 3D_CO ppm	Average 3D_MW_TOT MW
02/28/2013 12:58	13.8	2.8	2.3	0.009	0.3	260.6
02/28/2013 13:00	13.8	2.8	2.3	0.009	0.3	262.8
02/28/2013 13:02	13.8	2.7	2.2	0.008	0.3	261.5
02/28/2013 13:04	13.8	2.8	2.3	0.009	0.3	262.6
02/28/2013 13:06	13.8	2.8	2.3	0.009	0.3	262.0
02/28/2013 13:08	13.8	2.8	2.3	0.009	0.3	261.4
02/28/2013 13:10	13.8	2.7	2.2	0.008	0.3	260.8
02/28/2013 13:12	13.8	2.7	2.2	0.008	0.3	261.7
02/28/2013 13:14	13.8	2.8	2.3	0.009	0.3	260.4
02/28/2013 13:16	13.8	2.8	2.3	0.009	0.3	260.3
02/28/2013 13:18	13.8	2.7	2.2	0.008	0.3	260.2
02/28/2013 13:20	13.8	2.7	2.2	0.008	0.3	260.8
Daily Average*	**13.8**	**2.8**	**2.3**	**0.009**	**0.3**	**261.3**
Maximum*	**13.8**	**2.8**	**2.3**	**0.009**	**0.3**	**262.8**
	02/28/2013 13:20	02/28/2013 13:16	02/28/2013 13:16	02/28/2013 13:16	02/28/2013 13:20	02/28/2013 13:00
Minimum*	**13.8**	**2.7**	**2.2**	**0.008**	**0.3**	**260.2**
	02/28/2013 13:20	02/28/2013 13:20	02/28/2013 13:20	02/28/2013 13:20	02/28/2013 13:20	02/28/2013 13:18

* Does not include Invalid Averaging Periods ("N/A")

Average Values Report
Generated: 2/28/2013 13:54

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/28/2013 13:30
Period End: 2/28/2013 13:52
Validation Type: 1/2 min
Averaging Period: 2 min
Type: Block Avg

Period Start:	Average 3D_O2 %	Average 3D_NOX ppm	Average 3D_NOXCORR ppm	Average 3DNOXMMBTU #/MBTU	Average 3D_CO ppm	Average 3D_MW_TOT MW
02/28/2013 13:30	13.8	2.8	2.3	0.009	0.3	261.9
02/28/2013 13:32	13.8	2.7	2.2	0.008	0.3	258.6
02/28/2013 13:34	13.8	2.8	2.3	0.009	0.3	258.3
02/28/2013 13:36	13.8	2.8	2.3	0.009	0.3	258.8
02/28/2013 13:38	13.8	2.8	2.3	0.009	0.3	260.3
02/28/2013 13:40	13.8	2.7	2.2	0.008	0.3	258.4
02/28/2013 13:42	13.8	2.7	2.2	0.008	0.3	259.3
02/28/2013 13:44	13.8	2.7	2.2	0.008	0.3	260.7
02/28/2013 13:46	13.8	2.7	2.2	0.008	0.3	260.8
02/28/2013 13:48	13.8	2.7	2.2	0.008	0.3	262.5
02/28/2013 13:50	13.8	2.7	2.2	0.008	0.3	261.2
02/28/2013 13:52	13.8	2.7	2.2	0.008	0.3	260.4
Daily Average*	**13.8**	**2.7**	**2.2**	**0.008**	**0.3**	**260.1**
Maximum*	**13.8**	**2.8**	**2.3**	**0.009**	**0.3**	**262.5**
	02/28/2013 13:52	02/28/2013 13:38	02/28/2013 13:38	02/28/2013 13:38	02/28/2013 13:52	02/28/2013 13:48
Minimum*	**13.8**	**2.7**	**2.2**	**0.008**	**0.3**	**258.3**
	02/28/2013 13:52	02/28/2013 13:52	02/28/2013 13:52	02/28/2013 13:52	02/28/2013 13:52	02/28/2013 13:34

* Does not include Invalid Averaging Periods ("N/A")

FLORIDA POWER & LIGHT COMPANY, P.O. BOX 14000, JUNO BEACH, FL 33408-0420

FPL

To: Mary Maxwell - PMT/PMT

Date: March 25-27, 2013

From: Arturo Mocha

Department: Emission Test Group

Subject: **NOx & O2 Linearity Check**
1st Quarter 2013
Manatee Unit No. 3A – 3D
19050 State Road 62
Parrish, Florida 34219

A NOx & O2 Linearity Check was conducted at Manatee Unit No.3A - 3D CEM system on March 7 & 8, 2012 by the Emission Test Group. Due to the RATA being performed this quarter the CO CGA was not conducted. Methods according to 40 CFR 75 Appendix A and 40 CFR 60 Appedix F were used for accuracy determination.

A summary of the pertinent data and condition assessment of the CEM's shelter is attached.

If you have any questions regarding this test, please contact me at the Cutler Emissions Office, 242 - 3881.

Arturo Mocha

Arturo J. Mocha
Florida Power & Light
Emission Technician

FLORIDA POWER & LIGHT
CONTINIOUS EMISSION MONITORS
LINEARITY CHECK WORKSHEET

Plant: Manatee
Unit: 3D

Date: 02/25/13 Quarter: 1st 2013
Technician: J. Schwartz

NOx ANALYZER
Manufacturer TECO
Model # 42ILS
Serial # 1233555758
Span Setting 0 - 200 ppm
Component ID 002
Monitoring Sys. ID D02
Unit/Stack ID PMT3D

	Time (EST)	Reference Value	Monitor Value	PPM Difference	Linearity Error	PROTOCOL 1 TANK SERIAL #	+/- 5ppm
Low	1448	50.00	52.10	-2.10	+/- 5%		
	1501	50.00	51.40	-1.40		ALM056124	
	1513	50.00	51.40	-1.40	3.3		PASS
Mid	1452	108.6	110.70	-2.10			
	1505	108.6	110.90	-2.30		ALM057850	
	1517	108.6	110.40	-1.80	1.9		PASS
High	1457	179.6	180.00	-0.40			
	1509	179.6	179.90	-0.30		AAL19327	
	1521	179.6	179.40	0.20	0.1		PASS

CO ANALYZER
Manufacturer TECO
Model # 48C
Serial # 0335003689
Span Setting 0 - 1200 ppm
Component ID
Monitoring Sys. ID
Unit/Stack ID PMT3D

	Time (EST)	Reference Value	Monitor Value	PPM Difference	Linearity Error	PROTOCOL 1 TANK SERIAL #	+/- 5ppm
Low	1448	0.00	0.00	0.00	+/- 15%		#DIV/0!
	1501	0.00	0.00	0.00		ALM056124	
	1513	0.00	0.00	0.00	#DIV/0!		#DIV/0!
Mid	1452	0.00	0.00	0.00			
	1505	0.00	0.00	0.00		ALM057850	
	1517	0.00	0.00	0.00	#DIV/0!		#DIV/0!
High	1457	0.00	0.00	0.00			
	1509	0.00	0.00	0.00		AAL19327	
	1521	0.00	0.00	0.00	#DIV/0!		#DIV/0!

FLORIDA POWER & LIGHT
CONTINIOUS EMISSION MONITORS
LINEARITY CHECK WORKSHEET

Plant: Manatee
Unit: 3D

Date: 02/25/13 Quarter: 1st 2013
Technician: J. Schwartz

CO ANALYZER	
Manufacturer	TECO
Model #	48C
Serial #	0335003689
Span Setting	0 - 10 ppm
Component ID	
Monitoring Sys. ID	
Unit/Stack ID	PMT3D

	Time (EST)	Reference Value	Monitor Value	PPM Difference	Linearity Error	PROTOCOL 1 TANK SERIAL #	+/- 5ppm
Low	0	0.00	0.00	0.00	+/- 15%		#DIV/0!
	0	0.00	0.00	0.00		0	
	0	0.00	0.00	0.00	#DIV/0!		#DIV/0!
Mid	0	0.00	0.00	0.00			
	0	0.00	0.00	0.00		0	
	0	0.00	0.00	0.00	#DIV/0!		#DIV/0!
High	0	0.00	0.00	0.00			
	0	0.00	0.00	0.00		0	
	0	0.00	0.00	0.00	#DIV/0!		#DIV/0!

O2 ANALYZER	
Manufacturer	Servomex
Model #	1440C
Serial #	01440DI/4707
Span Setting	0 - 25 %
Component ID	003
Monitoring Sys. ID	D02
Unit/Stack ID	PMT3D

	Time (EST)	Reference Value	Monitor Value	PPM Difference	Linearity Error	PROTOCOL 1 TANK SERIAL #	+/- 0.5 diff
Low	1526	6.230	6.10	-0.13	+/- 5%		
	1538	6.230	6.20	-0.03		ALM035771	
	1550	6.230	6.20	-0.03	1.0		PASS
Mid	1530	13.70	13.50	-0.20			
	1542	13.70	13.60	-0.10		ALM000587	
	1554	13.70	13.60	-0.10	1.0		PASS
High	1534	20.90	20.70	-0.20			
	1546	20.90	20.70	-0.20		Inst. Air	
	1558	20.90	20.70	-0.20	1.0		PASS

AIR LIQUIDE SPECIALTY GASES Scott

Download as...

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: Interference Free™ Multi-Component 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.: 2000059847
Document # : 49336398-004
Folio #:NO/CO HIGH RANGE

Customer
FLORIDA POWER
19050 STATE ROAD 62
MANATEE PLANT STOREROOM
PARRISH, FL 34219

ANALYTICAL INFORMATION Gas Type : CO,NO,BALN

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

Cylinder Number: AAL19327
Cylinder Pressure***: 2004 PSIG

Certification Date: 22Oct2012

Exp. Date: 23Oct2020
Batch No: PLU0137993

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON MONOXIDE	1,045 PPM	+/- 1%	Direct NIST and VSL
NITRIC OXIDE	179.6 PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE	BALANCE		
TOTAL OXIDES OF NITROGEN	180.4 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 1681	15Jun2016	KAL004636	970.0 PPM	CARBON MONOXIDE
NTRM 1685	04Jan2018	KAL004337	242.0 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000928781	04Oct2012	FTIR
FTIR//000928781	27Sep2012	FTIR

ANALYZER READINGS

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

First Triad Analysis	Second Triad Analysis	Calibration Curve
CARBON MONOXIDE		
Date: 15Oct2012 Response Unit: PPM	Date: 22Oct2012 Response Unit: PPM	Concentration=A+Bx+Cx2+Dx3+Ex4
Z1=-0.01473 R1=969.4990 T1=1045.678	Z1=0.01834 R1=971.5912 T1=1045.406	r=0.99999E-1
R2=970.4424 Z2=0.00215 T2=1046.449	R2=971.6269 Z2=0.47476 T2=1045.773	Constants: A=0.00000E+0
Z3=0.04713 T3=1045.675 R3=970.7772	Z3=0.61641 T3=1046.746 R3=971.9585	B=2.62822E-1 C=2.77000E-4
Avg. Concentration: 1046. PPM	Avg. Concentration: 1044. PPM	D=0.00000E+0 E=0.00000E+0
NITRIC OXIDE		
Date: 15Oct2012 Response Unit: PPM	Date: 22Oct2012 Response Unit: PPM	Concentration=A+Bx+Cx2+Dx3+Ex4
Z1=-0.08434 R1=241.2174 T1=179.4129	Z1=-0.18324 R1=241.7276 T1=179.0400	r=0.99999E-1
R2=241.9906 Z2=-0.07061 T2=179.7852	R2=242.0763 Z2=0.15967 T2=179.3244	Constants: A=0.00000E+0
Z3=0.24144 T3=180.0183 R3=242.1560	Z3=0.20287 T3=179.3792 R3=242.3516	B=9.88196E-1 C=4.20000E-5
Avg. Concentration: 179.8 PPM	Avg. Concentration: 179.3 PPM	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: Interference Free™ Multi-Component 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.: CEM-6035
Document # : 44832724-007

Customer
FLORIDA POWER & LIGHT-MARTIN PLANT

21900 SW WARFIELD BLVD
INDIANTOWN FL 34956
US

ANALYTICAL INFORMATION

Gas Type : NC

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

Cylinder Number: ALM056124
Cylinder Pressure***: 1934 PSIG
Certification Date: 06Feb2012
Exp. Date: 05Feb2014

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
NITRIC OXIDE	50.0	PPM	+/- 1%	Direct NIST and VSL
CARBON MONOXIDE	299	PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	50.3	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 1683	15Aug2012	KAL004212	51.08 PPM	NITRIC OXIDE
NTRM 1680	16Jul2016	KAL003733	499.8 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000928781	23Jan2012	FTIR
FTIR//000928791	26Jan2012	FTIR

ANALYZER READINGS

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

NITRIC OXIDE

First Triad Analysis
Date: 30Jan2012 Response Unit:PPM
Z1 = -0.01791 R1 = 50.89475 T1 = 49.97157
R2 = 50.93324 Z2 = -0.00125 T2 = 50.00886
Z3 = 0.04948 T3 = 50.03375 R3 = 50.97059
Avg. Concentration: 50.15 PPM

Second Triad Analysis
Date: 06Feb2012 Response Unit: PPM
Z1 = -0.10472 R1 = 51.02347 T1 = 49.86441
R2 = 51.05995 Z2 = 0.03726 T2 = 49.92033
Z3 = 0.04176 T3 = 49.93660 R3 = 51.08398
Avg. Concentration: 49.93 PPM

Calibration Curve
Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99999E-1
Constants: A = 0.00000E+0
B = 9.93454E-1 C = 1.99000E-4
D = 0.00000E+0 E = 0.00000E+0

CARBON MONOXIDE

First Triad Analysis
Date: 30Jan2012 Response Unit:PPM
Z1 = -0.04508 R1 = 498.8452 T1 = 298.0372
R2 = 499.6545 Z2 = 0.15783 T2 = 298.3017
Z3 = 0.22790 T3 = 298.6368 R3 = 499.7917
Avg. Concentration: 298.5 PPM

Second Triad Analysis
Date: 06Feb2012 Response Unit: PPM
Z1 = -0.03251 R1 = 498.8027 T1 = 298.2768
R2 = 499.2075 Z2 = 0.28629 T2 = 298.4150
Z3 = 0.30250 T3 = 298.7874 R3 = 499.4858
Avg. Concentration: 298.8 PPM

Calibration Curve
Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99998E-1
Constants: A = 0.00000E+0
B = 5.00207E-1 C = 1.16000E-4
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: A12012

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

P.O. No.: CEM-6035
Document # : 47936214-003

Customer
FLORIDA P&L-MARTIN PLT-PO#-CEM ONLY

21900 SW WARFIELD BLVD
INDIANTOWN FL 34956
US

ANALYTICAL INFORMATION

Gas Type : NC

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

Cylinder Number: ALM057850
Cylinder Pressure***: 1937 PSIG
Certification Date: 12Oct2012
Exp. Date: 13Oct2020
Batch No: PLU0135895

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
NITRIC OXIDE	108.6	PPM	+/- 1%	Direct NIST and VSL
CARBON MONOXIDE	662	PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	109.2	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	KAL003334	96.91 PPM	NITRIC OXIDE
NTRM 1681	15Jun2015	KAL004636	970.0 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000928781	27Sep2012	FTIR
FTIR//000928781	04Oct2012	FTIR

ANALYZER READINGS

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

NITRIC OXIDE

First Triad Analysis
Date: 05Oct2012 Response Unit:PPM
Z1=-0.08810 R1=97.44767 T1=109.3322
R2=97.47510 Z2=0.05015 T2=109.3609
Z3=0.08316 T3=109.4598 R3=97.57830
Avg. Concentration: 108.7 PPM

Second Triad Analysis
Date: 12Oct2012 Response Unit: PPM
Z1=-0.01831 R1=97.86546 T1=109.5544
R2=97.97378 Z2=0.10453 T2=109.7058
Z3=0.15130 T3=109.8729 R3=98.10240
Avg. Concentration: 108.5 PPM

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99996E-1
Constants: A=0.00000E+0
B=9.54392E-1 C=1.65000E-4
D=0.00000E+0 E=0.00000E+0

CARBON MONOXIDE

First Triad Analysis
Date: 05Oct2012 Response Unit:PPM
Z1=0.04120 R1=970.8986 T1=662.5860
R2=971.2882 Z2=0.05137 T2=662.8614
Z3=0.14919 T3=662.9351 R3=971.4631
Avg. Concentration: 661.9 PPM

Second Triad Analysis
Date: 12Oct2012 Response Unit: PPM
Z1=-0.10030 R1=970.7243 T1=662.6216
R2=970.9310 Z2=-0.08546 T2=663.2085
Z3=0.16348 T3=663.4193 R3=971.6261
Avg. Concentration: 662.4 PPM

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99999E-1
Constants: A=0.00000E+0
B=2.62822E-1 C=2.77000E-4
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: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A12013

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

P.O. No.: CEM-6035
Document # : 48909576-002

Customer
FLORIDA P&L-MARTIN PLT-PO#-CEM ONLY

21900 SW WARFIELD BLVD
INDIANTOWN FL 34956
US

ANALYTICAL INFORMATION

Gas Type : O2,BALN

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

Cylinder Number: ALM035771
Cylinder Pressure***: 2000 PSIG
Certification Date: 02Jan2013
Exp. Date: 03Jan2021
Batch No: PLU0156079

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
OXYGEN	6.23 %	+/- 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 2658	15May2018	ALM065278	9.930 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
SIEMENS/OXYMAT 61/V1-0407	02Jan2013	PARAMAGNETIC

ANALYZER READINGS

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

First Triad Analysis

OXYGEN
Date: 02Jan2013 Response Unit:VOLTS
Z1=-0.00130 R1=4.94190 T1=3.09780
R2=4.94070 Z2=-0.00170 T2=3.09770
Z3=-0.00190 T3=3.09840 R3=4.94100
Avg. Concentration: 6.230 %

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999555 2658
Constants: A=0.002423536
B=2.009011799 C=
D= E=

APPROVED BY: STEVEN A JANKOWSKI

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: A12012

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

P.O. No.: CEM-6035
Document # : 48909576-003

Customer
FLORIDA P&L-MARTIN PLT-PO#-CEM ONLY

21900 SW WARFIELD BLVD
INDIANTOWN FL 34956
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: ALM000587 Certification Date: 24Dec2012 Exp. Date: 25Dec2020
Cylinder Pressure***: 2000 PSIG Batch No: PLU0165022

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
OXYGEN	13.7 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2350 23	04Jan2018	K004010	23.20 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
SIEMENS/OXYMAT 61/V1-0407	28Nov2012	PARAMAGNETIC

ANALYZER READINGS

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

First Triad Analysis

OXYGEN
Date: 24Dec2012 Response Unit:VOLTS
Z1=-0.00240 R1=4.62250 T1=2.73700
R2=4.62300 Z2=-0.00240 T2=2.73780
Z3=-0.00310 T3=2.73790 R3=4.62130
Avg. Concentration: 13.70 %

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999454 2350
Constants: A=-0.00714114
B=5.023064342 C=
D= E=

APPROVED BY: STEVEN A JANKOWSKI

7 Day Drift Calibration Report

Generated: 3/4/2013

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/20/2013
Period End: 2/28/2013
Included Calibrations: **7 Day Drift (40CFR75)**
No Off Line Calibrations Output

Range of Analyzers:				Span of Analyzers:			
3D NOXLOW	NOx	0.0	10.0 ppm	3D NOXLOW	NOx	0.0	10.0 ppm
3D NOXHIGH	NOx	0.0	200.0 ppm	3D NOXHIGH	NOx	0.0	200.0 ppm
3D O2	O2	0.0	25.0 %	3D O2	O2	0.0	25.0 %
3D COLOW	CO	0.0	10.0 ppm	3D COLOW	CO	0.0	10.0 ppm
3D COHIGH	CO	0.0	1200.0 ppm	3D COHIGH	CO	0.0	1200.0 ppm
3D SCR NOX	NOx	0.0	200.0 ppm	3D SCR NOX	NOx	0.0	200.0 ppm

Date	Time	Channel		Type	Target Units	Actual Units	Diff Units	Error %	Part75 Allowable Units	Part75 Allowable %		Bottle ID	Expire Date
02/28/2013	23:50	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	AAL2097	12/11/2014
02/28/2013	23:50	3D NOXHIGH	NOx	SPAN	179.600	180.800	1.200	0.6	5.000	2.5	PASS	AAL19327	10/23/2020
02/28/2013	07:00	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	AAL2097	12/11/2014
02/28/2013	07:00	3D NOXHIGH	NOx	SPAN	179.600	180.400	0.800	0.4	5.000	2.5	PASS	AAL19327	10/23/2020
02/27/2013	23:50	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	AAL2097	12/11/2014
02/27/2013	23:50	3D NOXHIGH	NOx	SPAN	179.600	180.400	0.800	0.4	5.000	2.5	PASS	AAL19327	10/23/2020
02/27/2013	12:00	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	AAL2097	12/11/2014
02/27/2013	12:00	3D NOXHIGH	NOx	SPAN	179.600	180.300	0.700	0.3	5.000	2.5	PASS	AAL19327	10/23/2020
02/26/2013	23:50	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	AAL2097	12/11/2014
02/26/2013	23:50	3D NOXHIGH	NOx	SPAN	179.600	180.400	0.800	0.4	5.000	2.5	PASS	AAL19327	10/23/2020
02/26/2013	12:00	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	AAL2097	12/11/2014
02/26/2013	12:00	3D NOXHIGH	NOx	SPAN	179.600	179.900	0.300	0.2	5.000	2.5	PASS	AAL19327	10/23/2020
02/25/2013	23:50	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	AAL2097	12/11/2014
02/25/2013	23:50	3D NOXHIGH	NOx	SPAN	179.600	179.500	-0.100	-0.1	5.000	2.5	PASS	AAL19327	10/23/2020
02/25/2013	12:00	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	AAL2097	12/11/2014
02/25/2013	12:00	3D NOXHIGH	NOx	SPAN	179.600	179.900	0.300	0.2	5.000	2.5	PASS	AAL19327	10/23/2020
02/25/2013	06:32	3D NOXHIGH	NOx	ZERO	0.000	0.200	0.200	0.1	5.000	2.5	PASS	AAL2097	12/11/2014
02/25/2013	06:32	3D NOXHIGH	NOx	SPAN	179.600	180.200	0.600	0.3	5.000	2.5	PASS	AAL19327	10/23/2020
02/24/2013	23:50	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	AAL2097	12/11/2014
02/24/2013	23:50	3D NOXHIGH	NOx	SPAN	179.600	180.600	1.000	0.5	5.000	2.5	PASS	AAL19327	10/23/2020
02/23/2013	23:50	3D NOXHIGH	NOx	ZERO	0.000	-0.100	-0.100	-0.1	5.000	2.5	PASS	CC358746	2/2/2014
02/23/2013	23:50	3D NOXHIGH	NOx	SPAN	179.600	180.300	0.700	0.3	5.000	2.5	PASS	AAL19327	10/23/2020
02/23/2013	12:00	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	CC358746	2/2/2014
02/23/2013	12:00	3D NOXHIGH	NOx	SPAN	179.600	179.900	0.300	0.2	5.000	2.5	PASS	AAL19327	10/23/2020
02/22/2013	23:50	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	CC358746	2/2/2014
02/22/2013	23:50	3D NOXHIGH	NOx	SPAN	179.600	180.000	0.400	0.2	5.000	2.5	PASS	AAL19327	10/23/2020
02/22/2013	13:27	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	CC358746	2/2/2014
02/22/2013	13:27	3D NOXHIGH	NOx	SPAN	179.600	179.600	0.000	0.0	5.000	2.5	PASS	AAL19327	10/23/2020
02/22/2013	12:00	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	CC358746	2/2/2014
02/22/2013	12:00	3D NOXHIGH	NOx	SPAN	179.600	184.300	4.700	2.4	5.000	2.5	PASS	AAL19327	10/23/2020
02/21/2013	23:50	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	CC358746	2/2/2014
02/21/2013	23:50	3D NOXHIGH	NOx	SPAN	179.600	184.200	4.600	2.3	5.000	2.5	PASS	AAL19327	10/23/2020
02/21/2013	12:00	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	CC358746	2/2/2014
02/21/2013	12:00	3D NOXHIGH	NOx	SPAN	179.600	184.300	4.700	2.4	5.000	2.5	PASS	AAL19327	10/23/2020
02/20/2013	23:50	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	CC358746	2/2/2014
02/20/2013	23:50	3D NOXHIGH	NOx	SPAN	179.600	184.600	5.000	2.5	5.000	2.5	PASS	AAL19327	10/23/2020
02/20/2013	11:50	3D NOXHIGH	NOx	ZERO	0.000	0.000	0.000	0.0	5.000	2.5	PASS	CC358746	2/2/2014
02/20/2013	11:50	3D NOXHIGH	NOx	SPAN	179.600	182.900	3.300	1.7	5.000	2.5	PASS	AAL19327	10/23/2020
02/28/2013	23:50	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	AAL2097	12/11/2014
02/28/2013	23:50	3D NOXLOW	NOx	SPAN	8.600	8.800	0.200	- N/A -	- N/A -	- N/A -	- N/A -	AAL598	8/17/2014
02/28/2013	07:00	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	AAL2097	12/11/2014
02/28/2013	07:00	3D NOXLOW	NOx	SPAN	8.600	8.600	0.000	- N/A -	- N/A -	- N/A -	- N/A -	AAL598	8/17/2014
02/27/2013	23:50	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	AAL2097	12/11/2014
02/27/2013	23:50	3D NOXLOW	NOx	SPAN	8.600	8.600	0.000	- N/A -	- N/A -	- N/A -	- N/A -	AAL598	8/17/2014
02/27/2013	12:00	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	AAL2097	12/11/2014

7 Day Drift Calibration Report
Generated: 3/4/2013

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/20/2013
Period End: 2/28/2013
Included Calibrations: **7 Day Drift (40CFR75)**
No Off Line Calibrations Output

02/27/2013	12:00	3D NOXLOW	NOx	SPAN	8.600	8.600	0.000	- N/A -	- N/A -	- N/A -	- N/A -		AAL598	8/17/2014
02/26/2013	23:50	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -		AAL2097	12/11/2014

7 Day Drift Calibration Report
Generated: 3/4/2013

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/20/2013
Period End: 2/28/2013
Included Calibrations: **7 Day Drift (40CFR75)**
No Off Line Calibrations Output

02/26/2013	23:50	3D NOXLOW	NOx	SPAN	8.600	8.600	0.000	- N/A -	- N/A -	- N/A -	- N/A -	AAL598	8/17/2014
02/26/2013	12:00	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	AAL2097	12/11/2014
02/26/2013	12:00	3D NOXLOW	NOx	SPAN	8.600	8.600	0.000	- N/A -	- N/A -	- N/A -	- N/A -	AAL598	8/17/2014
02/25/2013	23:50	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	AAL2097	12/11/2014
02/25/2013	23:50	3D NOXLOW	NOx	SPAN	8.600	8.600	0.000	- N/A -	- N/A -	- N/A -	- N/A -	AAL598	8/17/2014
02/25/2013	12:00	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	AAL2097	12/11/2014
02/25/2013	12:00	3D NOXLOW	NOx	SPAN	8.600	8.600	0.000	- N/A -	- N/A -	- N/A -	- N/A -	AAL598	8/17/2014
02/25/2013	06:32	3D NOXLOW	NOx	ZERO	0.000	0.000	0.000	- N/A -	- N/A -	- N/A -	- N/A -	AAL2097	12/11/2014
02/25/2013	06:32	3D NOXLOW	NOx	SPAN	8.600	8.700	0.100	- N/A -	- N/A -	- N/A -	- N/A -	AAL598	8/17/2014
02/23/2013	12:00	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	CC358746	2/2/2014
02/23/2013	12:00	3D NOXLOW	NOx	SPAN	8.700	8.700	0.000	- N/A -	- N/A -	- N/A -	- N/A -	AAL9434	10/26/2015
02/22/2013	23:50	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	CC358746	2/2/2014
02/22/2013	23:50	3D NOXLOW	NOx	SPAN	8.700	8.700	0.000	- N/A -	- N/A -	- N/A -	- N/A -	AAL9434	10/26/2015
02/22/2013	14:47	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	CC358746	2/2/2014
02/22/2013	14:47	3D NOXLOW	NOx	SPAN	8.700	8.700	0.000	- N/A -	- N/A -	- N/A -	- N/A -	AAL9434	10/26/2015
02/22/2013	13:27	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	CC358746	2/2/2014
02/22/2013	13:27	3D NOXLOW	NOx	SPAN	8.700	8.700	0.000	- N/A -	- N/A -	- N/A -	- N/A -	AAL9434	10/26/2015
02/22/2013	12:00	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	CC358746	2/2/2014
02/22/2013	12:00	3D NOXLOW	NOx	SPAN	8.700	9.000	0.300	- N/A -	- N/A -	- N/A -	- N/A -	AAL9434	10/26/2015
02/21/2013	23:50	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	CC358746	2/2/2014
02/21/2013	23:50	3D NOXLOW	NOx	SPAN	8.700	8.900	0.200	- N/A -	- N/A -	- N/A -	- N/A -	AAL9434	10/26/2015
02/21/2013	12:00	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	CC358746	2/2/2014
02/21/2013	12:00	3D NOXLOW	NOx	SPAN	8.700	8.900	0.200	- N/A -	- N/A -	- N/A -	- N/A -	AAL9434	10/26/2015
02/20/2013	23:50	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	CC358746	2/2/2014
02/20/2013	23:50	3D NOXLOW	NOx	SPAN	8.700	8.900	0.200	- N/A -	- N/A -	- N/A -	- N/A -	AAL9434	10/26/2015
02/20/2013	11:50	3D NOXLOW	NOx	ZERO	0.000	-0.200	-0.200	- N/A -	- N/A -	- N/A -	- N/A -	CC358746	2/2/2014
02/20/2013	11:50	3D NOXLOW	NOx	SPAN	8.700	8.900	0.200	- N/A -	- N/A -	- N/A -	- N/A -	AAL9434	10/26/2015
02/28/2013	23:50	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/28/2013	23:50	3D O2	O2	SPAN	20.900	20.800	-0.100	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/28/2013	07:00	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/28/2013	07:00	3D O2	O2	SPAN	20.900	20.800	-0.100	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/27/2013	23:50	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/27/2013	23:50	3D O2	O2	SPAN	20.900	20.800	-0.100	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/27/2013	12:00	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/27/2013	12:00	3D O2	O2	SPAN	20.900	20.800	-0.100	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/26/2013	23:50	3D O2	O2	ZERO	0.000	0.100	0.100	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/26/2013	23:50	3D O2	O2	SPAN	20.900	20.800	-0.100	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/26/2013	12:00	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/26/2013	12:00	3D O2	O2	SPAN	20.900	20.700	-0.200	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/25/2013	23:50	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/25/2013	23:50	3D O2	O2	SPAN	20.900	20.700	-0.200	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/25/2013	12:00	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014

7 Day Drift Calibration Report
Generated: 3/4/2013

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/20/2013
Period End: 2/28/2013
Included Calibrations: **7 Day Drift (40CFR75)**
No Off Line Calibrations Output

02/25/2013	12:00	3D O2	O2	SPAN	20.900	20.700	-0.200	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014

Date	Time	Channel		Type	Target Units	Actual Units	Diff Units	Error %	Part75 Allowable Units	Part75 Allowable %		Bottle ID	Expire Date
02/25/2013	06:32	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/25/2013	06:32	3D O2	O2	SPAN	20.900	20.700	-0.200	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/24/2013	23:50	3D O2	O2	ZERO	0.000	0.100	0.100	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/24/2013	23:50	3D O2	O2	SPAN	20.900	20.800	-0.100	- N/A -	0.500	- N/A -	PASS	AAL2097	12/11/2014
02/23/2013	23:50	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/23/2013	23:50	3D O2	O2	SPAN	20.900	20.800	-0.100	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/23/2013	12:00	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/23/2013	12:00	3D O2	O2	SPAN	20.900	20.800	-0.100	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/22/2013	23:50	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/22/2013	23:50	3D O2	O2	SPAN	20.900	20.800	-0.100	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/22/2013	12:00	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/22/2013	12:00	3D O2	O2	SPAN	20.900	20.900	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/21/2013	23:50	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/21/2013	23:50	3D O2	O2	SPAN	20.900	20.900	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/21/2013	12:00	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/21/2013	12:00	3D O2	O2	SPAN	20.900	20.900	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/20/2013	23:50	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/20/2013	23:50	3D O2	O2	SPAN	20.900	20.900	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/20/2013	11:50	3D O2	O2	ZERO	0.000	0.000	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014
02/20/2013	11:50	3D O2	O2	SPAN	20.900	20.900	0.000	- N/A -	0.500	- N/A -	PASS	CC358746	2/2/2014

FAIL = Difference Error > Regulations Allow
TARG = Invalid Target (not within regulatory specs)
RDG = Reading exceeds "Range of Analyzer"
Note: 40CFR75 pass/fail determination is performed after rounding the value of Error%, or Drift, to one decimal place
@ Bottle is within 7 days of expiration
# Bottle has Expired - Must be Replaced

Part 75 Calibration (Absolute Average DIFF and Calibration % Error)

Channel		----ZERO---- Diff Units	Error %	----SPAN---- Diff Units	Error %
3D COHIGH	CO	0.000	- N/A -	15.383	- N/A -
3D COLOW	CO	0.056	- N/A -	0.256	- N/A -
3D NOXHIGH	NOx	0.016	0.0%	1.595	0.8%
3D NOXLOW	NOx	0.189	- N/A -	0.078	- N/A -
3D O2	O2	0.011	- N/A -	0.094	- N/A -
3D SCR NOX	NOx	0.011	- N/A -	3.117	- N/A -

Performance Specification
Part 75

Channel		PASS	FAIL
3D COHIGH	CO	- N/A -	- N/A -
3D COLOW	CO	- N/A -	- N/A -
3D NOXHIGH	NOx	<=2.5%	>2.5%
3D NOXLOW	NOx	- N/A -	- N/A -
3D O2	O2	<=0.5%	>0.5%
3D SCR NOX	NOx	- N/A -	- N/A -

7 Day Drift Calibration Report
Generated: 3/4/2013

Company: Florida Power & Light
Plant: Manatee Plant
City/St: Parrish, FL 34219
Source: stack3d

Period Start: 2/20/2013
Period End: 2/28/2013
Included Calibrations: **7 Day Drift (40CFR75)**
No Off Line Calibrations Output

Perf:
[Part 75 7-Day Drift NOx] Zero = 2.5 %Range, Span = 2.5 %Range
AltPerf: [Part 75 7-Day Drift NOx] Zero = 5 ppm (50 ppm<Range<=200 ppm), Span = 5 ppm (50 ppm<Range<=200
Perf:
[Part 75 7-Day Drift NOx] Zero = 2.5 %Range, Span = 2.5 %Range
AltPerf: [Part 75 7-Day Drift NOx] Zero = 5 ppm (50 ppm<Range<=200 ppm), Span = 5 ppm (50 ppm<Range<=200
Perf: [Part 75 7-Day Drift O2] Zero = 0.5 %O2, Span = 0.5 %O2

Title:: _____ Signature:: _____ Date: / /

Title:: _____ Signature:: _____ Date: / /

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6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7228

RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: Interference Free™ Multi-Component 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.: 2000059847
Document # : 49336398-004
Folio #:NO/CO HIGH RANGE

Customer
FLORIDA POWER
19050 STATE ROAD 62
MANATEE PLANT STOREROOM
PARRISH, FL 34219

ANALYTICAL INFORMATION Gas Type : CO,NO,BALN

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

Cylinder Number: AAL19327
Cylinder Pressure***: 2004 PSIG

Certification Date: 22Oct2012

Exp. Date: 23Oct2020
Batch No: PLU0137993

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON MONOXIDE	1,045 PPM	+/- 1%	Direct NIST and VSL
NITRIC OXIDE	179.6 PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE	BALANCE		
TOTAL OXIDES OF NITROGEN	180.4 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 1681	15Jun2016	KAL004636	970.0 PPM	CARBON MONOXIDE
NTRM 1685	04Jan2018	KAL004337	242.0 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000928781	04Oct2012	FTIR
FTIR//000928781	27Sep2012	FTIR

ANALYZER READINGS

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

First Triad Analysis

CARBON MONOXIDE
Date: 15Oct2012 Response Unit: PPM
Z1=-0.01473 R1=969.4990 T1=1045.678
R2=970.4424 Z2=0.00215 T2=1046.449
Z3=0.04713 T3=1045.876 R3=970.7772
Avg. Concentration: 1046. PPM

NITRIC OXIDE
Date: 16Oct2012 Response Unit: PPM
Z1=-0.08434 R1=241.2174 T1=179.4129
R2=241.9906 Z2=-0.07061 T2=179.7652
Z3=0.24144 T3=180.0183 R3=242.1560
Avg. Concentration: 179.8 PPM

Second Triad Analysis

Date: 22Oct2012 Response Unit: PPM
Z1=0.01834 R1=971.5912 T1=1045.406
R2=971.6288 Z2=0.47476 T2=1045.773
Z3=0.61641 T3=1046.746 R3=971.9585
Avg. Concentration: 1044. PPM

Date: 22Oct2012 Response Unit: PPM
Z1=-0.18324 R1=241.7276 T1=179.0400
R2=242.0763 Z2=0.15967 T2=179.3244
Z3=0.20287 T3=179.3792 R3=242.3616
Avg. Concentration: 179.3 PPM

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99999E-1
Constants: A=0.00000E+0
B=2.62822E-1 C=2.77000E-4
D=0.00000E+0 E=0.00000E+0

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99999E-1
Constants: A=0.00000E+0
B=9.66195E-1 C=4.20000E-5
D=0.00000E+0 E=0.00000E+0

QUALITY ASSURANCE

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