WEST COUNTY POWER PARTNERS, LLC

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Florida Power & Light Company
West County Energy Center – Unit 1
Permit No. – PSD-FL-354
DEP File No. – 0990646-001-AC

WCPP Project 144553
WCPP Files 14.0100/32.0440
WCPP-2010-TP-649
June 17, 2010

E-mail, Express Mail

Ms. Elizabeth Walker
Florida Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation, Bureau Chief
2600 Blair Stone Road, MS 5500
Tallahassee, FL 32399-2400

Subject: West County Unit 1C Fuel Oil Emissions Test Report

Dear Ms. Walker:

On behalf of Florida Power & Light Company (FPL) and its Designated Representative, Sheila M. Wilkinson, the West County Power Partners, LLC (WCPP), EPC Contractor for construction of the new combined cycle generating Unit 1 at the FPL West County Energy Center, is submitting the Unit 1C Fuel Oil Emissions Test Report per the requirements of 40 CFR Part 60 and West County's Air Permit, Records and Reports, #31 (Permit No. PSD-FL-354).

If you have any questions about this notification, please contact Terry Apple at (913) 458-7220.

Very truly yours,

WEST COUNTY POWER PARTNERS, LLC

William P. Stevenson

FOR Mike Perkins
Project Executive

WS:hs

enclosure: 1 hard copy, 1 CD

cc: w/enclosures as indicated:
Dave McNeal, USEPA Air, Pesticides and Toxics Management, w/1 hard copy, 1 CD
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Errin Pichard, FDEP Air Resource Management
Lennon Anderson, FDEP Southeast District, w/1 hard copy, 1 CD
Lee Hoefert, FDEP Southeast District
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Tom Tittle, PBC Health Department
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Rachel Godino, FPL Environmental Specialist, w/1 hard copy, 5 CD's
Dave Fawcett, FPL Environmental Specialist, w/1 hard copy, 1 CD
Mike Perkins, WCPP Project Executive
John Tidwell, WCPP Senior Project Manger
Greg Hines, WCPP Site Environmental Manager
Terry Apple, WCPP Project Manager/ Project File, w/1 CD
William Stevenson, WCPP Environmental Specialist, w/1 CD


Air Hygiene International, Inc.
FUEL OIL
TESTING
MITSUBISHI
501G
UNIT 1C
WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA
MAY 7, 2010

AIR HYGIENE, INC.

Testing Solutions for a Better World

EMISSION COMPLIANCE TEST
FOR THE
MITSUBISHI, MODEL 501G, UNIT 1C
PREPARED FOR
FLORIDA POWER AND LIGHT
AT THE
WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA
MAY 7, 2010

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EMISSION COMPLIANCE TEST
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PREPARED FOR
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AT THE
WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA
MAY 7, 2010

Prepared and Reviewed by:

Thomas K. Graham, P.E., QSTI, Director of Operations

Danny Parr, QSTI, Project Manger

Michael Stockwell, Project Manager

Jake Fahlenkamp, QSTI, Director of Quality Assurance

Table of Contents

APPENDICES

Emissions Compliance Test
Mitsubishi, Model 501G, Unit 1C
Florida Power and Light
West County Energy Center
Loxahatchee, Florida
May 7, 2010

1.0 INTRODUCTION

Air Hygiene International, Inc. (Air Hygiene) has completed the emissions testing study for nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOC), ammonia (NH_3), opacity, carbon dioxide (CO_2), and oxygen (O_2) from the exhaust of the Mitsubishi, Model 501G, Unit 1C for Florida Power and Light at the West County Energy Center near Loxahatchee, Florida. This report details the background, results, process description, and the sampling/analysis methodology of the stack sampling survey conducted on May 7, 2010.

1.1 TEST PURPOSE AND OBJECTIVES

The purpose of the test was to conduct an initial compliance emission test to document levels of selected pollutants at one test load (Base Load firing Fuel Oil). The information will be used to confirm compliance with the operating permit issued by the Florida Department of Environmental Protection (FDEP). The specific objective was to determine the emission concentration of NOx, CO, VOC, NH_3, opacity, CO_2, and O_2 from the exhaust of Florida Power and Light's Mitsubishi, Model 501G, Unit 1C at Base Load firing Fuel Oil.

1.2 SUMMARY OF TEST PROGRAM

The following list details pertinent information related to this specific project:

1.2.1 Participating Organizations
- Florida Department of Environmental Protection (FDEP)
- Florida Power and Light
- Black and Veatch
- Air Hygiene

1.2.2 Industry
- Electric Utility / Electric Services

1.2.3 Air Permit and Federal Requirements
- Permit Number: PSD-FL-354
- Emission Unit Identification (ID): 003

1.2.4 Plant Location
- West County Energy Center near Loxahatchee, Florida

1.2.5 Equipment Tested
- Mitsubishi, Model 501G, Unit 1C

1.2.6 Emission Points

- Exhaust from the Mitsubishi, Model 501G, Unit 1C
- For all gases, one sample point in the exhaust duct from the Mitsubishi, Model 501G, Unit 1C, determined after conducting a stratification test (refer to Appendix F)
- For all NH_3 testing, 24 sampling points in the exhaust duct from the Mitsubishi, Model 501G, Unit 1C (refer to Appendix A)
- For opacity, one sample visual observation point from the exit of the exhaust duct to the atmosphere from the Mitsubishi, Model 501G, Unit 1C

1.2.7 Pollutants Measured

- NOx
- CO
- VOC
- NH_3
- Opacity
- CO_2
- O_2

1.2.8 Dates of Emission Test

- May 7, 2010

1.3 KEY PERSONNEL

Florida Power and Light:	David Fawcett	561-904-4907
Florida Power and Light:	Emmett Callow	561-904-4922
Black and Veatch:	Bill Stevenson	913-458-8549
Air Hygiene:	Jake Fahlenkamp	918-307-8865
Air Hygiene:	Michael Stockwell	918-307-8865
Air Hygiene:	Brett Stremme	918-307-8865
Air Hygiene:	Neal Krone	918-307-8865
Air Hygiene:	Krishna Vissapragada	918-307-8865

2.0 SUMMARY OF TEST RESULTS

Results from the sampling conducted on Florida Power and Light's Mitsubishi, Model 501G, Unit 1C located at the West County Energy Center on May 7, 2010 are summarized in the following table.

TABLE 2.1
SUMMARY OF MITSUBISHI, 501G, UNIT #1C RESULTS

Parameter	Base Load	Permit Limits
Run Duration (min / run)	60	–
Bar. Pressure (in. Hg)	29.16	–
Amb. Temp. (°F)	82	–
Rel. Humidity (%)	79	–
Spec. Humidity (lb water / lb air)	0.019078	–
Turbine Fuel Flow (gal/hr)	15,983	–
Total Fuel Flow (SCFH)	2,137	–
Stack Flow (RM19) (SCFH)	56,813,836	–
Stack Moisture (% Method 4)	10.1	–
Power Output (megawatts)	211.8	–
NOx (ppmvd)	7.05	–
NOx (ppm@15%O_2)	5.55	8.00
NOx (ppm@15%O_2&ISO)	6.62	–
NOx (lb/hr)	48.43	82.40
NOx (ton/year) at 500 hr/year	12.11	–
NOx (lb/MMBtu)	0.022	–
CO (ppmvd)	5.47	–
CO (ppm@15%O_2)	4.30	8.00
CO (ppm@15%O_2&ISO)	5.13	–
CO (lb/hr)	22.87	42.00
CO (ton/year) at 500 hr/year	5.72	–
CO (lb/MMBtu)	0.010	–
VOC (ppmvd)	0.12	–
VOC (ppm@15%O_2)	0.09	6.00
VOC (ppm@15%O_2&ISO)	0.11	–
VOC (lb/hr)	0.28	19.60
VOC (ton/year) at 500 hr/year	0.07	–
VOC (lb/MMBtu)	0.000	–
Sulfur (wt %)	0.0008	0.0015
NH_3 (ppmvd)	4.09	–
NH_3 (ppm@15%O_2)	3.22	5.00
NH_3 (lb/hr)	10.42	–
Opacity (%)	0	10
CO_2 (%)	5.23	–
O_2 (%)	13.41	–

The results of all measured pollutant emissions were below the required limits. All testing was performed without any real or apparent errors. All testing was conducted according to the approved testing protocol. Total hydrocarbons (THC) were report as VOC.

3.0 SOURCE OPERATION

3.1 PROCESS DESCRIPTION

Florida Power and Light (FPL) owns and operates the West County Energy Center (West County) located at 20505 State Road 80 in Loxahatchee, Florida. West County is a nominal 2,500 megawatt (MW) greenfield power plant and consists of two combined cycle units (Unit 1 and 2). Each combined cycle unit consists of: three nominal 250 MW Mitsubishi Model 501G combustion turbine-electrical generator (CTGs) sets with evaporative inlet cooling systems; three supplementary-fired heat recovery steam generators (HRSGs) with selective catalytic reduction (SCR) reactors; one nominal 428 million British thermal units per hour (MMBtu/hour) based on low heat value (LHV) natural gas-fired duct burner (DB) located within each of the three HRSG's; and a common nominal 500 MW steam turbine-electrical generator (STG). The total nominal generating capacity of each of the "3 on 1" combined cycle units is approximately 1,250 MW.

Each CTG has a nominal heat input rate of 2,333 MMBtu/hr when firing natural gas and 2,117 MMBtu/hr when firing distillate fuel oil (based on a compressor inlet air temperature of 59 degrees Fahrenheit (°F), the lower heating value (LHV) of each fuel, and 100 percent load), includes an automated gas turbine control system, and has dual-fuel capability of firing natural gas as the primary fuel or ultra low sulfur distillate (ULSD) fuel oil as a restricted alternate fuel. Each HRSG recovers exhaust, heat energy from each of the CTGs. Each Unit delivers steam to each STG. The efficient combustion of natural gas and restricted firing of ULSD fuel oil minimizes the emissions of carbon monoxide (CO), particulate matter (PM), sulfuric acid mist (H_2SO_4), sulfur dioxide (SO_2) and volatile organic compounds (VOCs). Dry Low-NOx (DLN) combustors for gas firing and water injection for oil firing reduce nitrogen oxides (NOx) emissions. A selective catalyst reduction (SCR) system further reduces NOx emissions.

3.2 SAMPLING LOCATION

The 501G stack is circular and measures 21.95 feet (ft) (263.38 inches) in diameter at the test ports which are approximately 138 ft above grade level with an exit elevation of approximately 150 ft above grade level. The test ports are located approximately 44.31 ft (531.75 inches) downstream and approximately 12 ft (144 inches) upstream from the nearest disturbances. All exhaust samples for gaseous emissions were continuously drawn from the exhaust system at the sample ports from a single point determined after conducting a stratification test (Appendix F). During the stratification test three points were traversed from each of the four ports. The probe was allowed to remain at a point for two times the system response time. For NH_3 testing, an initial velocity traverse was performed across the stack at base load from 24 total points. All NH_3 sampling occurred from the same 24 points by leaving the probe at each for an equal amount of time. All opacity observations were made by viewing the point where the exhaust system exited to the atmosphere at the top of the exhaust stack.

4.0 SAMPLING AND ANALYTICAL PROCEDURES

4.1 TEST METHODS

The emission test on the Mitsubishi, Model 501G, Unit 1C at the West County Energy Center was performed following United States Environmental Protection Agency (EPA) methods described by the Code of Federal Regulations (CFR). Table 4.1 outlines the specific methods performed on May 7, 2010.

TABLE 4.1
SUMMARY OF SAMPLING METHODS

Pollutant or Parameter	Sampling Method	Analysis Method
Sample Point Location	EPA Method 1	Equal Area Method
Stack Flow Rate	EPA Method 2	Pitot
Oxygen	EPA Method 3a	Paramagnetic Cell
Carbon Dioxide	EPA Method 3a	Nondispersive Infrared Analyzer
Nitrogen Oxides	EPA Method 7e	Chemiluminescent Analyzer
Opacity	EPA Method 9	Visual Observation
Carbon Monoxide	EPA Method 10	Nondispersive Infrared Analyzer
Stack Flow Rate	EPA Method 19	Dry Oxygen F Factor
Total Hydrocarbons	EPA Method 25a	Flame Ionization Detector
Ammonia Slip	EPA CTM-027	Ion Chromatography M350.3
Sulfur Content Analysis	ASTM D 5453	Fuel Gas Sample and Laboratory Analysis

4.2 INSTRUMENT CONFIGURATION AND OPERATIONS FOR GAS ANALYSIS

The sampling and analysis procedures used during these tests conform with the methods outlined in the Code of Federal Regulations (CFR), Title 40, Part 60, Appendix A, Methods 1, 2, 3a, 7e, 9, 10, 19, 25a, and Conditional Test Method (CTM)-027.

Figure 4.1 depicts the sample system used for the NOx, CO, THC, CO_2, and O_2 tests. A stainless steel probe was inserted into the sample ports of the stack to extract gas measurements from the emission stream at a single point in the stack determined after passing an initial stratification test. The gas sample was continuously pulled through the probe and transported, via heat-traced Teflon® tubing, to a stainless steel minimum-contact condenser designed to dry the sample. Transportation of the sample, through Teflon® tubing, continued into the sample manifold within the mobile laboratory via a stainless steel/Teflon® diaphragm pump. From the manifold, the sample was partitioned to the NOx, CO, CO_2, and O_2 analyzers through rotameters that controlled the flow rate of the sample. Exhaust samples were routed to the THC analyzer prior to gas conditioning.

Figure 4.1 shows that the sample system was also equipped with a separate path through which a calibration gas could be delivered to the probe and back through the entire sampling system. This allowed for convenient performance of system bias checks as required by the testing methods.

All instruments were housed in an air-conditioned, trailer-mounted mobile laboratory. Gaseous calibration standards were provided in aluminum cylinders with the concentrations certified by the vendor. EPA Protocol No. 1 was used to determine the cylinder concentrations where applicable (i.e. NOx calibration gases).

Table 4.2 provides a description of the analyzers used for the instrument portion of the tests. All data from the continuous monitoring instruments were recorded on a Logic Beach Portable Data Logging System Hyperlogger which retrieves calibrated electronic data from each instrument every one second and reports an average of the collected data every 30 seconds. Data records can be found in Appendix A and B of this report.

Figure 4.2 represents the sample system used for the wet chemistry tests (NH_3). A heated stainless steel probe with an inconel liner and stainless steel nozzle was inserted into the sample ports of the stack to extract gas measurements from the emission stream through a filter and glass impinger train. Flow rates are monitored with oil filled manometers and total sample volumes are measured with a dry gas meter.

Three test runs of approximately 60 minutes each were conducted on the Mitsubishi, Model 501G, Unit 1C for NOx, CO, THC, CO_2, NH_3, opacity, and O_2.

The stack gas analysis for O_2 and CO_2 concentrations was performed in accordance with procedures set forth in EPA Method 3a. The O_2 analyzer uses a paramagnetic cell detector and the CO_2 analyzer uses a continuous nondispersive infrared analyzer.

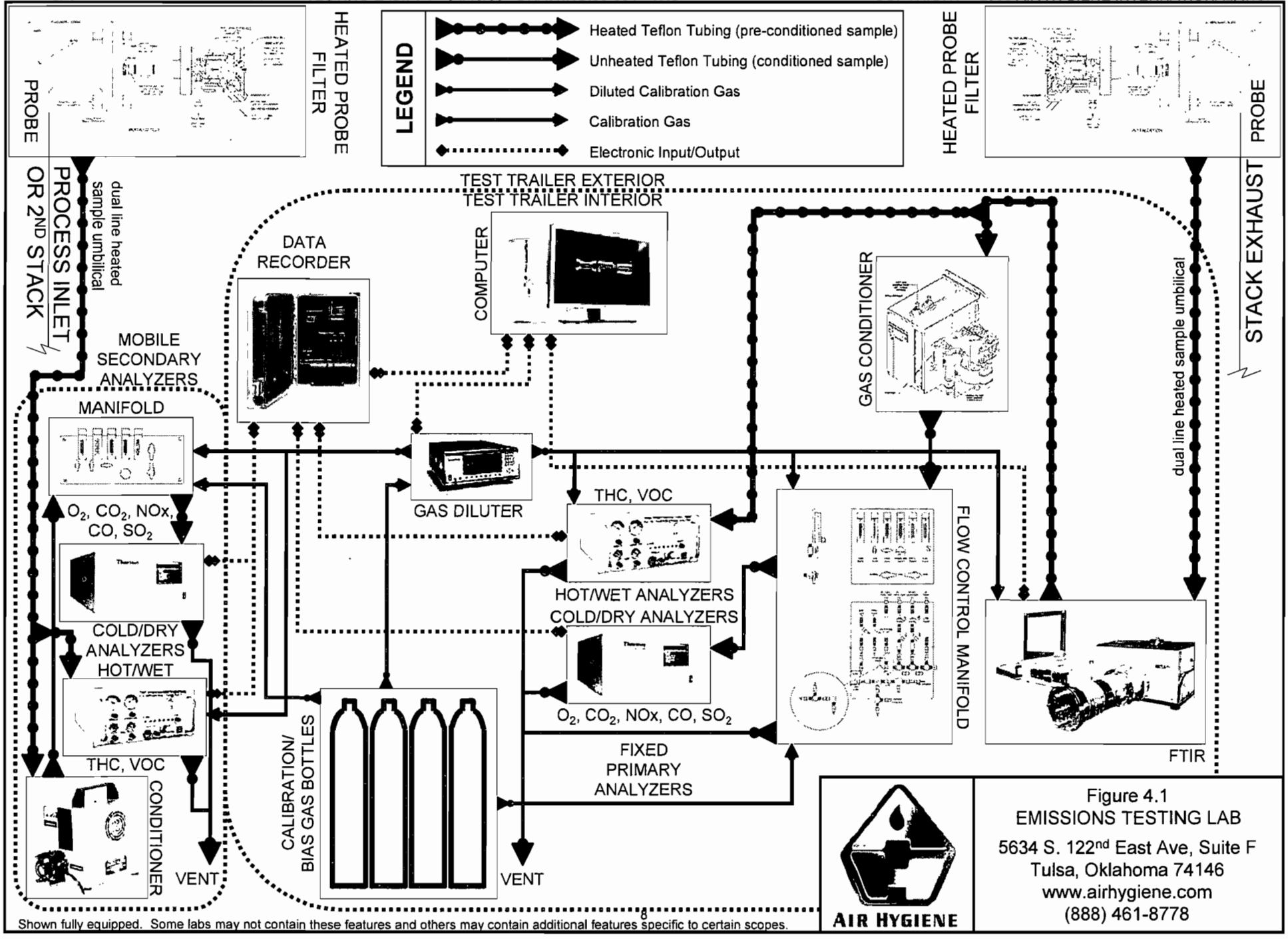
EPA Method 7e was used to determine concentrations of NOx. A chemiluminescent analyzer was used to determine the nitrogen oxides concentration in the gas stream. A NO_2 in nitrogen certified gas cylinder was used to verify at least a 90 percent NO_2 conversion on the day of the test.

CO emission concentrations were quantified in accordance with procedures set forth in EPA Method 10. A continuous nondispersive infrared (NDIR) analyzer was used for this purpose.

THC emission concentrations were quantified in accordance with procedures set forth in EPA Method 25a. A continuous flame ionization (FID) analyzer was used for this purpose. THC emission concentrations were reported as VOC.

TABLE 4.2
ANALYTICAL INSTRUMENTATION

Parameter	Model and Manufacturer	Range	Sensitivity	Detection Principle
NOx	THERMO 42i	User may select up to 5,000 ppm	0.1 ppm	Thermal reduction of NO_2 to NO. Chemiluminescence of reaction of NO with O_3. Detection by PMT. Inherently linear for listed ranges.
CO	THERMO 48i	User may select up to 5,000 ppm	0.1 ppm	Infrared absorption, gas filter correlation detector, microprocessor based linearization.
CO_2	THERMO 410i	0-20%	0.1%	Non-dispersive infrared.
THC	VIG 20	User may select up to 10,000 ppm	0.1 ppm	Flame Ionization Detector.
O_2	THERMO 42i	0-25%	0.1%	Paramagnetic cell, inherently linear.



Shown fully equipped. Some labs may not contain these features and others may contain additional features specific to certain scopes.

AIR HYGIENE

Figure 4.1
EMISSIONS TESTING LAB

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Tulsa, Oklahoma 74146
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(888) 461-8778

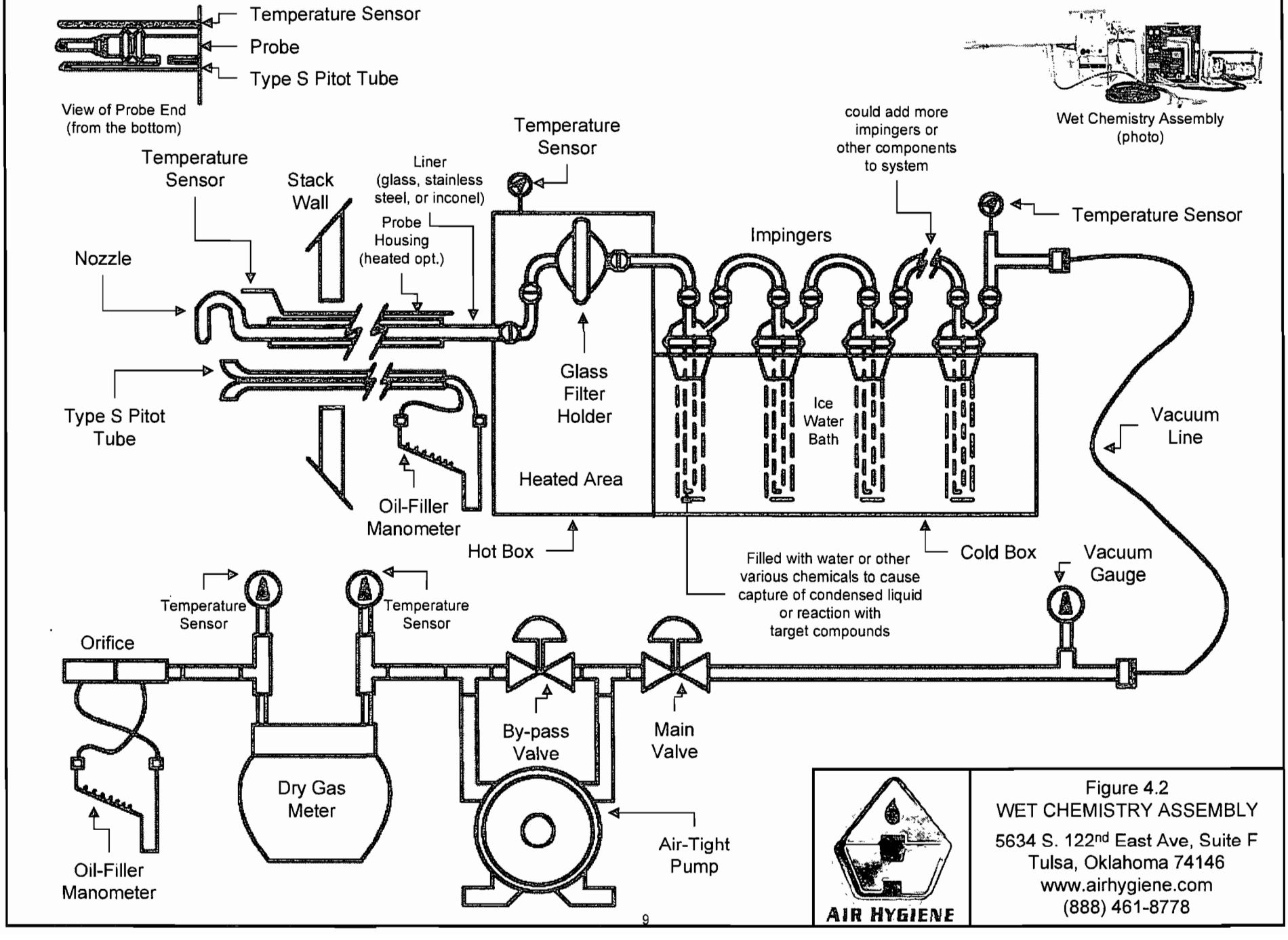

Figure 4.2
WET CHEMISTRY ASSEMBLY

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AIR HYGIENE

APPENDIX A

TEST RESULTS AND CALCULATIONS

TABLE A.1:
EMISSIONS TESTING SCHEDULE

Unit	Load	Test Type	Run	Date	Start	Stop
1C	Base Load	Stratification Test	1	05/07/10	16:38:31	17:25:31
1C	Base	Compliance	1-1	05/07/10	17:46:29	18:45:59
1C	Base	Compliance	1-2	05/07/10	19:00:29	19:59:59
1C	Base	Compliance	1-3	05/07/10	20:30:29	21:29:59
1C	Base	Preliminaries	Base-V1	05/07/10	14:38:00	15:06:00
1C	Base	Ammonia	Base-1	05/07/10	17:35:00	18:50:00
1C	Base	Ammonia	Base-2	05/07/10	19:00:00	20:16:00
1C	Base	Ammonia	Base-3	05/07/10	20:30:00	21:39:00

TABLE A.2
MITSUBISHI, 501G, UNIT #1C BASE LOAD DATA SUMMARY

Parameter	Base Load, Run - 1-1	Base Load, Run - 1-2	Base Load, Run - 1-3	Average
Run Duration (min / run)	60	60	60	60
Bar. Pressure (in. Hg)	29.15	29.16	29.18	29.16
Amb. Temp. (°F)	84	82	79	82
Rel. Humidity (%)	72	79	87	79
Spec. Humidity (lb water / lb air)	0.018905	0.019306	0.019024	0.019078
Turbine Fuel Flow (gal/hr)	15,904	15,965	16,081	15,983
Total Fuel Flow (SCFH)	2,126	2,134	2,150	2,137
Stack Flow (RM19) (SCFH)	56,647,854	56,856,638	56,937,017	56,813,836
Stack Moisture (% Method 4)	10.2	9.9	10.2	10.1
Power Output (megawatts)	210.2	211.5	213.6	211.8
NOx (ppmvd)	7.04	7.07	7.03	7.05
NOx (ppm@15%O_2)	5.55	5.57	5.52	5.55
NOx (ppm@15%O_2&ISO)	6.56	6.67	6.63	6.62
NOx (lb/hr)	48.07	48.28	48.93	48.43
NOx (ton/year) at 500 hr/year	12.02	12.07	12.23	12.11
NOx (lb/MMBtu)	0.022	0.022	0.022	0.022
CO (ppmvd)	5.31	5.36	5.73	5.47
CO (ppm@15%O_2)	4.19	4.23	4.49	4.30
CO (ppm@15%O_2&ISO)	4.95	5.06	5.40	5.13
CO (lb/hr)	22.07	22.28	24.25	22.87
CO (ton/year) at 500 hr/year	5.52	5.57	6.06	5.72
CO (lb/MMBtu)	0.010	0.010	0.011	0.010
VOC (ppmvd)	0.15	0.12	0.08	0.12
VOC (ppm@15%O_2)	0.12	0.10	0.07	0.09
VOC (ppm@15%O_2&ISO)	0.14	0.11	0.08	0.11
VOC (lb/hr)	0.36	0.29	0.20	0.28
VOC (ton/year) at 500 hr/year	0.09	0.07	0.05	0.07
VOC (lb/MMBtu)	0.000	0.000	0.000	0.000
Sulfur (wt %)	0.0008	0.0008	0.0008	0.0008
NH_3 (ppmvd)	4.30	3.81	4.18	4.09
NH_3 (ppm@15%O_2)	3.39	3.00	3.28	3.22
NH_3 (lb/hr)	10.87	9.63	10.76	10.42
Opacity (%)	0	0	0	0
CO_2 (%)	5.15	5.24	5.29	5.23
O_2 (%)	13.42	13.42	13.38	13.41

TEST RESULTS

NOx, CO, VOC, CO_2, and O_2 Emissions

Florida Power and Light
May 7, 2010
Mitsubishi, 501G, Unit #1C
West County Energy Center

Fuel Data

Fuel Fd factor	9,222	SCF exh/MMBtu
Fuel Heating Value (HHV)	1,033,782	Btu/SCF fuel
Turbine Fuel Flow	15,904	gal/hr

Weather Data

Barometric Pressure	29.15	in. Hg
Relative Humidity	72	%
Ambient Temperature	84	°F
Specific Humidity	0.018905	lb H_2O / lb air

Unit Data

Unit Load	210.2	megawatts
Combustor Inlet Pressure	255	psig
Meas. Stack Moisture	10.2	%
Stack Exhaust Flow (M2)	57,166,890	SCFH
Stack Exhaust Flow (M19)	56,647,854	SCFH

Data from: NH3 Run 1

Calc basis: Larger of RM 19 and RM 2 exhaust flow numbers.

Base Load, Run - 1-1

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	NOx (ppmvd)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)
05/07/10 17:46:29	60	13.36	6.76	5.81	0.01	5.11
05/07/10 17:46:59	90	13.35	6.65	5.60	0.01	5.12
05/07/10 17:47:29	120	13.33	6.57	4.91	0.01	5.13
05/07/10 17:47:59	150	13.36	6.97	5.35	0.01	5.11
05/07/10 17:48:29	180	13.38	7.04	5.68	0.02	5.09
05/07/10 17:48:59	210	13.41	6.94	6.03	0.02	5.08
05/07/10 17:49:29	240	13.41	6.91	6.21	0.02	5.08
05/07/10 17:49:59	270	13.38	7.21	5.29	0.03	5.10
05/07/10 17:50:29	300	13.39	7.84	5.14	0.03	5.10
05/07/10 17:50:59	330	13.39	7.94	5.35	0.03	5.10
05/07/10 17:51:29	360	13.38	7.53	5.31	0.01	5.10
05/07/10 17:51:59	390	13.37	6.95	5.13	0.01	5.08
05/07/10 17:52:29	420	13.37	6.75	4.99	0.00	5.09
05/07/10 17:52:59	450	13.39	6.82	4.96	0.01	5.08
05/07/10 17:53:29	480	13.42	6.72	5.71	0.00	5.08
05/07/10 17:53:59	510	13.41	6.43	5.92	-0.01	5.08
05/07/10 17:54:29	540	13.39	6.35	5.71	-0.01	5.09
05/07/10 17:54:59	570	13.38	6.67	5.16	-0.01	5.10
05/07/10 17:55:29	600	13.38	7.27	4.66	-0.01	5.09
05/07/10 17:55:59	630	13.40	7.43	5.43	-0.02	5.08
05/07/10 17:56:29	660	13.40	6.94	5.69	-0.02	5.08
05/07/10 17:56:59	690	13.39	6.51	5.40	-0.02	5.09
05/07/10 17:57:29	720	13.39	6.79	5.07	-0.02	5.09
05/07/10 17:57:59	750	13.38	7.22	4.77	-0.02	5.09
05/07/10 17:58:29	780	13.39	7.44	4.86	-0.03	5.08
05/07/10 17:58:59	810	13.40	7.01	5.43	-0.03	5.08
05/07/10 17:59:29	840	13.40	6.50	5.30	-0.02	5.08
05/07/10 17:59:59	870	13.39	6.51	5.30	-0.02	5.07
05/07/10 18:00:29	900	13.37	6.93	4.99	-0.03	5.07
05/07/10 18:00:59	930	13.37	7.35	4.62	-0.02	5.09
05/07/10 18:01:29	960	13.38	7.41	4.71	-0.03	5.08
05/07/10 18:01:59	990	13.37	7.06	4.92	-0.03	5.09
05/07/10 18:02:29	1020	13.39	6.60	5.20	-0.02	5.08
05/07/10 18:02:59	1050	13.40	6.67	5.55	-0.03	5.08
05/07/10 18:03:29	1080	13.37	6.80	4.86	-0.03	5.10
05/07/10 18:03:59	1110	13.37	6.94	4.84	-0.03	5.08
05/07/10 18:04:29	1140	13.41	6.75	5.79	-0.03	5.05
05/07/10 18:04:59	1170	13.43	6.57	6.34	-0.03	5.05
05/07/10 18:05:29	1200	13.41	6.79	5.96	-0.03	5.07
05/07/10 18:05:59	1230	13.40	7.21	4.92	-0.04	5.08
05/07/10 18:06:29	1260	13.42	7.35	5.59	-0.06	5.07
05/07/10 18:06:59	1290	13.41	6.85	6.10	-0.06	5.08
05/07/10 18:07:29	1320	13.42	6.45	5.43	-0.05	5.07
05/07/10 18:07:59	1350	13.42	6.77	5.74	-0.04	5.07
05/07/10 18:08:29	1380	13.40	7.14	5.63	-0.05	5.08
05/07/10 18:08:59	1410	13.40	7.39	5.29	-0.06	5.07
05/07/10 18:09:29	1440	13.40	7.49	4.94	-0.06	5.07
05/07/10 18:09:59	1470	13.39	7.51	4.59	-0.05	5.08
05/07/10 18:10:29	1500	13.40	7.76	4.83	-0.05	5.08
05/07/10 18:10:59	1530	13.40	7.38	5.19	-0.05	5.08
05/07/10 18:11:29	1560	13.41	6.78	5.36	-0.05	5.08
05/07/10 18:11:59	1590	13.38	6.34	4.82	-0.05	5.09
05/07/10 18:12:29	1620	13.38	6.66	4.72	-0.04	5.08
05/07/10 18:12:59	1650	13.39	6.97	5.09	-0.04	5.08
05/07/10 18:13:29	1680	13.40	7.06	5.23	-0.04	5.08

Florida Power and Light
May 7, 2010
Mitsubishi, 501G, Unit #1C
West County Energy Center

Fuel Data

Fuel Fd factor	9,222	SCF exh/MMBtu
Fuel Heating Value (HHV)	1,033,782	Btu/SCF fuel
Turbine Fuel Flow	15,904	gal/hr

Weather Data

Barometric Pressure	29.15	in. Hg
Relative Humidity	72	%
Ambient Temperature	84	°F
Specific Humidity	0.018905	lb H_2O / lb air

Unit Data

Unit Load	210.2	megawatts
Combustor Inlet Pressure	255	psig
Meas. Stack Moisture	10.2	%
Stack Exhaust Flow (M2)	57,166,890	SCFH
Stack Exhaust Flow (M19)	56,647,854	SCFH

Data from: NH3 Run 1

Calc basis: Larger of RM 19 and RM 2 exhaust flow numbers.

Base Load, Run - 1-1

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	NOx (ppmvd)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)
05/07/10 18:13:59	1710	13.41	6.95	5.25	-0.04	5.07
05/07/10 18:14:29	1740	13.40	6.84	4.87	-0.02	5.08
05/07/10 18:14:59	1770	13.41	7.16	4.77	-0.02	5.08
05/07/10 18:15:29	1800	13.41	7.40	5.38	-0.02	5.07
05/07/10 18:15:59	1830	13.42	7.16	5.56	-0.02	5.08
05/07/10 18:16:29	1860	13.40	6.81	5.17	-0.03	5.09
05/07/10 18:16:59	1890	13.39	6.80	4.54	-0.04	5.10
05/07/10 18:17:29	1920	13.40	7.09	4.94	-0.04	5.09
05/07/10 18:17:59	1950	13.40	7.07	5.19	-0.04	5.07
05/07/10 18:18:29	1980	13.41	6.82	5.38	-0.04	5.06
05/07/10 18:18:59	2010	13.41	6.66	5.30	-0.05	5.07
05/07/10 18:19:29	2040	13.38	6.78	4.94	-0.06	5.09
05/07/10 18:19:59	2070	13.37	7.35	4.74	-0.06	5.09
05/07/10 18:20:29	2100	13.38	7.33	5.26	-0.07	5.09
05/07/10 18:20:59	2130	13.38	6.64	4.96	-0.08	5.09
05/07/10 18:21:29	2160	13.41	6.35	5.07	-0.07	5.07
05/07/10 18:21:59	2190	13.44	6.21	5.95	-0.07	5.06
05/07/10 18:22:29	2220	13.41	6.47	6.04	-0.07	5.07
05/07/10 18:22:59	2250	13.40	6.93	5.45	-0.06	5.09
05/07/10 18:23:29	2280	13.39	7.29	5.10	-0.05	5.09
05/07/10 18:23:59	2310	13.39	7.41	4.65	-0.03	5.09
05/07/10 18:24:29	2340	13.41	7.46	5.53	-0.05	5.07
05/07/10 18:24:59	2370	13.40	7.15	5.55	-0.05	5.08
05/07/10 18:25:29	2400	13.39	6.80	4.97	-0.04	5.08
05/07/10 18:25:59	2430	13.39	6.64	5.30	-0.03	5.09
05/07/10 18:26:29	2460	13.39	6.75	5.22	-0.03	5.09
05/07/10 18:26:59	2490	13.41	6.98	5.15	-0.02	5.06
05/07/10 18:27:29	2520	13.41	7.16	5.19	-0.02	5.06
05/07/10 18:27:59	2550	13.41	7.24	5.25	-0.02	5.07
05/07/10 18:28:29	2580	13.42	7.01	5.21	-0.02	5.07
05/07/10 18:28:59	2610	13.41	6.87	5.41	-0.03	5.07
05/07/10 18:29:29	2640	13.41	6.83	5.38	-0.04	5.08
05/07/10 18:29:59	2670	13.40	7.01	5.26	-0.05	5.08
05/07/10 18:30:29	2700	13.38	7.17	4.70	-0.05	5.09
05/07/10 18:30:59	2730	13.41	7.29	5.07	-0.06	5.08
05/07/10 18:31:29	2760	13.43	6.90	5.65	-0.06	5.07
05/07/10 18:31:59	2790	13.42	6.67	5.80	-0.06	5.08
05/07/10 18:32:29	2820	13.40	6.65	4.92	-0.08	5.09
05/07/10 18:32:59	2850	13.40	6.89	4.76	-0.09	5.09
05/07/10 18:33:29	2880	13.40	6.90	4.91	-0.09	5.10
05/07/10 18:33:59	2910	13.41	6.84	4.82	-0.08	5.08
05/07/10 18:34:29	2940	13.41	6.92	5.12	-0.09	5.08
05/07/10 18:34:59	2970	13.42	7.06	5.29	-0.08	5.08
05/07/10 18:35:29	3000	13.41	6.98	5.32	-0.09	5.09
05/07/10 18:35:59	3030	13.41	6.72	5.10	-0.09	5.07
05/07/10 18:36:29	3060	13.38	6.79	4.96	-0.09	5.10
05/07/10 18:36:59	3090	13.38	7.16	4.68	-0.09	5.09
05/07/10 18:37:29	3120	13.42	7.36	5.37	-0.08	5.06
05/07/10 18:37:59	3150	13.45	6.96	6.26	-0.07	5.05
05/07/10 18:38:29	3180	13.44	6.48	6.00	-0.06	5.07
05/07/10 18:38:59	3210	13.43	6.63	5.33	-0.05	5.07
05/07/10 18:39:29	3240	13.42	7.28	5.41	-0.05	5.08
05/07/10 18:39:59	3270	13.39	7.57	5.10	-0.06	5.10
05/07/10 18:40:29	3300	13.37	7.52	4.92	-0.05	5.12
05/07/10 18:40:59	3330	13.39	7.40	4.89	-0.04	5.10

Florida Power and Light
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Mitsubishi, 501G, Unit #1C
West County Energy Center

Fuel Data

Fuel Fd factor	9,222	SCF exh/MMBtu
Fuel Heating Value (HHV)	1,033,782	Btu/SCF fuel
Turbine Fuel Flow	15,904	gal/hr

Weather Data

Barometric Pressure	29.15	in. Hg
Relative Humidity	72	%
Ambient Temperature	84	° F
Specific Humidity	0.018905	lb H_2O / lb air

Unit Data

Unit Load	210.2	megawatts
Combustor Inlet Pressure	255	psig
Meas. Stack Moisture	10.2	%
Stack Exhaust Flow (M2)	57,166,890	SCFH
Stack Exhaust Flow (M19)	56,647,854	SCFH

Data from: NH3 Run 1

Calc basis: Larger of RM 19 and RM 2 exhaust flow numbers.

Base Load, Run - 1-1

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	NOx (ppmvd)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)
05/07/10 18:41:29	3360	13.38	7.41	4.80	-0.05	5.10
05/07/10 18:41:59	3390	13.41	7.23	5.10	-0.06	5.08
05/07/10 18:42:29	3420	13.42	6.69	5.96	-0.07	5.08
05/07/10 18:42:59	3450	13.40	6.21	5.67	-0.07	5.11
05/07/10 18:43:29	3480	13.39	6.45	4.83	-0.07	5.11
05/07/10 18:43:59	3510	13.37	6.95	4.95	-0.08	5.11
05/07/10 18:44:29	3540	13.37	7.29	4.98	-0.08	5.11
05/07/10 18:44:59	3570	13.40	7.19	5.08	-0.08	5.10
05/07/10 18:45:29	3600	13.39	6.96	5.19	-0.10	5.09
05/07/10 18:45:59	3630	13.38	6.84	5.21	-0.12	5.10
RAW AVERAGE		**13.40**	**6.97**	**5.25**	**-0.04**	**5.08**

		O_2	NOx	CO	THC	CO_2
	Serial Number:	INST-N2-0002	INST-N2-0002	INST-CO-0017	INST-TH-0007	INST-C2-0010
		(%)	(ppmvd)	(ppmvd)	(ppmvw)	(%)
Bias	Initial Zero	0.21	0.06	-0.03	-0.15	0.01
Bias	Final Zero	0.14	0.07	-0.04	-0.26	0.00
Bias	Avg. Zero	0.18	0.07	-0.04	-0.21	0.01
	Initial UpScale	12.11	11.99	12.00	2.86	8.87
	Final UpScale	12.08	12.07	11.99	2.84	8.68
	Avg. UpScale	12.10	12.03	12.00	2.85	8.78
Upscale Cal Gas		12.10	12.20	12.10	2.89	8.89

EMISSIONS DATA	O_2	NOx	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	13.42	7.04	5.31	0.15	5.15
Concentration (ppm@ 15%O_2)	N/A	5.55	4.19	0.12	N/A
Concentration (ppm@ 15%O_2 &ISO)	N/A	6.56	4.95	0.14	N/A
Emission Rate (lb/hr)	N/A	48.07	22.07	0.36	N/A
Emission Rate (tons/year) at 500 hr/yr	N/A	12.02	5.52	0.09	N/A
Emission Rate (lb/MMBtu)	N/A	0.022	0.010	0.000	N/A

Florida Power and Light
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Mitsubishi, 501G, Unit #1C
West County Energy Center

Fuel Data

Fuel Fd factor	9,222	SCF exh/MMBtu
Fuel Heating Value (HHV)	1,033,782	Btu/SCF fuel
Turbine Fuel Flow	15,965	gal/hr

Weather Data

Barometric Pressure	29.16	in. Hg
Relative Humidity	79	%
Ambient Temperature	82	°F
Specific Humidity	0.019306	lb H_2O / lb air

Unit Data

Unit Load	211.5	megawatts
Combustor Inlet Pressure	256	psig
Meas. Stack Moisture	9.9	%
Stack Exhaust Flow (M2)	57,212,785	SCFH
Stack Exhaust Flow (M19)	56,856,638	SCFH

Data from: NH3 Run 2

Calc basis: Larger of RM 19 and RM 2 exhaust flow numbers.

Base Load, Run - 1-2

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	NOx (ppmvd)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)
05/07/10 19:00:29	4500	13.36	6.95	5.29	-0.11	5.12
05/07/10 19:00:59	4530	13.39	7.13	5.39	-0.13	5.11
05/07/10 19:01:29	4560	13.38	7.22	5.30	-0.14	5.12
05/07/10 19:01:59	4590	13.37	7.13	5.19	-0.13	5.12
05/07/10 19:02:29	4620	13.35	7.04	4.81	-0.12	5.14
05/07/10 19:02:59	4650	13.35	7.11	4.41	-0.12	5.13
05/07/10 19:03:29	4680	13.36	7.23	4.98	-0.10	5.10
05/07/10 19:03:59	4710	13.38	6.98	5.59	-0.11	5.10
05/07/10 19:04:29	4740	13.37	6.36	5.84	-0.11	5.10
05/07/10 19:04:59	4770	13.37	6.18	5.44	-0.12	5.13
05/07/10 19:05:29	4800	13.35	6.52	4.69	-0.13	5.15
05/07/10 19:05:59	4830	13.37	7.20	5.10	-0.10	5.11
05/07/10 19:06:29	4860	13.39	7.32	6.13	-0.10	5.10
05/07/10 19:06:59	4890	13.37	6.77	5.76	-0.11	5.13
05/07/10 19:07:29	4920	13.36	6.71	4.83	-0.12	5.13
05/07/10 19:07:59	4950	13.37	7.01	5.09	-0.13	5.12
05/07/10 19:08:29	4980	13.37	7.33	5.25	-0.13	5.13
05/07/10 19:08:59	5010	13.38	7.26	5.24	-0.14	5.13
05/07/10 19:09:29	5040	13.37	7.04	5.06	-0.14	5.12
05/07/10 19:09:59	5070	13.36	6.81	5.11	-0.14	5.12
05/07/10 19:10:29	5100	13.36	6.83	5.39	-0.13	5.12
05/07/10 19:10:59	5130	13.37	7.00	5.36	-0.12	5.13
05/07/10 19:11:29	5160	13.36	7.01	5.39	-0.13	5.13
05/07/10 19:11:59	5190	13.37	6.98	5.28	-0.15	5.11
05/07/10 19:12:29	5220	13.36	7.00	5.17	-0.15	5.12
05/07/10 19:12:59	5250	13.35	7.11	4.71	-0.13	5.13
05/07/10 19:13:29	5280	13.38	7.41	5.31	-0.13	5.11
05/07/10 19:13:59	5310	13.40	7.15	6.14	-0.13	5.10
05/07/10 19:14:29	5340	13.38	6.61	5.55	-0.12	5.12
05/07/10 19:14:59	5370	13.37	6.59	5.24	-0.12	5.13
05/07/10 19:15:29	5400	13.36	7.00	4.94	-0.13	5.14
05/07/10 19:15:59	5430	13.37	7.49	4.83	-0.12	5.13
05/07/10 19:16:29	5460	13.38	7.54	5.14	-0.11	5.12
05/07/10 19:16:59	5490	13.39	7.07	5.29	-0.12	5.12
05/07/10 19:17:29	5520	13.38	6.72	4.84	-0.11	5.13
05/07/10 19:17:59	5550	13.40	6.81	5.45	-0.11	5.12
05/07/10 19:18:29	5580	13.41	6.68	5.80	-0.12	5.12
05/07/10 19:18:59	5610	13.40	6.73	5.07	-0.12	5.12
05/07/10 19:19:29	5640	13.39	6.72	5.31	-0.12	5.13
05/07/10 19:19:59	5670	13.39	6.91	5.15	-0.11	5.13
05/07/10 19:20:29	5700	13.39	7.33	5.06	-0.12	5.14
05/07/10 19:20:59	5730	13.40	7.35	5.15	-0.13	5.12
05/07/10 19:21:29	5760	13.39	7.13	5.05	-0.13	5.11
05/07/10 19:21:59	5790	13.40	6.82	4.93	-0.15	5.12
05/07/10 19:22:29	5820	13.41	6.72	5.54	-0.15	5.12
05/07/10 19:22:59	5850	13.40	6.87	5.63	-0.15	5.13
05/07/10 19:23:29	5880	13.39	6.86	5.44	-0.15	5.14
05/07/10 19:23:59	5910	13.39	6.92	5.17	-0.17	5.14
05/07/10 19:24:29	5940	13.38	7.05	4.70	-0.17	5.14
05/07/10 19:24:59	5970	13.40	7.46	5.00	-0.15	5.12
05/07/10 19:25:29	6000	13.42	7.64	5.83	-0.16	5.10
05/07/10 19:25:59	6030	13.42	7.03	5.93	-0.17	5.12
05/07/10 19:26:29	6060	13.40	6.74	5.31	-0.17	5.13
05/07/10 19:26:59	6090	13.39	6.91	4.84	-0.18	5.13
05/07/10 19:27:29	6120	13.39	7.43	4.68	-0.17	5.13

Florida Power and Light
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Mitsubishi, 501G, Unit #1C
West County Energy Center

Fuel Data

Fuel Fd factor	9,222	SCF exh/MMBtu
Fuel Heating Value (HHV)	1,033,782	Btu/SCF fuel
Turbine Fuel Flow	15,965	gal/hr

Weather Data

Barometric Pressure	29.16	in. Hg
Relative Humidity	79	%
Ambient Temperature	82	°F
Specific Humidity	0.019306	lb H_2O / lb air

Unit Data

Unit Load	211.5	megawatts
Combustor Inlet Pressure	256	psig
Meas. Stack Moisture	9.9	%
Stack Exhaust Flow (M2)	57,212,785	SCFH
Stack Exhaust Flow (M19)	56,856,638	SCFH

Data from: NH3 Run 2

Calc basis: Larger of RM 19 and RM 2 exhaust flow numbers.

Base Load, Run - 1-2

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	NOx (ppmvd)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)
05/07/10 19:27:59	6150	13.41	7.66	5.39	-0.16	5.11
05/07/10 19:28:29	6180	13.40	7.02	5.90	-0.18	5.12
05/07/10 19:28:59	6210	13.36	6.50	5.12	-0.18	5.16
05/07/10 19:29:29	6240	13.37	6.80	4.63	-0.18	5.15
05/07/10 19:29:59	6270	13.39	7.15	5.05	-0.18	5.14
05/07/10 19:30:29	6300	13.39	7.08	5.39	-0.19	5.13
05/07/10 19:30:59	6330	13.39	6.75	5.52	-0.16	5.13
05/07/10 19:31:29	6360	13.38	6.68	5.30	-0.13	5.13
05/07/10 19:31:59	6390	13.37	7.08	4.82	-0.13	5.14
05/07/10 19:32:29	6420	13.37	7.43	5.19	-0.14	5.14
05/07/10 19:32:59	6450	13.37	7.30	5.50	-0.13	5.13
05/07/10 19:33:29	6480	13.38	6.99	5.47	-0.13	5.13
05/07/10 19:33:59	6510	13.37	7.01	4.88	-0.14	5.14
05/07/10 19:34:29	6540	13.38	7.32	4.87	-0.15	5.14
05/07/10 19:34:59	6570	13.39	7.02	5.36	-0.15	5.13
05/07/10 19:35:29	6600	13.39	6.60	5.60	-0.16	5.13
05/07/10 19:35:59	6630	13.37	6.43	5.45	-0.17	5.14
05/07/10 19:36:29	6660	13.36	6.74	5.14	-0.18	5.14
05/07/10 19:36:59	6690	13.37	7.07	4.76	-0.19	5.15
05/07/10 19:37:29	6720	13.39	7.37	5.38	-0.20	5.14
05/07/10 19:37:59	6750	13.39	7.10	5.93	-0.20	5.13
05/07/10 19:38:29	6780	13.36	6.76	5.29	-0.20	5.15
05/07/10 19:38:59	6810	13.35	7.03	4.70	-0.21	5.16
05/07/10 19:39:29	6840	13.36	7.32	4.94	-0.20	5.15
05/07/10 19:39:59	6870	13.38	7.10	5.34	-0.20	5.14
05/07/10 19:40:29	6900	13.38	6.80	5.58	-0.20	5.13
05/07/10 19:40:59	6930	13.38	6.67	5.46	-0.20	5.12
05/07/10 19:41:29	6960	13.36	6.94	5.20	-0.20	5.14
05/07/10 19:41:59	6990	13.36	7.26	5.10	-0.20	5.14
05/07/10 19:42:29	7020	13.37	7.30	5.50	-0.20	5.13
05/07/10 19:42:59	7050	13.39	7.05	5.83	-0.20	5.13
05/07/10 19:43:29	7080	13.38	6.92	5.84	-0.20	5.13
05/07/10 19:43:59	7110	13.36	7.06	5.62	-0.20	5.14
05/07/10 19:44:29	7140	13.34	7.33	5.08	-0.20	5.15
05/07/10 19:44:59	7170	13.37	7.56	4.71	-0.20	5.15
05/07/10 19:45:29	7200	13.40	7.48	5.83	-0.20	5.12
05/07/10 19:45:59	7230	13.40	6.99	6.41	-0.21	5.11
05/07/10 19:46:29	7260	13.38	6.64	6.04	-0.22	5.13
05/07/10 19:46:59	7290	13.37	6.76	4.99	-0.22	5.15
05/07/10 19:47:29	7320	13.37	7.06	5.07	-0.22	5.14
05/07/10 19:47:59	7350	13.37	7.17	5.07	-0.21	5.14
05/07/10 19:48:29	7380	13.37	7.23	5.11	-0.21	5.14
05/07/10 19:48:59	7410	13.38	7.25	5.27	-0.22	5.12
05/07/10 19:49:29	7440	13.38	7.03	5.23	-0.23	5.11
05/07/10 19:49:59	7470	13.38	6.76	5.34	-0.23	5.12
05/07/10 19:50:29	7500	13.38	6.56	5.48	-0.23	5.12
05/07/10 19:50:59	7530	13.38	6.75	5.48	-0.25	5.13
05/07/10 19:51:29	7560	13.37	7.07	5.35	-0.25	5.14
05/07/10 19:51:59	7590	13.37	7.28	5.27	-0.26	5.13
05/07/10 19:52:29	7620	13.36	7.23	4.89	-0.26	5.14
05/07/10 19:52:59	7650	13.36	7.19	5.03	-0.26	5.14
05/07/10 19:53:29	7680	13.37	7.13	5.46	-0.26	5.13
05/07/10 19:53:59	7710	13.38	7.08	5.57	-0.25	5.12
05/07/10 19:54:29	7740	13.37	6.97	5.60	-0.25	5.12
05/07/10 19:54:59	7770	13.37	6.88	5.32	-0.26	5.14

Florida Power and Light
May 7, 2010
Mitsubishi, 501G, Unit #1C
West County Energy Center

Fuel Data

Fuel Fd factor	9,222	SCF exh/MMBtu
Fuel Heating Value (HHV)	1,033,782	Btu/SCF fuel
Turbine Fuel Flow	15,965	gal/hr

Weather Data

Barometric Pressure	29.16	in. Hg
Relative Humidity	79	%
Ambient Temperature	82	° F
Specific Humidity	0.019306	lb H_2O / lb air

Unit Data

Unit Load	211.5	megawatts
Combustor Inlet Pressure	256	psig
Meas. Stack Moisture	9.9	%
Stack Exhaust Flow (M2)	57,212,785	SCFH
Stack Exhaust Flow (M19)	56,856,638	SCFH

Data from: NH3 Run 2

Calc basis: Larger of RM 19 and RM 2 exhaust flow numbers.

Base Load, Run - 1-2

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	NOx (ppmvd)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)
05/07/10 19:55:29	7800	13.35	7.04	4.71	-0.25	5.15
05/07/10 19:55:59	7830	13.37	7.52	5.10	-0.25	5.13
05/07/10 19:56:29	7860	13.37	7.58	5.51	-0.24	5.13
05/07/10 19:56:59	7890	13.39	7.37	5.69	-0.25	5.11
05/07/10 19:57:29	7920	13.37	6.89	5.27	-0.23	5.13
05/07/10 19:57:59	7950	13.37	6.80	5.02	-0.23	5.13
05/07/10 19:58:29	7980	13.37	6.88	5.22	-0.24	5.13
05/07/10 19:58:59	8010	13.36	7.06	5.37	-0.23	5.13
05/07/10 19:59:29	8040	13.37	7.11	5.37	-0.22	5.13
05/07/10 19:59:59	8070	13.38	6.99	5.36	-0.22	5.13
RAW AVERAGE		**13.38**	**7.02**	**5.28**	**-0.17**	**5.13**

		O_2	NOx	CO	THC	CO_2
	Serial Number:	INST-N2-0002	INST-N2-0002	INST-CO-0017	INST-TH-0007	INST-C2-0010
		(%)	(ppmvd)	(ppmvd)	(ppmvw)	(%)
Bias	Initial Zero	0.14	0.07	-0.04	-0.26	0.00
	Final Zero	0.15	0.08	-0.05	-0.38	0.01
	Avg. Zero	0.15	0.08	-0.05	-0.32	0.01
	Initial UpScale	12.08	12.07	11.99	2.84	8.68
	Final UpScale	12.07	12.08	11.96	2.73	8.71
	Avg. UpScale	12.08	12.08	11.98	2.79	8.70
Upscale Cal Gas		12.10	12.20	12.10	2.89	8.89

EMISSIONS DATA	O_2	NOx	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	13.42	7.07	5.36	0.12	5.24
Concentration (ppm@ 15%O_2)	N/A	5.57	4.23	0.10	N/A
Concentration (ppm@ 15%O_2 &ISO)	N/A	6.67	5.06	0.11	N/A
Emission Rate (lb/hr)	N/A	48.28	22.28	0.29	N/A
Emission Rate (tons/year) at 500 hr/yr	N/A	12.07	5.57	0.07	N/A
Emission Rate (lb/MMBtu)	N/A	0.022	0.010	0.000	N/A

Florida Power and Light
May 7, 2010
Mitsubishi, 501G, Unit #1C
West County Energy Center

Fuel Data

Fuel Fd factor	9,222	SCF exh/MMBtu
Fuel Heating Value (HHV)	1,033,782	Btu/SCF fuel
Turbine Fuel Flow	16,081	gal/hr

Weather Data

Barometric Pressure	29.18	in. Hg
Relative Humidity	87	%
Ambient Temperature	79	°F
Specific Humidity	0.019024	lb H_2O / lb air

Unit Data

Unit Load	213.6	megawatts
Combustor Inlet Pressure	258	psig
Meas. Stack Moisture	10.2	%
Stack Exhaust Flow (M2)	58,237,889	SCFH
Stack Exhaust Flow (M19)	56,937,017	SCFH

Data from: NH3 Run 3

Calc basis: Larger of RM 19 and RM 2 exhaust flow numbers.

Base Load, Run - 1-3

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	NOx (ppmvd)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)
05/07/10 20:30:29	9900	13.31	7.20	4.82	-0.33	5.18
05/07/10 20:30:59	9930	13.32	7.36	5.43	-0.34	5.15
05/07/10 20:31:29	9960	13.33	7.04	5.87	-0.34	5.16
05/07/10 20:31:59	9990	13.33	6.93	5.86	-0.33	5.16
05/07/10 20:32:29	10020	13.32	6.94	5.48	-0.33	5.18
05/07/10 20:32:59	10050	13.31	7.04	4.66	-0.33	5.19
05/07/10 20:33:29	10080	13.32	7.20	4.99	-0.33	5.18
05/07/10 20:33:59	10110	13.33	7.12	5.47	-0.32	5.17
05/07/10 20:34:29	10140	13.33	7.08	5.78	-0.32	5.17
05/07/10 20:34:59	10170	13.32	6.83	5.67	-0.32	5.17
05/07/10 20:35:29	10200	13.30	6.73	4.92	-0.32	5.19
05/07/10 20:35:59	10230	13.31	7.06	4.70	-0.31	5.18
05/07/10 20:36:29	10260	13.32	7.36	5.27	-0.31	5.17
05/07/10 20:36:59	10290	13.33	7.14	5.76	-0.31	5.15
05/07/10 20:37:29	10320	13.32	6.53	5.88	-0.29	5.16
05/07/10 20:37:59	10350	13.31	6.34	5.59	-0.29	5.17
05/07/10 20:38:29	10380	13.31	6.82	5.09	-0.28	5.18
05/07/10 20:38:59	10410	13.32	7.30	5.78	-0.27	5.16
05/07/10 20:39:29	10440	13.31	6.99	5.88	-0.29	5.18
05/07/10 20:39:59	10470	13.31	6.83	4.75	-0.29	5.19
05/07/10 20:40:29	10500	13.32	7.10	5.13	-0.31	5.18
05/07/10 20:40:59	10530	13.31	7.30	5.60	-0.30	5.18
05/07/10 20:41:29	10560	13.31	6.96	5.79	-0.29	5.18
05/07/10 20:41:59	10590	13.31	6.65	5.69	-0.30	5.18
05/07/10 20:42:29	10620	13.29	6.69	5.02	-0.31	5.19
05/07/10 20:42:59	10650	13.31	7.18	4.84	-0.30	5.16
05/07/10 20:43:29	10680	13.34	7.21	6.18	-0.29	5.15
05/07/10 20:43:59	10710	13.33	6.60	6.46	-0.30	5.17
05/07/10 20:44:29	10740	13.32	6.55	5.53	-0.30	5.18
05/07/10 20:44:59	10770	13.31	7.01	5.49	-0.30	5.19
05/07/10 20:45:29	10800	13.30	7.27	5.13	-0.29	5.21
05/07/10 20:45:59	10830	13.30	7.33	5.01	-0.28	5.20
05/07/10 20:46:29	10860	13.32	7.31	5.49	-0.27	5.18
05/07/10 20:46:59	10890	13.31	7.10	5.51	-0.29	5.19
05/07/10 20:47:29	10920	13.32	6.94	5.75	-0.29	5.18
05/07/10 20:47:59	10950	13.32	6.49	6.09	-0.28	5.19
05/07/10 20:48:29	10980	13.31	6.63	5.73	-0.28	5.20
05/07/10 20:48:59	11010	13.31	7.11	5.28	-0.29	5.19
05/07/10 20:49:29	11040	13.30	7.49	4.98	-0.28	5.20
05/07/10 20:49:59	11070	13.31	7.47	4.94	-0.28	5.19
05/07/10 20:50:29	11100	13.33	7.03	6.32	-0.28	5.17
05/07/10 20:50:59	11130	13.33	6.61	6.89	-0.30	5.19
05/07/10 20:51:29	11160	13.30	6.40	5.58	-0.31	5.21
05/07/10 20:51:59	11190	13.31	6.62	5.25	-0.30	5.21
05/07/10 20:52:29	11220	13.31	7.04	5.61	-0.31	5.21
05/07/10 20:52:59	11250	13.31	7.27	5.57	-0.32	5.21
05/07/10 20:53:29	11280	13.30	7.30	5.55	-0.32	5.21
05/07/10 20:53:59	11310	13.30	7.31	5.33	-0.33	5.21
05/07/10 20:54:29	11340	13.29	7.07	4.85	-0.34	5.20
05/07/10 20:54:59	11370	13.32	7.15	5.60	-0.33	5.19
05/07/10 20:55:29	11400	13.32	6.94	6.31	-0.32	5.19
05/07/10 20:55:59	11430	13.32	6.64	6.24	-0.30	5.20
05/07/10 20:56:29	11460	13.28	6.56	5.05	-0.32	5.22
05/07/10 20:56:59	11490	13.30	7.09	4.95	-0.30	5.22
05/07/10 20:57:29	11520	13.30	7.42	5.27	-0.32	5.22

Florida Power and Light
May 7, 2010
Mitsubishi, 501G, Unit #1C
West County Energy Center

Fuel Data

Fuel Fd factor	9,222	SCF exh/MMBtu
Fuel Heating Value (HHV)	1,033,782	Btu/SCF fuel
Turbine Fuel Flow	16,081	gal/hr

Weather Data

Barometric Pressure	29.18	in. Hg
Relative Humidity	87	%
Ambient Temperature	79	°F
Specific Humidity	0.019024	lb H_2O / lb air

Unit Data

Unit Load	213.6	megawatts
Combustor Inlet Pressure	258	psig
Meas. Stack Moisture	10.2	%
Stack Exhaust Flow (M2)	58,237,889	SCFH
Stack Exhaust Flow (M19)	56,937,017	SCFH

Data from: NH3 Run 3

Calc basis: Larger of RM 19 and RM 2 exhaust flow numbers.

Base Load, Run - 1-3

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	NOx (ppmvd)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)
05/07/10 20:57:59	11550	13.31	7.32	5.60	-0.28	5.21
05/07/10 20:58:29	11580	13.32	6.90	6.11	-0.30	5.20
05/07/10 20:58:59	11610	13.31	6.62	5.67	-0.31	5.22
05/07/10 20:59:29	11640	13.32	6.99	5.48	-0.32	5.21
05/07/10 20:59:59	11670	13.32	7.15	5.95	-0.33	5.21
05/07/10 21:00:29	11700	13.30	6.98	5.63	-0.33	5.20
05/07/10 21:00:59	11730	13.30	7.08	4.72	-0.32	5.20
05/07/10 21:01:29	11760	13.32	7.49	5.46	-0.32	5.19
05/07/10 21:01:59	11790	13.32	7.19	6.33	-0.33	5.17
05/07/10 21:02:29	11820	13.31	6.60	6.51	-0.33	5.18
05/07/10 21:02:59	11850	13.29	6.39	5.72	-0.33	5.21
05/07/10 21:03:29	11880	13.29	6.89	4.87	-0.33	5.20
05/07/10 21:03:59	11910	13.33	7.29	5.97	-0.34	5.19
05/07/10 21:04:29	11940	13.33	6.86	6.45	-0.34	5.19
05/07/10 21:04:59	11970	13.30	6.83	5.46	-0.35	5.20
05/07/10 21:05:29	12000	13.31	7.23	5.61	-0.36	5.20
05/07/10 21:05:59	12030	13.30	7.11	5.89	-0.35	5.20
05/07/10 21:06:29	12060	13.29	7.05	5.56	-0.36	5.19
05/07/10 21:06:59	12090	13.27	7.17	4.80	-0.36	5.19
05/07/10 21:07:29	12120	13.29	7.60	5.19	-0.36	5.18
05/07/10 21:07:59	12150	13.32	7.21	6.29	-0.35	5.18
05/07/10 21:08:29	12180	13.31	6.61	6.25	-0.35	5.19
05/07/10 21:08:59	12210	13.29	6.45	5.33	-0.35	5.20
05/07/10 21:09:29	12240	13.29	7.07	4.69	-0.35	5.20
05/07/10 21:09:59	12270	13.31	7.33	5.80	-0.35	5.18
05/07/10 21:10:29	12300	13.32	6.83	6.56	-0.34	5.17
05/07/10 21:10:59	12330	13.30	6.55	6.03	-0.34	5.19
05/07/10 21:11:29	12360	13.29	6.90	5.07	-0.34	5.20
05/07/10 21:11:59	12390	13.30	7.34	5.49	-0.31	5.19
05/07/10 21:12:29	12420	13.30	7.12	6.00	-0.33	5.18
05/07/10 21:12:59	12450	13.30	7.05	6.04	-0.34	5.17
05/07/10 21:13:29	12480	13.30	7.03	5.73	-0.34	5.18
05/07/10 21:13:59	12510	13.29	6.90	5.46	-0.32	5.19
05/07/10 21:14:29	12540	13.30	6.96	5.65	-0.34	5.18
05/07/10 21:14:59	12570	13.30	7.05	5.92	-0.34	5.18
05/07/10 21:15:29	12600	13.30	7.03	6.01	-0.34	5.19
05/07/10 21:15:59	12630	13.29	6.84	5.72	-0.35	5.19
05/07/10 21:16:29	12660	13.28	6.96	5.00	-0.35	5.20
05/07/10 21:16:59	12690	13.31	7.40	5.55	-0.36	5.18
05/07/10 21:17:29	12720	13.31	7.37	6.13	-0.37	5.18
05/07/10 21:17:59	12750	13.31	6.78	6.28	-0.36	5.18
05/07/10 21:18:29	12780	13.29	6.75	5.96	-0.34	5.19
05/07/10 21:18:59	12810	13.27	7.16	5.37	-0.36	5.19
05/07/10 21:19:29	12840	13.28	7.38	5.49	-0.35	5.19
05/07/10 21:19:59	12870	13.30	7.28	6.02	-0.35	5.18
05/07/10 21:20:29	12900	13.31	7.21	6.30	-0.35	5.18
05/07/10 21:20:59	12930	13.28	6.83	5.46	-0.35	5.20
05/07/10 21:21:29	12960	13.29	6.90	5.50	-0.34	5.19
05/07/10 21:21:59	12990	13.28	7.07	5.77	-0.33	5.20
05/07/10 21:22:29	13020	13.28	7.10	5.89	-0.33	5.20
05/07/10 21:22:59	13050	13.29	6.86	5.92	-0.33	5.20
05/07/10 21:23:29	13080	13.28	6.84	5.69	-0.33	5.20
05/07/10 21:23:59	13110	13.30	7.15	5.51	-0.33	5.20
05/07/10 21:24:29	13140	13.30	7.11	6.39	-0.32	5.18
05/07/10 21:24:59	13170	13.30	6.80	6.46	-0.31	5.18

Florida Power and Light
May 7, 2010
Mitsubishi, 501G, Unit #1C
West County Energy Center

Fuel Data

Fuel Fd factor	9,222	SCF exh/MMBtu
Fuel Heating Value (HHV)	1,033,782	Btu/SCF fuel
Turbine Fuel Flow	16,081	gal/hr

Weather Data

Barometric Pressure	29.18	in. Hg
Relative Humidity	87	%
Ambient Temperature	79	°F
Specific Humidity	0.019024	lb H_2O / lb air

Unit Data

Unit Load	213.6	megawatts
Combustor Inlet Pressure	258	psig
Meas. Stack Moisture	10.2	%
Stack Exhaust Flow (M2)	58,237,889	SCFH
Stack Exhaust Flow (M19)	56,937,017	SCFH

Data from: NH3 Run 3

Calc basis: Larger of RM 19 and RM 2 exhaust flow numbers.

Base Load, Run - 1-3

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	NOx (ppmvd)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)
05/07/10 21:25:29	13200	13.28	6.84	5.45	-0.31	5.19
05/07/10 21:25:59	13230	13.28	7.27	5.91	-0.33	5.18
05/07/10 21:26:29	13260	13.29	7.13	6.60	-0.32	5.17
05/07/10 21:26:59	13290	13.29	6.85	6.29	-0.33	5.18
05/07/10 21:27:29	13320	13.28	7.03	5.36	-0.32	5.19
05/07/10 21:27:59	13350	13.30	7.18	6.00	-0.33	5.18
05/07/10 21:28:29	13380	13.30	6.94	6.23	-0.35	5.18
05/07/10 21:28:59	13410	13.30	6.94	6.37	-0.34	5.18
05/07/10 21:29:29	13440	13.29	6.95	6.22	-0.34	5.18
05/07/10 21:29:59	13470	13.28	6.95	5.63	-0.35	5.20
RAW AVERAGE		**13.31**	**7.01**	**5.65**	**-0.32**	**5.19**

		O_2	NOx	CO	THC	CO_2
	Serial Number:	INST-N2-0002	INST-N2-0002	INST-CO-0017	INST-TH-0007	INST-C2-0010
		(%)	(ppmvd)	(ppmvd)	(ppmvw)	(%)
Bias	Initial Zero	0.15	0.08	-0.05	-0.38	0.01
Bias	Final Zero	0.06	0.10	-0.03	-0.52	0.02
Bias	Avg. Zero	0.11	0.09	-0.04	-0.45	0.02
Bias	Initial UpScale	12.07	12.08	11.96	2.73	8.71
Bias	Final UpScale	12.02	12.09	11.97	2.66	8.71
Bias	Avg. UpScale	12.05	12.09	11.97	2.70	8.71
Upscale Cal Gas		12.10	12.20	12.10	2.89	8.89

EMISSIONS DATA	O_2	NOx	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	13.38	7.03	5.73	0.08	5.29
Concentration (ppm@ 15%O_2)	N/A	5.52	4.49	0.07	N/A
Concentration (ppm@ 15%O_2 &ISO)	N/A	6.63	5.40	0.08	N/A
Emission Rate (lb/hr)	N/A	48.93	24.25	0.20	N/A
Emission Rate (tons/year) at 500 hr/yr	N/A	12.23	6.06	0.05	N/A
Emission Rate (lb/MMBtu)	N/A	0.022	0.011	0.000	N/A

TEST RESULTS

NH_3 Emissions

AMMONIA ANALYSIS

Air Hygiene International, Inc.
5634 S. 122nd East Ave, Suite F
Tulsa, Oklahoma 74146
(888) 461-8778
www.airhygiene.com

PARAMETER	UNITS	RUN						
		1		2		3		BLANK
		Front (f)	Back (b)	Front (f)	Back (b)	Front (f)	Back (b)	
Sample Number		I1 - R1	I2 - R1	I1 - R2	I2 - R2	I1 - R3	I2 - R3	H2SO4 Blank
Lab Log Number		100508-03	100508-04	100508-05	100508-06	100508-07	100508-08	100508-02
Results (C_f or C_b)	(mg/L)	20.9000	0.3800	18.5000	0.4900	21.1000	0.2550	0.1000
Practical Quantitation Limit (PQL)	(mg/L)	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Sample Volume (V_{NH3})	(ml)	200	200	200	200	200	200	200
DGM Volume $(V_m)_{dscf}$	(dscf)	45.98		46.35		47.49		47.49
DGM Volume $(V_m)_{dstdL}$	(L_{dstd})	1301.98		1312.50		1344.66		1344.66
Sum of NH_3 Ion (N)	(mg/L)	20.9000	0.3800	18.5000	0.4900	21.1000	0.2550	0.1000
Total Sample Volume (S)	(ml)	200	200	200	200	200	200	200
Volume of NH_3 (V_a)	(L)	0.00550	0.00010	0.00487	0.00013	0.00555	0.00007	0.00003
O_2 Concentration	(%)	13.42		13.42		13.38		N/A
NH_3 Concentration (C_{NH3})	(ppmvd)	4.30		3.81		4.18		0.020
C_{NH3} @ 15% O_2	(ppmvd)	3.39		3.00		3.28		N/A

Equations & Constants:

Example Using Data from the 1st run

DGM Volume (L_{dstd})

$$(V_m)_{dstdL}(L_{dstd}) = (V_m)_{dscf} \times 28.31685$$

$(V_m)_{dstdL}$ (L_{dstd}) = 45.98 dscf x 28.31685 L/ft^3 = 1301.98 L_{dstd}

$(V_m)_{dscf}$ = Volume of gas sample measured by the DGM, corrected to standard conditions.

MW = molecular weight (ref. ASTM D 3588)

C_f = Concentration of NH3 ion in the front half of train (main catch)

C_b = Concentration of NH3 ion in the back half of train (breakthrough)

Volume of NH_3 (L)

$$V_a(L) = \frac{\frac{N \times S}{1000} \times 22.4}{MW \times 1000}$$

$$V_a\,(L) = \frac{20.9\text{ mg}}{\text{L}} \times 200\text{ ml} \times \frac{\text{L}}{1000\text{ ml}} \times \frac{22.4\text{ L ideal gas}}{\text{g-mol substance}} \times \frac{\text{g-mol } NH_3}{17.03\text{ g}} \times \frac{\text{g}}{1000\text{ mg}} = 0.00550\text{ L}$$

NH_3 Concentration (ppmvd)

$$C_{NH3}(ppmvd) = \frac{V_{a(front)} + V_{a(back)}}{(V_m)_{dstdL}} \times 10^6$$

$$C_{NH3}\text{ (ppmvd)} = \frac{0.0055\text{ L} + 0.0001\text{ L}}{1301.98\text{ L}_{dstd}} \times \frac{10^6\text{ parts}}{1\text{ part}} = 4.300\text{ ppmvd}$$

22.4 = liters of ideal gas per mol of substance at 0°C and 1 atm (ref. Civil Engineering Reference Manual, 7th ed. - Michael R. Lindeburg)

Ammonia Sample Log-In Sheet

Lab Tech: Albert Septiano
Project: bv-10-westcounty.fl-comp#1
Collected by: JRF
Date Received: 5/8/2010

AIR HYGIENE

BLANKS

AHI Lab #	Sample ID	Sample Source Description	Run #	Filter Contents	Sample Date	Comments	Volume (ml)
100508-02	H2SO4 Blank			H_2SO_4, H_2O	5/7/2010	Normal	200

SAMPLES

AHI Lab #	Sample ID	Sample Source Description	Run #	Contents	Sample Date	Comments	Volume (ml)
100508-03	I1 - R1	Unit 1C, Impinger 1 Run 1		H_2SO_4, H_2O	5/7/2010	Normal	200
100508-04	I2 - R1	Unit 1C, Impinger 2 Run 1		H_2SO_4, H_2O	5/7/2010	Normal	200
100508-05	I1 - R2	Unit 1C, Impinger 1 Run 2		H_2SO_4, H_2O	5/7/2010	Normal	200
100508-06	I2 - R2	Unit 1C, Impinger 2 Run 2		H_2SO_4, H_2O	5/7/2010	Normal	200
100508-07	I1 - R3	Unit 1C, Impinger 1 Run 3		H_2SO_4, H_2O	5/7/2010	Normal	200
100508-08	I2 - R3	Unit 1C, Impinger 2 Run 3		H_2SO_4, H_2O	5/7/2010	Normal	200

Ammonia Sample Measurement

Lab Tech:	Albert Septiano
Project:	bv-10-westcounty.fl-comp#1
Date Analyzed:	5/9/2010
Time Analyzed:	4:00 PM
Temp (°F)	72.0
Humidity	32%
BP (In HG)	29.41
Analysis Method	350.3

Calibration Data

Concentration (ppm)	Pre-Cal (ppm)	Pre-Cal (mV)		
0.0	0.0	105.0		
1.0	1.1	0.0		
5.0	5.0	-38.0		
20.0	19.9	-78.6		
Slope		94.8%		
Linearity	1.0068	N/A		

Sample ID	Sample Amt Used (ml)	ISA/pH Volume (ml)	Meter Reading (mg/L)	Meter Reading (mV)	Time Analyzed (hh:mm:ss)	Dilution Factor	Sample Volume	MQL (mg/L)	PQL (mg/L)	Final Conc. (mg/L)
100508-02	100.0	2.0	0.004	93.8	5:05:00	1.0	200.0	0.10	0.1	BPQL
100508-03	100.0	2.0	20.900	-80.0	5:10:00	1.0	200.0	0.10	0.1	20.9
100508-04	100.0	2.0	0.380	19.2	5:15:00	1.0	200.0	0.10	0.1	0.4
100508-05	100.0	2.0	18.500	-76.5	5:20:00	1.0	200.0	0.10	0.1	18.5
100508-06	100.0	2.0	0.490	12.8	5:25:00	1.0	200.0	0.10	0.1	0.5
100508-07	100.0	2.0	21.100	-81.0	5:30:00	1.0	200.0	0.10	0.1	21.1
100508-08	100.0	2.0	0.255	26.9	5:35:00	1.0	200.0	0.10	0.1	0.3

Air Hygine International, Inc.
5634 S 122nd East Ave, Ste F
Tulsa, OK 74146
888-461-8778

AIR HYGIENE

Ammonia Analysis

Project Name: bv-10-westcounty.fl-comp#1
Date Received: 5/8/2010

AHI Lab No.: 100508-02
Sample ID: H2SO4 Blank
Sampling Date: 5/7/2010

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	BPQL	0.10	5/9/10 5:05
Volume	Volume in ml	N/A	200	N/A	5/9/10 16:00

AHI Lab No.: 100508-03
Sample ID: I1 - R1
Sampling Date: 5/7/2010

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	20.9	0.10	5/9/10 5:10
Volume	Volume in ml	N/A	200	N/A	5/9/10 16:00

AHI Lab No.: 100508-04
Sample ID: I2 - R1
Sampling Date: 5/7/2010

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	0.38	0.10	5/9/10 5:15
Volume	Volume in ml	N/A	200	N/A	5/9/10 16:00

AHI Lab No.: 100508-05
Sample ID: I1 - R2
Sampling Date: 5/7/2010

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	18.5	0.10	5/9/10 5:20
Volume	Volume in ml	N/A	200	N/A	5/9/10 16:00

AHI Lab No.: 100508-06
Sample ID: I2 - R2
Sampling Date: 5/7/2010

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	0.49	0.10	5/9/10 5:25
Volume	Volume in ml	N/A	200	N/A	5/9/10 16:00

AHI Lab No.: 100508-07
Sample ID: I1 - R3
Sampling Date: 5/7/2010

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	21.1	0.10	5/9/10 5:30
Volume	Volume in ml	N/A	200	N/A	5/9/10 16:00

AHI Lab No.: 100508-08
Sample ID: I2 - R3
Sampling Date: 5/7/2010

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	0.255	0.10	5/9/10 5:35
Volume	Volume in ml	N/A	200	N/A	5/9/10 16:00

CTM 027 (AMMONIA) - RESULTS

Plant Name	West County Energy Center	**Date**	05/07/10
Sampling Location	Unit 1C	**Project #**	bv-10-westcounty.fl-comp#1
Operator	MS	**Stack Type**	Circular

Historical Data						
Run Number		Base-1	Base-2	Base-3	**Average**	
Run Start Time		17:35	19:00	20:30		hh:mm
Run Stop Time		18:50	20:16	21:39		hh:mm
Meter Calibration Factor	(Y)	0.986	0.986	0.986		
Pitot Tube Coefficient	(C_p)	0.840	0.840	0.840		
Average Nozzle Diameter	(D_{na})	0.241	0.241	0.241		in
Stack Test Data						
Initial Meter Volume	(V_m)$_i$	508.240	557.015	606.420		ft3
Final Meter Volume	(V_m)$_f$	556.760	606.200	656.725		ft3
Total Meter Volume	(V_m)	48.520	49.185	50.305	49.337	ft3
Total Sampling Time	(Θ)	60.0	60.0	60.0	60.0	min
Average Meter Temperature	(t_m)$_{avg}$	77.9	81.2	80.8	80.0	oF
Average Stack Temperature	(t_s)$_{avg}$	224.0	224.2	224.1	224.1	oF
Barometric Pressure	(P_b)	29.15	29.16	29.18	29.16	in Hg
Stack Static Pressure	(P_{static})	-0.85	-0.85	-0.85	-0.85	in H2O
Absolute Stack Pressure	(P_s)	29.09	29.10	29.12	29.10	in Hg
Average Orifice Pressure Drop	(ΔH)$_{avg}$	1.97	1.98	2.09	2.01	in H2O
Absolute Meter Pressure	(P_m)	29.27	29.28	29.30	29.28	in Hg
Avg Square Root Pitot Pressure	($\Delta p^{1/2}$)$_{avg}$	0.95	0.95	0.97	0.96	(in H2O)1/2
Moisture Content Data						
Impingers 1-3 Water Volume Gain	(V_n)	94.5	87.9	98.2	93.5	ml
Impinger 4 Silica Gel Weight Gain	(W_n)	16.4	20.7	16.0	17.7	g
Total Water Volume Collected	(V_{lc})	110.9	108.6	114.2	111.2	ml
Standard Water Vapor Volume	(V_w)$_{std}$	5.220	5.112	5.376	5.236	scf
Standard Meter Volume	(V_m)$_{std}$	45.979	46.350	47.486	46.605	dscf
Calculated Stack Moisture	($B_{ws(calc)}$)	10.19	9.93	10.17	10.10	%
Saturated Stack Moisture	($B_{ws(svp)}$)	100.0	100.0	100.0	100.0	%
Reported Stack Moisture Content	(B_{ws})	10.19	9.93	10.17	10.10	%
Gas Analysis Data						
Carbon Dioxide Percentage	(%CO_2)	5.2	5.2	5.3	5.2	%
Oxygen Percentage	(%O_2)	13.4	13.4	13.4	13.4	%
Carbon Monoxide Percentage	(%CO)	0.0	0.0	0.0	0.0	%
Nitrogen Percentage	(%N_2)	81.4	81.3	81.3	81.4	%
Dry Gas Molecular Weight	(M_d)	29.36	29.38	29.38	29.37	lb/lb-mole
Wet Stack Gas Molecular Weight	(M_s)	28.20	28.25	28.22	28.22	lb/lb-mole
Calculated Fuel Factor	(F_o)	1.452	1.427	1.421	1.434	
Fuel F-Factor	(F_d)	9222	9222	9222	9222	dscf/MMBtu
Percent Excess Air	(%EA)	166.1	166.6	165.4	166.0	%
Volumetric Flow Rate Data						
Average Stack Gas Velocity	(v_s)	62.28	62.14	63.37	62.60	ft/sec
Stack Cross-Sectional Area	(A_s)	378.35	378.35	378.35	378.35	ft2
Actual Stack Flow Rate	(Q_{aw})	1,413,815	1,410,624	1,438,608	1,421,016	acfm
Wet Standard Stack Flow Rate	(Q_{sw})	63,656	63,523	64,831	64,003	wkscfh
Dry Standard Stack Flow Rate	(Q_{sd})	952,782	953,546	970,631	958,986	dscfm
Percent of Isokinetic Rate	(I)	96.1	99.2	97.5	97.6	%
Ammonia Rate Data						
Stack Ammonia Concentration	(c_{NH3})	4.30	3.81	4.18	4.09	ppm
	(c_{NH3}')	3.39	3.00	3.28	3.22	ppm@15%O_2
Ammonia Emission Rate	(E_{NH3})	10.87	9.63	10.76	10.42	lbs/hr

CTM 027 (AMMONIA) SOURCE SAMPLING TITLE PAGE

ALARMS exist and have been acknowledged.

Source Information				
Plant Name	West County Energy Center			
Sampling Location	Unit 1C			
Fuel or Source Type	Oil, Distillate			
Fuel F-Factor	9222	9222	9222	

Test Information			
Starting Test Date		05/07/10	
Project #		bv-10-westcounty.fl-comp#1	
Operator		MS	
Standard Temperature		68	oF
Standard Pressure		29.92	in Hg
Minimum Required Sample Vol.	indust. spec.	35	scf
Run Duration	chk Subpart	60	minutes
Unit Number		1C	
Load	% or w/DB	Base	
Base Run Number		Base	
Number of Ports Available		4	
Number of Ports Used		4	
Port Inside Diameter		6.00	in
Circular Stack			

Test Equipment Information					
Run		**1**	**2**	**3**	
Meter Box Number	from ACS	samp-cp-0011	samp-cp-0011	samp-cp-0011	
Meter Calibration Factor	(Y)	0.986	0.986	0.986	
Orifice Meter Coefficient	(ΔH@)	1.650	1.650	1.650	in H_2O
Pitot Identification	from ACS	na	na	na	
Pitot Tube Coefficient	(C_p)	0.840	0.840	0.840	
Nozzle Diameter	(D_n)	0.241	0.241	0.241	in
Probe Number	from ACS	na	na	na	
Probe Length		120.00	120.00	120.00	in
(SS, Glass ....) Liner Material	from list	inconel	inconel	inconel	
Sample Case / Oven Number	from ACS	samp-bh-0003	samp-bh-0003	samp-bh-0003	
Impinger Case Number	from ACS	samp-vc-0001	samp-61-001B	samp-vc-0001	

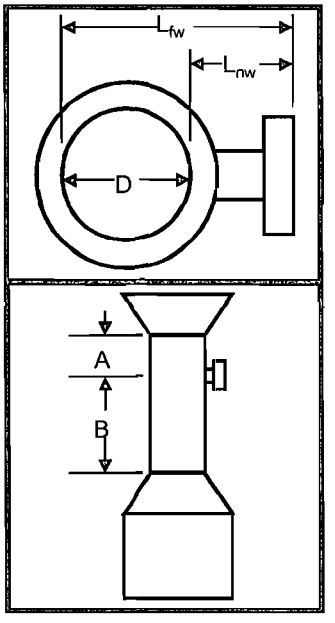
Testing Company Information	
Company Name	Air Hygiene International, Inc. (Tulsa, Oklahoma)
Address	5634 S. 122nd East Ave., Suite F
City, State Country Zip	Tulsa, Oklahoma 74146
Project Manager	Jake Fahlenkamp
Phone Number	(918) 307-8865
Fax Number	(918) 307-9131

METHOD 1 - SAMPLE AND VELOCITY TRAVERSES FOR CIRCULAR SOURCES

Plant Name	West County Energy Center	**Date**	05/07/10
Sampling Location	Unit 1C	**Project #**	bv-10-westcounty.fl-comp#1
Operator	MS	**# of Ports Available**	4
Stack Type	Circular	**# of Ports Used**	4
Stack Size	Large	**Port Inside Diameter**	6.00

Circular Stack or Duct Diameter			
Distance to Far Wall of Stack	(L_{fw})	282.38	in
Distance to Near Wall of Stack	(L_{nw})	19.00	in
Diameter of Stack	(D)	263.38	in
Area of Stack	(A_s)	378.35	ft2

Distance from Port to Disturbances			
Distance Upstream	(A)	144.00	in
Diameters Upstream	(A_D)	0.55	diameters
Distance Downstream	(B)	531.75	in
Diameters Downstream	(B_D)	2.02	diameters



Number of Traverse Points Required			
Diameters to Flow Disturbance		**Minimum Number of[1] Traverse Points**	
Down Stream	**Up Stream**	**Particulate Points**	**Velocity Points**
2.00-4.99	0.50-1.24	24	16
5.00-5.99	1.25-1.49	20	16
6.00-6.99	1.50-1.74	16	12
7.00-7.99	1.75-1.99	12	12
>= 8.00	>=2.00	8 or 12[2]	8 or 12[2]
Upstream Spec		24	16
Downstream Spec		24	16
Traverse Pts Required		24	16

[1] Check Minimum Number of Points for the Upstream and Downstream conditions, then use the largest.

[2] 8 for Circular Stacks 12 to 24 inches
12 for Circular Stacks over 24 inches

Number of Traverse Points Used			
4	**Ports by**	6	**Across**
24	**Pts Used**	24	**Required**
		Particulate Traverse	

Location of Traverse Points in Circular Stacks									
Traverse Point	(Fraction of Stack Dimension from Inside Wall to Traverse Point)								
	Number of Traverse Points Across the Stack								
Number	**2**	**4**	**6**	**8**	**10**	**12**	**14**	**16**	**18**
1	.146	.067	.044	.032	.026	.021	.018	.016	.014
2	.854	.250	.146	.105	.082	.067	.057	.049	.044
3		.750	.296	.194	.146	.118	.099	.085	.075
4		.933	.704	.323	.226	.177	.146	.125	.109
5			.854	.677	.342	.250	.201	.169	.146
6			.956	.806	.658	.356	.269	.220	.188
7				.895	.774	.644	.366	.283	.236
8				.968	.854	.750	.634	.375	.296
9					.918	.823	.731	.625	.382
10					.974	.882	.799	.717	.618
11						.933	.854	.780	.704
12						.979	.901	.831	.764

Traverse Point Locations			
Traverse Point Number	**Fraction of Stack Diameter**	**Distance from Inside Wall**	**Distance Including Reference Length**
		in	in
1	0.02	5 4/8	24 4/8
2	0.07	17 5/8	36 5/8
3	0.12	31 1/8	50 1/8
4	0.18	46 5/8	65 5/8
5	0.25	65 7/8	84 7/8
6	0.36	93 6/8	112 6/8
7			
8			
9			
10			
11			
12			

-10-westcounty#1-U1C-NH3

METHOD 2 - DETERMINATION OF STACK GAS VELOCITY AND VOLUMETRIC FLOW RATE

Plant Name	West County Energy Center			
Sampling Location	Unit 1C			
Operator	MS			
Stack Type	Circular			
Pitot Leak Check	☑	PreTest	☑	PostTest

Date	05/07/10
Project #	bv-10-westcounty.fl-comp#1
# of Ports Used	4
Pitot Identification	na
Pitot Coefficient (C_p)	0.84

Stack Dimensions			
Diameter or Length of Stack	(D)	263.38	in
Width of Stack	(W)		in
Area of Stack	(A_s)	378.35	ft2

Pressures			
Barometric Pressure	(P_b)	29.97	in Hg
Static Pressure	(P_{static})	-0.85	in H2O
Absolute Stack Pressure	(P_s)	29.91	in Hg

Stack Gas Composition			
Composition Data:		Estimated Composition	
Carbon Dioxide Concentration	(%CO_2)	5.2	%
Oxygen Concentration	(%O_2)	13.5	%
Carbon Monoxide Concentration	(%CO)	0.0	%
Nitrogen Concentration	(%N_2)	81.3	%
Stack Moisture Content	(B_{ws})	10.000	%
Stack Dry Molecular Weight	(M_d)	29.37	lb/lb-mole
Stack Wet Molecular Weight	(M_s)	28.23	lb/lb-mole

Results			
Avg Stack Gas Velocity	(v_s)	60.7	ft/sec
Avg Stack Dry Std Flow Rate	(Q_{sd})	57,068,211	dscf/hr
Avg Stack Dry Std Flow Rate	(Q_{sd})	951,137	dscf/min
Avg Stack Wet Flow Rate	(Q_{aw})	1,378,560	acf/min
Avg Stack Wet Std Flow Rate	(Q_{sw})	63,409,123	ascf/hr

Stack Cross Section Schematic

Velocity Traverse Data				
Run Number		Base-V1		
Run Time	14:38	Start	15:06	End
Traverse Point	Velocity Head (Δp)	Null Angle (N_a)	Stack Temp (t_s)	Local Velocity ($v_{s(l)}$)
	in H2O	deg	oF	ft/sec
A-1	0.79	5	229	57.7
A-2	0.70	0	228	54.2
A-3	0.71	0	227	54.6
A-4	0.69	0	228	53.8
A-5	0.65	0	226	52.2
A-6	0.58	5	224	49.2
B-1	0.90	5	230	61.6
B-2	1.10	5	229	68.0
B-3	1.20	5	230	71.1
B-4	1.30	5	229	74.0
B-5	1.20	5	228	71.0
B-6	1.10	5	228	68.0
C-1	1.00	5	230	64.9
C-2	1.20	0	230	71.1
C-3	1.20	0	230	71.1
C-4	1.10	5	230	68.1
C-5	1.20	0	229	71.1
C-6	1.00	0	229	64.9
D-1	0.69	5	228	53.8
D-2	0.68	5	229	53.5
D-3	0.65	0	229	52.3
D-4	0.62	0	228	51.0
D-5	0.60	0	228	50.2
D-6	0.60	5	227	50.2
Average	0.89	3	228	
	0.94	= Square roots of Δp		

·10-westcounty#1-U1C-NH3

METHOD 3a - DETERMINATION OF DRY MOLECULAR WEIGHT BY ANALYZER

Plant Name	West County Energy Center				**Date**	05/07/10	
Sampling Location	Unit 1C				**Project #**	bv-10-westcounty.fl-comp#1	
Operator	MS				**# of Ports Used**	4	
Fuel Type	Oil, Distillate		**Minimum Fuel Factor**	1.260	**Maximum Fuel Factor**	1.413	
Orsat Leak Check	☑	**PreTest**	☑	**PostTest**	**Orsat Identification**	N/A	

Gas Analysis Data									
Run Number		Base-1		**Run Start Time**		17:35	**Run Stop Time**		18:50
Sample Analysis Time	**Carbon Dioxide Conc.** (%CO2)	**Oxygen Conc.** (%O2)	**Carbon Monoxide Conc.** (ppmCO)	**Carbon Dioxide Conc.** ($\%CO_2$)	**Oxygen Conc.** ($\%O_2$)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** ($\%N_2$)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	percent	percent	ppm	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
1:15	5.2	13.4	5.3	5.2	13.4	0.0	81.4	29.36	0.00
Results			**Averages**	5.2	13.4	0.0	81.4	29.36	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.452		**Molecular Wt Deviation < 0.3?**			☑
Average Excess Air			$(\%EA)_{avg}$	166.1	percent	**Fuel Factor in Handbook Range?**			☑

Gas Analysis Data									
Run Number		Base-2		**Run Start Time**		19:00	**Run Stop Time**		20:16
Sample Analysis Time	**Carbon Dioxide Conc.** (%CO2)	**Oxygen Conc.** (%O2)	**Carbon Monoxide Conc.** (ppmCO)	**Carbon Dioxide Conc.** ($\%CO_2$)	**Oxygen Conc.** ($\%O_2$)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** ($\%N_2$)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	percent	percent	ppm	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
1:16	5.2	13.4	5.4	5.2	13.4	0.0	81.3	29.38	0.00
Results			**Averages**	5.2	13.4	0.0	81.3	29.38	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.427		**Molecular Wt Deviation < 0.3?**			☑
Average Excess Air			$(\%EA)_{avg}$	166.6	percent	**Fuel Factor in Handbook Range?**			☑

Gas Analysis Data									
Run Number		Base-3		**Run Start Time**		20:30	**Run Stop Time**		21:39
Sample Analysis Time	**Carbon Dioxide Conc.** (%CO2)	**Oxygen Conc.** (%O2)	**Carbon Monoxide Conc.** (ppmCO)	**Carbon Dioxide Conc.** ($\%CO_2$)	**Oxygen Conc.** ($\%O_2$)	**Carbon Monoxide Conc.** (%CO)	**Nitrogen Conc.** ($\%N_2$)	**Dry Molecular Weight** (M_d)	**Molecular Weight Deviation** (ΔM_d)
hh:mm	percent	percent	ppm	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole
1:09	5.3	13.4	5.7	5.3	13.4	0.0	81.3	29.38	0.00
Results			**Averages**	5.3	13.4	0.0	81.3	29.38	
Average Calculated Fuel Factor			$(F_o)_{avg}$	1.421		**Molecular Wt Deviation < 0.3?**			☑
Average Excess Air			$(\%EA)_{avg}$	165.4	percent	**Fuel Factor in Handbook Range?**			☑

Fuel Factor Fo		
Fuel Type	**Minimum**	**Maximum**
Coal, Anthracite	1.016	1.130
Coal, Lignite	1.016	1.130
Coal, Bituminous	1.083	1.230
Oil, Distillate	1.260	1.413
Oil, Residual	1.210	1.370
Gas, Natural	1.600	1.836
Gas, Propane	1.434	1.586
Gas, Butane	1.405	1.553
Wood	1.000	1.120
Wood Bark	1.003	1.130

-10-westcounty#1-U1C-NH3

METHOD 4 - DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Plant Name	West County Energy Center			**Date**	05/07/10
Sampling Location	Unit 1C			**Project #**	bv-10-westcounty.fl-comp#1
Operator	MS			**# of Ports Used**	4
Stack Type	Circular			**Meter Box Number**	samp-cp-0011
Train Leak Check	☑	**PreTest**	☑ **PostTest**	**Meter Cal Factor (Y)**	0.986

Moisture Content Data									
Run Number		Base-1		**Run Start Time**	17:35		**Run Stop Time**		18:50
Total Meter Volume	(V_m)	48.520	dcf	**Barometric Press.**		(P_b)	29.15		in Hg
Avg Stack Temp	$(t_s)_{avg}$	224	oF	**Stack Static Press.**		(P_{static})	-0.85		in H2O
Avg Meter Temp	$(t_m)_{avg}$	78	oF	**Avg Orifice Press.**		$(\Delta H)_{avg}$	1.97		in H2O
	Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**	
	g	g	g	g	g	g	g	g	
Contents	H2SO4	H2SO4		Sil Gel					
Final Value $(V_f),(W_f)$	789.40	742.20	613.30	909.30					
Initial Value $(V_i),(W_i)$	731.50	713.90	605.20	892.90					
Net Value $(V_n),(W_n)$	57.9	28.3	8.1	16.4					
Results									
Total Weight	(W_t)	110.70	g	**Water Vol Weighed**		$(V_{wsg(std)})$	5.220		scf
Std Meter Volume	$(V_{m(std)})$	45.981	dscf	**Sat. Moisture Content**		$(B_{ws(svp)})$	100.0		%
Calc Moisture Content	$(B_{ws(calc)})$	10.2	%	**Final Moisture Content**		(B_{ws})	10.2		%

Moisture Content Data									
Run Number		Base-2		**Run Start Time**	19:00		**Run Stop Time**		20:16
Total Meter Volume	(V_m)	49.185	dcf	**Barometric Press.**		(P_b)	29.16		in Hg
Avg Stack Temp	$(t_s)_{avg}$	224	oF	**Stack Static Press.**		(P_{static})	-0.85		in H2O
Avg Meter Temp	$(t_m)_{avg}$	81	oF	**Avg Orifice Press.**		$(\Delta H)_{avg}$	1.98		in H2O
	Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**	
	g	g	g	g	g	g	g	g	
Contents	H2SO4	H2SO4		Sil Gel					
Final Value $(V_f),(W_f)$	768.00	732.40	622.70	894.10					
Initial Value $(V_i),(W_i)$	710.10	705.60	619.70	873.40					
Net Value $(V_n),(W_n)$	57.9	26.8	3.0	20.7					
Results									
Total Weight	(W_t)	108.40	g	**Water Vol Weighed**		$(V_{wsg(std)})$	5.111		scf
Std Meter Volume	$(V_{m(std)})$	46.343	dscf	**Sat. Moisture Content**		$(B_{ws(svp)})$	100.0		%
Calc Moisture Content	(B_{ws})	9.9	%	**Final Moisture Content**		(B_{ws})	9.9		%

Moisture Content Data									
Run Number		Base-3		**Run Start Time**	20:30		**Run Stop Time**		21:39
Total Meter Volume	(V_m)	50.305	dcf	**Barometric Press.**		(P_b)	29.18		in Hg
Avg Stack Temp	$(t_s)_{avg}$	224	oF	**Stack Static Press.**		(P_{static})	-0.85		in H2O
Avg Meter Temp	$(t_m)_{avg}$	81	oF	**Avg Orifice Press.**		$(\Delta H)_{avg}$	2.09		in H2O
	Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**	
	g	g	g	g	g	g	g	g	
Contents	H2SO4	H2SO4		Sil Gel					
Final Value $(V_f),(W_f)$	799.00	739.80	613.50	925.30					
Initial Value $(V_i),(W_i)$	732.50	714.10	607.70	909.30					
Net Value $(V_n),(W_n)$	66.5	25.7	5.8	16.0					
Results									
Total Weight	(W_t)	114.00	g	**Water Vol Weighed**		$(V_{wsg(std)})$	5.375		scf
Std Meter Volume	$(V_{m(std)})$	47.477	dscf	**Sat. Moisture Content**		$(B_{ws(svp)})$	100.0		%
Calc Moisture Content	(B_{ws})	10.2	%	**Final Moisture Content**		(B_{ws})	10.2		%

CTM 027 (AMMONIA) ISOKINETIC SAMPLING DATA

Plant Name	West County Energy Center	Date	5/7/2010
Sampling Location	Unit 1C	Project #	bv-10-westcounty.fl-comp#1
Operator	MS	Run #	Base-1
# of Points Across	6	# of Ports Used	4

Leak Checks					
Train	Pre	0	ft3/min @	15	in Hg
OK? ☑	Post	0	ft3/min @	15	in Hg
Pitot	Pre	7	in. H_2O for	30	sec
OK? ☑	Post	7	in. H_2O for	30	sec
Orsat	OK? ☐				

Nozzle Measurements				
Pre	0.240	0.241	0.241	PASS
Post	0.240	0.241	0.241	PASS

Run Time			
Start	17:35	End	18:50

Sampling Equipment			
Meter #		samp-cp-0011	
Meterbox Cal. Factor	(Y)	0.986	
Nozzle #		N/A	
Average Nozzle Diameter	(D_{na})	0.2407	in
Rec. Nozzle Diameter	(D_{ni})	0.2282	in
Probe # / Length	na	/ 120	in
Liner Material		inconel	
Sample Case / Oven #		samp-bh-0003	
Impinger Case #		samp-vc-0001	

Weights	Imp 1	Imp 2	Imp 3	Imp 4	Imp 5	Imp 6	Imp 7	Imp 8
Pre	731.50	713.90	605.20	892.90				
Post	789.40	742.20	613.30	909.30				

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Tube Coefficient	(C_p)	0.84	
Avg Stack Temp	(t_s)	224	oF
Avg Gas Meter Temp	(t_m)	78	
DH @ 0.75 SCFM	($\Delta H@$)	1.65	in H2O
Avg Pitot Tube Diff. Pressure	(Δp_{avg})	0.91	in H2O
Stack Moisture Content	(B_{ws})	9.90	%
Stack Dry Molecular Weight	(M_d)	29.36	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.750	acfm
DP to DH Isokinetic Factor	(K)	2.19	

Pressures			
Barometric Pressure	(P_b)	29.15	in Hg
Stack Static Pressure	(P_{static})	-0.85	in H2O
Absolute Stack Pressure	(P_s)	29.09	in Hg
Absolute Meter Pressure	(P_m)	29.27	in Hg

Wash Volume	H_2O	50.0	ml
	MeCl		ml

Filter #

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH_d)	Actual Orifice ΔH (ΔH_a)	Stack Temp (t_s)	Probe Temp	Filter Temp	Impinger Exit Temp	Aux Temp	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)$_l$	Cumulative Meter Volume (V_m)$_{std}$	Cumulative Percent IsoKinetic (I)	Est-Run Meter Volume (V_m)$_{std}$
	min	hh:mm:ss	ft3	in H2O	in H2O	in H2O	oF	oF	oF	oF	oF	oF	oF	in Hg	(in H2O)1/2	ft/sec	scf	%	scf
A-1	0.0	0:00:00	508.240	0.750	1.642	1.600	220	246	248	67		75	74	2.0	0.87	56.59	1.744	95.7	41.846
A-2	2.5	0:02:30	510.070	0.780	1.708	1.700	223	246	246	67		77	74	2.0	0.88	57.84	3.570	97.1	42.839
A-3	5.0	0:05:00	511.990	0.800	1.752	1.700	224	247	247	68		78	74	3.0	0.89	58.62	5.433	97.8	43.461
A-4	7.5	0:07:30	513.950	0.750	1.642	1.600	225	245	243	68		79	74	2.0	0.87	56.80	7.198	97.7	43.189
A-5	10.0	0:10:00	515.810	0.760	1.664	1.600	224	245	240	68		80	73	2.0	0.87	57.13	8.945	97.3	42.935
A-6	12.5	0:12:30	517.650	0.720	1.577	1.600	220	246	242	67		81	73	2.0	0.85	55.44	10.709	97.5	42.835
B-1	15.0	0:15:00	519.510	0.720	1.577	1.600	224	244	245	67		78	74	2.0	0.85	55.61	12.428	97.4	42.611
B-2	17.5	0:17:30	521.320	0.750	1.642	1.600	222	248	239	67		80	74	2.0	0.87	56.67	14.173	97.2	42.520
B-3	20.0	0:20:00	523.160	0.730	1.599	1.600	224	247	242	67		83	73	2.0	0.85	55.99	15.915	97.2	42.440
B-4	22.5	0:22:30	525.000	0.680	1.489	1.500	226	244	251	66		83	73	2.0	0.82	54.12	17.609	97.3	42.261
B-5	25.0	0:25:00	526.790	0.700	1.533	1.500	224	243	245	66		83	74	2.0	0.84	54.83	19.282	97.1	42.071
B-6	27.5	0:27:30	528.560	0.590	1.292	1.300	220	240	242	65		83	74	2.0	0.77	50.19	20.870	97.2	41.740
C-1	30.0	0:30:00	530.240	1.100	2.409	2.400	226	242	244	65		80	74	3.0	1.05	68.83	22.941	96.9	42.353
C-2	32.5	0:32:30	532.420	1.200	2.628	2.600	226	242	244	65		83	74	4.0	1.10	71.89	25.094	96.6	43.018
C-3	35.0	0:35:00	534.690	1.200	2.628	2.600	224	240	242	65		84	74	4.0	1.10	71.79	27.186	96.2	43.498
C-4	37.5	0:37:30	536.899	1.100	2.409	2.400	225	244	240	65		84	75	4.0	1.05	68.78	29.381	96.5	44.072
C-5	40.0	0:40:00	539.220	1.000	2.190	2.100	224	246	244	64		84	75	4.0	1.00	65.53	31.375	96.4	44.295
C-6	42.5	0:42:30	541.330	1.000	2.190	2.100	223	241	238	64		83	74	4.0	1.00	65.49	33.364	96.3	44.485
D-1	45.0	0:45:00	543.430	1.100	2.409	2.400	227	243	244	65		80	75	4.0	1.05	68.88	35.481	96.3	44.818
D-2	47.5	0:47:30	545.660	1.000	2.190	2.100	226	242	240	65		83	75	4.0	1.00	65.63	37.477	96.2	44.972
D-3	50.0	0:50:00	547.770	1.200	2.628	2.600	226	244	238	65		84	75	4.0	1.10	71.89	39.616	96.1	45.275
D-4	52.5	0:52:30	550.030	1.200	2.628	2.600	227	245	239	65		84	75	4.0	1.10	71.95	41.858	96.2	45.664
D-5	55.0	0:55:00	552.400	1.100	2.409	2.400	227	250	238	66		84	75	4.0	1.05	68.88	43.987	96.2	45.899
D-6	57.5	0:57:30	554.650	1.000	2.190	2.100	220	248	240	66		84	76	4.0	1.00	65.34	45.979	96.1	45.979
Last Pt	60.0	1:00:00	556.760																
Final Val	60.0	1:00:00	556.760										Max Vac	4.0	Final Values		45.979	96.1	
Average Values				0.91		1.97	224	245	243	66		82	74		0.95	62.28			
												78							

CTM 027 (AMMONIA) ISOKINETIC SAMPLING DATA

Plant Name	West County Energy Center	Date	5/7/2010
Sampling Location	Unit 1C	Project #	bv-10-westcounty.fl-comp#1
Operator	MS	Run #	Base-2
# of Points Across	6	# of Ports Used	4

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Tube Coefficient	(C_p)	0.84	
Avg Stack Temp	(t_s)	224	oF
Avg Gas Meter Temp	(t_m)	81	
DH @ 0.75 SCFM	($\Delta H@$)	1.65	in H2O
Avg Pitot Tube Diff. Pressure	(Δp_{avg})	0.91	in H2O
Stack Moisture Content	(B_{ws})	9.70	%
Stack Dry Molecular Weight	(M_d)	29.36	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.809	acfm
DP to DH Isokinetic Factor	(K)	2.21	

Leak Checks					
Train	Pre	0	ft3/min @	15	in Hg
OK? ☑	Post	0	ft3/min @	15	in Hg
Pitot	Pre	7	in. H_2O for	30	sec
OK? ☑	Post	7	in. H_2O for	30	sec
Orsat	OK? ☐				

Sampling Equipment			
Meter #	samp-cp-0011		
Meterbox Cal. Factor	(Y)	0.986	
Nozzle #	N/A		
Average Nozzle Diameter	(D_{na})	0.2407	in
Rec. Nozzle Diameter	(D_{ni})	0.2361	in
Probe # / Length	na	/ 120	in
Liner Material	inconel		
Sample Case / Oven #	samp-bh-0003		
Impinger Case #	samp-61-001B		

Pressures			
Barometric Pressure	(P_b)	29.16	in Hg
Stack Static Pressure	(P_{static})	-0.85	in H2O
Absolute Stack Pressure	(P_s)	29.10	in Hg
Absolute Meter Pressure	(P_m)	29.28	in Hg

Nozzle Measurements				
Pre	0.240	0.241	0.241	PASS
Post	0.240	0.241	0.241	PASS

Run Time			
Start	19:00	End	20:16

Weights	Imp 1	Imp 2	Imp 3	Imp 4	Imp 5	Imp 6	Imp 7	Imp 8
Pre	710.10	705.60	619.70	873.40				
Post	768.00	732.40	622.70	894.10				

Wash Volume			
	H_2O	50.0	ml
	MeCl		ml

Filter #

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH ($\Delta H_@$)	Actual Orifice ΔH (ΔH_a)	Stack Temp (t_s)	Probe Temp	Filter Temp	Impinger Exit Temp	Aux Temp	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)$_l$	Cumulative Meter Volume (V_m)$_{std}$	Cumulative Percent IsoKinetic (I)	Est-Run Meter Volume (V_m)$_{std}$
	min	hh:mm:ss	ft3	in H2O	in H2O	in H2O	oF	oF	oF	oF	oF	oF	oF	in Hg	(in H2O)1/2	ft/sec	scf	%	scf
A-1	0.0	0:00:00	557.015	1.000	2.210	2.200	224	244	240	64		80	75	3.0	1.00	65.50	2.055	97.7	49.321
A-2	2.5	0:02:30	559.180	1.100	2.431	2.400	225	245	245	64		83	75	3.0	1.05	68.74	4.139	96.1	49.662
A-3	5.0	0:05:00	561.380	1.200	2.652	2.600	222	248	248	65		84	75	3.0	1.10	71.64	6.306	95.4	50.451
A-4	7.5	0:07:30	563.670	1.200	2.652	2.600	223	242	244	65		85	75	3.0	1.10	71.70	8.529	95.7	51.173
A-5	10.0	0:10:00	566.020	1.000	2.210	2.200	224	250	246	65		86	77	3.0	1.00	65.50	10.583	96.1	50.798
A-6	12.5	0:12:30	568.200	1.200	2.652	2.600	226	255	248	66		86	77	3.0	1.10	71.85	12.818	96.2	51.272
B-1	15.0	0:15:00	570.570	0.860	1.901	1.800	222	249	239	66		85	77	3.0	0.93	60.65	14.646	95.9	50.214
B-2	17.5	0:17:30	572.510	0.840	1.856	1.800	224	250	250	66		85	77	3.0	0.92	60.03	16.492	95.9	49.477
B-3	20.0	0:20:00	574.470	0.780	1.724	1.700	226	249	246	66		85	77	3.0	0.88	57.93	18.273	95.9	48.727
B-4	22.5	0:22:30	576.360	0.730	1.613	1.600	223	251	248	67		85	77	3.0	0.85	55.92	20.052	96.2	48.125
B-5	25.0	0:25:00	578.250	0.680	1.503	1.500	221	249	250	67		86	77	3.0	0.82	53.89	21.764	96.4	47.485
B-6	27.5	0:27:30	580.070	0.620	1.370	1.400	221	248	253	67		86	77	3.0	0.79	51.46	23.457	96.8	46.913
C-1	30.0	0:30:00	581.870	0.700	1.547	1.500	224	245	239	67		85	77	3.0	0.84	54.80	25.236	97.1	46.589
C-2	32.5	0:32:30	583.760	0.750	1.658	1.600	224	247	244	66		86	77	3.0	0.87	56.72	26.092	95.4	44.729
C-3	35.0	0:35:00	584.670	0.720	1.591	1.600	225	246	242	66		86	77	3.0	0.85	55.62	28.867	101.2	46.188
C-4	37.5	0:37:30	587.620	0.700	1.547	1.500	224	249	244	66		86	78	3.0	0.84	54.80	30.446	100.6	45.669
C-5	40.0	0:40:00	589.300	0.650	1.437	1.400	225	248	240	64		86	78	3.0	0.81	52.84	32.137	100.6	45.370
C-6	42.5	0:42:30	591.100	0.650	1.437	1.400	225	248	240	64		87	77	3.0	0.81	52.84	33.828	100.6	45.104
D-1	45.0	0:45:00	592.900	1.000	2.210	2.200	226	255	254	63		86	77	3.0	1.00	65.59	35.891	100.4	45.336
D-2	47.5	0:47:30	595.090	1.100	2.431	2.400	226	255	254	63		86	77	3.0	1.05	68.79	37.899	99.9	45.479
D-3	50.0	0:50:00	597.220	1.200	2.652	2.600	227	245	242	63		87	78	4.0	1.10	71.90	40.102	99.7	45.831
D-4	52.5	0:52:30	599.560	1.200	2.652	2.600	225	246	245	62		87	78	4.0	1.10	71.80	42.305	99.5	46.151
D-5	55.0	0:55:00	601.900	1.100	2.431	2.400	224	249	243	62		86	78	4.0	1.05	68.69	44.405	99.3	46.336
D-6	57.5	0:57:30	604.130	0.900	1.989	1.900	224	252	240	61		87	78	4.0	0.95	62.14	46.350	99.2	46.350
Last Pt	60.0	1:00:00	606.200																
Final Val	60.0	1:00:00	606.200										Max Vac	4.0	Final Values		46.350	99.2	
Average Values				0.91		1.98	224	249	245	65		85	77		0.95	62.14			
												81							

CTM 027 (AMMONIA) ISOKINETIC SAMPLING DATA

Plant Name	West County Energy Center	**Date**	5/7/2010
Sampling Location	Unit 1C	**Project #**	bv-10-westcounty.fl-comp#1
Operator	MS	**Run #**	Base-3
# of Points Across	6	**# of Ports Used**	4

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Tube Coefficient	(C_p)	0.84	
Avg Stack Temp	(t_s)	224	oF
Avg Gas Meter Temp	(t_m)	81	
DH @ 0.75 SCFM	($\Delta H@$)	1.65	in H2O
Avg Pitot Tube Diff. Pressure	(Δp_{avg})	0.95	in H2O
Stack Moisture Content	(B_{ws})	9.90	%
Stack Dry Molecular Weight	(M_d)	29.38	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.820	acfm
DP to DH Isokinetic Factor	(K)	2.20	

Leak Checks					
Train	**Pre**	0	ft3/min @	15	in Hg
OK? ☑	**Post**	0	ft3/min @	15	in Hg
Pitot	**Pre**	7	in. H_2O for	30	sec
OK? ☑	**Post**	7	in. H_2O for	30	sec
Orsat	OK? ☐				

Sampling Equipment			
Meter #	samp-cp-0011		
Meterbox Cal. Factor	(Y)	0.986	
Nozzle #	N/A		
Average Nozzle Diameter	(D_{na})	0.2407	in
Rec. Nozzle Diameter	(D_{ri})	0.2355	in
Probe # / Length	na	/ 120	in
Liner Material	inconel		
Sample Case / Oven #	samp-bh-0003		
Impinger Case #	samp-vc-0001		

Pressures			
Barometric Pressure	(P_b)	29.18	in Hg
Stack Static Pressure	(P_{static})	-0.85	in H2O
Absolute Stack Pressure	(P_s)	29.12	in Hg
Absolute Meter Pressure	(P_m)	29.30	in Hg

Nozzle Measurements				
Pre	0.240	0.241	0.241	**PASS**
Post	0.240	0.241	0.241	**PASS**

Run Time			
Start	20:30	**End**	21:39

Weights	Imp 1	Imp 2	Imp 3	Imp 4	Imp 5	Imp 6	Imp 7	Imp 8
Pre	732.50	714.10	607.70	909.30				
Post	799.00	739.80	613.50	925.30				

Wash Volume	H_2O	50.0	ml	
	MeCl		ml	

Filter #

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH_d)	Actual Orifice ΔH (ΔH_a)	Stack Temp (t_s)	Probe Temp	Filter Temp	Impinger Exit Temp	Aux Temp	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum	Square Root ΔP ($\Delta p^{1/2}$)	Local Stack Velocity (v_s)$_l$	Cumulative Meter Volume (V_m)$_{std}$	Cumulative Percent IsoKinetic (I)	Est-Run Meter Volume (V_m)$_{std}$
	min	hh:mm:ss	ft3	in H2O	in H2O	in H2O	oF	oF	oF	oF	oF	oF	oF	in Hg	(in H2O)1/2	ft/sec	scf	%	scf
A-1	0.0	0:00:00	606.420	1.100	2.423	2.400	220	245	239	64		78	77	4.0	1.05	68.48	2.100	95.1	50.406
A-2	2.5	0:02:30	608.630	1.200	2.643	2.600	226	252	251	64		80	77	4.0	1.10	71.84	4.302	95.5	51.624
A-3	5.0	0:05:00	610.950	1.200	2.643	2.600	226	252	251	64		82	77	4.0	1.10	71.84	6.547	96.3	52.376
A-4	7.5	0:07:30	613.320	1.200	2.643	2.600	227	257	240	63		84	77	4.0	1.10	71.89	8.797	96.7	52.785
A-5	10.0	0:10:00	615.700	1.100	2.423	2.400	226	258	250	63		85	77	4.0	1.05	68.78	10.931	96.8	52.470
A-6	12.5	0:12:30	617.960	1.000	2.202	2.200	225	255	242	63		86	77	4.0	1.00	65.53	12.987	97.0	51.947
B-1	15.0	0:15:00	620.140	0.800	1.762	1.700	222	248	237	63		83	77	3.0	0.89	58.49	14.828	97.1	50.839
B-2	17.5	0:17:30	622.090	0.780	1.718	1.700	224	245	239	64		84	77	3.0	0.88	57.84	16.639	97.2	49.918
B-3	20.0	0:20:00	624.010	0.750	1.652	1.700	227	248	237	64		85	77	3.0	0.87	56.84	18.449	97.4	49.197
B-4	22.5	0:22:30	625.930	0.740	1.630	1.600	225	245	243	65		86	77	3.0	0.86	56.37	20.228	97.5	48.548
B-5	25.0	0:25:00	627.820	0.680	1.498	1.500	224	247	244	65		86	77	3.0	0.82	54.00	21.932	97.6	47.851
B-6	27.5	0:27:30	629.630	0.650	1.432	1.400	226	246	242	65		86	78	3.0	0.81	52.87	23.577	97.6	47.154
C-1	30.0	0:30:00	631.380	0.750	1.652	1.700	220	250	246	65		84	77	3.0	0.87	56.55	25.360	97.6	46.818
C-2	32.5	0:32:30	633.270	0.780	1.718	1.700	224	251	243	64		85	77	3.0	0.88	57.84	27.160	97.6	46.560
C-3	35.0	0:35:00	635.180	0.750	1.652	1.700	223	252	245	64		85	77	3.0	0.87	56.67	28.951	97.6	46.322
C-4	37.5	0:37:30	637.080	0.710	1.564	1.600	224	252	246	63		86	77	3.0	0.84	55.18	30.664	97.6	45.997
C-5	40.0	0:40:00	638.900	0.670	1.476	1.500	223	250	253	63		86	77	3.0	0.82	53.56	32.462	98.0	45.829
C-6	42.5	0:42:30	640.810	0.660	1.454	1.500	225	248	252	63		86	77	3.0	0.81	53.24	34.175	98.1	45.567
D-1	45.0	0:45:00	642.630	1.100	2.423	2.400	220	250	248	63		83	77	4.0	1.05	68.48	36.133	97.6	45.642
D-2	47.5	0:47:30	644.700	1.200	2.643	2.600	223	250	248	61		85	77	4.0	1.10	71.68	38.457	97.8	46.148
D-3	50.0	0:50:00	647.160	1.200	2.643	2.600	225	249	240	61		86	78	4.0	1.10	71.79	40.635	97.6	46.440
D-4	52.5	0:52:30	649.470	1.300	2.863	2.900	226	246	250	60		86	77	5.0	1.14	74.77	42.940	97.6	46.843
D-5	55.0	0:55:00	651.910	1.300	2.863	2.900	224	248	252	60		85	77	5.0	1.14	74.66	45.237	97.5	47.204
D-6	57.5	0:57:30	654.340	1.200	2.643	2.700	224	248	247	60		86	78	5.0	1.10	71.74	47.486	97.5	47.486
Last Pt	60.0	1:00:00	656.725																
Final Val	60.0	1:00:00	656.725										**Max Vac**	5.0	**Final Values**		47.486	97.5	
Average Values				0.951		2.092	224	250	245	63		85	77		0.97	63.37			
												81							

TEST RESULTS

Opacity

Company:	Florida Power and Light
Equipment:	Mitsubishi 501G, Unit 1C base load
Location:	West County Energy Center
Date:	May 7, 2010
Project #:	bv-09-westcounty.fl-comp#1

Run 1

Average Opacity:	0.00 %
Maximum Opacity:	0 %
6 Minute Average:	0.00 %
6 Minute Maximum:	0.00 %
Max Time w/ Opacity:	0.00 minutes

TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.
0.00	0	N/A	15.00	0	0.00	30.00	0	0.00	45.00	0	0.00
0.25	0	N/A	15.25	0	0.00	30.25	0	0.00	45.25	0	0.00
0.50	0	N/A	15.50	0	0.00	30.50	0	0.00	45.50	0	0.00
0.75	0	N/A	15.75	0	0.00	30.75	0	0.00	45.75	0	0.00
1.00	0	N/A	16.00	0	0.00	31.00	0	0.00	46.00	0	0.00
1.25	0	N/A	16.25	0	0.00	31.25	0	0.00	46.25	0	0.00
1.50	0	N/A	16.50	0	0.00	31.50	0	0.00	46.50	0	0.00
1.75	0	N/A	16.75	0	0.00	31.75	0	0.00	46.75	0	0.00
2.00	0	N/A	17.00	0	0.00	32.00	0	0.00	47.00	0	0.00
2.25	0	N/A	17.25	0	0.00	32.25	0	0.00	47.25	0	0.00
2.50	0	N/A	17.50	0	0.00	32.50	0	0.00	47.50	0	0.00
2.75	0	N/A	17.75	0	0.00	32.75	0	0.00	47.75	0	0.00
3.00	0	N/A	18.00	0	0.00	33.00	0	0.00	48.00	0	0.00
3.25	0	N/A	18.25	0	0.00	33.25	0	0.00	48.25	0	0.00
3.50	0	N/A	18.50	0	0.00	33.50	0	0.00	48.50	0	0.00
3.75	0	N/A	18.75	0	0.00	33.75	0	0.00	48.75	0	0.00
4.00	0	N/A	19.00	0	0.00	34.00	0	0.00	49.00	0	0.00
4.25	0	N/A	19.25	0	0.00	34.25	0	0.00	49.25	0	0.00
4.50	0	N/A	19.50	0	0.00	34.50	0	0.00	49.50	0	0.00
4.75	0	N/A	19.75	0	0.00	34.75	0	0.00	49.75	0	0.00
5.00	0	N/A	20.00	0	0.00	35.00	0	0.00	50.00	0	0.00
5.25	0	N/A	20.25	0	0.00	35.25	0	0.00	50.25	0	0.00
5.50	0	N/A	20.50	0	0.00	35.50	0	0.00	50.50	0	0.00
5.75	0	0.00	20.75	0	0.00	35.75	0	0.00	50.75	0	0.00
6.00	0	0.00	21.00	0	0.00	36.00	0	0.00	51.00	0	0.00
6.25	0	0.00	21.25	0	0.00	36.25	0	0.00	51.25	0	0.00
6.50	0	0.00	21.50	0	0.00	36.50	0	0.00	51.50	0	0.00
6.75	0	0.00	21.75	0	0.00	36.75	0	0.00	51.75	0	0.00
7.00	0	0.00	22.00	0	0.00	37.00	0	0.00	52.00	0	0.00
7.25	0	0.00	22.25	0	0.00	37.25	0	0.00	52.25	0	0.00
7.50	0	0.00	22.50	0	0.00	37.50	0	0.00	52.50	0	0.00
7.75	0	0.00	22.75	0	0.00	37.75	0	0.00	52.75	0	0.00
8.00	0	0.00	23.00	0	0.00	38.00	0	0.00	53.00	0	0.00
8.25	0	0.00	23.25	0	0.00	38.25	0	0.00	53.25	0	0.00
8.50	0	0.00	23.50	0	0.00	38.50	0	0.00	53.50	0	0.00
8.75	0	0.00	23.75	0	0.00	38.75	0	0.00	53.75	0	0.00
9.00	0	0.00	24.00	0	0.00	39.00	0	0.00	54.00	0	0.00
9.25	0	0.00	24.25	0	0.00	39.25	0	0.00	54.25	0	0.00
9.50	0	0.00	24.50	0	0.00	39.50	0	0.00	54.50	0	0.00
9.75	0	0.00	24.75	0	0.00	39.75	0	0.00	54.75	0	0.00
10.00	0	0.00	25.00	0	0.00	40.00	0	0.00	55.00	0	0.00
10.25	0	0.00	25.25	0	0.00	40.25	0	0.00	55.25	0	0.00
10.50	0	0.00	25.50	0	0.00	40.50	0	0.00	55.50	0	0.00
10.75	0	0.00	25.75	0	0.00	40.75	0	0.00	55.75	0	0.00
11.00	0	0.00	26.00	0	0.00	41.00	0	0.00	56.00	0	0.00
11.25	0	0.00	26.25	0	0.00	41.25	0	0.00	56.25	0	0.00
11.50	0	0.00	26.50	0	0.00	41.50	0	0.00	56.50	0	0.00
11.75	0	0.00	26.75	0	0.00	41.75	0	0.00	56.75	0	0.00
12.00	0	0.00	27.00	0	0.00	42.00	0	0.00	57.00	0	0.00
12.25	0	0.00	27.25	0	0.00	42.25	0	0.00	57.25	0	0.00
12.50	0	0.00	27.50	0	0.00	42.50	0	0.00	57.50	0	0.00
12.75	0	0.00	27.75	0	0.00	42.75	0	0.00	57.75	0	0.00
13.00	0	0.00	28.00	0	0.00	43.00	0	0.00	58.00	0	0.00
13.25	0	0.00	28.25	0	0.00	43.25	0	0.00	58.25	0	0.00
13.50	0	0.00	28.50	0	0.00	43.50	0	0.00	58.50	0	0.00
13.75	0	0.00	28.75	0	0.00	43.75	0	0.00	58.75	0	0.00
14.00	0	0.00	29.00	0	0.00	44.00	0	0.00	59.00	0	0.00
14.25	0	0.00	29.25	0	0.00	44.25	0	0.00	59.25	0	0.00
14.50	0	0.00	29.50	0	0.00	44.50	0	0.00	59.50	0	0.00
14.75	0	0.00	29.75	0	0.00	44.75	0	0.00	59.75	0	0.00

Company: Florida Power and Light
Equipment: Mitsubishi 501G, Unit 1C base load
Location: West County Energy Center
Date: May 7, 2010
Project #: bv-09-westcounty.fl-comp#1

Run 2

Average Opacity:	0.00 %
Maximum Opacity:	0 %
6 Minute Average:	0.00 %
6 Minute Maximum:	0.00 %
Max Time w/ Opacity:	0.00 minutes

TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.
0.00	0	N/A	15.00	0	0.00	30.00	0	0.00	45.00	0	0.00
0.25	0	N/A	15.25	0	0.00	30.25	0	0.00	45.25	0	0.00
0.50	0	N/A	15.50	0	0.00	30.50	0	0.00	45.50	0	0.00
0.75	0	N/A	15.75	0	0.00	30.75	0	0.00	45.75	0	0.00
1.00	0	N/A	16.00	0	0.00	31.00	0	0.00	46.00	0	0.00
1.25	0	N/A	16.25	0	0.00	31.25	0	0.00	46.25	0	0.00
1.50	0	N/A	16.50	0	0.00	31.50	0	0.00	46.50	0	0.00
1.75	0	N/A	16.75	0	0.00	31.75	0	0.00	46.75	0	0.00
2.00	0	N/A	17.00	0	0.00	32.00	0	0.00	47.00	0	0.00
2.25	0	N/A	17.25	0	0.00	32.25	0	0.00	47.25	0	0.00
2.50	0	N/A	17.50	0	0.00	32.50	0	0.00	47.50	0	0.00
2.75	0	N/A	17.75	0	0.00	32.75	0	0.00	47.75	0	0.00
3.00	0	N/A	18.00	0	0.00	33.00	0	0.00	48.00	0	0.00
3.25	0	N/A	18.25	0	0.00	33.25	0	0.00	48.25	0	0.00
3.50	0	N/A	18.50	0	0.00	33.50	0	0.00	48.50	0	0.00
3.75	0	N/A	18.75	0	0.00	33.75	0	0.00	48.75	0	0.00
4.00	0	N/A	19.00	0	0.00	34.00	0	0.00	49.00	0	0.00
4.25	0	N/A	19.25	0	0.00	34.25	0	0.00	49.25	0	0.00
4.50	0	N/A	19.50	0	0.00	34.50	0	0.00	49.50	0	0.00
4.75	0	N/A	19.75	0	0.00	34.75	0	0.00	49.75	0	0.00
5.00	0	N/A	20.00	0	0.00	35.00	0	0.00	50.00	0	0.00
5.25	0	N/A	20.25	0	0.00	35.25	0	0.00	50.25	0	0.00
5.50	0	N/A	20.50	0	0.00	35.50	0	0.00	50.50	0	0.00
5.75	0	0.00	20.75	0	0.00	35.75	0	0.00	50.75	0	0.00
6.00	0	0.00	21.00	0	0.00	36.00	0	0.00	51.00	0	0.00
6.25	0	0.00	21.25	0	0.00	36.25	0	0.00	51.25	0	0.00
6.50	0	0.00	21.50	0	0.00	36.50	0	0.00	51.50	0	0.00
6.75	0	0.00	21.75	0	0.00	36.75	0	0.00	51.75	0	0.00
7.00	0	0.00	22.00	0	0.00	37.00	0	0.00	52.00	0	0.00
7.25	0	0.00	22.25	0	0.00	37.25	0	0.00	52.25	0	0.00
7.50	0	0.00	22.50	0	0.00	37.50	0	0.00	52.50	0	0.00
7.75	0	0.00	22.75	0	0.00	37.75	0	0.00	52.75	0	0.00
8.00	0	0.00	23.00	0	0.00	38.00	0	0.00	53.00	0	0.00
8.25	0	0.00	23.25	0	0.00	38.25	0	0.00	53.25	0	0.00
8.50	0	0.00	23.50	0	0.00	38.50	0	0.00	53.50	0	0.00
8.75	0	0.00	23.75	0	0.00	38.75	0	0.00	53.75	0	0.00
9.00	0	0.00	24.00	0	0.00	39.00	0	0.00	54.00	0	0.00
9.25	0	0.00	24.25	0	0.00	39.25	0	0.00	54.25	0	0.00
9.50	0	0.00	24.50	0	0.00	39.50	0	0.00	54.50	0	0.00
9.75	0	0.00	24.75	0	0.00	39.75	0	0.00	54.75	0	0.00
10.00	0	0.00	25.00	0	0.00	40.00	0	0.00	55.00	0	0.00
10.25	0	0.00	25.25	0	0.00	40.25	0	0.00	55.25	0	0.00
10.50	0	0.00	25.50	0	0.00	40.50	0	0.00	55.50	0	0.00
10.75	0	0.00	25.75	0	0.00	40.75	0	0.00	55.75	0	0.00
11.00	0	0.00	26.00	0	0.00	41.00	0	0.00	56.00	0	0.00
11.25	0	0.00	26.25	0	0.00	41.25	0	0.00	56.25	0	0.00
11.50	0	0.00	26.50	0	0.00	41.50	0	0.00	56.50	0	0.00
11.75	0	0.00	26.75	0	0.00	41.75	0	0.00	56.75	0	0.00
12.00	0	0.00	27.00	0	0.00	42.00	0	0.00	57.00	0	0.00
12.25	0	0.00	27.25	0	0.00	42.25	0	0.00	57.25	0	0.00
12.50	0	0.00	27.50	0	0.00	42.50	0	0.00	57.50	0	0.00
12.75	0	0.00	27.75	0	0.00	42.75	0	0.00	57.75	0	0.00
13.00	0	0.00	28.00	0	0.00	43.00	0	0.00	58.00	0	0.00
13.25	0	0.00	28.25	0	0.00	43.25	0	0.00	58.25	0	0.00
13.50	0	0.00	28.50	0	0.00	43.50	0	0.00	58.50	0	0.00
13.75	0	0.00	28.75	0	0.00	43.75	0	0.00	58.75	0	0.00
14.00	0	0.00	29.00	0	0.00	44.00	0	0.00	59.00	0	0.00
14.25	0	0.00	29.25	0	0.00	44.25	0	0.00	59.25	0	0.00
14.50	0	0.00	29.50	0	0.00	44.50	0	0.00	59.50	0	0.00
14.75	0	0.00	29.75	0	0.00	44.75	0	0.00	59.75	0	0.00

Company:	Florida Power and Light
Equipment:	Mitsubishi 501G, Unit 1C base load
Location:	West County Energy Center
Date:	May 7, 2010
Project #:	bv-09-westcounty.fl-comp#1

Run 3

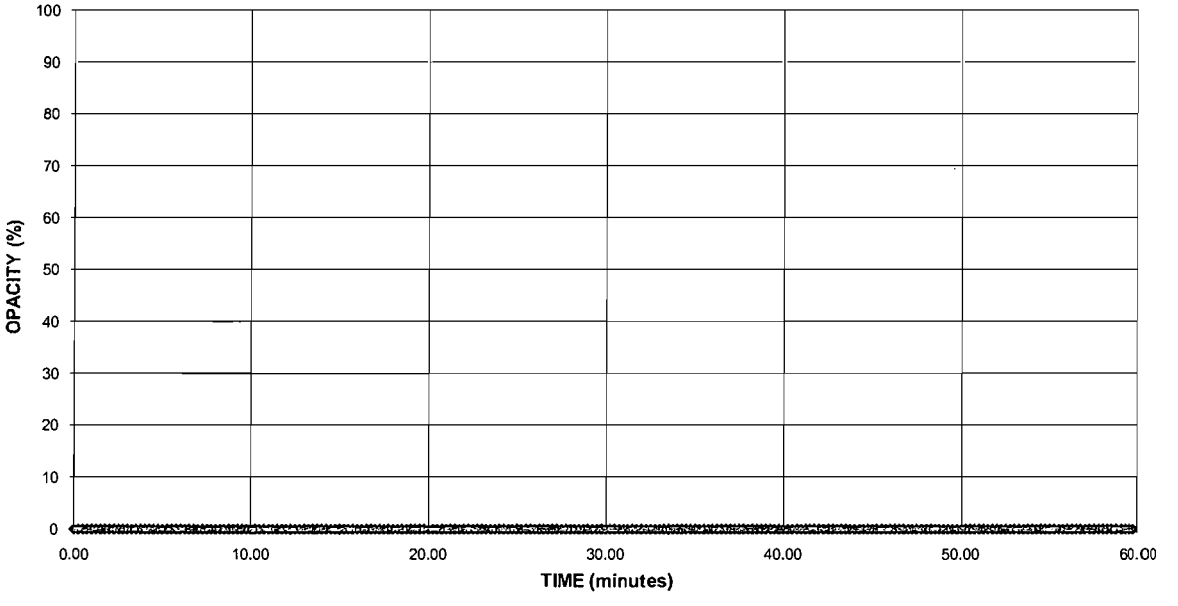
Average Opacity:	0.00 %
Maximum Opacity:	0 %
6 Minute Average:	0.00 %
6 Minute Maximum:	0.00 %
Max Time w/ Opacity:	0.00 minutes

TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.
0.00	0	N/A	15.00	0	0.00	30.00	0	0.00	45.00	0	0.00
0.25	0	N/A	15.25	0	0.00	30.25	0	0.00	45.25	0	0.00
0.50	0	N/A	15.50	0	0.00	30.50	0	0.00	45.50	0	0.00
0.75	0	N/A	15.75	0	0.00	30.75	0	0.00	45.75	0	0.00
1.00	0	N/A	16.00	0	0.00	31.00	0	0.00	46.00	0	0.00
1.25	0	N/A	16.25	0	0.00	31.25	0	0.00	46.25	0	0.00
1.50	0	N/A	16.50	0	0.00	31.50	0	0.00	46.50	0	0.00
1.75	0	N/A	16.75	0	0.00	31.75	0	0.00	46.75	0	0.00
2.00	0	N/A	17.00	0	0.00	32.00	0	0.00	47.00	0	0.00
2.25	0	N/A	17.25	0	0.00	32.25	0	0.00	47.25	0	0.00
2.50	0	N/A	17.50	0	0.00	32.50	0	0.00	47.50	0	0.00
2.75	0	N/A	17.75	0	0.00	32.75	0	0.00	47.75	0	0.00
3.00	0	N/A	18.00	0	0.00	33.00	0	0.00	48.00	0	0.00
3.25	0	N/A	18.25	0	0.00	33.25	0	0.00	48.25	0	0.00
3.50	0	N/A	18.50	0	0.00	33.50	0	0.00	48.50	0	0.00
3.75	0	N/A	18.75	0	0.00	33.75	0	0.00	48.75	0	0.00
4.00	0	N/A	19.00	0	0.00	34.00	0	0.00	49.00	0	0.00
4.25	0	N/A	19.25	0	0.00	34.25	0	0.00	49.25	0	0.00
4.50	0	N/A	19.50	0	0.00	34.50	0	0.00	49.50	0	0.00
4.75	0	N/A	19.75	0	0.00	34.75	0	0.00	49.75	0	0.00
5.00	0	N/A	20.00	0	0.00	35.00	0	0.00	50.00	0	0.00
5.25	0	N/A	20.25	0	0.00	35.25	0	0.00	50.25	0	0.00
5.50	0	N/A	20.50	0	0.00	35.50	0	0.00	50.50	0	0.00
5.75	0	0.00	20.75	0	0.00	35.75	0	0.00	50.75	0	0.00
6.00	0	0.00	21.00	0	0.00	36.00	0	0.00	51.00	0	0.00
6.25	0	0.00	21.25	0	0.00	36.25	0	0.00	51.25	0	0.00
6.50	0	0.00	21.50	0	0.00	36.50	0	0.00	51.50	0	0.00
6.75	0	0.00	21.75	0	0.00	36.75	0	0.00	51.75	0	0.00
7.00	0	0.00	22.00	0	0.00	37.00	0	0.00	52.00	0	0.00
7.25	0	0.00	22.25	0	0.00	37.25	0	0.00	52.25	0	0.00
7.50	0	0.00	22.50	0	0.00	37.50	0	0.00	52.50	0	0.00
7.75	0	0.00	22.75	0	0.00	37.75	0	0.00	52.75	0	0.00
8.00	0	0.00	23.00	0	0.00	38.00	0	0.00	53.00	0	0.00
8.25	0	0.00	23.25	0	0.00	38.25	0	0.00	53.25	0	0.00
8.50	0	0.00	23.50	0	0.00	38.50	0	0.00	53.50	0	0.00
8.75	0	0.00	23.75	0	0.00	38.75	0	0.00	53.75	0	0.00
9.00	0	0.00	24.00	0	0.00	39.00	0	0.00	54.00	0	0.00
9.25	0	0.00	24.25	0	0.00	39.25	0	0.00	54.25	0	0.00
9.50	0	0.00	24.50	0	0.00	39.50	0	0.00	54.50	0	0.00
9.75	0	0.00	24.75	0	0.00	39.75	0	0.00	54.75	0	0.00
10.00	0	0.00	25.00	0	0.00	40.00	0	0.00	55.00	0	0.00
10.25	0	0.00	25.25	0	0.00	40.25	0	0.00	55.25	0	0.00
10.50	0	0.00	25.50	0	0.00	40.50	0	0.00	55.50	0	0.00
10.75	0	0.00	25.75	0	0.00	40.75	0	0.00	55.75	0	0.00
11.00	0	0.00	26.00	0	0.00	41.00	0	0.00	56.00	0	0.00
11.25	0	0.00	26.25	0	0.00	41.25	0	0.00	56.25	0	0.00
11.50	0	0.00	26.50	0	0.00	41.50	0	0.00	56.50	0	0.00
11.75	0	0.00	26.75	0	0.00	41.75	0	0.00	56.75	0	0.00
12.00	0	0.00	27.00	0	0.00	42.00	0	0.00	57.00	0	0.00
12.25	0	0.00	27.25	0	0.00	42.25	0	0.00	57.25	0	0.00
12.50	0	0.00	27.50	0	0.00	42.50	0	0.00	57.50	0	0.00
12.75	0	0.00	27.75	0	0.00	42.75	0	0.00	57.75	0	0.00
13.00	0	0.00	28.00	0	0.00	43.00	0	0.00	58.00	0	0.00
13.25	0	0.00	28.25	0	0.00	43.25	0	0.00	58.25	0	0.00
13.50	0	0.00	28.50	0	0.00	43.50	0	0.00	58.50	0	0.00
13.75	0	0.00	28.75	0	0.00	43.75	0	0.00	58.75	0	0.00
14.00	0	0.00	29.00	0	0.00	44.00	0	0.00	59.00	0	0.00
14.25	0	0.00	29.25	0	0.00	44.25	0	0.00	59.25	0	0.00
14.50	0	0.00	29.50	0	0.00	44.50	0	0.00	59.50	0	0.00
14.75	0	0.00	29.75	0	0.00	44.75	0	0.00	59.75	0	0.00

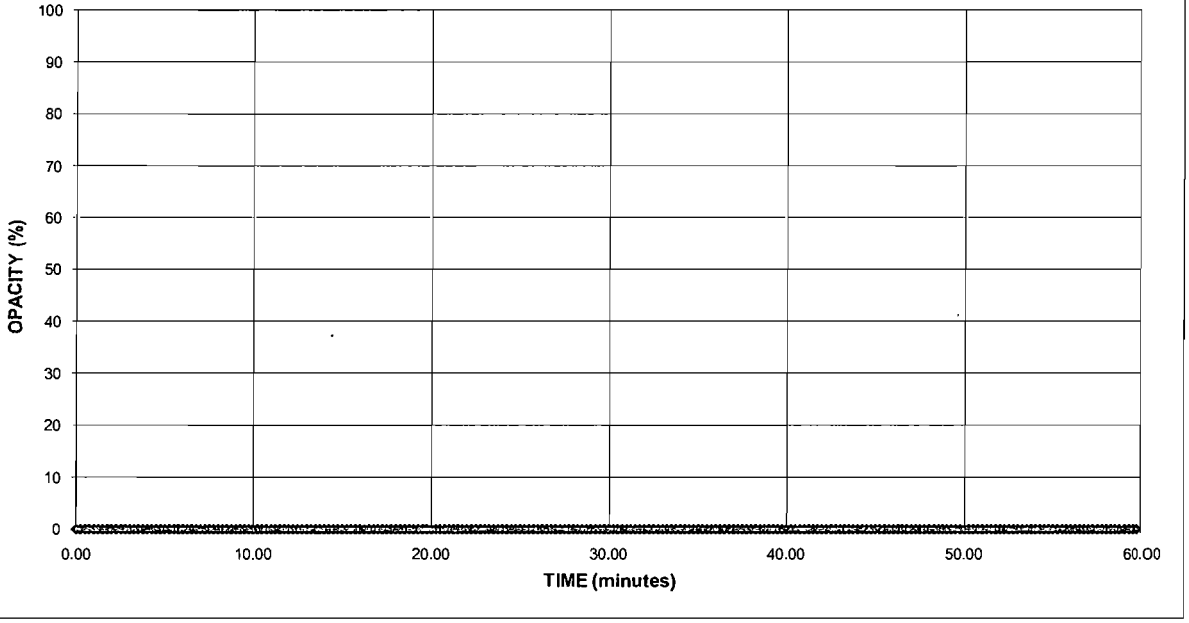
Company:	Florida Power and Light
Equipment:	Mitsubishi 501G, Unit 1C base load
Location:	West County Energy Center
Date:	May 7, 2010
Project #:	bv-09-westcounty.fl-comp#1

Run 1	**Average Opacity:**	0.00 %
	Maximum Opacity:	0 %
	6 Minute Average:	0.00 %
	6 Minute Maximum:	0.00 %
	Max Time w/ Opacity:	0.00 minutes

OPACITY READINGS
(15 second intervals)



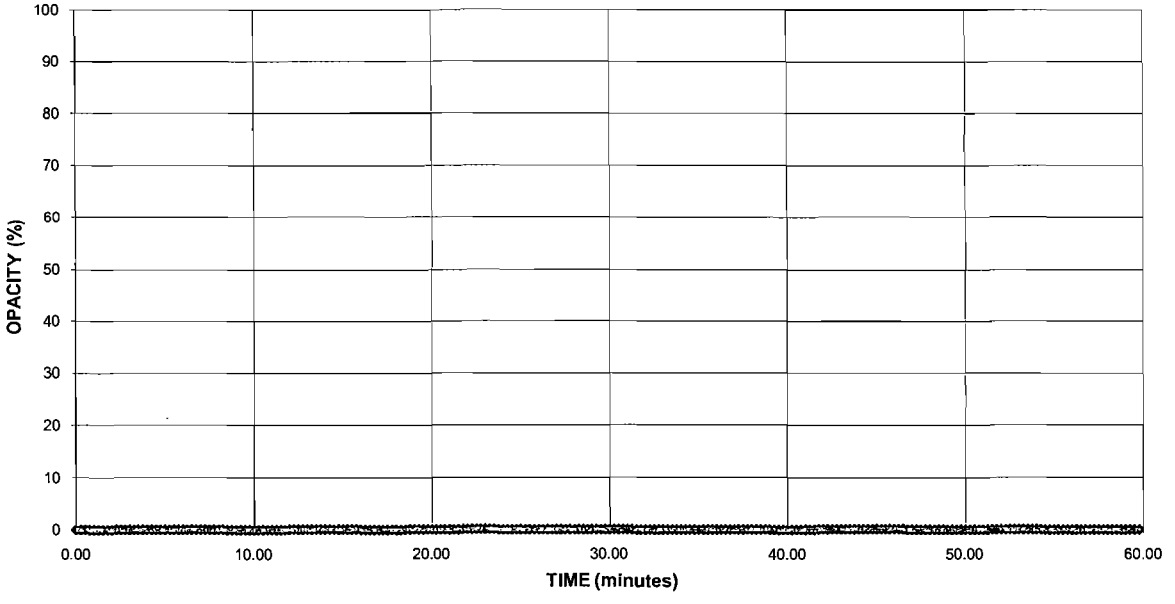
OPACITY RESULTS
(6 minute averages)



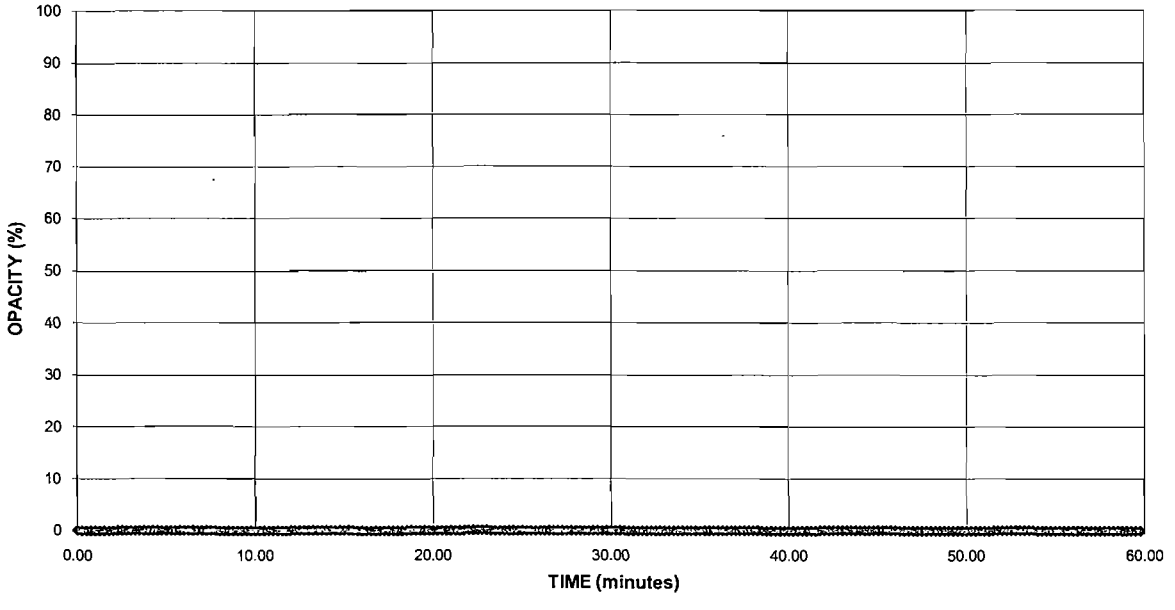
Company:	Florida Power and Light
Equipment:	Mitsubishi 501G, Unit 1C base load
Location:	West County Energy Center
Date:	May 7, 2010
Project #:	bv-09-westcounty.fl-comp#1

Run 2	**Average Opacity:**	0.00 %
	Maximum Opacity:	0 %
	6 Minute Average:	0.00 %
	6 Minute Maximum:	0.00 %
	Max Time w/ Opacity:	0.00 minutes

OPACITY READINGS
(15 second intervals)



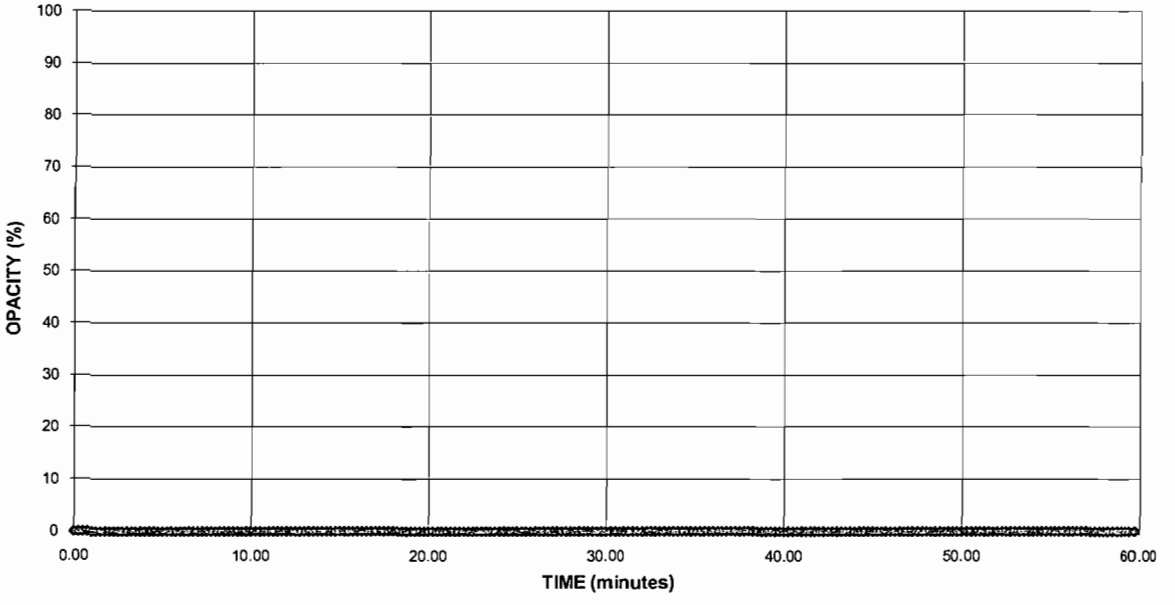
OPACITY RESULTS
(6 minute averages)



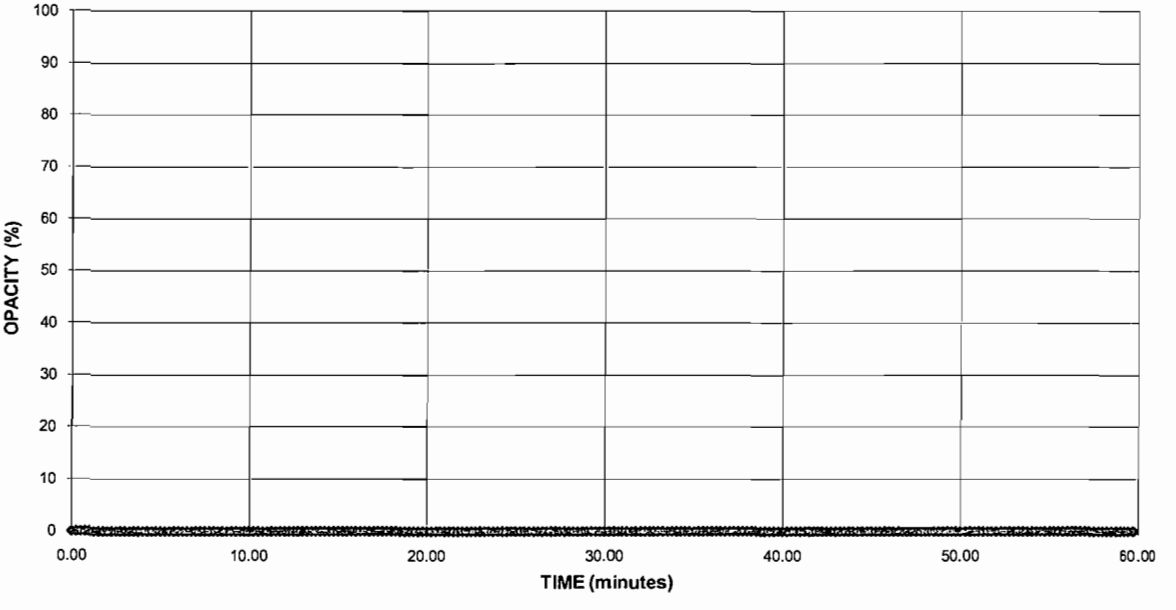
Company:	Florida Power and Light
Equipment:	Mitsubishi 501G, Unit 1C base load
Location:	West County Energy Center
Date:	May 7, 2010
Project #:	bv-09-westcounty.fl-comp#1

Run 3	**Average Opacity:**	0.00 %
	Maximum Opacity:	0 %
	6 Minute Average:	0.00 %
	6 Minute Maximum:	0.00 %
	Max Time w/ Opacity:	0.00 minutes

OPACITY READINGS
(15 second intervals)



OPACITY RESULTS
(6 minute averages)



VISUAL EMISSIONS OBSERVATION FORM

Method Used (Circle One): Method 9 | 203A | 203B | Other: _____

Company Name: Florida Power and Lights
Facility Name: Wright County Energy Center
Street Address: 20505 State Road 60
City: Loxahatchee | State: FL | Zip: 33470

Process: Electricity Production | Unit #: 1-C | Operating Mode: Base
Control Equipment: Ammonia Injection | Operating Mode: Normal

Describe Emissions Point: 3rd Stack from North

Height of Emiss. Pt. Start: 150 ft | End: 150 ft
Height of Emiss. Pt. Rel. to Observer Start: 150 ft | End: 150 ft
Distance to Emiss. Pt. Start: 650 ft | End: 650 ft
Direction to Emiss. Pt. (Degrees) Start: 110 | End: 110

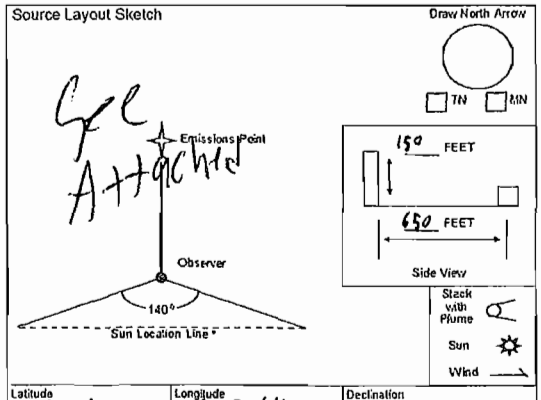
Vertical Angle to Obs. Pt. Start: 13° | End: 13°
Direction to Obs. Pt. (Degrees) Start: 290 | End: 290
Distance and Direction to Observation Point from Emission Point Start: 650 ft WNW | End: 650 ft WNW

Describe Emissions Start: N/V | End: N/V
Emission Color Start: N/V | End: N/V
Water Droplet Plume Start: None | End: None

Describe Plume Background Start: Sky | End: Sky
Background Color Start: Gray | End: Blue
Sky Conditions Start: Cloudy | End: Cloudy
Wind Speed Start: 10 mph | End: 5 mph
Wind Direction Start: East | End: East
Ambient Temp. Start: 86 | End: 87
Wet Bulb Temp. | RH Percent: 65-78-69

Source Layout Sketch

Draw North Arrow



See Attached

Latitude: 26.7029 | Longitude: -80.3764 | Declination: 0

Additional Information

Form Number: 1 of 6 | Page: 1 of 2
Continued on Form Number: #HAPS 2

Observation Date: 5-7-10 | Time Zone: EST | Start Time: 16:16 | End Time: 17:15

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print): Brett Stremme
Observer's Signature: Brett Stremme | Date: 5-7-10
Organization: Air Hygiene
Certified By: Eastern Technical Associates | Date: 4-21-10

VISUAL EMISSIONS OBSERVATION FORM

Method Used (Circle One): (Method 9) 203A 203B Other: _____

Company Name: Florida Power and Lights
Facility Name: West County Energy Center
Street Address: 20505 State Road 80
City: Loxahatchee State: FL Zip: 33470

Process: Electricity Production Unit #: 1-C Operating Mode: Base
Control Equipment: Ammonia Injection Operating Mode: Normal

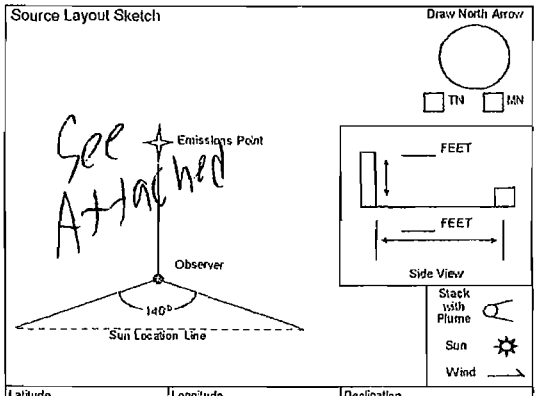
Describe Emissions Pont: 3rd Stack from North
Height of Emiss. Pt. Start: 150 ft End: 150 ft Height of Emiss. Pt. Rel. to Observer Start: 150 End: 150
Distance to Emiss. Pt. Start: 650 ft End: 650 ft Direction to Emiss. Pt. (Degrees) Start: 110 End: 110

Vertical Angle to Obs. Pt. Start: 13 ft End: 13 ft Direction to Obs. Pt. (Degrees) Start: 290 End: 290
Distance and Direction to Observation Point from Emission Point Start: 650 ft WNW End: 650 ft WNW

Describe Emissions Start: N/V End: N/V
Emission Color Start: N/V End: N/V Water Droplet Plume Start: None End: None

Describe Plume Background Start: Sky End: Sky
Background Color Start: Gray End: Olive Sky Conditions Start: Cloudy End: Cloudy
Wind Speed Start: 10 mph End: 5 mph Wind Direction Start: East End: East
Ambient Temp. Start: 86 End: 87 Wet Bulb Temp. RH Percent: 75-69

Source Layout Sketch



Latitude: 26.7029 Longitude: -80.3764 Declination:

Additional Information:

Form Number 1 of 6 Page 1 of 1
Continued on Form Number N/A

Observation Date: 5-7-10 Time Zone: EST Start Time: 16:16 End Time: 18:15

Hrs \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print): Brett Stremme
Observer's Signature: [signature] Date: 5-7-10
Organization: Air Hygiene
Certified By: Eastern Technical Associates Date: 4-21-10


Sun Position
Observation Point
North
Wind
Emission Point

VISUAL EMISSIONS OBSERVATION FORM

Method Used (Circle One): (Method 9) 203A 203B Other: _____

Company Name: Florida Power and Lights
Facility Name: West County Energy Center
Street Address: 20505 State Road 80
City: Loxahatchee State: FL Zip: 33470

Process: Electricity Production Unit #: 2-C Operating Mode: Base
Control Equipment: Ammonia Injection Operating Mode: Normal

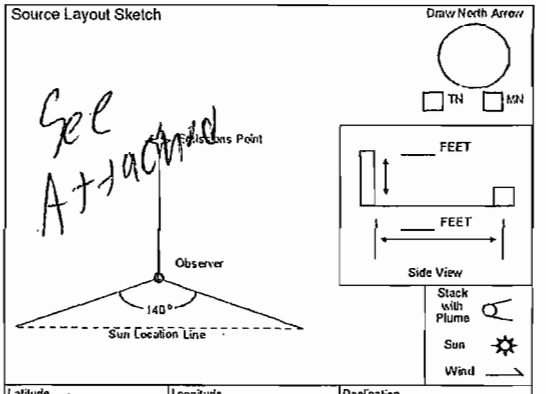
Describe Emissions Pont: 3rd Stack from North
Height of Emiss. Pt. Start: 150ft End: 150 ft
Height of Emiss. Pt. Rel. to Observer Start: 150 End:
Distance to Emiss. Pt. Start: 650 ft End: 650 ft
Direction to Emiss. Pt. (Degrees) Start: 118° SE End: 118° SE

Vetical Angle to Obs. Pt. Start: 13° End: 13°
Direction to Obs. Pt. (Degrees) Start: 290° NW End: 290° NW
Distance and Direction to Observation Point from Emission Point Start: 650 ft WNW End: 660 ft WNW

Describe Emissions Start: N/V End: N/V
Emission Color Start: N/V End: N/V
Water Droplet Plume Start: none End: none

Describe Plume Background Start: Sky End:
Background Color Start: Blue End: Blue
Sky Conditions Start: Cloudy End: Part Cloudy
Wind Speed Start: 5 mph End: 5 mph
Wind Direction Start: East End: East
Ambient Temp. Start: 87 End: 85
Wet Bulb Temp.
RH Percent 78 54

Source Layout Sketch



Latitude: 26.7029 Longitude: -80.3764 Declination:

Additional Information:

Form Number: 3 of 6 Page: 1 of 1
Continued on Form Number: 4 of 6
Observation Date: 5-7-10 Time Zone: EST Start Time: 17:24 End Time: 18:23

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print): Brett Stremme
Observer's Signature: [signature] Date: 5-7-10
Organization: Eastern Technical Associates
Certified By: Air Hygiene Date: 4-21-10

VISUAL EMISSIONS OBSERVATION FORM

Method Used (Circle One): (Method 9) 203A 203B Other: _____

Company Name: Florida Power and Lights
Facility Name: West County Energy Center
Street Address: 20505 State Road 80
City: Loxahatchee State: FL Zip: 33470

Process: Electricity Production Unit #: 1&2 Operating Mode: Base
Control Equipment: Ammonia Injection Operating Mode: Normal

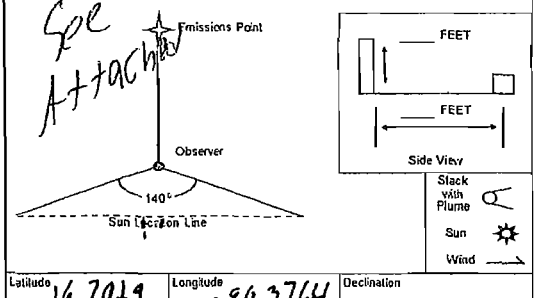
Describe Emissions Point: 3rd Stack from North
Height of Emiss. Pt. Start: 150 ft End: 150 ft
Height of Emiss. Pt. Rel. to Observer Start: 150 ft End: 150 ft
Distance to Emiss. Pt. Start: 650 ft End: 650 ft
Direction to Emiss. Pt. (Degrees) Start: 110 End: 110

Vetical Angle to Obs. Pt. Start: 13° End: 13°
Direction to Obs. Pt. (Degrees) Start: 290 End: 290
Distance and Direction to Observation Point from Emission Point Start: 650 ft WNW End: 650 ft WNW

Describe Emissions Start: N/V End: N/V
Emission Color Start: N/V End: N/V
Water Droplet Plume Start: None End: None

Describe Plume Background Start: Sky End: Sky
Background Color Start: Blue End: Blue
Sky Conditions Start: Cloudy End: Part Cloud
Wind Speed Start: 5 mph End: 5 mph
Wind Direction Start: East End: East
Ambient Temp. Start: 87 End: 85
Wet Bulb Temp. RH Percent: 76 54

Source Layout Sketch



Latitude: 26.7089 Longitude: -80.3764 Declination:

Additional Information:

Form Number: 4 of 6 Page: 2 of 2
Continued on Form Number: N/A

Observation Date: 5-7-10 Time Zone: EST Start Time: 17:24 End Time: 18:23

Sec \ Min	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
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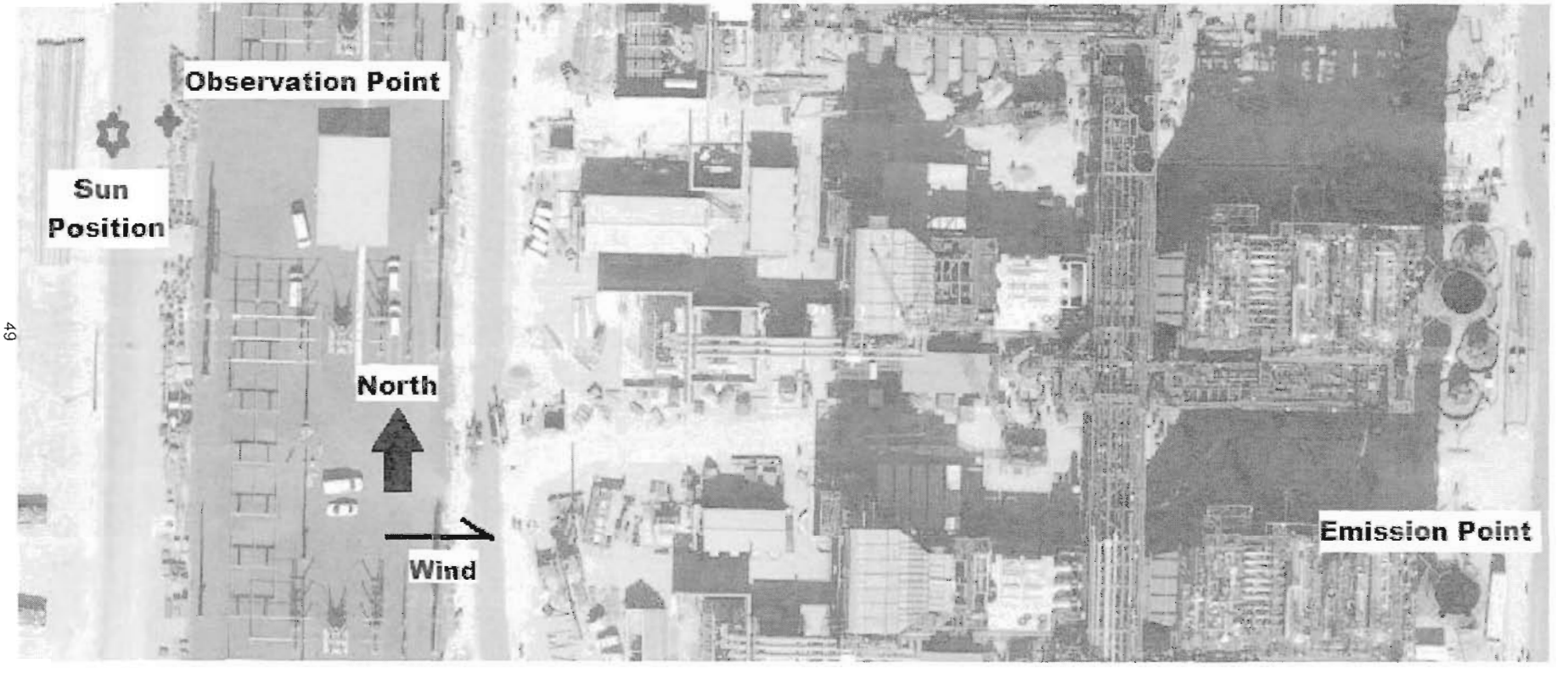
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print): Brett Stremmel
Observer's Signature: [signature] Date: 5-7-10
Organization: Air Hygiene
Certified By: Eastern Technical Associates Date: 4-21-10


Observation Point
Sun
Position
North
Wind
Emission Point

Method Used (Circle One)
(Method 9) 203A 203B Other: _____

Company Name: Florida Power and Lights
Facility Name: West County Energy Center
Street Address: 20505 State Road 80
City: Loxahatchee State: FL Zip: 33470

Process: Electricity Production Unit #: 1-C Operating Mode: Base
Control Equipment: Ammonia Injection Operating Mode: Normal

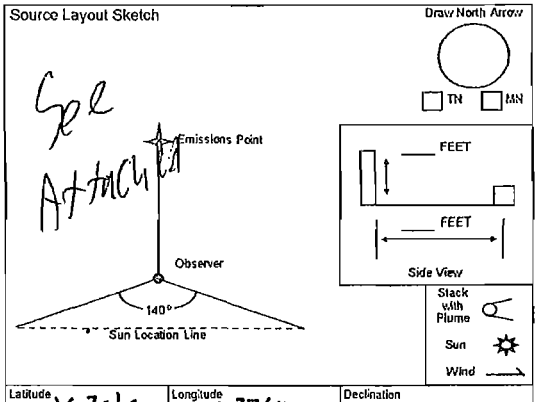
Describe Emissions Pont: 3rd Stack from North
Height of Emiss. Pt. Start 150 ft End 150 ft
Height of Emiss. Pt. Rel. to Observer Start 150 ft End 150 ft
Distance to Emiss. Pt. Start 650 ft End 650 ft
Direction to Emiss. Pt. (Degrees) Start ~~64~~ 110 End 110

Vetical Angle to Obs. Pt. Start 13° End 13°
Direction to Obs. Pt. (Degrees) Start NW End NW, 290°
Distance and Direction to Observation Point from Emission Point Start 650 ft. WNW End 650 ft WNW 135

Describe Emissions Start N/V End N/V
Emission Color Start N/V End N/V
Water Droplet Plume Start None End None

Describe Plume Background Start Sky End Sky
Background Color Start Blue End Blue
Sky Conditions Start Part Cloud End Clear
Wind Speed Start 5 Mph End 5mph
Wind Direction Start East End SE
Ambient Temp. Start 85 End 87
Wet Bulb Temp. RH Percent 75 76-56

Source Layout Sketch



Latitude 26.7029 Longitude -80.3764 Declination

Additional Information

VISUAL EMISSIONS OBSERVATION FORM

Form Number 5 of 6 Page 1 of 2
Continued on Form Number 6 of 6
Observation Date 5-7-10 Time Zone EST Start Time 18:33 End Time 19:32

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
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12	0	0	0	0	
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14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
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21	0	0	0	0	
22	0	0	0	0	
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24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print) Brett Stramme
Observer's Signature _____ Date 5-7-10
Organization Air Hygiene
Certified By Eastern Technical Associates Date 4-21-10

Method Used (Circle One)
Method 9 | 203A | 203B | Other: _____

Company Name: Florida Power and Lights
Facility Name: West County Energy Center
Street Address: 20505 State Road 80
City: Loxahatchee | State: FL | Zip: 33470

Process: Electricity Production | Unit #: 1-C | Operating Mode: Base
Control Equipment: Ammonia Injection | Operating Mode: Normal

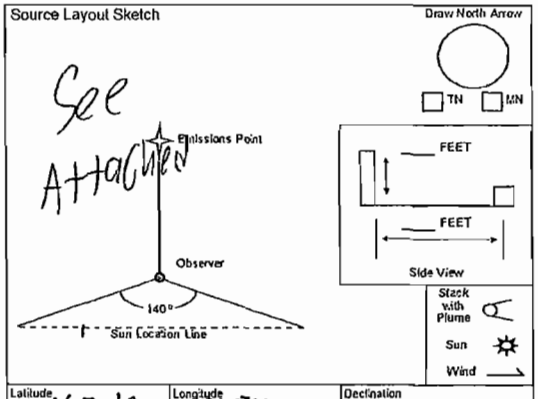
Describe Emissions Pont: 3rd Stack from North
Height of Emiss. Pt. Start: 150ft End: 150ft
Height of Emiss. Pt. Rel. to Observer Start: 160ft End: 150ft
Distance to Emiss. Pt. Start: 650 ft End: 650 ft
Direction to Emiss. Pt. (Degrees) Start: 110 End: 110

Vertical Angle to Obs. Pt. Start: 13° End: 13°
Direction to Obs. Pt. (Degrees) Start: 290 End: 290
Distance and Direction to Observation Point from Emission Point
Start: 650 ft WNW End: 650 ft WNW

Describe Emissions Start: N/V End: N/V
Emission Color Start: N/V End: N/V
Water Droplet Plume Start: None End: None

Describe Plume Background Start: Sky End: Sky
Background Color Start: Blue End: Blue
Sky Conditions Start: Part Cloudy End: Clear
Wind Speed Start: 5 mph End: 5 mph
Wind Direction Start: East End: SE
Ambient Temp. Start: 86 End: 83
Wet Bulb Temp. RH Percent: 86 78 56

Source Layout Sketch



Latitude: 26.7029 | Longitude: -80.3764 | Declination

Additional Information

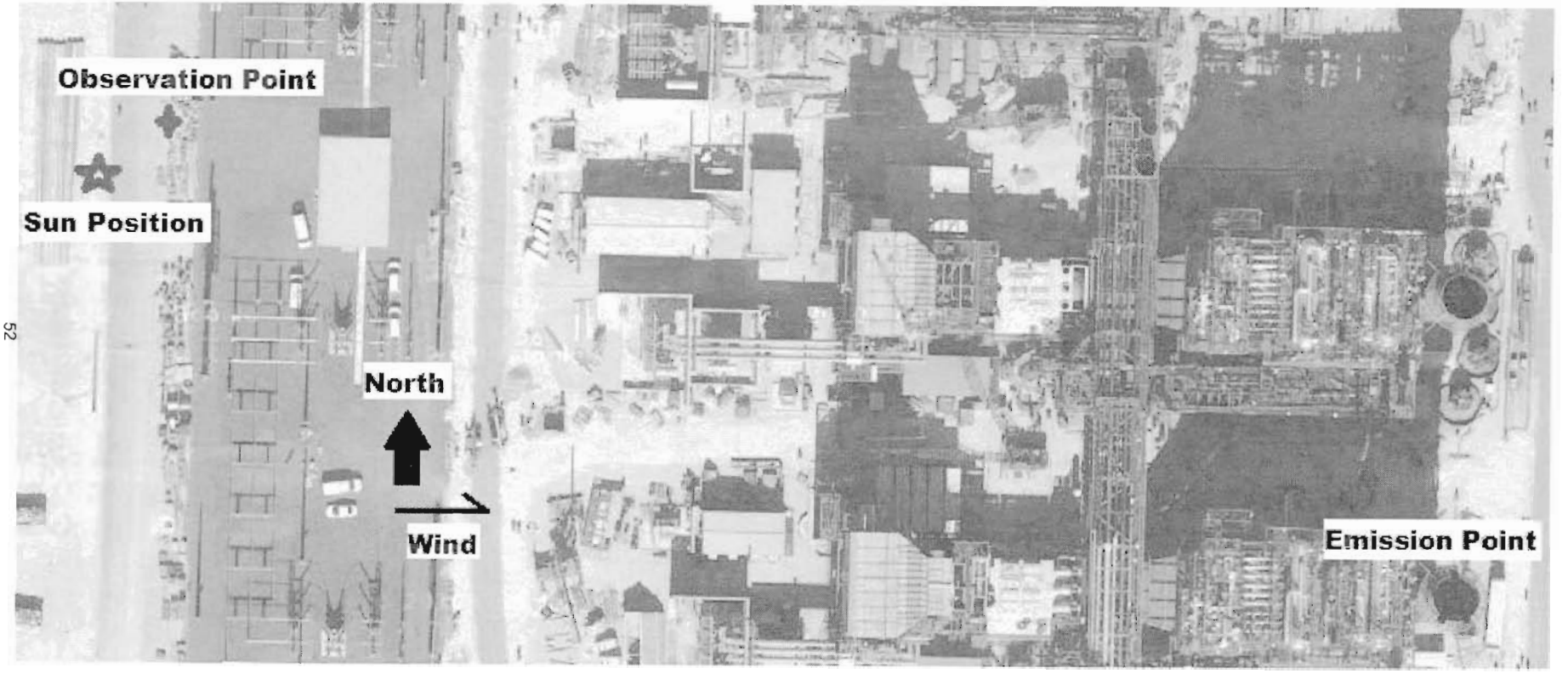
VISUAL EMISSIONS OBSERVATION FORM

Form Number: 6 of 6 | Page: 2 of 2
Continued on Form Number: N/A

Observation Date: 5-7-10 | Time Zone: EST | Start Time: 18:58 | End Time: 19:32 18:32 BS

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print): Brett Stremme
Observer's Signature: [signature] | Date: 5-7-10
Organization: Air Hygiene
Certified By: Eastern Technical Associates | Date: 4-21-10


Observation Point
Sun Position
North
Wind
Emission Point

CALCULATIONS

EXAMPLE CALCULATIONS (INFORMATION)

Specific Humidity (RH_{sp})

Note: RHsp (gr/lb) calculated using temperature, relative humidity, and barometric pressure with psychrometric chart, psychrometric calculator, or built in psychrometric algorithm.

$$RH_{sp}(lb/lb) = \left[\left(\frac{gr}{lb}\right) \times \frac{lb}{7000 gr}\right]$$

RH_{sp}= 132.33 gr / lb x 1 lb / 7000 gr = 0.018905 lb H_2O / lb Air

Combustor Inlet Pressure / Compressor Discharge Pressure (CIP / CDP)
(corrected from gauge to atmospheric pres. and conv. to mm Hg.)

Note: CIP / CDP (psig) is a value obtained from the source operator.

$$CIP/CDP = \left[(psig + P) \times \frac{51.71493 mmHg}{1 psi}\right]$$

CIP / CDP = [255.4 psig + 14.3171] x 51.71493 mmHg / 1 psia = 13,949 mmHg (abs)

Heat Rate (MMBtu/hr)

$$HR = \frac{HHV_{DRY} \times Q_f}{1{,}000{,}000}$$

Heat Rate = 1,033,782.16 Btu / SCF x 2,126.04 SCF / hr x MMBtu / 10^6 Btu = 2,197.86 MMBtu / hr

EXAMPLE CALCULATIONS (CALIBRATION)

Analyzer Calibration Error

RM 7E, (12-17-09), 12.2 Analyzer Calibration Error. For non-dilution systems, use Equation 7E-1 to calculate the analyzer calibration error for the low-, mid-, and high-level calibration gases. (calc for NOx analyzer mid gas, if applicable)

$$ACE = \left(\frac{C_{Dir} - C_V}{CS}\right) \times 100$$ Eq. 7E-1

ACE = (12.16 ppm - 12.20 ppm) / 23.20 ppm x 100 = -0.17 %

Calibration Error and Estimated Point, RM 25A, THC Analyzer

RM 25A, (12-17-09), 8.4 Calibration Error Test. Immediately prior to the test series (within 2 hours of the start of the test), introduce zero gas and high-level calibration gas at the calibration valve assembly. Adjust the analyzer output to the appropriate levels, if necessary. Calculate the predicted response for the low-level and mid-level gases based on a linear response line between the zero and high-level response. Then introduce low-level and mid-level calibration gases successively to the measurement system. ... These differences must be less than 5 percent of the respective calibration gas value. (calc for THC analyzer mid gas, if applicable)

$$E_p = \frac{C_{Dir(H)} - C_{Dir(Z)}}{C_{V(H)} - C_{V(Z)}} \times C_{Dir(M)} + C_{Dir(Z)}$$ Eq. of a line y=mx+b

E_p = (8.52 ppm - -0.09 ppm) / (8.46 ppm - 0.00 ppm) x 4.94 ppm + -0.09 = 4.94 ppm

$$ACE = \left(\frac{C_{Dir} - C_V}{CS}\right) \times 100$$ Eq. 7E-1

ACE_{THC} = (4.72 ppm - 4.94 ppm) / 4.94 ppm x 100 = -4.40 %

Note: Lack of significant figures may cause rounding errors between actual calculations and example calculations.

EXAMPLE CALCULATIONS (BIAS, DRIFT, AND CORRECTED RAW AVERAGE)

System Bias

RM 7E, (12-17-09), 12.3 System Bias. For non-dilution systems, use Equation 7E-2 to calculate the system bias separately for the low-level and upscale calibration gases. (calc for NOx analyzer upscale gas, Run 1 initial bias, if applicable)

$$SB = \left(\frac{C_S - C_{Dir}}{CS}\right) \times 100$$ Eq. 7E-2

SB = $\frac{11.99 \text{ ppm} - 12.16 \text{ ppm}}{23.20 \text{ ppm}} \times 100 = -0.73 \%$

Drift Assessment

RM 7E, (12-17-09), 12.5 Drift Assessment. Use Equation 7E-4 to separately calculate the low-level and upscale drift over each test run. (calc for NOx analyzer upscale drift, Run 1, if applicable)

$$D = \left|SB_{final} - SB_i\right|$$ Eq. 7E-4

D = | -0.39 % - -0.73 % | = 0.34 %

Alternative Drift and Bias

RM 7E, (12-17-09), 13.2 / 13.3 System Bias and Drift. Alternatively, the results are acceptable if |Cs – Cdir| is ≤ 0.5 ppmv or if |Cs – Cv| is ≤ 0.5 ppmv (as applicable). (calc for NOx analyzer initial upscale, Run 1, if applicable)

$$SB\,/\,D_{Alt} = \left|C_S - C_{Dir}\right|$$ Eq. Section 13.2 and 13.3

SB / D_{Alt} = | 11.99 ppm - 12.16 ppm | = 0.17 ppm

Bias Adjusted Average

RM 7E, (12-17-09), 12.6 Effluent Gas Concentration. For each test run, calculate Cavg, the arithmetic average of all valid NOx concentration values (e.g., 1-minute averages). Then adjust the value of Cavg for bias, using Equation 7E-5b. (calc for NOx analyzer, Run 1, if applicable)

$$C_{Gas} = \left(C_{Avg} - C_O\right) \times \left(\frac{C_{Al}}{C_{Al} - C_O}\right)$$ Eq. 7E-5b

C_{Gas} = $\left(6.97 \text{ ppm} - 0.07 \text{ ppm}\right) \times \left(\frac{12.20 \text{ ppm}}{12.03 \text{ ppm} - 0.07 \text{ ppm}}\right)$ = 7.04 ppm

EXAMPLE CALCULATIONS (RUNS)

Stack Exhaust Flow (Q_S) - RM19

$$Q_S = \left(\frac{FFactor \times Q_f \times HHV}{1{,}000{,}000}\right) \times \left(\frac{20.9\%}{20.9\% - C_{Gas(O2)}}\right)$$

$Q_S = \frac{9{,}222.13 \text{ SCF}}{\text{MMBtu}} \times \frac{2{,}126.04 \text{ SCF}}{\text{hr}} \times \frac{1{,}033{,}782.16 \text{ Btu}}{\text{SCF}} \times \frac{\text{MMBtu}}{10^6 \text{ Btu}} \times \left[\frac{20.90\%}{20.9\% - 13.4 \%}\right] = 56{,}647{,}853.63 \text{ SCFH}$

Diluent-Corrected Pollutant Concentration, O_2 Based

RM 20, (11-26-02), 7.3.1 Correction of Pollutant Concentration Using O_2 Concentration. Calculate the O_2 corrected pollutant concentration, as follows: (calc for NOx gas, Run 1, if applicable)

$$C_{adj} = C_{Gas(Target)} \times \left(\frac{20.9\% - AdjFactor}{20.9\% - C_{Gas(O2)}}\right)$$ Eq. 20-4

C_{adj} = 7.04 ppm x $\left(\frac{20.9\% - 15.00 \%}{20.9\% - 13.42 \%}\right)$ = 5.55 ppm@15%O_2

Diluent-Corrected Polutant Concentration Corrected to ISO Conditions

40CFR60.335(b)(1), Conversion for conc. at ISO Conditions (68°F, 1 atm). Calculate, as follows: (calc for NOx@15% with Run 1 data, if applicable)

$$C_{ISO} = C_{Adj} \times \sqrt{\frac{P_r}{P_a}} \times e^{(19 \times (H_O - 0.00633))} \times \left(\frac{288}{T_a}\right)^{1.53}$$

C_{ISO} = 5.55 ppm@15%O_2 x $\sqrt{\frac{255.4 \text{ psig} + 14.69232 \text{ psi}}{0.01933677 \text{ psi/mm Hg.}} \times \frac{255.4 \text{ psig} + 14.3171 \text{ psi}}{0.01933677 \text{ psi/mm Hg.}}}$ x $2.718^{(19 \times (0.018905 \text{ lb/lb} - 0.00633))}$ x $\left(\frac{288 \text{ K}}{302 \text{ K}}\right)^{1.53}$ = 6.56 ppm@15% and ISO

Note: Lack of significant figures may cause rounding errors between actual calculations and example calculations.

EXAMPLE CALCULATIONS (RUNS)

Emissions Rate (lb/hr)

Calculation for pound per hour emission rate. Calculate, as follows: (calc for NOx gas Run 1, if applicable)

$$E_{lb/hr} = \frac{C_{Gas}}{10^6} \times \frac{Q_S \times MW}{G}$$

$$E_{lb/hr} = \frac{7.04 \text{ ppm}}{10^6 \text{ ppm/part}} \times \frac{57{,}166{,}890 \text{ SCFH} \times 46.01 \text{ lb/lb-mol}}{385.23 \text{ SCF/lb-mol}} = \frac{48.07 \text{ lb}}{\text{hr}}$$

Emissions Rate (ton/year)

Calculation for tons per year emission rate based on 500 hours per year. Calculate, as follows: (calc for NOx gas Run 1, if applicable)

$$E_{ton/yr} = \frac{E_{lb/hr} \times hr_{year}}{2000}$$

$$E_{ton/yr} = \frac{48.07 \text{ lb}}{\text{hr}} \times \frac{500 \text{ hr}}{\text{year}} \times \frac{\text{ton}}{2000 \text{ lb}} = \frac{12.02 \text{ ton}}{\text{year}}$$

Emissions Rate (lb/MMBtu)

RM 19, (12-17-09), 12.2 Emission Rates of PM, SO_2, and NOx. Select from the following sections the applicable procedure to compute the PM, SO_2, or NOx emission rate (E) in ng/J (lb/million Btu). (calc for NOx gas Run 1, if applicable)

Oxygen Based

12.2.1 Oxygen-Based F Factor, Dry Basis. When measurements are on a dry basis for both O_2 ($\%O_2d$) and pollutant (Cd) concentrations, use the following equation:

$$E_{lb/MMBtu} = \frac{C_{Gas} \times F_d Factor \times Conv_C \times 20.9\%}{20.9\% - C_{Gas(O2)}} \qquad \text{Eq. 19-1}$$

$$E_{lb/MMBtu} = \frac{7.04 \text{ ppm} \times 9{,}222.13 \text{ SCF/MMBtu} \times 0.0000001194 \text{ lb/ppm*ft}^3 \times 20.9\%}{20.9\% - 13.42\ \%} = \frac{0.022 \text{ lb}}{\text{MMBtu}}$$

Conversion Constant

Convc for NOx

$$Conv_c(lb/ppm \cdot ft^3) = \frac{\frac{MW}{G}}{10^6}$$

$$Conv_c = \frac{\frac{46.01 \text{ lb}}{\text{lb•mole}} \times \frac{\text{lb•mole}}{385.23 \text{ SCF}}}{10^6} = \frac{0.0000001194 \text{ lb}}{\text{ppm-ft}^3}$$

Note: Lack of significant figures may cause rounding errors between actual calculations and example calculations.

RM 7E, (08-15-06), 12.1 Nomenclature. The terms used in the equations are defined as follows:

ACE = Analyzer calibration error, percent of calibration span.
B_{WS} = Moisture content of sample gas as measured by Method 4 or other approved method, percent/100.
C_{Avg} = Average unadjusted gas concentration indicated by data recorder for the test run.
C_D = Pollutant concentration adjusted to dry conditions.
C_{Dir} = Measured concentration of a calibration gas (low, mid, or high) when introduced in direct calibration mode.
C_{Gas} = Average effluent gas concentration adjusted for bias.
C_M = Average of initial and final system calibration bias (or 2-point system calibration error) check responses for the upscale calibration gas.
C_{MA} = Actual concentration of the upscale calibration gas, ppmv.
C_O = Average of the initial and final system calibration bias (or 2-point system calibration error) check responses from the low-level (or zero) calibration gas.
C_S = Measured concentration of a calibration gas (low, mid, or high) when introduced in system calibration mode.
C_{SS} = Concentration of NOx measured in the spiked sample.
C_{Spike} = Concentration of NOx in the undiluted spike gas.
C_{Calc} = Calculated concentration of NOx in the spike gas diluted in the sample.
C_V = Manufacturer certified concentration of a calibration gas (low, mid, or high).
C_W = Pollutant concentration measured under moist sample conditions, wet basis.
CS = Calibration span.
D = Drift assessment, percent of calibration span.
E_p = The predicted response for the low-level and mid-level gases based on a linear response line between the zero and high-level response.
Eff_{NO2} = NO_2 to NO converter efficiency, percent.
H = High calibration gas, designator.
L = Low calibration gas, designator.
M = Mid calibration gas, designator.
NOFinal = The average NO concentration observed with the analyzer in the NO mode during the converter efficiency test in Section 16.2.2.
NOxCorr = The NOx concentration corrected for the converter efficiency.
NOxFinal = The final NOx concentration observed during the converter efficiency test in Section 16.2.2.
NOxPeak = The highest NOx concentration observed during the converter efficiency test in Section 16.2.2.
Q_{Spike} = Flow rate of spike gas introduced in system calibration mode, L/min.
Q_{Total} = Total sample flow rate during the spike test, L/min.
R = Spike recovery, percent.
SB = System bias, percent of calibration span.
SB_i = Pre-run system bias, percent of calibration span.
SB_f = Post-run system bias, percent of calibration span.
SB / D_{Alt} = Alternative absolute difference criteria to pass bias and/or drift checks.
SCE = System calibration error, percent of calibration span.
SCE_i = Pre-run system calibration error, percent of calibration span.
SCE_{final} = Post-run system calibration error, percent of calibration span.
Z = Zero calibration gas, designator.

40CFR60.355(b)(1), (09-20-06), Nomenclature. The terms used in the equations are defined as follows:

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg
P_o = observed combustor inlet absolute pressure at test, mm Hg
H_o = observed humidity of ambient air, g H_2O/g air
e = transcendental constant, 2.718
T_a = ambient temperature, K

Small Engine and FTIR Nomenclature. The terms used in the equations are defined as follows:

bhp = brake horsepower
hp = horsepower
Q_{sys} = system flow (lpm)
Q_m = matrix spike flow (lpm)

RM 19, (07-29-06), 12.1 Nomenclature. The terms used in the equations are defined as follows:

AdjFactor = Percent oxygen or carbon dioxide adjustment applied to a target pollutant
B_{wa} = Moisture fraction of ambient air, percent.
Btu = British thermal unit
$\%_C$ = Concentration of carbon from an ultimate analysis of fuel, weight percent.
$\%_{CO2d}$,$\%_{CO2w}$ = Concentration of carbon dioxide on a dry and wet basis, respectively, percent.
CIP / CDP = Combustor inlet pressure / compressor discharge pressure (mm Hg); note, some manufactures reference as PCD.
E = Pollutant emission rate, ng/J (lb/million Btu).
E_a = Average pollutant rate for the specified performance test period, ng/J (lb/million Btu).
E_{ao}, E_{ai} = Average pollutant rate of the control device, outlet and inlet, respectively, for the performance test period, ng/J (lb/million Btu).
E_{bi} = Pollutant rate from the steam generating unit, ng/J (lb/million Btu).
E_{bo} = Pollutant emission rate from the steam generating unit, ng/J (lb/million Btu).
E_{ci} = Pollutant rate in combined effluent, ng/J (lb/million Btu).
E_{co} = Pollutant emission rate in combined effluent, ng/J (lb/million Btu).
E_d = Average pollutant rate for each sampling period (e.g.,24-hr Method 6B sample or 24-hr fuel sample) or for each fuel lot (e.g., amount of fuel bunkered), ng/J (lb/million Btu).
E_{di} = Average inlet SO_2 rate for each sampling period d, ng/J (lb/million Btu).
E_g = Pollutant rate from gas turbine, ng/J (lb/million Btu).
E_{ga} = Daily geometric average pollutant rate, ng/J (lbs/million Btu) or ppm corrected to 7 percent O_2.
E_{jo},E_{ji} = Matched pair hourly arithmetic average pollutant rate, outlet and inlet, respectively, ng/J (lb/million Btu) or ppm corrected to 7 percent O_2.
E_h = Hourly average pollutant, ng/J (lb/million Btu).
E_{hj} = Hourly arithmetic average pollutant rate for hour "j," ng/J (lb/million Btu) or ppm corrected to 7 percent O_2.
EXP = Natural logarithmic base (2.718) raised to the value enclosed by brackets.
Fc = Ratio of the volume of carbon dioxide produced to the gross calorific value of the fuel from Method 19
F_d, F_w, F_c = Volumes of combustion components per unit of heat content, scm/J (scf/million Btu).
ft^3 = cubic feet
G = ideal gas conversion factor
(385.23 SCF/lb-mol at 68 deg F & 14.696 psia)
GCM = gross Btu per SCF (constant, compound based)
GCV = Gross calorific value of the fuel consistent with the ultimate analysis, kJ/kg (Btu/lb).
GCV_p, GCV_r = Gross calorific value for the product and raw fuel lots, respectively, dry basis, kJ/kg (Btu/lb).
$\%_H$ = Concentration of hydrogen from an ultimate analysis of fuel, weight percent.
H_b = Heat input rate to the steam generating unit from fuels fired in the steam generating unit, J/hr (million Btu/hr).
H_g = Heat input rate to gas turbine from all fuels fired in the gas turbine, J/hr (million Btu/hr).
$\%_{H2O}$ = Concentration of water from an ultimate analysis of fuel, weight percent.
H_r = Total numbers of hours in the performance test period (e.g., 720 hours for 30-day performance test period).
K = volume of combustion component per pound of component (constant)
K = Conversion factor, 10^{-5} (kJ/J)/(%) [10^6 Btu/million Btu].
K_c = (9.57 scm/kg)/% [(1.53 scf/lb)/%].
K_{co} = (2.0 scm/kg)/% [(0.321 scf/lb)/%].
K_{hd} = (22.7 scm/kg)/% [(3.64 scf/lb)/%].
K_{hw} = (34.74 scm/kg)/% [(5.57 scf/lb)/%].
K_n = (0.86 scm/kg)/% [(0.14 scf/lb)/%].
K_o = (2.85 scm/kg)/% [(0.46 scf/lb)/%].
K_s = (3.54 scm/kg)/% [(0.57 scf/lb)/%].
K_{sulfur} = $2x10^4$ Btu/wt%-MMBtu
K_w = (1.30 scm/kg)/% [(0.21 scf/lb)/%].
lb = pound
ln = Natural log of indicated value.
L_p,L_r = Weight of the product and raw fuel lots, respectively, metric ton (ton).
$\%_N$ = Concentration of nitrogen from an ultimate analysis of fuel, weight percent.
$M_{\%}$ = mole percent
mol = mole
MW = molecular weight (lb/lb-mol)
MW_{AIR} = molecular weight of air (28.9625 lb/lb-mole)[1]
NCM = net Btu per SCF (constant based on compound)
$\%_O$ = Concentration of oxygen from an ultimate analysis of fuel, weight percent.
$\%_{O2d}$, $\%_{O2w}$ = Concentration of oxygen on a dry and wet basis, respectively, percent.
P_B = barometirc pressure, in Hg
P_s = Potential SO2 emissions, percent.
$\%_S$ = Sulfur content of as-fired fuel lot, dry basis, weight percent.
S_e = Standard deviation of the hourly average pollutant rates for each performance test period, ng/J (lb/million Btu).
$\%_{Sf}$ = Concentration of sulfur from an ultimate analysis of fuel, weight percent.
S(wt%) = weight percent of sulfur, per lab analysis by appropriate ASTM standard
S_i = Standard deviation of the hourly average inlet pollutant rates for each performance test period, ng/J (lb/million Btu).
S_o = Standard deviation of the hourly average emission rates for each performance test period, ng/J (lb/million Btu).
$\%S_p$, $\%S_r$ = Sulfur content of the product and raw fuel lots respectively, dry basis, weight percent.
SCF = standard cubic feet
SH = specific humidity, pounds of water per pound of air
$t_{0.95}$ = Values shown in Table 19-3 for the indicated number of data points n.
T_{amb} = ambient temperature, °F
W/D Factor = 1.0236 = conv. at 14.696 psia and
68 deg F (ref. Civil Eng. Ref. Manual, 7th Ed.)
X_{CO2}=CO_2 Correction factor, percent.
X_k = Fraction of total heat input from each type of fuel k.

Calculations, Formulas, and Constants

The following information supports the spreadsheets for this testing project.

Given Data:

Ideal Gas Conversion Factor = 385.23 SCF/lb-mol at 68 deg F & 14.696 psia

Fuel Heating Value is based upon Air Hygiene's fuel gas calculation sheet. All calculations are based upon a correction to 68 deg F & 14.696 psia

High Heating Values (HHV) are used for the Fuel Heating Value, F-Factor, and Fuel Flow Data per EPA requirements.

ASTM D 3588

Molecular Weight of NOx (lb/lb-mole) = 46.01
Molecular Weight of CO (lb/lb-mole) = 28.00
Molecular Weight of SO_2 (lb/lb-mole) = 64.00
Molecular Weight of THC (propane) (lb/lb-mole) = 44.00
Molecular Weight of VOC (methane) (lb/lb-mole) = 16.00
Molecular Weight of NH_3 (lb/lb-mole) = 17.03
Molecular Weight of HCHO (lb/lb-mole) = 30.03

40CFR60, App. A., RM 19, Table 19-1

Conversion Constant for NOx = 0.0000001194351
Conversion Constant for CO = 0.0000000726839
Conversion Constant for SO_2 = 0.0000001661345
Conversion Constant for THC = 0.0000001142175
Conversion Constant for VOC (methane) = 0.0000000415336
Conversion Constant for NH_3 = 0.0000000442074
Conversion Constant for HCHO = 0.0000000779534
NOTE: units are lb/ppm*ft^3

Formulas:

1. Corrected Raw Average (C_{Gas}), 40CFR60, App. A, RM 7E, Eq. 7E-5 (08/15/06)

$$C_{Gas} = (C_{Avg} - C_O) \times \left(\frac{C_{MA}}{C_M - C_O} \right)$$

2. Correction to % O_2, 40CFR60, App. A, RM 20, Eq. 20-5 (11/26/02)

$$C_{adj} = C_{Gas(Target)} \times \left(\frac{20.9\% - AdjFactor}{20.9\% - C_{Gas(O2)}} \right)$$

3. Correction to % O_2 and ISO Conditions

$$C_{ISO} = C_{Adj} \times \sqrt{\frac{P_r}{P_o}} \times e^{(19 \times (H_O - 0.00633))} \times \left(\frac{288}{T_a} \right)^{1.53}$$

4. Method 19 stack exhaust flow (scfh)

$$Q_S = \left(\frac{FFactor \times Q_f \times HHV}{1{,}000{,}000} \right) \times \left(\frac{20.9\%}{20.9\% - C_{Gas(O2)}} \right)$$

5. Emission Rate in lb/hr

$$E_{lb/hr} = \frac{C_{Gas}}{10^6} \times \frac{Q_S \times MW}{G}$$

6. Emission Rate in tons per year

$$E_{ton/yr} = \frac{E_{lb/hr} \times hr_{year}}{2000}$$

7. Emission Concentration in lb/MMBtu (O_2 based)

$$E_{lb/MMBtu} = \frac{C_{Gas} \times F_d Factor \times Conv_C \times 20.9\%}{20.9\% - C_{Gas(O2)}}$$

8. Emission Concentration in g/hp*hr

$$E_{g/hp \cdot hr} = \frac{E_{lb/hr} \times 453.6}{mw \times 1314.022} \; or \; \frac{E_{lb/hr} \times 453.6}{hp}$$

APPENDIX B

UNIT OPERATION PARAMETERS

Florida Power and Light

Air Permit # :	PSD-FL-354
Plant Name or Location:	West County Energy Center
Date:	May 7, 2010
Project Number:	bv-09-westcounty.fl-comp#1
Manufacturer & Equipment:	Mitsubishi
Model:	501G
Unit Number:	1C
Test Load:	Base
Tester(s) / Test Unit(s):	JRF/MS 211

		RUN		
	UNITS	**1-1**	**1-2**	**1-3**
Start Time	hh:mm:ss	17:46:29	19:00:29	20:30:29
End Time	hh:mm:ss	18:45:59	19:59:59	21:29:59
Bar. Pressure	in. Hg	29.15	29.16	29.18
Amb. Temp.	°F	84	82	79
Rel. Humidity	%	72	79	87
Spec. Humidity	lb water / lb air	0.018905	0.019306	0.019024
Comb. Inlet Pres.	psig	255.4	256.3	257.9
Turbine Fuel Flow	gal/hr	15,904	15,965	16,081
Total Fuel Flow	SCFH	2,126	2,134	2,150
Stack Flow (M2)	SCFH	57,166,890	57,212,785	58,237,889
Stack Moisture	% Method 4	10.2	9.9	10.2
Power Output	megawatts	210.2	211.5	213.6

UNIT OPERATION PARAMETERS

Base Load

Date/Time	Data Point	Combustor Inlet/Compressor Discharge Pressure C	CT C Fuel Oil Flow	CT C Load	ST Load	Ambient Temp	Ambient Pressure	Ambient Relative Humidity
	Units	psig	lb/hr	MW	MW	F	Hg	% RH
	07-May-10 17:46:00	254.57	111624.98	210.02	413.16	84.40	29.15	73.00
	07-May-10 17:47:00	254.69	111412.90	209.09	413.21	84.27	29.15	72.00
	07-May-10 17:48:00	255.44	111460.48	209.38	413.42	84.20	29.15	72.74
	07-May-10 17:49:00	255.82	111991.09	210.73	413.95	84.25	29.15	72.99
	07-May-10 17:50:00	255.62	111983.20	210.21	414.18	84.28	29.15	72.99
	07-May-10 17:51:00	255.67	112005.13	210.45	414.01	84.20	29.15	72.00
	07-May-10 17:52:00	255.79	111721.40	210.25	412.84	84.19	29.15	72.99
	07-May-10 17:53:00	255.89	111866.09	210.98	413.04	84.17	29.15	74.00
	07-May-10 17:54:00	255.89	111948.54	210.85	412.94	84.19	29.15	72.99
	07-May-10 17:55:00	255.62	111651.50	210.10	412.84	84.19	29.15	74.00
	07-May-10 17:56:00	255.92	112050.97	211.15	412.57	84.20	29.15	72.99
	07-May-10 17:57:00	255.83	111830.14	210.30	412.48	84.25	29.15	72.99
	07-May-10 17:58:00	255.54	111609.38	209.93	412.51	84.31	29.15	72.99
	07-May-10 17:59:00	255.69	111968.05	210.58	412.68	84.38	29.15	73.00
	07-May-10 18:00:00	255.57	111729.84	210.63	412.84	84.50	29.15	72.99
	07-May-10 18:01:00	255.47	111676.09	210.68	412.43	84.38	29.15	74.00
	07-May-10 18:02:00	255.08	111758.56	209.61	412.12	84.56	29.15	72.99
	07-May-10 18:03:00	255.13	111240.52	208.73	412.63	84.72	29.15	72.00
	07-May-10 18:04:00	255.43	111545.58	209.18	412.47	84.71	29.15	72.00
	07-May-10 18:05:00	254.91	111371.22	209.63	412.53	84.56	29.15	72.00
	07-May-10 18:06:00	255.12	111372.09	209.09	412.68	84.75	29.15	72.00
	07-May-10 18:07:00	255.47	111711.17	209.70	413.04	84.75	29.15	72.00
	07-May-10 18:08:00	255.70	111939.52	210.61	413.12	84.57	29.15	72.01
	07-May-10 18:09:00	255.57	111884.84	210.64	412.94	84.75	29.15	72.00
	07-May-10 18:10:00	255.40	111707.60	209.44	412.94	84.92	29.16	71.01
	07-May-10 18:11:00	255.42	111783.54	210.07	412.93	84.90	29.15	70.02
	07-May-10 18:12:00	255.43	111682.21	209.99	412.94	84.75	29.15	70.02
	07-May-10 18:13:00	255.50	111826.25	210.25	412.80	84.67	29.15	70.01
	07-May-10 18:14:00	255.47	111632.10	210.45	412.68	84.67	29.16	70.46
	07-May-10 18:15:00	255.30	111848.77	210.40	412.60	84.57	29.15	71.01
	07-May-10 18:16:00	255.09	111576.85	210.37	412.68	84.74	29.15	70.01
	07-May-10 18:17:00	255.32	111485.94	209.90	412.41	84.41	29.15	70.01
	07-May-10 18:18:00	255.39	111884.65	210.79	412.63	84.38	29.15	70.01
	07-May-10 18:19:00	254.44	111492.31	209.39	412.68	84.38	29.15	70.34
	07-May-10 18:20:00	255.00	111325.09	209.46	412.41	84.28	29.15	71.01
	07-May-10 18:21:00	255.19	111433.00	209.05	412.75	84.34	29.15	72.00
	07-May-10 18:22:00	255.32	111787.48	210.20	412.76	84.27	29.15	72.00
	07-May-10 18:23:00	255.06	111573.27	209.41	412.34	84.17	29.15	72.00
	07-May-10 18:24:00	255.21	111534.12	210.08	412.39	84.20	29.15	72.00
	07-May-10 18:25:00	255.36	111721.07	210.32	412.41	84.04	29.15	72.00
	07-May-10 18:26:00	255.71	111742.94	210.85	412.35	84.03	29.15	73.00
	07-May-10 18:27:00	255.41	111761.16	209.97	412.14	84.04	29.15	73.00
	07-May-10 18:28:00	255.63	111695.41	210.47	411.51	84.03	29.15	73.00
	07-May-10 18:29:00	255.85	111992.02	211.46	411.72	84.12	29.15	73.00
	07-May-10 18:30:00	255.50	111542.98	210.23	411.88	83.97	29.15	74.01
	07-May-10 18:31:00	255.61	111769.55	210.95	411.88	83.86	29.15	73.00
	07-May-10 18:32:00	255.33	111721.29	210.35	411.88	83.87	29.15	72.08
	07-May-10 18:33:00	255.53	111669.05	210.49	411.88	84.01	29.15	73.00
	07-May-10 18:34:00	255.32	111654.08	210.03	412.09	83.92	29.15	74.01
	07-May-10 18:35:00	255.14	111787.25	210.41	412.26	83.85	29.15	73.00
	07-May-10 18:36:00	255.40	111426.50	210.45	412.03	83.86	29.15	74.01
	07-May-10 18:37:00	255.28	111429.57	209.73	412.36	83.86	29.15	74.01
	07-May-10 18:38:00	255.57	111752.27	209.97	412.09	83.88	29.15	72.99
	07-May-10 18:39:00	255.78	112074.50	211.16	412.47	83.86	29.15	74.01
	07-May-10 18:40:00	255.75	111822.85	211.09	412.94	84.04	29.15	74.01
	07-May-10 18:41:00	255.42	111443.77	209.71	413.16	84.03	29.15	74.01
	07-May-10 18:42:00	255.48	111766.59	210.75	413.16	84.02	29.15	74.01
	07-May-10 18:43:00	255.39	111722.23	210.27	413.20	84.00	29.15	73.00
	07-May-10 18:44:00	255.43	111674.24	210.25	413.39	84.01	29.15	73.08
	07-May-10 18:45:00	255.32	111711.29	209.95	412.98	83.85	29.15	74.01
	Average	255.42	111696.78	210.18	412.67	84.28	29.15	72.46

Date/Time	Data Point	Combustor Inlet/Compressor Discharge Pressure C	CT C Fuel Oil Flow	CT C Load	ST Load	Ambient Temp	Ambient Pressure	Ambient Relative Humidity
	Units	psig	lb/hr	MW	MW	F	Hg	% RH
	07-May-10 19:00:00	255.77	111870.46	210.12	413.03	83.41	29.15	77.00
	07-May-10 19:01:00	255.93	112135.49	211.46	413.38	83.48	29.16	76.00
	07-May-10 19:02:00	255.61	111752.24	210.89	413.14	83.31	29.16	75.99
	07-May-10 19:03:00	255.49	111612.65	209.93	413.10	83.31	29.16	75.99
	07-May-10 19:04:00	255.83	112157.45	211.20	413.10	83.31	29.15	77.00
	07-May-10 19:05:00	255.50	111585.65	209.93	413.16	83.12	29.15	77.00
	07-May-10 19:06:00	256.09	111972.48	211.75	412.94	83.12	29.15	75.99
	07-May-10 19:07:00	255.92	111920.76	211.48	413.16	83.12	29.15	75.99
	07-May-10 19:08:00	255.84	111914.90	211.37	412.68	82.94	29.16	76.07
	07-May-10 19:09:00	255.91	111942.48	210.73	412.93	82.93	29.15	77.00
	07-May-10 19:10:00	255.91	111890.87	211.08	413.09	82.94	29.16	77.00
	07-May-10 19:11:00	255.95	111994.28	211.02	413.16	83.04	29.16	76.00
	07-May-10 19:12:00	256.05	111879.13	210.90	412.94	82.93	29.15	76.58
	07-May-10 19:13:00	255.97	111880.38	211.12	413.11	83.08	29.15	75.99
	07-May-10 19:14:00	256.19	112297.00	211.80	413.52	83.07	29.16	77.00
	07-May-10 19:15:00	256.10	111869.88	210.76	413.16	82.94	29.15	75.99
	07-May-10 19:16:00	256.00	111934.56	211.90	413.16	82.92	29.15	75.99
	07-May-10 19:17:00	255.64	111760.27	210.05	413.02	82.93	29.16	75.99
	07-May-10 19:18:00	256.14	112064.88	210.94	413.22	83.06	29.15	77.00
	07-May-10 19:19:00	256.14	112136.01	210.89	413.16	82.93	29.15	77.00
	07-May-10 19:20:00	256.13	111946.71	211.46	412.94	83.04	29.16	77.00
	07-May-10 19:21:00	256.03	111804.45	211.17	413.28	82.93	29.16	77.00
	07-May-10 19:22:00	256.06	112128.34	211.02	413.29	82.78	29.16	77.00
	07-May-10 19:23:00	256.29	112230.54	211.96	414.23	82.93	29.16	78.00
	07-May-10 19:24:00	255.97	111733.85	210.66	414.26	82.65	29.16	76.99
	07-May-10 19:25:00	256.03	112072.70	210.83	414.36	82.77	29.16	78.00
	07-May-10 19:26:00	256.47	112262.30	212.54	414.45	82.72	29.16	78.00
	07-May-10 19:27:00	256.16	111890.15	210.99	414.25	82.58	29.16	77.99
	07-May-10 19:28:00	256.41	112174.41	211.56	414.49	82.58	29.16	78.00
	07-May-10 19:29:00	256.31	111978.58	211.27	414.49	82.56	29.16	78.98
	07-May-10 19:30:00	256.15	112055.75	211.19	414.30	82.41	29.16	78.98
	07-May-10 19:31:00	256.35	112210.34	211.81	414.31	82.30	29.16	79.32
	07-May-10 19:32:00	256.07	112127.13	210.60	414.42	82.33	29.16	79.99
	07-May-10 19:33:00	256.26	112150.16	211.72	414.34	82.23	29.16	81.00
	07-May-10 19:34:00	256.04	111978.28	210.82	414.52	82.14	29.17	81.00
	07-May-10 19:35:00	256.37	112167.41	211.55	415.03	82.23	29.17	81.00
	07-May-10 19:36:00	256.54	112173.02	211.31	415.61	82.23	29.17	81.00
	07-May-10 19:37:00	256.49	112173.85	211.84	416.27	82.17	29.17	81.00
	07-May-10 19:38:00	256.55	112306.88	212.30	416.70	82.23	29.16	81.00
	07-May-10 19:39:00	256.34	111990.52	211.46	417.16	82.00	29.16	81.00
	07-May-10 19:40:00	256.48	112314.59	211.96	417.67	81.72	29.17	81.00
	07-May-10 19:41:00	256.62	112218.60	211.97	418.21	81.72	29.17	79.99
	07-May-10 19:42:00	256.55	112230.20	211.80	418.52	81.87	29.17	79.99
	07-May-10 19:43:00	256.86	112565.90	212.20	418.23	81.90	29.17	78.98
	07-May-10 19:44:00	256.79	111995.59	211.56	418.23	81.70	29.17	79.99
	07-May-10 19:45:00	256.61	112194.59	211.54	418.93	81.77	29.17	79.60
	07-May-10 19:46:00	257.00	112572.51	212.75	418.93	81.89	29.17	78.99
	07-May-10 19:47:00	256.79	112479.22	211.94	418.89	81.89	29.18	78.98
	07-May-10 19:48:00	256.83	112301.02	211.89	419.73	81.70	29.17	80.00
	07-May-10 19:49:00	256.90	112305.91	211.51	420.37	81.70	29.18	80.00
	07-May-10 19:50:00	256.93	112441.20	212.16	421.17	81.51	29.18	80.00
	07-May-10 19:51:00	257.11	112625.14	212.44	421.97	81.53	29.18	80.00
	07-May-10 19:52:00	256.84	112268.79	211.65	422.37	81.34	29.18	81.00
	07-May-10 19:53:00	256.90	112327.88	212.08	422.89	81.20	29.18	81.00
	07-May-10 19:54:00	257.18	112644.12	212.83	423.57	81.16	29.18	81.00
	07-May-10 19:55:00	256.99	112390.30	212.20	423.94	81.15	29.17	81.99
	07-May-10 19:56:00	257.08	112453.05	212.64	424.40	81.07	29.18	81.99
	07-May-10 19:57:00	256.88	112272.70	212.00	424.85	81.08	29.18	81.99
	07-May-10 19:58:00	256.85	112320.30	211.98	425.08	80.99	29.17	81.99
	07-May-10 19:59:00	256.84	112454.28	212.93	425.61	80.99	29.18	82.99
	Average	256.33	112125.05	211.49	416.31	82.36	29.16	78.70

Date/Time	Data Point	Combustor Inlet/Compressor Discharge Pressure C	CT C Fuel Oil Flow	CT C Load	ST Load	Ambient Temp	Ambient Pressure	Ambient Relative Humidity
	Units	psig	lb/hr	MW	MW	F	Hg	% RH
	07-May-10 20:30:00	258.23	112851.19	213.58	433.40	78.88	29.18	83.98
	07-May-10 20:31:00	258.20	113081.80	213.81	433.67	78.82	29.18	83.98
	07-May-10 20:32:00	258.32	113180.53	214.32	433.18	78.66	29.18	83.98
	07-May-10 20:33:00	258.25	112920.20	213.73	433.49	78.83	29.18	83.98
	07-May-10 20:34:00	258.31	113274.32	214.35	433.67	78.66	29.18	83.98
	07-May-10 20:35:00	258.10	112914.09	213.41	433.40	78.80	29.18	84.98
	07-May-10 20:36:00	258.02	112855.66	213.30	433.40	78.72	29.18	84.98
	07-May-10 20:37:00	258.41	113174.98	214.97	433.25	78.83	29.18	84.98
	07-May-10 20:38:00	257.89	112918.36	213.32	433.09	78.66	29.18	84.98
	07-May-10 20:39:00	257.94	113038.15	213.84	432.95	78.80	29.18	84.98
	07-May-10 20:40:00	257.53	112882.27	213.25	432.95	78.83	29.18	84.98
	07-May-10 20:41:00	257.73	113057.18	213.44	433.11	78.76	29.18	84.98
	07-May-10 20:42:00	257.82	112554.17	212.76	433.23	78.72	29.18	84.98
	07-May-10 20:43:00	257.70	112719.62	213.20	433.13	78.66	29.19	85.97
	07-May-10 20:44:00	257.98	113120.63	214.14	432.89	78.82	29.18	85.98
	07-May-10 20:45:00	257.77	112777.02	213.41	433.11	78.67	29.18	85.98
	07-May-10 20:46:00	257.61	112652.33	212.89	432.86	78.80	29.18	85.97
	07-May-10 20:47:00	257.84	112918.48	213.59	433.18	78.91	29.18	85.97
	07-May-10 20:48:00	257.97	113116.30	214.20	432.33	78.66	29.18	85.97
	07-May-10 20:49:00	257.80	112524.70	212.98	432.08	78.66	29.18	85.97
	07-May-10 20:50:00	257.89	112969.84	212.97	432.53	78.70	29.19	85.97
	07-May-10 20:51:00	258.08	112870.25	213.67	432.33	78.82	29.19	85.98
	07-May-10 20:52:00	258.18	112992.31	214.10	432.40	78.66	29.19	85.97
	07-May-10 20:53:00	258.32	113155.74	214.57	432.74	78.74	29.19	86.42
	07-May-10 20:54:00	257.87	112726.45	212.75	432.69	78.66	29.19	86.98
	07-May-10 20:55:00	258.21	113137.86	214.73	432.86	78.66	29.18	86.98
	07-May-10 20:56:00	257.95	112989.64	214.36	432.86	78.63	29.19	86.98
	07-May-10 20:57:00	257.67	112767.87	212.92	432.86	78.66	29.19	86.98
	07-May-10 20:58:00	257.75	112832.38	213.39	432.89	78.66	29.19	86.98
	07-May-10 20:59:00	257.95	113128.72	214.20	433.11	78.66	29.18	86.98
	07-May-10 21:00:00	257.75	112989.34	213.16	433.01	78.76	29.18	86.98
	07-May-10 21:01:00	257.76	112739.82	213.02	433.02	78.66	29.18	86.98
	07-May-10 21:02:00	258.03	113009.49	214.27	433.30	78.66	29.18	86.98
	07-May-10 21:03:00	257.74	112736.29	213.17	433.13	78.66	29.19	86.98
	07-May-10 21:04:00	257.71	112874.52	212.79	433.40	78.65	29.18	87.97
	07-May-10 21:05:00	257.74	113022.05	214.01	433.40	78.81	29.18	87.97
	07-May-10 21:06:00	257.77	112907.23	213.86	433.12	78.72	29.18	87.97
	07-May-10 21:07:00	257.55	112735.47	213.41	433.13	78.82	29.19	87.97
	07-May-10 21:08:00	258.02	113204.59	214.36	433.00	78.82	29.18	87.97
	07-May-10 21:09:00	257.82	112576.69	213.53	433.13	78.82	29.18	87.97
	07-May-10 21:10:00	258.16	113271.83	214.16	433.13	78.82	29.19	88.96
	07-May-10 21:11:00	257.74	112938.95	212.80	433.62	78.85	29.19	88.96
	07-May-10 21:12:00	257.78	112958.54	213.53	433.44	79.00	29.19	88.96
	07-May-10 21:13:00	257.81	113005.56	214.04	433.40	79.00	29.19	88.96
	07-May-10 21:14:00	257.64	112910.33	213.72	433.40	78.82	29.19	88.96
	07-May-10 21:15:00	257.74	112963.95	213.73	433.31	78.82	29.19	88.96
	07-May-10 21:16:00	257.55	112645.55	213.09	433.07	78.71	29.19	88.97
	07-May-10 21:17:00	257.74	112930.53	213.58	433.08	78.91	29.19	88.96
	07-May-10 21:18:00	257.85	113066.97	213.42	432.77	78.91	29.19	88.97
	07-May-10 21:19:00	257.54	112888.68	212.17	432.88	78.82	29.19	88.97
	07-May-10 21:20:00	257.87	113036.84	213.93	433.13	78.82	29.19	88.97
	07-May-10 21:21:00	257.76	112939.89	214.03	433.35	78.83	29.19	88.97
	07-May-10 21:22:00	257.57	113038.38	213.44	432.86	78.66	29.19	89.97
	07-May-10 21:23:00	257.64	112754.81	213.42	432.64	78.83	29.19	89.97
	07-May-10 21:24:00	257.93	113060.17	213.98	432.89	79.02	29.19	89.97
	07-May-10 21:25:00	257.68	112799.66	213.25	432.97	78.83	29.19	90.96
	07-May-10 21:26:00	258.09	113155.93	213.83	432.78	78.83	29.19	90.96
	07-May-10 21:27:00	258.04	112964.22	214.41	432.80	78.83	29.19	90.96
	07-May-10 21:28:00	258.04	113052.80	214.18	432.60	78.83	29.19	90.96
	07-May-10 21:29:00	258.16	113187.34	214.32	432.33	79.19	29.19	90.96
	Average	257.89	112941.16	213.65	433.03	78.78	29.18	87.26

APPENDIX C

CALIBRATION GAS CERTIFICATIONS

AIR LIQUIDE Air Liquide America Specialty Gases LLC

Scott™

RATA CLASS

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

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

P.O. No.: 9092010
Project No.: 05-80747-017

Customer

AIR LIQUIDE AMERICA L.P.

801 W NORTH CARRIER PKWY
GRAND PRAIRIE TX 75050-1003

ANALYTICAL INFORMATION

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

Cylinder Number: AAL12025 **Certification Date:** 08Oct2009 **Exp. Date:** 07Oct2012
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	8.89	%	+/- 1%	Direct NIST and VSL
OXYGEN	12.1	%	+/- 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 1674	01May2010	K003066	7.016 %	CARBON DIOXIDE
NTRM 2350	01Dec2011	K016398	23.20 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
PIR/2000/609015	28Sep2009	NDIR
CAI/110P/V03018	01Oct2009	PARAMAGNETIC

ANALYZER READINGS

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

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

CARBON DIOXIDE

Date: 09Oct2009	Response Unit:%	
Z1 = 0.00000	R1 = 48.00000	T1 = 57.34000
R2 = 48.00000	Z2 = 0.00000	T2 = 57.34000
Z3 = 0.00000	T3 = 57.34000	R3 = 48.00000
Avg. Concentration:	8.888	%

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999998

Constants:	A = 0.00268272
B = 0.120367667	C = 0.00020524
D = 6.94101E-06	E = 0

OXYGEN

Date: 09Oct2009	Response Unit:%	
Z1 = 0.00000	R1 = 23.20000	T1 = 12.09000
R2 = 23.20000	Z2 = 0.00000	T2 = 12.09000
Z3 = 0.00000	T3 = 12.09000	R3 = 23.20000
Avg. Concentration:	12.07	%

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999997

Constants:	A = -0.02466393
B = 1.000647921	C = 0
D = 0	E = 0

APPROVED BY: _____
JEFF CROTEAU

AIR LIQUIDE Air Liquide America Specialty Gases LLC

Scott

RATA CLASS

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

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

P.O. No.: ALAS-53422 9111510
Project No.: 05-82697-010

Customer

AIR LIQUIDE AMERICA L.P.
AIR HYGIENE 9111510
1319 NORTH PEORIA AVE
TULSA OK 74106

ANALYTICAL INFORMATION

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

Cylinder Number: ALM030051 **Certification Date:** 11Dec2009 **Exp. Date:** 10Dec2012
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	19.3	%	+/- 1%	Direct NIST and VSL
OXYGEN	21.1	%	+/- 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 2300	01Nov2010	1D002807	23.04 %	CARBON DIOXIDE
NTRM 2350	01Dec2011	K016398	23.20 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
VARIAN/3700/10880-13	03Dec2009	THERMAL CONDUCTIVITY
CAI/110P/V03018	03Dec2009	PARAMAGNETIC

ANALYZER READINGS

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

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

CARBON DIOXIDE

Date: 11Dec2009	Response Unit:AREA	
Z1 = 0.00000	R1 = 120826.0	T1 = 100517.0
R2 = 120831.0	Z2 = 0.00000	T2 = 100492.0
Z3 = 0.00000	T3 = 100889.0	R3 = 120914.0
Avg. Concentration:	19.32	%

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999949

Constants:	A = -0.10140599
B = 0.000196464	C = 0
D = 0	E = 0

OXYGEN

Date: 11Dec2009	Response Unit:%	
Z1 = 0.00000	R1 = 23.20000	T1 = 21.13000
R2 = 23.20000	Z2 = 0.00000	T2 = 21.13000
Z3 = 0.00000	T3 = 21.13000	R3 = 23.20000
Avg. Concentration:	21.12	%

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999998

Constants:	A = -0.01332359
B = 1.000061576	C = 0
D = 0	E = 0

APPROVED BY: _____
JEFF CROTEAU

AIR LIQUIDE™

CERTIFICATION OF ANALYSIS

Interference Free Multi-Component EPA Protocol Gases

Note: Analytical uncertainty and NIST traceability are in compliance with EPA-600/R-97/121
Section 2.2, Procedure G-1

Cylinder S/N: AL3007

Customer: AIR HYGIENE
Location: TULSA, OK

P.O. Number: 9032901
Item Number: SGZCAH072

Assay Date: 24-Apr-2009

Expiration Date: 24-Apr-2011

Shipping Order Number: 33119767
Transfer Number: 33119767
Lot Number: SFS131207
Valve: CGA 660
Cylinder Pressure*: 2000 PSIG
*Cylinder should not be used when gas pressure is below 150 psig

Components	Requested Concentration	Assay Concentration
Nitrogen	Balance	Balance
Carbon Monoxide	12 ppm	12.1 ± 0.1 ppm
Nitric Oxide	12 ppm	12.1 ± 0.2 ppm
NOx		12.2 ppm

Reference Standard(s) Employed For Analysis

Certified Concentration and Uncertainty			Component	Balance	Cyl. No.	SRM/PRM/Mix No.	Exp. Date	Sample No.	Type
10.03	± 0.06	ppm	Carbon Monoxide	Nitrogen	CC99308	SFS114251	5-Aug-2010	DT	GMIS
7.61	± 0.07	ppm	Nitric Oxide	Nitrogen	EB0010197	SFS119011	3-Oct-2010	CJ	GMIS

Analytical Data

Component:	Carbon Monoxide		FIRST TRIAD ANALYSIS 17-Apr-2009					SECOND TRIAD ANALYSIS 24-Apr-2009				
Analyzer Information			Trial 1	Trial 2	Trial 3	Units		Trial 1	Trial 2	Trial 3	Units	
Analyzer Type:	Fourier Transform IR	Zero	-0.0166	-0.0133	-0.0232	ppm	Zero	0.0109	0.0127	0.0171	ppm	
Manufacturer:	MKS Instruments	Reference	9.9926	9.9837	9.9745	ppm	Reference	9.9893	9.9768	9.9868	ppm	
Model Number:	2031	Candidate	12.043	12.028	11.998	ppm	Candidate	12.032	12.041	12.011	ppm	
Serial Number:	10387278	Result	12.08	12.08	12.06	ppm	Result	12.08	12.11	12.07	ppm	
MPR Last Calibrated:	9-Apr-2009	Evaluation	Valid	Valid	Valid		Evaluation	Valid	Valid	Valid		
Analytical Principle:	FTIR		Mean Analytical Result:			12.07	ppm	Mean Analytical Result:			12.09	ppm

Component:	Nitric Oxide		FIRST TRIAD ANALYSIS 17-Apr-2009					SECOND TRIAD ANALYSIS 24-Apr-2009				
Analyzer Information			Trial 1	Trial 2	Trial 3	Units		Trial 1	Trial 2	Trial 3	Units	
Analyzer Type:	Fourier Transform IR	Zero	-0.0403	-0.0238	-0.0034	ppm	Zero	-0.0327	-0.0258	0.0003	ppm	
Manufacturer:	MKS Instruments	Reference	7.5224	7.5286	7.5104	ppm	Reference	7.4881	7.4812	7.5152	ppm	
Model Number:	2031	Candidate	11.898	11.942	11.959	ppm	Candidate	11.866	11.927	11.934	ppm	
Serial Number:	10387278	Result	12.01	12.06	12.12	ppm	Result	12.07	12.12	12.08	ppm	
MPR Last Calibrated:	8-Apr-2009	Evaluation	Valid	Valid	Valid		Evaluation	Valid	Valid	Valid		
Analytical Principle:	FTIR		Mean Analytical Result:			12.06	ppm	Mean Analytical Result:			12.09	ppm

Analyst: _____ Tan Ngo

Approved by: _____ Thuan Tran

AIR LIQUIDE AMERICA, L.P. Region Office • 8832 Dice Road, Santa Fe Springs, CA 90670-2516
Phone: (562) 945-1383 • Fax: (562) 693-1156

AIR LIQUIDE Air Liquide America Specialty Gases LLC | Scott™

RATA CLASS

Dual-Analyzed Calibration Standard

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

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

Assay Laboratory

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

P.O. No.: 9102510
Project No.: 05-82071-004

Customer

AIR LIQUIDE AMERICA

AIR HYGIENE
1319 NORTH PEORIA AVE
TULSA OK 74106

ANALYTICAL INFORMATION

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

Cylinder Number: AAL9266 **Certification Date:** 30Nov2009 **Exp. Date:** 30Nov2011
Cylinder Pressure*:** 1998 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON MONOXIDE	23.2	PPM	+/- 1%	Direct NIST and VSL
NITRIC OXIDE	23.2	PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	23.2	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
	02Oct2010	KAL003166	25.21 PPM	CARBON MONOXIDE
NTRM 1684 1	15Oct2012	KAL004397	95.84 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	05Nov2009	FTIR
FTIR//0928621	13Nov2009	FTIR

ANALYZER READINGS

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

First Triad Analysis

CARBON MONOXIDE
Date: 23Nov2009 Response Unit:PPM
Z1 = -0.00456 R1 = 25.31994 T1 = 23.30093
R2 = 25.39666 Z2 = 0.01749 T2 = 23.33484
Z3 = 0.05654 T3 = 23.34580 R3 = 25.41322
Avg. Concentration: 23.17 PPM

NITRIC OXIDE
Date: 23Nov2009 Response Unit:PPM
Z1 = -0.13232 R1 = 95.37821 T1 = 23.06942
R2 = 95.49449 Z2 = -0.03401 T2 = 23.18341
Z3 = 0.28245 T3 = 23.23473 R3 = 95.72200
Avg. Concentration: 23.11 PPM

Second Triad Analysis

CARBON MONOXIDE
Date: 30Nov2009 Response Unit: PPM
Z1 = -0.01399 R1 = 25.26948 T1 = 23.33736
R2 = 25.27644 Z2 = 0.03430 T2 = 23.37054
Z3 = 0.04656 T3 = 23.38670 R3 = 25.28042
Avg. Concentration: 23.30 PPM

NITRIC OXIDE
Date: 30Nov2009 Response Unit: PPM
Z1 = -0.04530 R1 = 95.61768 T1 = 23.03389
R2 = 95.66367 Z2 = -0.04022 T2 = 23.25664
Z3 = 0.07327 T3 = 23.31026 R3 = 95.70307
Avg. Concentration: 23.25 PPM

Calibration Curve

CARBON MONOXIDE
Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99995E-1
Constants: A = 0.00000E+0
B = 9.86984E-1 C = 6.38000E-4
D = 1.00000E-6 E = 0.00000E+0

NITRIC OXIDE
Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99997E-1
Constants: A = 0.00000E+0
B = 1.00201E+0 C = 7.10000E-5
D = 0.00000E+0 E = 0.00000E+0

APPROVED BY: _____
Rob McCrandall

AIR LIQUIDE™

CERTIFICATION OF ANALYSIS

Interference Free Multi-Component EPA Protocol Gases

Note: Analytical uncertainty and NIST traceability are in compliance with EPA-600/R-97/121
Section 2.2, Procedure G-1

Cylinder S/N: CC103445

Customer: AIR HYGIENE
Location: TULSA, OK

P.O. Number: 9041201
Item Number: SGZCAH001

Shipping Order Number: 33223677
Transfer Number: 33223677
Lot Number: SFS131505
Valve: CGA 350
Cylinder Pressure*: 2000 PSIG
*Cylinder should not be used when gas pressure is below 150 psig

Assay Date: 30-Apr-2009 **Expiration Date:** 30-Apr-2012

Components	Requested Concentration	Assay Concentration
Nitrogen	Balance	Balance
Methane	3 ppm	2.89 ± 0.03 ppm

Reference Standard(s) Employed For Analysis

Certified Concentration and Uncertainty			Component	Balance	Cyl. No.	SRM/PRM/Mix No.	Exp. Date	Sample No.	Type
10.06	± 0.04	ppm	Methane	Air	CC204838	SFS103876	18-Mar-2010	NI	GMIS

Analytical Data

Component:	Methane		FIRST TRIAD ANALYSIS 30-Apr-2009			
Analyzer Information			Trial 1	Trial 2	Trial 3	Units
Analyzer Type:	Gas Chromatograph	Zero	0.000	0.000	0.000	Area
Manufacturer:	Hewlett Packard	Reference	97.31	97.29	97.20	Area
Model Number:	G1540A	Candidate	27.99	27.97	27.98	Area
Serial Number:	US00003390/Meth	Result	2.894	2.892	2.894	ppm
MPR Last Calibrated:	23-Apr-2009	Evaluation	Valid	Valid	Valid	
Analytical Principle:	FID & TCD			Mean Analytical Result:		2.893 ppm

Analyst: _____ Eric Barron

Approved by: _____ Thuan Tran

AIR LIQUIDE AMERICA, L.P. Region Office • 8832 Dice Road, Santa Fe Springs, CA 90670-2516
Phone: (562) 945-1383 • Fax: (562) 693-1156

AIR LIQUIDE

CERTIFICATION OF ANALYSIS

Interference Free Multi-Component EPA Protocol Gases

Note: Analytical uncertainty and NIST traceability are in compliance with EPA-600/R-97/121
Section 2.2, Procedure G-1

Cylinder S/N: CC150841

Customer: AIR HYGIENE
Location: TULSA, OK

P.O. Number: 8071801
Item Number: SGZCAH002

Assay Date: 4-Aug-2008

Expiration Date: 4-Aug-2011

Shipping Order Number: 30336104
Transfer Number: 30336104
Lot Number: SFS123631
Valve: CGA 350
Cylinder Pressure*: 2000 PSIG
*Cylinder should not be used when gas pressure is below 150 psig

Components	Requested Concentration	Assay Concentration
Nitrogen	Balance	Balance
Methane	5 ppm	4.94 ± 0.06 ppm

Reference Standard(s) Employed For Analysis

Certified Concentration and Uncertainty			Component	Balance	Cyl. No.	SRM/PRM/Mix No.	Exp. Date	Sample No.	Type
9.863	± 0.030	ppm	Methane	Air	FF28576	1659a	25-Apr-2012	11-G-24	SRM

Analytical Data

Component:	Methane		FIRST TRIAD ANALYSIS	4-Aug-2008		
Analyzer Information			Trial 1	Trial 2	Trial 3	Units
Analyzer Type:	Gas Chromatograph	Zero	0.114	0.073	0.022	Area
Manufacturer:	Hewlett Packard	Reference	91.233	91.401	91.269	Area
Model Number:	G1540A	Candidate	45.834	45.729	45.799	Area
Serial Number:	US00003390/Meth	Result	4.949	4.931	4.848	ppm
MPR Last Calibrated:	11-Jul-2008	Evaluation	Valid	Valid	Valid	
Analytical Principle:	FID & TCD			Mean Analytical Result:	4.943	ppm

Analyst: _____ Gary Williams

Approved by: _____ Thuan Tran

AIR LIQUIDE AMERICA, L.P. 8832 Dice Road, Santa Fe Springs, CA 90670-2516
Phone: (562) 945-1383 • Fax: (562) 693-1156

Air Liquide America Specialty Gases LLC

Scott™

RATA CLASS

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

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

P.O. No.: 9081310
Project No.: 05-79607-014

Customer

AIR LIQUIDE AMERICA L.P.
AIR HYGIENE
1319 NORTH PEORIA AVE
TULSA OK 74106

ANALYTICAL INFORMATION

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

Cylinder Number: ALM004952 **Certification Date:** 08Sep2009 **Exp. Date:** 07Sep2012
Cylinder Pressure*:** 1875 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
METHANE	8.46	PPM	+/- 1%	Direct NIST and VSL
NITROGEN		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2751	01Nov2010	K022940	100.2 PPM	METHANE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
VARIAN/3400/7506	17Aug2009	TCD/FID

ANALYZER READINGS

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

First Triad Analysis

METHANE

Date: 08Sep2009 Response Unit:AREA
Z1 = 0.00000 R1 = 900184.0 T1 = 74841.00
R2 = 899931.0 Z2 = 0.00000 T2 = 74878.00
Z3 = 0.00000 T3 = 75055.00 R3 = 898275.0
Avg. Concentration: 8.460 PPM

Second Triad Analysis

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999995113
Constants: A = 0.11264489
B = 0.000109556 C = 0
D = 0 E = 0

APPROVED BY:

ROBERT LESNIAK

AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott™

COMPLIANCE CLASS

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

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

P.O. No.: 9081310
Project No.: 05-79607-007

Customer

AIR LIQUIDE AMERICA L.P.
AIR HYGIENE
1319 NORTH PEORIA AVE
TULSA OK 74106

ANALYTICAL INFORMATION

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

Cylinder Number: ALM051708 **Certification Date:** 08Sep2009 **Exp. Date:** 09Sep2011
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
NITROGEN DIOXIDE	49.4	PPM	+/- 2%	NIST and VSL
NITROGEN		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol procedures , September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NO2/AIR.049%	28Jan2011	ALM010806	485.0 PPM	NITROGEN DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
AMETEK 921/921 CE NO2/AW-921-S281	17Aug2009	UV

APPROVED BY: _____
A TICU

APPENDIX D

QUALITY ASSURANCE AND QUALITY CONTROL DATA

QA/QC PROGRAM

Air Hygiene ensures the quality and validity of its emission measurement and reporting procedures through a rigorous quality assurance (QA) program. The program is developed and administered by an internal QA team and encompasses five major areas:

1. QA reviews of reports, laboratory work, and field testing
2. Equipment calibration and maintenance
3. Chain-of-custody
4. Training
5. Knowledge of current test methods

Each of these areas is discussed individually below.

QA Reviews

Air Hygiene's review procedure includes review of each source test report, along with laboratory and fieldwork, by the QA Team. The most important review is the one that takes place before a test program begins. The QA Team works closely with technical division personnel to prepare and review test protocols. Test protocol review includes selection of appropriate test procedures, evaluation of interferences or other restrictions that might preclude use of standard test procedures, and evaluation and/or development of alternate procedures.

Equipment Calibration and Maintenance

The equipment used to conduct the emission measurements is maintained according to the manufacturer's instructions to ensure proper operation. In addition to the maintenance program, calibrations are carried out on each measurement device according to the schedule outlined by the Environmental Protection Agency. Quality control checks are also conducted in the field for each test program.

Chain-of-Custody

Air Hygiene maintains full chain-of-custody documentation on all samples and data sheets. In addition to normal documentation of changes between field sample custodians, laboratory personnel, and field test personnel, Air Hygiene documents every individual who handles any test component in the field (e.g., probe wash, impinger loading and recovery, filter loading and recovery, etc.). Samples are stored in a locked area to which only Air Hygiene personnel have access. Field data sheets are secured at Air Hygiene's offices upon return from the field.

Training

Personnel's training is essential to ensure quality testing. Air Hygiene has formal and informal training programs, which include:

1. Attendance at EPA-sponsored training courses
2. Enrollment in EPA correspondence courses
3 A requirement for all technicians to read and understand Air Hygiene's QA manual
4. In-house training and QA meetings on a regular basis
5. Maintenance of training records

Knowledge of Current Test Methods

With the constant updating of standard test methods and the wide variety of emerging test procedures, it is essential that any qualified source tester keep abreast of new developments. Air Hygiene subscribes to services, which provide updates on EPA reference methods, rules, and regulations. Additionally, source test personnel regularly attend and present papers at testing and emission-related seminars and conferences. Air Hygiene personnel maintain membership in the Air and Waste Management Association and the American Industrial Hygiene Association.

COMBUSTION TESTING QUALITY ASSURANCE ACTIVITIES

A number of quality assurance activities were undertaken before, during, and after this testing project. This section of the report combined with the documentation in Appendix C describes each of those activities.

Each instrument's response was checked and adjusted in the field prior to the collection of data via multi-point calibration. The instrument's linearity was checked by adjusting its zero and span responses to zero nitrogen and an upscale calibration gas in the range of the expected concentrations. The instrument response was then challenged with other calibration gases of known concentration and accepted as being linear if the response of the other calibration gases agreed within plus or minus two percent of the range of predicted values. NO_2 to NO conversion was checked via direct connect with an EPA Protocol certified concentration of NO_2 in a balance of nitrogen. Conversion was verified to be between 90 and 110 percent.

After each test run, the analyzers were checked for zero and span drift. This allowed each test run to be bracketed by calibrations and documents the precision of the data just collected. The criterion for acceptable data is that the instrument drift is no more than three percent of the full-scale response. The quality assurance worksheets in the following pages summarize all multipoint calibration checks and zero to span checks performed during the tests. These worksheets (as prepared from the data records of *Appendix* A) show that no drifts in excess of three percent occurred in the zero to span checks following each test run.

The sampling systems were leak checked by demonstrating that a vacuum greater than 10 in Hg could be held for at least one minute with a decline of less than one inch of Hg. A leak test was conducted after the sample system was set up and before the system was dismantled. This test was conducted to ensure that ambient air had not diluted the sample. Any leakage detected prior to the tests would be repaired and another leak check conducted before testing commenced. No leaks were found during the pre or post-test leak checks.

The absence of leaks in the sampling system was also verified by a sampling system bias check. The sampling system's integrity was tested by comparing the responses of the analyzers to the calibration gases introduced via two paths. The first path was directly into the analyzer and the second path via the sample system at the sample probe. Any difference in the instrument responses by these two methods was attributed to sampling system bias or leakage. The criterion for acceptance is agreement within five percent of the span of the analyzer.

The control gases used to calibrate the instruments were analyzed and certified by the compressed gas vendors to plus or minus one percent accuracy for all gases. EPA Protocol No. 1 was used, where applicable to assign the concentration values traceable to the National Institute of Standards and Technology (NIST), Standard Reference Materials (SRM's). The gas calibration sheets as prepared by the vendor are contained in Appendix C.

Air Hygiene collected and reported the enclosed test data in accordance with the procedures and quality assurance activities described in this test report. Air Hygiene makes no warranty as to the suitability of the test methods. Air Hygiene also assumes no liability relating to the interpretation and use of the test data.

INSTRUMENTAL ANALYSIS QUALITY ASSURANCE DATA

Date: May 7, 2010
Company: Florida Power and Light
Location: Loxahatchee, Florida
Techs: JRF/MS

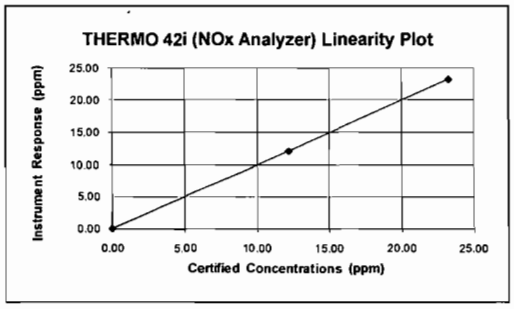
Sample System Leak Check

Date	Sample System	Leak Rate (l/min)
May 7, 2010	1	0

Calibration Date: May 7, 2010
Client: Florida Power and Light

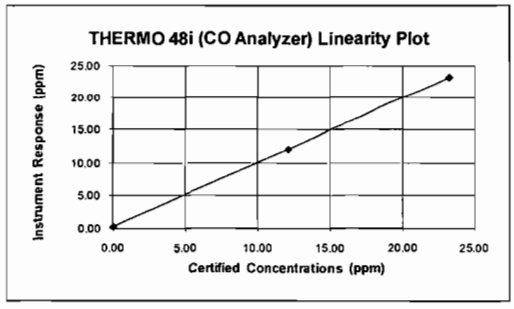
NOx Span (ppm) = 23.20

THERMO 42i (NOx Analyzer)				
Certified Concentration (ppm)	Instrument Response (ppm)	Calibration Error (%)	Absolute Conc. (ppm)	Pass or Fail (±2%, ≤0.5ppm)
0.00	0.04	0.17	0.04	YES (%)
12.20	12.16	-0.17	0.04	YES (%)
23.20	23.24	0.17	0.04	YES (%)
Linearity = 1.000				



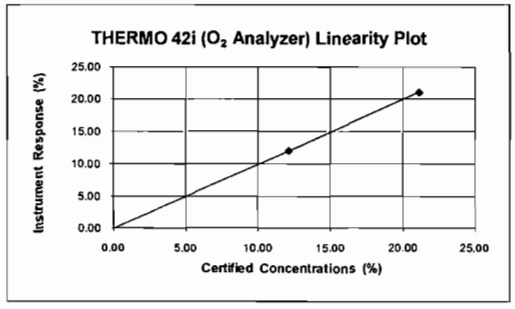
CO Span (ppm) = 23.20

THERMO 48i (CO Analyzer)				
Certified Concentration (ppm)	Instrument Response (ppm)	Calibration Error (%)	Absolute Conc. (ppm)	Pass or Fail (±2%, ≤0.5ppm)
0.00	0.29	1.25	0.29	YES (%)
12.10	12.17	0.30	0.07	YES (%)
23.20	23.22	0.09	0.02	YES (%)
Linearity = 1.012				



O_2 Span (%) = 21.10

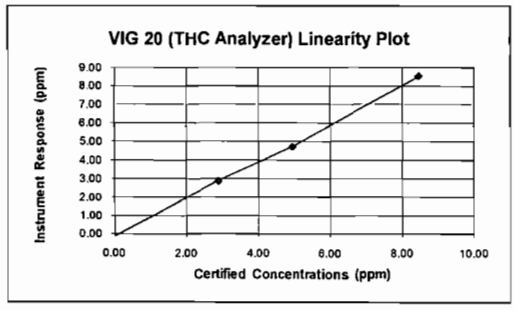
THERMO 42i (O_2 Analyzer)				
Certified Concentration (%)	Instrument Response (%)	Calibration Error (%)	Absolute Conc. (%)	Pass or Fail (±2%, ≤0.5%)
0.00	-0.03	-0.14	0.03	YES (%)
12.10	12.04	-0.28	0.06	YES (%)
21.10	21.08	-0.09	0.02	YES (%)
Linearity = 1.000				



THC Range (ppm) = 10.5

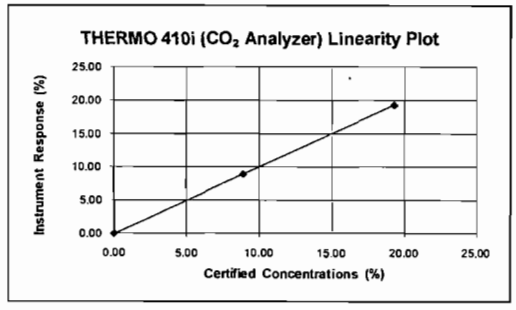
VIG 20 (THC Analyzer)				
Certified Concentration (ppm)	Instrument Response (ppm)	Calibration Error (%)	Estimated Point (ppm)	Pass or Fail (±2,5%)[1]
0.00	-0.09	-0.86	N/A	YES
2.89	2.87	0.65	2.85	YES
4.94	4.72	-4.40	4.94	YES
8.46	8.52	0.57	N/A	YES
Linearity = 0.977				

[1]-zero/high based on 2% of span,low/mid based on 5% of concentration



CO_2 Span (%) = 19.30

THERMO 410i (CO_2 Analyzer)				
Certified Concentration (%)	Instrument Response (%)	Calibration Error (%)	Absolute Conc. (%)	Pass or Fail (±2%, ≤0.5%)
0.00	0.02	0.10	0.02	YES (%)
8.89	8.91	0.10	0.02	YES (%)
19.30	19.31	0.05	0.01	YES (%)
Linearity = 1.001				



NOx Converter Efficiency

Date: May 7, 2010

Analyzer: INST-N2-0002

RM 7E, (12-17-09), Sections 7.1.4; 8.2.4.1; 12.7; and 13.5 Introduce NO_2 to the analyzer and record the NOx concentration displayed. ... Calculate the converter efficiency using Equation 7E-7. The specification for converter efficiency must be met. ... Air Hygiene also references ALT-0013 for specific NO_2 concentration (40-60 ppm) and EPA Traceability Protocol requirements (±2%).

Audit Gas:	NO_2 Concentration (C_v), ppmvd	**49.40**
Converter Efficiency Calculations:		
	Analyzer Reading, NO Channel, ppmvd	**2.95**
	Analyzer Reading, NOx Channel, ppmvd	**50.60**
	Analyzer Reading, NO_2 Channel ($C_{Dir(NO2)}$), ppmvd	**47.65**
	Converter Efficiency, %	**96.46**

RM 7E, (08-15-06), 13.5 NO2 to NO Conversion Efficiency Test (as applicable). The NO2 to NO conversion efficiency, calculated according to Equation 7E-7 or Equation 7E-9, must be greater than or equal to 90 percent.

$$Eff_{NO2} = \left(\frac{C_{Dir}}{C_V}\right) \times 100$$

Eq. 7E-7 = $\frac{47.65 \text{ ppmvd}}{49.40 \text{ ppmvd}}$ x 100 = 96.46%

Date/Time	Elapsed Time	NOx	NO
mm/dd/yy hh:mm:ss	Seconds	ppmvd	ppmvd
05/07/10 8:43:38	3360	23.37	1.71
05/07/10 8:44:08	3390	39.29	4.78
05/07/10 8:44:38	3420	41.49	4.73
05/07/10 8:45:08	3450	44.28	4.35
05/07/10 8:45:38	3480	46.03	4.05
05/07/10 8:46:08	3510	47.16	3.83
05/07/10 8:46:38	3540	47.99	3.55
05/07/10 8:47:08	3570	49.55	3.12
05/07/10 8:47:38	3600	50.32	3.01
05/07/10 8:48:08	3630	50.60	2.95
05/07/10 8:48:38	3660	48.25	4.41

DRIFT AND BIAS CHECK		
Strat Test Pre and Post QA/QC Check	**O2**	**NOx**
Initial Zero	0.01	0.04
Final Zero	0.21	0.06
Avg. Zero	0.11	0.05
Initial UpScale	12.05	12.18
Final UpScale	12.11	11.99
Avg. UpScale	12.08	12.09
Sys Resp (Zero)	-0.03	0.04
Sys Resp (Upscale)	12.04	12.16
Upscale Cal Gas	12.10	12.20
Initial Zero Bias	0.19%	0.00%
Final Zero Bias	1.14%	0.09%
Zero Drift	0.95%	0.09%
Initial Upscale Bias	0.05%	0.09%
Final Upscale Bias	0.33%	-0.73%
Upscale Drift	0.28%	0.82%
Alternative Specification Abs Diff **Initial Zero**	0.04	0.00
Alternative Specification Abs Diff **Final Zero**	0.24	0.02
Alternative Specification Abs Diff **Initial Upscale**	0.01	0.02
Alternative Specification Abs Diff **Final Upscale**	0.07	0.17
Calibration Span	21.10	23.20
3% of Range (drift)	0.63	0.70
5% of Range (bias)	1.06	1.16

Respone Time (min)	0.7	1.3
Sys. Response (min)	1.3	

Date/Time mm/dd/yy hh:mm:ss	z	O2 %	s	z	NOx PPM	s	INJECTIONS
05/07/10 16:22:21		13.36			13.70		
05/07/10 16:22:31		13.35			13.30		x
05/07/10 16:22:41		**12.35**			**12.79**		
05/07/10 16:22:51		4.87			**12.28**		
05/07/10 16:23:01		0.92			**11.85**		
05/07/10 16:23:11	x	**0.21**			**11.72**		
05/07/10 16:23:21		**0.07**			**11.79**		
05/07/10 16:23:31		**0.03**			**11.91**		
05/07/10 16:23:41		**0.02**			**12.13**		
05/07/10 16:23:51		**0.02**			**12.24**	x	
05/07/10 16:24:01		**0.02**			**12.24**		
05/07/10 16:24:11		**0.00**			**12.23**		
05/07/10 16:24:21		**0.00**			**12.23**		
05/07/10 16:24:31		**-0.01**			**12.25**		
05/07/10 16:24:41		**0.00**			**12.27**		
05/07/10 16:24:51		**0.17**			**12.26**		x
05/07/10 16:25:01		4.65			**12.27**		
05/07/10 16:25:11		9.11			**12.36**		
05/07/10 16:25:21		11.34			**12.07**		
05/07/10 16:25:31		**11.84**	x		9.06		
05/07/10 16:25:41		**11.97**			4.36		
05/07/10 16:25:51		**11.98**			1.89		
05/07/10 16:26:01		**12.00**			0.90		
05/07/10 16:26:11		**12.00**		x	**0.32**		
05/07/10 16:26:21		**12.01**			**0.25**		
05/07/10 16:26:31		**12.00**			**0.20**		
05/07/10 16:26:41		**12.02**			**0.18**		
05/07/10 16:26:51		**12.00**			**0.17**		
05/07/10 16:27:01		**12.04**			**0.16**		
05/07/10 16:27:11		12.69			**0.14**		
05/07/10 16:27:21		13.19			**0.48**		

DRIFT AND BIAS CHECK		
Strat Test Pre and Post QA/QC Check	**O2**	**CO**
Initial Zero	0.01	0.01
Final Zero	0.21	-0.03
Avg. Zero	0.11	-0.01
Initial UpScale	12.05	12.14
Final UpScale	12.11	12.00
Avg. UpScale	12.08	12.07
Sys Resp (Zero)	-0.03	0.29
Sys Resp (Upscale)	12.04	12.17
Upscale Cal Gas	12.10	12.10
Initial Zero Bias	0.19%	-1.21%
Final Zero Bias	1.14%	-1.38%
Zero Drift	0.95%	0.17%
Initial Upscale Bias	0.05%	-0.13%
Final Upscale Bias	0.33%	-0.73%
Upscale Drift	0.28%	0.60%
Alternative Specification Abs Diff **Initial Zero**	0.04	0.28
Alternative Specification Abs Diff **Final Zero**	0.24	0.32
Alternative Specification Abs Diff **Initial Upscale**	0.01	0.03
Alternative Specification Abs Diff **Final Upscale**	0.07	0.17
Calibration Span	21.10	23.20
3% of Range (drift)	0.63	0.70
5% of Range (bias)	1.06	1.16

Respone Time (min)	0.7	1.0
Sys. Response (min)	1.0	

Date/Time mm/dd/yy hh:mm:ss	z	O2 %	s	z	CO PPM	s	INJECTIONS
05/07/10 16:22:21		13.36			4.99		
05/07/10 16:22:31		13.35			4.97		x
05/07/10 16:22:41		**12.35**			5.33		
05/07/10 16:22:51		4.87			6.99		
05/07/10 16:23:01		0.92			9.45		
05/07/10 16:23:11	x	**0.21**			11.11		
05/07/10 16:23:21		**0.07**			**11.88**	x	
05/07/10 16:23:31		**0.03**			**12.02**		
05/07/10 16:23:41		**0.02**			**12.06**		
05/07/10 16:23:51		**0.02**			**12.12**		
05/07/10 16:24:01		**0.02**			**12.13**		
05/07/10 16:24:11		**0.00**			**12.12**		
05/07/10 16:24:21		**0.00**			**12.10**		
05/07/10 16:24:31		**-0.01**			**12.12**		
05/07/10 16:24:41		**0.00**			**12.12**		
05/07/10 16:24:51		**0.17**			**12.05**		x
05/07/10 16:25:01		4.65			11.35		
05/07/10 16:25:11		9.11			9.02		
05/07/10 16:25:21		11.34			5.61		
05/07/10 16:25:31		**11.84**	x		2.75		
05/07/10 16:25:41		**11.97**			1.06		
05/07/10 16:25:51		**11.98**		x	**0.31**		
05/07/10 16:26:01		**12.00**			**0.11**		
05/07/10 16:26:11		**12.00**			**0.05**		
05/07/10 16:26:21		**12.01**			**0.02**		
05/07/10 16:26:31		**12.00**			**0.02**		
05/07/10 16:26:41		**12.02**			**0.03**		
05/07/10 16:26:51		**12.00**			**0.01**		
05/07/10 16:27:01		**12.04**			**0.05**		
05/07/10 16:27:11		12.69			**0.58**		
05/07/10 16:27:21		13.19			1.87		

DRIFT AND BIAS CHECK					
Base Load, Run - 1-1	O_2	NOx	CO	THC	CO_2
Raw Average	13.40	6.97	5.25	-0.04	5.08
Corrected Average	13.42	7.04	5.31	0.15	5.15
Initial Zero	0.21	0.06	-0.03	-0.15	0.01
Final Zero	0.14	0.07	-0.04	-0.26	0.00
Avg. Zero	0.18	0.07	-0.04	-0.21	0.01
Initial UpScale	12.11	11.99	12.00	2.86	8.87
Final UpScale	12.08	12.07	11.99	2.84	8.68
Avg. UpScale	12.10	12.03	12.00	2.85	8.78
Sys Resp (Zero)	-0.03	0.04	0.29	-0.09	0.02
Sys Resp (Upscale)	12.04	12.16	12.17	2.87	8.91
Upscale Cal Gas	12.10	12.20	12.10	2.89	8.89
Initial Zero Bias	1.14%	0.09%	-1.38%	-0.57%	-0.05%
Final Zero Bias	0.81%	0.13%	-1.42%	-1.62%	-0.10%
Zero Drift	0.33%	0.04%	0.04%	1.05%	0.05%
Initial Upscale Bias	0.33%	-0.73%	-0.73%	-0.10%	-0.21%
Final Upscale Bias	0.19%	-0.39%	-0.78%	-0.29%	-1.19%
Upscale Drift	0.14%	0.34%	0.04%	0.19%	0.98%
Alternative Specification Abs Diff: Initial Zero	0.24	0.02	0.32	--	0.01
Alternative Specification Abs Diff: Final Zero	0.17	0.03	0.33	--	0.02
Alternative Specification Abs Diff: Initial Upscale	0.07	0.17	0.17	--	0.04
Alternative Specification Abs Diff: Final Upscale	0.04	0.09	0.18	--	0.23
Calibration Span	21.10	23.20	23.20	10.50	19.30
3% of Cal. Span (drift)	0.63	0.70	0.70	0.32	0.58
5% of Cal. Span (bias)	1.06	1.16	1.16	0.53	0.97

DRIFT AND BIAS CHECK					
Base Load, Run - 1-2	O_2	NOx	CO	THC	CO_2
Raw Average	13.38	7.02	5.28	-0.17	5.13
Corrected Average	13.42	7.07	5.36	0.12	5.24
Initial Zero	0.14	0.07	-0.04	-0.26	0.00
Final Zero	0.15	0.08	-0.05	-0.38	0.01
Avg. Zero	0.15	0.08	-0.05	-0.32	0.01
Initial UpScale	12.08	12.07	11.99	2.84	8.68
Final UpScale	12.07	12.08	11.96	2.73	8.71
Avg. UpScale	12.08	12.08	11.98	2.79	8.70
Sys Resp (Zero)	-0.03	0.04	0.29	-0.09	0.02
Sys Resp (Upscale)	12.04	12.16	12.17	2.87	8.91
Upscale Cal Gas	12.10	12.20	12.10	2.89	8.89
Initial Zero Bias	0.81%	0.13%	-1.42%	-1.62%	-0.10%
Final Zero Bias	0.85%	0.17%	-1.47%	-2.76%	-0.05%
Zero Drift	0.05%	0.04%	0.04%	1.14%	0.05%
Initial Upscale Bias	0.19%	-0.39%	-0.78%	-0.29%	-1.19%
Final Upscale Bias	0.14%	-0.34%	-0.91%	-1.33%	-1.04%
Upscale Drift	0.05%	0.04%	0.13%	1.05%	0.16%
Alternative Specification Abs Diff: Initial Zero	0.17	0.03	0.33	--	0.02
Alternative Specification Abs Diff: Final Zero	0.18	0.04	0.34	--	0.01
Alternative Specification Abs Diff: Initial Upscale	0.04	0.09	0.18	--	0.23
Alternative Specification Abs Diff: Final Upscale	0.03	0.08	0.21	--	0.20
Calibration Span	21.10	23.20	23.20	10.50	19.30
3% of Cal. Span (drift)	0.63	0.70	0.70	0.32	0.58
5% of Cal. Span (bias)	1.06	1.16	1.16	0.53	0.97

DRIFT AND BIAS CHECK					
Base Load, Run - 1-3	O_2	NOx	CO	THC	CO_2
Raw Average	13.31	7.01	5.65	-0.32	5.19
Corrected Average	13.38	7.03	5.73	0.08	5.29
Initial Zero	0.15	0.08	-0.05	-0.38	0.01
Final Zero	0.06	0.10	-0.03	-0.52	0.02
Avg. Zero	0.11	0.09	-0.04	-0.45	0.02
Initial UpScale	12.07	12.08	11.96	2.73	8.71
Final UpScale	12.02	12.09	11.97	2.66	8.71
Avg. UpScale	12.05	12.09	11.97	2.70	8.71
Sys Resp (Zero)	-0.03	0.04	0.29	-0.09	0.02
Sys Resp (Upscale)	12.04	12.16	12.17	2.87	8.91
Upscale Cal Gas	12.10	12.20	12.10	2.89	8.89
Initial Zero Bias	0.85%	0.17%	-1.47%	-2.76%	-0.05%
Final Zero Bias	0.43%	0.26%	-1.38%	-4.10%	0.00%
Zero Drift	0.43%	0.09%	0.09%	1.33%	0.05%
Initial Upscale Bias	0.14%	-0.34%	-0.91%	-1.33%	-1.04%
Final Upscale Bias	-0.09%	-0.30%	-0.86%	-2.00%	-1.04%
Upscale Drift	0.24%	0.04%	0.04%	0.67%	0.00%
Alternative Specification Abs Diff: Initial Zero	0.18	0.04	0.34	--	0.01
Alternative Specification Abs Diff: Final Zero	0.09	0.06	0.32	--	0.00
Alternative Specification Abs Diff: Initial Upscale	0.03	0.08	0.21	--	0.20
Alternative Specification Abs Diff: Final Upscale	0.02	0.07	0.20	--	0.20
Calibration Span	21.10	23.20	23.20	10.50	19.30
3% of Cal. Span (drift)	0.63	0.70	0.70	0.32	0.58
5% of Cal. Span (bias)	1.06	1.16	1.16	0.53	0.97

METERING SYSTEM CALIBRATION SHEET
EPA Reference Method 5
Metering System Pre-Test Calibration
Air Hygiene Assett ID: samp-cp-0011

Filename: \\SERVER2\public\Shared\QAQC\Calibrations\PM-Equipment\M-5 Consoles\Calibration Sheet v4.0\Current\[SAMP-CP-0011 Calibration 9-30-09.xls]Original (5 point)

Make: Thermo Environmental
Model #: MST-C1
Serial #: 90695

Date: 09/30/09
Barometric Pressure: 28.97 (in. Hg)
Theoretical Critical Vacuum: 13.67 (in. Hg)

DRY GAS METER READINGS

ΔH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial Temps. Inlet (deg F)	Initial Temps. Outlet (deg F)
0.25	17.00	60.570	65.950	5.380	91.0	84.0
0.58	12.00	65.950	71.580	5.630	85.0	83.0
1.00	10.00	71.580	77.690	6.110	87.0	83.0
1.70	10.00	77.690	85.570	7.880	89.0	84.0
3.20	10.00	85.570	96.240	10.670	88.0	83.0

Final Temps. Inlet (deg F)	Final Temps. Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Ambient Temperature Initial (deg F)	Ambient Temperature Final (deg F)	Ambient Temperature Average (deg F)
86.0	83.0	40	0.2354	16.0	80.2	80.2	80.2
88.0	83.0	48	0.3491	16.0	80.2	80.6	80.4
90.0	83.0	55	0.4530	16.0	80.6	80.6	80.6
90.0	83.0	63	0.5840	16.0	80.6	80.8	80.7
91.0	83.0	73	0.7945	16.0	80.8	81.0	80.9

RESULTS

DRY GAS METER VOLUME CORRECTED Vm(std) (cu ft)	DRY GAS METER VOLUME CORRECTED Vm(std) (liters)	ORIFICE VOLUME CORRECTED Vcr(std) (cu ft)	ORIFICE VOLUME CORRECTED Vcr(std) (liters)	ORIFICE VOLUME NOMINAL Vcr (cu ft)
5.039	142.69	4.988	141.3	5.273
5.289	149.79	5.221	147.8	5.521
5.736	162.44	5.644	159.8	5.971
7.400	209.58	7.276	206.1	7.698
10.063	284.99	9.897	280.3	10.475

DRY GAS METER CALIBRATION FACTOR Y Variation (number)	DRY GAS METER CALIBRATION FACTOR Y Value (number)	ORIFICE CALIBRATION FACTOR ΔH@ Value (in H2O)	ORIFICE CALIBRATION FACTOR ΔH@ Value (mm H2O)	ORIFICE CALIBRATION FACTOR ΔH@ Variation (in H2O)
0.004	0.990	1.536	39.03	-0.114
0.001	0.987	1.623	41.22	-0.027
-0.001	0.984	1.662	42.22	0.012
-0.002	0.983	1.699	43.16	0.049
-0.002	0.983	1.730	43.95	0.080
AVERAGE:	**0.986**	**1.650**	41.92	**PASSED**

Notes: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter,acceptable tolerance of individual values from the average is +/- 0.02. For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H_2O that equates to 0.75 cfm of air at 68 °F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +/- 0.2. For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above. The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

SIGNATURE: Craig McCarthy DATE: 09/30/09

METERING SYSTEM CALIBRATION SHEET
EPA Reference Method 5
Metering System Post-Test Calibration

Filename: \\SERVER2\public\Shared\QAQC\Calibrations\PM-Equipment\M-5 Consoles\Calibration Sheet v4.0\Current\[SAMP-CP-0011 Calibration 9-30-09.xls]Second (3 point)
Make: Thermo Environmental
Model #: MST-C1
Serial #: 90695

Date: 05/26/10
Barometric Pressure: 29.18 (in. Hg)
Theoretical Critical Vacuum: 13.76 (in. Hg)

DRY GAS METER READINGS

-H (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial Temps. Inlet (deg F)	Initial Temps. Outlet (deg F)
0.99	10.00	130.850	137.080	6.230	92.0	86.0
0.99	10.00	137.080	143.320	6.240	92.0	86.0
0.99	10.00	143.320	149.560	6.240	92.0	87.0

Final Temps. Inlet (deg F)	Final Temps. Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Ambient Temperature Initial (deg F)	Ambient Temperature Final (deg F)	Ambient Temperature Average (deg F)
92.0	86.0	155	0.459	16.0	84.6	84.6	84.6
92.0	87.0	155	0.459	16.0	84.9	84.9	84.9
92.0	87.0	155	0.459	16.0	84.9	85.1	85.0

RESULTS

DRY GAS METER VOLUME CORRECTED Vm(std) (cu ft)	DRY GAS METER VOLUME CORRECTED Vm(std) (liters)	ORIFICE VOLUME CORRECTED Vcr(std) (cu ft)	ORIFICE VOLUME CORRECTED Vcr(std) (liters)	ORIFICE VOLUME NOMINAL Vcr (cu ft)
5.856	165.83	5.739	162.5	6.072
5.862	166.03	5.738	162.5	6.074
5.860	165.95	5.737	162.5	6.075

DRY GAS METER CALIBRATION FACTOR Y Variation (number)	DRY GAS METER CALIBRATION FACTOR Y Value (number)	ORIFICE CALIBRATION FACTOR -H@ Value (in H2O)	ORIFICE CALIBRATION FACTOR -H@ Value (mm H2O)	ORIFICE CALIBRATION FACTOR -H@ Variation (in H2O)
0.001	0.980	1.594	40.50	0.001
-0.001	0.979	1.594	40.48	0.000
0.000	0.979	1.593	40.45	-0.001
AVERAGE:	**0.979**	**1.594**	40.48	**PASSED**
LAST 5-PT:	**0.986**	**1.650**	**PASSED**	5-PT Date:
% DIFF:	**0.6%**	**3.6%**		09/30/09

40 CFR - CHAPTER I - PART 60
Appendix A, Method 5
10.3.2 Calibration After Use
After each field use, the calibration of the metering system shall be checked by performing three calibration runs at a single, intermediate orifice setting (based on the previous field test)....Calculate the average value of the DGM calibration factor. If the value has changed by more than 5 percent, recalibrate the meter over the full range of orifice settings, as detailed in Section 10.3.1.

10.3.3 Acceptable Variation in Calibration
If the DGM coefficient values obtained before and after a test series differ by more than 5 percent, the test series shall either be voided, or calculations for the test series shall be performed using whichever meter coefficient value (i.e., before or after) gives the lower value of total sample volume.

Notes: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter,acceptable tolerance of individual values from the average is +/- 0.02. For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H_20 that equates to 0.75 cfm of air at 68 °F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +/- 0.2. For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above. The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

SIGNATURE: Craig McCarty DATE: 05/26/10

EASTERN TECHNICAL ASSOCIATES

BRETT STREMME

STR504873 STUDENT ID NUMBER

met the specifications of Federal Reference Method 9 and qualifies as a visible emissions evaluator. Maximum deviation on white and black smoke did not exceed 7.5% opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Eastern Technical Associates of Raleigh, NC. This certificate is valid for six months from date of issue and expires on the date below.

TULSA, OK	4/21/2010	384702
SCHOOL LOCATION	DATE OF SCHOOL	CERT NUMBER
TULS10	10/21/2010	
LAST LECTURE	CERTIFICATION EXP DATE	BEARER

APPENDIX E

FUEL ANALYSIS RECORDS

Client: Florida Power and Light
Location: West County Energy Center
Date: May 7, 2010
Project #: bv-09-westcounty.fl-comp#1

Fuel Oil - Fuel Analysis

Characteristics of Fuel Gas		
Molecular Weight of oil =	15.192	lb/lb-mole
Btu per lb. of oil =	19,677.00	gross (HHV)
Btu per lb. of oiil =	18,468.000	net (LHV)
Density of fuel oil[2] =	52.5376	lb/cu. ft
Density of fuel oil[2] =	7.0233	lb/gal
Specific Gravity =	0.8433	@ 68 deg F

Standardized to 68 deg F and 14.696 psia

Component	Wt%
carbon	86.51
oxygen	0.00
hydrogen	13.49
nitrogen	0.00
helium	0.00
sulfur	0.00
Total	**100.00**

Fuel Oil HHV Conv.	
HHV (Btu/lb)	19,677.00
HHV (Btu/SCF)	1,033,782

Fuel Oil LHV Conv.	
LHV (Btu/lb)	18,468.00
LHV (Btu/SCF)	970,264

F-Factor (SCF dry exhaust per MMBtu [HHV]) =	**9,222.13**
(Based on EPA RM-19) at 68 deg F and 14.696 psia	

F-Factor Calculation:

F-Factor = 1,000,000*((3.64*%H)+(1.53*%C)+(0.57*%S)+(0.14*%N)-(0.46*%O))/GCV

GCV = Gross Btu per lb. of gas (HHV)

%H, %C, %S, %N, & %O are percent weight values calculated from fuel analysis and have units of (scf/lb)/%

Density of fuel oil based on lab analysis or specific gravity multiplied by density of water at 68 deg F and 14.696 psia.

References:

[1] ASTM D 3588

[2] Civil Engineering Reference Manual, 7th ed. - Michael R. Lindeburg

[3] Mark's Standard Handbook for Mechanical Engineers, 10th ed. - Eugene A. Avallone, Theodore Baumeister III

[4] Introduction to Fluid Mechanics, 3rd ed. - William S. Janna

[5] GPA Reference Bulletin 181-86, revised 1986, reprinted 1995

HOUSTON LABORATORIES
8820 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis

Number: 1030-2010050199-001A

Jake Fahlenkamp
Air Hygiene
5634 S. 122nd East Ave.
Suite F
Tulsa OK 74146

May 19, 2010

Sample ID:	Fuel Oil Supply	Sampled By:	JF
Project Name :		Sample Of:	Liquid
Project Number :		Sample Date:	05/07/2010
Project Location:		Sample Condition:	
Sample Point:		PO / Ref. No:	

ANALYTICAL DATA

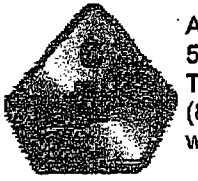
Test	Method	Result	Unit	Detection Limit	Lab Tech.	Date Analyzed
Heat of Combustion	ASTM-D-240	19677	Gross BTU / lb		EM	05/18/10
Heat of Combustion	ASTM-D-240	18468	Net BTU/lb		EM	05/18/10
Heat of Combustion	ASTM-D-240	NR	Gross BTU/Gal		EM	05/18/10
Heat of Combustion	ASTM-D-240	NR	Net BTU/Gal		EM	05/18/10
API Gravity @ 60 °F	ASTM-D-5002	36.29	°		MES	05/13/10
Specific Gravity @ 60/60 °F	ASTM-D-5002	0.8433			MES	05/13/10
Density @ 60 °F	ASTM-D-5002	0.8425	g/ml		MES	05/13/10
Wt% of Carbon	ASTM-D-5291	86.51	wt%	0.30	EM	05/18/10
Wt% of Hydrogen	ASTM-D-5291	13.49	wt%	0.30	EM	05/18/10
Wt% of Nitrogen	ASTM-D-5291	<0.30	wt%	0.30	EM	05/18/10
Sulfur in Liquid Hydrocarbon by UV	ASTM-D-5453	0.0008	wt %		EM	05/17/10

Comments: Oxygen by difference = <0.30 wt%
Oxygen by difference = <0.30 wt%
Sample On: 05/07/2010

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP or GPA guidelines for quality assurance, unless otherwise stated.

SAMPLE DESCRIPTION AND CHAIN OF CUSTODY RECORD



Air Hygiene International, Inc.
5634 S. 122nd East Ave, Suite F
Tulsa, Oklahoma 74146
(888) 461-8778
www.airhygiene.com

Project Number:	bv-09-westcounty.fl-comp#1	Laboratory Analysis Requested:	
Person Taking Samples:	Jake Fahlenkamp		

Sample Number	Location	Date	Volume	Analysis Method			
				ASTM D-240	ASTM-D-5002	ASTMD5453-00	Ultimate Analysis
1	Fuel Oil Supply	5/7/2010	as marked	X	X	X	X
2	Fuel Oil Supply	5/7/2010	as marked				
	Sample 2 hold as a backup						
				ALSO:	LHV	D240	
	email results to jake@airhygiene.com				Carbon (wt%)	D5291	
					Oxygen (wt%)	BY DIFF.	
					Hydrogen (wt%)		
					nitrogen (wt%) helium (wt%)		
					Sulfur (wt%)	D5453	

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	5/7/2010	22:00			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
			Martin Cisneros	5/12/10	15:00

ain of Custody-AHI v1.1

APPENDIX F

STRATIFICATION TEST DATA

Source Information	
Company	Florida Power and Light
Plant Name	West County Energy Center
Equipment	Mistubishi 501G
Location	Loxahatchee, Florida

Test Information	
Date	05/07/10
Project #	bv-09-westcounty.fl-comp#1
Unit Number	1C
Load	Base Load
Number of Ports Available	4
Number of Ports Used	4

Stack and Test Type				
○	Isokinetic Traverse (Wet Chemistry Testing)			**Circular Stack**
○	Velocity Traverse (Flow and Flow RATA Test)			
◉	**Stratification Traverse (Compliance Test)**	☑ RM 20		
○	Stratification Traverse (RATA)	☐ Part 60	☐ Part 75	

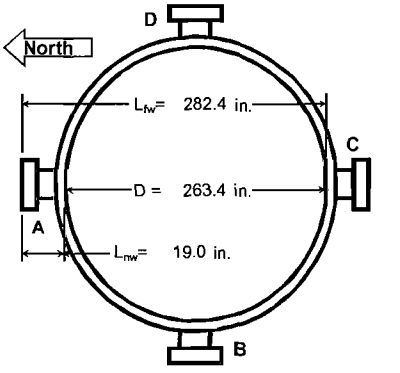
bv-09-westcounty.fl-comp#1-U1C-strat

METHOD 1 - STRATIFICATION TEST FOR A CIRCULAR SOURCE

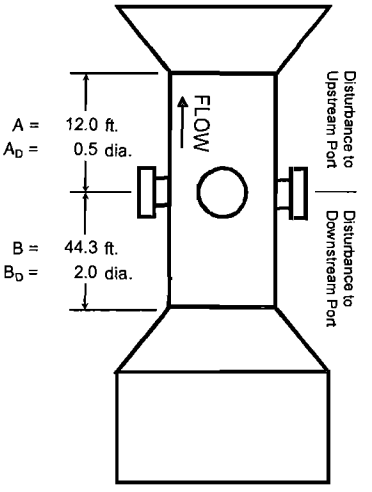
Company	Florida Power and Light	**Date**	05/07/10
Plant Name	West County Energy Center	**Project #**	bv-10-westcounty.fl-comp#1
Equipment	Mistubishi 501G	**# of Ports Available**	4
Location	Loxahatchee, Florida	**# of Ports Used**	4

Circular Stack or Duct Diameter			
Distance to Far Wall of Stack	(L_{fw})	282.38	in.
Distance to Near Wall of Stack	(L_{nw})	19.00	in.
Diameter of Stack	(D)	263.38	in.
Area of Stack	(A_s)	378.35	ft^2

Distance from Disturbances to Port			
Distance Upstream	(A)	144.00	in.
Diameters Upstream	(A_D)	0.55	diameters
Distance Downstream	(B)	531.75	in.
Diameters Downstream	(B_D)	2.02	diameters



Number of Traverse Points Required					
Diameters to Flow Disturbance		Minimum Number of[1] Traverse Points		Minimum Number of Traverse Points	
Down (B_D)	Up (A_D)	Particulate	Velocity	Comp Stratification Criteria	Points
Stream	Stream	Points	Points		
2.00-4.99	0.50-1.24	24	16	◉ RM 7E 8.1.2	12 RM1 pts
5.00-5.99	1.25-1.49	20	16	○ Alt 7E 8.1.2	3 points
6.00-6.99	1.50-1.74	16	12	12 points	
7.00-7.99	1.75-1.99	12	12		
>= 8.00	>=2.00	8 or 12[2]	8 or 12[2]	Minimum Number of	
Upstream Spec		24	16	Traverse Points	
Downstream Spec		24	16	RATA Stratification	
Traverse Pts Required		24	16	Criteria	Points
[1] Check Minimum Number of Points for the Upstream and Downstream conditions, then use the largest.				○ Part75/60	12 RM1 pts
[2] 8 for Circular Stacks 12 to 24 inches 12 for Circular Stacks over 24 inches				○ 75 abrv (a)	3 points
				○ 75 abrv (b)	6 points



Number of Traverse Points Used				
4	Ports by	3	Pts / port	Stratification Traverse (Compliance Test)
12	Pts Used	12	Required	

Traverse Point Locations			
Traverse Point Number	Percent of Stack Diameter	Distance from Inside Wall	Distance Including Reference Length
	%	in.	in.
1	4.4%	11 5/8	30 5/8
2	14.6%	38 4/8	57 4/8
3	29.6%	78	97
4			
5			
6			
7			
8			
9			
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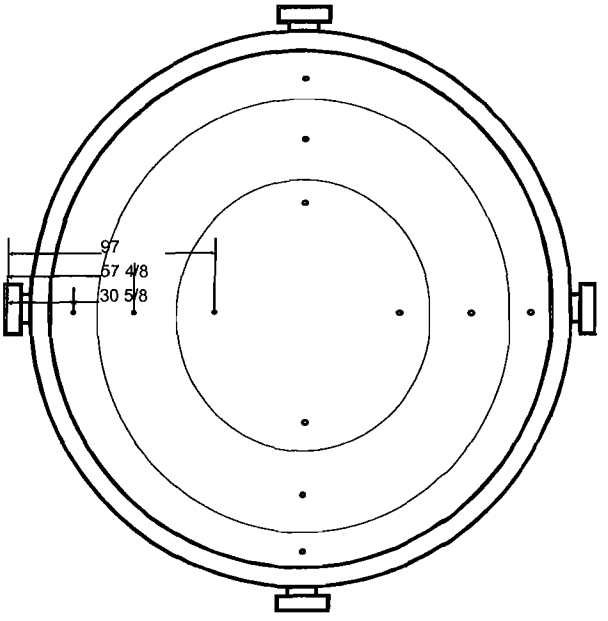
23			
24			



STRAT TEST DETERMINED SAMPLE POINTS FOR CIRCULAR STACK

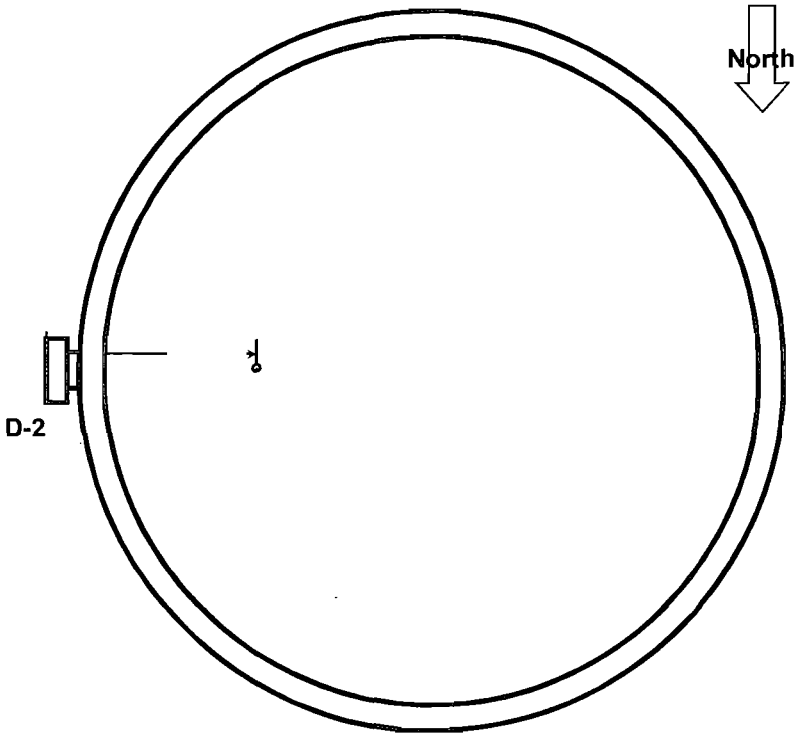
Company	Florida Power and Light	**Date**	05/07/10
Plant Name	West County Energy Center	**Project #**	bv-10-westcounty.fl-comp#1
Equipment	Mistubishi 501G	**# of Ports Available**	4
Location	Loxahatchee, Florida	**# of Ports Used**	4

Stack Dimensions				**Traverse Data**			
Diameter or Length of Stack	(D)	263.38	in.	4	**Ports by**	3	**Pts / port**
Width of Stack	(W)		in.	12	**Pts Used**	12	**Required**
Area of Stack	(A_s)	378.35	ft^2	**Run Start**	16:38:31	**Run End**	17:25:31

40 CFR 60, Appendix A, Method 7E Criteria					
Stratification Results		**Traverse Point Number**	**Percent of Stack Diameter**	**Distance from Inside Wall**	**Distance Including Reference Length**
Maximum Percent Difference	4.11 % for NOx				
Maximum Pollutant Conc. Diff.	0.21 ppm@15%O2 for NOx				
Maximum Diluent Conc. Diff.	0.04 % for O2				
Stack Diameter	263.38 in.		%	in.	in.
Stratification Conclusions		**1**			
Maximum % Diff.	Percent Diff. ≤5% Passed 8.1.2 Single Pt. Criteria	**2**			
Maximum Conc. Diff.	Conc. Diff. ≤ 0.3% Passed 3A 8.1 Single Pt. Criteria	**3**			
Stack Diameter	D > 93.6 in.				

Passed Strat. Test Under RM 7E 8.1.2 Single Pt. Criteria
Sample from the point that most closely matches the average

Test Type	Use 6.5.6.3(a) points? 6.5.6(b)(2) alt. points could apply



STRATIFICATION TRAVERSE (COMPLIANCE TEST) RESULTS

Company	Florida Power and Light	**Date**	05/07/10
Plant Name	West County Energy Center	**Project #**	bv-09-westcounty.fl-comp#1
Equipment	Mistubishi 501G	**# of Ports Available**	4
Location	Loxahatchee, Florida	**# of Ports Used**	4

Stack Dimensions				**Traverse Data**			
Diameter or Length of Stack	(D)	263.38	in.	4	**Ports by**	3	**Pts / port**
Width of Stack	(W)		in.	12	**Pts Used**	12	**Required**
Area of Stack	(A_s)	378.35	ft^2	**Run Start**	16:38:31	**Run End**	17:25:31

Traverse Point	Time Per Point	Point Start Time	Point Stop Time (Reading)	O2	Percent Difference	NOx	Percent Difference
	min.	hh:mm:ss	hh:mm:ss	%	%	ppm	%
D-3	3.00	16:38:31	16:41:31	13.32	**0.34%**	6.76	3.48%
D-2	3.00	16:41:31	16:44:31	13.34	0.19%	6.55	0.27%
D-1	3.00	16:44:31	16:47:31	13.35	0.11%	6.47	0.96%
C-3	7.00	16:47:31	16:54:31	13.34	0.19%	6.70	2.56%
C-2	3.00	16:54:31	16:57:31	13.39	0.19%	6.35	2.79%
C-1	3.00	16:57:31	17:00:31	13.37	0.04%	6.26	**4.17%**
B-3	7.00	17:00:31	17:07:31	13.37	0.04%	6.66	1.95%
B-2	3.00	17:07:31	17:10:31	13.39	0.19%	6.60	1.03%
B-1	3.00	17:10:31	17:13:31	13.34	0.19%	6.40	2.03%
A-3	6.00	17:13:31	17:19:31	13.36	0.04%	6.79	3.94%
A-2	3.00	17:19:31	17:22:31	13.41	**0.34%**	6.51	0.34%
A-1	3.00	17:22:31	17:25:31	13.40	0.26%	6.34	2.95%
Correct to	**15**	**% O2**	**Average**	13.37		6.53	

STRAT TEST DETERMINED SAMPLE POINTS FOR CIRCULAR STACK

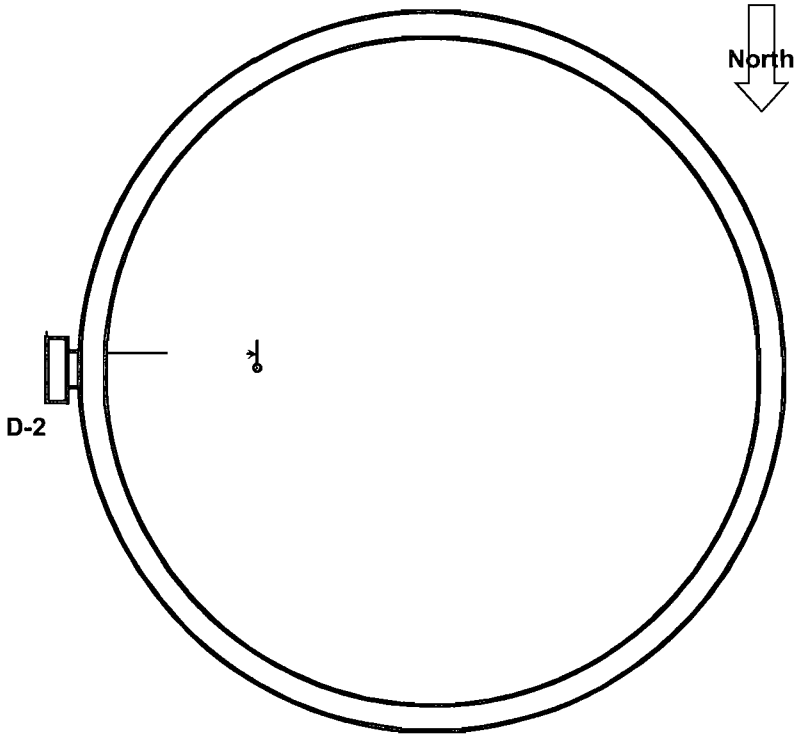
☑ Company	Florida Power and Light	Date	05/07/10
Plant Name	West County Energy Center	Project #	bv-10-westcounty.fl-comp#1
Equipment	Mistubishi 501G	# of Ports Available	4
Location	Loxahatchee, Florida	# of Ports Used	4

Stack Dimensions				Traverse Data			
Diameter or Length of Stack	(D)	263.38	in.	4	Ports by	3	Pts / port
Width of Stack	(W)		in.	12	Pts Used	12	Required
Area of Stack	(A_s)	378.35	ft^2	Run Start	16:38:31	Run End	17:26:31

40 CFR 60, Appendix A, Method 7E Criteria					
Stratification Results		Traverse Point Number	Percent of Stack Diameter	Distance from Inside Wall	Distance Including Reference Length
Maximum Percent Difference	6.22 % for CO				
Maximum Pollutant Conc. Diff.	0.25 ppm@15%O2 for CO				
Maximum Diluent Conc. Diff.	0.04 % for O2				
Stack Diameter	263.38 in.		%	in.	in.
Stratification Conclusions		1			
Maximum % Diff.	Percent Diff. ≤10% Passed 8.1.2 Three Pt. Criteria	2			
Maximum Conc. Diff.	Conc. Diff. ≤ 0.3% Passed 3A 8.1 Single Pt. Criteria	3			
Stack Diameter	D > 93.6 in.				

Passed Strat. Test Under RM 7E 8.1.2 Single Pt. Criteria
Sample from the point that most closely matches the average

Test Type	Use 6.5.6.3(a) points? 6.5.6(b)(2) alt. points could apply



STRATIFICATION TRAVERSE (COMPLIANCE TEST) RESULTS

Company	Florida Power and Light	**Date**	05/07/10
Plant Name	West County Energy Center	**Project #**	bv-09-westcounty.fl-comp#1
Equipment	Mistubishi 501G	**# of Ports Available**	4
Location	Loxahatchee, Florida	**# of Ports Used**	4

Stack Dimensions				**Traverse Data**			
Diameter or Length of Stack	(D)	263.38	in.	4	**Ports by**	3	**Pts / port**
Width of Stack	(W)		in.	12	**Pts Used**	12	**Required**
Area of Stack	(A_s)	378.35	ft^2	**Run Start**	7:20:07	**Run End**	17:25:31

Traverse Point	Time Per Point	Point Start Time	Point Stop Time (Reading)	O2	Percent Difference	NOx	Percent Difference
	min.	hh:mm:ss	hh:mm:ss	%	%	ppm@15%O2	%
D-3	3.00	7:20:07	16:41:31	13.32	**0.34%**	5.26	2.87%
D-2	3.00	16:41:31	16:44:31	13.34	0.19%	5.11	0.06%
D-1	3.00	16:44:31	16:47:31	13.35	0.11%	5.06	1.15%
C-3	6.00	16:47:31	16:54:31	13.34	0.19%	5.23	2.23%
C-2	3.00	16:54:31	16:57:31	13.39	0.19%	4.99	2.47%
C-1	3.00	16:57:31	17:00:31	13.37	0.04%	4.90	**4.11%**
B-3	7.00	17:00:31	17:07:31	13.37	0.04%	5.22	2.02%
B-2	3.00	17:07:31	17:10:31	13.39	0.19%	5.19	1.37%
B-1	3.00	17:10:31	17:13:31	13.34	0.19%	4.99	2.35%
A-3	6.00	17:13:31	17:19:31	13.36	0.04%	5.31	3.88%
A-2	3.00	17:19:31	17:22:31	13.41	**0.34%**	5.13	0.26%
A-1	3.00	17:22:31	17:25:31	13.40	0.26%	4.99	2.49%
Average				13.37		5.11	

STRATIFICATION TRAVERSE (COMPLIANCE TEST) RESULTS

Company	Florida Power and Light	**Date**	05/07/10
Plant Name	West County Energy Center	**Project #**	bv-09-westcounty.fl-comp#1
Equipment	Mistubishi 501G	**# of Ports Available**	4
Location	Loxahatchee, Florida	**# of Ports Used**	4

Stack Dimensions				**Traverse Data**			
Diameter or Length of Stack	(D)	263.38	in.	4	**Ports by**	3	**Pts / port**
Width of Stack	(W)		in.	12	**Pts Used**	12	**Required**
Area of Stack	(A_s)	378.35	ft^2	**Run Start**	16:38:31	**Run End**	17:26:31

Traverse Point	**Time Per Point**	**Point Start Time**	**Point Stop Time (Reading)**	**O2**	**Percent Difference**	**CO**	**Percent Difference**
	min.	hh:mm:ss	hh:mm:ss	%	%	ppm	%
D-3	3.00	16:38:31	16:41:31	13.32	**0.34%**	5.32	7.97%
D-2	3.00	16:41:31	16:44:31	13.34	0.19%	4.97	0.86%
D-1	3.00	16:44:31	16:47:31	13.35	0.11%	4.87	1.17%
C-3	7.00	16:47:31	16:54:31	13.34	0.19%	4.82	2.18%
C-2	3.00	16:54:31	16:57:31	13.39	0.19%	4.76	3.40%
C-1	3.00	16:57:31	17:00:31	13.37	0.04%	4.78	2.99%
B-3	7.00	17:00:31	17:07:31	13.37	0.04%	5.09	3.30%
B-2	3.00	17:07:31	17:10:31	13.39	0.19%	5.18	5.12%
B-1	3.00	17:10:31	17:13:31	13.34	0.19%	5.43	**10.20%**
A-3	7.00	17:13:31	17:20:31	13.36	0.04%	4.51	8.47%
A-2	3.00	17:20:31	17:23:31	13.41	**0.34%**	4.74	3.81%
A-1	3.00	17:23:31	17:26:31	13.40	0.26%	4.66	5.43%
Correct to	**15**	**% O2**	**Average**	13.37		4.93	

STRATIFICATION TRAVERSE (COMPLIANCE TEST) RESULTS

Company	Florida Power and Light	**Date**	05/07/10
Plant Name	West County Energy Center	**Project #**	bv-09-westcounty.fl-comp#1
Equipment	Mistubishi 501G	**# of Ports Available**	4
Location	Loxahatchee, Florida	**# of Ports Used**	4

Stack Dimensions				**Traverse Data**			
Diameter or Length of Stack	(D)	263.38	in.	4	**Ports by**	3	**Pts / port**
Width of Stack	(W)		in.	12	**Pts Used**	12	**Required**
Area of Stack	(A_s)	378.35	ft^2	**Run Start**	16:38:31	**Run End**	17:26:31

Traverse Point	Time Per Point	Point Start Time	Point Stop Time (Reading)	O2	Percent Difference	CO	Percent Difference
	min.	hh:mm:ss	hh:mm:ss	%	%	ppm@15%O2	%
D-3	3.00	16:38:31	16:41:31	13.32	**0.34%**	4.14	3.85%
D-2	3.00	16:41:31	16:44:31	13.34	0.19%	3.88	2.73%
D-1	3.00	16:44:31	16:47:31	13.35	0.11%	3.81	4.56%
C-3	6.00	16:47:31	16:54:31	13.34	0.19%	3.76	5.66%
C-2	3.00	16:54:31	16:57:31	13.39	0.19%	3.74	**6.22%**
C-1	3.00	16:57:31	17:00:31	13.37	0.04%	3.75	6.07%
B-3	7.00	17:00:31	17:07:31	13.37	0.04%	3.99	0.02%
B-2	3.00	17:07:31	17:10:31	13.39	0.19%	4.07	2.06%
B-1	3.00	17:10:31	17:13:31	13.34	0.19%	4.18	4.83%
A-3	6.00	17:13:31	17:20:31	13.36	0.04%	4.18	4.83%
A-2	3.00	17:20:31	17:23:31	13.41	**0.34%**	4.18	4.83%
A-1	3.00	17:23:31	17:26:31	13.40	0.26%	4.18	4.83%
Average				13.37		3.99	