

Indiantown Cogeneration, L.P.

PO Box 1799
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August 27th, 2014

Lee Hoefert
Florida Department of Environmental Protection
400 N Congress Ave.
Suite 200
West Palm Beach, FL 33416

VIA ELECTRONIC MAIL

Re: 2014 Relative Accuracy Test Audit Report (RATA) for Indiantown Cogeneration L.P.(ICLP)
(Facility I.D No. 0850102)

Dear Mr. Hoefert:

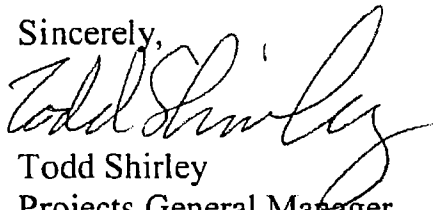
Enclosed please find ICLP's Continuous Emission Monitoring System (CEMS) RATA results for the P.C. Boiler and Inlet SO2 reactors completed July 15-17, 2014.

Summary of Relative Accuracy Test Audit

Parameter	Relative Accuracy %	Allowable Limit (Annual)
Main Boiler Flow(Low)	4.7	7.5
Main Boiler Flow(High)	2.4	7.5
Main Boiler NOX(lb/mmbtu)	2.2	7.5
Main Boiler SO2(lb/mmbtu)	3.7	7.5
Main Boiler CO2(%)	2.3	7.5
Inlet A SO2(ppm)	8.0	20
Inlet A CO2(%)	5.5	20
Inlet B SO2(ppm)	7.9	20
Inlet B CO2(%)	7.2	20

In accordance to Chapter 62-213-440(1)(b)3-c, F.A.C., I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and Should you have any questions please contact Nicholas Laryea at (772) 597-6535.

Sincerely,

A handwritten signature in black ink, appearing to read "Todd Shirley". The signature is written in a cursive style with a large, looping initial "T".

Todd Shirley
Projects General Manager

cc: Nicholas Laryea
Errin Pichard
U.S. EPA Region IV
File 2.4.4.



245 West Ohio Ave. • Suite A • Lake Helen, FL 32744
Phone (386) 451-0169 • coastalair123@aol.com

COMPLETE EMISSIONS TESTING SERVICES • PERMITTING ASSISTANCE • CEMS CERTIFICATION • AMBIENT AIR MONITORING

Emissions Test Report

No. 122-037

INDIANTOWN COGENERATION PLANT

RELATIVE ACCURACY TEST AUDIT PC BOILER STACK PC BOILER SDA INLETS A & B

Prepared for:

Indiantown Cogeneration, LP
13303 SW Silver Fox Lane
Indiantown, FL 34956

Prepared by:

Coastal Air Consulting, Inc.
1531 Wyngate Dr.
DeLand, FL 32724
(386) 451-0169

Completed on:

July 15-17, 2014

STATEMENT OF VALIDITY

All testing activities and results represented herein were conducted and obtained in accordance with the approved EPA protocols listed in 40 CFR Part 60 & 75. The contents have been reviewed and verified, to the extent practical, to be valid and accurate representation of the source emissions at the time of testing.

Stephen C. Webb



President

Coastal Air Consulting, Inc.

1531 Wyngate Dr.

DeLand, FL 32724

(386) 451-0169

PROJECT STATISTICS

Client: Indiantown Cogeneration

Facility: Indiantown Cogeneration Plant, L.P.

Location: 13303 SW Silver Fox Lane
Indiantown, FL 34956

Type of Process Tested: 330 MW Pulverized Coal Fired Boiler

Test Protocols Performed: Flow-EPA Method 2
Oxygen/Carbon Dioxide-EPA Method 3A
Sulfur Dioxide-EPA Method 6C
Nitrogen Oxide-EPA Method 7E
Carbon Monoxide-EPA Method 10

Source Analyzers: NOx - Thermo Environmental – CM07260054
SO2 - Thermo Environmental – CM07260055
CO2 - CAI – A7B3749T
Flow - EMRC – J353-22019
Inlet A SO2 – Thermo Environmental – 43i CM 13040011
Inlet A CO2 – CAI – A9E3765T
Inlet B SO2 – Thermo Environmental – 43i CM 13040012
Inlet B CO2 – CAI A9E3767T

Testing Firm: Coastal Air Consulting, Inc.
1531 Wyngate Dr.
DeLand, FL 32724
(386) 451-0169

Test Personnel: Stephen Webb Site Supervisor
Quin Revel
Troy Marlowe

Test Date: July 15-17, 2014 PC Boiler

Client Representative: Nick Laryea

Observers: Lee Hoefert DEP Southeast District
Patricia Tampas Air Program

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1.0 Introduction

Coastal Air Consulting, Inc. (Coastal) was contracted by Indiantown Cogeneration, LP to determine the relative accuracy of the Continuous Emissions Monitoring System at the Indiantown Cogeneration Plant located in Indiantown, Florida. Coastal performed a Part 75 Relative Accuracy Test Audit (RATA) of the Continuous Emissions Monitoring Systems (CEMS) NO_x, SO₂, CO₂ & Flow analyzers on the PC Boiler Stack and a Part 60 RATA of the CEMS SO₂ & CO₂ analyzers on the PC Boiler Spray Drier Absorber (SDA) Inlet.

The sampling program was conducted on July 15-17, 2014 on the PC Boiler. The RATA was performed by Coastal personnel, with the assistance of personnel assigned by Indiantown Cogeneration.

2.0 Test Program Summary

A summary of test results developed by this sampling program is presented in Table 1.

TABLE 1
Relative Accuracy Summary

PARAMETERS	RELATIVE ACCURACY %	BIAS	ALLOWABLE ANNUAL %
Flow (Low)	4.7	NB	7.5
Flow (High)	2.4	NB	7.5
NO _x (lb/mmBtu)	2.2	NB	7.5
NO _x (lb/hr)	6.4	NA	7.5
SO ₂ (lb/mmBtu)	3.7	NB	7.5
SO ₂ (lb/hr)	7.3	NA	7.5
CO ₂ (%)	2.3	NA	7.5
Inlet A SO ₂ (ppm)	8.0	NA	20
Inlet A CO ₂ (%)	5.5	NA	20
Inlet B SO ₂ (ppm)	7.9	NA	20
Inlet B CO ₂ (%)	7.2	NA	20

3.0 Results of Testing

These results indicate that the PC Boiler and SDA Inlets passed the RATA at the time of testing under normal operating conditions. The individual test run results are tabulated in Appendix 1.

4.0 Description of Source

Indiantown Cogeneration PC Boiler is a 330 MW pulverized coal fired boiler exporting 175,000 lb/hr of steam to a host facility. The boiler was supplied by Foster Wheeler Energy Corporation. Low-NOx reduction burners with over fired air and selective catalytic reduction using ammonia injection are used for NOx reduction. Particulate and sulfur dioxide emissions are controlled by an Aseav Brown Boveri (ABB) flue gas cleaning system (FGCS) comprised of two 50 percent capacity lime injection spray dryer absorbers followed by a fabric filter baghouse.

The controlled emissions from the pulverized coal boiler exhausts into the atmosphere through a steel flue, 17.17 feet (206 inches) in diameter, contained in a reinforced cement shell. There are four six-inch test ports spaced at 90-degree intervals around the flue at an elevation of approximately 250 feet above grade.

Testing was conducted at the PC Boiler Stack and SDA Inlets locations. A schematic of the stack sampling location is included in Appendix 5 "Figures".

5.0 Sampling Procedures

EPA testing protocols utilized during this test program include the following;

EPA Method 1	Sample and Velocity Traverse for Stationary Sources
EPA Method 2	Determination of Stack Gas Velocity and Volumetric Flow Rate
EPA Method 3A	Gas Analysis for CO ₂ , O ₂ , Excess Air and Dry Molecular Weight (Instrumental Analyzer Method)
EPA Method 4	Determination of Moisture Content in Stack Gas
EPA Method 6C	Determination of Sulfur Dioxide Emissions From Stationary Sources (Instrumental Analyzer Method)
EPA Method 7E	Determination of Nitrogen Oxides Emissions From Stationary Sources (Instrumental Analyzer Method)
EPA Method 10	Determination of Carbon Monoxide Emissions From Stationary Sources (Instrumental Analyzer Method)

The RATA NOx, SO₂ and CO₂ samples were collected from three points located at 0.4, 1.0 and 2.0 meters from the stack wall according to CFR 40 Part 60 Appendix B Spec 2. The RATA flow sample points were determined according to EPA Method 1.

6.0 Operating Conditions

The PC Boiler and SDA Inlets ran under normal operations during testing with no delays or interruptions. Indiantown Cogeneration personnel monitored operating conditions throughout the duration of the sampling program.

7.0 Quality Assurance Procedures

Quality assurance procedures followed during these testing activities were applied consistent with the requirements outlined by the EPA methods referenced in 40 CFR Parts 60 & 75. Analyzer calibrations, system bias and drift checks were completed before and after each sample run utilizing EPA Protocol 1 calibration gases.

**APPENDIX 1
REFERENCE DATA**

LOW LOAD

**FLOW (LOW) RELATIVE ACCURACY
METHOD 2**

CLIENT: INDIANTOWN COGENERATION
 SITE: INDIANTOWN COGENERATION PLANT ERMG
 UNIT: PC BOILER
 LOAD: LOW SERIAL# J353-22019
 DATE: 7/17/14

RUN	TIME START	TIME END	REFERENCE METHOD* (KSCFH)	CEM. RESPONSE (KSCFH)	ARITHMETIC DIFFERENCE	DIFFERENCE SQUARED
1	09:35	09:40	31,785.4	31,898.3	(213)	45,316
2	09:41	09:46	31,619.4	32,349.4	(730)	532,925
3	09:47	09:52	32,430.2	33,641.6	(1,211)	1,467,498
4	09:53	09:58	33,571.6	34,555.5	(984)	968,086
5	09:59	10:04	34,555.0	35,927.0	(1,372)	1,882,335
6	10:05	10:10	35,417.5	36,785.3	(1,368)	1,870,840
7	10:11	10:16	36,043.5	37,743.2	(1,700)	2,888,963
8	10:17	10:22	37,000.8	38,652.6	(1,652)	2,728,485
9	10:23	10:28	38,118.5	39,851.7	(1,733)	3,003,869
			AVERAGE	AVERAGE	SUM OF DIFF	SUM OF THE SQUARES
			34,505	35,723	(10,963)	15,388,317

**MEAN DIFFERENCE, \bar{x} (Eq. 2-1) (1,218.07)
 **STANDARD DEVIATION, S_d (Eq. 2-2) 504.36
 **CONFIDENCE COEFFICIENT, CC (Eq. 2-3) 387.68
 **PERCENT (%) RELATIVE ACCURACY, RA (Eq. 2-4) 4.654

Bias Adjustment Factor, BAF (Eq. A-12) 1.000

* Measurements were made on a dry basis and converted to a wet basis.

** 40 CFR 60, Appendix B, PS 2

FLOW-RA-WK3

FLOW TEST

CLIENT: INDIANTOWN COGENERATION
 SITE: INDIANTOWN COGENERATION PLANT
 UNIT: PC BOILER
 TEST: LOW
 METHOD: 1 - 4

	RUN 1	RUN 2	RUN 3
DATE OF RUN	07/17/14	07/17/14	07/17/14
GROSS LOAD (STEAM FLOW KLB/HR)	872.14	978.91	1017.25
START TIME (24-HR CLOCK)	09:35	09:41	09:47
END TIME (24-HR CLOCK)	09:40	09:46	09:52
BAROMETRIC PRESSURE (IN. HG)	29.67	29.67	29.67
MOISTURE IN STACK GAS (% VOL)	10.67	10.67	10.67
MOLE FRACTION DRY GAS	0.893	0.893	0.893
CO2 VOL PERCENT DRY	6.90	6.90	6.90
O2 VOL PERCENT DRY	12.80	12.80	12.80
N2 VOL PERCENT DRY	80.30	80.30	80.30
MOL. WT. DRY STACK GAS (LB/LB-MOLE)	29.62	29.62	29.62
MOL. WT. WET STACK GAS (LB/LB-MOLE)	28.38	28.38	28.38
ELEV. DIFF. FROM MANOM. TO BAROM. (FT)	250.00	250.00	250.00
STACK GAS STATIC PRESSURE (IN. H2O GAGE)	-0.10	-0.10	-0.10
STACK GAS STATIC PRESSURE (IN. HG ABS)	29.41	29.41	29.41
AVERAGE SQUARE ROOT VELOCITY HEAD	0.750	0.746	0.765
PITOT TUBE COEFFICIENT	0.84	0.84	0.84
AVG STACK TEMP (F)	183.0	183.0	183.0
STACK GAS VELOCITY STACK COND (FT/SEC)	47.25	47.00	48.21
CROSS SECTION STACK AREA (SQ FT)	231.5	231.5	231.5
STACK GAS FLOW RATE STD COND (DSCFM)	473224.4	470752.4	482823.8
STACK GAS FLOW RATE STD COND (SCFM)	529757.094	526989.7	540503.277
STACK GAS FLOW RATE STACK COND (ACFM)	656306.7	652878.3	669620.0
STACK GAS FLOW RATE STACK COND (KSCFH)	31785.4256	31619.3829	32430.1966

NOTE: STANDARD CONDITIONS -- 68F, 29.92 in. Hg

FLOW TEST

CLIENT: INDIANTOWN COGENERATION
 SITE: INDIANTOWN COGENERATION PLANT
 UNIT: PC BOILER
 TEST: LOW
 METHOD: 1 - 4

	RUN 4	RUN 5	RUN 6
DATE OF RUN	07/17/14	07/17/14	07/17/14
GROSS LOAD (STEAM FLOW KLB/HR)	1068.4	1121.79	1185.92
START TIME (24-HR CLOCK)	09:53	09:59	10:05
END TIME (24-HR CLOCK)	09:58	10:04	10:10
BAROMETRIC PRESSURE (IN. HG)	29.67	29.67	29.67
MOISTURE IN STACK GAS (% VOL)	10.67	10.67	10.67
MOLE FRACTION DRY GAS	0.893	0.893	0.893
CO2 VOL PERCENT DRY	6.90	6.90	6.90
O2 VOL PERCENT DRY	12.80	12.80	12.80
N2 VOL PERCENT DRY	80.30	80.30	80.30
MOL. WT. DRY STACK GAS (LB/LB-MOLE)	29.62	29.62	29.62
MOL. WT. WET STACK GAS (LB/LB-MOLE)	28.38	28.38	28.38
ELEV. DIFF. FROM MANOM. TO BAROM. (FT)	0.00	0.00	0.00
STACK GAS STATIC PRESSURE (IN. H2O GAGE)	-0.10	-0.10	-0.10
STACK GAS STATIC PRESSURE (IN. HG ABS.)	29.66	29.66	29.66
AVERAGE SQUARE ROOT VELOCITY HEAD	0.788	0.811	0.832
PITOT TUBE COEFFICIENT	0.84	0.84	0.84
AVG STACK TEMP (F)	183.0	183.0	183.0
STACK GAS VELOCITY STACK COND (FT/SEC)	49.48	50.93	52.20
CROSS SECTION STACK AREA (SQ FT)	231.5	231.5	231.5
STACK GAS FLOW RATE STD COND (DSCFM)	499817.0	514458.4	527299.3
STACK GAS FLOW RATE STD COND (SCFM)	559526.442	575916.962	590291.891
STACK GAS FLOW RATE STACK COND (ACFM)	687345.2	707480.0	725138.7
STACK GAS FLOW RATE STACK COND (KSCFH)	33571.5865	34555.0177	35417.5134

NOTE: STANDARD CONDITIONS -- 68F, 29.92 in. Hg

FLOW TEST

CLIENT: INDIANTOWN COGENERATION
 SITE: INDIANTOWN COGENERATION PLANT
 UNIT: PC BOILER
 TEST: LOW
 METHOD: 1 - 4

	RUN 7	RUN 8	RUN 9
DATE OF RUN	07/17/14	07/17/14	07/17/14
GROSS LOAD (STEAM FLOW KLB/HR)	1250.65	1325.2	1393.56
START TIME (24-HR CLOCK)	10:11	10:17	10:23
END TIME (24-HR CLOCK)	10:16	10:22	10:28
BAROMETRIC PRESSURE (IN. HG)	29.67	29.67	29.67
MOISTURE IN STACK GAS (% VOL)	10.67	10.67	10.67
MOLE FRACTION DRY GAS	0.893	0.893	0.893
CO2 VOL PERCENT DRY	6.90	6.90	6.90
O2 VOL PERCENT DRY	12.80	12.80	12.80
N2 VOL PERCENT DRY	80.30	80.30	80.30
MOL. WT. DRY STACK GAS (LB/LB-MOLE)	29.62	29.62	29.62
MOL. WT. WET STACK GAS (LB/LB-MOLE)	28.38	28.38	28.38
ELEV. DIFF. FROM MANOM. TO BAROM. (FT)	0.00	0.00	0.00
STACK GAS STATIC PRESSURE (IN. H2O GAGE)	-0.10	-0.10	-0.10
STACK GAS STATIC PRESSURE (IN. HG ABS.)	29.66	29.66	29.66
AVERAGE SQUARE ROOT VELOCITY HEAD	0.846	0.869	0.895
PITOT TUBE COEFFICIENT	0.84	0.84	0.84
AVG STACK TEMP (F)	183.0	183.0	183.0
STACK GAS VELOCITY STACK COND (FT/SEC)	53.13	54.54	56.18
CROSS SECTION STACK AREA (SQ FT)	231.5	231.5	231.5
STACK GAS FLOW RATE STD COND (DSCFM)	536619.1	550871.2	567512.3
STACK GAS FLOW RATE STD COND (SCFM)	600725.08	616679.79	635308.88
STACK GAS FLOW RATE STACK COND (ACFM)	737955.3	757554.7	780439.4
STACK GAS FLOW RATE STACK COND (KSCFH)	36043.505	37000.787	38118.533

NOTE: STANDARD CONDITIONS -- 68F, 29.92 in. Hg

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Site: PC Boiler

Method: 1-2

Run Number: 1

Date: 07/17/14

Bar Pressure (in Hg):

Static Pressure (H2O)

Ini. Pitot Leak Check:

Fin. Pitot Leak Check:

29.67

-0.10

OK @ 2.0"

OK @ 2.0"

Load: Low

Pitot# Flow Cp. 0.84

Thermocouple # Flow

Operators: TQR/TAM

	POINT #	CLOCK	VEL HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
		TIME				
S	A-1	09:35	0.65	183	12.8	6.9
	A-2		0.62			
	A-3		0.56			
	A-4		0.45			
W	B-1		0.66			
	B-2		0.64			
	B-3		0.58			
	B-4		0.44			
N	C-1		0.66			
	C-2		0.62			
	C-3		0.55			
	C-4		0.42			
E	D-1		0.62			
	D-2		0.58			
	D-3		0.55			
	D-4	09:40	0.44			
AVG. SQ. RT. OF ΔP			0.750	183.0	12.8	6.9
AVG. ΔP			0.565			

MOISTURE TEST FIELD DATA SHEET

Meter Box #: CAC 2

Method: 4

Run Number: 1-3

Ini. Leak Rate:0.000 @15"

Impinger Set: F

Fin. Leak Rate:0.000@10"

Yi 0.987

Sample Head: A

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE "H	METER TEMP (F)		VAC (IN.HG)	IMPINGER TEMP
			240.239		101	101		
1	09:35	10		1.80	101	101	3.0	66
2		20		1.80	101	101	3.0	66
3	10:05	30	263.642	1.80	101	101	3.0	67
			23.403	1.800	101.0	101.0		
						101.0		

H2O COLLECTED (g) =

54.6

VOL WATER COLLECTED (SCF) =

2.57

GAS SAMPLED (DSCF) =

21.550

MOISTURE IN STACK GAS (% VOL) =

10.67

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Load: Low

Site: PC Boiler

Bar. Pressure (in.Hg):

29.67

Pitot# Flow Cp: 0.84

Method: 1-2

Static Pressure (H2O):

-0.10

Thermocouple # Flow

Run Number: 2

Ini. Pitot Leak Check:

OK @ 2.0"

Operators: TQR/TAM

Date: 07/17/14

Fin. Pitot Leak Check:

OK @ 2.0"

	POINT #	CLOCK TIME	VEL. HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	E	A-1	09:41	0.64	183	12.8
A-2			0.60			
A-3			0.55			
A-4			0.46			
N	B-1		0.65			
	B-2		0.60			
	B-3		0.57			
	B-4		0.45			
W	C-1		0.64			
	C-2		0.59			
	C-3		0.52			
	C-4		0.44			
S	D-1		0.65			
	D-2		0.60			
	D-3		0.56			
	D-4	09:46	0.42			
AVG. SQ. RT. OF ^P			0.746	183.0	12.8	6.9
AVG. ^P			0.559			

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Load: Low

Site: PC Boiler

Bar. Pressure (in.Hg):

29.67

Pilot# Flow Cp: 0.84

Method: 1-2

Static Pressure (H2O):

-0.10

Thermocouple # Flow

Run Number: 3

Ini. Pitot Leak Check:

OK @ 2"

Operators: TQR/TAM

Date: 07/17/14

Fin. Pitot Leak Check:

OK @ 2"

	POINT #	CLOCK TIME	VEL. HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
S	A-1	09:47	0.70	183	12.8	6.9
	A-2		0.65			
	A-3		0.56			
	A-4		0.44			
W	B-1		0.70			
	B-2		0.65			
	B-3		0.59			
	B-4		0.45			
N	C-1		0.72			
	C-2		0.65			
	C-3		0.55			
	C-4		0.42			
E	D-1		0.69			
	D-2		0.62			
	D-3		0.60			
	D-4	09:52	0.44			
AVG. SQ. RT. OF ^P			0.765	183.0	12.8	6.9
AVG. ^P			0.589			

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Load: Low

Site: PC Boiler

Bar Pressure (in.Hg): 29.67

Pitot# Flow Cp: 0.84

Method: 1-2

Static Pressure (H2O): -0.10

Thermocouple # Flow

Run Number: 4

Ini Pitot Leak Check: OK @ 1.5"

Operators: TQR/TAM

Date: 07/17/14

Fin Pitot Leak Check: OK @ 1.5"

	POINT #	CLOCK TIME	VEL. HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	E	A-1	09:53	0.72	183	12.8
	A-2		0.70			
	A-3		0.65			
	A-4		0.45			
N	B-1		0.72			
	B-2		0.68			
	B-3		0.62			
	B-4		0.48			
W	C-1		0.74			
	C-2		0.68			
	C-3		0.64			
	C-4		0.44			
S	D-1		0.72			
	D-2		0.68			
	D-3		0.65			
	D-4	09:58	0.45			
AVG. SQ. RT OF ^P			0.788	183.0	12.8	6.9
AVG. ^P			0.626			

MOISTURE TEST FIELD DATA SHEET

Meter Box #: CAC 2

Method: 4

Run Number: 4-6

Ini. Leak Rate:0.000 @15"

Impinger Set: F

Fin. Leak Rate:0.000@5"

Yi 0.987

Sample Head: A

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE	METER		VAC. (IN.HG)	IMPINGER
			240.239	"H	TEMP (F)			TEMP
1	10:50	10		1.80	101	101	3	66
2		20		1.80	101	101	3	66
3	11:20	30	263.642	1.80	101	101	3	67
			23.403	1.800	101.0	101.0		
						101.0		

H2O COLLECTED (g) =
GAS SAMPLED (DSCF) =

54.6
21.550

VOL WATER COLLECTED (SCF) =
MOISTURE IN STACK GAS (% VOL) =

2.57
10.67

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Site: PC Boiler

Method: 1-2

Run Number: 5

Date: 07/17/14

Bar. Pressure (in.Hg):

Static Pressure (H2O):

Ini. Pitot Leak Check:

Fin. Pitot Leak Check:

29.67

-0.10

OK @ 2.0"

OK @ 2.0"

Load: Low

Pitot# Flow Cp: 0.84

Thermocouple # Flow

Operators: TOR/TAM

	POINT #	CLOCK TIME	VEL. HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	S	A-1	09:59	0.75	183	12.8
A-2			0.72			
A-3			0.64			
A-4			0.55			
W	B-1		0.76			
	B-2		0.73			
	B-3		0.70			
	B-4		0.52			
N	C-1		0.78			
	C-2		0.72			
	C-3		0.62			
	C-4		0.52			
E	D-1		0.75			
	D-2		0.71			
	D-3		0.62			
	D-4	10:04	0.50			
AVG. SQ. RT. OF ^P			0.811	183.0	12.8	6.9
AVG. ^P			0.662			

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Load: Low

Site: PC Boiler

Bar. Pressure (in.Hg):

29.67

Pitot# Flow Cp: 0.84

Method: 1-2

Static Pressure (H2O):

-0.10

Thermocouple # Flow

Run Number: 6

Ini. Pitot Leak Check:

OK @ 2"

Operators: TQR/TAM

Date: 07/17/14

Fin. Pitot Leak Check:

OK @ 2"

	POINT #	CLOCK TIME	VEL. HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	E	A-1	10:05	0.78	183	12.8
	A-2		0.75			
	A-3		0.68			
	A-4		0.60			
N	B-1		0.77			
	B-2		0.74			
	B-3		0.66			
	B-4		0.60			
W	C-1		0.80			
	C-2		0.74			
	C-3		0.64			
	C-4		0.58			
S	D-1		0.79			
	D-2		0.72			
	D-3		0.65			
	D-4	10:10	0.60			
AVG. SQ. RT. OF ^P			0.832	183.0	12.8	6.9
AVG. ^P			0.694			

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration
 Site: PC Boiler
 Method: 1-2
 Run Number: 7
 Date: 07/17/14

Bar. Pressure (in.Hg): 29.67
 Static Pressure (H2O): -0.10
 Ini. Pitot Leak Check: OK @ 2"
 Fin. Pitot Leak Check: OK @ 2"

Load: Low
 Pitot# Flow Cp: 0.84
 Thermocouple # Flow
 Operators: TQR/TAM

	POINT #	CLOCK TIME	VEL HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	S	A-1	10:11	0.80	183	12.8
A-2			0.76			
A-3			0.70			
A-4			0.65			
W	B-1		0.78			
	B-2		0.75			
	B-3		0.70			
	B-4		0.62			
N	C-1		0.82			
	C-2		0.78			
	C-3		0.68			
	C-4		0.60			
E	D-1		0.80			
	D-2		0.75			
	D-3		0.88			
	D-4	10:16	0.62			
AVG. SQ. RT. OF ^P			0.846	183.0	12.8	6.9
AVG. ^P			0.718			

MOISTURE TEST FIELD DATA SHEET

Meter Box #: CAC 2
 Ini. Leak Rate: 0.000 @15"
 Fin. Leak Rate: 0.000 @11"

Method: 4
 Y1: 0.987

Run Number: 7-9
 Impinger Set: F
 Sample Head: A

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE	METER		VAC. (IN HG)	IMPINGER
			240.239	"H	TEMP (F)			TEMP
1	10:50	10		1.80	101	101	3	66
2		20		1.80	101	101	3	66
3	11:20	30	263.642	1.80	101	101	3	67
			23.403	1.800	101.0	101.0		
						101.0		

H2O COLLECTED (g) = 54.6
 GAS SAMPLED (DSCF) = 21.550

VOL WATER COLLECTED (SCF) = 2.57
 MOISTURE IN STACK GAS (% VOL) = 10.67

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Load: Low

Site: PC Boiler

Bar. Pressure (in Hg):

29.67

Pitot# Flow Cp: 0.84

Method: 1-2

Static Pressure (H2O):

-0.10

Thermocouple # Flow

Run Number: 8

Ini. Pitot Leak Check:

OK @ 2"

Operators: TQR/TAM

Date: 07/17/14

Fin. Pitot Leak Check:

OK @ 2"

	POINT	CLOCK	VEL.	STACK	O2	CO2
	#	TIME	HEAD	TEMP (F)	(%)	(%)
E	A-1	10:17	0.86	183	12.8	6.9
	A-2		0.82			
	A-3		0.75			
	A-4		0.68			
N	B-1		0.88			
	B-2		0.82			
	B-3		0.75			
	B-4		0.68			
W	C-1		0.88			
	C-2		0.80			
	C-3		0.69			
	C-4		0.65			
S	D-1		0.85			
	D-2		0.78			
	D-3		0.65			
	D-4	10:22	0.60			
AVG. SQ. RT. OF ΔP			0.869	183.0	12.8	6.9
AVG. ΔP			0.758			

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Load: Low

Site: PC Boiler

Bar. Pressure (in.Hg):

29.67

Pitot# Flow Cp: 0.84

Method: 1-2

Static Pressure (H2O):

-0.10

Thermocouple # Flow

Run Number: 9

Ini. Pitot Leak Check:

OK @ 2"

Operators: TOR/TAM

Date: 07/17/14

Fin. Pitot Leak Check:

OK @ 2"

	POINT	CLOCK	VEL. HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	#	TIME				
S	A-1	10:23	0.90	183	12.8	6.9
	A-2		0.85			
	A-3		0.80			
	A-4		0.70			
W	B-1		0.88			
	B-2		0.83			
	B-3		0.78			
	B-4		0.65			
N	C-1		0.88			
	C-2		0.84			
	C-3		0.78			
	C-4		0.68			
E	D-1		0.90			
	D-2		0.85			
	D-3		0.80			
	D-4	10:28	0.72			
AVG. SQ. RT. OF ^P			0.895	183.0	12.8	6.9
AVG. ^P			0.803			

REFERENCE DATA

HIGH LOAD

**FLOW HIGH RELATIVE ACCURACY
METHOD 2**

CLIENT: INDIANTOWN COGERATION
 SITE: INDIANTOWN COGERATION PLANT
 UNIT: PC BOILER
 LOAD: HIGH
 DATE: 7/16/2014

ERMC
 SERIAL# J353-22019

RUN	TIME START	TIME END	REFERENCE METHOD (KSCFH)	CFM RESPONSE (KSCFH)	ARITHMETIC DIFFERENCE	DIFFERENCE SQUARED
1	1338	1358	50,291.7	52083.9	(1,792)	3,212,035
2	1410	1430	50,405.4	51259.8	(854)	730,007
3	1440	1500	50,851.4	51177.1	(326)	106,089
4	1510	1530	50,937.4	51176.3	(239)	57,081
5	1540	1600	50,716.3	51635.0	(919)	843,951
6	1610	1630	50,410.6	51707.3	(1,297)	1,681,433
7	1640	1700	52,601.6	52117.7	484	234,182
8	1721	1741	51,174.1	52297.2	(1,123)	1,261,293
9	1750	1810	54,479.9	52577.7	1,902	3,618,473
*Run not used			AVERAGE	AVERAGE	SUM OF DIFF.	SUM OF THE SQUARES
			51318.7	51781.3	-4163.51	11744524.08

**MEAN DIFFERENCE, \bar{x} (Eq. 2-1) -405.6052
 **STANDARD DEVIATION, S_d (Eq. 2-2) 1,107.84
 **CONFIDENCE COEFFICIENT, CC (Eq. 2-3) 851.56
 **PERCENT (%) RELATIVE ACCURACY, RA (Eq. 2-4) 2.446
 Bias Adjustment Factor, BAF (Eq. A-12) 1.000

FLOW RATA

CLIENT: INDIANTOWN COGERATION
 SITE: INDIANTOWN COGERATION PLANT
 UNIT: PC BOILER
 LOAD: HIGH
 METHOD: 1 - 4

	RUN 1	RUN 2	RUN 3
DATE OF RUN	7/16/2014	7/16/2014	7/16/2014
GROSS LOAD (Steam Flow klb/hr)	2318.09	2316.97	2317.42
START TIME (24-HR CLOCK)	1338	1410	1440
END TIME (24-HR CLOCK)	1358	1430	1500
BAROMETRIC PRESSURE (IN. HG)	29.58	29.58	29.58
MOISTURE IN STACK GAS (% VOL)	14.59	14.58	14.00
MOLE FRACTION DRY GAS	0.854	0.854	0.860
CO2 VOL PERCENT DRY	12.44	12.70	12.73
O2 VOL PERCENT DRY	6.92	6.71	6.69
N2 VOL PERCENT DRY	80.64	80.59	80.58
MOL. WT. DRY STACK GAS (LB/LB-MOLE)	30.27	30.30	30.30
MOL. WT. WET STACK GAS (LB/LB-MOLE)	28.48	28.51	28.58
ELEV. DIFF. FROM MANOM. TO BAROM. (FT)	0.00	0.00	0.00
STACK GAS STATIC PRESSURE (IN. H2O GAGE)	0.40	0.40	0.40
STACK GAS STATIC PRESSURE (IN. HG ABS.)	29.61	29.61	29.61
AVERAGE SQUARE ROOT VELOCITY HEAD	1.192	1.197	1.210
PITOT TUBE COEFFICIENT	0.84	0.84	0.84
AVG STACK TEMP (F)	192.0	193.0	194.0
STACK GAS VELOCITY STACK COND (FT/SEC)	75.30	75.59	76.37
CROSS SECTION STACK AREA (SQ FT)	231.50	231.50	231.50
STACK GAS FLOW RATE STD COND (DSCFM)	715927.5	717608.2	728861.7
STACK GAS FLOW RATE STD COND (SCFM)	838194.7	840089.9	847523.6
STACK GAS FLOW RATE STACK COND (ACFM)	1045962.1	1049934.9	1060847.6
STACK GAS FLOW RATE STD COND (KSCFH)	50,291.7	50,405.4	50,851.4

NOTE: STANDARD CONDITIONS -- 68F, 29.92 in. Hg

FLOW RATA

CLIENT: INDIANTOWN COGERATION
 SITE: INDIANTOWN COGERATION PLANT
 UNIT: PC BOILER
 LOAD: HIGH
 METHOD: 1 - 4

	RUN 4	RUN 5	RUN 6
DATE OF RUN	7/16/2014	7/16/2014	7/16/2014
GROSS LOAD (Steam Flow klb/hr)	2321.29	2313.16	2315.88
START TIME (24-HR CLOCK)	1510	1540	1610
END TIME (24-HR CLOCK)	1530	1600	1630
BAROMETRIC PRESSURE (IN. HG)	29.58	29.58	29.58
MOISTURE IN STACK GAS (% VOL)	14.00	12.40	12.40
MOLE FRACTION DRY GAS	0.860	0.876	0.876
CO2 VOL PERCENT DRY	12.74	12.45	12.44
O2 VOL PERCENT DRY	6.73	6.79	6.84
N2 VOL PERCENT DRY	80.53	80.76	80.72
MOL. WT. DRY STACK GAS (LB/LB-MOLE)	30.31	30.26	30.26
MOL. WT. WET STACK GAS (LB/LB-MOLE)	28.58	28.74	28.74
ELEV. DIFF. FROM MANOM. TO BAROM. (FT)	0.00	0.00	0.00
STACK GAS STATIC PRESSURE (IN. H2O GAGE)	0.40	0.40	0.40
STACK GAS STATIC PRESSURE (IN. HG ABS.)	29.61	29.61	29.61
AVERAGE SQUARE ROOT VELOCITY HEAD	1.213	1.208	1.202
PITOT TUBE COEFFICIENT	0.84	0.84	0.84
AVG STACK TEMP (F)	195.0	192.0	193.0
STACK GAS VELOCITY STACK COND (FT/SEC)	76.62	75.93	75.59
CROSS SECTION STACK AREA (SQ FT)	231.5	231.5	231.5
STACK GAS FLOW RATE STD COND (DSCFM)	730093.8	740430.0	735966.5
STACK GAS FLOW RATE STD COND (SCFM)	848956.381	845272.204	840176.653
STACK GAS FLOW RATE STACK COND (ACFM)	1064265.8	1054793.9	1050043.3
STACK GAS FLOW RATE STD COND (KSCFH)	50,937.4	50,716.3	50,410.6

NOTE: STANDARD CONDITIONS -- 68F, 29.92 in. Hg

FLOW RATA

CLIENT: INDIANTOWN COGERATION
 SITE: INDIANTOWN COGERATION PLANT
 UNIT: PC BOILER
 LOAD: HIGH
 METHOD: 1 - 4

	RUN 7	RUN 8	RUN 9
DATE OF RUN	7/16/2014	7/16/2014	7/16/2014
GROSS LOAD (Steam Flow klb/hr)	2328.10	2324.10	2325.35
START TIME (24-HR CLOCK)	1640	1721	1750
END TIME (24-HR CLOCK)	1700	1741	1810
BAROMETRIC PRESSURE (IN HG)	29.58	29.58	29.58
MOISTURE IN STACK GAS (% VOL)	13.34	13.34	13.46
MOLE FRACTION DRY GAS	0.867	0.867	0.865
CO2 VOL PERCENT DRY	12.27	11.95	11.93
O2 VOL PERCENT DRY	6.95	6.95	7.02
N2 VOL PERCENT DRY	80.78	81.11	81.05
MOL. WT. DRY STACK GAS (LB/LB-MOLE)	30.24	30.19	30.19
MOL. WT. WET STACK GAS (LB/LB-MOLE)	28.61	28.56	28.55
ELEV. DIFF. FROM MANOM. TO BAROM. (FT)	0.00	0.00	0.00
STACK GAS STATIC PRESSURE (IN. H2O GAGE)	0.40	0.40	0.40
STACK GAS STATIC PRESSURE (IN. HG ABS.)	29.61	29.61	29.61
AVERAGE SQUARE ROOT VELOCITY HEAD	1.251	1.217	1.296
PITOT TUBE COEFFICIENT	0.84	0.84	0.84
AVG STACK TEMP (F)	193.0	194.0	195.0
STACK GAS VELOCITY STACK COND (FT/SEC)	78.88	76.86	81.95
CROSS SECTION STACK AREA (SQ FT)	231.5	231.5	231.5
STACK GAS FLOW RATE STD COND (DSCFM)	759728.7	739111.3	785757.2
STACK GAS FLOW RATE STD COND (SCFM)	876693.726	852902.118	907998.806
STACK GAS FLOW RATE STACK COND (ACFM)	1095682.0	1067579.9	1138282.4
STACK GAS FLOW RATE STD COND (KSCFH)	52,601.6	51,174.1	54,479.9

NOTE: STANDARD CONDITIONS -- 68F, 29.92 in. Hg

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Site: PC Boiler	Bar. Pressure (in.Hg):	29.58	Load: High
Method: 1 - 2	Static Pressure (H2O):	0.40	Pilot# Flow Cp: 0.84
Run Number: 1	Ini. Pilot Leak Check:	OK @ 2"	Thermocouple # Flow
Date: 7/16/2014	Fin. Pilot Leak Check:	OK @ 2"	Operators: TAM/TOR

	POINT #	CLOCK TIME	VEL. HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	E	A-1	1338	1.60	192	6.9
A-2			1.50			
A-3			1.45			
A-4			1.40			
N	B-1		1.70			
	B-2		1.65			
	B-3		1.65			
	B-4		1.25			
W	C-1		1.75			
	C-2		1.80			
	C-3		1.70			
	C-4		1.35			
S	D-1		1.70			
	D-2		1.60			
	D-3		1.75			
	D-4	1358	1.30			
AVG. SQ. RT. OF ^P			1,192	192.0	6.9	12.4
AVG. ^P			1.572			

MOISTURE TEST FIELD DATA SHEET

Meter Box#: CAC 1	Method: 4	Run Number: 1
Ini. Leak Rate: 0.000 @5"		Impinger Set: D
Fin. Leak Rate: 0.000 @5"	Yi: 0.987	Sample Head: A

POINT	CLOCK TIME	SAMPLE TIME	VOLUME 122.634	ORIFICE "H	METER		VAC (IN HG)	IMPINGER TEMP
					TEMP (F)	TEMP (F)		
1	1338	10		1.8	102	102	3	63
2		21		1.8	103	103	3	63
3	1408	30	145.964	1.8	104	104	3	63
			23.330	1.800	103.0	103.0		
						103.0		

H2O COLLECTED (g) =	77.3	VOL WATER COLLECTED (SCF) =	3.64
GAS SAMPLED (OSCF) =	21.341	MOISTURE IN STACK GAS (% VOL) =	14.59

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Site: PC Boiler

Bar. Pressure (in.Hg):

29.58

Load: High

Method: 1 - 2

Static Pressure (H2O):

0.40

Pitot# Flow Cp: 0.84

Run Number: 2

Ini Pitot Leak Check:

OK @ 2"

Thermocouple # Flow

Date:

7/16/2014

Fin. Pitot Leak Check:

OK @ 2"

Operators: TAM/TOR

	POINT #	CLOCK TIME	VEL. HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	S	A-1	1410	1.65	193	6.7
A-2			1.55			
A-3			1.40			
A-4			1.35			
W	B-1		1.70			
	B-2		1.70			
	B-3		1.65			
	B-4		1.30			
N	C-1		1.75			
	C-2		1.75			
	C-3		1.70			
	C-4		1.40			
E	D-1		1.70			
	D-2		1.65			
	D-3		1.75			
	D-4	1430	1.30			
AVG. SQ. RT OF ^P			1.197	193.0	6.7	12.7
AVG ^P			1.581			

MOISTURE TEST FIELD DATA SHEET

Meter Box#: CAC 1

Method: 4

Run Number: 2

Ini. Leak Rate: 0.000 @15"

Yi 0.987

Impinger Set: E

Fin. Leak Rate: 0.000 @5"

Sample Head: A

POINT	CLOCK TIME	SAMPLE TIME	VOLUME 122.634	ORIFICE ^H	METER TEMP (F)		VAC. (IN.HG)	IMPINGER TEMP
1	1410	10		1.8	102	102	3.0	63
2		21		1.8	103	103	3.0	63
3	1440	30	145.964	1.8	103	103	3.0	63
			23.330	1.800	102.7	102.7		
						102.7		

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Site: PC Boiler	Bar. Pressure (in.Hg):	29.58	Load: High
Method: 1 - 2	Static Pressure (H2O):	0.40	Pilot# Flow Cp. 0.84
Run Number: 3	Ini. Pilot Leak Check:	OK @ 2"	Thermocouple # Flow
Date: 7/18/2014	Fin. Pilot Leak Check:	OK @ 2"	Operators: TAM/TOR

	POINT #	CLOCK TIME	VEL HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	E	A-1	1440	1.75	194	6.7
A-2			1.80			
A-3			1.70			
A-4			1.4			
N	B-1		1.70			
	B-2		1.65			
	B-3		1.65			
	B-4		1.35			
W	C-1		1.75			
	C-2		1.80			
	C-3		1.75			
	C-4		1.35			
S	D-1		1.70			
	D-2		1.65			
	D-3		1.60			
	D-4	1500	1.25			
AVG. SQ RT OF ΔP			1.210	194.0	6.7	12.7
AVG. ΔP			1.816			

MOISTURE TEST FIELD DATA SHEET

Meter Box# CAC 1	Method: 4	Run Number: 3
Ini. Leak Rate: 0.000 @ 15"	Yr: 0.987	Impinger Ser: D
Fin. Leak Rate: 0.000 @ 5"		Sample Head: A

POINT	CLOCK TIME	SAMPLE TIME	VOLUME 146.285	ORIFICE ΔH	METER TEMP (F)		VAC. (IN.HG)	IMPINGER TEMP
1	1440	10		1.8	106	106	3.0	62
2		21		1.8	108	108	3.0	62
3	1510	30	189.059	1.8	110	110	3.0	63
			22.774	1.800	108.0	108.0		
						108.0		

H2O COLLECTED (g) =	71.3	VOL WATER COLLECTED (SCF) =	3.38
GAS SAMPLED (DSCF) =	20.649	MOISTURE IN STACK GAS (% VOL) =	14.00

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Site: PC Boiler	Bar. Pressure (in. Hg): 29.58	Load: High
Method: 1 - 2	Static Pressure (H ₂ O): 0.40	Pilot# Flow Cp: 0.84
Run Number: 4	Ini. Pilot Leak Check: OK @ 2"	Thermocouple # Flow
Date: 7/16/2014	Fin. Pilot Leak Check: OK @ 2"	Operators: TAM/TQR

	POINT #	CLOCK TIME	VEL HEAD	STACK TEMP (F)	O ₂ (%)	CO ₂ (%)
	S	A-1	1510	1.70	195	6.7
A-2			1.70			
A-3			1.65			
A-4			1.35			
W	B-1		1.75			
	B-2		1.80			
	B-3		1.70			
	B-4		1.35			
N	C-1		1.70			
	C-2		1.65			
	C-3		1.60			
	C-4		1.65			
E	D-1		1.70			
	D-2		1.65			
	D-3		1.50			
	D-4	1530	1.40			
AVG. SO. RT. OF ^P			1.213	195.0	6.7	12.7
AVG. ^P			1.616			

MOISTURE TEST FIELD DATA SHEET

Meter Box#: CAC 1	Method: 4	Run Number: 4
Ini. Leak Rate: 0.000 @ 15"		Impinger Set: E
Fin. Leak Rate: 0.000 @ 5"	Yi: 0.987	Sample Head: A

POINT	CLOCK TIME	SAMPLE TIME	VOLUME 146.285	ORIFICE ^H	METER TEMP (F)	VAC. (IN. HG)	IMPINGER TEMP
1	1510	10		1.8	106	106	3 62
2		21		1.8	108	108	3 62
3	1540	30	169.059	1.8	110	110	3 63
			22.774	1.800	108.0	108.0	
					108.0		

H ₂ O COLLECTED (g) =	71.3	VOL WATER COLLECTED (SCF) =	3.36
GAS SAMPLED (DSCF) =	20.649	MOISTURE IN STACK GAS (% VOL) =	14.00

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Site: PC Boiler	Bar. Pressure (In. Hg):	29.58	Load: High
Method: 1 - 2	Static Pressure (H2O):	0.40	Pilot# Flow Cp: 0.84
Run Number: 5	Ini. Pilot Leak Check:	OK @ 2'	Thermocouple # Flow
Date: 7/16/2014	Fin. Pilot Leak Check:	OK @ 2'	Operators: TAM/TOR

	POINT #	CLOCK TIME	VEL HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	E	A-1	1540	1.50	192	6.8
A-2			1.45			
A-3			1.50			
A-4			1.35			
N	B-1		1.65			
	B-2		1.65			
	B-3		1.60			
	B-4		1.45			
W	C-1		1.80			
	C-2		1.75			
	C-3		1.70			
	C-4		1.65			
S	D-1		1.70			
	D-2		1.70			
	D-3		1.70			
	D-4	1600	1.50			
AVG. SQ. RT. OF ^P			1.208	192.0	6.8	12.4
AVG. ^P			1.603			

MOISTURE TEST FIELD DATA SHEET

Meter Box#: CAC 1	Method: 4	Run Number: 5
Ini. Leak Rate: 0.000 @15"		Impinger Set: D
Fin. Leak Rate: 0.000 @5"	Yr: 0.987	Sample Head: A

POINT	CLOCK TIME	SAMPLE TIME	VOLUME 169.145	ORIFICE ^H	METER TEMP (F)	VAC. (IN HG)	IMPINGER TEMP
1	1540	10		1.8	110	110	3 66
2		21		1.8	111	111	3 67
3	1610	30	192.824	1.8	113	113	3 67
			23.679	1.800	111.3	111.3	
					111.3		

H2O COLLECTED (g) =	64.1	VOL WATER COLLECTED (SCF) =	3.02
GAS SAMPLED (DSCF) =	21.345	MOISTURE IN STACK GAS (% VOL) =	12.40

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Site: PC Boiler	Bar. Pressure (In.Hg): 29.58	Load: High
Method: 1 - 2	Static Pressure (H2O): 0.40	Pilot Flow Cp. 0.84
Run Number: 6	Ini. Pitot Leak Check: OK @ 2"	Thermocouple # Flow
Date: 7/16/2014	Fin. Pitot Leak Check: OK @ 2"	Operators: TAM/TQR

	POINT #	CLOCK TIME	VEL HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	S	A-1	1610	1.65	193	6.8
A-2			1.55			
A-3			1.50			
A-4			1.35			
W	B-1		1.70			
	B-2		1.75			
	B-3		1.65			
	B-4		1.40			
N	C-1		1.75			
	C-2		1.70			
	C-3		1.60			
	C-4		1.35			
E	D-1		1.75			
	D-2		1.75			
	D-3		1.70			
	D-4	1630	1.35			
AVG. SQ. RT. OF ΔP			1.202	193.0	6.8	12.4
AVG. ΔP			1.594			

MOISTURE TEST FIELD DATA SHEET

Meter Box#: CAC 1	Method: 4	Run Number: 6
Ini. Leak Rate: 0.000 @15"		Impinger Set: E
Fin. Leak Rate: 0.000 @5"	Yr. 0 987	Sample Head: A

POINT	CLOCK TIME	SAMPLE TIME	VOLUME 169.145	ORIFICE ΔH	METER TEMP (F)		VAC (IN.HG)	IMPINGER TEMP
1	1610	10		1.8	110	110	3	68
2		20		1.8	111	111	3	67
3	1640	30	192.824	1.8	113	113	3	67
			23.679	1.800	111.3	111.3		
						111.3		

H2O COLLECTED (g) =	64.1	VOL WATER COLLECTED (SCF) =	3.02
GAS SAMPLED (DSCF) =	21.345	MOISTURE IN STACK GAS (% VOL) =	12.40

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration
 Site: PC Boiler Bar. Pressure (In.Hg): 29.58 Load: High
 Method: 1 - 2 Static Pressure (H2O): 0.40 Pilot# Flow Cp: 0.84
 Run Number: 7 Ini. Pilot Leak Check: OK @ 2.0" Thermocouple # Flow
 Date: 7/16/2014 Fin. Pilot Leak Check: OK @ 2.0" Operators: TAM/TQR

	POINT #	CLOCK	VEL HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
		TIME				
E	A-1	1640	1.75	193	7.0	12.3
	A-2		1.60			
	A-3		1.70			
	A-4		1.55			
N	B-1		1.75			
	B-2		1.75			
	B-3		1.70			
	B-4		1.60			
W	C-1		1.85			
	C-2		1.80			
	C-3		1.80			
	C-4		1.75			
S	D-1		1.75			
	D-2		1.70			
	D-3		1.75			
	D-4	1700	1.55			
AVG. SQ. RT. OF ΔP			1.251	193.0	7.0	12.3
AVG. ΔP			1.709			

MOISTURE TEST FIELD DATA SHEET

Meter Box#: CAC 1 Method: 4 Run Number: 7
 Ini. Leak Rate: 0.000 @ 15" Impinger Set: D
 Fin. Leak Rate: 0.000 @ 5" Yt. 0.987 Sample Head: A

POINT	CLOCK TIME	SAMPLE TIME	VOLUME 192.904	ORIFICE ΔH	METER TEMP (F)		VAC. (IN.HG)	IMPINGER TEMP
1	1640	10		1.8	108	108	3	65
2		21		1.8	110	110	3	86
3	1710	30	216.204	1.8	113	113	3	67
			23.300	1.800	110.3	110.3		
						110.3		

H2O COLLECTED (g) = 68.7 VOL WATER COLLECTED (SCF) = 3.24
 GAS SAMPLED (DSCF) = 21.040 MOISTURE IN STACK GAS (% VOL) = 13.34

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Site: PC Boiler	Bar. Pressure (in.Hg): 29.58	Load: High
Method: 1 - 2	Static Pressure (H2O): 0.40	Pitot # Flow Cp: 0.84
Run Number: 8	Ini. Pilot Leak Check OK @ 2.0"	Thermocouple # Flow
Date: 7/16/2014	Fin. Pilot Leak Check. OK @ 2.0"	Operators TAM/TQR

	POINT #	CLOCK TIME	VEL. HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	S	A-1	1721	1.80	194	8.9
A-2			1.75			
A-3			1.65			
A-4			1.40			
W	B-1		1.75			
	B-2		1.70			
	B-3		1.65			
	B-4		1.40			
N	C-1		1.75			
	C-2		1.70			
	C-3		1.65			
	C-4		1.40			
E	D-1		1.75			
	D-2		1.70			
	D-3		1.70			
	D-4	1741	1.35			
AVG. SO. RT OF ^P			1.217	194.0	8.9	11.9
AVG. ^P			1.631			

MOISTURE TEST FIELD DATA SHEET

Meter Box#: CAC 1	Method: 4	Run Number: 8
Ini. Leak Rate: 0.000 @15"		Impinger Set: E
Fin. Leak Rate: 0.000 @5"	Yr: 0.987	Sample Head: A

POINT	CLOCK TIME	SAMPLE TIME	VOLUME 192.904	ORIFICE ^H	METER TEMP (F)		VAC (IN.HG)	IMPINGER TEMP
1	1721	10		1.8	108	108	3	65
2		21		1.8	110	110	3	66
3	1751	30	216.204	1.8	113	113	3	67
			23.300	1.800	110.3	110.3		
						110.3		

H2O COLLECTED (g) =	68.7	VOL WATER COLLECTED (SCF) =	3.24
GAS SAMPLED (DSCF) =	21.040	MOISTURE IN STACK GAS (% VOL) =	13.34

VELOCITY TEST FIELD DATA SHEET

Client: Indiantown Cogeneration

Site: PC Boiler	Bar. Pressure (in.Hg): 29.58	Load: High
Method: 1 - 2	Static Pressure (H2O): 0.40	Pitot# Flow Cp: 0.84
Run Number: 9	Ini Pitot Leak Check: OK @ 2.0"	Thermocouple # Flow
Date: 7/16/2014	Fin. Pitot Leak Check: OK @ 2.0"	Operators: TAM/TOR

	POINT #	CLOCK TIME	VEL. HEAD	STACK TEMP (F)	O2 (%)	CO2 (%)
	E	A-1	1750	1.75	195	7.0
A-2			1.70			
A-3			1.65			
A-4			1.60			
N	B-1		1.90			
	B-2		1.90			
	B-3		1.80			
	B-4		1.85			
W	C-1		1.95			
	C-2		1.85			
	C-3		1.85			
	C-4		1.80			
S	D-1		1.95			
	D-2		1.95			
	D-3		1.90			
	D-4	1810	1.80			
AVG. SQ. RT. OF ΔP			1.296	195.0	7.0	11.9
AVG. ΔP			1.825			

MOISTURE TEST FIELD DATA SHEET

Meter Box# CAC 1	Method: 4	Run Number: 9
Ini Leak Rate: 0.000 @15"	Yi: 0.987	Impinger Set: D
Fin. Leak Rate: 0.000 @5"		Sample Head: A

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE ΔH	METER TEMP (F)		VAC. (IN.HG)	IMPINGER TEMP
1	1750	10	216.289	1.8	109	109	3	66
2		20		1.8	110	110	3	67
3	1820	30	240.038	1.8	111	111	3	67
			23.749	1.800	110.0	110.0		

NO_x LB/MMBTU RELATIVE ACCURACY

PLANT: Indiantown Cogeneration
 UNIT: PC Boiler
 LOAD: High
 DATE: 7/16/2014

ANALYZER: TECO
 SERIAL # CM07260054

RUN	TIME START	TIME END	REFERENCE METHOD (NO _x lb/mmBTU)	CEM RESPONSE (NO _x lb/mmBTU)	ARITHMATIC DIFFERENCE	DIFFERENCE SQUARED
1	1338	1358	0.163	0.166	-0.003	0.00001
2	1410	1430	0.144	0.146	-0.0024	0.00001
3	1440	1500	0.165	0.168	-0.003	0.00001
4	1510	1530	0.161	0.166	-0.005	0.00003
5	1540	1600	0.162	0.163	-0.0012	0.00000
6	1610	1630	0.159	0.162	-0.0025	0.00001
7	1640	1700	0.157	0.157	-0.0002	0.00000
8	1721	1741	0.167	0.162	0.0046	0.00002
9	1750	1810	0.167	0.163	0.004	0.00002
			AVERAGE	AVERAGE	SUM OF DIFF.	SUM OF THE SQUARES
			0.1606	0.1615	-0.0087	0.00009

**MEAN DIFFERENCE, d (Eq. A-7) -0.0009

**STANDARD DEVIATION, S_d (Eq. A-8) 0.0033

**CONFIDENCE COEFFICIENT, $|CC|$ (Eq. A-9) 0.0025

**PERCENT (%) RELATIVE ACCURACY, RA (Eq. A-10) 2.149

**BIAS ADJUSTMENT FACTOR, BAF (Eq. A-12) 1.000

** 40 CFR 75, Appendix A

NO_x LB/HR RELATIVE ACCURACY

PLANT: Indiantown Cogeneration
 UNIT: PC Boiler
 LOAD: High
 DATE: 7/16/2014

ANALYZER: TECO
 SERIAL # CM07260054

RUN	TIME START	TIME END	REFERENCE METHOD (NO _x lb/hr)	CEM RESPONSE (NO _x lb/hr)	ARITHMATIC DIFFERENCE	DIFFERENCE SQUARED
1	1338	1358	485.38	526.38	-40.999199	1680.93433
2	1410	1430	437.35	464.52	-27.165964	737.98959
3	1440	1500	510.19	532.45	-22.264472	495.70670
4	1510	1530	498.36	522.71	-24.346268	592.74074
5	1540	1600	498.38	519.66	-21.283515	452.98803
6	1610	1630	486.49	512.27	-25.780217	664.61960
7	1640	1700	487.74	501.31	-13.569897	184.14210
8	1721	1741	491.27	517.85	-26.576904	706.33183
9	1750	1810	522.08	521.65	0.42648389	0.18189
			AVERAGE	AVERAGE	SUM OF DIFF.	SUM OF THE SQUARES
			490.8044	513.2000	-201.55995	5515.63482

**MEAN DIFFERENCE, \bar{d} (Eq. A-7) -22.5346
 **STANDARD DEVIATION, S_d (Eq. A-8) 11.1892
 **CONFIDENCE COEFFICIENT, $|CC|$ (Eq. A-9) 8.6008
 **PERCENT (%) RELATIVE ACCURACY, RA (Eq. A-10) 6.356

** 40 CFR 75, Appendix A

SO2 LB/MMBTU RELATIVE ACCURACY

PLANT: Indiantown Cogeneration
 UNIT: PC Boiler
 LOAD: High
 DATE: 7/16/2014

ANALYZER TECO
 SERIAL # CM07260055

RUN	TIME START	TIME END	REFERENCE METHOD (SO2 lb/mmBtu)	CCM RESPONSE (SO2 lb/mmBtu)	ARITHMETIC DIFFERENCE	DIFFERENCE SQUARED
1	1338	1358	0.108	0.110	-0.002	0.000004
2	1410	1430	0.106	0.111	-0.005	0.000023
3	1440	1500	0.133	0.140	-0.007	0.000042
4	1510	1530	0.131	0.134	-0.003	0.000012
5	1540	1600	0.107	0.110	-0.003	0.000010
6	1610	1630	0.097	0.099	-0.002	0.000003
7	1640	1700	0.100	0.101	-0.001	0.000002
8	1721	1741	0.114	0.112	0.003	0.000006
9	1750	1810	0.108	0.107	0.002	0.000002
			AVERAGE	AVERAGE	SUM OF DIFF.	SUM OF THE SQUARES
			0.1116	0.1137	-0.019	0.000104

**MEAN DIFFERENCE, \bar{d} (Eq. A-7) -0.0020
 **STANDARD DEVIATION, S_d (Eq. A-8) 0.002831078
 **CONFIDENCE COEFFICIENT, $|CC|$ (Eq. A-9) 0.002176155

**PERCENT (%) RELATIVE ACCURACY, RA (Eq. A-10) 3.702

**BIAS ADJUSTMENT FACTOR, BAF (Eq. A-12) 1.000

** 40 CFR 75, Appendix A

SO2 LB/HR RELATIVE ACCURACY

PLANT: Indiantown Cogeneration
 UNIT: PC Boiler
 LOAD: High
 DATE: 7/16/2014

ANALYZER: TECO
 SERIAL # CM07260055

RUN	TIME START	TIME END	REFERENCE METHOD (SO2 lb/hr)	CEM RESPONSE (SO2 lb/hr)	ARITHMATIC DIFFERENCE	DIFFERENCE SQUARED	
1	1338	1358	324.79	349.50	-24.715	610.809	
2	1410	1430	323.31	351.02	-27.707	767.703	
3	1440	1500	412.73	443.15	-30.420	925.368	
4	1510	1530	407.19	424.65	-17.456	304.705	
5	1540	1600	330.05	350.76	-20.714	429.077	
6	1610	1630	297.26	312.87	-15.612	243.738	
7	1640	1700	310.54	322.89	-12.352	152.570	
8	1721	1741	335.92	355.44	-19.519	381.006	
9	1750	1810	336.78	340.85	-4.067	16.542	
				AVERAGE	AVERAGE	SUM OF DIFF.	SUM OF THE SQUARES
				342.0631	381.2367	-172.56247	3831.5183

**MEAN DIFFERENCE, d (Eq. A-7) -18.9810
 **STANDARD DEVIATION, Sd (Eq. A-8) 8.0845
 **CONFIDENCE COEFFICIENT, |CC| (Eq. A-9) 6.2143
 **PERCENT (%) RELATIVE ACCURACY, RA (Eq. A-10) 7.333
 **BIAS ADJUSTMENT FACTOR, BAF (Eq. A-12)
 ** 40 CFR 75, Appendix A

CO2 % RELATIVE ACCURACY

PLANT: Indiantown Cogeneration
 UNIT: PC Boiler
 LOAD: High
 DATE: 7/16/2014

ANALYZER CAI
 SERIAL # A7B3749T

RUN	TIME START	TIME END	REFERENCE METHOD (CO2 %)	CEM RESPONSE (CO2 %)	ARITHMATIC DIFFERENCE	DIFFERENCE SQUARED
1	1338	1358	10.64	10.84	-0.197	0.039
2	1410	1430	10.87	11.00	-0.133	0.018
3	1440	1500	10.96	11.02	-0.059	0.004
4	1510	1530	10.98	10.97	0.005	0.000
5	1540	1600	10.92	10.90	0.016	0.000
6	1610	1630	10.91	10.83	0.082	0.007
7	1640	1700	10.65	10.74	-0.095	0.009
8	1721	1741	10.37	10.70	-0.333	0.111
9	1750	1810	10.34	10.68	-0.338	0.114
			AVERAGE	AVERAGE	SUM OF DIFF.	SUM OF THE SQUARES
			10.7140	10.8475	-1.068052	0.301217335

**MEAN DIFFERENCE, d (Eq. A-7) -0.1335
 **STANDARD DEVIATION, S_d (Eq. A-8) 0.1477
 **CONFIDENCE COEFFICIENT, $|CC|$ (Eq. A-9) 0.1135
 **PERCENT (%) RELATIVE ACCURACY, RA (Eq. A-10) 2.306

** 40 CFR 75, Appendix A

REFERENCE METHOD VALUES
 MOISTURE CORRECTION
 PC BOILER OUTLET
 7/16/2014

RUN #	REFERENCE METHOD (ppm, dry)	MOISTURE (%)	MOISTURE CORRECTION (1-moisture/100)	REFERENCE METHOD (ppm, wet)
SO2 ppm				
1	45.47	14.46	0.855	38.90
2	45.16	14.46	0.855	38.63
3	56.76	13.88	0.861	48.88
4	55.90	13.88	0.861	48.14
5	44.68	12.29	0.877	39.19
6	40.48	12.29	0.877	35.51
7	40.97	13.22	0.868	35.55
8	45.55	13.22	0.868	39.53
9	42.96	13.34	0.867	37.23
CO2 %				
1	12.44	14.46	0.855	10.64
2	12.70	14.46	0.855	10.87
3	12.73	13.88	0.861	10.96
4	12.74	13.88	0.861	10.98
5	12.45	12.29	0.877	10.92
6	12.44	12.29	0.877	10.91
7	12.27	13.22	0.868	10.65
8	11.95	13.22	0.868	10.37
9	11.93	13.34	0.867	10.34
NOx ppm				
1	94.63	14.46	0.855	80.95
2	85.07	14.46	0.855	72.77
3	97.71	13.88	0.861	84.15
4	95.28	13.88	0.861	82.06
5	93.95	12.29	0.877	82.41
6	92.27	12.29	0.877	80.93
7	89.61	13.22	0.868	77.76
8	92.78	13.22	0.868	80.51
9	92.74	13.34	0.867	80.37

**INDIANTOWN COGENERATION
PC OUTLET
ANALYZER CALIBRATION ERROR**

DATE TESTED: 7/16/2014
Run 1

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFF PPM	% SPAN	ANALYZER SERIAL #
250	ppm NOx	0.00	0.00	0.0	0.0	42CHL 72772-372
	ppm NOx	93.20	93.10	-0.1	0.0	
	ppm NOx	212.00	214.00	2.0	0.9	
25	% O2	0.00	0.00	0.0	0.0	1420/B153
	% O2	11.90	11.90	0.0	0.0	
	% O2	22.70	22.50	-0.2	-0.9	
20	% CO2	0.00	0.00	0.0	0.0	01410B139
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
250	ppm SO2	0.00	0.20	0.2	0.1	92721AT278B1-1
	ppm SO2	92.10	92.00	-0.1	0.0	
	ppm SO2	213.00	214.00	1.0	0.5	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
ppm NOx	0.00	0.00	0.0	0.20	0.1	0.1
ppm NOx	93.10	93.30	0.1	93.40	0.1	0.0
% O2	0.00	0.00	0.0	0.00	0.0	0.0
% O2	11.90	11.90	0.0	11.90	0.0	0.0
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.40	0.0	8.40	0.0	0.0
ppm SO2	0.20	0.20	0.0	0.30	0.0	0.0
ppm SO2	92.00	92.00	0.0	92.10	0.0	0.0

UNCORRECTED REFERENCE DATA

Date & Time	NOx PPM	% O2	% CO2	SO2 PPM
7/16/2014 13:38	80.38	7.15	12.06	40.25
7/16/2014 13:39	83.38	6.97	12.29	40.50
7/16/2014 13:40	87.13	7.00	12.26	40.00
7/16/2014 13:41	87.63	7.11	12.20	43.50
7/16/2014 13:42	87.25	7.06	12.27	44.75
7/16/2014 13:43	85.38	6.83	12.51	44.50
7/16/2014 13:44	83.13	6.71	12.63	44.75
7/16/2014 13:45	82.88	6.79	12.54	45.00
7/16/2014 13:46	87.63	6.54	12.79	46.75
7/16/2014 13:47	96.88	6.74	12.56	49.25
7/16/2014 13:48	104.25	6.97	12.34	48.25
7/16/2014 13:49	107.88	7.11	12.21	46.25
7/16/2014 13:50	108.25	7.03	12.35	47.25
7/16/2014 13:51	109.00	7.08	12.30	48.00
7/16/2014 13:52	108.75	6.81	12.53	47.50
7/16/2014 13:53	108.25	6.89	12.46	49.50
7/16/2014 13:54	106.88	6.89	12.49	45.50
7/16/2014 13:55	103.75	6.99	12.37	45.50
7/16/2014 13:56	94.63	7.10	12.26	47.25
7/16/2014 13:57	89.88	6.86	12.54	46.50
7/16/2014 13:58	87.38	6.59	12.74	46.25
AVERAGE	94.79	6.92	12.41	45.57

NOx ppmvd	94.63
SO2 ppmvd	45.47
NOx lb/mmBlu	0.163
SO2 lb/mmBlu	0.109
O2 %	6.92
CO2 %	12.44
NOx lb/dscf	1.130E-05
SO2 lb/dscf	7.581E-06
NOx LB/HR	485.4
SO2 LB/HR	324.8

F Factor 1800

DATE TESTED: 7/16/2014
Run 2

INDIANTOWN COGENERATION
PC OUTLET
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
250	ppm NOx	0.00	0.00	0.0	0.0	42CHL 72772-372
	ppm NOx	93.20	93.10	-0.1	0.0	
	ppm NOx	212.00	214.00	2.0	0.9	
10	% O2	0.00	0.00	0.0	0.0	1420/B153
	% O2	11.90	11.90	0.0	0.0	
	% O2	22.70	22.50	-0.2	-0.9	
20	% CO2	0.00	0.00	0.0	0.0	014108139
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
250	ppm SO2	0.00	0.20	0.2	0.1	92721AT27881-1
	ppm SO2	92.10	92.00	-0.1	0.0	
	ppm SO2	213.00	214.00	1.0	0.5	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
ppm NOx	0.00	0.20	0.1	0.30	0.1	0.0
ppm NOx	93.10	93.40	0.1	93.50	0.2	0.0
% O2	0.00	0.00	0.0	0.00	0.0	0.0
% O2	11.90	11.90	0.0	11.90	0.0	0.0
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.40	0.0	8.40	0.0	0.0
ppm SO2	0.20	0.30	0.0	0.30	0.0	0.0
ppm SO2	92.00	92.10	0.0	92.00	0.0	0.0

UNCORRECTED REFERENCE DATA

Date & Time	NOx PPM	% O2	% CO2	SO2 PPM
7/16/2014 14:10	84.88	6.72	12.59	43.50
7/16/2014 14:11	83.38	6.64	12.69	43.50
7/16/2014 14:12	81.75	6.59	12.73	43.50
7/16/2014 14:13	81.00	6.67	12.69	37.75
7/16/2014 14:14	80.63	6.56	12.78	38.50
7/16/2014 14:15	82.00	6.65	12.70	37.75
7/16/2014 14:16	81.38	6.85	12.54	37.00
7/16/2014 14:17	81.50	6.79	12.58	36.50
7/16/2014 14:18	81.75	6.63	12.74	39.50
7/16/2014 14:19	80.75	6.70	12.70	42.25
7/16/2014 14:20	81.25	6.67	12.69	43.75
7/16/2014 14:21	80.75	6.70	12.71	45.75
7/16/2014 14:22	82.00	6.79	12.61	47.75
7/16/2014 14:23	83.38	6.68	12.73	47.25
7/16/2014 14:24	83.13	6.74	12.64	48.00
7/16/2014 14:25	86.50	6.81	12.59	47.75
7/16/2014 14:26	92.25	6.77	12.64	48.25
7/16/2014 14:27	95.25	6.62	12.80	53.50
7/16/2014 14:28	96.38	6.64	12.74	55.00
7/16/2014 14:29	96.25	6.71	12.70	56.75
7/16/2014 14:30	95.63	6.91	12.53	57.50
AVERAGE	85.32	6.71	12.67	45.29

NOx ppmvd	85.07
SO2 ppmvd	45.16
NOx lb/mmBtu	0.144
SO2 lb/mmBtu	0.106
O2 %	6.71
CO2 %	12.70
NOx lb/dscf	1.016E-05
SO2 lb/dscf	7.509E-06
NOx LB/HR	437.4
SO2 LB/HR	323.3

F Factor 1800

DATE TESTED: 7/16/2014
Run 3

INDIANTOWN COGENERATION
PC OUTLET
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
250	ppm NOx	0.00	0.00	0.0	0.0	42CHL 72772-372
	ppm NOx	93.20	93.10	-0.1	0.0	
	ppm NOx	212.00	214.00	2.0	0.9	
10	% O2	0.00	0.00	0.0	0.0	1420/B153
	% O2	11.90	11.90	0.0	0.0	
	% O2	22.70	22.50	-0.2	-0.9	
20	% CO2	0.00	0.00	0.0	0.0	01410B139
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
250	ppm SO2	0.00	0.20	0.2	0.1	92721AT27881-1
	ppm SO2	92.10	92.00	-0.1	0.0	
	ppm SO2	213.00	214.00	1.0	0.5	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
ppm NOx	0.00	0.30	0.1	0.30	0.1	0.0
ppm NOx	93.10	93.50	0.2	93.50	0.2	0.0
% O2	0.00	0.00	0.0	0.00	0.0	0.0
% O2	11.90	11.90	0.0	11.90	0.0	0.0
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.40	0.0	8.40	0.0	0.0
ppm SO2	0.20	0.30	0.0	0.20	0.0	0.0
ppm SO2	92.00	92.00	0.0	92.10	0.0	0.0

UNCORRECTED REFERENCE DATA

Date & Time	NOx PPM	% O2	% CO2	SO2 PPM
7/16/2014 14:40	97.88	6.69	12.58	73.75
7/16/2014 14:41	97.88	6.70	12.62	65.25
7/16/2014 14:42	97.88	6.77	12.59	60.25
7/16/2014 14:43	97.13	6.63	12.72	55.75
7/16/2014 14:44	97.88	6.71	12.67	54.50
7/16/2014 14:45	98.13	6.64	12.72	54.50
7/16/2014 14:46	98.88	6.61	12.76	53.25
7/16/2014 14:47	98.25	6.79	12.63	54.75
7/16/2014 14:48	98.88	6.63	12.75	55.50
7/16/2014 14:49	98.38	6.81	12.60	55.50
7/16/2014 14:50	98.25	6.71	12.71	54.25
7/16/2014 14:51	97.63	6.69	12.70	54.00
7/16/2014 14:52	97.25	6.53	12.88	52.50
7/16/2014 14:53	97.25	6.50	12.89	53.00
7/16/2014 14:54	95.88	6.80	12.63	55.75
7/16/2014 14:55	98.25	6.73	12.69	55.75
7/16/2014 14:56	97.88	6.86	12.54	56.50
7/16/2014 14:57	98.63	6.85	12.57	55.75
7/16/2014 14:58	98.38	6.71	12.71	56.25
7/16/2014 14:59	99.75	6.75	12.69	58.00
7/16/2014 15:00	97.88	6.43	12.98	58.50
AVERAGE	98.01	6.69	12.70	56.82

NOx ppmvd	97.71
SO2 ppmvd	56.76
NOx lb/mmBtu	0.165
SO2 lb/mmBtu	0.133
O2 %	6.69
CO2 %	12.73
NOx lb/dscf	1.167E-05
SO2 lb/dscf	9.438E-06
NOx LB/HR	510.2
SO2 LB/HR	412.7

F Factor 1800

DATE TESTED: 7/16/2014
Run 4

INDIANTOWN COGENERATION
PC OUTLET
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
250	ppm NOx	0.00	0.00	0.0	0.0	42CHL 72772-372
	ppm NOx	93.20	93.10	-0.1	0.0	
	ppm NOx	212.00	214.00	2.0	0.9	
10	% O2	0.00	0.00	0.0	0.0	1420/B153
	% O2	11.90	11.90	0.0	0.0	
	% O2	22.70	22.50	-0.2	-0.9	
20	% CO2	0.00	0.00	0.0	0.0	01410B139
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
250	ppm SO2	0.00	0.20	0.2	0.1	92721AT27881-1
	ppm SO2	92.10	92.00	-0.1	0.0	
	ppm SO2	213.00	214.00	1.0	0.5	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
ppm NOx	0.00	0.30	0.1	0.30	0.1	0.0
ppm NOx	93.10	93.50	0.2	93.40	0.1	0.0
% O2	0.00	0.00	0.0	0.00	0.0	0.0
% O2	11.90	11.90	0.0	11.90	0.0	0.0
% CO2	0.00	0.00	0.0	0.10	0.6	0.6
% CO2	8.40	8.40	0.0	8.40	0.0	0.0
ppm SO2	0.20	0.20	0.0	0.40	0.1	0.1
ppm SO2	92.00	92.10	0.0	92.00	0.0	0.0

UNCORRECTED REFERENCE DATA

Date & Time	NOx PPM	% O2	% CO2	SO2 PPM
7/16/2014 15:10	95.63	6.79	12.63	65.75
7/16/2014 15:11	96.38	6.79	12.60	59.25
7/16/2014 15:12	96.50	6.63	12.81	57.75
7/16/2014 15:13	95.25	6.71	12.73	55.25
7/16/2014 15:14	93.63	6.64	12.82	53.50
7/16/2014 15:15	94.75	6.61	12.83	52.50
7/16/2014 15:16	94.00	6.64	12.80	53.50
7/16/2014 15:17	94.25	6.84	12.61	54.50
7/16/2014 15:18	95.38	6.76	12.68	54.75
7/16/2014 15:19	94.75	6.86	12.56	55.50
7/16/2014 15:20	97.38	6.68	12.71	56.25
7/16/2014 15:21	95.50	6.73	12.66	54.75
7/16/2014 15:22	94.75	6.73	12.68	55.75
7/16/2014 15:23	97.00	6.71	12.68	56.25
7/16/2014 15:24	95.13	6.71	12.69	53.75
7/16/2014 15:25	95.38	6.79	12.61	55.00
7/16/2014 15:26	96.50	6.73	12.66	54.50
7/16/2014 15:27	95.63	6.77	12.64	57.25
7/16/2014 15:28	96.38	6.71	12.71	56.75
7/16/2014 15:29	96.50	6.72	12.69	56.50
7/16/2014 15:30	95.50	6.77	12.66	56.75
AVERAGE	95.53	6.73	12.69	55.99

NOx ppmvd	95.28
SO2 ppmvd	55.90
NOx lb/mmBtu	0.161
SO2 lb/mmBtu	0.131
O2 %	6.73
CO2 %	12.74
NOx lb/dscf	1.138E-05
SO2 lb/dscf	9.295E-06
NOx LB/HR	498.4
SO2 LB/HR	407.2

F Factor 1800

DATE TESTED: 7/16/2014
Run 5

INDIANTOWN COGENERATION
PC OUTLET
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFF PPM	% SPAN	ANALYZER SERIAL #
250	ppm NOx	0.00	0.00	0.0	0.0	42CHL 72772-372
	ppm NOx	93.20	93.10	-0.1	0.0	
	ppm NOx	212.00	214.00	2.0	0.9	
10	% O2	0.00	0.00	0.0	0.0	1420/B153
	% O2	11.90	11.90	0.0	0.0	
	% O2	22.70	22.50	-0.2	-0.9	
20	% CO2	0.00	0.00	0.0	0.0	01410B139
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
250	ppm SO2	0.00	0.20	0.2	0.1	92721AT27881-1
	ppm SO2	92.10	92.00	-0.1	0.0	
	ppm SO2	213.00	214.00	1.0	0.5	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
ppm NOx	0.00	0.30	0.1	0.40	0.2	0.0
ppm NOx	93.10	93.40	0.1	93.50	0.2	0.0
% O2	0.00	0.00	0.0	0.00	0.0	0.0
% O2	11.90	11.90	0.0	11.90	0.0	0.0
% CO2	0.00	0.10	0.6	0.10	0.6	0.0
% CO2	8.40	8.40	0.0	8.40	0.0	0.0
ppm SO2	0.20	0.40	0.1	0.30	0.0	0.0
ppm SO2	92.00	92.00	0.0	92.20	0.1	0.1

UNCORRECTED REFERENCE DATA

Date & Time	NOx PPM	% O2	% CO2	SO2 PPM
7/16/2014 15:40	97.13	6.83	12.38	48.50
7/16/2014 15:41	97.13	6.69	12.45	49.50
7/16/2014 15:42	97.25	6.88	12.33	47.50
7/16/2014 15:43	96.63	6.65	12.54	45.75
7/16/2014 15:44	96.63	6.61	12.57	45.25
7/16/2014 15:45	96.63	6.76	12.42	45.75
7/16/2014 15:46	96.13	6.85	12.34	45.00
7/16/2014 15:47	96.00	6.84	12.33	44.25
7/16/2014 15:48	94.00	6.83	12.32	43.25
7/16/2014 15:49	91.38	6.87	12.26	42.25
7/16/2014 15:50	90.25	6.76	12.38	44.75
7/16/2014 15:51	91.00	6.68	12.47	44.25
7/16/2014 15:52	91.38	6.71	12.41	44.25
7/16/2014 15:53	90.38	6.88	12.24	45.50
7/16/2014 15:54	91.38	7.03	12.14	45.00
7/16/2014 15:55	93.88	6.79	12.38	44.75
7/16/2014 15:56	94.38	6.79	12.33	41.75
7/16/2014 15:57	92.25	6.86	12.29	41.75
7/16/2014 15:58	94.13	6.68	12.46	43.00
7/16/2014 15:59	95.75	6.76	12.39	44.25
7/18/2014 16:00	94.63	6.87	12.28	45.75
AVERAGE	94.20	6.79	12.37	44.86

NOx ppmvd	93.95
SO2 ppmvd	44.68
NOx lb/mmBtu	0.162
SO2 lb/mmBtu	0.107
O2 %	6.79
CO2 %	12.45
NOx lb/dscf	1.122E-05
SO2 lb/dscf	7.429E-06
NOx LB/HR	498.4
SO2 LB/HR	330.0

F Factor 1800

**INDIANTOWN COGENERATION
PC OUTLET
ANALYZER CALIBRATION ERROR**

DATE TESTED: 7/16/2014
Run 6

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
250	ppm NOx	0.00	0.00	0.0	0.0	42CHL 72772-372
	ppm NOx	93.20	93.10	-0.1	0.0	
	ppm NOx	212.00	214.00	2.0	0.9	
10	% O2	0.00	0.00	0.0	0.0	1420/B153
	% O2	11.90	11.90	0.0	0.0	
	% O2	22.70	22.50	-0.2	-0.9	
20	% CO2	0.00	0.00	0.0	0.0	01410B139
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
250	ppm SO2	0.00	0.20	0.2	0.1	92721AT27881-1
	ppm SO2	92.10	92.00	-0.1	0.0	
	ppm SO2	213.00	214.00	1.0	0.5	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
ppm NOx	0.00	0.40	0.2	0.40	0.2	0.0
ppm NOx	93.10	93.50	0.2	93.60	0.2	0.0
% O2	0.00	0.00	0.0	0.00	0.0	0.0
% O2	11.90	11.90	0.0	11.90	0.0	0.0
% CO2	0.00	0.10	0.6	0.10	0.6	0.0
% CO2	8.40	8.40	0.0	8.40	0.0	0.0
ppm SO2	0.20	0.30	0.0	0.40	0.1	0.0
ppm SO2	92.00	92.20	0.1	92.40	0.2	0.1

UNCORRECTED REFERENCE DATA

Date & Time	NOx PPM	% O2	% CO2	SO2 PPM
7/16/2014 16:10	92.25	6.75	12.42	37.50
7/16/2014 16:11	92.25	7.02	12.18	37.50
7/16/2014 16:12	94.38	6.94	12.25	38.00
7/16/2014 16:13	94.25	6.83	12.38	40.50
7/16/2014 16:14	93.25	6.79	12.37	40.75
7/16/2014 16:15	94.00	6.92	12.27	40.50
7/16/2014 16:16	93.75	7.01	12.19	41.25
7/16/2014 16:17	93.50	6.91	12.28	37.75
7/16/2014 16:18	92.50	6.96	12.25	39.50
7/16/2014 16:19	93.00	6.92	12.29	38.25
7/16/2014 16:20	92.00	6.77	12.45	42.25
7/16/2014 16:21	91.75	6.69	12.51	41.35
7/16/2014 16:22	94.25	6.74	12.49	43.50
7/16/2014 16:23	94.38	6.84	12.34	44.50
7/16/2014 16:24	91.88	7.02	12.23	44.25
7/16/2014 16:25	91.63	6.73	12.50	43.75
7/16/2014 16:26	92.25	6.81	12.41	40.50
7/16/2014 16:27	91.50	6.83	12.40	40.75
7/16/2014 16:28	91.25	6.66	12.59	40.25
7/16/2014 16:29	93.13	6.71	12.48	41.75
7/16/2014 16:30	87.88	6.85	12.39	41.75
AVERAGE				
	92.62	6.84	12.36	40.77

NOx ppmvd	92.27
SO2 ppmvd	40.48
NOx lb/mm8tu	0.159
SO2 lb/mm8tu	0.097
O2 %	6.84
CO2 %	12.44
NOx lb/dscf	1.102E-05
SO2 lb/dscf	6.732E-06
NOx LB/HR	486.5
SO2 LB/HR	297.3

F Factor 1800

DATE TESTED: 7/16/2014
Run 7

INDIANTOWN COGENERATION
PC OUTLET
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFF PPM	% SPAN	ANALYZER SERIAL #
250	ppm NOx	0.00	0.00	0.0	0.0	42CHL 72772-372
	ppm NOx	93.20	93.10	-0.1	0.0	
	ppm NOx	212.00	214.00	2.0	0.9	
10	% O2	0.00	0.00	0.0	0.0	1420/B153
	% O2	11.90	11.90	0.0	0.0	
	% O2	22.70	22.50	-0.2	-0.9	
20	% CO2	0.00	0.00	0.0	0.0	01410B139
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
250	ppm SO2	0.00	0.20	0.2	0.1	92721AT27881-1
	ppm SO2	92.10	92.00	-0.1	0.0	
	ppm SO2	213.00	214.00	1.0	0.5	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
ppm NOx	0.00	0.40	0.2	0.40	0.2	0.0
ppm NOx	93.10	93.60	0.2	93.50	0.2	0.0
% O2	0.00	0.00	0.0	0.00	0.0	0.0
% O2	11.90	11.90	0.0	11.90	0.0	0.0
% CO2	0.00	0.10	0.6	0.10	0.6	0.0
% CO2	8.40	8.40	0.0	8.50	0.6	0.6
ppm SO2	0.20	0.40	0.1	0.40	0.1	0.0
ppm SO2	92.00	92.40	0.2	92.50	0.2	0.0

UNCORRECTED REFERENCE DATA

Date & Time	NOx PPM	% O2	% CO2	SO2 PPM
7/16/2014 16:40	85.00	6.93	12.34	39.25
7/16/2014 16:41	84.38	6.92	12.32	40.25
7/16/2014 16:42	85.38	7.07	12.20	39.00
7/16/2014 16:43	85.50	7.25	12.05	38.75
7/16/2014 16:44	87.88	6.99	12.20	38.25
7/16/2014 16:45	91.13	6.88	12.31	38.00
7/16/2014 16:46	89.88	6.96	12.27	39.75
7/16/2014 16:47	90.00	6.89	12.29	39.50
7/16/2014 16:48	90.50	6.94	12.28	41.50
7/16/2014 16:49	91.50	6.89	12.35	42.50
7/16/2014 16:50	91.63	6.88	12.33	42.52
7/16/2014 16:51	91.50	6.91	12.31	42.50
7/16/2014 16:52	92.13	7.01	12.20	43.75
7/16/2014 16:53	91.75	6.97	12.26	41.00
7/16/2014 16:54	91.50	6.81	12.38	42.50
7/16/2014 16:55	90.50	6.83	12.34	42.50
7/16/2014 16:56	90.63	7.00	12.20	43.75
7/16/2014 16:57	91.63	6.92	12.28	42.50
7/16/2014 16:58	91.75	6.97	12.24	42.25
7/16/2014 16:59	92.63	7.00	12.20	43.50
7/16/2014 17:00	92.50	6.96	12.23	44.75
AVERAGE	89.96	6.95	12.27	41.35

NOx ppmvd	89.61
SO2 ppmvd	40.97
NOx lb/mmBtu	0.157
SO2 lb/mmBtu	0.100
O2 %	6.95
CO2 %	12.27
NOx lb/dscf	1.070E-05
SO2 lb/dscf	6.812E-06
NOx LB/HR	487.7
SO2 LB/HR	310.5

F Factor 1800

DATE TESTED: 7/16/2014
Run 8

INDIANTOWN COGENERATION
PC OUTLET
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFF PPM	% SPAN	ANALYZER SERIAL #
250	ppm NOx	0.00	0.00	0.0	0.0	42CHL 72772-372
	ppm NOx	93.20	93.10	-0.1	0.0	
	ppm NOx	212.00	214.00	2.0	0.9	
10	% O2	0.00	0.00	0.0	0.0	1420/B153
	% O2	11.90	11.90	0.0	0.0	
	% O2	22.70	22.50	-0.2	-0.9	
20	% CO2	0.00	0.00	0.0	0.0	01410B139
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
250	ppm SO2	0.00	0.20	0.2	0.1	92721AT27881-1
	ppm SO2	92.10	92.00	-0.1	0.0	
	ppm SO2	213.00	214.00	1.0	0.5	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
ppm NOx	0.00	0.40	0.2	0.30	0.1	0.0
ppm NOx	93.10	93.50	0.2	93.40	0.1	0.0
% O2	0.00	0.00	0.0	0.00	0.0	0.0
% O2	11.90	11.90	0.0	11.90	0.0	0.0
% CO2	0.00	0.10	0.6	0.10	0.6	0.0
% CO2	8.40	8.50	0.6	8.50	0.6	0.0
ppm SO2	0.20	0.40	0.1	0.40	0.1	0.0
ppm SO2	92.00	92.50	0.2	92.40	0.2	0.0

UNCORRECTED REFERENCE DATA

Date & Time	NOx PPM	% O2	% CO2	SO2 PPM
7/16/2014 17:21	95.75	6.48	12.45	47.75
7/16/2014 17:22	93.00	6.99	11.96	49.75
7/16/2014 17:23	94.13	6.99	11.98	48.50
7/16/2014 17:24	95.63	6.89	12.08	48.75
7/16/2014 17:25	93.25	6.98	11.99	48.50
7/16/2014 17:26	93.13	6.88	12.08	47.00
7/16/2014 17:27	92.63	7.34	11.64	46.50
7/16/2014 17:28	93.00	7.41	11.63	45.25
7/16/2014 17:29	95.63	7.19	11.84	44.50
7/16/2014 17:30	93.13	6.74	12.19	45.00
7/16/2014 17:31	91.50	6.63	12.31	46.75
7/16/2014 17:32	92.00	6.76	12.13	46.75
7/16/2014 17:33	91.88	7.17	11.81	46.75
7/16/2014 17:34	92.88	6.92	12.05	46.25
7/16/2014 17:35	92.50	7.06	11.92	45.75
7/16/2014 17:36	92.63	6.98	12.01	44.50
7/16/2014 17:37	92.88	6.83	12.12	44.25
7/16/2014 17:38	91.88	6.95	12.04	43.25
7/16/2014 17:39	93.13	6.97	12.00	43.25
7/16/2014 17:40	92.63	6.81	12.14	43.25
7/16/2014 17:41	90.50	6.94	12.03	42.25
AVERAGE	93.03	6.95	12.02	45.93

NOx ppmvd	92.78
SO2 ppmvd	45.55
NOx lb/mmBtu	0.167
SO2 lb/mmBtu	0.114
O2 %	6.95
CO2 %	11.95
NOx lb/dscf	1.108E-05
SO2 lb/dscf	7.575E-06
NOx LB/HR	491.3
SO2 LB/HR	335.9

F Factor 1800

INDIANTOWN COGENERATION
PC OUTLET
ANALYZER CALIBRATION ERROR

DATE TESTED: 7/16/2014
Run 9

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFF PPM	% SPAN	ANALYZER SERIAL #
250	ppm NOx	0.00	0.00	0.0	0.0	42CHL 72772-372
	ppm NOx	93.20	93.10	-0.1	0.0	
	ppm NOx	212.00	214.00	2.0	0.9	
10	% O2	0.00	0.00	0.0	0.0	1420/B153
	% O2	11.90	11.90	0.0	0.0	
	% O2	22.70	22.50	-0.2	-0.9	
20	% CO2	0.00	0.00	0.0	0.0	01410B139
	% CO2	8.42	8.60	0.2	1.0	
	% CO2	17.10	17.30	0.2	1.2	
250	ppm SO2	0.00	0.20	0.2	0.1	92721AT27881-1
	ppm SO2	92.10	92.00	-0.1	0.0	
	ppm SO2	213.00	214.00	1.0	0.5	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
ppm NOx	0.00	0.30	0.1	0.40	0.2	0.0
ppm NOx	93.10	93.40	0.1	93.50	0.2	0.0
% O2	0.00	0.00	0.0	0.00	0.0	0.0
% O2	11.90	11.90	0.0	11.90	0.0	0.0
% CO2	0.00	0.10	0.6	0.10	0.6	0.0
% CO2	8.40	8.50	0.6	8.40	0.0	-0.6
ppm SO2	0.20	0.40	0.1	0.30	0.0	0.0
ppm SO2	92.00	92.40	0.2	92.40	0.2	0.0

UNCORRECTED REFERENCE DATA

Date & Time	NOx PPM	% O2	% CO2	SO2 PPM
7/16/2014 17:50	95.75	7.03	11.95	44.75
7/16/2014 17:51	94.50	7.04	11.94	44.50
7/16/2014 17:52	93.63	7.16	11.83	43.25
7/16/2014 17:53	94.50	6.94	12.01	44.00
7/16/2014 17:54	93.63	6.99	11.98	44.50
7/16/2014 17:55	91.75	6.89	12.07	43.25
7/16/2014 17:56	91.88	6.87	12.04	44.25
7/16/2014 17:57	93.13	6.99	11.98	44.25
7/16/2014 17:58	94.00	6.91	12.04	44.75
7/16/2014 17:59	94.00	6.97	11.97	45.00
7/16/2014 18:00	94.00	6.83	12.16	44.75
7/16/2014 18:01	95.63	6.37	12.51	44.00
7/16/2014 18:02	93.63	7.14	11.84	45.75
7/16/2014 18:03	92.13	7.31	11.68	43.50
7/16/2014 18:04	91.00	7.39	11.63	41.50
7/16/2014 18:05	91.75	7.16	11.80	40.75
7/16/2014 18:06	91.38	7.06	11.90	41.00
7/16/2014 18:07	90.88	7.01	11.84	40.75
7/16/2014 18:08	91.25	7.15	11.68	41.25
7/16/2014 18:09	91.88	7.09	11.88	41.25
7/16/2014 18:10	92.63	7.07	11.93	42.00
AVERAGE				
	92.99	7.02	11.93	43.29

NOx ppmvd	92.74
SO2 ppmvd	42.96
NOx lb/mmBtu	0.167
SO2 lb/mmBtu	0.108
O2 %	7.02
CO2 %	11.93
NOx lb/dscf	1.107E-05
SO2 lb/dscf	7.143E-06
NOx LB/HR	522.1
SO2 LB/HR	338.8

F Factor 1800

REFERENCE DATA

INLET A

SO2 PPM RELATIVE ACCURACY

PLANT: Indiantown Cogeneration
 UNIT: Inlet A
 LOAD: Mid
 DATE: 7/15/14

ANALYZER Teco 43C
 SERIAL #: 43C 64046-342

RUN	TIME START	TIME END	REFERENCE METHOD (SO2 PPM)	CEM RESPONSE (SO2 PPM)	ARITHMATIC DIFFERENCE	DIFFERENCE SQUARED
1	1205	1225	495.12	459.30	35.817	1282.859
2	1237	1257	475.88	458.86	17.024	289.809
3	1307	1327	508.69	490.02	18.671	348.619
4	1338	1358	500.66	481.21	19.447	378.177
5	1408	1428	508.28	463.68	44.599	1989.040
6	1438	1458	483.34	438.58	44.759	2003.410
7	1512	1532	462.54	441.98	20.561	422.765
8	1542	1602	463.54	447.83	15.710	246.790
9	1612	1632	499.52	456.01	43.512	1893.300
AVERAGE				AVERAGE	SUM OF DIFF.	SUM OF THE SQUARES
488.62				459.72	260.10	8854.77

**MEAN DIFFERENCE, d (Eq. A-7) 28.89999279
 **STANDARD DEVIATION, S_d (Eq. A-8) 12.93195779
 **CONFIDENCE COEFFICIENT, $|CC|$ (Eq. A-9) 9.940364884
 **PERCENT (%) RELATIVE ACCURACY, RA (Eq. A-10) 7.949

** 40 CFR 60

CO2 % RELATIVE ACCURACY

PLANT: Indiantown Cogeneration
 UNIT: Intel A
 LOAD: Mid
 DATE: 7/15/14

ANALYZER CAI
 SERIAL #. A9E3765T

RUN	TIME START	TIME END	REFERENCE METHOD (CO2 %)	CEM RESPONSE (CO2 %)	ARITHMATIC DIFFERENCE	DIFFERENCE SQUARED
1	1205	1225	10.371	10.64	-0.268508	0.072097
2	1237	1257	10.817	10.58	0.2370333	0.056185
3	1307	1327	11.021	11.05	-0.028121	0.000848
4	1338	1358	10.826	10.83	-0.003961	0.000016
5	1408	1428	11.070	10.52	0.5496588	0.302125
6	1438	1458	10.908	10.05	0.858351	0.736766
7	1512	1532	10.731	10.13	0.6007654	0.360919
8	1542	1602	10.819	10.23	0.5890208	0.346946
9	1612	1632	10.672	10.37	0.3023811	0.091434
			AVERAGE	AVERAGE	SUM OF DIFF.	SUM OF THE SQUARES
			10.8040	10.4889	2.8356199	1.967335

**MEAN DIFFERENCE, \bar{d} (Eq. A-7) 0.3151
 **STANDARD DEVIATION, S_d (Eq. A-8) 0.3664
 **CONFIDENCE COEFFICIENT, $|CC|$ (Eq. A-9) 0.2816

**PERCENT (%) RELATIVE ACCURACY, RA (Eq. A-10) 5.523

** 40 CFR 60

REFERENCE METHOD VALUES
 MOISTURE CORRECTION
 INDIANTOWN COGENERATION
 7/15/14

INLET A

RUN #	REFERENCE METHOD (ppm, dry)	MOISTURE (%)	MOISTURE CORRECTION (1-moisture/100)	REFERENCE METHOD (ppm, wet)
SO2 ppm				
1	544.76	9.11	0.909	495.12
2	523.60	9.11	0.909	475.88
3	559.69	9.11	0.909	508.69
4	546.27	8.35	0.917	500.66
5	554.58	8.35	0.917	508.28
6	527.37	8.35	0.917	483.34
7	502.17	7.89	0.921	462.54
8	503.25	7.89	0.921	463.54
9	542.31	7.89	0.921	499.52
CO2 %				
1	11.41	9.11	0.909	10.37
2	11.90	9.11	0.909	10.82
3	12.13	9.11	0.909	11.02
4	11.81	8.35	0.917	10.83
5	12.08	8.35	0.917	11.07
6	11.90	8.35	0.917	10.91
7	11.65	7.89	0.921	10.73
8	11.75	7.89	0.921	10.82
9	11.59	7.89	0.921	10.67

INDIANTOWN COGENERATION

DATE TESTED: 7/15/14

INLET A

Run 1

ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL#
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3048
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
1500	ppm SO2	0.00	2.00	2.0	0.2	92721AT27881-1
	ppm SO2	734.00	736.00	2.0	0.2	
	ppm SO2	1249.00	1245.00	-4.0	-0.3	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.40	0.0	8.40	0.0	0.0
ppm SO2	2.00	1.00	-0.1	1.10	-0.1	0.0
ppm SO2	736.00	736.00	0.0	730.00	-0.5	-0.5

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 12:05	11.66	550.00
7/15/2014 12:06	11.72	536.25
7/15/2014 12:07	11.76	555.00
7/15/2014 12:08	11.55	543.75
7/15/2014 12:09	11.68	558.75
7/15/2014 12:10	11.65	552.50
7/15/2014 12:11	11.78	566.25
7/15/2014 12:12	11.64	555.00
7/15/2014 12:13	11.60	555.00
7/15/2014 12:14	11.59	551.25
7/15/2014 12:15	11.52	550.00
7/15/2014 12:16	11.73	558.75
7/15/2014 12:17	8.59	525.00
7/15/2014 12:18	8.29	297.50
7/15/2014 12:19	11.63	528.75
7/15/2014 12:20	11.71	561.25
7/15/2014 12:21	11.66	568.75
7/15/2014 12:22	11.99	582.50
7/15/2014 12:23	11.95	581.25
7/15/2014 12:24	11.61	583.75
7/15/2014 12:25	11.78	568.75
AVERAGE	11.38	544.29

% CO2	11.41
SO2 PPM	544.76
LB/MMBTU SO2	1.426
F Factor	1800

SYSTEM AVERAGE	
	0.00
	8.40
	1.05
	733.00

DATE TESTED: 7/15/14
Run 2

INDIANTOWN COGENERATION
INLET A
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3048
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
1500	ppm SO2	0.00	2.00	2.0	0.2	92721AT27881-1
	ppm SO2	734.00	736.00	2.0	0.2	
	ppm SO2	1249.00	1245.00	-4.0	-0.3	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.40	0.0	8.40	0.0	0.0
ppm SO2	2.00	1.10	-0.1	1.20	-0.1	0.0
ppm SO2	736.00	730.00	-0.5	731.00	-0.4	0.1

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 12:37	12.04	525.00
7/15/2014 12:38	11.84	521.25
7/15/2014 12:39	11.94	510.00
7/15/2014 12:40	11.86	507.50
7/15/2014 12:41	11.86	508.75
7/15/2014 12:42	11.99	512.50
7/15/2014 12:43	11.86	528.75
7/15/2014 12:44	11.82	521.25
7/15/2014 12:45	11.91	543.75
7/15/2014 12:46	11.87	530.00
7/15/2014 12:47	11.83	537.50
7/15/2014 12:48	11.96	548.75
7/15/2014 12:49	11.89	507.50
7/15/2014 12:50	11.91	501.25
7/15/2014 12:51	12.01	511.25
7/15/2014 12:52	11.94	545.00
7/15/2014 12:53	11.09	560.00
7/15/2014 12:54	11.98	538.75
7/15/2014 12:55	11.96	497.50
7/15/2014 12:56	11.81	491.25
7/15/2014 12:57	11.97	502.50
AVERAGE	11.87	521.43

% CO2	11.90
SO2 PPM	523.60
LB/MMBTU SO2	1.315
F Factor	1800

SYSTEM AVERAGE
0
8.4
1.15
730.50

DATE TESTED: 7/15/14
Run 3

INDIANTOWN COGENERATION
INLET A
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3048
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
1500	ppm SO2	0.00	2.00	2.0	0.2	92721AT27881-1
	ppm SO2	734.00	736.00	2.0	0.2	
	ppm SO2	1249.00	1245.00	-4.0	-0.3	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.40	0.0	8.40	0.0	0.0
ppm SO2	2.00	1.20	-0.1	1.20	-0.1	0.0
ppm SO2	736.00	731.00	-0.4	733.00	-0.2	0.2

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 13:07	12.06	573.75
7/15/2014 13:08	11.93	560.00
7/15/2014 13:09	12.08	556.25
7/15/2014 13:10	12.09	543.75
7/15/2014 13:11	11.99	563.75
7/15/2014 13:12	12.17	568.75
7/15/2014 13:13	12.10	571.25
7/15/2014 13:14	12.09	567.50
7/15/2014 13:15	12.09	568.75
7/15/2014 13:16	12.26	540.00
7/15/2014 13:17	12.21	560.00
7/15/2014 13:18	11.94	551.25
7/15/2014 13:19	12.31	548.75
7/15/2014 13:20	12.14	557.50
7/15/2014 13:21	12.02	535.00
7/15/2014 13:22	12.24	548.75
7/15/2014 13:23	12.16	542.50
7/15/2014 13:24	12.15	556.25
7/15/2014 13:25	12.03	567.50
7/15/2014 13:26	11.98	571.25
7/15/2014 13:27	11.99	575.00
AVERAGE	12.10	558.45

% CO2	12.13
SO2 PPM	559.69
LB/MMBTU SO2	1.379
F Factor	1800

SYSTEM AVERAGE
0
8.4
1.2
732

DATE TESTED: 7/15/14
Run 4

INDIANTOWN COGENERATION
INLET A
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 304B
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
1500	ppm SO2	0.00	2.00	2.0	0.2	92721AT27881-1
	ppm SO2	734.00	736.00	2.0	0.2	
	ppm SO2	1249.00	1245.00	-4.0	-0.3	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.40	0.0	8.40	0.0	0.0
ppm SO2	2.00	1.20	-0.1	1.00	-0.1	0.0
ppm SO2	736.00	733.00	-0.2	735.00	-0.1	0.2

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 13:38	12.00	553.75
7/15/2014 13:39	12.03	545.00
7/15/2014 13:40	10.08	532.50
7/15/2014 13:41	10.35	522.50
7/15/2014 13:42	11.01	517.50
7/15/2014 13:43	12.20	520.00
7/15/2014 13:44	12.08	550.00
7/15/2014 13:45	12.14	545.00
7/15/2014 13:46	11.98	557.50
7/15/2014 13:47	11.96	542.50
7/15/2014 13:48	11.98	550.00
7/15/2014 13:49	12.19	540.00
7/15/2014 13:50	12.01	555.50
7/15/2014 13:51	11.95	565.00
7/15/2014 13:52	11.87	570.00
7/15/2014 13:53	11.84	555.25
7/15/2014 13:54	11.91	555.50
7/15/2014 13:55	11.84	548.75
7/15/2014 13:56	12.10	548.75
7/15/2014 13:57	11.94	560.00
7/15/2014 13:58	12.01	542.50
AVERAGE	11.78	546.55

% CO2	11.81
SO2 PPM	546.27
LB/MMBTU SO2	1.382
F Factor	1800

SYSTEM AVERAGE
0
8.4
1.1
734

**INDIANTOWN COGENERATION
INLET A**

DATE TESTED: 7/15/14

Run 5

ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3048
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
1500	ppm SO2	0.00	2.00	2.0	0.2	92721AT27881-1
	ppm SO2	734.00	736.00	2.0	0.2	
	ppm SO2	1249.00	1245.00	-4.0	-0.3	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.40	0.0	8.50	0.6	0.6
ppm SO2	2.00	1.00	-0.1	1.80	0.0	0.1
ppm SO2	736.00	735.00	-0.1	728.00	-0.6	-0.6

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 14:08	12.08	546.25
7/15/2014 14:09	12.12	547.50
7/15/2014 14:10	11.96	547.50
7/15/2014 14:11	12.22	557.50
7/15/2014 14:12	12.14	572.50
7/15/2014 14:13	12.23	573.75
7/15/2014 14:14	12.15	575.00
7/15/2014 14:15	12.23	573.75
7/15/2014 14:16	12.12	557.50
7/15/2014 14:17	11.98	548.75
7/15/2014 14:18	12.07	543.75
7/15/2014 14:19	12.04	555.00
7/15/2014 14:20	12.23	558.75
7/15/2014 14:21	12.03	556.25
7/15/2014 14:22	12.15	556.25
7/15/2014 14:23	12.08	565.00
7/15/2014 14:24	12.18	543.75
7/15/2014 14:25	12.08	537.50
7/15/2014 14:26	12.33	535.00
7/15/2014 14:27	11.94	531.25
7/15/2014 14:28	12.22	531.25
AVERAGE	12.12	553.04

% CO2	12.08
SO2 PPM	554.58
LB/MMBTU SO2	1.372
F Factor	1800

SYSTEM AVERAGE

0
8.45
1.4
731.5

**INDIANTOWN COGENERATION
INLET A
ANALYZER CALIBRATION ERROR**

DATE TESTED: 7/15/14
Run 6

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3048
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
1500	ppm SO2	0.00	2.00	2.0	0.2	92721AT27881-1
	ppm SO2	734.00	736.00	2.0	0.2	
	ppm SO2	1249.00	1245.00	-1.0	-0.3	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.50	0.6	8.50	0.8	0.0
ppm SO2	2.00	1.80	0.0	1.90	0.0	0.0
ppm SO2	736.00	728.00	-0.6	729.00	-0.6	0.1

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 14:38	12.16	520.50
7/15/2014 14:39	11.98	525.00
7/15/2014 14:40	12.11	513.75
7/15/2014 14:41	11.89	513.75
7/15/2014 14:42	12.01	512.50
7/15/2014 14:43	12.09	518.75
7/15/2014 14:44	11.97	528.50
7/15/2014 14:45	12.04	528.75
7/15/2014 14:46	12.03	542.50
7/15/2014 14:47	12.03	517.50
7/15/2014 14:48	11.93	517.50
7/15/2014 14:49	12.16	527.50
7/15/2014 14:50	12.09	526.25
7/15/2014 14:51	11.98	522.50
7/15/2014 14:52	11.95	522.50
7/15/2014 14:53	12.03	537.50
7/15/2014 14:54	12.08	528.75
7/15/2014 14:55	11.97	531.25
7/15/2014 14:56	12.02	520.00
7/15/2014 14:57	11.93	523.75
7/15/2014 14:58	11.88	523.75
AVERAGE	12.02	523.94

% CO2	11.90
SO2 PPM	527.37
LB/MMBTU SO2	1.324
F Factor	1800

SYSTEM AVERAGE
0
8.5
1.85
728.5

DATE TESTED. 7/15/14
Run 7

INDIANTOWN COGENERATION
INLET A
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3048
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
1500	ppm SO2	0.00	2.00	2.0	0.2	92721AT27881-1
	ppm SO2	734.00	736.00	2.0	0.2	
	ppm SO2	1249.00	1245.00	-4.0	-0.3	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.50	0.6	8.50	0.6	0.0
ppm SO2	2.00	1.90	0.0	2.00	0.0	0.0
ppm SO2	736.00	729.00	-0.6	730.00	-0.5	0.1

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 15:12	11.71	516.25
7/15/2014 15:13	12.20	516.25
7/15/2014 15:14	11.92	513.75
7/15/2014 15:15	9.52	482.50
7/15/2014 15:16	10.31	432.50
7/15/2014 15:17	11.69	486.25
7/15/2014 15:18	12.06	505.00
7/15/2014 15:19	11.97	505.00
7/15/2014 15:20	11.92	503.75
7/15/2014 15:21	11.78	508.75
7/15/2014 15:22	12.08	503.75
7/15/2014 15:23	12.00	506.25
7/15/2014 15:24	11.95	500.00
7/15/2014 15:25	11.83	498.75
7/15/2014 15:26	11.89	500.00
7/15/2014 15:27	11.93	495.00
7/15/2014 15:28	11.85	498.75
7/15/2014 15:29	12.19	503.75
7/15/2014 15:30	12.14	511.25
7/15/2014 15:31	12.14	503.75
7/15/2014 15:32	11.91	502.50
AVERAGE	11.76	499.70

% CO2	11.65
SO2 PPM	502.17
LB/MMBTU SO2	1.288
F Factor	1800

SYSTEM AVERAGE
0
8.5
1.95
729.5

DATE TESTED: 7/15/14
Run 8

INDIANTOWN COGENERATION
INLET A
ANALYZER CALIBRATION ERROR

RANGE SETTING	CAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFF PPM	% SPAN	ANALYZER SERIAL #
20	% CO2	0.00	0.00	0.0	0.0	PO 3048
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
1500	ppm SO2	0.00	2.00	2.0	0.2	92721AT27881-1
	ppm SO2	734.00	736.00	2.0	0.2	
	ppm SO2	1249.00	1245.00	-4.0	-0.3	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.50	0.6	8.50	0.6	0.0
ppm SO2	2.00	2.00	0.0	2.00	0.0	0.0
ppm SO2	736.00	730.00	-0.5	731.00	-0.4	0.1

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 15:42	11.89	527.50
7/15/2014 15:43	11.83	523.75
7/15/2014 15:44	11.76	513.75
7/15/2014 15:45	11.85	538.75
7/15/2014 15:46	11.84	532.50
7/15/2014 15:47	11.78	533.75
7/15/2014 15:48	11.91	535.50
7/15/2014 15:49	11.93	492.50
7/15/2014 15:50	11.90	486.25
7/15/2014 15:51	11.69	480.00
7/15/2014 15:52	11.93	487.50
7/15/2014 15:53	11.98	492.52
7/15/2014 15:54	12.00	488.75
7/15/2014 15:55	11.93	495.00
7/15/2014 15:56	11.89	491.25
7/15/2014 15:57	11.89	495.50
7/15/2014 15:58	11.79	483.75
7/15/2014 15:59	11.86	487.52
7/15/2014 16:00	11.81	483.75
7/15/2014 16:01	11.73	482.50
7/15/2014 16:02	11.84	478.75
AVERAGE	11.86	501.48

% CO2	11.75
SO2 PPM	503.25
LB/MMBTU SO2	1.280
F Factor	1800

SYSTEM AVERAGE

0
8.5
2
730.5

**INDIANTOWN COGENERATION
INLET A
ANALYZER CALIBRATION ERROR**

DATE TESTED: 7/15/14
Run 9

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3048
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.30	0.2	1.2	
1500	ppm SO2	0.00	2.00	2.0	0.2	92721AT27881-1
	ppm SO2	734.00	736.00	2.0	0.2	
	ppm SO2	1249.00	1245.00	-4.0	-0.3	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.50	0.6	8.50	0.6	0.0
ppm SO2	2.00	2.00	0.0	2.00	0.0	0.0
ppm SO2	736.00	731.00	-0.4	729.00	-0.6	-0.2

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 16:12	11.84	536.25
7/15/2014 16:13	11.62	532.50
7/15/2014 16:14	11.79	536.25
7/15/2014 16:15	11.73	528.75
7/15/2014 16:16	11.73	532.50
7/15/2014 16:17	11.81	537.50
7/15/2014 16:18	11.81	537.50
7/15/2014 16:19	11.66	540.00
7/15/2014 16:20	11.56	548.75
7/15/2014 16:21	11.64	548.75
7/15/2014 16:22	11.59	531.25
7/15/2014 16:23	11.71	540.00
7/15/2014 16:24	11.58	547.50
7/15/2014 16:25	11.73	538.75
7/15/2014 16:26	11.66	543.75
7/15/2014 16:27	11.61	540.00
7/15/2014 16:28	11.64	541.25
7/15/2014 16:29	11.64	538.75
7/15/2014 16:30	11.94	546.25
7/15/2014 16:31	11.68	547.50
7/15/2014 16:32	11.65	543.75
AVERAGE	11.70	539.88

% CO2	11.59
SO2 PPM	542.31
LB/MMBTU SO2	1.399
F Factor	1800

SYSTEM AVERAGE
0
8.5
2
730

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet A Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 1
 Yi: 0.9870 ^H@: 1.615 Impinger Set: E
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE ^H	METER TEMP (F)		VAC. (IN.HG)	IMPINGER TEMP.
			944.697		89	89		
1	1205	10		1.8	89	89	3.0	59
2	1225	20		1.8	91	91	3.0	61
3	1235	30	966.079	1.8	93	93	3.0	65
			21.382	1.8	91.0	91.0		
						91.0		

H2O COLLECTED (g) = 43.1 VOL WATER COLLECTED (SCF) = 2.03
 GAS SAMPLED (DSCF) = 20.269 MOISTURE IN STACK GAS (% VOL) = 9.11
 INTIAL LEAK CHECK = 0.00 @ 7.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0 "

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet A Oate: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 2
 Yi: 0.9870 ^H@: 1.615 Impinger Set: E
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE ^H	METER TEMP (F)		VAC. (IN.HG)	IMPINGER TEMP.
			944.697		89	89		
1	1237	10		1.8	89	89	3.0	59
2	1257	20		1.8	91	91	3.0	61
3	1307	30	966.079	1.8	93	93	3.0	65
			21.382	1.8	91	91.0		
						91.0		

H2O COLLECTED (g) = 43.1 VOL WATER COLLECTED (SCF) = 2.03
 GAS SAMPLED (DSCF) = 20.269 MOISTURE IN STACK GAS (% VOL) = 9.11
 INTIAL LEAK CHECK = 0.00 @ 7.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0 "

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet A Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 3
 Yi: 0.9870 ^H@: 1.615 Impinger Set: E
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	TIME	VOLUME	ORIFICE ^H	METER TEMP (F)		VAC. (IN.HG)	IMPINGER TEMP.
			944.697		89	89		
1	1307	10		1.8	89	89	3.0	59
2	1327	20		1.8	91	91	3.0	61
3	1337	30	966.079	1.8	93	93	3.0	65
			21.382	1.8	91.0	91.0		
						91.0		

H2O COLLECTED (g) = 43.1 VOL WATER COLLECTED (SCF) = 2.03
 GAS SAMPLED (DSCF) = 20.269 MOISTURE IN STACK GAS (% VOL) = 9.11
 INTIAL LEAK CHECK = 0.00 @ 8.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0 "

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet A Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 4
 Yi: 0.9870 ^H@: 1.615 Impinger Set: E
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE ^H	METER		VAC. (IN.HG)	IMPINGER TEMP.
			987.385		TEMP (F)			
1	1338	10		1.8	92	92	3.0	59
2	1358	20		1.8	91	91	3.0	60
3	1408	30	1008.145	1.8	91	91	3.0	61
			20.76	1.8	91.333	91.3		
						91.3		

H2O COLLECTED (g) = 38.0 VOL WATER COLLECTED (SCF) = 1.79
 GAS SAMPLED (DSCF) = 19.668 MOISTURE IN STACK GAS (% VOL) = 8.35
 INTIAL LEAK CHECK = 0.00 @ 10.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0"

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet A Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 5
 Yi: 0.9870 ^H@: 1.615 Impinger Set: E
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE ^H	METER		VAC. (IN.HG)	IMPINGER TEMP.
			987.385		TEMP (F)			
1	1408	10		1.8	92	92	3.0	59
2	1428	20		1.8	91	91	3.0	60
3	1438	30	1008.145	1.8	91	91	3.0	61
			20.760	1.8	91.3	91.3		
						91.3		

H2O COLLECTED (g) = 38.0 VOL WATER COLLECTED (SCF) = 1.79
 GAS SAMPLED (DSCF) = 19.668 MOISTURE IN STACK GAS (% VOL) = 8.35
 INTIAL LEAK CHECK = 0.00 @ 10.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0"

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet A Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 6
 Yi: 0.9870 ^H@: 1.615 Impinger Set: E
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE ^H	METER		VAC. (IN.HG)	IMPINGER TEMP.
			987.385		TEMP (F)			
1	1438	10		1.8	92	92	3.0	59
2	1458	20		1.8	91	91	3.0	60
3	1508	30	1008.145	1.8	91	91	3.0	61
			20.760	1.8	91.333	91.3		
						91.3		

H2O COLLECTED (g) = 38.0 VOL WATER COLLECTED (SCF) = 1.79
 GAS SAMPLED (DSCF) = 19.668 MOISTURE IN STACK GAS (% VOL) = 8.35
 INTIAL LEAK CHECK = 0.00 @ 8.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0"

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet A Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 7
 Yi: 0.9870 ^H@: 1.615 Impinger Set: E
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE ^H	METER		VAC. (IN.HG)	IMPINGER TEMP
			28.484		TEMP (F)			
1	1512	10		1.8	90	90	3.0	59
2	1532	20		1.8	91	91	3.0	62
3	1542	30	52.623	1.8	91	91	3.0	63
			24.139	1.8	90.7	90.7		
						90.7		

H2O COLLECTED (g) = 41.6 VOL WATER COLLECTED (SCF) = 1.96
 GAS SAMPLED (DSCF) = 22.896 MOISTURE IN STACK GAS (% VOL) = 7.89
 INITIAL LEAK CHECK = 0.00 @ 8.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0"

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet A Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 8
 Yi: 0.9870 ^H@: 1.615 Impinger Set: E
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE ^H	METER		VAC. (IN.HG)	IMPINGER TEMP.
			28.484		TEMP (F)			
1	1542	10		1.8	90	90	3.0	59
2	1602	20		1.8	91	91	3.0	62
3	1612	30	52.623	1.8	91	91	3.0	63
			24.139	1.8	90.7	90.7		
						90.7		

H2O COLLECTED (g) = 41.6 VOL WATER COLLECTED (SCF) = 1.96
 GAS SAMPLED (DSCF) = 22.896 MOISTURE IN STACK GAS (% VOL) = 7.89
 INITIAL LEAK CHECK = 0.00 @ 8.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0"

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet A Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 9
 Yi: 0.9870 ^H@: 1.615 Impinger Set: E
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE ^H	METER		VAC. (IN.HG)	IMPINGER TEMP
			28.484		TEMP (F)			
1	1612	10		1.8	90	90	3.0	59
2	1632	20		1.8	91	91	3.0	62
3	1642	30	52.623	1.8	91	91	3.0	63
			24.139	1.8	90.7	90.7		
						90.7		

H2O COLLECTED (g) = 41.6 VOL WATER COLLECTED (SCF) = 1.96
 GAS SAMPLED (DSCF) = 22.896 MOISTURE IN STACK GAS (% VOL) = 7.89
 INITIAL LEAK CHECK = 0.00 @ 9.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0"

REFERENCE DATA

INLET B

SO2 PPM RELATIVE ACCURACY

Indiantown Cogeneration
 Inlet B
 Mid
 7/15/14

ANALYZER Teco 43C
 SERIAL #: 43C 64047-342

TIME START	TIME END	REFERENCE METHOD (SO2 PPM)	CEM RESPONSE (SO2 PPM)	ARITHMETIC DIFFERENCE	DIFFERENCE SQUARED
1205	1225	443.75	447.47	-3.718	13.826
1237	1257	472.74	470.19	2.547	6.489
1307	1327	477.37	487.75	-10.375	107.647
1338	1358	468.50	495.08	-26.576	706.303
1408	1428	453.10	494.42	-41.316	1706.971
1438	1458	439.05	478.27	-39.222	1538.355
1512	1532	464.35	480.49	-16.140	260.492
1542	1602	451.13	483.72	-32.588	1061.960
1612	1632	438.78	479.24	-40.457	1636.761
		AVERAGE	AVERAGE	SUM OF DIFF.	SUM OF THE SQUARES
		456.53	479.63	-207.84	7038.80

REFERENCE, d (Eq. A-7)

-23.09384093

RD DEVIATION, S_d (Eq. A-8)

16.72899787

BIAS COEFFICIENT, $|CC|$ (Eq. A-9)

12.85902303

RELATIVE ACCURACY, RA (Eq. A-10)

7.875

CO2 % RELATIVE ACCURACY

PLANT: Indiantown Cogeneration
 UNIT: Inlet B
 LOAD: Mid
 DATE: 7/15/14

ANALYZER CAI
 SERIAL #: A9E3767T

RUN	TIME START	TIME END	REFERENCE METHOD (CO2 %)	CEM RESPONSE (CO2 %)	ARITHMATIC DIFFERENCE	DIFFERENCE SQUARED
1	1205	1225	9.372	9.94	-0.567936	0.322552
2	1237	1257	9.770	10.38	-0.610024	0.372129
3	1307	1327	10.137	10.69	-0.553281	0.306120
4	1338	1358	10.266	10.78	-0.514079	0.264277
5	1408	1428	10.597	10.77	-0.172558	0.029776
6	1438	1458	9.670	10.48	-0.809589	0.655434
7	1512	1532	10.096	10.54	-0.443868	0.197018
8	1542	1602	9.682	10.59	-0.908471	0.825319
9	1612	1632	10.327	10.52	-0.192868	0.037198
AVERAGE				AVERAGE	SUM OF DIFF	SUM OF THE SQUARES
9.9908				10.5211	-4.772673	3.009823

**MEAN DIFFERENCE, \bar{d} (Eq. A-7) -0.5303
 **STANDARD DEVIATION, S_d (Eq. A-8) 0.2447
 **CONFIDENCE COEFFICIENT, $|CC|$ (Eq. A-9) 0.1881

**PERCENT (%) RELATIVE ACCURACY, RA (Eq. A-10) 7.190

** 40 CFR 60

REFERENCE METHOD VALUES
MOISTURE CORRECTION
INDIANTOWN COGENERATION

7/15/14

INLET B

RUN #	REFERENCE METHOD (ppm, dry)	MOISTURE (%)	MOISTURE CORRECTION (1-moisture/100)	REFERENCE METHOD (ppm, wet)
SO2 ppm				
1	490.92	9.61	0.904	443.75
2	522.99	9.61	0.904	472.74
3	528.12	9.61	0.904	477.37
4	504.11	7.06	0.929	468.50
5	487.55	7.06	0.929	453.10
6	472.42	7.06	0.929	439.05
7	505.63	8.16	0.918	464.35
8	491.24	8.16	0.918	451.13
9	477.79	8.16	0.918	438.78
CO2 %				
1	10.37	9.61	0.904	9.37
2	10.81	9.61	0.904	9.77
3	11.21	9.61	0.904	10.14
4	11.05	7.06	0.929	10.27
5	11.40	7.06	0.929	10.60
6	10.41	7.06	0.929	9.67
7	10.99	8.16	0.918	10.10
8	10.54	8.16	0.918	9.68
9	11.25	8.16	0.918	10.33

INDIANTOWN COGENERATION

INLET B

DATE TESTED 7/15/14

Run 1

ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3049
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.20	0.1	0.6	
1500	ppm SO2	0.00	1.00	1.0	0.1	92721AT27881-2
	ppm SO2	734.00	731.00	-3.0	-0.2	
	ppm SO2	1249.00	1247.00	-2.0	-0.2	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.40	0.0	8.50	0.6	0.6
ppm SO2	1.00	2.00	0.1	1.80	0.1	0.0
ppm SO2	731.00	738.00	0.6	736.00	0.4	-0.2

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 12:05	10.25	501.00
7/15/2014 12:06	10.36	500.00
7/15/2014 12:07	10.76	487.00
7/15/2014 12:08	10.57	495.50
7/15/2014 12:09	10.46	491.75
7/15/2014 12:10	10.43	489.50
7/15/2014 12:11	10.33	498.00
7/15/2014 12:12	10.23	481.50
7/15/2014 12:13	10.39	479.00
7/15/2014 12:14	10.35	486.00
7/15/2014 12:15	10.45	483.75
7/15/2014 12:16	10.68	487.25
7/15/2014 12:17	10.45	493.75
7/15/2014 12:18	10.35	484.25
7/15/2014 12:19	10.26	490.75
7/15/2014 12:20	10.36	495.50
7/15/2014 12:21	10.37	492.75
7/15/2014 12:22	10.38	506.75
7/15/2014 12:23	10.43	507.25
7/15/2014 12:24	10.25	511.75
7/15/2014 12:25	10.44	501.75
AVERAGE	10.41	493.56

% CO2	10.37
SO2 PPM	490.92
LB/MMBTU SO2	1.415
F Factor	1800

DATE TESTED: 7/15/14
Run 2

INDIANTOWN COGENERATION
INLET B
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFF PPM	% SPAN	ANALYZER SERIAL #
20	% CO2	0.00	0.00	0.0	0.0	PO 3049
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.20	0.1	0.6	
1500	ppm SO2	0.00	1.00	1.0	0.1	92721AT27881-2
	ppm SO2	734.00	731.00	-3.0	-0.2	
	ppm SO2	1249.00	1247.00	-2.0	-0.2	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.10	0.6	0.6
% CO2	8.40	8.50	0.6	8.60	1.2	0.6
ppm SO2	1.00	1.80	0.1	1.20	0.0	0.0
ppm SO2	731.00	736.00	0.4	738.00	0.6	0.2

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 12:37	10.79	415.75
7/15/2014 12:38	10.58	486.00
7/15/2014 12:39	10.67	663.50
7/15/2014 12:40	10.83	649.25
7/15/2014 12:41	10.79	628.00
7/15/2014 12:42	10.94	585.25
7/15/2014 12:43	10.94	532.75
7/15/2014 12:44	10.84	523.00
7/15/2014 12:45	10.92	521.75
7/15/2014 12:46	10.82	520.25
7/15/2014 12:47	10.87	514.50
7/15/2014 12:48	10.95	513.50
7/15/2014 12:49	10.99	516.75
7/15/2014 12:50	10.99	516.00
7/15/2014 12:51	10.88	523.00
7/15/2014 12:52	10.94	462.00
7/15/2014 12:53	10.93	422.50
7/15/2014 12:54	11.36	496.25
7/15/2014 12:55	11.29	515.00
7/15/2014 12:56	11.40	516.50
7/15/2014 12:57	11.49	515.25
AVERAGE	10.96	525.56

% CO2	10.81
SO2 PPM	522.99
LB/MMBTU SO2	1.446
F Factor	1800

DATE TESTED: 7/15/14
Run 3

INDIANTOWN COGENERATION
INLET B
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3049
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.20	0.1	0.6	
1500	ppm SO2	0.00	1.00	1.0	0.1	92721AT27881-2
	ppm SO2	734.00	731.00	-3.0	-0.2	
	ppm SO2	1249.00	1247.00	-2.0	-0.2	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.10	0.6	0.10	0.6	0.0
% CO2	8.40	8.60	1.2	8.60	1.2	0.0
ppm SO2	1.00	1.20	0.0	1.40	0.0	0.0
ppm SO2	731.00	738.00	0.6	740.00	0.7	0.2

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 13:07	11.49	522.25
7/15/2014 13:08	11.68	522.25
7/15/2014 13:09	11.72	547.25
7/15/2014 13:10	11.66	559.75
7/15/2014 13:11	11.37	548.00
7/15/2014 13:12	11.36	540.50
7/15/2014 13:13	11.06	545.25
7/15/2014 13:14	11.19	541.00
7/15/2014 13:15	11.46	542.50
7/15/2014 13:16	11.34	541.00
7/15/2014 13:17	11.56	544.75
7/15/2014 13:18	11.48	534.25
7/15/2014 13:19	11.51	544.00
7/15/2014 13:20	11.24	539.50
7/15/2014 13:21	11.33	549.75
7/15/2014 13:22	11.49	547.25
7/15/2014 13:23	11.32	534.75
7/15/2014 13:24	11.38	358.25
7/15/2014 13:25	11.37	530.50
7/15/2014 13:26	11.43	549.75
7/15/2014 13:27	11.40	531.25
AVERAGE	11.42	532.08

% CO2	11.21
SO2 PPM	528.12
LB/MMBTU SO2	1.407
F Factor	1800

DATE TESTED: 7/15/14
Run 4

INDIANTOWN COGENERATION
INLET B
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFF PPM	% SPAN	ANALYZER SERIAL #
20	% CO2	0.00	0.00	0.0	0.0	PO 3049
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.20	0.1	0.6	
1500	ppm SO2	0.00	1.00	1.0	0.1	92721AT27881-2
	ppm SO2	734.00	731.00	-3.0	-0.2	
	ppm SO2	1249.00	1247.00	-2.0	-0.2	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.10	0.6	0.20	1.2	0.6
% CO2	8.40	8.60	1.2	8.70	1.7	0.6
ppm SO2	1.00	1.40	0.0	1.30	0.0	0.0
ppm SO2	731.00	740.00	0.7	742.00	0.9	0.2

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 13:38	11.45	499.50
7/15/2014 13:38	11.23	486.25
7/15/2014 13:40	11.29	481.50
7/15/2014 13:41	11.34	494.00
7/15/2014 13:42	10.97	492.00
7/15/2014 13:43	11.15	489.75
7/15/2014 13:44	11.24	492.75
7/15/2014 13:45	11.31	496.75
7/15/2014 13:46	11.30	499.25
7/15/2014 13:47	11.49	496.25
7/15/2014 13:48	11.35	498.50
7/15/2014 13:49	11.26	494.50
7/15/2014 13:50	11.45	513.75
7/15/2014 13:51	11.34	510.75
7/15/2014 13:52	11.17	522.75
7/15/2014 13:53	11.29	523.25
7/15/2014 13:54	11.33	555.50
7/15/2014 13:55	11.40	530.75
7/15/2014 13:56	11.31	526.00
7/15/2014 13:57	11.43	539.00
7/15/2014 13:58	11.23	553.50
AVERAGE	11.30	509.35

% CO2	11.05
SO2 PPM	504.11
LB/MMBTU SO2	1.364
F Factor	1800

DATE TESTED: 7/15/14
Run 5

INDIANTOWN COGENERATION
INLET B
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3049
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.20	0.1	0.6	
1500	ppm SO2	0.00	1.00	1.0	0.1	92721AT27881-2
	ppm SO2	734.00	731.00	-3.0	-0.2	
	ppm SO2	1249.00	1247.00	-2.0	-0.2	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.20	1.2	0.00	0.0	-1.2
% CO2	8.40	8.70	1.7	8.70	1.7	0.0
ppm SO2	1.00	1.30	0.0	2.00	0.1	0.1
ppm SO2	731.00	742.00	0.9	739.00	0.6	-0.2

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 14:08	11.79	486.00
7/15/2014 14:09	11.70	487.50
7/15/2014 14:10	11.79	490.00
7/15/2014 14:11	11.88	491.25
7/15/2014 14:12	11.83	498.75
7/15/2014 14:13	11.84	494.75
7/15/2014 14:14	11.83	498.75
7/15/2014 14:15	11.88	498.25
7/15/2014 14:16	11.75	498.50
7/15/2014 14:17	11.61	488.25
7/15/2014 14:18	11.66	491.25
7/15/2014 14:19	11.87	487.75
7/15/2014 14:20	11.68	488.25
7/15/2014 14:21	11.70	491.75
7/15/2014 14:22	11.71	489.75
7/15/2014 14:23	11.69	490.00
7/15/2014 14:24	11.73	486.25
7/15/2014 14:25	11.80	490.50
7/15/2014 14:26	11.99	493.00
7/15/2014 14:27	11.63	498.75
7/15/2014 14:28	11.53	501.50
AVERAGE	11.75	492.42

% CO2	11.40
SO2 PPM	487.55
LB/MMBTU SO2	1.278
F Factor	1800

DATE TESTED: 7/15/14
Run 6

INDIANTOWN COGENERATION
INLET B
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFF PPM	% SPAN	ANALYZER SERIAL #
20	% CO2	0.00	0.00	0.0	0.0	PO 3049
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.20	0.1	0.6	
1500	ppm SO2	0.00	1.00	1.0	0.1	92721AT27881-2
	ppm SO2	734.00	731.00	-3.0	-0.2	
	ppm SO2	1249.00	1247.00	-2.0	-0.2	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.70	1.7	8.70	1.7	0.0
ppm SO2	1.00	2.00	0.1	2.10	0.1	0.0
ppm SO2	731.00	739.00	0.6	739.00	0.6	0.0

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 14:38	10.93	480.50
7/15/2014 14:39	10.81	483.75
7/15/2014 14:40	10.81	482.00
7/15/2014 14:41	10.92	486.50
7/15/2014 14:42	10.83	485.75
7/15/2014 14:43	10.79	482.00
7/15/2014 14:44	10.78	484.00
7/15/2014 14:45	10.78	482.75
7/15/2014 14:46	10.75	478.50
7/15/2014 14:47	10.48	468.75
7/15/2014 14:48	10.57	467.50
7/15/2014 14:49	10.70	470.25
7/15/2014 14:50	10.72	473.75
7/15/2014 14:51	10.71	473.75
7/15/2014 14:52	10.61	467.50
7/15/2014 14:53	10.87	472.50
7/15/2014 14:54	10.67	470.75
7/15/2014 14:55	10.87	476.50
7/15/2014 14:56	10.69	472.50
7/15/2014 14:57	10.77	472.50
7/15/2014 14:58	10.73	471.75
AVERAGE	10.75	476.37

% CO2	10.41
SO2 PPM	472.42
LB/MMBTU SO2	1.357
F Factor	1800

DATE TESTED: 7/15/14
Run 7

INDIANTOWN COGENERATION
INLET B
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3049
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.20	0.1	0.6	
1500	ppm SO2	0.00	1.00	1.0	0.1	92721AT27881-2
	ppm SO2	734.00	731.00	-3.0	-0.2	
	ppm SO2	1249.00	1247.00	-2.0	-0.2	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.10	0.6	0.6
% CO2	8.40	8.70	1.7	8.80	2.3	0.6
ppm SO2	1.00	2.10	0.1	2.10	0.1	0.0
ppm SO2	731.00	739.00	0.6	740.00	0.7	0.1

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 15:12	11.51	502.50
7/15/2014 15:13	11.54	500.50
7/15/2014 15:14	11.29	501.75
7/15/2014 15:15	11.04	502.50
7/15/2014 15:16	11.45	507.50
7/15/2014 15:17	11.46	500.75
7/15/2014 15:18	11.56	509.75
7/15/2014 15:19	11.41	502.25
7/15/2014 15:20	11.48	512.75
7/15/2014 15:21	11.45	511.75
7/15/2014 15:22	11.53	523.25
7/15/2014 15:23	11.44	522.25
7/15/2014 15:24	11.58	522.00
7/15/2014 15:25	11.54	503.25
7/15/2014 15:26	11.56	512.25
7/15/2014 15:27	11.44	524.25
7/15/2014 15:28	11.57	515.50
7/15/2014 15:29	11.35	539.00
7/15/2014 15:30	11.40	508.25
7/15/2014 15:31	10.98	495.00
7/15/2014 15:32	11.02	494.50
AVERAGE	11.41	510.07

% CO2	10.99
SO2 PPM	505.63
LB/MMBTU SO2	1.374
F Factor	1800

DATE TESTED: 7/15/14
Run 8

INDIANTOWN COGENERATION
INLET B
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3049
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.20	0.1	0.6	
1500	ppm SO2	0.00	1.00	1.0	0.1	92721AT27881-2
	ppm SO2	734.00	731.00	-3.0	-0.2	
	ppm SO2	1249.00	1247.00	-2.0	-0.2	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.10	0.6	0.00	0.0	-0.6
% CO2	8.40	8.80	2.3	8.80	2.3	0.0
ppm SO2	1.00	2.10	0.1	2.00	0.1	0.0
ppm SO2	731.00	740.00	0.7	739.00	0.6	-0.1

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 15:42	11.08	490.75
7/15/2014 15:43	10.96	498.00
7/15/2014 15:44	10.86	494.25
7/15/2014 15:45	11.02	498.50
7/15/2014 15:46	11.44	496.50
7/15/2014 15:47	11.56	494.75
7/15/2014 15:48	10.87	494.25
7/15/2014 15:49	10.89	493.75
7/15/2014 15:50	10.88	491.25
7/15/2014 15:51	10.79	490.50
7/15/2014 15:52	11.01	492.25
7/15/2014 15:53	10.95	495.00
7/15/2014 15:54	10.90	492.00
7/15/2014 15:55	10.97	500.25
7/15/2014 15:56	10.90	501.75
7/15/2014 15:57	11.06	509.50
7/15/2014 15:58	10.93	497.75
7/15/2014 15:59	10.92	498.75
7/15/2014 16:00	10.97	495.75
7/15/2014 16:01	11.09	490.50
7/15/2014 16:02	11.06	491.50
AVERAGE	11.01	495.60

% CO2	10.54
SO2 PPM	491.24
LB/MMBTU SO2	1.392
F Factor	1800

DATE TESTED: 7/15/14
Run 9

INDIANTOWN COGENERATION
INLET B
ANALYZER CALIBRATION ERROR

RANGE SETTING	GAS UNITS	CERTIFIED		DIFF PPM	% SPAN	ANALYZER SERIAL #
		GAS VALUE	ANALYZER VALUE			
20	% CO2	0.00	0.00	0.0	0.0	PO 3049
	% CO2	8.42	8.40	0.0	-0.1	
	% CO2	17.10	17.20	0.1	0.6	
1500	ppm SO2	0.00	1.00	1.0	0.1	92721AT27881-2
	ppm SO2	734.00	731.00	-3.0	-0.2	
	ppm SO2	1249.00	1247.00	-2.0	-0.2	

SYSTEM BIAS AND SYSTEM DRIFT DATA

GAS UNITS	ANALYZER VALUE	PRETEST CHECK	% SPAN	POSTTEST CHECK	% SPAN	% DRIFT
% CO2	0.00	0.00	0.0	0.00	0.0	0.0
% CO2	8.40	8.80	2.3	8.80	2.3	0.0
ppm SO2	1.00	2.00	0.1	2.00	0.1	0.0
ppm SO2	731.00	739.00	0.6	738.00	0.6	-0.1

UNCORRECTED REFERENCE DATA

Date & Time	% CO2	SO2 PPM
7/15/2014 16:12	11.80	484.25
7/15/2014 16:13	11.74	486.50
7/15/2014 16:14	11.71	480.25
7/15/2014 16:15	11.53	478.50
7/15/2014 16:16	11.67	481.25
7/15/2014 16:17	11.66	480.25
7/15/2014 16:18	11.71	485.75
7/15/2014 16:19	11.78	486.50
7/15/2014 16:20	11.74	486.00
7/15/2014 16:21	11.81	484.25
7/15/2014 16:22	11.75	485.00
7/15/2014 16:23	11.73	484.00
7/15/2014 16:24	11.73	484.50
7/15/2014 16:25	11.68	483.50
7/15/2014 16:26	11.70	480.50
7/15/2014 16:27	11.77	474.75
7/15/2014 16:28	11.76	476.75
7/15/2014 16:29	11.83	476.75
7/15/2014 16:30	11.95	479.25
7/15/2014 16:31	11.79	476.00
7/15/2014 16:32	11.99	475.25
AVERAGE	11.75	481.42

% CO2	11.25
SO2 PPM	477.79
LB/MMBTU SO2	1.270
F Factor	1800

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet B Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 1
 Yi: 0.9870 ^H@: 1.615 Impinger Set: F
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE ^H	METER		VAC. (IN.HG)	IMPINGER TEMP
			966.356		TEMP (F)			
1	1205	10		1.8	94	94	3.0	66
2	1225	20		1.8	95	95	3.0	66
3	1235	30	987.294	1.8	97	97	3.0	66
			20.938	1.8	95.3	95.3		
						95.3		

H2O COLLECTED (g) = 44.4 VOL WATER COLLECTED (SCF) = 2.09
 GAS SAMPLED (DSCF) = 19.693 MOISTURE IN STACK GAS (% VOL) = 9.61
 INTIAL LEAK CHECK = 0.00 @ 7.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0 "

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet B Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 2
 Yi: 0.9870 ^H@: 1.615 Impinger Set: F
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE ^H	METER		VAC. (IN.HG)	IMPINGER TEMP.
			966.356		TEMP (F)			
1	1237	10		1.8	94	94	3.0	66
2	1257	20		1.8	95	95	3.0	66
3	1307	30	987.294	1.8	97	97	3.0	66
			20.938	1.8	95.333	95.3		
						95.3		

H2O COLLECTED (g) = 44.4 VOL WATER COLLECTED (SCF) = 2.09
 GAS SAMPLED (DSCF) = 19.693 MOISTURE IN STACK GAS (% VOL) = 9.61
 INTIAL LEAK CHECK = 0.00 @ 7.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0 "

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet B Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 3
 Yi: 0.9870 ^H@: 1.615 Impinger Set: F
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE ^H	METER		VAC. (IN HG)	IMPINGER TEMP.
			966.356		TEMP (F)			
1	1307	10		1.8	94	94	3.0	66
2	1327	20		1.8	95	95	3.0	66
3	1337	30	987.294	1.8	97	97	3.0	66
			20.938	1.8	95.3	95.3		
						95.3		

H2O COLLECTED (g) = 44.4 VOL WATER COLLECTED (SCF) = 2.09
 GAS SAMPLED (DSCF) = 19.693 MOISTURE IN STACK GAS (% VOL) = 9.61
 INTIAL LEAK CHECK = 0.00 @ 8.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0 "

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet B Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 4
 Yi: 0.9870 ^H@: 1.615 Impinger Set: F
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE "H	METER		VAC (IN.HG)	IMPINGER TEMP
			1008.324		TEMP (F)			
1	1338	10		1.8	89	89	3.0	67
2	1358	20		1.8	91	91	3.0	67
3	1408	30	1028.401	1.8	92	92	3.0	64
			20.077	1.8	90.667	90.7		
						90.7		

H2O COLLECTED (g) = 30.7 VOL WATER COLLECTED (SCF) = 1.45
 GAS SAMPLED (DSCF) = 19.044 MOISTURE IN STACK GAS (% VOL) = 7.06
 INTIAL LEAK CHECK = 0.00 @ 10.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0"

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet B Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 5
 Yi: 0.9870 ^H@: 1.615 Impinger Set: F
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE "H	METER		VAC (IN.HG)	IMPINGER TEMP.
			1008.324		TEMP (F)			
1	1408	10		1.8	89	89	3.0	67
2	1428	20		1.8	91	91	3.0	67
3	1438	30	1028.401	1.8	92	92	3.0	64
			20.077	1.8	90.7	90.7		
						90.7		

H2O COLLECTED (g) = 30.7 VOL WATER COLLECTED (SCF) = 1.45
 GAS SAMPLED (DSCF) = 19.044 MOISTURE IN STACK GAS (% VOL) = 7.06
 INTIAL LEAK CHECK = 0.00 @ 10.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0"

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet B Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 6
 Yi: 0.9870 ^H@: 1.615 Impinger Set: F
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE "H	METER		VAC (IN.HG)	IMPINGER TEMP.
			1008.324		TEMP (F)			
1	1438	10		1.8	89	89	3.0	67
2	1458	20		1.8	91	91	3.0	67
3	1508	30	1028.401	1.8	92	92	3.0	64
			20.077	1.8	90.667	90.7		
						90.7		

H2O COLLECTED (g) = 30.7 VOL WATER COLLECTED (SCF) = 1.45
 GAS SAMPLED (DSCF) = 19.044 MOISTURE IN STACK GAS (% VOL) = 7.06
 INTIAL LEAK CHECK = 0.00 @ 8.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0"

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet B Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 7
 Yi: 0.9870 ^H@: 1.615 Impinger Set: F
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE -H	METER		VAC (IN.HG)	IMPINGER TEMP.
			52.736		TEMP (F)			
1	1512	10		1.8	91	91	3.0	53
2	1532	20		1.8	91	91	3.0	54
3	1542	30	75.844	1.8	91	91	3.0	54
			23.108	1.8	91.0	91.0		
						91.0		

H2O COLLECTED (g) = 41.3 VOL WATER COLLECTED (SCF) = 1.95
 GAS SAMPLED (DSCF) = 21.905 MOISTURE IN STACK GAS (% VOL) = 8.16
 INTIAL LEAK CHECK = 0.00 @ 8.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0"

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet B Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 8
 Yi: 0.9870 ^H@: 1.615 Impinger Set: F
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE -H	METER		VAC. (IN.HG)	IMPINGER TEMP.
			52.736		TEMP (F)			
1	1542	10		1.8	91	91	3.0	53
2	1602	20		1.8	91	91	3.0	54
3	1612	30	75.844	1.8	91	91	3.0	54
			23.108	1.8	91.0	91.0		
						91.0		

H2O COLLECTED (g) = 41.3 VOL WATER COLLECTED (SCF) = 1.95
 GAS SAMPLED (DSCF) = 21.905 MOISTURE IN STACK GAS (% VOL) = 8.16
 INTIAL LEAK CHECK = 0.00 @ 8.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0"

MOISTURE TEST FIELD DATA SHEET

Plant & Unit: ICLP Inlet B Date: 7/15/14 Load: High
 Meter Box #: CAC 2 Method: 4 Run Number: 9
 Yi: 0.9870 ^H@: 1.615 Impinger Set: F
 Barometric Pressure: 30.00 Sample Head: A
 Operators: Troy Marlowe

POINT	CLOCK TIME	SAMPLE TIME	VOLUME	ORIFICE -H	METER		VAC (IN.HG)	IMPINGER TEMP.
			52.736		TEMP (F)			
1	1612	10		1.8	91	91	3.0	53
2	1632	20		1.8	91	91	3.0	54
3	1642	30	75.844	1.8	91	91	3.0	54
			23.108	1.8	91.0	91.0		
						91.0		

H2O COLLECTED (g) = 41.3 VOL WATER COLLECTED (SCF) = 1.95
 GAS SAMPLED (DSCF) = 21.905 MOISTURE IN STACK GAS (% VOL) = 8.16
 INTIAL LEAK CHECK = 0.00 @ 9.0" FINAL VACUUM LEAK CHECK = 0.00 @ 4.0"

**APPENDIX 2
PLANT DATA**

LOW LOAD

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/17/2014 9:35 AM thru 7/17/2014 9:40 AM

Timestamp	(Main Boiler) Stack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/17 9:35	31998.7	1242.6	867.06	100.7
7/17 9:36	31998.7	1228.4	866.53	101.2
7/17 9:37	31996.2	1228.3	867.19	101.1
7/17 9:38	31998.7	1230.2	867.58	100.7
7/17 9:39	31730.9	1219.9	873.83	101.9
7/17 9:40	32266.7	1236.9	890.63	105.2
Average (all)	31998.3 ✓	1231.1	872.14 ✓	101.8
Total (all)	--	--	--	--
Minimum (all)	31730.9	1219.9	866.53	100.7
Maximum (all)	32266.7	1242.6	890.63	105.2
Average (valid values only)	31998.3	1231.1	872.14	101.8
Total (valid values only)	--	--	--	--
Count (valid values only)	6	6	6	6

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/17/2014 9:41 AM thru 7/17/2014 9:46 AM

Timestamp	(Main Boiler) Stack Flow kscl/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/17 9:41	32001.1	1301.2	934.50	109.5
7/17 9:42	32530.1	1323.5	964.84	114.0
7/17 9:43	32261.7	1330.2	978.13	116.3
7/17 9:44	31993.8	1330.2	997.27	119.5
7/17 9:45	33048.1	1417.7	999.48	120.8
7/17 9:46	32261.7	1395.4	999.22	123.0
Average (all)	32349.4 ✓	1349.7	978.91 ✓	117.2
Total (all)	--	--	--	--
Minimum (all)	31993.8	1301.2	934.50	109.5
Maximum (all)	33048.1	1417.7	999.48	123.0
Average (valid values only)	32349.4	1349.7	978.91	117.2
Total (valid values only)	--	--	--	--
Count (valid values only)	6	6	6	6

low r3

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/17/2014 9:47 AM thru 7/17/2014 9:52 AM

Timestamp	(Main Boiler) Stack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/17 9:47	33048.1	1461.4	998.57	124.5
7/17 9:48	33305.3	1484.6	1001.04	126.2
7/17 9:49	33811.2	1522.6	1016.80	125.2
7/17 9:50	33808.6	1531.1	1015.24	126.5
7/17 9:51	34062.6	1531.9	1032.29	127.8
7/17 9:52	33813.8	1546.6	1039.58	129.3
Average (all)	33641.6 ✓	1513.0	1017.25 ✓	126.6
Total (all)	--	--	--	--
Minimum (all)	33048.1	1461.4	998.57	124.5
Maximum (all)	34062.6	1546.6	1039.58	129.3
Average (valid values only)	33641.6	1513.0	1017.25	126.6
Total (valid values only)	--	--	--	--
Count (valid values only)	6	6	6	6

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/17/2014 9:53 AM thru 7/17/2014 9:58 AM

Timestamp	(Main Boiler) Stack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/17 9:53	34062.6	1549.0	1047.92	131.3
7/17 9:54	34060.0	1558.9	1057.29	133.0
7/17 9:55	34559.9	1578.8	1064.45	135.0
7/17 9:56	34557.2	1579.8	1070.44	137.3
7/17 9:57	34803.2	1601.1	1078.00	139.9
7/17 9:58	35290.0	1624.0	1092.32	142.5
Average (all)	34555.5 ✓	1581.9	1068.40 ✓	136.5
Total (all)	--	--	--	--
Minimum (all)	34060.0	1549.0	1047.92	131.3
Maximum (all)	35290.0	1624.0	1092.32	142.5
Average (valid values only)	34555.5	1581.9	1068.40	136.5
Total (valid values only)	--	--	--	--
Count (valid values only)	6	6	6	6

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/17/2014 9:59 AM thru 7/17/2014 10:04 AM

Timestamp	(Main Boiler) Slack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow ktb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/17 9:59	35047.4	1623.1	1094.79	143.1
7/17 10:00	35770.1	1668.2	1103.39	145.3
7/17 10:01	35772.9	1673.2	1107.81	146.8
7/17 10:02	36246.7	1718.2	1129.95	149.0
7/17 10:03	36010.5	1735.3	1142.58	151.4
7/17 10:04	36714.4	1775.7	1152.21	153.0
Average (all)	35927.0 ✓	1699.0	1121.79 ✓	148.1
Total (all)	--	--	--	--
Minimum (all)	35047.4	1623.1	1094.79	143.1
Maximum (all)	36714.4	1775.7	1152.21	153.0
Average (valid values only)	35927.0	1699.0	1121.79	148.1
Total (valid values only)	--	--	--	--
Count (valid values only)	6	6	6	6

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/17/2014 10:05 AM thru 7/17/2014 10:10 AM

Timestamp	(Main Boiler) Stack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/17 10:05	36475.7	1764.1	1164.06	155.0
7/17 10:06	36940.4	1788.8	1173.96	157.1
7/17 10:07	36708.8	1772.2	1182.82	159.1
7/17 10:08	36706.0	1788.1	1187.24	160.8
7/17 10:09	36940.4	1800.7	1197.92	163.0
7/17 10:10	36940.4	1802.9	1209.51	165.1
Average (all)	36785.3 ✓	1786.1	1185.92 ✓	160.0
Total (all)	--	--	--	--
Minimum (all)	36475.7	1764.1	1164.06	155.0
Maximum (all)	36940.4	1802.9	1209.51	165.1
Average (valid values only)	36785.3	1786.1	1185.92	160.0
Total (valid values only)	--	--	--	--
Count (valid values only)	6	6	6	6

Low 17

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/17/2014 10:11 AM thru 7/17/2014 10:16 AM

Timestamp	(Main Boiler) Stack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/17 10:11	36708.8	1777.7	1225.13	167.2
7/17 10:12	37855.5	1839.8	1235.29	168.8
7/17 10:13	37629.5	1835.4	1244.14	170.0
7/17 10:14	38086.0	1872.1	1254.56	171.8
7/17 10:15	37864.2	1875.6	1266.67	173.9
7/17 10:16	38315.3	1910.2	1278.13	175.9
Average (all)	37743.2	1851.8	1250.65	171.3
Total (all)	--	--	--	--
Minimum (all)	36708.8	1777.7	1225.13	167.2
Maximum (all)	38315.3	1910.2	1278.13	175.9
Average (valid values only)	37743.2	1851.8	1250.65	171.3
Total (valid values only)	--	--	--	--
Count (valid values only)	6	6	6	6

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/17/2014 10:17 AM thru 7/17/2014 10:22 AM

Timestamp	(Main Boiler) Stack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/17 10:17	38540.4	1937.1	1296.62	177.9
7/17 10:18	38543.3	1954.0	1307.42	179.9
7/17 10:19	38543.3	1967.4	1319.53	181.6
7/17 10:20	38540.4	1965.0	1330.86	183.7
7/17 10:21	38764.2	1974.1	1342.06	185.7
7/17 10:22	38983.8	2003.4	1354.69	187.7
Average (all)	38652.6 ✓	1966.8	1325.20 ✓	182.8
Total (all)	--	--	--	--
Minimum (all)	38540.4	1937.1	1296.62	177.9
Maximum (all)	38983.8	2003.4	1354.69	187.7
Average (valid values only)	38652.6	1966.8	1325.20	182.8
Total (valid values only)	--	--	--	--
Count (valid values only)	6	6	6	6

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/17/2014 10:23 AM thru 7/17/2014 10:28 AM

Timestamp	(Main Boiler) Stack Flow kscl/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/17 10:23	38764.2	1994.4	1359.89	189.4
7/17 10:24	39850.3	2056.0	1379.04	191.7
7/17 10:25	39641.5	2066.0	1388.02	193.6
7/17 10:26	39856.4	2093.4	1398.18	195.6
7/17 10:27	40497.2	2137.5	1410.55	197.1
7/17 10:28	40500.3	2139.9	1425.65	199.9
Average (all)	39851.7 ✓	2081.2	1393.56 ✓	194.6
Total (all)	--	--	--	--
Minimum (all)	38764.2	1994.4	1359.89	189.4
Maximum (all)	40500.3	2139.9	1425.65	199.9
Average (valid values only)	39851.7	2081.2	1393.56	194.6
Total (valid values only)	--	--	--	--
Count (valid values only)	6	6	6	6

PLANT DATA

HIGH LOAD

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 1:38 PM thru 7/16/2014 1:58 PM

Timestamp	(Main Boiler) NOx ppm 1-Min	(Main Boiler) NOx lb/mmBtu 1-Min	(Main Boiler) NOx lb/hr 1-Min	(Main Boiler) SO2 ppm 1-Min	(Main Boiler) SO2 lb/mmBtu 1-Min	(Main Boiler) SO2 lb/hr 1-Min Avg
7/16 13:38	71.74	0.1429	449.09	29.18	0.0807	254.15
7/16 13:39	74.17	0.1474	461.40	30.59	0.0849	264.76
7/16 13:40	77.23	0.1522	477.46	32.86	0.0904	282.64
7/16 13:41	78.23	0.1564	485.20	34.21	0.0946	295.21
7/16 13:42	78.01	0.1556	483.84	35.33	0.0974	304.87
7/16 13:43	76.86	0.1509	476.71	36.23	0.0988	312.64
7/16 13:44	74.81	0.1457	468.35	38.65	0.1043	336.65
7/16 13:45	74.28	0.1440	465.07	40.61	0.1099	353.75
7/16 13:46	77.43	0.1489	486.24	42.28	0.1127	369.40
7/16 13:47	84.98	0.1627	532.02	45.47	0.1210	396.06
7/16 13:48	92.19	0.1799	578.89	46.02	0.1252	402.05
7/16 13:49	95.51	0.1875	596.09	45.27	0.1238	393.09
7/16 13:50	96.36	0.1898	601.44	44.48	0.1224	386.26
7/16 13:51	96.82	0.1903	604.31	44.34	0.1210	385.05
7/16 13:52	96.83	0.1881	604.33	43.53	0.1183	377.99
7/16 13:53	96.55	0.1866	600.71	44.52	0.1197	385.38
7/16 13:54	95.54	0.1858	592.61	44.49	0.1210	383.94
7/16 13:55	93.38	0.1814	573.78	44.70	0.1210	382.13
7/16 13:56	86.12	0.1689	529.24	42.77	0.1169	365.69
7/16 13:57	81.67	0.1598	501.89	41.12	0.1113	351.58
7/16 13:58	78.98	0.1511	485.36	41.66	0.1113	356.20
Average (all)	84.65	0.1655	526.38	40.40	0.1098	349.50
Total (all)	--	--	--	--	--	--
Minimum (all)	71.74	0.1429	449.09	29.18	0.0807	254.15
Maximum (all)	96.83	0.1903	604.33	46.02	0.1252	402.05
Average (valid values only)	84.65	0.1655	526.38	40.40	0.1098	349.50
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 1:38 PM thru 7/16/2014 1:58 PM

Timestamp	(Main Boiler) CO2% 1-Min	(Main Boiler) Stack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/16 13:38	10.54	52434.5	3143.7	2334.90	331.3
7/16 13:39	10.60	52105.9	3131.1	2324.09	331.5
7/16 13:40	10.71	51783.1	3136.9	2320.31	331.3
7/16 13:41	10.61	51950.7	3101.8	2322.92	331.3
7/16 13:42	10.64	51950.7	3108.9	2329.04	331.1
7/16 13:43	10.81	51950.7	3160.3	2328.65	331.1
7/16 13:44	10.90	52438.5	3214.7	2328.65	330.9
7/16 13:45	10.95	52442.5	3229.7	2322.27	331.3
7/16 13:46	11.03	52600.1	3264.9	2315.63	330.9
7/16 13:47	11.08	52438.5	3269.7	2313.28	331.3
7/16 13:48	10.87	52596.1	3217.3	2313.54	331.3
7/16 13:49	10.80	52276.4	3179.0	2313.54	331.1
7/16 13:50	10.77	52280.4	3168.6	2320.44	330.9
7/16 13:51	10.79	52280.4	3176.3	2322.79	330.9
7/16 13:52	10.92	52276.4	3212.5	2321.49	331.2
7/16 13:53	10.97	52113.8	3219.0	2313.93	331.4
7/16 13:54	10.91	51954.7	3189.8	2305.34	331.4
7/16 13:55	10.92	51466.1	3162.7	2302.47	331.3
7/16 13:56	10.81	51474.0	3133.1	2303.52	331.0
7/16 13:57	10.84	51474.0	3141.8	2310.68	330.9
7/16 13:58	11.09	51474.0	3212.4	2312.37	331.1
Average (all)	10.84	52083.9	3179.7	2318.09 ✓	331.2
Total (all)	--	--	--	--	--
Minimum (all)	10.54	51466.1	3101.8	2302.47	330.9
Maximum (all)	11.09	52600.1	3269.7	2334.90	331.5
Average (valid values only)	10.84	52083.9	3179.7	2318.09	331.2
Total (valid values only)	--	--	--	--	--
Count (valid values only)	21	21	21	21	21

CeDAR 1-Minute Data
 Indiantown CoGen
 Data for 7/16/2014 2:10 PM thru 7/16/2014 2:30 PM

Timestamp	(Main Boiler) NOx ppm 1-Min	(Main Boiler) NOx lb/mmBtu 1-Min	(Main Boiler) NOx lb/hr 1-Min	(Main Boiler) SO2 ppm 1-Min	(Main Boiler) SO2 lb/mmBtu 1-Min	(Main Boiler) SO2 lb/hr 1-Min Avg
7/16 14:10	75.40	0.1458	459.16	37.16	0.1002	314.84
7/16 14:11	74.50	0.1441	456.60	36.32	0.0974	309.71
7/16 14:12	73.26	0.1403	449.07	35.51	0.0946	302.85
7/16 14:13	72.34	0.1389	443.40	34.90	0.0932	297.62
7/16 14:14	71.94	0.1376	442.37	35.29	0.0932	301.92
7/16 14:15	72.76	0.1391	445.97	35.92	0.0960	306.32
7/16 14:16	72.67	0.1407	444.02	35.72	0.0960	303.65
7/16 14:17	72.80	0.1409	443.36	35.98	0.0974	304.87
7/16 14:18	73.01	0.1402	447.54	37.39	0.1002	318.88
7/16 14:19	72.19	0.1389	442.51	39.12	0.1043	333.63
7/16 14:20	72.31	0.1384	443.25	40.72	0.1085	347.28
7/16 14:21	72.27	0.1398	441.57	41.26	0.1113	350.75
7/16 14:22	72.94	0.1406	445.67	41.32	0.1113	351.26
7/16 14:23	74.31	0.1438	454.04	41.61	0.1127	353.72
7/16 14:24	74.17	0.1430	453.18	43.45	0.1169	369.37
7/16 14:25	76.26	0.1480	467.57	43.85	0.1183	374.06
7/16 14:26	81.37	0.1580	500.51	45.31	0.1224	387.76
7/16 14:27	84.12	0.1627	515.76	50.99	0.1377	434.97
7/16 14:28	85.26	0.1636	522.75	52.60	0.1405	448.70
7/16 14:29	85.27	0.1646	521.16	51.31	0.1377	436.32
7/16 14:30	84.88	0.1660	515.44	50.06	0.1363	422.95
Average (all)	75.91	0.1464	464.52	41.23	0.1108	351.02
Total (all)	--	--	--	--	--	--
Minimum (all)	71.94	0.1376	441.57	34.90	0.0932	297.62
Maximum (all)	85.27	0.1660	522.75	52.60	0.1405	448.70
Average (valid values only)	75.91	0.1464	464.52	41.23	0.1108	351.02
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data
 Indiantown CoGen
 Data for 7/16/2014 2:10 PM thru 7/16/2014 2:30 PM

Timestamp	(Main Boiler) CO2% 1-Min	(Main Boiler) Slack Flow kscl/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow kib/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/16 14:10	10.97	51007.8	3148.9	2316.80	331.1
7/16 14:11	10.97	51336.2	3169.2	2315.75	331.3
7/16 14:12	11.07	51344.1	3200.3	2315.63	331.3
7/16 14:13	11.05	51340.1	3192.5	2311.07	331.3
7/16 14:14	11.09	51505.5	3216.2	2311.33	331.2
7/16 14:15	11.10	51340.1	3207.0	2313.02	331.3
7/16 14:16	10.96	51178.2	3156.5	2313.54	331.4
7/16 14:17	10.96	51011.7	3148.0	2312.24	331.2
7/16 14:18	11.05	51344.1	3192.8	2316.41	331.4
7/16 14:19	11.03	51344.1	3187.0	2315.50	331.1
7/16 14:20	11.08	51344.1	3203.2	2317.97	331.3
7/16 14:21	10.96	51178.2	3158.3	2319.01	331.2
7/16 14:22	11.00	51178.2	3169.8	2317.58	331.2
7/16 14:23	10.96	51178.2	3158.3	2318.75	331.2
7/16 14:24	11.00	51178.2	3169.8	2319.53	331.2
7/16 14:25	10.93	51355.8	3158.8	2323.05	330.6
7/16 14:26	10.92	51521.2	3167.9	2320.70	331.3
7/16 14:27	10.97	51355.8	3170.4	2318.62	331.4
7/16 14:28	11.05	51355.8	3195.3	2318.10	331.3
7/16 14:29	10.99	51193.8	3166.1	2322.53	331.3
7/16 14:30	10.84	50864.2	3104.5	2319.14	331.4
Average (all)	11.00	51259.8	3173.4	2316.97	331.2
Total (all)	--	--	--	--	--
Minimum (all)	10.84	50864.2	3104.5	2311.07	330.6
Maximum (all)	11.10	51521.2	3216.2	2323.05	331.4
Average (valid values only)	11.00	51259.8	3173.4	2316.97	331.2
Total (valid values only)	--	--	--	--	--
Count (valid values only)	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen
Data for 7/16/2014 2:40 PM thru 7/16/2014 3:00 PM

Timestamp	(Main Boiler) NOx ppm 1-Min	(Main Boiler) NOx lb/mmBtu 1-Min	(Main Boiler) NOx lb/hr 1-Min	(Main Boiler) SO2 ppm 1-Min	(Main Boiler) SO2 lb/mmBtu 1-Min	(Main Boiler) SO2 lb/hr 1-Min Avg
7/16 14:40	86.61	0.1661	527.59	55.43	0.1475	469.78
7/16 14:41	86.80	0.1669	527.06	53.81	0.1433	454.59
7/16 14:42	86.86	0.1672	530.84	52.07	0.1391	442.74
7/16 14:43	86.58	0.1656	527.45	50.04	0.1336	424.13
7/16 14:44	86.85	0.1667	529.05	48.53	0.1294	411.30
7/16 14:45	87.26	0.1667	533.32	48.42	0.1294	411.74
7/16 14:46	87.88	0.1683	537.11	47.41	0.1266	403.15
7/16 14:47	87.40	0.1687	534.22	49.30	0.1322	419.26
7/16 14:48	87.88	0.1680	537.15	53.89	0.1433	458.29
7/16 14:49	87.67	0.1694	535.87	53.46	0.1433	454.63
7/16 14:50	87.68	0.1693	541.17	51.93	0.1391	445.94
7/16 14:51	87.19	0.1677	532.98	51.58	0.1377	438.68
7/16 14:52	86.83	0.1666	534.25	50.33	0.1350	430.85
7/16 14:53	86.75	0.1648	530.37	51.22	0.1350	435.68
7/16 14:54	85.89	0.1656	523.85	50.76	0.1363	431.74
7/16 14:55	87.44	0.1690	532.85	51.61	0.1391	437.57
7/16 14:56	87.68	0.1704	536.01	53.37	0.1447	453.94
7/16 14:57	87.66	0.1706	535.93	52.13	0.1405	443.42
7/16 14:58	87.66	0.1700	534.19	55.82	0.1503	473.27
7/16 14:59	87.48	0.1694	533.13	56.77	0.1530	481.36
7/16 15:00	86.21	0.1641	527.11	56.90	0.1503	484.04
Average (all)	87.15	0.1677	532.45	52.13	0.1395	443.15
Total (all)	--	--	--	--	--	--
Minimum (all)	85.69	0.1641	523.85	47.41	0.1266	403.15
Maximum (all)	87.88	0.1706	541.17	56.90	0.1530	484.04
Average (valid values only)	87.15	0.1677	532.45	52.13	0.1395	443.15
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 2:40 PM thru 7/16/2014 3:00 PM

Timestamp	(Main Boiler) CO2% 1-Min	(Main Boiler) Stack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/16 14:40	11.06	51023.4	3177.5	2317.71	331.1
7/16 14:41	11.03	50860.3	3158.7	2318.10	331.2
7/16 14:42	11.02	51189.9	3174.5	2318.10	331.1
7/16 14:43	11.09	51027.3	3184.5	2318.88	331.2
7/16 14:44	11.05	51023.4	3174.6	2320.44	331.4
7/16 14:45	11.10	51193.8	3199.6	2319.01	331.2
7/16 14:46	11.07	51193.8	3191.0	2320.70	331.2
7/16 14:47	10.99	51197.7	3166.4	2319.92	331.1
7/16 14:48	11.10	51197.7	3198.1	2321.75	331.2
7/16 14:49	10.98	51197.7	3163.5	2320.57	331.2
7/16 14:50	10.99	51698.0	3197.3	2322.14	331.2
7/16 14:51	11.03	51201.7	3178.1	2319.01	331.3
7/16 14:52	11.05	51537.0	3206.6	2311.98	331.2
7/16 14:53	11.16	51209.5	3217.9	2311.85	331.3
7/16 14:54	10.97	51205.6	3162.9	2309.11	331.2
7/16 14:55	10.97	51043.0	3152.8	2312.24	331.1
7/16 14:56	10.91	51205.6	3145.6	2315.24	330.7
7/16 14:57	10.90	51209.5	3141.2	2318.62	330.6
7/16 14:58	10.94	51043.0	3142.4	2322.66	330.4
7/16 14:59	10.95	51046.9	3147.3	2315.89	331.0
7/16 15:00	11.14	51213.4	3212.4	2311.98	331.0
Average (all)	11.02	51177.1	3175.9	2317.42	331.1
Total (all)	--	--	--	--	--
Minimum (all)	10.90	50860.3	3141.2	2309.11	330.4
Maximum (all)	11.16	51698.0	3217.9	2322.66	331.4
Average (valid values only)	11.02	51177.1	3175.9	2317.42	331.1
Total (valid values only)	--	--	--	--	--
Count (valid values only)	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 3:10 PM thru 7/16/2014 3:30 PM

Timestamp	(Main Boiler) NOx ppm 1-Min	(Main Boiler) NOx lb/mmBtu 1-Min	(Main Boiler) NOx lb/hr 1-Min	(Main Boiler) SO2 ppm 1-Min	(Main Boiler) SO2 lb/mmBtu 1-Min	(Main Boiler) SO2 lb/hr 1-Min Avg
7/16 15:10	86.01	0.1654	524.18	58.09	0.1558	492.55
7/16 15:11	86.63	0.1673	527.95	54.38	0.1461	461.09
7/16 15:12	86.74	0.1669	528.62	52.41	0.1405	444.39
7/16 15:13	85.83	0.1645	521.33	49.69	0.1322	419.92
7/16 15:14	84.48	0.1629	518.21	47.67	0.1280	406.83
7/16 15:15	84.90	0.1623	520.74	47.44	0.1266	404.84
7/16 15:16	84.40	0.1623	514.32	48.43	0.1294	410.61
7/16 15:17	84.33	0.1636	517.29	48.01	0.1294	409.73
7/16 15:18	85.41	0.1666	522.22	47.84	0.1294	406.96
7/16 15:19	84.08	0.1655	517.29	50.85	0.1377	431.16
7/16 15:20	86.67	0.1680	529.92	50.63	0.1363	430.70
7/16 15:21	85.54	0.1665	521.27	49.97	0.1350	423.67
7/16 15:22	84.61	0.1644	515.60	48.56	0.1308	411.71
7/16 15:23	86.39	0.1671	528.17	48.39	0.1308	411.61
7/16 15:24	85.40	0.1656	523.77	46.76	0.1266	399.01
7/16 15:25	85.26	0.1654	521.18	46.85	0.1266	398.45
7/16 15:26	86.16	0.1676	524.97	48.17	0.1308	408.35
7/16 15:27	85.51	0.1658	522.71	50.18	0.1350	426.77
7/16 15:28	85.95	0.1662	525.40	50.01	0.1350	425.33
7/16 15:29	86.07	0.1659	527.80	51.99	0.1391	443.56
7/16 15:30	85.44	0.1656	523.93	52.79	0.1419	450.39
Average (all)	85.55	0.1655	522.71	49.96	0.1344	424.65
Total (all)	--	--	--	--	--	--
Minimum (all)	84.33	0.1623	514.32	46.76	0.1266	398.45
Maximum (all)	86.74	0.1680	529.92	58.09	0.1558	492.55
Average (valid values only)	85.55	0.1655	522.71	49.96	0.1344	424.65
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 3:10 PM thru 7/16/2014 3:30 PM

Timestamp	(Main Boiler) CO2% 1-Min	(Main Boiler) Slack Flow kscl/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/16 15:10	11.03	51046.9	3168.5	2315.88	330.6
7/16 15:11	10.98	51046.9	3155.9	2313.93	330.8
7/16 15:12	11.03	51046.9	3168.5	2317.06	331.1
7/16 15:13	11.07	50875.9	3169.4	2315.89	331.1
7/16 15:14	11.00	51379.4	3182.3	2316.28	331.1
7/16 15:15	11.09	51375.5	3208.1	2315.88	331.2
7/16 15:16	11.03	51043.0	3170.1	2321.10	331.2
7/16 15:17	10.93	51379.4	3162.0	2320.31	331.2
7/16 15:18	10.88	51213.4	3135.6	2324.87	331.2
7/16 15:19	10.88	51046.9	3125.4	2325.26	331.1
7/16 15:20	10.94	51213.4	3154.7	2325.91	331.1
7/16 15:21	10.90	51043.0	3130.9	2325.78	331.0
7/16 15:22	10.92	51043.0	3136.7	2325.78	330.9
7/16 15:23	10.96	51209.5	3160.2	2326.69	331.1
7/16 15:24	10.94	51371.6	3162.7	2328.78	331.3
7/16 15:25	10.93	51201.7	3151.1	2324.87	331.2
7/16 15:26	10.90	51035.2	3132.2	2321.75	331.1
7/16 15:27	10.94	51201.7	3152.2	2320.57	330.9
7/16 15:28	10.97	51201.7	3160.8	2319.40	331.3
7/16 15:29	11.00	51363.7	3181.3	2320.44	330.9
7/16 15:30	10.95	51363.7	3165.1	2320.71	331.3
Average (all)	10.97	51176.3	3158.7	2321.29	331.1
Total (all)	--	--	--	--	--
Minimum (all)	10.88	50875.9	3125.4	2313.93	330.6
Maximum (all)	11.09	51379.4	3208.1	2328.78	331.3
Average (valid values only)	10.97	51176.3	3158.7	2321.29	331.1
Total (valid values only)	--	--	--	--	--
Count (valid values only)	21	21	21	21	21

CeDAR 1-Minute Data
 Indiantown CoGen
 Data for 7/16/2014 3:40 PM thru 7/16/2014 4:00 PM

Timestamp	(Main Boiler) NOx ppm 1-Min	(Main Boiler) NOx lb/mmBtu 1-Min	(Main Boiler) NOx lb/hr 1-Min	(Main Boiler) SO2 ppm 1-Min	(Main Boiler) SO2 lb/mmBtu 1-Min	(Main Boiler) SO2 lb/hr 1-Min Avg
7/16 15:40	86.57	0.1684	530.66	45.32	0.1224	386.51
7/16 15:41	86.96	0.1665	531.29	45.74	0.1224	388.80
7/16 15:42	86.95	0.1692	534.71	44.80	0.1210	383.31
7/16 15:43	86.48	0.1668	531.82	43.50	0.1169	372.18
7/16 15:44	86.38	0.1657	534.60	43.19	0.1155	371.89
7/16 15:45	86.75	0.1661	535.14	44.02	0.1169	377.81
7/16 15:46	86.08	0.1667	531.01	43.02	0.1155	369.23
7/16 15:47	86.05	0.1666	530.87	42.04	0.1127	360.84
7/16 15:48	84.49	0.1645	521.24	40.83	0.1099	350.46
7/16 15:49	82.40	0.1607	508.31	39.98	0.1085	343.13
7/16 15:50	81.07	0.1573	498.51	39.14	0.1057	334.85
7/16 15:51	81.41	0.1575	506.94	39.59	0.1071	342.99
7/16 15:52	81.60	0.1570	503.30	39.77	0.1057	341.28
7/16 15:53	81.08	0.1575	500.09	39.01	0.1057	334.76
7/16 15:54	81.74	0.1610	502.59	38.37	0.1057	328.24
7/16 15:55	83.62	0.1627	514.11	37.38	0.1016	319.75
7/16 15:56	84.33	0.1631	520.13	38.37	0.1030	329.27
7/16 15:57	82.85	0.1608	512.59	38.32	0.1030	329.86
7/16 15:58	83.75	0.1613	516.48	38.22	0.1030	327.93
7/16 15:59	85.10	0.1638	524.84	39.44	0.1057	338.42
7/16 16:00	84.65	0.1637	523.65	38.86	0.1043	334.45
Average (all)	84.30	0.1632	519.66	40.90	0.1101	350.76
Total (all)	--	--	--	--	--	--
Minimum (all)	81.07	0.1570	498.51	37.38	0.1016	319.75
Maximum (all)	86.96	0.1692	535.14	45.74	0.1224	388.80
Average (valid values only)	84.30	0.1632	519.66	40.90	0.1101	350.76
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 3:40 PM thru 7/16/2014 4:00 PM

Timestamp	(Main Boiler) CO2% 1-Min	(Main Boiler) Stack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow ktb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/16 15:40	10.90	51344.1	3151.2	2316.41	331.1
7/16 15:41	11.08	51174.2	3190.8	2317.58	330.8
7/16 15:42	10.90	51509.4	3161.3	2315.76	330.7
7/16 15:43	11.00	51509.4	3188.5	2316.15	331.0
7/16 15:44	11.03	51838.6	3226.7	2314.71	330.6
7/16 15:45	11.01	51670.3	3221.3	2317.06	331.2
7/16 15:46	10.89	51670.3	3186.2	2315.89	331.0
7/16 15:47	10.88	51674.3	3187.2	2314.85	330.6
7/16 15:48	10.83	51674.3	3168.9	2312.63	330.1
7/16 15:49	10.81	51670.3	3162.8	2313.02	330.4
7/16 15:50	10.86	51505.5	3169.1	2311.72	330.3
7/16 15:51	10.89	52157.6	3218.1	2309.50	330.5
7/16 15:52	10.95	51662.4	3206.9	2309.50	330.2
7/16 15:53	10.85	51662.4	3175.8	2312.24	330.4
7/16 15:54	10.70	51501.5	3122.2	2311.72	330.3
7/16 15:55	10.83	51497.6	3159.9	2314.71	330.7
7/16 15:56	10.90	51662.4	3188.7	2315.23	330.5
7/16 15:57	10.85	51822.7	3187.5	2312.63	330.7
7/16 15:58	10.94	51654.5	3201.7	2310.55	330.7
7/16 15:59	10.95	51658.4	3204.9	2308.20	330.7
7/16 16:00	10.90	51814.8	3199.9	2306.38	330.7
Average (all)	10.90	51635.0	3184.7	2313.16	330.6
Total (all)	--	--	--	--	--
Minimum (all)	10.70	51174.2	3122.2	2306.38	330.1
Maximum (all)	11.08	52157.6	3226.7	2317.58	331.2
Average (valid values only)	10.90	51635.0	3184.7	2313.16	330.6
Total (valid values only)	--	--	--	--	--
Count (valid values only)	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen
Data for 7/16/2014 4:10 PM thru 7/16/2014 4:30 PM

Timestamp	(Main Boiler) NOx ppm 1-Min	(Main Boiler) NOx lb/mmBtu 1-Min	(Main Boiler) NOx lb/hr 1-Min	(Main Boiler) SO2 ppm 1-Min	(Main Boiler) SO2 lb/mmBtu 1-Min	(Main Boiler) SO2 lb/hr 1-Min Avg
7/16 16:10	82.94	0.1611	513.07	36.53	0.0988	314.40
7/16 16:11	82.77	0.1624	508.81	36.36	0.0988	310.97
7/16 16:12	84.33	0.1659	520.05	35.71	0.0974	306.39
7/16 16:13	84.37	0.1652	521.92	35.84	0.0974	308.46
7/16 16:14	83.59	0.1621	515.49	36.24	0.0974	310.94
7/16 16:15	84.02	0.1644	518.14	36.08	0.0988	309.57
7/16 16:16	84.11	0.1653	520.31	35.43	0.0974	304.93
7/16 16:17	83.96	0.1651	517.73	35.07	0.0960	300.88
7/16 16:18	83.22	0.1632	513.21	35.22	0.0960	302.19
7/16 16:19	83.35	0.1638	517.24	34.70	0.0946	299.59
7/16 16:20	82.52	0.1608	508.81	35.19	0.0960	301.89
7/16 16:21	81.92	0.1575	508.32	37.47	0.1002	323.49
7/16 16:22	83.91	0.1624	520.63	37.02	0.1002	319.59
7/16 16:23	84.37	0.1632	523.49	37.10	0.1002	320.27
7/16 16:24	82.53	0.1620	510.49	36.85	0.1002	317.13
7/16 16:25	82.00	0.1591	508.74	36.69	0.0988	316.70
7/16 16:26	82.39	0.1586	507.90	37.32	0.1002	320.08
7/16 16:27	82.11	0.1588	507.78	37.57	0.1016	323.25
7/16 16:28	81.62	0.1575	501.51	36.49	0.0974	311.94
7/16 16:29	82.69	0.1576	506.41	38.38	0.1016	327.02
7/16 16:30	79.87	0.1556	487.60	37.74	0.1030	320.56
Average (all)	82.98	0.1615	512.27	36.43	0.0987	312.87
Total (all)	--	--	--	--	--	--
Minimum (all)	79.87	0.1556	487.60	34.70	0.0946	299.59
Maximum (all)	84.37	0.1659	523.49	38.38	0.1030	327.02
Average (valid values only)	82.98	0.1615	512.27	36.43	0.0987	312.87
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 4:10 PM thru 7/16/2014 4:30 PM

Timestamp	(Main Boiler) CO2% 1-Min	(Main Boiler) Stack Flow kscl/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/16 16:10	10.85	51814.8	3185.2	2311.98	330.9
7/16 16:11	10.75	51489.7	3134.3	2314.45	330.9
7/16 16:12	10.72	51654.5	3135.5	2316.02	331.0
7/16 16:13	10.76	51814.8	3158.8	2314.58	330.9
7/16 16:14	10.86	51654.5	3180.1	2316.54	330.8
7/16 16:15	10.77	51654.5	3151.9	2320.05	330.5
7/16 16:16	10.72	51814.8	3147.1	2322.01	330.9
7/16 16:17	10.72	51650.6	3137.1	2324.22	330.6
7/16 16:18	10.75	51654.5	3144.3	2326.69	330.3
7/16 16:19	10.73	51978.5	3158.2	2327.35	330.6
7/16 16:20	10.82	51646.6	3164.3	2323.96	330.6
7/16 16:21	10.96	51974.5	3227.4	2317.19	330.8
7/16 16:22	10.88	51970.6	3205.4	2313.02	330.8
7/16 16:23	10.90	51970.6	3207.7	2316.02	330.6
7/16 16:24	10.73	51810.8	3151.5	2312.37	330.7
7/16 16:25	10.86	51966.6	3197.5	2314.06	330.5
7/16 16:26	10.95	51634.8	3203.4	2312.63	330.6
7/16 16:27	10.90	51799.0	3198.9	2309.63	330.5
7/16 16:28	10.92	51466.1	3184.2	2307.68	330.3
7/16 16:29	11.06	51297.0	3212.6	2309.25	331.0
7/16 16:30	10.81	51135.2	3133.6	2303.78	330.7
Average (all)	10.83	51707.3	3172.3	2315.88	330.7
Total (all)	--	--	--	--	--
Minimum (all)	10.72	51135.2	3133.6	2303.78	330.3
Maximum (all)	11.06	51978.5	3227.4	2327.35	331.0
Average (valid values only)	10.83	51707.3	3172.3	2315.88	330.7
Total (valid values only)	--	--	--	--	--
Count (valid values only)	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 4:40 PM thru 7/16/2014 5:00 PM

Timestamp	(Main Boiler) NOx ppm 1-Min	(Main Boiler) NOx lb/mmBtu 1-Min	(Main Boiler) NOx lb/hr 1-Min	(Main Boiler) SO2 ppm 1-Min	(Main Boiler) SO2 lb/mmBtu 1-Min	(Main Boiler) SO2 lb/hr 1-Min Avg
7/16 16:40	75.95	0.1494	471.10	38.32	0.1043	330.70
7/16 16:41	75.85	0.1483	470.48	38.55	0.1043	332.68
7/16 16:42	76.42	0.1501	472.52	37.98	0.1043	326.73
7/16 16:43	76.84	0.1523	476.66	37.59	0.1043	324.42
7/16 16:44	78.37	0.1539	487.63	37.18	0.1016	321.87
7/16 16:45	81.12	0.1580	503.17	36.91	0.1002	318.53
7/16 16:46	80.25	0.1569	497.73	36.67	0.1002	316.43
7/16 16:47	80.28	0.1559	501.00	36.27	0.0974	314.92
7/16 16:48	80.92	0.1577	505.00	35.71	0.0974	310.06
7/16 16:49	81.90	0.1596	511.11	35.77	0.0974	310.58
7/16 16:50	81.85	0.1582	511.42	36.61	0.0988	317.87
7/16 16:51	81.92	0.1589	509.65	36.64	0.0988	317.14
7/16 16:52	82.36	0.1602	512.34	37.04	0.1002	320.58
7/16 16:53	82.26	0.1608	511.72	37.18	0.1016	321.79
7/16 16:54	82.31	0.1595	510.43	37.37	0.1002	322.43
7/16 16:55	81.38	0.1573	504.66	37.70	0.1016	325.27
7/16 16:56	81.25	0.1581	508.55	37.87	0.1030	329.78
7/16 16:57	82.08	0.1604	512.20	37.40	0.1016	324.71
7/16 16:58	82.20	0.1606	512.94	37.41	0.1016	324.79
7/16 16:59	83.11	0.1628	518.58	38.07	0.1043	330.50
7/16 17:00	83.11	0.1626	518.58	39.04	0.1057	338.92
Average (all)	80.56	0.1572	501.31	37.30	0.1014	322.89
Total (all)	--	--	--	--	--	--
Minimum (all)	75.85	0.1483	470.48	35.71	0.0974	310.06
Maximum (all)	83.11	0.1628	518.58	39.04	0.1057	338.92
Average (valid values only)	80.56	0.1572	501.31	37.30	0.1014	322.89
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 4:40 PM thru 7/16/2014 5:00 PM

Timestamp	(Main Boiler) CO2% 1-Min	(Main Boiler) Stack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/16 16:40	10.71	51954.7	3154.4	2318.62	331.0
7/16 16:41	10.78	51954.7	3173.2	2317.84	330.9
7/16 16:42	10.69	51791.0	3149.3	2326.04	330.7
7/16 16:43	10.57	51958.7	3129.4	2333.85	331.0
7/16 16:44	10.67	52117.8	3168.6	2333.85	330.7
7/16 16:45	10.76	51954.7	3185.4	2332.55	330.8
7/16 16:46	10.71	51950.7	3172.1	2332.29	331.3
7/16 16:47	10.79	52272.4	3213.8	2331.64	330.7
7/16 16:48	10.75	52272.4	3201.9	2330.99	330.7
7/16 16:49	10.75	52272.4	3201.9	2328.65	331.0
7/16 16:50	10.85	52272.4	3233.5	2326.43	331.1
7/16 16:51	10.80	52109.9	3208.6	2327.60	330.8
7/16 16:52	10.77	52105.9	3197.6	2330.73	330.5
7/16 16:53	10.72	52105.9	3182.8	2332.16	330.9
7/16 16:54	10.81	51942.8	3201.3	2326.04	330.7
7/16 16:55	10.84	51942.8	3208.3	2326.95	330.8
7/16 16:56	10.76	52426.5	3216.1	2326.56	330.8
7/16 16:57	10.72	52268.5	3194.5	2327.21	331.1
7/16 16:58	10.72	52268.5	3194.5	2326.95	331.0
7/16 16:59	10.70	52264.5	3186.5	2326.43	330.9
7/16 17:00	10.71	52264.5	3189.5	2326.69	330.8
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Average (all)	10.74	52117.7	3188.7	2328.10	330.9
Total (all)	--	--	--	--	--
Minimum (all)	10.57	51791.0	3129.4	2317.84	330.5
Maximum (all)	10.85	52426.5	3233.5	2333.85	331.3
Average (valid values only)	10.74	52117.7	3188.7	2328.10	330.9
Total (valid values only)	--	--	--	--	--
Count (valid values only)	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 5:21 PM thru 7/16/2014 5:41 PM

Timestamp	(Main Boiler) NOx ppm 1-Min	(Main Boiler) NOx lb/mmBtu 1-Min	(Main Boiler) NOx lb/hr 1-Min	(Main Boiler) SO2 ppm 1-Min	(Main Boiler) SO2 lb/mmBtu 1-Min	(Main Boiler) SO2 lb/hr 1-Min Avg
7/16 17:21	85.23	0.1632	531.37	43.67	0.1169	378.80
7/16 17:22	83.05	0.1615	520.94	45.99	0.1238	401.36
7/16 17:23	83.58	0.1650	521.00	43.90	0.1210	380.73
7/16 17:24	85.19	0.1671	532.72	44.38	0.1210	386.12
7/16 17:25	83.39	0.1634	519.86	43.83	0.1197	380.16
7/16 17:26	83.06	0.1623	516.23	42.40	0.1155	366.64
7/16 17:27	82.60	0.1640	511.80	42.12	0.1169	363.10
7/16 17:28	82.77	0.1681	512.93	38.78	0.1099	334.36
7/16 17:29	84.94	0.1706	529.68	37.45	0.1043	324.92
7/16 17:30	83.24	0.1615	520.65	38.54	0.1043	335.39
7/16 17:31	81.44	0.1568	510.96	40.29	0.1085	351.70
7/16 17:32	81.71	0.1567	511.08	41.37	0.1099	360.01
7/16 17:33	81.95	0.1615	509.41	41.29	0.1127	357.09
7/16 17:34	82.42	0.1620	515.56	40.41	0.1099	351.69
7/16 17:35	82.50	0.1617	514.50	40.56	0.1113	351.93
7/16 17:36	82.46	0.1614	517.44	39.12	0.1071	341.54
7/16 17:37	82.58	0.1599	516.43	39.21	0.1057	341.24
7/16 17:38	81.78	0.1600	511.59	39.26	0.1071	341.70
7/16 17:39	82.88	0.1620	520.03	39.04	0.1057	340.81
7/16 17:40	82.72	0.1603	517.47	38.68	0.1043	336.66
7/16 17:41	82.28	0.1610	513.13	39.00	0.1057	338.39
Average (all)	82.94	0.1624	517.85	40.92	0.1115	355.44
Total (all)	--	--	--	--	--	--
Minimum (all)	81.44	0.1567	509.41	37.45	0.1043	324.92
Maximum (all)	85.23	0.1706	532.72	45.99	0.1238	401.36
Average (valid values only)	82.94	0.1624	517.85	40.92	0.1115	355.44
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 5:21 PM thru 7/16/2014 5:41 PM

Timestamp	(Main Boiler) CO2% 1-Min	(Main Boiler) Stack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/16 17:21	10.94	52220.7	3257.1	2313.41	330.9
7/16 17:22	10.78	52540.0	3225.4	2314.06	330.3
7/16 17:23	10.61	52212.7	3158.4	2315.75	330.6
7/16 17:24	10.68	52378.6	3187.5	2317.84	330.7
7/16 17:25	10.67	52216.7	3181.9	2311.72	331.5
7/16 17:26	10.71	52058.2	3180.5	2310.55	331.2
7/16 17:27	10.54	51899.2	3120.5	2318.88	331.1
7/16 17:28	10.31	51907.2	3051.1	2332.16	330.4
7/16 17:29	10.44	52232.6	3105.4	2339.97	330.3
7/16 17:30	10.80	52390.6	3224.0	2333.85	330.5
7/16 17:31	10.87	52552.0	3258.6	2325.00	331.1
7/16 17:32	10.93	52390.6	3262.8	2322.40	330.4
7/16 17:33	10.63	52066.2	3153.6	2322.53	330.7
7/16 17:34	10.67	52394.6	3183.7	2328.52	330.7
7/16 17:35	10.69	52236.6	3181.8	2330.21	330.7
7/16 17:36	10.70	52560.0	3206.3	2327.87	330.5
7/16 17:37	10.82	52394.6	3230.3	2329.82	331.1
7/16 17:38	10.71	52398.6	3197.7	2331.12	330.8
7/16 17:39	10.72	52556.0	3210.3	2328.39	330.6
7/16 17:40	10.80	52398.6	3228.2	2324.09	330.5
7/16 17:41	10.71	52236.6	3187.8	2327.87	330.7
Average (all)	10.70	52297.2	3190.1	2324.10	330.7
Total (all)	--	--	--	--	--
Minimum (all)	10.31	51899.2	3051.1	2310.55	330.3
Maximum (all)	10.94	52560.0	3262.8	2339.97	331.5
Average (valid values only)	10.70	52297.2	3190.1	2324.10	330.7
Total (valid values only)	--	--	--	--	--
Count (valid values only)	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 5:50 PM thru 7/16/2014 6:10 PM

Timestamp	(Main Boiler) NOx ppm 1-Min	(Main Boiler) NOx lb/mmBtu 1-Min	(Main Boiler) NOx lb/hr 1-Min	(Main Boiler) SO2 ppm 1-Min	(Main Boiler) SO2 lb/mmBtu 1-Min	(Main Boiler) SO2 lb/hr 1-Min Avg
7/16 17:50	84.94	0.1668	531.48	39.54	0.1085	344.22
7/16 17:51	84.42	0.1663	529.82	39.06	0.1071	341.06
7/16 17:52	83.50	0.1655	524.04	38.24	0.1057	333.90
7/16 17:53	84.09	0.1651	527.75	38.13	0.1043	332.94
7/16 17:54	83.54	0.1641	524.29	38.91	0.1057	339.75
7/16 17:55	81.67	0.1597	510.94	38.31	0.1043	333.46
7/16 17:56	81.55	0.1585	508.62	39.51	0.1071	342.84
7/16 17:57	82.52	0.1612	516.26	39.44	0.1071	343.30
7/16 17:58	83.41	0.1631	521.83	39.56	0.1071	344.34
7/16 17:59	83.45	0.1629	522.04	39.56	0.1071	344.32
7/16 18:00	83.66	0.1628	523.32	39.79	0.1071	346.29
7/16 18:01	84.34	0.1604	527.53	40.80	0.1085	355.05
7/16 18:02	83.63	0.1627	524.74	42.47	0.1155	370.75
7/16 18:03	82.64	0.1635	518.53	39.54	0.1085	345.18
7/16 18:04	82.03	0.1642	514.74	38.04	0.1057	332.11
7/16 18:05	82.47	0.1631	519.09	37.44	0.1030	327.87
7/16 18:06	82.47	0.1623	520.67	37.93	0.1043	333.17
7/16 18:07	82.16	0.1611	518.71	37.91	0.1030	333.00
7/16 18:08	82.47	0.1628	520.70	38.15	0.1043	335.13
7/16 18:09	82.76	0.1631	522.54	38.36	0.1057	336.97
7/16 18:10	83.47	0.1644	527.06	38.95	0.1071	342.18
Average (all)	83.10	0.1630	521.65	39.03	0.1065	340.85
Total (all)	--	--	--	--	--	--
Minimum (all)	81.55	0.1585	508.62	37.44	0.1030	327.87
Maximum (all)	84.94	0.1668	531.48	42.47	0.1155	370.75
Average (valid values only)	83.10	0.1630	521.65	39.03	0.1065	340.85
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/16/2014 5:50 PM thru 7/16/2014 6:10 PM

Timestamp	(Main Boiler) CO2% 1-Min	(Main Boiler) Stack Flow kscf/hr 1-Min	(Main Boiler) 75-Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Steam Flow klb/hr 1-Min	(Main Boiler) Megawatts 1-Min
7/16 17:50	10.66	52410.5	3187.1	2323.70	331.0
7/16 17:51	10.64	52568.0	3187.0	2325.91	331.0
7/16 17:52	10.57	52568.0	3166.1	2327.08	331.0
7/16 17:53	10.67	52568.0	3196.0	2330.47	330.5
7/16 17:54	10.67	52568.0	3196.0	2331.25	330.6
7/16 17:55	10.71	52402.5	3199.7	2327.60	330.5
7/16 17:56	10.78	52240.6	3208.9	2325.78	330.9
7/16 17:57	10.73	52402.5	3203.9	2325.65	330.7
7/16 17:58	10.72	52402.5	3199.1	2326.17	330.6
7/16 17:59	10.75	52398.6	3205.9	2325.39	330.7
7/16 18:00	10.76	52394.6	3214.2	2310.16	330.8
7/16 18:01	11.01	52390.6	3288.6	2306.51	331.2
7/16 18:02	10.75	52556.0	3224.8	2309.38	330.7
7/16 18:03	10.58	52556.0	3171.9	2319.79	330.7
7/16 18:04	10.46	52560.0	3134.4	2328.91	330.4
7/16 18:05	10.59	52721.0	3183.1	2331.90	330.4
7/16 18:06	10.64	52881.5	3207.9	2332.81	330.6
7/16 18:07	10.69	52881.5	3221.1	2335.29	330.4
7/16 18:08	10.61	52885.5	3199.1	2332.55	330.2
7/16 18:09	10.83	52885.5	3203.3	2329.17	329.7
7/16 18:10	10.84	52889.6	3206.5	2326.82	329.9
Average (all)	10.68	52577.7	3200.2	2325.35	330.6
Total (all)	--	--	--	--	--
Minimum (all)	10.46	52240.6	3134.4	2306.51	329.7
Maximum (all)	11.01	52889.6	3288.6	2335.29	331.2
Average (valid values only)	10.68	52577.7	3200.2	2325.35	330.6
Total (valid values only)	--	--	--	--	--
Count (valid values only)	21	21	21	21	21

PLANT DATA

INLETS A & B

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/15/2014 12:05 PM thru 7/15/2014 12:25 PM

Timestamp	(Main Boiler) Total Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Megawatts 1-Min	(Reactor A) SO2 ppm 1-Min	(Reactor A) CO2% 1-Min	(Reactor B) SO2 ppm 1-Min	(Reactor B) CO2% 1-Min
7/15 12:05	1805.6	183.8	490.20	11.20	444.95	9.89
7/15 12:06	1766.3	183.7	488.53	11.17	446.20	9.90
7/15 12:07	1747.8	183.9	486.40	11.12	446.20	9.91
7/15 12:08	1784.7	183.4	483.02	11.03	447.45	9.93
7/15 12:09	1820.4	183.1	478.43	10.95	447.45	9.93
7/15 12:10	1787.2	183.4	474.23	10.89	448.28	9.93
7/15 12:11	1675.3	183.1	468.75	10.79	446.20	9.93
7/15 12:12	1699.9	183.2	464.17	10.73	446.62	9.93
7/15 12:13	1739.2	183.3	459.90	10.67	446.20	9.93
7/15 12:14	1751.5	183.3	457.82	10.58	447.03	9.93
7/15 12:15	1746.6	183.3	453.23	10.51	448.70	9.94
7/15 12:16	1730.6	183.6	449.07	10.45	448.70	9.95
7/15 12:17	1728.2	183.8	446.97	10.40	448.70	9.94
7/15 12:18	1754.0	183.6	443.97	10.38	448.70	9.94
7/15 12:19	1736.8	183.6	443.55	10.38	448.70	9.94
7/15 12:20	1798.3	183.9	442.30	10.36	448.70	9.94
7/15 12:21	1830.2	183.8	441.05	10.36	446.62	9.95
7/15 12:22	1811.8	183.4	441.05	10.36	446.20	9.94
7/15 12:23	1781.0	183.2	441.47	10.36	446.20	9.95
7/15 12:24	1781.0	183.2	442.30	10.36	448.28	9.97
7/15 12:25	1726.9	183.4	443.13	10.36	450.78	10.01
Average (all)	1762.1	183.5	459.03	10.64	447.47	9.94
Total (all)	--	--	--	--	--	--
Minimum (all)	1675.3	183.1	441.05	10.36	444.95	9.89
Maximum (all)	1830.2	183.9	490.20	11.20	450.78	10.01
Average (valid values only)	1762.1	183.5	459.03	10.64	447.47	9.94
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/15/2014 12:37 PM thru 7/15/2014 12:57 PM

Timestamp	(Main Boiler) Total Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Megawatts 1-Min	(Reactor A) SO2 ppm 1-Min	(Reactor A) CO2% 1-Min	(Reactor B) SO2 ppm 1-Min	(Reactor B) CO2% 1-Min
7/15 12:37	1770.0	183.6	453.23	10.51	462.97	10.24
7/15 12:38	1758.9	183.2	454.90	10.51	464.22	10.26
7/15 12:39	1771.2	183.6	454.07	10.51	464.63	10.28
7/15 12:40	1786.0	183.8	454.90	10.51	466.30	10.31
7/15 12:41	1792.1	183.8	454.90	10.51	466.72	10.32
7/15 12:42	1714.6	183.9	454.90	10.51	466.30	10.33
7/15 12:43	1756.4	183.8	454.90	10.53	467.55	10.35
7/15 12:44	1758.9	183.7	454.90	10.56	468.38	10.35
7/15 12:45	1733.1	183.8	456.98	10.57	468.80	10.36
7/15 12:46	1771.2	183.5	458.23	10.59	471.30	10.37
7/15 12:47	1776.1	183.6	460.77	10.61	471.30	10.38
7/15 12:48	1758.9	183.7	462.07	10.62	471.30	10.38
7/15 12:49	1745.4	183.3	462.50	10.61	471.30	10.38
7/15 12:50	1781.0	183.6	460.33	10.62	471.30	10.39
7/15 12:51	1770.0	183.3	461.20	10.61	471.72	10.42
7/15 12:52	1773.7	183.6	459.90	10.61	471.72	10.43
7/15 12:53	1799.5	183.3	459.90	10.61	473.80	10.44
7/15 12:54	1739.2	183.5	461.63	10.61	474.63	10.46
7/15 12:55	1712.2	183.7	463.75	10.66	475.47	10.48
7/15 12:56	1790.9	183.6	465.00	10.68	476.30	10.50
7/15 12:57	1755.2	183.5	467.08	10.70	477.97	10.53
Average (all)	1762.6	183.6	458.86	10.58	470.19	10.38
Total (all)	--	--	--	--	--	--
Minimum (all)	1712.2	183.2	453.23	10.51	462.97	10.24
Maximum (all)	1799.5	183.9	467.08	10.70	477.97	10.53
Average (valid values only)	1762.6	183.6	458.86	10.58	470.19	10.38
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data
 Indiantown CoGen
 Data for 7/15/2014 1:07 PM thru 7/15/2014 1:27 PM

Timestamp	(Main Boiler) Total Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Megawatts 1-Min	(Reactor A) SO2 ppm 1-Min	(Reactor A) CO2% 1-Min	(Reactor B) SO2 ppm 1-Min	(Reactor B) CO2% 1-Min
7/15 13:07	1763.8	183.7	465.00	10.68	477.97	10.56
7/15 13:08	1783.5	183.7	467.50	10.68	480.88	10.56
7/15 13:09	1736.8	183.7	466.25	10.68	481.30	10.60
7/15 13:10	1781.0	183.8	468.75	10.73	482.97	10.61
7/15 13:11	1800.7	183.4	473.80	10.80	483.80	10.61
7/15 13:12	1768.7	183.6	478.43	10.90	483.80	10.62
7/15 13:13	1763.8	183.4	482.18	10.95	485.05	10.65
7/15 13:14	1771.2	182.4	484.68	10.97	484.63	10.64
7/15 13:15	1776.1	182.5	485.97	10.99	484.63	10.66
7/15 13:16	1786.0	182.3	487.68	11.06	486.30	10.67
7/15 13:17	1745.4	182.3	493.12	11.12	487.13	10.68
7/15 13:18	1778.6	182.2	496.47	11.16	489.63	10.71
7/15 13:19	1688.8	182.6	501.13	11.23	491.30	10.73
7/15 13:20	1713.4	182.4	504.47	11.25	491.30	10.75
7/15 13:21	1744.1	182.3	506.13	11.26	491.30	10.77
7/15 13:22	1741.7	182.7	507.80	11.26	493.47	10.78
7/15 13:23	1754.0	182.4	505.30	11.26	493.90	10.78
7/15 13:24	1724.5	182.6	505.30	11.26	493.90	10.78
7/15 13:25	1741.7	182.5	503.63	11.24	493.03	10.78
7/15 13:26	1746.6	182.4	504.05	11.24	493.90	10.78
7/15 13:27	1752.8	182.3	502.80	11.23	492.60	10.78
Average (all)	1755.4	182.8	490.02	11.05	487.75	10.69
Total (all)	--	--	--	--	--	--
Minimum (all)	1688.8	182.2	465.00	10.68	477.97	10.56
Maximum (all)	1800.7	183.8	507.80	11.26	493.90	10.78
Average (valid values only)	1755.4	182.8	490.02	11.05	487.75	10.69
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/15/2014 1:38 PM thru 7/15/2014 1:58 PM

Timestamp	(Main Boiler) Total Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Megawatts 1-Min	(Reactor A) SO2 ppm 1-Min	(Reactor A) CO2% 1-Min	(Reactor B) SO2 ppm 1-Min	(Reactor B) CO2% 1-Min
7/15 13:38	1777.4	182.0	491.45	11.03	492.60	10.76
7/15 13:39	1766.3	182.0	488.95	10.98	493.90	10.76
7/15 13:40	1756.4	182.5	487.70	10.96	493.90	10.76
7/15 13:41	1782.3	182.1	487.70	10.95	493.90	10.76
7/15 13:42	1754.0	182.5	485.97	10.92	493.90	10.76
7/15 13:43	1768.7	182.1	484.27	10.91	494.32	10.76
7/15 13:44	1761.4	182.3	482.60	10.88	495.15	10.77
7/15 13:45	1736.8	182.3	482.18	10.86	495.98	10.79
7/15 13:46	1729.4	182.4	481.35	10.83	497.23	10.80
7/15 13:47	1763.8	182.3	480.10	10.81	495.98	10.79
7/15 13:48	1772.4	182.8	479.68	10.81	496.40	10.80
7/15 13:49	1760.1	184.1	480.10	10.81	496.40	10.80
7/15 13:50	1723.2	184.2	480.10	10.79	496.40	10.81
7/15 13:51	1729.4	184.1	478.43	10.77	497.23	10.80
7/15 13:52	1729.4	184.4	477.60	10.76	498.48	10.81
7/15 13:53	1740.5	184.4	478.85	10.76	497.65	10.80
7/15 13:54	1752.8	184.4	477.60	10.76	496.40	10.78
7/15 13:55	1793.3	184.2	477.18	10.75	493.90	10.78
7/15 13:56	1734.3	184.4	475.52	10.72	493.90	10.76
7/15 13:57	1778.6	184.4	474.67	10.71	492.17	10.75
7/15 13:58	1783.5	184.3	473.37	10.69	490.88	10.74
Average (all)	1756.9	183.2	481.21	10.83	495.08	10.78
Total (all)	--	--	--	--	--	--
Minimum (all)	1723.2	182.0	473.37	10.69	490.88	10.74
Maximum (all)	1793.3	184.4	491.45	11.03	498.48	10.81
Average (valid values only)	1756.9	183.2	481.21	10.83	495.08	10.78
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data
 Indiantown CoGen
 Data for 7/15/2014 2:08 PM thru 7/15/2014 2:28 PM

Timestamp	(Main Boiler) Total Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Megawatts 1-Min	(Reactor A) SO2 ppm 1-Min	(Reactor A) CO2% 1-Min	(Reactor B) SO2 ppm 1-Min	(Reactor B) CO2% 1-Min
7/15 14:08	1766.3	185.3	463.33	10.53	493.47	10.76
7/15 14:09	1778.6	185.6	463.33	10.53	493.47	10.76
7/15 14:10	1805.6	185.3	462.50	10.53	491.30	10.76
7/15 14:11	1773.7	185.3	462.92	10.53	491.30	10.76
7/15 14:12	1820.4	185.3	462.50	10.53	492.60	10.76
7/15 14:13	1788.4	185.2	462.50	10.53	493.90	10.76
7/15 14:14	1804.4	185.4	463.75	10.53	493.90	10.76
7/15 14:15	1746.6	185.4	464.58	10.53	494.32	10.76
7/15 14:16	1725.7	185.5	466.67	10.55	495.98	10.76
7/15 14:17	1720.8	185.7	467.50	10.56	495.98	10.78
7/15 14:18	1741.7	185.5	467.50	10.56	496.40	10.78
7/15 14:19	1763.8	185.7	467.50	10.56	496.40	10.78
7/15 14:20	1714.6	185.4	466.25	10.56	494.73	10.77
7/15 14:21	1756.4	185.5	465.00	10.56	493.90	10.78
7/15 14:22	1739.2	185.5	464.17	10.55	493.90	10.78
7/15 14:23	1750.3	185.5	462.50	10.52	494.32	10.78
7/15 14:24	1789.7	185.3	462.50	10.50	495.98	10.78
7/15 14:25	1820.4	185.4	462.07	10.47	495.57	10.78
7/15 14:26	1745.4	185.5	460.77	10.45	495.15	10.78
7/15 14:27	1811.8	185.2	459.90	10.45	494.73	10.78
7/15 14:28	1774.9	185.2	459.48	10.46	495.57	10.78
Average (all)	1768.5	185.4	463.68	10.52	494.42	10.77
Total (all)	--	--	--	--	--	--
Minimum (all)	1714.6	185.2	459.48	10.45	491.30	10.76
Maximum (all)	1820.4	185.7	467.50	10.56	496.40	10.78
Average (valid values only)	1768.5	185.4	463.68	10.52	494.42	10.77
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen
Data for 7/15/2014 2:38 PM thru 7/15/2014 2:58 PM

Timestamp	(Main Boiler) Total Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Megawatts 1-Min	(Reactor A) SO2 ppm 1-Min	(Reactor A) CO2% 1-Min	(Reactor B) SO2 ppm 1-Min	(Reactor B) CO2% 1-Min
7/15 14:38	1756.4	185.5	461.20	10.48	493.90	10.78
7/15 14:39	1765.1	185.5	462.07	10.48	493.90	10.77
7/15 14:40	1749.1	185.5	461.20	10.48	491.30	10.76
7/15 14:41	1763.8	185.6	459.90	10.44	490.88	10.73
7/15 14:42	1746.6	185.3	456.98	10.33	488.80	10.71
7/15 14:43	1752.8	185.2	451.15	10.22	487.13	10.68
7/15 14:44	1763.8	185.2	445.68	10.12	485.47	10.62
7/15 14:45	1752.8	185.0	441.05	10.08	484.22	10.55
7/15 14:46	1724.5	185.0	438.55	10.03	480.47	10.48
7/15 14:47	1793.3	185.2	435.63	10.00	476.30	10.42
7/15 14:48	1822.9	185.5	433.50	9.97	474.22	10.37
7/15 14:49	1778.6	185.2	431.78	9.92	471.72	10.35
7/15 14:50	1755.2	185.6	429.70	9.88	470.05	10.33
7/15 14:51	1771.2	185.4	427.20	9.85	469.22	10.33
7/15 14:52	1786.0	185.1	424.70	9.83	468.80	10.31
7/15 14:53	1754.0	185.2	424.70	9.84	467.97	10.31
7/15 14:54	1777.4	185.1	424.70	9.83	468.80	10.31
7/15 14:55	1745.4	185.0	426.37	9.84	468.80	10.31
7/15 14:56	1767.5	185.4	424.70	9.83	469.22	10.32
7/15 14:57	1758.9	185.3	424.70	9.83	471.30	10.33
7/15 14:58	1752.8	185.3	424.70	9.83	471.30	10.33
Average (all)	1763.7	185.3	438.58	10.05	478.27	10.48
Total (all)	--	--	--	--	--	--
Minimum (all)	1724.5	185.0	424.70	9.83	467.97	10.31
Maximum (all)	1822.9	185.6	462.07	10.48	493.90	10.78
Average (valid values only)	1763.7	185.3	438.58	10.05	478.27	10.48
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/15/2014 3:12 PM thru 7/15/2014 3:32 PM

Timestamp	(Main Boiler) Total Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Megawatts 1-Min	(Reactor A) SO2 ppm 1-Min	(Reactor A) CO2% 1-Min	(Reactor B) SO2 ppm 1-Min	(Reactor B) CO2% 1-Min
7/15 15:12	1814.3	185.2	432.20	9.93	475.05	10.43
7/15 15:13	1709.7	185.4	432.20	9.98	476.30	10.46
7/15 15:14	1756.4	185.4	432.63	10.00	476.30	10.47
7/15 15:15	1765.1	185.3	434.80	10.02	476.30	10.47
7/15 15:16	1739.2	185.4	435.22	10.04	475.88	10.49
7/15 15:17	1798.3	185.4	437.30	10.06	477.97	10.51
7/15 15:18	1713.4	185.0	438.55	10.08	479.63	10.52
7/15 15:19	1745.4	185.2	439.80	10.09	480.05	10.55
7/15 15:20	1767.5	185.3	440.22	10.12	481.30	10.55
7/15 15:21	1783.5	185.4	442.30	10.13	481.30	10.56
7/15 15:22	1771.2	185.1	442.30	10.14	481.30	10.56
7/15 15:23	1771.2	185.3	442.72	10.16	481.30	10.57
7/15 15:24	1751.5	185.5	444.80	10.19	481.30	10.57
7/15 15:25	1783.5	185.2	445.23	10.21	480.88	10.58
7/15 15:26	1734.3	185.3	446.53	10.21	480.88	10.57
7/15 15:27	1744.1	185.5	446.53	10.21	481.30	10.57
7/15 15:28	1783.5	185.3	448.65	10.22	483.80	10.58
7/15 15:29	1790.9	185.2	449.90	10.22	484.22	10.58
7/15 15:30	1754.0	185.3	449.90	10.23	484.22	10.58
7/15 15:31	1742.9	185.2	449.90	10.23	484.63	10.59
7/15 15:32	1788.4	185.4	449.90	10.23	486.30	10.61
Average (all)	1762.3	185.3	441.98	10.13	480.49	10.54
Total (all)	--	--	--	--	--	--
Minimum (all)	1709.7	185.0	432.20	9.93	475.05	10.43
Maximum (all)	1814.3	185.5	449.90	10.23	486.30	10.61
Average (valid values only)	1762.3	185.3	441.98	10.13	480.49	10.54
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data

Indiantown CoGen

Data for 7/15/2014 3:42 PM thru 7/15/2014 4:02 PM

Timestamp	(Main Boiler) Total Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Megawatts 1-Min	(Reactor A) SO2 ppm 1-Min	(Reactor A) CO2% 1-Min	(Reactor B) SO2 ppm 1-Min	(Reactor B) CO2% 1-Min
7/15 15:42	1763.8	185.3	450.73	10.22	487.97	10.62
7/15 15:43	1765.1	185.4	451.98	10.23	486.30	10.62
7/15 15:44	1758.9	185.3	452.40	10.23	486.30	10.62
7/15 15:45	1738.0	185.3	452.82	10.26	485.47	10.62
7/15 15:46	1741.7	185.5	451.98	10.26	485.47	10.61
7/15 15:47	1772.4	185.4	449.90	10.26	484.22	10.61
7/15 15:48	1778.6	185.1	449.90	10.26	483.38	10.59
7/15 15:49	1755.2	185.2	449.90	10.26	481.30	10.59
7/15 15:50	1722.0	185.1	448.65	10.26	481.30	10.59
7/15 15:51	1814.3	185.4	447.82	10.26	482.13	10.58
7/15 15:52	1777.4	185.2	447.40	10.26	483.38	10.58
7/15 15:53	1749.1	185.3	447.40	10.23	483.80	10.58
7/15 15:54	1760.1	185.3	444.80	10.21	482.55	10.58
7/15 15:55	1800.7	185.3	444.80	10.21	482.55	10.58
7/15 15:56	1805.6	185.4	444.80	10.21	482.97	10.58
7/15 15:57	1749.1	185.4	444.80	10.21	482.55	10.58
7/15 15:58	1763.8	185.3	444.80	10.21	483.38	10.58
7/15 15:59	1749.1	185.3	444.80	10.20	483.80	10.58
7/15 16:00	1738.0	185.4	444.80	10.21	482.97	10.59
7/15 16:01	1747.8	185.2	445.23	10.21	483.80	10.59
7/15 16:02	1709.7	185.3	444.80	10.21	482.55	10.59
Average (all)	1760.0	185.3	447.83	10.23	483.72	10.59
Total (all)	--	--	--	--	--	--
Minimum (all)	1709.7	185.1	444.80	10.20	481.30	10.58
Maximum (all)	1814.3	185.5	452.82	10.26	487.97	10.62
Average (valid values only)	1760.0	185.3	447.83	10.23	483.72	10.59
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

CeDAR 1-Minute Data
 Indiantown CoGen
 Data for 7/15/2014 4:12 PM thru 7/15/2014 4:32 PM

Timestamp	(Main Boiler) Total Heat Input Rate 1-Min mmBtu/hr	(Main Boiler) Megawatts 1-Min	(Reactor A) SO2 ppm 1-Min	(Reactor A) CO2% 1-Min	(Reactor B) SO2 ppm 1-Min	(Reactor B) CO2% 1-Min
7/15 16:12	1701.1	185.2	447.82	10.24	478.80	10.53
7/15 16:13	1749.1	185.2	449.48	10.25	478.80	10.53
7/15 16:14	1715.9	185.1	450.32	10.28	477.55	10.52
7/15 16:15	1773.7	185.0	452.40	10.31	479.22	10.52
7/15 16:16	1778.6	185.0	454.07	10.33	479.22	10.52
7/15 16:17	1761.4	185.3	454.90	10.33	479.22	10.52
7/15 16:18	1754.0	185.2	454.90	10.34	478.80	10.53
7/15 16:19	1768.7	185.1	455.73	10.35	478.80	10.53
7/15 16:20	1760.1	185.0	454.90	10.36	478.38	10.51
7/15 16:21	1719.5	185.0	454.90	10.36	478.80	10.50
7/15 16:22	1742.9	185.1	454.90	10.37	478.38	10.51
7/15 16:23	1691.3	185.3	456.98	10.41	478.80	10.51
7/15 16:24	1754.0	185.2	457.82	10.42	476.72	10.51
7/15 16:25	1683.9	185.1	459.07	10.43	478.80	10.51
7/15 16:26	1725.7	185.1	459.90	10.44	478.80	10.51
7/15 16:27	1760.1	185.4	459.48	10.44	480.47	10.51
7/15 16:28	1787.2	185.2	459.90	10.43	481.30	10.51
7/15 16:29	1781.0	185.3	459.90	10.44	481.30	10.51
7/15 16:30	1718.3	185.5	459.90	10.44	479.63	10.51
7/15 16:31	1761.4	185.4	459.07	10.44	481.30	10.51
7/15 16:32	1749.1	185.0	459.90	10.44	480.88	10.51
Average (all)	1744.6	185.2	456.01	10.37	479.24	10.52
Total (all)	--	--	--	--	--	--
Minimum (all)	1683.9	185.0	447.82	10.24	476.72	10.50
Maximum (all)	1787.2	185.5	459.90	10.44	481.30	10.53
Average (valid values only)	1744.6	185.2	456.01	10.37	479.24	10.52
Total (valid values only)	--	--	--	--	--	--
Count (valid values only)	21	21	21	21	21	21

APPENDIX 3
QUALITY ASSURANCE



LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis

Customer Coastal Air Consulting (Deland, FL)
Date June 04, 2014
Delivery Receipt DR-51892
Product: Nitrogen, CEMS Grade
Lot Number: LTE274-PG

Mixture Specifications

Cylinder Number EB-0042772

<u>Components</u>	<u>Requested</u>	<u>Actual</u>
Moisture	2.0 ppm	< 2.0 ppm
Hydrocarbons	0.1 ppm	< 0.1 ppm
Oxygen	1.0 ppm	< 1.0 ppm
Carbon Monoxide	1.0 ppm	< 1.0 ppm
Carbon Dioxide	1.0 ppm	< 1.0 ppm
Nitrogen	99.9995%	99.9995%

Cylinder Data

Cylinder Valve: CGA 580
Cylinder Volume: 140 Cubic Feet
Cylinder Pressure: 2000 psig, 70°F
Expiration Date: June 04, 2017

Certified by:

Cole Dylewski

Cole Dylewski

"UNMATCHED EXCELLENCE"



LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis - EPA PROTOCOL GAS -

Customer: Coastal Air Consulting (Deland, FL)
Date: November 07, 2013
Delivery Receipt: DR-49129
Gas Standard: 90-99 ppm NO, 90-99 ppm SO2, 90-99 ppm CO/Nitrogen - EPA PROTOCOL
Final Analysis Date: November 06, 2013
Expiration Date: November 06, 2021 ✓

Components: Nitric Oxide, Sulfur Dioxide, Carbon Monoxide
Balance Gas: Nitrogen

Analytical Data: **DO NOT USE BELOW 100 psig**
 EPA Protocol, Section No. 2.2, Procedure G-1

Reported Concentrations
Nitric Oxide: 93.2 ppm +/- 0.22 ppm ✓
Sulfur Dioxide: 92.1 ppm +/- 0.90 ppm
Carbon Monoxide: 97.3 ppm +/- 0.30 ppm
Nitrogen: Balance
Total Oxides of Nitrogen: 93.2 ppm

** Total NOX for Reference Use Only **

Reference Standards:

SRM/GMIS:	GMIS	GMIS	GMIS
Cylinder Number:	CC-252014	CC-54548	EB-0015851
Concentration:	97.25 ppm NO/Nitrogen	102.43 ppm SO2 N2	104.90 ppm CO/Nitrogen
Expiration Date:	03/21/21	12 01 14	10/21/14

Certification Instrumentation

Component:	Nitric Oxide	Sulfur Dioxide	Carbon Monoxide
Make/Model:	Nicolet 6700	Nicolet 6700	Nicolet 6700
Serial Number:	APW1100563	APW1100563	APW1100563
Principal of Measurement:	FTIR	FTIR	FTIR
Last Calibration:	October 23, 2013	October 23, 2013	October 16, 2013

Cylinder Data

Cylinder Serial Number:	CC-88806	✓	Cylinder Outlet:	CGA 660
Cylinder Volume:	135 Cubic Feet		Cylinder Pressure:	1925 psig, 70°F

Analytical Uncertainty and NIST Traceability are in compliance with EPA-600/R-12/531.

Certified by: *Cole Dylewski*
 Cole Dylewski

PGVP Vendor ID: E12013 ✓



LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis - EPA PROTOCOL GAS -

Customer Coastal Air Consulting (Deland, FL)
Date April 03, 2013
Delivery Receipt DR-46482
Gas Standard 185-225 ppm NO, 185-225 ppm SO2, 185-225 ppm CO/Nitrogen - EPA PROTOCOL
Final Analysis Date April 02, 2013
Expiration Date April 02, 2021 ✓

Components Nitric Oxide, Sulfur Dioxide, Carbon Monoxide
Balance Gas Nitrogen

Analytical Data
 EPA Protocol, Section No. 2.2. Procedure G-1

DO NOT USE BELOW 100 psig

Reported Concentrations
Nitric Oxide: 212 ppm +/- 1.0 ppm ✓
Sulfur Dioxide: 213 ppm +/- 1.4 ppm ✓
Carbon Monoxide: 215 ppm +/- 1.0 ppm ✓
Nitrogen: Balance
Total Oxides of Nitrogen: 213 ppm

** Total NOX for Reference Use Only **

Reference Standards

SRM/GMIS:	GMIS	GMIS/GMIS	GMIS
Cylinder Number:	ND-45515	CC-54548 CC-251490	CC-185111
Concentration:	245.26 ppm NO Nitrogen	102.43 ppm SO2 507.88 ppm SO2	257.47 ppm CO/Nitrogen
Expiration Date:	08/23/20	04/12/14 - 04/12/14	10/22/14


Certification Instrumentation

Component:	Nitric Oxide	Sulfur Dioxide	Carbon Monoxide
Make/Model:	Nicolet 6700	Nicolet 6700	Nicolet 6700
Serial Number:	APW1100563	APW1100563	APW1100563
Principal of Measurement:	FTIR	FTIR	FTIR
Last Calibration:	March 28, 2013	March 28, 2013	March 28, 2013

Cylinder Data

Cylinder Serial Number:	CC-165576 ✓	Cylinder Outlet:	CGA 660
Cylinder Volume:	135 Cubic Feet	Cylinder Pressure:	1925 psig, 70°F

Analytical Uncertainty and NIST Traceability are in compliance with EPA-600/R-12/531.

Certified by: 
 David Scott

PGVP Vendor ID E12013 ✓



LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis **- EPA PROTOCOL GAS -**

<u>Customer</u>	<u>Coastal Air Consulting (Deland, FL)</u>
<u>Date</u>	<u>June 04, 2014</u>
<u>Delivery Receipt</u>	<u>DR-51892</u>
<u>Gas Standard</u>	<u>8.50% CO2, 12.0% Oxygen/Nitrogen - EPA PROTOCOL</u>
<u>Final Analysis Date</u>	<u>June 04, 2014</u>
<u>Expiration Date</u>	<u>June 04, 2022</u>
<u>Component</u>	<u>Carbon Dioxide, Oxygen</u>
<u>Balance Gas</u>	<u>Nitrogen</u>

Analytical Data:
EPA Protocol, Section No. 2.2, Procedure G-1

DO NOT USE BELOW 100 psig

Reported Concentrations
Carbon Dioxide: 8.42% +/- 0.06%
Oxygen: 11.9% +/- 0.05%
Nitrogen: Balance

Reference Standards:

SRM/GMIS:	GMIS/GMIS	GMIS
Cylinder Number:	EB-0026839/EB-0051547	CC-231332
Concentration:	6.847% CO2/9.923% CO2	9.96% Oxygen/Nitrogen
Expiration Date:	10/03/20 - 06/24/20	04/17/22

Certification Instrumentation

Component:	Carbon Dioxide	Oxygen
Make/Model:	Nicolet 6700	Servomex 244a
Serial Number:	APW1100563	1847
Principal of Measurement:	FTIR	Paramagnetic
Last Calibration:	May 15, 2014	May 01, 2014

Cylinder Data

Cylinder Serial Number:	CC-252000	Cylinder Outlet:	CGA 590
Cylinder Volume:	136 Cubic Feet	Cylinder Pressure:	1925 psig, 70°F

Analytical Uncertainty and NIST Traceability are in compliance with EPA-600/R-12/531.

Certified by: *Cole Dylewski*
Cole Dylewski

PGVP Vendor ID: E12014

"UNMATCHED EXCELLENCE"



LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis - EPA PROTOCOL GAS -

Customer Coastal Air Consulting (Deland, FL)
Date November 01, 2011
Delivery Receipt DR-39306
Gas Standard 17.0-18.0% CO₂, 22.0-23.0% Oxygen/Nitrogen - EPA PROTOCOL
Final Analysis Date November 01, 2011
Expiration Date November 01, 2014 ✓

Component Carbon Dioxide, Oxygen
Balance Gas Nitrogen

Analytical Data: DO NOT USE BELOW 150 psig
 EPA Protocol, Section No. 2.2. Procedure G-1

Reported Concentrations
Carbon Dioxide: 17.1% +/- 0.17% ✓
Oxygen: 22.7% +/- 0.22% ✓
Nitrogen: Balance

Reference Standards:

SRM/GMIS:	GMIS/GMIS	GMIS
Cylinder Number:	CC-252091 CC-184464	CC-159090
Concentration:	15.816% CO ₂ 19.87% CO ₂	20.72% Oxygen/Nitrogen
Expiration Date:	02/04/13 - 02/04/13	05/06/12

Certification Instrumentation

Component:	Carbon Dioxide	Oxygen
Make/Model:	Horiba - VIA 510	Servomex 244a
Serial Number:	SN075GSI	1847
Principal of Measurement:	NDIR	Paramagnetic
Last Calibration:	October 10, 2011	October 09, 2011

Cylinder Data

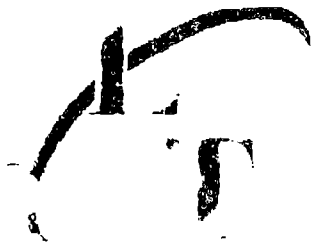
Cylinder Serial Number:	CC-159134 ✓	Cylinder Outlet:	CGA 590
Cylinder Volume:	140 Cubic Feet	Cylinder Pressure:	2000 psig, 70°F

Analytical Uncertainty and NIST Traceability are in compliance with EPA-600/R-97/121.

Certified by: 
 Adam Strickland

PGVP Vendor ID: E12011 ✓

"UNMATCHED EXCELLENCE"



LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis - EPA PROTOCOL GAS -

Customer Coastal Air Consulting (Deland, FL)
Date August 08, 2012
Delivery Receipt DR-43385
Gas Standard 700 - 750 ppm Sulfur Dioxide/Nitrogen - EPA PROTOCOL
Final Analysis Date August 02, 2012
Expiration Date August 02, 2015

DO NOT USE BELOW 150 psig

Analytical Data
 EPA Protocol, Section No. 2.2, Procedure G-1

Replicate Concentrations
Sulfur Dioxide: 734 ppm +/- 7.3 ppm
Nitrogen: Balance

Reference Standard(s):

SRM: GMIS:	GMIS	GMIS
Cylinder Number:	EB-0017372	CC-185372
Concentration:	520.82 ppm SO2 Nitrogen	912.6 ppm SO2 Nitrogen
Expiration Date:	04 12 13	01 11 13

Certification Instrumentation

Component:	Sulfur Dioxide
Make/Model:	Horiba - VIA 510
Serial Number:	XXS215YW
Principal of Measurement:	NDIR
Last Calibration:	July 28, 2012

Cylinder Data

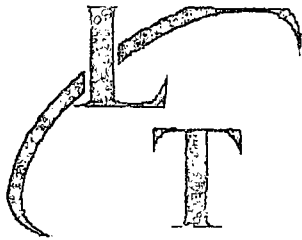
Cylinder Number:	CC-112023	Cylinder Volume:	140 Cubic Feet
Cylinder Outlet:	CGA 660	Cylinder Pressure:	2000 psig, 70°F
Expiration Date:	August 02, 2015		

Analytical uncertainty and NIST Traceability are in compliance with EPA-600/R-97/121.

Certified by: 
 Adam Strickland

PGVP Vendor ID: E12012

"UNMATCHED EXCELLENCE"



LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis - EPA PROTOCOL GAS -

Customer Coastal Air Consulting (Deland, FL)
Date June 25, 2014
Delivery Receipt DR-52042
Gas Standard 1200 ppm Sulfur Dioxide/Nitrogen - EPA PROTOCOL
Final Analysis Date June 24, 2014
Expiration Date June 24, 2022 ✓

DO NOT USE BELOW 100 psig

Analytical Data
EPA Protocol, Section No. 2.2, Procedure G-1

Replicate Concentrations
Sulfur Dioxide: 1249 ppm +/- 5.0 ppm ✓
Nitrogen: Balance

Reference Standard(s):

SRM/GMIS:	GMIS	GMIS
Cylinder Number:	CC-184966	CC-54550
Concentration:	507.10 ppm SO ₂ :Nitrogen	746.54 ppm SO ₂ Nitrogen
Expiration Date:	11/02/20	03/06/21

Certification Instrumentation

Component: Sulfur Dioxide
 Make/Model: Nicolet 6700
 Serial Number: APW1100563
 Principal of Measurement: FTIR
 Last Calibration: May 29, 2014

Cylinder Data

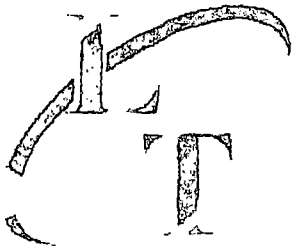
Cylinder Number:	CC-231406 ✓	Cylinder Volume:	135 Cubic Feet
Cylinder Outlet:	CGA 660	Cylinder Pressure:	1925 psig, 70°F
Expiration Date:	June 24, 2022		

Analytical uncertainty and NIST Traceability are in compliance with EPA-600/R-12/531.

Certified by: *Cole Dylewski*
 Cole Dylewski

PGVP Vendor ID: E12014 ✓

"UNMATCHED EXCELLENCE"



LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis
- EPA PROTOCOL GAS -
** Recertification **

Customer Coastal Air Consulting (Deland, FL)
Date November 14, 2013
Delivery Receipt DR-49187
Gas Standard 45.0 ppm Nitrogen Dioxide/Air - EPA PROTOCOL
Final Analysis Date November 12, 2013
Expiration Date November 12, 2016 ✓

Cylinder Data
Cylinder Serial Number: EB-0026837 ✓
Cylinder Volume: 70 Cubic Feet
Expiration Date: November 12, 2016

DO NOT USE BELOW 150 psig

Cylinder Outlet: CGA 660
Cylinder Pressure: 1000 psig, 70°F

Analytical Data
EPA Protocol, Section No. 2.2, Procedure G-1

- Replicate Concentrations -
Nitrogen Dioxide: 45.2 ppm +/- 0.44 ppm ✓
Air: Balance

Reference Standard(s):
SRM/GMIS: GMIS
Cylinder Number: CC-185381
Concentration: 50.584 ppm NO₂/Nitrogen
Expiration Date: 04/21/15

Certification Instrumentation
Component: Nitrogen Dioxide
Make/Model: Horiba - CA 510
Serial Number: 43331870031
Principal of Measurement: Chemiluminescence
Last Calibration: October 10, 2013

Analytical uncertainty and NIST Traceability are in compliance with EPA-600/R-12/531.

Certified by: *Cole Dylewski*
Cole Dylewski

PGVP Vendor ID: E12013 ✓

Original Data: 44.3 ppm NO₂ Air (November 01, 2011)

COASTAL AIR CONSULTING, INC.

Plant: ICLP
Unit: PC Boiler

Test Date: 7/16/2014
Check Date: 7/12/2014

NO₂ to NO Converter Efficiency Check

Analyzer : Thermo 42C HL		NO ₂ Audit Gas Value (C _v):	45.2
Serial Number: 72772-372		NO Calibration Gas Value:	46.4
Method: 7E			
<u>Date & Time</u>	<u>NO_x ppm</u>		
7/12/2014 11:10	0.10	zero gas	NO ₂ to NO Conversion Efficiency Test using Equation 7E-7
7/12/2014 11:12	46.30	span gas	
			$\text{Eff}_{\text{NO}_2} = \frac{C_{\text{Dir}}}{C_v} \times 100$
7/12/2014 11:16	44.20		
7/13/2014 11:17	44.00		
			Eff NO ₂ = 97.6
AVERAGE	44.10	(C _{Dir})	

Method 7E NO₂ to NO Conversion Efficiency Test

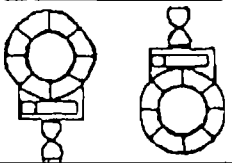
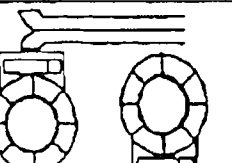
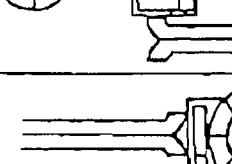
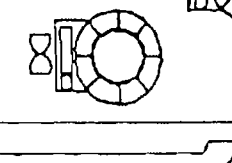
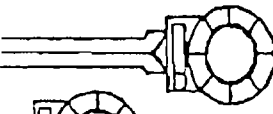

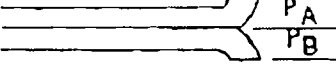
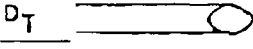
8.2.4.1. Introduce NO₂ converter efficiency gas to the analyzer in direct calibration mode and record the NO_x concentration displayed by the analyzer. Calculate the converter efficiency using Equation 7E-7 in Section 12.7. The specification for converter efficiency in Section 13.5 must be met. The NO₂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

Eff_{NO₂} = NO₂ to NO converter efficiency, percent.

C_{Dir} = Measured concentration of a calibration gas when introduced in direct calibration mode, ppmv.

C_v = Manufacturer certified concentration of a calibration gas, ppmv.

TYPE "S" PITOT TUBE CALIBRATION

PARAMETER	SPECIFICATION	EXAMPLE	MEASUREMENT INSTRUMENT
IMPACT/ a1	(< 10 DEG)		DEGREE INDICATING LEVEL
STATIC/ a2	(< 10 DEG)		DEGREE INDICATING LEVEL
STATIC/ B1	(< 5 DEG)		DEGREE INDICATING LEVEL
IMPACT/ B2	(< 5 DEG)		DEGREE INDICATING LEVEL
γ	DEGREES		DEGREE INDICATING LEVEL
θ	DEGREES		DEGREE INDICATING LEVEL
P_A	INCHES		RULER
P_B	INCHES		
$P_A + P_B = A$	INCHES		
D_T	INCHES		MICROMETER

$$Z = A \sin \gamma \text{ (LIMIT } < 0.125 \text{ INCHES)}$$

$$W = A \sin \theta \text{ (LIMIT } < 0.03125 \text{ INCHES)}$$

PITOT #	a1	a2	B1	B2	γ	θ	P_A	P_B	A	D_T	Z	W	DAMAGE ?
Flow	3	4	2	2	0	0	0.4920	0.4920	0.9840	0.3940	0	0	None
CAC 9	4	4	2	2	0	0	0.4855	0.4855	0.9710	0.3770	0	0	None

CALIBRATED BY: scw **DATE:** 7-13-14

**THERMOCOUPLE POSTTEST
CALIBRATION CHECK**

Standard: National Bureau of Standards Thermocouple

Reference: Q.A. sec 3.1.2

Procedure: Test thermocouple and NBS thermocouple are wrapped in a heating mat. The temperature is controlled by the current flow into the mat, and is stabilized at a point within 10% of the average stack temperature during the test.

Tolerance: +/- 1.5% of actual absolute temperature

Test site: ICLP	Check date: 7/19/14
Test date: 7/16-17/14	Check by: S. C. Webb
Avg. stack temp. 190 F	<i>Steve Webb</i>

T/C #	LENGTH ft	REFERENCE TEMP. F	MEASURED TEMP. F	DIFFERENCE %
9	9	220	221	0.15
Flow	12	220	219	-0.15

**APEX INSTRUMENTS METHOD 5 POST-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
3-POINT ENGLISH UNITS**

Meter Console Information	
Console Model Number	CAC 2
Console Serial Number	
DGM Model Number	
DGM Serial Number	

Calibration Conditions			
Date	Time	19-Jul-14	1:00 PM
Barometric Pressure		30.0	in Hg
Theoretical Critical Vacuum ¹		14.2	in Hg
Calibration Technician			

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K ₁	17.647	ccR/in Hg

¹For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

²The Critical Orifice Coefficient, K₁, must be entered in English units, (ft³•ccR^{1/2})/(in.Hg^{1/2}•min).

Calibration Data										
Run Time	Metering Console					Critical Orifice				
Elapsed	DGM Orifice ΔH	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(@)	(P _m)	(V _m)	(V _m)	(t _m)	(t _m)		K ₁	(t _{atm})	(t _{atm})	
min	in H ₂ O	cubic feet	cubic feet	°F	°F		see above ²	°F	°F	in Hg
10.0	1.9	619.600	627.518	92	94	63	0.6000	95	95	16
10.0	1.9	627.518	635.450	94	97	63	0.6000	95	96	16
10.0	1.9	635.450	643.392	97	98	63	0.6000	96	96	16

Results								
Standardized Data				Dry Gas Meter				
Dry Gas Meter		Critical Orifice		Calibration Factor		Flowrate	ΔH @	
(V _{gas})	(Q _{meter})	(V _{gas})	(Q _{orifice})	Value	Variation	Std & Corr	0.75 SCFM	Variation
cubic feet	cfm	cubic feet	cfm	(Y)	(ΔY)	(Q _{gas})	(ΔH@)	(ΔΔH@)
						cfm	in H ₂ O	
7.618	0.762	7.643	0.764	1.003	-0.002	0.764	1.770	0.006
7.597	0.760	7.640	0.764	1.006	0.000	0.764	1.763	-0.001
7.579	0.758	7.636	0.764	1.007	0.002	0.764	1.759	-0.005
Pretest Gamma		% Deviation	Enter Data	1.005	Y Average		1.764	ΔH@ Average

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is ±0.02

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, CFR Title 40, Part 60, Appendix A-3, Method 5, 16.2.3

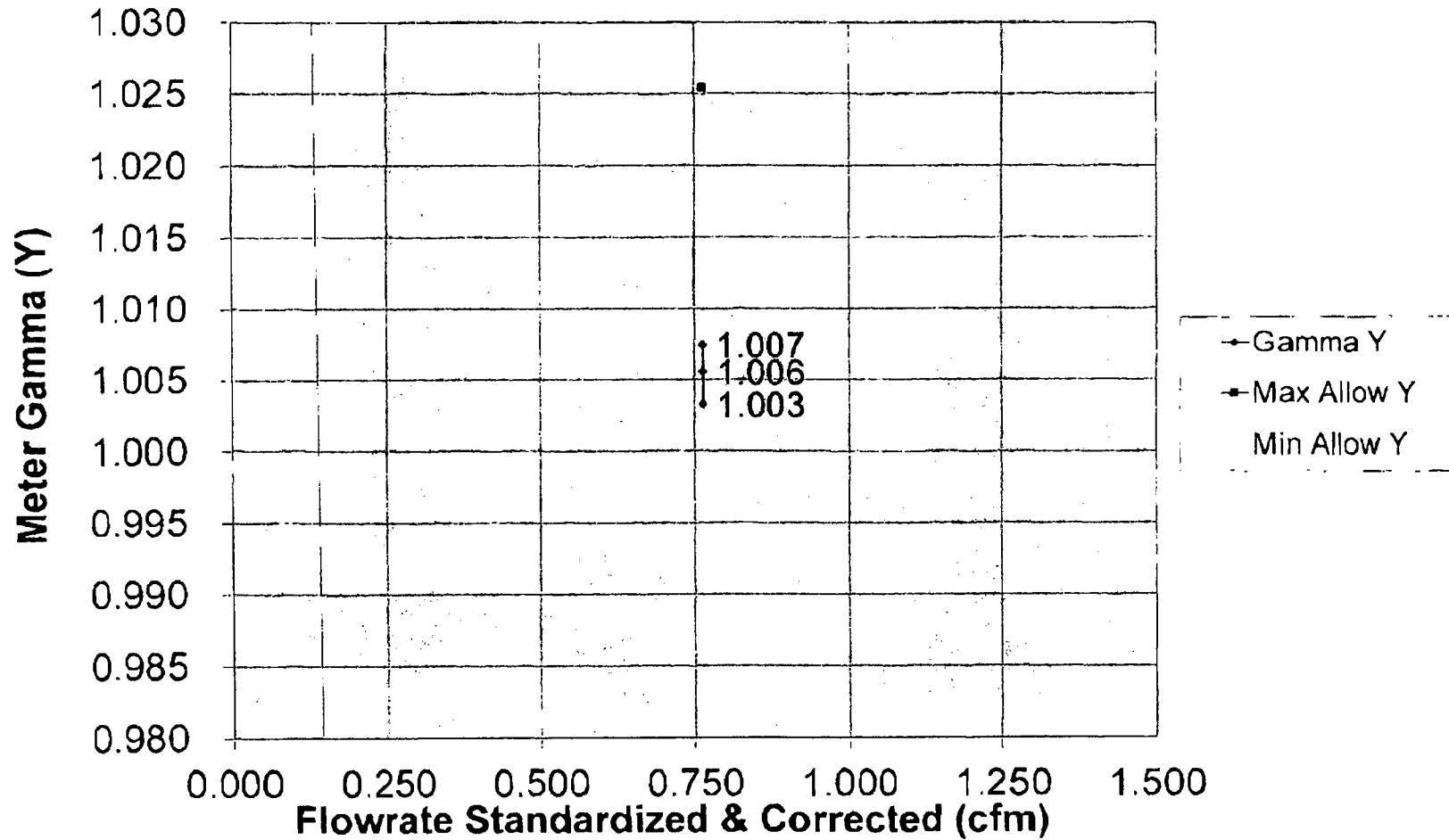
Signature

Stephan C. Webb

Date

7-19-14

Meter Gamma vs Flowrate



APEX INSTRUMENTS METHOD 5 PRE-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
5-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	CAC 2
Console Serial Number	
DGM Model Number	
DGM Serial Number	

Calibration Conditions			
Date	Time	21-Oct-13	17:00
Barometric Pressure		30.1	in Hg
Theoretical Critical Vacuum ¹		14.2	in Hg
Calibration Technician		SCW	

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K _s	17.647	in Hg/min

¹For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

²The Critical Orifice Coefficient, K_s, must be entered in English units, (in³·R^{1/2}/(in²·min))

Run Time	Elapsed Time	DGM Orifice	Metering Console			Serial Number	Conditions	Critical Orifice		Actual Vacuum
			Volume Initial	Volume Final	Outlet Temp Initial			Outlet Temp Final	Arb Temp Initial	
16.0	0.2	0.5	563.00	563.00	87	87	0.24 (2)	85	85	16
18.0	0.8	0.8	563.00	568.00	88	88	0.35 (1)	85	85	16
19.1	1.1	1.1	563.13	575.13	88	88	0.47 (1)	85	85	16
19.2	1.2	1.2	563.00	581.00	88	88	0.40 (0)	86	86	16
19.3	1.3	1.3	563.00	578.00	88	88	0.31 (1)	86	86	16

Standardized Data				Results		Dry Gas Meter		
Dry Gas Meter		Critical Orifice		Calibration Factor		Flow Rate	Std & Cov	Variance
Volume	Orifice	Volume	Orifice	Value	Variance	Flow Rate	Std & Cov	Variance
5.166	0.323	5.816	0.314	0.921	0.016	0.514	1.022	0.015
4.145	0.405	4.606	0.461	0.931	0.024	0.401	1.127	0.068
4.872	0.609	4.859	0.607	0.997	0.010	0.607	1.037	0.017
5.457	0.780	5.414	0.773	0.999	0.006	0.773	1.040	0.025
5.503	1.101	5.420	1.094	0.985	0.022	1.094	1.044	0.029
				0.987	1 Average		1.615	1.528 Average

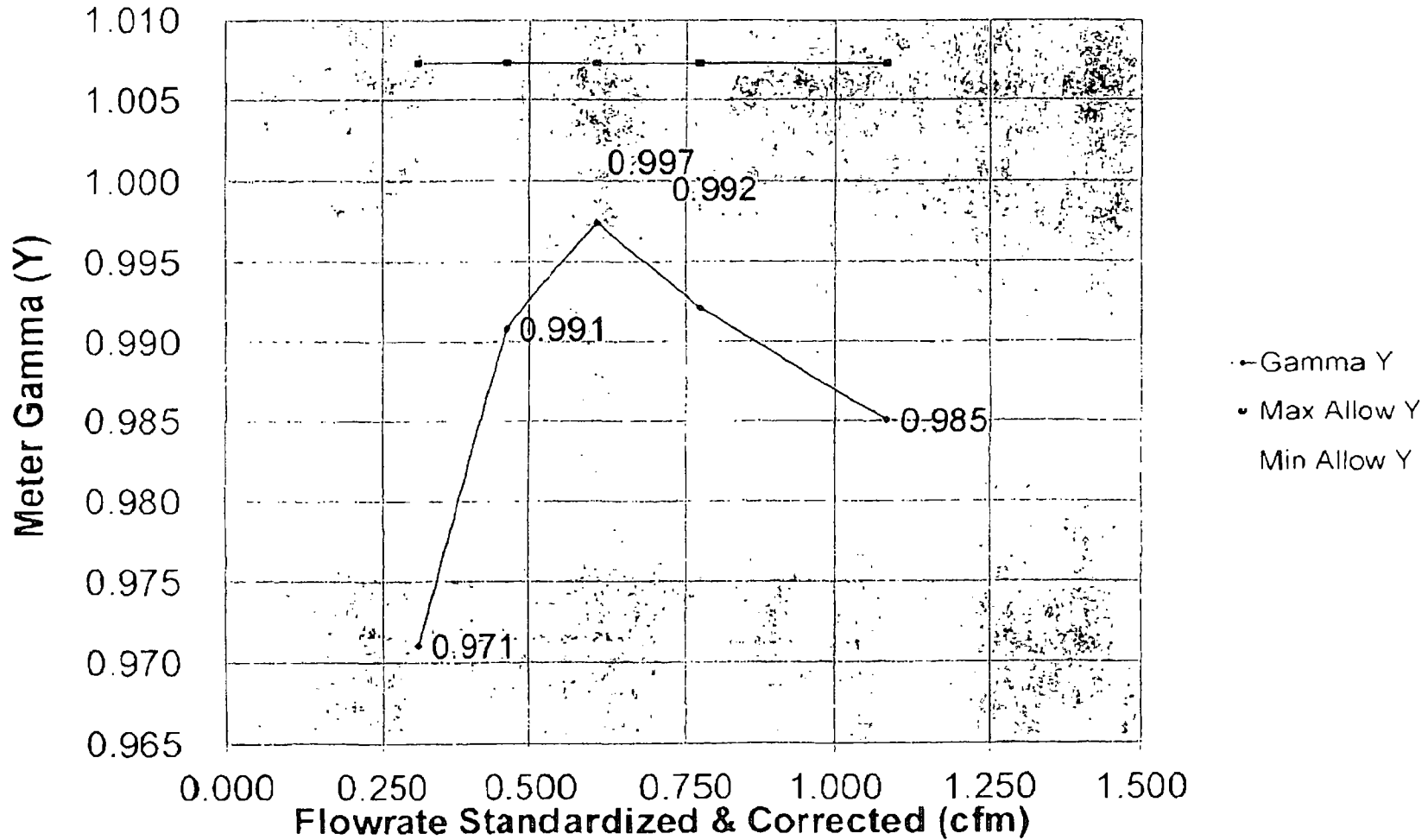
Note: For Calibration Factor 7, the ratio of the reading of the calibration meter to the dry gas meter, accepted to 1 decimal if the average is < 0.90.

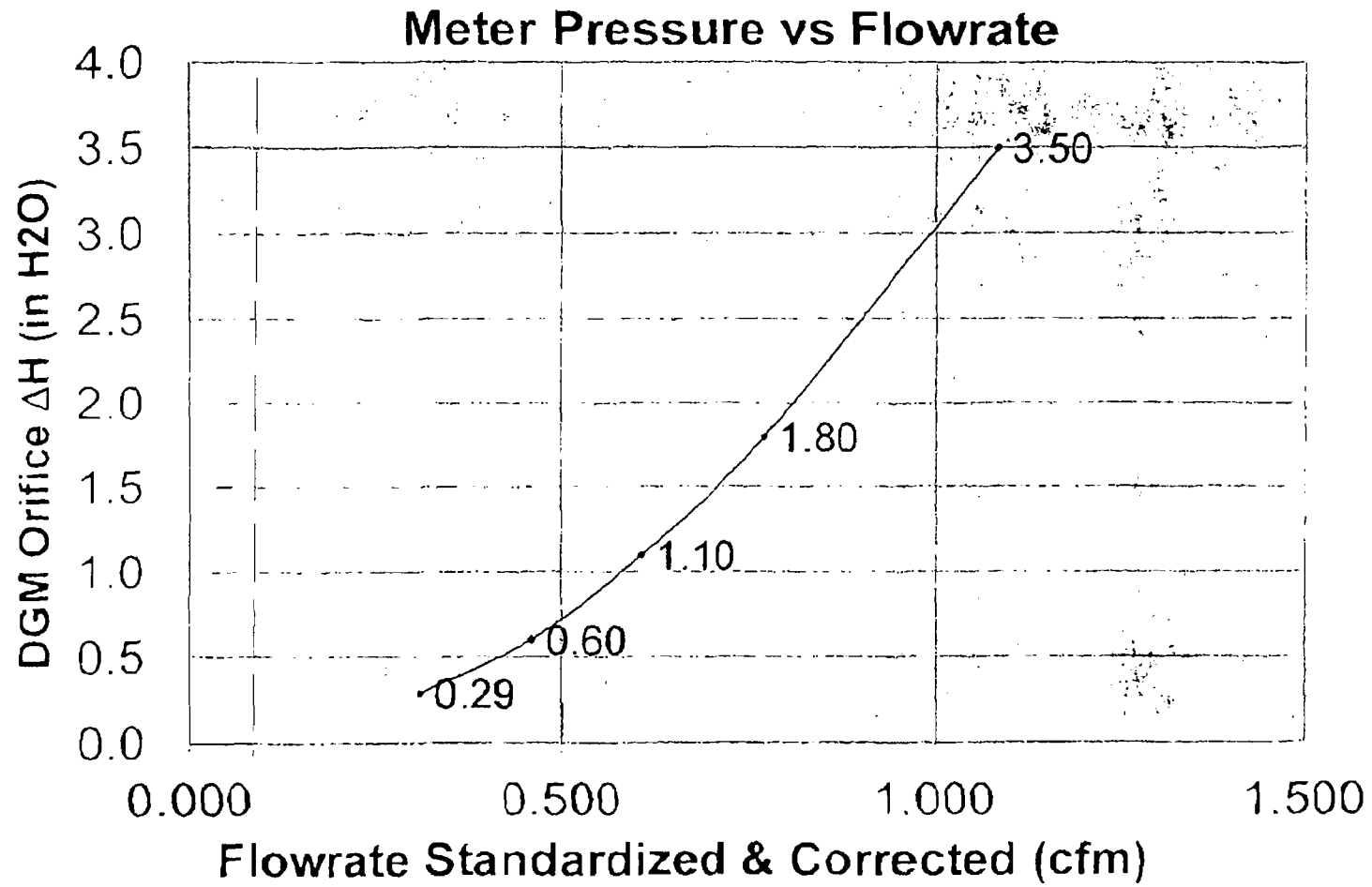
I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods CFR Title 40, Part 60, Appendix A-3, Method 5.16.2.1

Signature: *Stephen C. Welch*

Date: 10-21-13

Meter Gamma vs Flowrate





**DRY GAS METER
THERMOCOUPLE CALIBRATION DATA**

Frequency: Annual (two point) calibration.

Standard: ASTM Hg in glass thermometer. NBS ice point reference chamber, and potentiometer.

Reference: EPA Method 5, Section 2.1.8

Procedure: 1. Place ASTM thermometer and dry gas meter thermocouples (inlet and outlet) in hot water bath where the temperature is maintained between 100 F and 125 F. When the temperature has stabilized the thermocouple and ASTM thermometer are compared.

2. Remove ASTM thermometer and thermocouples from the warm bath, dry thoroughly, and place in a room with constant temperature and humidity. Allow a period of stabilization and record the readings.

Tolerance: +/- 5.4 F

Therm ID No.	Location	Reference Temp. (F)		Observed Temp. (F)		Difference (F)	
		1	2	1	2	1	2
1 MB	Meter Box No. CAC1	113.0	70.0	113.0	70.0	0.0	0.0
2 MB	Meter Box No. CAC1	113.0	70.0	113.0	70.0	0.0	0.0
1 MB	Meter Box No. CAC2	113.0	70.0	113.0	70.0	0.0	0.0
2 MB	Meter Box No. CAC2	113.0	70.0	113.0	70.0	0.0	0.0
1 MB	Meter Box No. CAC3	113.0	70.0	113.0	69.0	0.0	1.0
2 MB	Meter Box No. CAC3	113.0	70.0	113.0	70.0	0.0	0.0

CALIBRATED BY: S. Webb
 DATE: 01/3/14
 DUE: 01/3/15
 Signature: *Stephen C. Webb*

SAMPLE HEAD HOOK-UP THERMOCOUPLE
CALIBRATION PROCEDURES

FREQUENCY: Quarterly (two point calibration)

1. Place ASTM thermometer and sample head hook-up thermocouple in ice bath, allow time for both to equilibrate. Compare and record readings after they have stabilized.
2. Remove both the ASTM thermometer and sample head hook-up thermocouple. Dry off thoroughly and place in a room with constant temperature and humidity. Allow a period of stabilization and record readings.

Acceptance Standard: The test thermocouple (sample head hook up) shall be acceptable if both temperatures are within ± 2 F of the ASTM standard thermometer.

Note: If the thermocouple is not within the tolerances, discard and calibrate one which will be satisfactory.

Thermo. I.D. No.	Location	Reference Temp. (F)		Observed Temp. (F)		Difference Temp. (F)	
		1	2	1	2	1	2
A	SHH-A	32.0	72.0	32.0	72.0	0.0	0.0
B	SHH-B	32.0	72.0	32.0	72.0	0.0	0.0
C	SHH-C	32.0	72.0	33.0	71.0	1.0	-1.0
						0.0	0.0
						0.0	0.0
						0.0	0.0

Calibrated by: S. C. Webb
 Date: 1/31/14
 Due: 1/31/15

Signature: *Stephen C. Webb*

THERMOCOUPLE CALIBRATION DATA

STANDARD: National Bureau of Standards Thermocouple

REFERENCE: EPA Method 2

FREQUENCY: Annualy

PROCEDURE: Thermocouple and NBS thermocouple are inserted into a thermostatically controlled oil bath. Temperatures are stabilized at approximately 230 & 340 F. Potentiometer and thermocouple readings are compared.

TOLERANCE: + / - 1.5% of actual absolute temperature.

REFERENCE TEMPERATURES

AMBIENT 70.0 MID 225.0 HIGH 350.0

T/C Number	Length (ft)	OBS TEMP (F)	DIFF (%)	OBS TEMP (F)	DIFF (%)	OBS TEMP (%)	DIFF (%)
4	4	70.0	0.00	224.0	-0.15	349.0	-0.12
Inco 4	4	71.0	0.19	223.0	-0.29	349.0	-0.12
5	6	71.0	0.19	223.0	-0.29	348.0	-0.25
7	7	70.0	0.00	225.0	0.00	350.0	0.00
8	8	70.0	0.00	224.0	-0.15	350.0	0.00
9	9	71.0	0.19	225.0	0.00	352.0	0.25
10	10	70.0	0.00	224.0	-0.15	348.0	-0.25
11G	11	71.0	0.19	224.0	-0.15	351.0	0.12
Flow	12	69.0	-0.19	224.0	-0.15	348.0	-0.25
15	15	72.0	0.38	226.0	0.15	348.0	-0.25
Inco 11	11	71.0	0.19	223.0	-0.29	252.0	-12.10

Calibrated by S. C. Webb
 Date 1/3/14
 Due 1/3/15
 Signature *S. C. Webb*

APPENDIX 4
SAMPLE CALCULATIONS

**SAMPLE EQUATIONS
FOR CEMS RELATIVE ACCURACY TEST AUDITS**

CALCULATIONS FOR FLUE GAS VOLUME AND MOISTURE

Time	Dry Gas	Pitot	Orifice	Dry Gas		Flue Gas	Stack
	Meter Ft ³	ΔP In. H ₂ O	ΔH In. H ₂ O	Temp. °F In	Temp. °F Out	Static Pressure In. H ₂ O	
T	V _m	Δp	ΔH	TMI	TMO	P _g	t _s

1. P_{bar} = Barometric Pressure (in. Hg)
2. TT = Net Sampling Time (minutes)
3. V_m = V_m Final - V_m Initial = Sample Gas Volume (Ft³)
4. T_m = Average Dry Gas Temperature at Meter (°F)

$$T_m = \frac{\text{Avg. TMI} + \text{Avg. TMO}}{2}$$

5. Δp = Velocity head of stack gas (in. H₂O)
6. ΔH = Average Orifice Pressure Drop (in. H₂O)
7. Volume of dry gas sampled at standard conditions^a (DSCF)

$$V_{m(std)} = \frac{(17.64)(V_m)(Y) \left(P_{bar} + \frac{\Delta H}{13.6} \right)}{(T_m + 460)}$$

8. V_{lc} = Total Water Collected = gm H₂O Silica gel + ml Imp. H₂O = ml
9. Volume of water vapor at standard conditions^b (SCF)

$$V_{w(std)} = 0.0471(V_{lc}) = SCF$$

10. Percent moisture in flue gas

$$\% M = \frac{100(V_{w(s,d)})}{V_{n(s,d)} + V_{w(s,d)}}$$

11. Mole fraction of water vapor in flue gas

$$B_{w,s} = \frac{\% M}{100}$$

12. Molecular Weight of dry flue gas

$$M_d = 0.44(\%CO_2) + 0.32(\%O_2) + 0.28(\%N_2 + \%CO)$$

13. Molecular weight of wet flue gas

$$M_w = M_d(1 - B_{w,s}) + 18(B_{w,s})$$

14. A = Cross-sectional area of stack (Ft²)

$$\frac{m^2}{144}$$

15. P_s = Flue gas pressure (in, Hg)

$$P_s = P_{bar} + P_g$$

NOTE: $P_g(Hg) = \frac{P_g(in. H_2O)}{13.6}$

16. T_s = Absolute stack temperature (°R)

$$T_s = 460 + t_s$$

17. Flue velocity at stack conditions (FT/SEC)

$$V_s = (K_p)(C_p) \left[(\sqrt{\Delta p})_{avg} \right] \sqrt{\frac{T_s(avg)}{P_s * M_s}}$$

C_p = pitot tube coefficient

K_p = pitot tube constant = 85.49ft/sec

18. Flue gas volumetric flow rate at standard conditions^b (SCFM)

$$Q_s = (V_s)(A) \left(\frac{528}{T_s(\text{avg.})} \right) \left(\frac{P_s}{29.92} \right) (60)$$

19. Flue gas volumetric flow rate at standard conditions^c (DSCFM)

$$Q_{sd} = (1 - B_{ws})(V_s)(A) \left(\frac{528}{T_s(\text{avg.})} \right) \left(\frac{P_s}{29.92} \right) (60)$$

20. Flue gas volumetric flow rate at stack conditions (ACFM)

$$Q_u = (V_s)(A)(60)$$

- NOTES: ^aDry standard cubic feet at 68°F, 29.92 in. Hg
 ^bStandard conditions at 68°F, 29.92 in. Hg
 ^cDry standard cubic feet per minute at 68°F, 29.92 in. Hg

F-FACTOR DETERMINATION

THE WET F-FACTOR (F_w):

Includes all components of combustion

$$F_w = \frac{10^6 \text{ Btu} / \text{mmBtu} [5.57(\%H) + 1.53(\%C) + 0.57(\%S) + 0.14(\%N) - 0.46(\%O_2) + 0.21(\%H_2O)]}{GCV_{wet}}$$

THE DRY F-FACTOR (F_d):

Includes all components of combustion less water

$$F_d = \frac{10^6 \text{ Btu} / \text{mmBtu} [3.64(\%H) + 1.53(\%C) + 0.57(\%S) + 0.14(\%N) - 0.46(\%O_2)]}{GCV_{dry}}$$

THE CARBON F-FACTOR (F_c):

Includes only Carbon Dioxide

$$F_c = \frac{10^6 \text{ Btu} / \text{mmBtu} [0.321(\%C)]}{GCV_{dry}}$$

References for the above equations (i.e. %H, %C, %N, %S, %O₂) can be found in 40 CFR Part 60, Appendix A, Method 19.

LBS/MMBTU CALCULATIONS USING THE F-FACTOR

1. EMISSION RATE $E(\text{lb}/\text{mmbtu})$, O_2 based

$$E(\text{lb}/\text{mmbtu}) = C \times F_d \left(\frac{20.9}{20.9 - \%O_2} \right)$$

Where:

$C(\text{lb}/\text{dscf})$ = Pollutant concentration (ppm) x conversion factor.

Conversion Factors:

$$\text{NO}_x = 1.194 \times 10^{-7}$$

$$\text{SO}_2 = 1.660 \times 10^{-7}$$

$$\text{CO} = 7.274 \times 10^{-8}$$

$$\text{C}_3\text{H}_8 = 1.145 \times 10^{-7}$$

$F_d(\text{dscf}/\text{mmbtu})$ = "F" Factor for fuel type, (Ref. EPA Method 19)

$$F_d(\text{Coal}) = 9780$$

$$F_d(\text{Gas}) = 8710$$

$$F_d(\text{Oil}) = 9190$$

2. EMISSION RATE $E(\text{lb}/\text{mmbtu})$, CO_2 based

$$E(\text{lb}/\text{mmbtu}) = C \times F_c \left(\frac{100}{\%CO_2} \right)$$

Where:

$C(\text{lb}/\text{dscf})$ = Pollutant concentration (ppm) x conversion factor.

Conversion Factors:

$$\text{NO}_x = 1.194 \times 10^{-7}$$

$$\text{SO}_2 = 1.660 \times 10^{-7}$$

$$\text{CO} = 7.274 \times 10^{-8}$$

$$\text{C}_3\text{H}_8 = 1.145 \times 10^{-7}$$

$F_c(\text{dscf}/\text{mmbtu})$ = "F" Factor for fuel type, (Ref. EPA Method 19)

$$F_c(\text{Coal}) = 1800$$

$$F_c(\text{Gas}) = 1040$$

$$F_c(\text{Oil}) = 1420$$

CALCULATION FOR GAS CONCENTRATION

GAS CONCENTRATION (C_{gas})

$$C_{gas} = (\bar{C} - C_0) \left(\frac{C_{ms}}{C_m - C_0} \right)$$

- C_{gas} = Effluent gas concentration, ppm
- \bar{C} = Average gas concentration indicated by gas analyzer, dry basis, ppm
- C_0 = Average of initial and final system calibration bias check responses for the zero gas, ppm
- C_m = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm
- C_{ms} = Actual concentration of the upscale calibration gas, ppm

GAS CONCENTRATION @ 15% O₂ ($C_{gas @ 15\% O_2}$)

$$C_{gas @ 15\% O_2} = C_{gas} * ((20.9-15)/(20.9-\%O_2))$$

GAS CONCENTRATION @ 7% O₂ ($C_{gas @ 7\% O_2}$)

$$C_{gas @ 7\% O_2} = C_{gas} * ((20.9-7)/(20.9-\%O_2))$$

CALCULATION OF RELATIVE ACCURACY

ARITHMETIC MEAN (OF THE DIFFERENCE, {d}, OF A DATA SET)

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

Where n = Number of data points.

ALGEBRAIC SUM (OF THE INDIVIDUAL DIFFERENCES, {d_i})

$$\sum_{i=1}^n d_i$$

STANDARD DEVIATION, S_d

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

CONFIDENCE COEFFICIENT, CC

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

For 9 tests $t_{0.975} = 2.306$

For 10 tests $t_{0.975} = 2.262$

For 11 tests $t_{0.975} = 2.228$

For 12 tests $t_{0.975} = 2.201$

RELATIVE ACCURACY, RA

$$RA = \frac{|\bar{d}| + |CC|}{RM} \times 100$$

CALCULATIONS FOR RUN 1

1 Volume of dry gas sampled at standard conditions, DSCF

$$V_m = \frac{17.84 \cdot 23.330 \cdot 0.9870}{103.0 + 200} = 21.846$$

2 Volume of water vapor at standard conditions, SCF

$$V_m \text{ gas} = 0.04715 \cdot 77.3 = 3.64$$

3 Percent moisture in stack gas

$$\% M = \frac{100 \cdot 3.64}{31.555 + 3.64} = 10.68$$

4 Mole fraction dry gas

$$M_d = \frac{100}{14.46 + 100} = 0.87$$

5 Percent nitrogen in dry stack gas, lb/lb-mole

$$\% N_2 = \frac{100 \cdot 17.44}{0.02} = 870.0$$

6 Molecular weight of dry stack gas, lb/lb-mole

$$MW_d = \frac{(12.44 \cdot 0.44) + (8.02 \cdot 0.32) + (80.84 \cdot 0.23)}{1} = 23.27$$

7 Molecular weight of wet stack gas, lb/lb-mole

$$MW = \frac{(30.27 \cdot 0.87) + (18 \cdot 0.13)}{1} = 25.40$$

8 Stack gas static pressure, in. Hg abs

$$P_{sa} = (0.40 + 13.6) + 29.59 + 0.001 + 0.00 = 43.59$$

9 Stack gas velocity at standard conditions, fps

$$V_s = \frac{63.49 \cdot 0.84 \cdot 1.10 \cdot 102.00 \cdot 460}{20.61 \cdot 3600} = 74.39$$

10 Stack gas volumetric flow rate at standard conditions, DSCFM

$$Q_s = \frac{(1000 \cdot 21.846 + 73.30 + 331.50 + 20.61)}{(102.00 + 460)} = 7189.75$$

11 Stack gas volumetric flow rate at stack conditions, ACFM

$$Q_s = 0.03667 \cdot 7189.75 \cdot 102.00 \cdot 460 \cdot 29.61 \cdot 0.85 = 104002.9$$

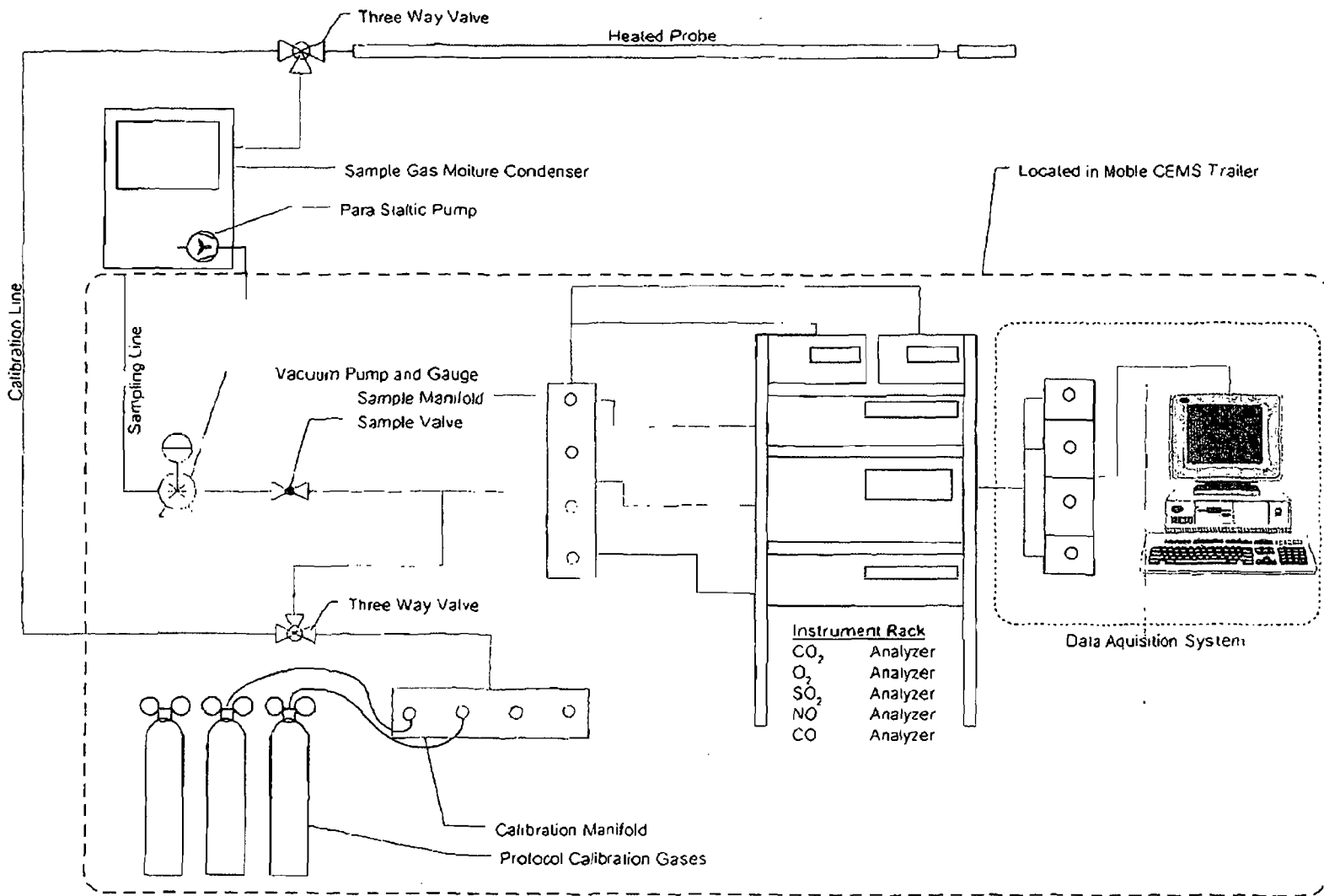
12 Stack gas volumetric flow rate at standard conditions, NSFCM

$$Q_s = 828194.75 \cdot 60.00 \cdot 1000.00 = 50000.7$$

13 NOx (ppmvd)

$$= 1000.00 \cdot 1.104E-07 \cdot 100 \cdot 12.44 \cdot 94.63 = 13.103$$

APPENDIX 5
FIGURES



Coastal Air Consulting, Inc
 1531 Wyngate Drive, Deland FL
 (386) 943-9241 Fax (386) 943-9212

DRAWN BY R F Cobb	TITLE EPA Instrumental Sample Train	SCALE NONE	DESCRIPTION Sample Train Schematic
DATE 4/15/02			0

PROBE MARKINGS

Plant: Indiantown Cogeneration
 Unit: PC Boiler
 Diameter: 206 Inches
 Port Depth: 16"

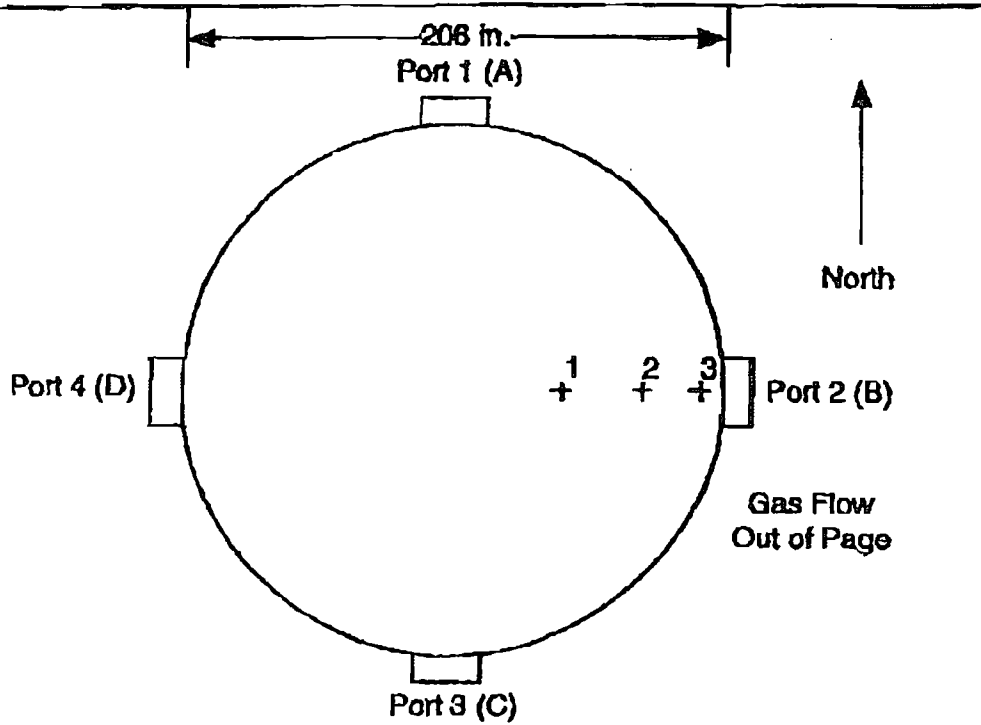
	PM Flow				
	Number of Points on a diameter				
	4	6	8	10	12
1	13.80	9.06	6.80	5.15	4.33
2	51.50	30.28	21.63	16.89	13.80
3	154.50	60.77	39.96	30.08	24.31
4	192.20	145.23	66.54	46.56	36.46
5		175.72	139.46	70.45	51.50
6		196.94	166.04	135.55	73.13
7			184.37	159.44	132.87
8			199.20	175.92	154.50
9				189.11	169.54
10				200.85	181.69
11					192.20
12		PM	Flow		201.67

*Stacks having diameters > 24" no points within 1" from stack wall

*Stacks having diameters < 24" no points within 0.5" from stack wall

INDIANTOWN COGENERATION, L.P.
 INDIANTOWN, FLORIDA

SAMPLING POINT DETERMINATION (CONTINUED)



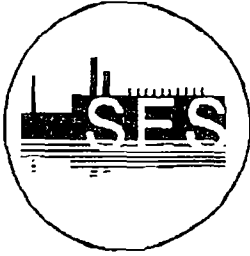
<u>Traverse Point</u>	<u>Port to Point Distance (meters)</u>
1	2.0
2	1.2
3	0.4

Diameters to upstream disturbance: >8.7
 Diameters to downstream disturbance: >2.0

Limit: 2.0
 Limit: 0.5

**PC Boiler Stack Sampling Point Determination
 (Performance Specification 2)**

APPENDIX 6
QSTI



Source Evaluation Society

P. O. Box 12124
Research Triangle Park
North Carolina 27709

May 1, 2012

Stephen C. Webb
Coastal Air Consulting
1531 Wyngate Dr
DeLand, FL 32724

Subject: Qualified Source Tester Application No. 2012-670
Qualification Notice - Manual Gas Volume Measurements and
Isokinetic Particulate Sampling Methods
- Manual Gaseous Pollutants Source Sampling Methods
- Gaseous Pollutants Instrumental Sampling Methods
- Hazardous Metals Measurement Sampling Methods

Dear Mr. Webb,

It is my pleasure to inform you that you have satisfied the requirements of the Source Evaluation Society Qualified Source Test Individual program for group exam(s) listed above. As a member of the successful candidates in this SES program, you should be proud of this distinction within the source emissions testing community. I am confident that you will continue to uphold the standards of technical excellence and ethical conduct embodied in the SES mission statement.

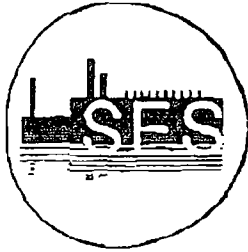
The enclosed Qualification Notice(s) and SES identification card are your permanent record of this achievement. This status is valid for the period shown on the Qualification Notices.

Congratulations on your achievement and I wish you continued success in your future endeavors. Please see attached a permission letter if you wish to have your information posted on the SES web site

Sincerely yours,

Peter R. Westlin
SES QSTI/QSTO Review Committee Chairman

cc: Roy Owens, SES QSTI/QSTO Review Board Member
Glenn England, SES QSTI/QSTO Review Board Member
C. David Bagwell, SES QSTI/QSTO Review Board Member
Karen D. Kajiya-Mills, SES QSTI/QSTO Review Board Member
Peter S. Pakalnis, SES QSTI/QSTO Review Board Member
Gail Westlin, SES QSTI/QSTO Review Committee Administrator



Source Evaluation Society

P. O. Box 12124
Research Triangle Park
North Carolina 27709

An idea was introduced at the 2006 SSSAAP conference to list those individuals who have received their QSTI qualification approvals on the SES web site. The SES Board of Directors determined that individuals would have to approve in writing before making public such information. The QSTI Committee would like your permission to post the information shown below on the SES web site for public view. This information will be provided on the website as a link to an Excel spreadsheet. Your information will be listed as below or with any changes you indicate:

Name	Stephen C. Webb		
Company	Coastal Air Consulting		
City/State/Zip	DeLand, FL 32724		
Contact Info.:	Coastalair123@aol.com		
Any Addit. Info:	qstiprogram@gmail.com		
Passed:	Group 1	Exam Date: 5/5/11	Valid From - To: 2012/05/01 to 2017/04/30
	Group 2	Exam Date: 5/5/11	Valid From - To: 2012/05/01 to 2017/04/30
	Group 3	Exam Date: 5/6/11	Valid From - To: 2012/05/01 to 2017/04/30
	Group 4	Exam Date: 5/6/11	Valid From - To: 2012/05/01 to 2017/04/30
QSTI Certificate #	2012-670		

You may view the current spreadsheet format at the SES website at www.sesnews.org. If you agree to your name and information being posted, please sign below and fax this page to Gail Westlin at 919-572-2203 or email to gail_westlin@yahoo.com. Also, if you wish to have your contact information listed other than your email address, please note any changes above (e.g., an address, telephone or a cell phone number, etc.). Any further changes or additions will need to be made in writing and emailed to Gail Westlin at gail_westlin@yahoo.com. If you have any questions concerning this matter, please contact the SES QSTI/QSTO Review Committee Chairman, Peter Westlin, at westlin.peter@epa.gov or myself.

Thank you.

Gail Westlin
SES QSTI/QSTO Review Committee Administrator

I give the SES QSTI/QSTO Review Committee approval to have my name and information as outlined above to be posted on the SES web site. Any changes have been noted above. This approval extends to any future exams for which I receive a QSTI or QSTO Qualification Approval(s).

Signature: _____ Date: _____

NEW. DO YOU APPROVE SES RELEASING INFORMATION, UPON REQUEST, ABOUT WHETHER YOU HAVE PASSED A METHOD GROUP EXAM? (The information released will be if you passed an exam and the date of the exam. This information is in support of ASTM D-7036-D.) YES NO IF YOU AGREE, PLEASE SIGN BELOW.

Signature: _____ Date: _____

SOURCE EVALUATION SOCIETY



Qualified Source Testing Individual

LET IT BE KNOWN THAT

STEPHEN C. WEBB

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

**MANUAL GAS VOLUME MEASUREMENTS AND ISOKINETIC PARTICULATE
SAMPLING METHODS**

ISSUED THIS 1st DAY OF MAY 2012 AND EFFECTIVE UNTIL APRIL 30th, 2017

Peter R. Westlin, QSTVQSTO Review Board

Peter S. Pakalnis, QSTVQSTO Review Board

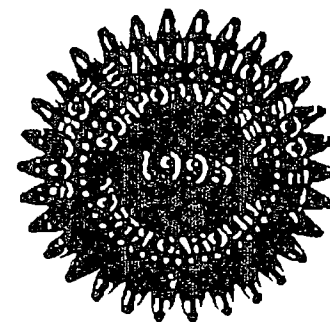
LeRoy Owens, QSTVQSTO Review Board

C. David Begwell, QSTVQSTO Review Board

Karen D. Kallio-Mills, QSTVQSTO Review Board

Glenn C. England, QSTVQSTO Review Board

APPLICATION
NO.
2012-670



SOURCE EVALUATION SOCIETY



Qualified Source Testing Individual

LET IT BE KNOWN THAT

STEPHEN C. WEBB

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

MANUAL GASEOUS POLLUTANTS SOURCE SAMPLING METHODS

ISSUED THIS 1ST DAY OF MAY 2012 AND EFFECTIVE UNTIL APRIL 30TH, 2017

Peter R. Westlin, QST/QSTO Review Board

Peter S. Pekalnis, QST/QSTO Review Board

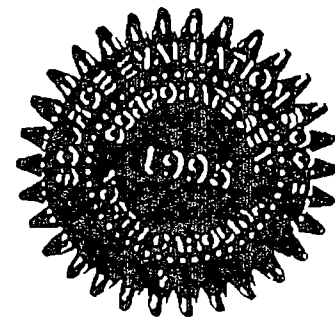
LeRoy Owens, QST/QSTO Review Board

C. David Bagwey, QST/QSTO Review Board

Karen D. Kajtys-Mills, QST/QSTO Review Board

Glenn C. England, QST/QSTO Review Board

APPLICATION
NO.
2012-670



SOURCE EVALUATION SOCIETY



Qualified Source Testing Individual

LET IT BE KNOWN THAT

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

GASEOUS POLLUTANTS INSTRUMENTAL SAMPLING METHODS

ISSUED THIS 1ST DAY OF MAY 2012 AND EFFECTIVE UNTIL APRIL 30TH, 2017

Peter R. Westlin, QSTVQSTO Review Board

Peter S. Pakalnis, QSTVQSTO Review Board

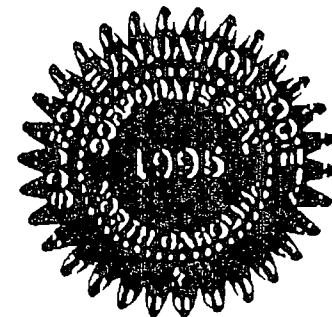
LeRoy Owens, QSTVQSTO Review Board

C. David Begwolf, QSTVQSTO Review Board

Karen D. Kallya-Mills, QSTVQSTO Review Board

Glenn C. England, QSTVQSTO Review Board

APPLICATION
NO.
2012-670



SOURCE EVALUATION SOCIETY



Qualified Source Testing Individual

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HAZARDOUS METALS MEASUREMENT SAMPLING METHODS

ISSUED THIS 1ST DAY OF MAY 2012 AND EFFECTIVE UNTIL APRIL 30TH, 2017

Peter R. Westlin, QSTU/QSTO Review Board

C. David Bagwell, QSTU/QSTO Review Board

APPLICATION
NO.
2012-670

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CaRol Owens, QSTU/QSTO Review Board

Glenn C. England, QSTU/QSTO Review Board

