HOOSIER ENERGY
RURAL ELECTRIC COOPERATIVE, INC.
A Touchstone Energy® Cooperative

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December 13, 2011

Via Certified Mail

Certified No: 7010 2780 0001 4954 1739

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611 Ben Franklin Station
Washington, DC 20044-7611
DJ# 90-5-2-1-09174

Certified No: 7010 2780 0001 4954 1852

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77 W. Jackson Blvd. (AE-17J)
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Justin D. Barrett
Deputy Attorney General
Indiana Office of the Attorney General
302 West Washington Street
IGCS Fifth Floor
Indianapolis, IN 46204

RE: Hoosier Energy Consent Decree, Civil Action No.: 1:10-CV-0935-L3M-TAB Merom, PM and H2SO4 Stack Test Reports

Dear Sir or Madam:

Per paragraph 116, 122 and 123 of Hoosier Energy's Consent Decree, please find enclosed stack test reports for Merom PM, Units 1 and Unit 2 and Merom H2SO4, Units 1 and Unit 2.

P.O. Box 908 • Bloomington, Indiana 47402-0908 • Phone: 812-876-2021 • FAX: 812-876-3476

If you have any questions, please feel free to contact me at (812) 935-4713 or email at jpatterson@hepn.com.

Sincerely,

Jay Patterson
Air Quality Team Leader

Attachment

RJP/pjm

Ec: Karl Back Hoosier Energy
Merom Central Files
Central Files
B. Richhart (no attachments)
Christopher M. Goffinet, Esq.
John M. Holloway, III, Esq.
Elizabeth C. Williamson, Esq.
Sabrina Argentieri, Esq. (via E. Williamson)
Ethan Chatfield, USEPA (via E. Williamson)
Sarah Marshall, USEPA (via E. Williamson)

Route: M. Reilly, R. Hochstetler, C. Chrispell, Jay Patterson, File CD1.03

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RE: Hoosier Energy Consent Decree, Civil Action No.: 1:10-CV-0935-L3M-TAB
Merom, PM and H2SO4 Stack Test Reports

Dear Sir or Madam:

Per paragraph 116, 122 and 123 of Hoosier Energy's Consent Decree, please find enclosed stack test reports for Merom PM, Units 1 and Unit 2 and Merom H2SO4, Units 1 and Unit 2.

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EMISSIONS
TEST REPORT
FOR
HOOSIER ENERGY
MEROM GENERATING STATION
UNIT 1 & 2
October 18-21, 2011

Job # 11-350

Test Report Date: 11-30-11

Grace Consulting, Inc.
Emissions Testing Services

November 30, 2011

I, Hal Stiles, hereby certify that the data obtained for Hoosier Energy at the Merom Generating Station, Unit 1 & 2 are in accordance with procedures set forth by the USEPA. This report accurately represents the data obtained from the testing procedures and analysis of this data.

Hal Stiles, QSTI
Crew Chief

I, Carl Vineyard, hereby certify that I have reviewed this report and to the best of my knowledge, the data presented herein is complete and accurate.

Carl Vineyard, P.E., QSTI
Test Engineer

Grace Consulting, Inc.
P.O. Box 58
510 Dickson St.
Wellington, OH 44090

Phone: 440-647-6672
Fax: 440-647-6673
www.gcitest.com

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INTRODUCTION

INTRODUCTION

This report presents the results of the emissions tests performed for Hoosier Energy at the Merom Generating Station, Unit 1 & 2.

The purpose of the tests was to determine the emissions of the units. The results can be found in the Summary of Test Results section of this report.

The testing was performed by Grace Consulting, Inc., located at 510 Dickson Street, Wellington, OH 44090. Present during the testing were Hal Stiles, Dave Moody, Bret Colombo and Ricky Prosser from Grace Consulting, Inc. Craig Chrispell was present to observe the testing from Hoosier Energy.

The tests were performed on October 18-21, 2011. The testing was completed in accordance with USEPA test methods as published in the July 1, 2011 Federal Register, - "Standards of Performance for New Stationary Sources" and subsequent revisions.

The sampling and analytical procedures can be found in the Sampling and Analytical Procedures section of this report. The raw field data and the equations used to determine the final results are presented in the Appendix section.

SUMMARY OF TEST RESULTS

SUMMARY OF TEST RESULTS

The following presents the results of the emissions tests performed for Hoosier Energy at the Merom Generating Station, Unit 1 & 2.

PARTICULATE EMISSIONS – UNIT 1

Method 5B

Run #	Description	lb/dscf	lbs/hr	lb/mmBtu
1	Non-Soot	4.38E-07	33.96	0.007
2	Non-Soot	4.04E-07	30.48	0.006
3	Soot	4.57E-07	34.82	0.007
AVG.		4.33E-07	33.09	0.007

H_2SO_4 RESULTS – UNIT 1

Method 8A

Run #	Description	lb/dscf	ppm dry	lb/mmBtu
1	High Load	3.31E-06	13.05	0.052
2	High Load	3.51E-06	13.84	0.055
3	High Load	3.00E-06	11.81	0.047
AVG.		3.28E-06	12.90	0.051
1	Mid Load	3.59E-06	14.12	0.055
2	Mid Load	2.87E-06	11.29	0.048
3	Mid Load	3.31E-06	13.02	0.055
AVG.		3.25E-06	12.81	0.053
1	Low Load	2.90E-06	11.41	0.048
2	Low Load	2.71E-06	10.67	0.045
3	Low Load	3.37E-06	13.26	0.078
AVG.		2.99E-06	11.78	0.049

18% reduction from 12/10 test

PARTICULATE EMISSIONS – UNIT 2

Method 5B

Run #	Description	lb/dscf	lbs/hr	lb/mmBtu
1	Soot	2.42E-06	187.81	0.037
2	Non-Soot	2.41E-06	192.51	0.037
3	Non-Soot	2.54E-06	200.09	0.038
AVG.		2.46E-06	193.47	0.037

H_2SO_4 RESULTS – UNIT 2

Method 8A

Run #	Description	lb/dscf	ppm dry	lb/mmBtu
1	High Load	3.24E-06	12.76	0.050
2	High Load	3.52E-06	13.87	0.054
3	High Load	2.80E-06	11.01	0.041
AVG.		3.19E-06	15.75	0.048
1	Mid Load	2.84E-06	11.17	0.046
2	Mid Load	2.77E-06	10.90	0.045
3	Mid Load	2.79E-06	10.99	0.046
AVG.		2.80E-06	11.02	0.046
1	Low Load	2.89E-06	11.36	0.048
2	Low Load	2.93E-06	11.52	0.048
3	Low Load	2.79E-06	10.99	0.047
AVG.		2.87E-06	11.29	0.048

→ 6% reduction from 12/10 test

The complete results can be found on the computer printouts following.

GRACE CONSULTING, INC.

Particulate Analysis

Hoosier Energy
Merom Station
Unit 1
11-350

Run Number			1	2	3
Date			10/18/2011	10/18/2011	10/18/2011
Location			Non-Soot	Non-Soot	Soot
Comment			Method 5B	Method 5B	Method 5B
Start Time			8:25	11:05	13:40
End Time			10:38	13:20	15:55
Barometric Pressure	In. Hg.	Pb	28.69	28.69	28.69
Static Pressure	In. H2O	Pf	-1.50	-1.10	-1.10
Volume of Condensate	mls.	Vlc	265.5	332.5	335
Volume Sampled	dcf	Vm	94.075	100.143	99.633
Meter Correction Factor		Y	1.005	1.005	1.005
Square Root of Delta P			1.642	1.635	1.657
Orifice Pressure	In. H2O		1.96	1.960	2.035
Meter Temperature	Degree F		74	86	87
Flue Temperature	Degree F		123	123	123
Percent CO2	%		11.00	11.20	11.30
Percent O2	%		7.90	7.80	8.00
Diameter of Nozzle	In.		0.181	0.181	0.181
Area of Flue	Sq. ft.		283.529	283.529	283.529
Sample Time	min.		120	120	120
Weight Gain	grams		0.0179	0.0172	0.0193
F-Factor			9,780	9,780	9,780
Absolute Flue Pressure	in. Hg	Ps	28.58	28.61	28.61
Corrected Sample Volume	dscf	Vms	90.09	93.79	93.16
Moisture of Flue Gas	%	Bws	11.78%	14.30%	14.48%
Molecular Weight	lb/lb-mole	Ms	28.65	28.37	28.37
Velocity of Flue Gas	fps	Vs	99.49	99.50	100.84
Volume of Flue Gas	ACFM	Vo	1,692,505	1,692,741	1,715,535
Volume of Flue Gas	DSCFM	Qsd	1,291,747	1,256,245	1,270,572
Dust Concentration	lb/dscf	Wd	4.38E-07	4.04E-07	4.57E-07
Dust Concentration	lb/hr	Wh	33.96	30.48	34.82
Dust Concentration	gr/acf	Wa	2.34E-03	2.10E-03	2.37E-03
Dust Concentration	gr/dscf	Ws	3.07E-03	2.83E-03	3.20E-03
Isokinetic Rate	%	%I	92.2	98.8	97.0
Particulate Emissions	lb/mmBtu	DI	0.007	0.006	0.007

Averages:			Part. Emis:		
	Flue Temp.:	123		lb/dscf	4.33E-07
	ACFM:	1,700,260		lb/hr	33.09
	DSCFM:	1,272,855		gr/acf	2.27E-03
	Percent O2:	7.90%		gr/dscf	3.03E-03
				lb/mmBtu	0.007

GRACE CONSULTING, INC.

H2SO4 Analysis

Hoosier Energy
Merom Station
Unit 1
11-350

Run Number			1	2	3
Date			10/18/2011	10/18/2011	10/18/2011
Location			Unit 1	Unit 1	Unit 1
Comment			High load	High load	High load
Start Time			8:25	10:20	12:00
End Time			9:25	11:20	13:00
Barometric Pressure	In. Hg.	Pb	28.69	28.69	28.69
Volume of Condensate	mls.	Vlc	76.5	45.5	62
Volume Sampled	dcf	Vm	21.165	21.803	21.67
Meter Correction Factor		Y	0.998	0.998	0.998
Orifice Pressure	In. H2O		1.75	1.75	1.75
Meter Temperature	Degree F		69	77	78
Percent CO2	%		11	11.2	11.2
Percent O2	%		7.9	7.8	7.8
Sample Time	min.		60	60	60
Volume of Solution	ml		125.0	125.0	225.0
Volume of Aliquot	ml		25	25	45
Normality of Barium	N		0.0100	0.0100	0.0100
Volume to Titrate Blank	ml		0.10	0.10	0.10
Volume to Titrate sample	ml		12.55	13.50	11.45
F-Factor			9,780	9,780	9,780
Corrected Sample Volume	dscf	Vms	20.31	20.61	20.44
Moisture of Flue Gas	%	Bws	15.06%	9.41%	12.49%
Molecular Weight	lb/lb-mole	Ms	28.26	28.96	28.59
H2SO4 Concentration	lb/dscf		3.31E-06	3.51E-06	3.00E-06
H2SO4 Concentration	ppm dry		13.05	13.84	11.81
H2SO4 Emissions	lb/mmBtu		0.052	0.055	0.047

Averages:		H2SO4 Emissions:	lb/dscf	3.28E-06
			ppm dry	12.90
Percent O2:	7.83%		lb/mmBtu	0.051

GRACE CONSULTING, INC.

H2SO4 Analysis

Hoosier Energy
Merom Station
Unit 1
11-350

Run Number			1	2	3
Date			10/20/2011	10/20/2011	10/20/2011
Location			Unit 1	Unit 1	Unit 1
Comment			Mid load	Mid load	Mid load
Start Time			13:40	14:50	15:55
End Time			14:04	15:50	16:55
Barometric Pressure	In. Hg.	Pb	28.61	28.61	28.61
Volume of Condensate	mls.	Vlc	84.0	68.0	66.5
Volume Sampled	dcf	Vm	21.991	21.847	21.884
Meter Correction Factor		Y	0.998	0.998	0.998
Orifice Pressure	In. H2O		1.75	1.75	1.75
Meter Temperature	Degree F		75	76	78
Percent CO2	%		11.3	10.6	10.6
Percent O2	%		7.6	8.6	8.6
Sample Time	min.		60	60	60
Volume of Solution	ml		375.0	125.0	240.0
Volume of Aliquot	ml		75	25	40
Normality of Barium	N		0.0100	0.0100	0.0100
Volume to Titrate Blank	ml		0.10	0.10	0.10
Volume to Titrate sample	ml		13.90	11.05	10.60
F-Factor			9,780	9,780	9,780
Corrected Sample Volume	dscf	Vms	20.80	20.63	20.59
Moisture of Flue Gas	%	Bws	15.97%	13.43%	13.20%
Molecular Weight	lb/lb-mole	Ms	28.18	28.42	28.45
H2SO4 Concentration	lb/dscf		3.59E-06	2.87E-06	3.31E-06
H2SO4 Concentration	ppm dry		14.12	11.29	13.02
H2SO4 Emissions	lb/mmBtu		0.055	0.048	0.055

Averages:		H2SO4 Emissions:	lb/dscf	3.25E-06
			ppm dry	12.81
Percent O2:	8.27%		lb/mmBtu	0.053

GRACE CONSULTING, INC.

H2SO4 Analysis

Hoosier Energy
Merom Station
Unit 1
11-350

Run Number			1	2	3
Date			10/20/2011	10/20/2011	10/20/2011
Location			Unit 1	Unit 1	Unit 1
Comment			Low load	Low load	Low load
Start Time			8:05	9:45	10:57
End Time			9:05	10:45	11:57
Barometric Pressure	In. Hg.	Pb	28.61	28.61	28.61
Volume of Condensate	mls.	Vlc	60.0	67.0	55.5
Volume Sampled	dcf	Vm	21.877	21.768	21.974
Meter Correction Factor		Y	0.998	0.998	0.998
Orifice Pressure	In. H2O		1.75	1.75	1.75
Meter Temperature	Degree F		70	74	73
Percent CO2	%		10.4	10.4	10.4
Percent O2	%		8.5	8.5	8.5
Sample Time	min.		60	60	60
Volume of Solution	ml		125.0	200.0	125.0
Volume of Aliquot	ml		25	40	25
Normality of Barium	N		0.0100	0.0100	0.0100
Volume to Titrate Blank	ml		0.10	0.10	0.10
Volume to Titrate sample	ml		11.30	10.45	13.10
F-Factor			9,780	9,780	9,780
Corrected Sample Volume	dscf	Vms	20.89	20.63	20.87
Moisture of Flue Gas	%	Bws	11.91%	13.26%	11.13%
Molecular Weight	lb/lb-mole	Ms	28.57	28.41	28.67
H2SO4 Concentration	lb/dscf		2.90E-06	2.71E-06	3.37E-06
H2SO4 Concentration	ppm dry		11.41	10.67	13.26
H2SO4 Emissions	lb/mmBtu		0.048	0.045	0.056

Averages:		H2SO4 Emissions:	lb/dscf	2.99E-06
			ppm dry	11.78
Percent O2:	8.50%		lb/mmBtu	0.049

GRACE CONSULTING, INC.

Particulate Analysis

Hoosier Energy
Merom Station
Unit 2
11-350

Run Number			1	2	3
Date			10/19/2011	10/20/2011	10/20/2011
Location			Soot	Non-Soot	Soot
Comment			Method 5B	Method 5B	Method 5B
Start Time			8:00	7:50	10:45
End Time			10:15	10:15	13:05
Barometric Pressure	In. Hg.	Pb	28.67	28.61	28.61
Static Pressure	In. H2O	Pf	-1.60	-1.20	-1.20
Volume of Condensate	mls.	Vlc	364	349	336
Volume Sampled	dcf	Vm	103.483	108.543	106.408
Meter Correction Factor		Y	1.005	1.005	1.005
Square Root of Delta P			1.697	1.734	1.712
Orifice Pressure	In. H2O		2.153	2.330	2.27
Meter Temperature	Degree F		82	78	81
Flue Temperature	Degree F		125	129	129
Percent CO2	%		11.20	11.10	12.00
Percent O2	%		7.60	7.60	7.10
Diameter of Nozzle	In.		0.181	0.181	0.181
Area of Flue	Sq. ft.		283.529	283.529	283.529
Sample Time	min.		120	120	120
Weight Gain	grams		0.1072	0.1126	0.1156
F-Factor			9,780	9,780	9,780
Absolute Flue Pressure	in. Hg	Ps	28.55	28.52	28.52
Corrected Sample Volume	dscf	Vms	97.62	102.98	100.38
Moisture of Flue Gas	%	Bws	14.93%	13.76%	13.61%
Molecular Weight	lb/lb-mole	Ms	28.29	28.42	28.54
Velocity of Flue Gas	fps	Vs	103.71	106.15	104.57
Volume of Flue Gas	ACFM	Vo	1,764,273	1,805,774	1,778,962
Volume of Flue Gas	DSCFM	Qsd	1,292,697	1,330,832	1,313,295
Dust Concentration	lb/dscf	Wd	2.42E-06	2.41E-06	2.54E-06
Dust Concentration	lb/hr	Wh	187.81	192.51	200.09
Dust Concentration	gr/acf	Wa	1.24E-02	1.24E-02	1.31E-02
Dust Concentration	gr/dscf	Ws	1.70E-02	1.69E-02	1.78E-02
Isokinetic Rate	%	%I	99.9	102.4	101.1
Particulate Emissions	lb/mmBtu	DI	0.037	0.037	0.038

Averages:	Flue Temp.:	127.6667	Part. Emis:	lb/dscf	2.46E-06
	ACFM:	1,783,003		lb/hr	193.47
	DSCFM:	1,312,275		gr/acf	1.27E-02
	Percent O2:	7.43%		gr/dscf	1.72E-02
				lb/mmBtu	0.037

GRACE CONSULTING, INC.

H2SO4 Analysis

Hoosier Energy
Merom Station
Unit 2
11-350

Run Number			1	2	3
Date			10/19/2011	10/19/2011	10/20/2011
Location			Unit 2	Unit 2	Unit 2
Comment			High load	High load	High load
Start Time			8:00	9:35	12:20
End Time			9:00	10:35	13:20
Barometric Pressure	In. Hg.	Pb	28.67	28.67	28.61
Volume of Condensate	mls.	Vlc	76.0	78.5	72.5
Volume Sampled	dcf	Vm	21.873	21.731	21.875
Meter Correction Factor		Y	0.998	0.998	0.998
Orifice Pressure	In. H2O		1.75	1.75	1.75
Meter Temperature	Degree F		72	78	73
Percent CO2	%		11.2	11.2	12
Percent O2	%		7.6	7.6	7.1
Sample Time	min.		60	60	60
Volume of Solution	ml		150.0	225.0	125.0
Volume of Aliquot	ml		30	45	25
Normality of Barium	N		0.0100	0.0100	0.0100
Volume to Titrate Blank	ml		0.10	0.10	0.10
Volume to Titrate sample	ml		12.60	13.45	10.85
F-Factor			9,780	9,780	9,780
Corrected Sample Volume	dscf	Vms	20.85	20.49	20.77
Moisture of Flue Gas	%	Bws	14.64%	15.28%	14.11%
Molecular Weight	lb/lb-mole	Ms	28.32	28.25	28.48
H2SO4 Concentration	lb/dscf		3.24E-06	3.52E-06	2.80E-06
H2SO4 Concentration	ppm dry		12.76	13.87	11.01
H2SO4 Emissions	lb/mmBtu		0.050	0.054	0.041

Averages:		H2SO4 Emissions:	lb/dscf	3.19E-06
			ppm dry	12.54
Percent O2:	7.43%		lb/mmBtu	0.048

GRACE CONSULTING, INC.

H2SO4 Analysis

Hoosier Energy
Merom Station
Unit 2
11-350

Run Number			1	2	3
Date			10/21/2011	10/21/2011	10/21/2011
Location			Unit 2	Unit 2	Unit 2
Comment			Mid load	Mid load	Mid load
Start Time			12:30	13:40	14:50
End Time			13:30	14:40	15:50
Barometric Pressure	In. Hg.	Pb	29.16	29.16	29.16
Volume of Condensate	mls.	Vlc	75.5	72.5	68.5
Volume Sampled	dcf	Vm	21.94	21.834	21.928
Meter Correction Factor		Y	0.998	0.998	0.998
Orifice Pressure	In. H2O		1.75	1.75	1.75
Meter Temperature	Degree F		75	79	81
Percent CO2	%		10.5	10.4	10.4
Percent O2	%		8.4	8.4	8.4
Sample Time	min.		60	60	60
Volume of Solution	ml		150.0	150.0	125.0
Volume of Aliquot	ml		30	30	25
Normality of Barium	N		0.0100	0.0100	0.0100
Volume to Titrate Blank	ml		0.10	0.10	0.10
Volume to Titrate sample	ml		11.20	10.80	10.90
F-Factor			9,780	9,780	9,780
Corrected Sample Volume	dscf	Vms	21.15	20.90	20.91
Moisture of Flue Gas	%	Bws	14.38%	14.04%	13.36%
Molecular Weight	lb/lb-mole	Ms	28.29	28.32	28.40
H2SO4 Concentration	lb/dscf		2.84E-06	2.77E-06	2.79E-06
H2SO4 Concentration	ppm dry		11.17	10.90	10.99
H2SO4 Emissions	lb/mmBtu		0.046	0.045	0.046

Averages:		H2SO4 Emissions:	lb/dscf	2.80E-06
			ppm dry	11.02
Percent O2:	8.40%		lb/mmBtu	0.046

GRACE CONSULTING, INC.

H2SO4 Analysis

Hoosier Energy
Merom Station
Unit 2
11-350

Run Number			1	2	3
Date			10/21/2011	10/21/2011	10/21/2011
Location			Unit 2	Unit 2	Unit 2
Comment			Low load	Low load	Low load
Start Time			8:10	9:15	10:20
End Time			9:10	10:15	11:20
Barometric Pressure	In. Hg.	Pb	29.14	29.16	29.16
Volume of Condensate	mls.	Vlc	69.0	59.0	56.5
Volume Sampled	dcf	Vm	21.708	21.974	21.898
Meter Correction Factor		Y	0.998	0.998	0.998
Orifice Pressure	In. H2O		1.75	1.75	1.75
Meter Temperature	Degree F		71	76	75
Percent CO2	%		10.4	10.6	10
Percent O2	%		8.6	8.5	8.8
Sample Time	min.		60	60	60
Volume of Solution	ml		150.0	150.0	175.0
Volume of Aliquot	ml		30	30	35
Normality of Barium	N		0.0100	0.0100	0.0100
Volume to Titrate Blank	ml		0.10	0.10	0.10
Volume to Titrate sample	ml		11.35	11.55	11.00
F-Factor			9,780	9,780	9,780
Corrected Sample Volume	dscf	Vms	21.07	21.15	21.11
Moisture of Flue Gas	%	Bws	13.35%	11.61%	11.19%
Molecular Weight	lb/lb-mole	Ms	28.40	28.64	28.61
H2SO4 Concentration	lb/dscf		2.89E-06	2.93E-06	2.79E-06
H2SO4 Concentration	ppm dry		11.36	11.52	10.99
H2SO4 Emissions	lb/mmBtu		0.048	0.048	0.047

Averages:		H2SO4 Emissions:	lb/dscf	2.87E-06
			ppm dry	11.29
Percent O2:	8.63%		lb/mmBtu	0.048

SAMPLING AND ANALYTICAL PROCEDURES

Test Methods used at Hoosier Energy - Merom Station, Units 1 & 2

Method 3

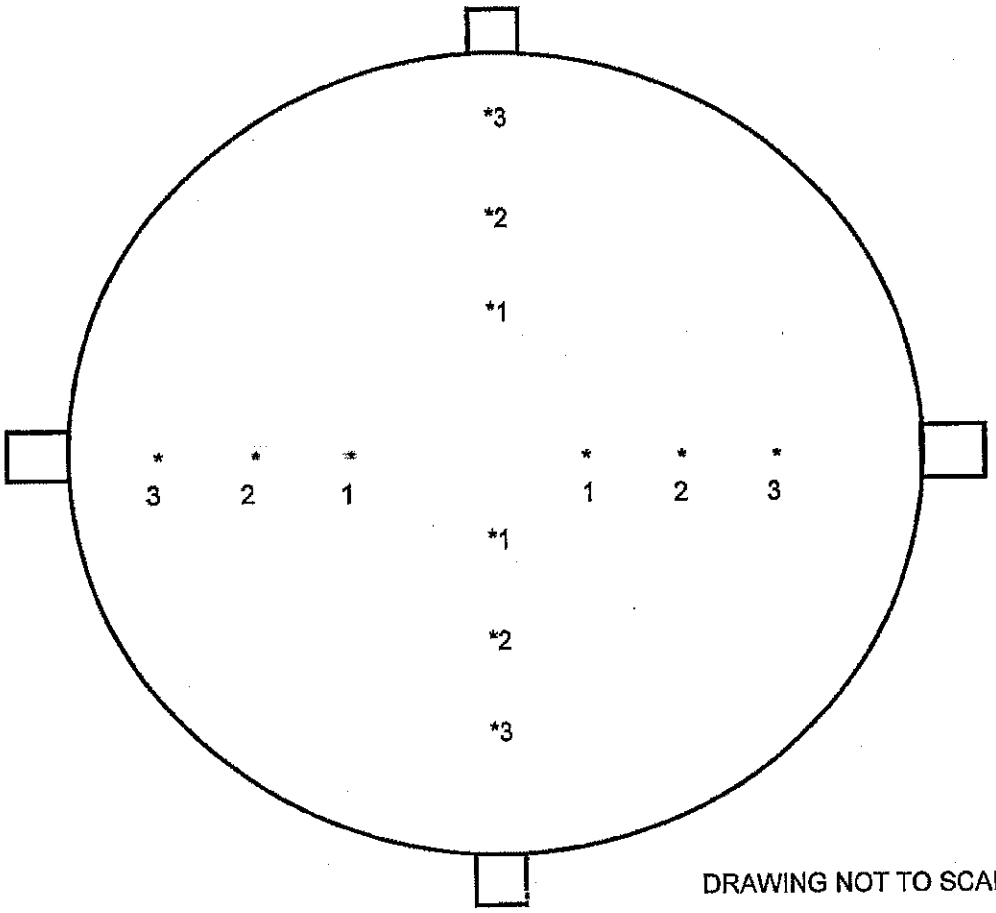
CO_2 and O_2 concentrations were determined with 3 Method 3 test runs that corresponded with the particulate tests on Units 1 and 2. One 1-hour Method 3 test run was performed with each Method 5 test. Flue gas was collected at each test point into a tedlar bag. The gas was analyzed using an Apex Instruments Orsat with .1% scale

Method 5B

GCI performed 3 Method 5B test runs using Apex Instruments test equipment. The USEPA test procedures were followed as written with 12 test points sampled for 10 minutes each. Meter Box 10A was used and had a meter correction factor of 1.005 on Units 1 and 2.

Method 8A

GCI performed 3 NCASI Method 8A test runs on the High, Mid and Low Loads on Units 1 and 2 using Apex Instruments test equipment. The USEPA test procedures were followed as written with sampling being completed in 60 minutes. Meter Box 21AO was used and had a meter correction factor of .998 on Units 1 and 2.

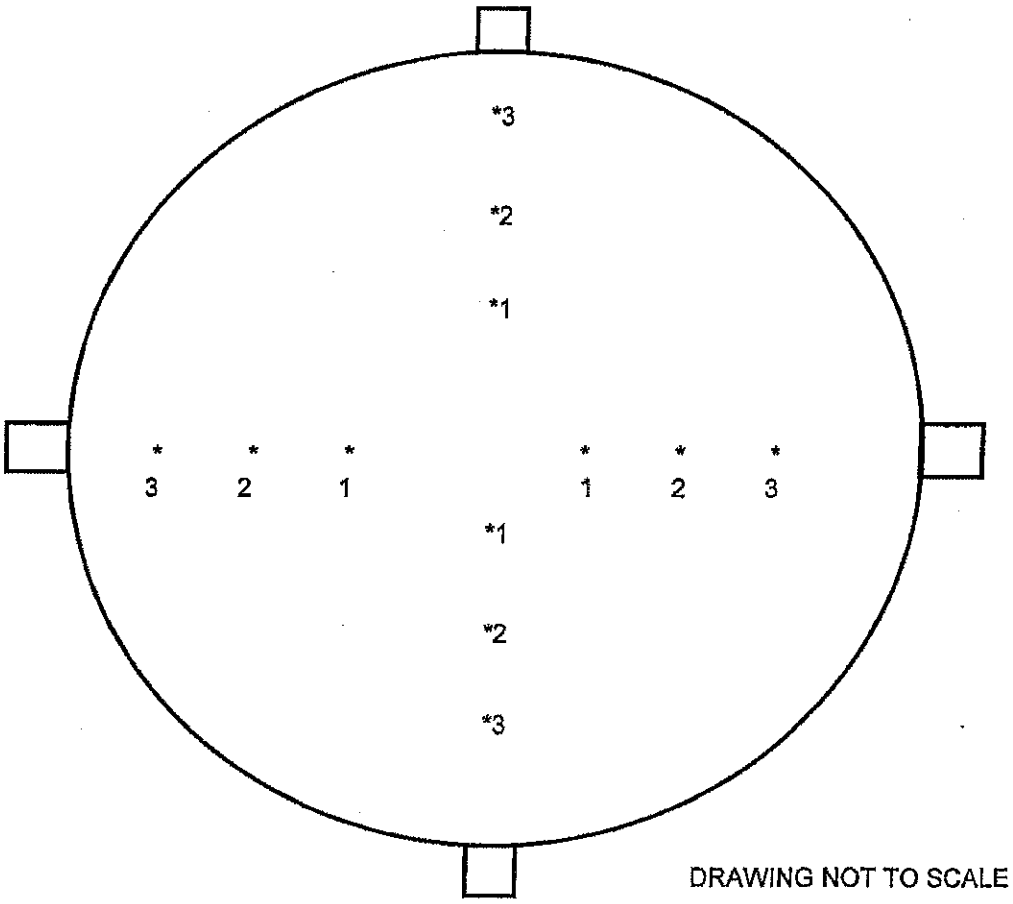


DRAWING NOT TO SCALE

POINTS	DISTANCE FROM INSIDE WALL
1)	67.49 "
2)	33.29 "
3)	10.03 "

STACK AREA = 283.529 sq ft
STACK DIAMETER = 19.00 '
Hoosier Energy
Merom Unit 1

Grace Consulting, Inc.
Emissions Testing Services



DRAWING NOT TO SCALE

POINTS	DISTANCE FROM INSIDE WALL
1)	67.49 "
2)	33.29 "
3)	10.03 "

STACK AREA = 283.529 sq ft
STACK DIAMETER = 19.00 '
Hoosier Energy
Merom Unit 2

Grace Consulting, Inc.
Emissions Testing Services

APPENDIX

SAMPLE CALCULATION

SAMPLE CALCULATIONS
Hoosier Energy
Merom Station
Unit 1
10/18/2011
RUN 1

$$Ps = Pb + \left(\frac{Pf}{13.6}\right)$$

$$28.58 = 28.69 + \left(\frac{-1.5}{13.6}\right)$$

Vm = (Final Dry Gas Meter reading – Initial Dry Gas Meter reading) x Y

94.54538= (346.275 – 252.200) x 1.005

$$Vm(std) = Vm \times \frac{528}{Tm + 460} \times \left(\frac{Pb + \frac{DeltaH}{13.6}}{29.92}\right)$$

$$90.09 = 94.54538 \times \frac{528}{534} \times \left(\frac{28.69 + \frac{1.96}{13.6}}{29.92}\right)$$

Vwc = .04706 x Vl

Vwsg = .04715 x Wsg

Vwc(std) = Vwc + Vwsg

11.24734 = .04706 x 239 ml of condensate

.777975 = .04715 x 16.5 g. of silica gel

12.02532 Vwc(std) = 11.24734 + .777975

$$Bws = \frac{Vwc(std)}{Vwc(std) + Vm(std)}$$

$$.1178 = \frac{12.02532}{12.02532 + 90.09}$$

%M = Bws x 100

11.78% = .1178 x 100

$\%N_2$ dry = 100 – ($\%CO_2$ + $\%O_2$ + %CO)

80.1% = 100 – (11 + 7.9 + 0)

Md = (.44 x %CO2) + (.32 x %O2) + (.28 x (%N2+%CO))

30.076 = (.44 x 11%) + (.32 x 7.9%) + (.28 x 80.1%)

Ms = Md (1-Bws) + (18.0 x Bws)

28.65 = 30.076 x (1-.1178) + (18.0 x .1178%)

$$Vs = 85.49 \times Cp \times \sqrt{\Delta P} \times \sqrt{\frac{Ts}{Ps \times Ms}}$$

$$99.49 = 85.49 \times .84 \times 1.642 \sqrt{\frac{583}{28.58x28.65}}$$

ACFM = 60 x Vs x A

1,692,505 = 60 x 99.49 x 283.529

$$DSCFM = \frac{Tstd}{Pstd} \times ACFM \times \frac{Ps}{Ts} \times (1 - Bws)$$

$$1{,}291{,}747 = \frac{528}{29.92} \times 1{,}692{,}505 \times \frac{28.58}{583} \times (1 - .1178)$$

Wg = Weight gain in grams

Wg = 0.0179

Wp = .002205 x Wg

.00003947 = .002205 x 0.0179

$$Wd = \frac{Wp}{Vm(std)} \quad \text{(lb/dscf)}$$

$$4.38E\text{-}07 = \frac{.00003947}{90.09}$$

Wh = Wd x Qsd (lb/hr)

33.96 = 4.38E-07 x77,504,880

Ws = Wd x 7000 (gr/dscf)

3.07E-03 = 4.38E-07 x 7000

$$DI = \frac{f-factor \times 20.9 \times Wd}{(20.9 - \%O2)} \quad \text{(lb/mmBtu)}$$

$$.007 = \frac{9780 \times 20.9 \times 4.38E-07}{(20.9 - 7.9)}$$

$$\%I = \frac{1.667 \times Ts \times \left| .002669 \times Vlc + \frac{Vm \times Y}{Tm} \right| \left(Pbar + \frac{DeltaH}{13.6} \right)}{* \times Vs \times Ps \times An}$$

$$92.2\% = \frac{1.667 \times 583 \times \left| .002669 \times 255.5 + \frac{94.075 \times 1.005}{534} \right| \left(28.69 + \frac{1.96}{13.6} \right)}{120 \times 99.49 \times 28.58 \times .00017868339}$$

H_2SO_4 CALCULATION

lb/dscf = .0001081 x (Normality of Barium x (Volume to Titrate Sample – Volume to Titrate Blank) x (Volume of Solution /Volume of Aliquot) ÷ dscf

PPM dry = lb/dscf ÷ .000000254

lb/mmBtu = (lb/dscf x f-factor x 20.9) ÷ (20.9 – O_2 %)

NOMENCLATURE

A	=	cross-sectional area of stack, (ft^2)
acf	=	actual cubic feet
acfm	=	actual cubic feet per minute
A_n	=	cross-sectional area of nozzle, (ft^2)
B_{ws}	=	water vapor in the gas stream, proportion by volume
C_a	=	acetone blank residue concentration, mg/mg
C_p	=	pitot tube coefficient, dimensionless
$C_{p(s)}$	=	type S pitot tube coefficient, dimensionless
$C_{p(std)}$	=	standard pitot tube coefficient; use 0.99
C_s	=	concentration of particulate matter in stack gas, dry basis, corrected to standard conditions, (gr/dscf)
D_e	=	equivalent diameter
D_I	=	dust loading per heat input, (lb/mmBtu)
dscf	=	dry standard cubic feet
dscm	=	dry standard cubic meters
fps	=	feet per second
gms	=	grams
gm-mole	=	gram-mole
grs	=	grains
ΔH	=	orifice pressure drop in inches water, average
hr	=	hour
I	=	percent of isokinetic sampling
In. Hg	=	inches mercury
L	=	length.
L_1	=	Individual leakage relate observed during the leak-check conducted prior to the first component change, (ft^3/min)
L_a	=	maximum acceptable leakage rate for either a pretest leak-check or for a leak-check following a component change; equal to 0.00057 m^3/min (0.020 cfm) or 4 percent of the average sampling rate, whichever is less
lbs	=	pounds
lb-mole	=	pound-mole
L_i	=	Individual leakage rate observed during the leak-check conducted prior to the "i^{th}" component change (i = 1, 2, 3..n), (cfm)
L_p	=	leakage rate observed during the post-test leak-check, (cfm)
%M	=	percent moisture by volume
m_a	=	mass of residue of acetone after evaporation, mg
M_d	=	molecular weight of stack gas, dry basis, (lb/lb-mole)
mmBtu	=	million Btu
m_n	=	total amount of particulate matter collected, mg
M_s	=	molecular weight of stack gas, wet basis, (lb/lb-mole)
M_w	=	molecular weight of water, (18.0 lb/lb-mole)
n	=	total number of traverse points
P_b	=	barometric pressure at the sampling site, (in Hg)
P_f	=	static pressure in flue in inches water, average
P_g	=	stack static pressure, (in. Hg)
P_s	=	absolute stack gas pressure, (in. Hg)
P_{std}	=	standard absolute pressure, (29.92 in. Hg)
Q_{sd}	=	dry volumetric stack gas flow rate corrected to standard conditions, (dscf/hr)
R	=	ideal gas constant, $\{21.85$ [(in Hg) (ft^3)] / [(°R) (lb-mole)]$\}$
$\sqrt{\Delta P}$	=	square root of velocity head in inches water, average
scf	=	standard cubic feet
scm	=	standard cubic meters
T	=	sensitivity factor for differential pressure gauges

T_m	=	absolute average DGM temperature, (°R)
T_s	=	absolute average stack gas temperature, (°R)
T_{std}	=	standard absolute temperature, (528 °R)
V_a	=	volume of acetone blank, ml
V_{aw}	=	volume of acetone used in wash, ml
V_l	=	volume of condensate through the impingers, ml
V_{lc}	=	total volume of liquid collected in impingers and silica gel, ml
V_m	=	volume of gas sample as measured by dry gas meter, (dcf)
$V_{m(std)}$	=	volume of gas sample measured by the dry gas meter, corrected to standard conditions, (dscf)
V_o	=	volume of flue gas at actual conditions in cubic feet per minute
$V_{w(std)}$	=	volume of water vapor in the gas sample, corrected to standard conditions, (scf)
V_{wc}	=	volume of water condensed in impingers corrected to standard conditions
V_{wsg}	=	volume of water collected in silica gel corrected to standard conditions
V_s	=	average stack gas velocity, (ft/sec)
W	=	width
W_a	=	weight of residue in acetone wash, mg
W_d	=	weight of dust collected per unit volume, (lb/dscf)
W_g	=	weight of dust collected in grams
W_h	=	weight of dust collected per unit volume, (lb/hr), dry basis
W_p	=	weight of dust collected in pounds
W_s	=	weight of dust collected per unit volume, (gr/dscf)
W_{sg}	=	weight gain of impinger silica gel in grams
Y	=	dry gas meter calibration factor
$*_a$	=	density of acetone, mg/ml
*	=	total sampling time, min
$*_1$	=	sampling time interval, from the beginning of a run until the first component change, min
$*_i$	=	sampling time interval, between two successive component changes, beginning with the interval between the first and second changes, min
$*_p$	=	sampling time interval, from the final (n^{th}) component change until the end of the sampling run, min
13.6	=	specific gravity of mercury
60	=	sec/min
100	=	conversion to percent

TEST DATA SHEETS

Field Data Sheet

Client: Hoosier		Date: 10-18-11	
Project No: 11-350	Operator: D. Moody		
Sampling Location: unit 1 Stack		Run No: 1	
Filter No.: 11-162	Impinger Box No:	Condensate: 239 ml or g	
Barometric Pressure: 28.69	Static Pressure: -1.5	Silica Gel: 16.5 g	
Nozzle Diameter: .181	Nozzle Number: 7-9	Pitot Number:	
Meter Corr. Factor: 1.005	Pitot Coefficient: .84	Meter No. 10A	RM: 5B
Sample Pt. Time: 10M/2H	Meter Orifice: 2.87914	Date Calibrated: 9-30-11	Flue Area: ft.2
Assumed % Moisture:	Delta $H_@$: 1.623		
Saturated Gas Stream: Y or N	Leak Test Initial: .006 ft3@ 17 "Hg(1 min.)	Final: .005 ft3@ 7 "Hg(1 min.)	

Orsat Analysis		
CO_2%	O_2	O_2%
10.9	18.9	8.0
11.0	18.9	7.9
11.0	18.9	7.9

Sample Point	Delta P	Sq. Rt Delta P	Delta H	Stack	Temperature (Degrees Fahrenheit) Probe 223-273	Imp. Out <68	Oven 223-273	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 8:23									Initial DGM Reading		252.200
A 1	2.6	1.612	1.793	123	317	56	320		55	4	260.86
2	2.7	1.643	1.867	122	318	57	313		55	4	268.87
3	2.4	1.549	1.655	122	314	58	320		65	4	276.43
B 1	2.7	1.643	1.972	123	316	60	319		72	4	284.73
2	2.8	1.673	2.072	123	320	61	318		74	4	293.19
3	3.0	1.732	2.220	123	319	61	316		75	4	301.97
C 1	2.5	1.581	1.850	123	312	63	318		76	3	309.96
2	2.8	1.673	2.072	122	316	63	317		78	4	312.85
3	2.5	1.581	1.850	123	317	64	315		81	3	328.89
D 1	3.0	1.732	2.220	124	320	59	314		83	4	329.65
2	3.0	1.732	2.220	124	319	58	316		84	4	338.40
3	2.4	1.549	1.776	123	317	59	316		86	3	346.275
Stop Time: 10:38											
avg's.		1.642	1.96	123					74		94.075

Pitot Tube Leak Test: Stable for 15 seconds at 3.0" H_2O | Initial ✓ | Final ✓

Field Data Sheet

Client:	Hoosier Meron				Date:	10-18-11		Orsat Analysis			
Project No:	11-350		Operator:	D.MOODY				CO_2%	O_2	O_2%	
Sampling Location:	unit 1				Run No:	2		11.2	19.0	7.8	
Filter No.:	11-162		Impinger Box No:		Condensate:	234.5 ml or g		11.2	19.0	7.8	
Barometric Pressure:	28.69		Static Pressure:	-1.1	Silica Gel:	48 g		11.1	19.0	7.9	
Nozzle Diameter:	.181		Nozzle Number:	7-2	Pitot Number:						
Meter Corr. Factor:	1.005		Pitot Coefficient:	.84	Meter No.	10A		RM:	5B		
Sample Pt. Time:	10 m/ 2 Hr		Meter Orifice:	2.87914	Date Calibrated:	9-30-11		Flue Area:		ft.2	
Assumed % Moisture:	12.5		Delta $H_@$:	1.623							
Saturated Gas Stream:	Y or N		Leak Test Initial:	.006 ft3@ 16 "Hg(1 min.)			Final:	.002 ft3@	7 "Hg(1 min.)		

Sample Point	Delta P	Sq. Rt Delta P	Delta H	Temperature (Degrees Fahrenheit) Stack	Probe 223-273	Imp. Out <68	Oven 223-273	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 11:05									Initial DGM Reading:		347.000
D 1	2.6	1.612	1.924	124	309	59	317		82	4	355.19
2	3.0	1.732	2.220	123	316	47	317		83	5	363.95
3	2.5	1.581	1.581	123	312	48	319		84	4	372.58
C 1	3.0	1.732	2.220	124	320	53	309		85	5	381.34
2	2.6	1.612	1.924	123	321	58	310		85	4	389.53
3	2.6	1.612	1.924	123	321	60	312		86	5	397.68
B 1	2.5	1.581	1.850	123	320	62	318		87	5	405.71
2	2.5	1.581	1.850	123	314	62	317		87	4	418.70
3	2.6	1.612	1.924	123	315	63	318		88	5	426.84
A 1	2.8	1.673	2.072	124	317	62	319		88	5	430.35
2	3.0	1.732	2.220	124	320	60	315		88	5	439.16
3	2.5	1.581	1.850	123	318	57	316		89	4	447.143
Stop Time: 13:20											
avg's.		1.635	1.963	123					86		~~99.343~~ 100.143

Pitot Tube Leak Test: Stable for 15 seconds at 3.0" H_2O | Initial ✓ | Final ✓

Field Data Sheet

Client: Hoosier Meron		Date: 10-18-11	
Project No: 11-350	Operator: D. MOODY		
Sampling Location: ~~28.69~~ Unit 1 Stack		Run No: 3	
Filter No.: M156	Impinger Box No:	Condensate: 301 ml or g	
Barometric Pressure: 28.69	Static Pressure: -1.1	Silica Gel: 34 g	
Nozzle Diameter: 7-2, 181	Nozzle Number: 7-1	Pitot Number:	
Meter Corr. Factor: 1.005	Pitot Coefficient: .84	Meter No. 10A	RM: 5B
Sample Pt. Time: 10 m / 2 Hr	Meter Orifice: 287914	Date Calibrated: 9-30-11	Flue Area: ft.2
Assumed % Moisture: 12.5	Delta $H_@$: 1.623		
Saturated Gas Stream: Y or N	Leak Test Initial: .007 ft3@ 10 "Hg(1 min.)	Final: .003 ft3@ 6 "Hg(1 min.)	

Orsat Analysis		
CO_2%	O_2	O_2%
11.3	19.3	8.0
11.3	19.3	8.0
11.3	19.3	8.0

Sample Point	Delta P	Sq. Rt Delta P	Delta H	Temperature (Degrees Fahrenheit) Stack	Probe 223-273	Imp. Out <68	Oven 223-273	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 15:40									Initial DGM Reading		447.625
A 1	2.8	1.673	2.072	124	316	63	317		85	4	456.13
2	3.0	1.732	2.220	124	316	61	315		86	4	464.94
3	2.7	1.643	1.998	123	319	61	320		86	4	473.30
B 1	2.6	1.612	1.924	123	321	61	318		87	4	486.45
2	2.6	1.612	1.924	123	319	62	321		87	4	489.60
3	2.9	1.703	2.146	123	311	61	313		87	4	496.26
C 1	3.0	1.732	2.220	123	312	62	314		87	4	505.81
2	2.6	1.612	1.924	123	316	62	313		87	4	513.96
3	3.0	1.732	2.220	123	317	62	315		87	4	522.71
D 1	2.7	1.643	1.998	123	318	62	317		87	4	531.00
2	2.7	1.643	1.998	123	318	61	320		88	4	539.37
3	2.4	1.549	1.776	124	319	61	321		88	4	547.288
Stop Time: 15:55											
avg's.		1.657	2.07 2.035	123					87		99.633

Pitot Tube Leak Test: Stable for 15 seconds at 3.0" H_2O | Initial ✓ | Final ✓

GRACE CONSULTING, INC.

SELECTIVE CONDENSATE

CO_2	O_2
11.0	7.9

Client: Mecom	Date: 10-18-11
Project No. 11-350	Operator: R. Prosser
Sampling Location Unit 1	Run No. 1
Barometric Pressure 28.69	Probe Number
Condensate 12.5% 66.5g	Silica Gel 10g
Meter Corr. Factor .998	Meter Orifice 3.15 / Meter # 21AC
Sample Pt. Time 5 min	Leak Test @ (in. HG) .0002 .15 / After @(in. HG)

Sample Point	8:25	1.747 Delta H	Probe	Coil Imp. Out	Exit	Oven ~~Meter In~~	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading in Cu. Ft.
	Start Time		~~508~~	~~158~~	~~55~~			~~4~~	855.110
5			508	158	55	501	68	4	856.910
10			510	158	55	503	68	4	858.557
15			505	159	56	500	68	4	860.342
20			507	160	56	506	68	4	862.041
25			510	160	56	510	68	4	863.774
30			511	159	57	508	69	4	865.472
35			509	159	56	505	69	4	867.103
40			507	155	56	506	69	4	868.846
45			508	155	57	507	69	4	870.667
50			508	159	57	508	69	4	872.466
55			509	160	57	510	70	4	874.376
60			509	160	59	510	70	4	876.275
	Stop Time								
AVG.	9:25						69		21.165

Field Data Sheet
Method 8A

Client: Mesom		Date: 10-18-2011	Orsat Analysis		
Project No: 11-350	Operator: R. Prosser		CO_2%	$+O_2$	O_2%
Sampling Location: Unit 1		Run No: 2			
Barometric Pressure: 28.69	Impinger Box No:	Condensate: 39.5 ml or g	~~12.0~~		~~6.9~~
Meter Corr.Factor: .998	Meter Orifice: 3.15	Silica Gel: 6 g	11.2		7.8
Sample Pt. Time: 5 min	Delta H@: 1.747	Meter No. 21AO			
Assumed % Moisture: 12.5%		Date Calibrated: 9-7-11	RM: 8A		
			Flue Area:		ft.^{2}

Saturated Gas Stream: Y or N | Leak Test Initial: .000 ft^3 @ 15 "Hg (1 min.) | Final: .000 ft^3 @ 7 "Hg (1 min.)

Sample Point				1.747 Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	Meter ~~out~~ in	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 10:20											877.230
5					508	53	158	501	76	4	879.029
10					510	53	158	501	76	4	880.861
15					507	54	161	506	77	4	882.660
20					509	53	157	505	77	4	884.492
25					510	54	158	506	76	4	886.292
30					510	55	158	503	77	4	888.090
35					506	55	160	503	77	4	890.023
40					509	56	160	501	77	4	891.789
45					508	56	161	503	78	4	893.623
50					510	57	158	506	78	4	895.409
55					506	57	158	506	78	4	897.320
60					507	57	159	505	79	4	899.033
Stop Time: 11:20											
avg's.									77		21.803

Field Data Sheet
Method 8A

Client: Merom		Date: 10-18-11	Orsat Analysis		
Project No:	Operator: R. Prosser		CO_2%	$+O_2$	O_2%
Sampling Location: Unit 1		Run No: 3			
Barometric Pressure: 28.69	Impinger Box No:	Condensate: 56.5 ml or g	11.2		7.8
Meter Corr.Factor: .998	Meter Orifice: 3.15	Silica Gel: 5.5 g			
Sample Pt. Time: 5 min	Delta $H_@$: 1.747	Meter No. 21A0			
Assumed % Moisture: 12.5%		Date Calibrated: 9-7-11	RM: 8A		
			Flue Area: ft.^{2}		

Saturated Gas Stream: Y or N | Leak Test Initial: .000 ft^3 @ 15 "Hg (1 min.) | Final: .0000 ft^3 @ 7 "Hg (1 min.)

Sample Point				Temperature (Degrees Fahrenheit)							Dry Gas Meter Reading (Cubic Feet)
				1.747 Delta H	Probe	Imp.Out <68	Condenser	~~Meter~~ oven	Meter out	Vac. Pr (in.HG)	
Start Time: 12:00											890.001
5					509	54	159	508	77	4	891.797
10					509	54	157	505	77	4	893.620
15					506	54	157	501	78	4	895.467
20					507	55	158	501	78	4	897.278
25					505	54	160	501	78	4	899.077
30					508	55	159	503	77	4	900.890
35					509	56	158	503	79	4	902.643
40					506	56	158	502	79	4	904.467
45					505	57	160	500	79	4	906.233
50					507	58	160	502	79	4	908.034
55					508	60	157	503	79	4	909.827
60					510	60	157	501	80	4	911.671
Stop Time: 13:00											
avg's.									78		21.670

Field Data Sheet
Method 8A

Client: Merom			Date: 10-20-11	Orsat Analysis	
Project No:	Operator: R. Prosser			CO_2%	$+O_2$ / O_2%
Sampling Location: unit 1 mid load			Run No: 1		
Barometric Pressure: 28.61	Impinger Box No:		Condensate: 74 ml or g	11.3	18.9 / 7.6
Meter Corr.Factor: .998	Meter Orifice: 3.15		Silica Gel: 10 g		
Sample Pt. Time: 5 min	Delta $H_@$: 1.747		Meter No. 21A0		
Assumed % Moisture: 14			Date Calibrated: 9-7-11	RM: 8A	
				Flue Area: ft.^{2}	

Saturated Gas Stream: Y or N | Leak Test Initial: .000 ft^3 @ 20 "Hg (1 min.) | Final: .000 ft^3 @ 10 "Hg (1 min.)

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	~~Meter~~ oven	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 13:40											048.035
5				1.747	510	55	159	508	74	7	049.834
10					509	55	159	509	74	7	051.711
15					511	55	160	511	74	7	053.644
20					508	56	158	511	74	7	055.432
25					507	57	159	509	74	7	057.216
30					506	57	160	508	74	7	059.029
35					509	58	156	507	74	7	060.805
40					508	58	158	508	75	7	062.545
45					508	58	157	506	75	7	064.284
50					510	59	160	508	76	7	066.274
55					507	60	158	509	76	7	068.252
60					509	60	157	507	76	7	070.026
Stop Time: 14:40											
avg's.									75		21.991

Field Data Sheet
Method 8A

Client: meroM		Date: 10-20-11	Orsat Analysis		
Project No:	Operator: R. Prosser		CO_2%	+O_2	O_2%
Sampling Location: Unit 1 mid load		Run No: 2			
Barometric Pressure: 28.61	Impinger Box No:	Condensate: 59 ml or g	10.6	19.2	8.6
Meter Corr.Factor: .998	Meter Orifice: 3.15	Silica Gel: 9 g	10.6	19.2	8.6
Sample Pt. Time: 5min	Delta $H_@$: 1.747	Meter No. 2140	10.6	19.2	8.6
Assumed % Moisture: 14		Date Calibrated: 9-7-11	RM:		
			Flue Area:		ft.^{2}

Saturated Gas Stream: Y or N | Leak Test Initial: .0000 ft^3 @ 20"Hg (1 min.) | Final: .0000 ft^3 @ 10 "Hg (1 min.)

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	~~Meter~~ Oven In	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 14:50									Initial DGM Reading:		071.003
5				1.747	510	55	158	500	75	8	072.874
10					510	56	158	508	75	8	074.765
15					508	56	159	505	75	8	076.678
20					507	56	160	506	75	8	078.490
25					509	57	158	507	75	8	080.289
30					506	57	161	508	75	8	082.048
35					507	58	159	503	75	8	083.921
40					508	59	158	501	76	8	085.720
45					510	60	160	505	76	8	087.584
50					508	60	157	507	76	8	089.381
55					507	60	161	508	77	8	091.137
60					510	60	159	507	77	8	092.850
Stop Time: 15:50											
avg's.									76		21.847

Field Data Sheet
Method 8A

Client: Merom		Date: 10-20-11	
Project No:	Operator: R. Prosser		
Sampling Location: unit 1 mid load		Run No: 3	
Barometric Pressure: 28.61	Impinger Box No:	Condensate: 57 ml or g	
Meter Corr.Factor: .998	Meter Orifice: 3.15	Silica Gel: 9.5 g	
Sample Pt. Time: 5 min	Delta H@: 1.747	Meter No. 21A0	
Assumed % Moisture: 14		Date Calibrated: 9-7-11	

Orsat Analysis		
CO_2%	+O_2	O_2%
10.4		8.6

RM:
Flue Area: ft.²

Saturated Gas Stream: Y or N | Leak Test Initial: .000 ft³ @ 20 "Hg (1 min.) | Final: .000 ft³ @ 11 "Hg (1 min.)

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	~~Meter~~ Oven	Meter out	Vac. Pr (In.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 15:55									Initial DGM Reading:		093.313
5				1.747	508	60	159	505	77	8	095.112
10					509	60	159	507	77	8	096.945
15					508	60	159	507	77	8	098.876
20					511	60	158	508	77	8	100.729
25					507	61	160	505	78	8	102.528
30					509	61	161	506	78	8	104.314
35					510	61	159	507	78	8	106.245
40					511	61	157	508	78	8	108.218
45					507	61	160	508	78	8	110.017
50					505	62	161	509	79	8	111.760
55					509	63	158	506	79	8	113.505
60					510	63	157	506	79	8	115.197
Stop Time: 16:55											
avg's.									78		21.884

Field Data Sheet
Method 8A

Client: Mason		Date: 10-20-11	Orsat Analysis			
Project No:	Operator: R. Posser		CO_2%	+O_2	O_2%	
Sampling Location: Unit 1 Low Load		Run No: 1				
Barometric Pressure: 28.61	Impinger Box No:	Condensate: 51.5 ml or g	10.4		8.5	
Meter Corr.Factor: .998	Meter Orifice: 3.15	Silica Gel: 8.5 g				
Sample Pt. Time: 5 min	Delta $H_@$: 1.747	Meter No. 21A0				
Assumed % Moisture: 14%		Date Calibrated: 9-7-11	RM: 8A			
			Flue Area: ft.^{2}			
Saturated Gas Stream: Y or N	Leak Test Initial: .000 ft^3 @ 18 "Hg (1 min.)		Final: .002 ft^3 @ 10 "Hg (1 min.)			

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	~~Meter~~ Oven	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 8:05									Initial DGM Reading		959.440
5				1.747	506	53	158	510	69	9	961.239
10					506	53	159	510	69	9	963.049
15					507	54	160	508	69	9	964.835
20					507	54	160	508	69	9	966.746
25					508	55	157	507	70	9	968.673
30					509	55	157	506	70	9	970.356
35					507	56	158	509	70	9	972.238
40					507	56	160	507	71	9	974.007
45					507	56	157	506	71	9	975.806
50					509	57	157	509	71	9	977.716
55					505	57	159	505	71	9	979.484
60					506	58	159	507	72	9	981.317
Stop Time: 09:05											
avg's.									70		21.877

Field Data Sheet
Method 8A

Client: Merom			Date: 10-20-11	Orsat Analysis	
Project No:	Operator: R. Prosser			CO_2%	$+O_2$ / O_2%
Sampling Location: Unit 2	LOW LOAD		Run No: 2		
Barometric Pressure: 25.61	Impinger Box No:		Condensate: 60 ml or g	Hi	Zero
Meter Corr.Factor: .998	Meter Orifice: 3.15		Silica Gel: 7 g		
Sample Pt. Time: 5min	Delta $H_@$: 1.747		Meter No. 21A0		
Assumed % Moisture: 14			Date Calibrated: 9-7-11	RM: 8A	
				Flue Area: ft.^{2}	

Saturated Gas Stream: Y or N | Leak Test Initial: .000 ft^3 @20 "Hg (1 min.) | Final: .000 ft^3 @ 10 "Hg (1 min.)

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	Meter Oven	Meter out	Vac. Pr (In.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 9:45									Initial DGM Reading:		983.340
5				1.747	508	160	160	507	72	7	985.139
10					507	158	158	508	72	7	986.960
15					507	158	158	507	73	7	988.759
20					509	161	161	506	73	7	990.615
25					507	159	159	510	74	7	992.489
30					506	158	158	509	74	7	994.287
35					508	156	156	508	75	7	996.100
40					509	159	159	507	75	7	997.898
45					510	160	160	509	75	7	999.714
50					507	161	161	510	76	7	001.511
55					506	158	158	508	76	7	003.321
60					508	159	159	508	76	7	005.108
Stop Time: 10:45											
avg's.									74		21.768

Field Data Sheet
Method 8A

Client: Merom		Date: 10-20-11	Orsat Analysis
Project No:	Operator: R. Fossier		CO_2% / +O_2 / O_2%
Sampling Location: Unit 1 LOW LOAD		Run No: 3	
Barometric Pressure: 28.61	Impinger Box No:	Condensate: 48.5 ml or g	
Meter Corr.Factor: .998	Meter Orifice: 3.15	Silica Gel: 7 g	
Sample Pt. Time: 5 min	Delta H@: 1.747	Meter No. 2140	
Assumed % Moisture: 14		Date Calibrated: 9-7-11	RM:
			Flue Area: ft.^{2}
Saturated Gas Stream: Y or N	Leak Test Initial: .000 ft^3 @ 20 "Hg (1 min.)	Final: .000 ft^3 @ 9 "Hg (1 min.)	

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	~~Meter~~ Oven In	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 10:57										Initial DGM Reading:	006.013
5				1.747	507	54	160	510	70	7	007.812
10					508	54	161	510	70	7	009.683
15					507	54	159	509	71	7	011.481
20					509	56	159	508	71	7	013.380
25					506	55	161	507	73	7	015.173
30					508	56	158	507	73	7	017.143
35					507	57	157	504	74	7	018.974
40					509	57	156	508	75	7	020.751
45					510	59	160	509	74	7	022.724
50					507	59	161	510	75	7	024.595
55					506	61	155	508	75	7	026.470
60					508	61	158	507	75	7	027.987
Stop Time: 11:57											
avg's.									73		21.974

Field Data Sheet

Client: Yoosker Meron					Date: 10-19-11				Orsat Analysis		
Project No: 11-350			Operator: D. Moody						CO_2%	O_2	O_2%
Sampling Location: Unit 2 Stack					Run No: 1				11.2	18.9	7.7
Filter No.: 11-15L			Impinger Box No:		Condensate: 327.5 ml or g				11.2	18.8	7.6
Barometric Pressure: 28.67			Static Pressure: -1.6		Silica Gel: 36.5 g				11.2	18.8	7.6
Nozzle Diameter: .181			Nozzle Number: 4-7-2		Pitot Number:						
Meter Corr. Factor: 1.005			Pitot Coefficient: .84		Meter No. 10A				RM: 5-B		
Sample Pt. Time: 10 min			Meter Orifice: 2.87914		Date Calibrated: 9-30-11				Flue Area:		ft.2
Assumed % Moisture: ~~12.5~~ 14%			Delta $H_@$: 1.623								
Saturated Gas Stream: Y or N			Leak Test Initial: .003 ft3@ 17 "Hg(1 min.)						Final: .001 ft3@ 8 "Hg(1 min.)		

Sample Point	Delta P	Sq. Rt Delta P	Delta H	Temperature (Degrees Fahrenheit) Stack	Probe 223-273	Imp. Out <68	Oven 223-273	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 8:00									Initial DGM Reading		547.600
A 1	3.0	1.732	2.145	126	316	51	315		72	4	556.26
2	3.2	1.789	2.308	125	316	53	312		76	5	565.23
3	2.5	1.581	1.803	125	321	60	317		79	4	573.11
B 1	3.1	1.761	2.236	125	318	60	319		81	5	581.89
2	2.9	1.703	2.091	124	320	60	319		83	4	590.39
3	2.8	1.673	2.019	124	317	61	318		85	4	598.23
C 1	3.0	1.732	2.322	125	316	60	319		86	4	607.71
2	3.0	1.732	2.320	124	307	49	309		85	4	616.67
3	2.8	1.673	2.167	124	312	62	308		86	4	625.31
D 1	2.7	1.643	2.040	125	317	46	312		85	4	633.80
2	3.1	1.761	2.400	125	319	42	313		83	5	642.89
3	2.5	1.581	1.935	124	318	46	312		84	4	651.083
Stop Time: 10:15											
avg's.		1.697	~~2.16~~ 2.153	125					82		103.483

Pitot Tube Leak Test: Stable for 15 seconds at 3.0" H_2O | Initial ✓ Final ✓

Field Data Sheet

Client: Hoosier			Date: 10-20-11	Orsat Analysis			
Project No: 11-350		Operator: D. Moody		CO_2%	$+O_2$	O_2%	
Sampling Location: Unit 2 Stack			Run No: 2				
Filter No: 11-159	Impinger Box No:		Condensate: 318 ml or g	11.1	18.6	7.5	
Barometric Pressure: 28.61	Static Pressure: -.1		Silica Gel: 31 g	11.0	18.6	7.6	
Nozzle Diameter: .18	Nozzle Number: 7-2		Pitot Number:	11.1	18.7	7.6	
Meter Corr.Factor: 1.005	Pitot Coefficient .84		Meter No. 10A	RM: 5B			
Sample Pt. Time: 10m/2hr	Meter Orifice: 2.87914		Date Calibrated: 9-30-11	Flue Area: ft.^{2}			
Assumed % Moisture: 14	Delta $H_@$: 1.623						
Saturated Gas Stream: Y or N	Leak Test Initial: .002 ft^3 @ 10 "Hg (1 min.)		Final: .002 ft^3 @ 10 "Hg (1 min.)				

Sample Point	Delta P	Sq.Rt. Delta P	Delta H	Temperature (Degrees Fahrenheit) Stack	Probe 223-273	Imp.Out <68	Oven 223-273	Meter In	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 7:50											651.380
D 1	3.0	1.732	2.322	126	316	50	321		72	5	660.29
2	3.0	1.732	2.322	126	318	51	320		73	5	669.27
3	2.8	1.673	2.167	129	321	48	298		75	5	677.99
A 1	3.2	1.789	2.477	129	317	47	309		75	5	687.30
2	3.1	1.761	2.400	129	318	46	316		76	5	696.44
3	3.0	1.732	2.322	129	321	50	314		77	5	705.46
B 1	3.2	1.789	2.477	130	316	55	307		80	6	714.80
2	2.9	1.703	2.245	130	313	51	308		80	5	723.68
3	3.1	1.761	2.400	130	319	50	312		80	5	732.78
C 1	3.2	1.789	2.477	130	316	54	314		81	5	742.02
2	3.0	1.732	2.322	130	316	56	310		81	5	751.00
3	2.6	1.612	2.013	130	315	58	310		82	5	759.853
Stop Time: 8:40:15											
avg's.		1.734	2.33	129					78		108.543
			2.328								

Pitot Tube Leak Test: Stable for 15 seconds at 3.0" H_2O | Initial ✓ | Final ✓

Field Data Sheet

Client: Hoosier				Date: 10-20-11				Orsat Analysis			
Project No: 11-350			Operator: D. Moody					CO_2%	O_2	O_2%	
Sampling Location: U2				Run No: 3							
Filter No.: ~~[illegible]~~ 11-159		Impinger Box No:		Condensate: 307 ml or g				12.0	19.0	7.0	
Barometric Pressure: 28.61		Static Pressure: -1.2		Silica Gel: 29 g				12.0	19.1	7.1	
Nozzle Diameter: .181		Nozzle Number: 7-2		Pitot Number:				12.0	19.1	7.1	
Meter Corr. Factor: 1.005		Pitot Coefficient: .84		Meter No. 10A				RM: 513			
Sample Pt. Time: 10m/2Hr		Meter Orifice: 2.87914		Date Calibrated: 9-30-11				Flue Area:		ft.2	
Assumed % Moisture: 14		Delta $H_@$: 1.623									
Saturated Gas Stream: Y or N		Leak Test Initial: .002 ft3@ 16"Hg(1 min.)				Final: .000 ft3@ 10"Hg(1 min.)					

Sample Point	Delta P	Sq. Rt Delta P	Delta H	Temperature (Degrees Fahrenheit) Stack	Probe 223-273	Imp. Out <68	Oven 223-273	Meter In	Meter Out	Vac. Pr (in. HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 10:45									Initial DGM Reading:		760.200
A 1	3.1	1.761	2.400	130	308	44	307		76	4	769.36
2	3.0	1.732	2.322	130	314	44	316		77	4	778.37
3	2.7	1.643	2.090	129	319	51	308		79	4	786.86
B 1	3.1	1.761	2.400	129	310	54	309		80	4	796.02
2	3.1	1.761	2.400	129	311	56	314		82	4	805.18
3	2.6	1.612	2.013	129	313	57	316		83	4	813.57
C 1	3.1	1.761	2.400	129	316	53	318		82	4	822.58
2	3.0	1.732	2.322	129	316	52	319		83	4	831.53
3	2.8	1.673	2.167	130	318	52	319		83	4	840.17
D 1	2.9	1.703	2.245	129	316	53	320		82	4	849.02
2	3.2	1.789	2.477	129	317	54	316		83	5	858.26
3	2.6	1.612	2.013	129	319	56	319		84	4	866.608
Stop Time: 13:05											
avg's.		1.712	2.270	129					81		106.408

Pitot Tube Leak Test: Stable for 15 seconds at 3.0" H_2O | Initial ✓ Final ✓

Grace Consulting, Inc.

Field Data Sheet
Method 8A

Client: Mecom			Date: 10-19-2011	Orsat Analysis		
Project No:	Operator: R. Prosser			CO_2%	$+O_2$	O_2%
Sampling Location: Unit 2 High			Run No: 2			
Barometric Pressure: 28.67	Impinger Box No:		Condensate: 67.5 ml or g			
Meter Corr.Factor: .998	Meter Orifice: 3.15		Silica Gel: 8.5 g	11.2		7.6
Sample Pt. Time: 5min	Delta H@: 1.747		Meter No. 21A0			
Assumed % Moisture: 14			Date Calibrated: 9-7-11	RM:		
				Flue Area:		ft.^{2}

Saturated Gas Stream: Y or N | Leak Test Initial: .000 ft^3 @ 15 "Hg (1 min.) | Final: .000 ft^3 @ 8 "Hg (1 min.)

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	Meter in	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 8:00									Initial DGM Reading:		912.003
5				1.747	508	53	158	503	71	6	913.801
10					509	53	158	505	71	6	915.600
15					508	54	160	505	71	6	917.421
20					505	54	159	501	71	6	919.254
25					507	54	161	503	71	6	921.087
30					508	54	160	505	71	6	922.864
35					505	55	159	504	72	6	924.695
40					506	55	159	506	72	6	926.505
45					509	55	158	503	73	6	928.304
50					504	56	158	501	73	6	930.064
55					505	56	157	505	73	6	931.965
60					509	56	159	504	73	6	933.876
Stop Time: 9:00											
avg's.									72		~~21.885~~ 21.873

Field Data Sheet
Method 8A

Client: Merom		Date: 10-19-2011	Orsat Analysis		
Project No:	Operator: R. Prosser		CO_2%	+O_2	O_2%
Sampling Location: Unit 2		Run No: 2			
Barometric Pressure: 28.67	Impinger Box No:	Condensate: 71 ml or g	11.2		7.6
Meter Corr.Factor: .998	Meter Orifice: 3.15	Silica Gel: 7.5 g			
Sample Pt. Time: 5 min	Delta $H_@$: 1.747	Meter No. 21AC			
Assumed % Moisture: 14		Date Calibrated: 9-7-11	RM:		
			Flue Area:		ft.^{2}
Saturated Gas Stream: Y or N	Leak Test Initial: .000 ft^3 @ 19 "Hg (1 min.)		Final: .000 ft^3 @ 8 "Hg (1 min.)		

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	~~Meter~~ Oven In	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 9:35											934.831
5				1.747	508	54	160	508	77	6	936.630
10					507	54	158	507	77	6	938.461
15					508	54	158	505	77	6	940.316
20					509	54	155	505	78	6	942.226
25					510	56	159	507	78	6	944.216
30					506	56	158	503	78	6	946.040
35					505	57	157	504	78	6	947.851
40					507	57	153	505	78	6	949.649
45					506	57	157	507	79	6	951.462
50					504	57	158	506	79	6	953.295
55					508	58	158	506	79	6	955.079
60					509	58	160	505	79	6	956.562
Stop Time: 10:35											
avg's.									78		21.731

Field Data Sheet
Method 8A

Client: Meson		Date: 10-20-11	Orsat Analysis			
Project No:	Operator: R. Rosse		CO_2%	$+O_2$	O_2%	
Sampling Location: unit 2		Run No: 3 high				
Barometric Pressure: 28.61	Impinger Box No:	Condensate: 62.5 ml or g	12.0		7.1	
Meter Corr.Factor: .898	Meter Orifice: 3.15	Silica Gel: 10.5 g				
Sample Pt. Time: 5 min	Delta H@: 1.747	Meter No. 2180				
Assumed % Moisture: 14		Date Calibrated: 9-7-11	RM:			
			Flue Area:		ft.^{2}	

Saturated Gas Stream: Y or N | Leak Test Initial: .000 ft^3 @ 20 "Hg (1 min.) | Final: ft^3 @ "Hg (1 min.)

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	Meter oven	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 12:20											026.112
5				1.747	508	59	158	510	72	8	028.011
10					509	59	158	510	72	8	029.810
15					509	59	160	508	72	8	031.596
20					505	60	161	509	72	8	033.360
25					507	61	159	506	72	8	035.153
30					510	61	157	508	72	8	037.046
35					508	61	156	509	73	8	038.923
40					509	62	159	507	73	8	040.709
45					506	62	159	506	74	8	042.620
50					508	62	161	509	74	8	044.396
55					509	63	158	510	74	8	046.191
60					507	63	157	508	75	8	047.987
Stop Time: 13:20											
avg's.									73		21.875

Field Data Sheet
Method 8A

Client: Merom		Date: 10-21-11	
Project No:	Operator: R. Prosser		
Sampling Location: unit 2 mid load		Run No: 2	
Barometric Pressure: 29.16	Impinger Box No:	Condensate: 68.5 ml or g	
Meter Corr.Factor: .998	Meter Orifice: 3.15	Silica Gel: 7 g	
Sample Pt. Time: 5 min	Delta H@: 1.747	Meter No. 21AO	
Assumed % Moisture: 14		Date Calibrated: 9-7-11	

Orsat Analysis		
CO_2%	+O_2	O_2%
10.5		8.4

RM: 8A
Flue Area: ft.^{2}

Saturated Gas Stream: Y or N

Leak Test Initial: .000 ft^3 @ 20"Hg (1 min.) Final: .000 ft^3 @ 12"Hg (1 min.)

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	Meter oven	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 12:30										Initial DGM Reading:	190.010
5				1.747	509	54	160	510	74	10	191.909
10					508	54	159	510	74	10	193.696
15					507	54	159	509	74	10	195.559
20					509	55	160	509	74	10	197.472
25					510	55	161	510	74	10	199.257
30					510	55	158	508	74	10	201.043
35					508	57	157	510	75	10	202.855
40					509	58	160	509	75	10	204.618
45					507	58	158	508	75	10	206.417
50					506	58	159	507	75	10	208.249
55					509	60	157	509	76	10	210.182
60					508	60	159	510	76	10	211.950
Stop Time: 13:30											
avg's.									75		21.940

Field Data Sheet
Method 8A

Client: Merom		Date: 10-21-11	Orsat Analysis		
Project No:	Operator: R. Prosser		CO_2%	+O_2	O_2%
Sampling Location: Unit 2 mid load		Run No: 2			
Barometric Pressure: 29.66	Impinger Box No:	Condensate 64.5 ml or g	10.4	1	8.4
Meter Corr.Factor: .998	Meter Orifice: 3.15	Silica Gel: 8 g			8.4
Sample Pt. Time: 5 min	Delta $H_@$: 1.747	Meter No. 2180			
Assumed % Moisture: 14		Date Calibrated: 9-7-11	RM:		
			Flue Area: ft.^{2}		

Saturated Gas Stream: Y or N | Leak Test Initial: .000 ft^3 @ 20"Hg (1 min.) | Final: .000 ft^3 @ 12"Hg (1 min.)

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	Meter oven in	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 13:40										Initial DGM Reading:	212.900
5				1.747	509	55	158	509	78	10	214.699
10					508	55	158	510	78	10	216.592
15					510	57	161	507	78	10	218.405
20					508	57	160	508	79	10	220.199
25					509	58	158	509	80	10	222.040
30					507	58	157	510	80	10	223.836
35					509	58	159	508	80	10	225.605
40					510	58	161	507	80	10	227.592
45					508	58	158	510	80	10	229.431
50					509	58	160	507	80	10	231.344
55					510	60	161	508	80	10	233.041
60					508	60	159	509	80	10	234.734
Stop Time: 14:40											
avg's.									79		21.834

Field Data Sheet
Method 8A

Client: merom			Date: 10-21-11	Orsat Analysis		
Project No:		Operator: R. Prosser		CO_2%	+O_2	O_2%
Sampling Location: Unit 2 mid load			Run No: 3			
Barometric Pressure: 29.16	Impinger Box No:		Condensate: 61 ml or g	10.4		8.4
Meter Corr.Factor: .998	Meter Orifice: 3.15		Silica Gel: 7.5 g			
Sample Pt. Time: 5 min	Delta $H_@$: 1.747		Meter No. 2LAO			
Assumed % Moisture: 14%			Date Calibrated: 9-7-11	RM:		
				Flue Area:		ft.^{2}
Saturated Gas Stream: Y or N	Leak Test Initial: .000 ft^3 @ 20"Hg (1 min.)			Final: .000 ft^3 @ 12 "Hg (1 min.)		

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	~~Meter~~ Oven In	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 14:50									Initial DGM Reading:		235.133
5				1.747	509	53	160	505	80	10	237.006
10					508	53	161	507	80	10	238.805
15					510	53	158	504	80	10	240.640
20					509	55	157	506	80	10	242.429
25					507	57	156	508	80	10	244.291
30					510	57	157	509	80	10	246.082
35					508	57	159	506	81	10	247.868
40					509	58	157	507	81	10	249.701
45					507	59	160	505	81	10	251.522
50					508	60	158	508	81	10	253.377
55					509	60	159	509	81	10	255.290
60					510	60	161	507	81	10	257.061
Stop Time: 15:50											
avg's.									81		~~21.934~~ 21.928

Field Data Sheet
Method 8A

Client: Meron			Date: 10-20-11	Orsat Analysis		
Project No: 11-350	Operator: R. Prosser			CO_2%	+O_2	O_2%
Sampling Location: unit 2 low load			Run No: 2			
Barometric Pressure: 29.14	Impinger Box No:		Condensate: 61.5 ml or g	10.4		8.6
Meter Corr.Factor: .998	Meter Orifice: 3.15		Silica Gel: 7.5 g			
Sample Pt. Time: 5min	Delta $H_@$: 1.747		Meter No. 2140			
Assumed % Moisture: 14			Date Calibrated: 9-2-11	RM: 8A		
				Flue Area: ft.^{2}		

Saturated Gas Stream: Y or N | Leak Test Initial: .000 ft^3 @ 20 "Hg (1 min.) | Final: .000 ft^3 @ 20 "Hg (1 min.)

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	~~Meter~~ Oven	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 8:10									Initial DGM Reading:		123.140
5				1.747	510	55	159	503	70	8	124.959
10					508	55	159	503	70	8	126.752
15					509	56	160	506	70	8	128.574
20					509	57	158	505	70	8	130.485
25					511	57	161	502	71	8	132.274
30					506	58	159	504	71	8	134.040
35					507	60	161	505	71	8	135.851
40					509	60	158	507	71	8	137.682
45					506	60	157	503	72	8	139.477
50					510	61	160	505	72	8	141.265
55					509	61	161	504	73	8	143.049
60				↓	506	61	158	502	73	8	144.848
Stop Time: 9:10											
avg's.									71		21.708

Field Data Sheet
Method 8A

Client: merom		Date: 10-21-11	Orsat Analysis		
Project No: 11-350	Operator: R. Rossser		CO_2%	+O_2	O_2%
Sampling Location: unit 2 Low load		Run No: 2			
Barometric Pressure: 29.16	Impinger Box No:	Condensate: 51.5 ml or g	10.6		8.5
Meter Corr.Factor: .998	Meter Orifice: 2.15	Silica Gel: 7.5 g			
Sample Pt. Time: 5min	Delta H@: 1.747	Meter No. 21 A0			
Assumed % Moisture: 14		Date Calibrated: 9-7-11	RM: 8A		
			Flue Area:		ft.^{2}
Saturated Gas Stream: Y or N	Leak Test Initial: .000 ft^3 @ 20 "Hg (1 min.)		Final: .000 ft^3 @ 11 "Hg (1 min.)		

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	Meter out	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 9:15											Initial DGM Reading: 145.013
5				1.747	509	56	161	505	75	9	146.812
10					508	56	158	506	75	9	148.625
15					510	56	159	503	75	9	150.423
20					507	58	160	505	75	9	152.245
25					508	58	157	504	75	9	154.044
30					506	59	159	507	76	9	155.915
35					509	59	156	508	76	9	157.709
40					505	59	160	506	77	9	159.608
45					510	60	161	507	77	9	161.377
50					511	60	159	503	76	9	163.355
55					510	60	158	505	77	9	165.232
60					507	60	160	507	78	9	166.987
Stop Time: 10:15											
avg's.									76		21.974

Field Data Sheet
Method 8A

Client: Merom		Date: 10-21-11	Orsat Analysis		
Project No: 11-350	Operator: R. Prosser		CO_2%	+O_2	O_2%
Sampling Location: Unit 2 low load		Run No: 3			
Barometric Pressure: 29.16	Impinger Box No:	Condensate: 51 ml or g	10.0		8.8
Meter Corr.Factor: .998	Meter Orifice: 3.15	Silica Gel: 5.5 g			
Sample Pt. Time: 5 min	Delta $H_@$: 1.747	Meter No. 2140			
Assumed % Moisture: 14		Date Calibrated: 9-7-11	RM:		
			Flue Area:		ft.^{2}

Saturated Gas Stream: Y or N | Leak Test Initial: .000 ft^3 @ 20"Hg (1 min.) | Final: .000 ft^3 @ 12"Hg (1 min.)

Sample Point				Delta H	Temperature (Degrees Fahrenheit) Probe	Imp.Out <68	Condenser	Meter oven in	Meter out	Vac. Pr (in.HG)	Dry Gas Meter Reading (Cubic Feet)
Start Time: 10:20										Initial DGM Reading:	167.450
5				1.747	510	55	158	608	75	10	169.249
10					510	55	158	507	75	10	171.083
15					508	55	160	507	75	10	172.916
20					509	58	160	507	75	10	174.727
25					510	57	161	509	75	10	176.516
30					507	57	159	510	75	10	178.415
35					508	57	160	509	75	10	180.328
40					509	59	160	508	76	10	182.159
45					508	59	160	507	76	10	183.957
50					509	59	160	508	76	10	185.759
55					507	60	158	509	76	10	187.558
60					509	60	157	510	76	10	189.348
Stop Time: 11:20											
avg's.									75		21.898

CALIBRATION SHEETS

Grace Consulting, Inc.
EPA Method 5
522 Series Meter Box Calibration
Calibration Orifice Method
English Meter Box Units, English K' Factor

Date:	9/30/2011
Model:	APEX
Serial:	10A

Barometric Pressure:	29.6	(in Hg)
Theoretical Critical Vacuum:	13.96	(in Hg)

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

DRY GAS METER READINGS							Critical Orifice Readings			AMBIENT TEMPERATURE		
dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Temp Initial (deg F)	Temp Final (deg F)	Orifice Serial #	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.6	22.1	210.500	220.527	10.027	63	65	48	0.3449	20	64	64	64
1.00	17.0	220.600	230.627	10.027	65	66	55	0.4595	19	64	64	64
1.70	14.6	230.700	241.866	11.166	66	68	63	0.5958	17	64	63	64
3.20	9.5	241.900	251.942	10.042	68	69	73	0.8215	15	63	64	64

CORRECTED VOLUME	
DRY GAS METER Vm(std) (cu ft)	ORIFICE Vcr(std) (cu ft)
10.006	9.856
9.988	10.101
11.110	11.253
10.000	10.096

DRY GAS METER CALIBRATION FACTOR Y	
Value	Variation
0.985	-0.020
1.011	0.007
1.013	0.008
1.010	0.0049

ORIFICE CALIBRATION FACTOR dH@	
Value (in H20)	Variation (in H20)
1.697	0.073
1.593	-0.030
1.610	-0.014
1.594	-0.030

Orifice for Calc.
2.87914

Average 1.005

Average 1.623

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.

For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

SIGNED: [signature] Date: 9-30-11

$$V_{m(std)} = 17.64 (V_m) \frac{P_b + \frac{\Delta H}{13.6}}{t_m + 460}$$

$$V_{cr(std)} = K' \frac{P_b \theta}{\sqrt{t_{amb} + 460}}$$

$$Y = \frac{V_{cr(std)}}{V_{m(std)}}$$

$$\Delta H_@ = \Delta H \left(\frac{.75\theta}{V_{cr(std)}} \right)^2$$

Grace Consulting, Inc.
EPA Method 5
522 Series Meter Box Calibration
Calibration Orifice Method
English Meter Box Units, English K' Factor

Date:	9/7/2011
Model:	Apex
Serial:	21AO

Barometric Pressure:	29.95	(in Hg)
Theoretical Critical Vacuum:	14.13	(in Hg)

IMPORTAI For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTAI The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

DRY GAS METER READINGS							Critical Orifice Readings					
dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Temp Initial (deg F)	Temp Final (deg F)	Orifice Serial #	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	AMBIENT TEMPERATURE Initial (deg F)	Final (deg F)	Average (deg F)
0.66	21.8	639.200	649.220	10.020	71	71	48	0.3449	21	70	70	70
1.10	19.8	649.300	661.285	11.985	71	72	55	0.4595	19	70	70	70
1.80	13	661.300	671.340	10.040	72	73	63	0.5958	17	70	71	70.5
3.50	9.5	671.400	681.400	10.000	73	72	73	0.8215	15	71	70	70.5

CORRECTED VOLUME	
DRY GAS METER Vm(std) (cu ft)	ORIFICE Vcr(std) (cu ft)
9.986	9.782
11.945	11.836
10.005	10.072
10.007	10.148

DRY GAS METER CALIBRATION FACTOR Y	
Value	Variation
0.980	-0.018
0.991	-0.0069
1.007	0.0088
1.014	0.0163

ORIFICE CALIBRATION FACTOR dH@	
Value (in H20)	Variation (in H20)
1.844	0.097
1.732	-0.015
1.687	-0.060
1.725	-0.022

Orifice for Calc.
3.156572

Average	0.998

Average	1.747

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.

For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.

SIGNED: [illegible] Date: 9-7-11

$$V_{m(std)} = 17.64\,(V_m)\frac{P_b + \frac{\Delta H}{13.6}}{t_m + 460}$$

$$V_{cr(std)} = K'\frac{P_b\theta}{\sqrt{t_{amb} + 460}}$$

$$Y = \frac{V_{cr(std)}}{V_{m(std)}}$$

$$\Delta H_@ = \Delta H\left(\frac{.75\theta}{V_{cr(std)}}\right)^2$$

Post Test PITOT Inspection

Pitot Tube Assembly		Post Calibration	
Pitot #	new	Visual Inspection	OK
Pitot Coefficient:	0.84	Recalibrated	N/A
		Adjusted Cp	N/A

Grace Consulting,Inc.
Nozzle Calibration Sheet

Date: 1/3/2011

Nozzle		Measurement			
Box		A	B	C	Average
1	1-1	0.173	0.172	0.172	0.172
1	1-3	0.241	0.241	0.242	0.241
1	1-4A	0.230	0.231	0.230	0.230
1	1-7	0.340	0.341	0.342	0.341
1	1-7A	0.350	0.350	0.351	0.350
1	1-9	0.490	0.490	0.491	0.490
2	2-1	0.121	0.120	0.122	0.121
2	2-2	0.177	0.177	0.175	0.176
2	2-3	0.195	0.193	0.195	0.194
2	2-4A	0.235	0.235	0.234	0.235
2	2-5	0.310	0.311	0.311	0.311
2	2-6	0.365	0.365	0.364	0.365
2	2-7	0.430	0.430	0.432	0.431
2	2-9	0.496	0.496	0.495	0.496
3	3-1B	0.176	0.176	0.177	0.176
3	3-2	0.240	0.240	0.241	0.240
3	3-2A	0.235	0.234	0.235	0.235
3	3-2B	0.251	0.250	0.251	0.251
3	3-3	0.299	0.300	0.300	0.300
3	3-3A	0.359	0.359	0.358	0.359
3	3-5	0.309	0.310	0.309	0.309
3	3-6	0.355	0.357	0.356	0.356
3	3-7	0.400	0.400	0.401	0.400
4	4-1	0.169	0.169	0.168	0.169
4	4-2	0.291	0.292	0.292	0.292
4	4-2A	0.234	0.235	0.235	0.235
4	4-3	0.249	0.250	0.250	0.250
4	4-4	0.296	0.294	0.294	0.295
4	4-5	0.369	0.367	0.368	0.368
4	4-7	0.495	0.497	0.497	0.496
7	7-0A	0.170	0.170	0.169	0.170
7	7-1	0.180	0.181	0.181	0.181
7	7-1A	0.239	0.239	0.238	0.239
7	7-2	0.235	0.236	0.236	0.236
7	7-4A	0.295	0.294	0.293	0.294
7	7-6	0.370	0.369	0.370	0.370
7	7-7	0.399	0.399	0.400	0.399
7	7-9	0.490	0.491	0.491	0.491
8	8-1	0.175	0.176	0.175	0.175
8	8-2	0.240	0.240	0.241	0.240
8	8-2A	0.365	0.365	0.365	0.365
8	8-4	0.359	0.360	0.360	0.360
8	8-5	0.420	0.421	0.420	0.420
8	8-5A	0.365	0.365	0.364	0.365
8	8-6	0.480	0.481	0.481	0.481

9	9-1	0.120	0.122	0.122	0.121
9	9-2	0.185	0.184	0.186	0.185
9	9-3	0.239	0.239	0.238	0.239
9	9-4	0.274	0.275	0.275	0.275
9	9-6	0.306	0.308	0.307	0.307
9	9-7	0.365	0.367	0.367	0.366
9	9-8	0.493	0.493	0.492	0.493

11	11-1	0.180	0.180	0.181	0.180
11	11-2A	0.239	0.240	0.238	0.239
11	11-3	0.247	0.247	0.246	0.247
11	11-5	0.370	0.371	0.370	0.370
11	11-6	0.496	0.497	0.498	0.497

13	13-1	0.112	0.112	0.112	0.112
13	13-2	0.171	0.171	0.173	0.172
13	13-3A	0.244	0.244	0.242	0.243
13	13-4A	0.301	0.300	0.302	0.301
13	13-5	0.360	0.360	0.359	0.360
13	13-6	0.430	0.431	0.430	0.430
13	13-7	0.490	0.490	0.488	0.489

14	14-2	0.183	0.182	0.181	0.182
14	14-2A	0.179	0.179	0.178	0.179
14	14-4	0.232	0.233	0.232	0.232
14	14-5	0.247	0.245	0.246	0.246
14	14-6	0.305	0.305	0.306	0.305
14	14-7	0.361	0.360	0.359	0.360
14	14-8	0.375	0.373	0.374	0.374
14	14-9	0.370	0.369	0.369	0.369
14	14-10	0.490	0.493	0.491	0.491

Large	X-1	0.555	0.556	0.557	0.556
Large	X-2	0.578	0.577	0.577	0.577
Large	X-3	0.676	0.675	0.674	0.675
Large	X-4	0.745	0.745	0.743	0.744
Large	X-5	1.010	1.010	1.009	1.010

LABORATORY REPORTS

GRACE CONSULTING, INC.

LABORATORY ANALYSIS

Company: Hoosier Energy

Location: Merom Unit 1

Test Date: 10/18/2011

RUN 1

Filter No.	11-162
Acetone No.	322
Back Half No.	0
Acetone volume (ml)	85
Acetone Blank Volume (ml)	200
D.I. H2O Blank Volume (ml)	0
Total Impinger Volume (ml)	439

RUN 2

Filter No.	11-163
Acetone No.	C5
Back Half No.	0
Acetone volume (ml)	66
Acetone Blank Volume (ml)	200
D.I. H2O Blank Volume (ml)	0
Total Impinger Volume (ml)	484.5

	Final Weight	Initial Weight	Weight Gain
Filter	0.6275	0.6183	0.0092
Acetone	5.0455	5.0367	0.0088
Back Half	0.0000	0.0000	0.0000
Acetone Blank:			0.0001
D.I. H_2O Blank:			0.0000
Total Method 5 Weight Gain:			0.0179
Total Back Half Weight Gain:			0.0000
Total Weight Gain:			0.0179

	Final Weight	Initial Weight	Weight Gain
Filter	0.6222	0.6120	0.0102
Acetone	5.1745	5.1674	0.0071
Back Half	0.0000	0.0000	0.0000
Acetone Blank:			0.0001
D.I. H_2O Blank:			0.0000
Total Method 5 Weight Gain:			0.0172
Total Back Half Weight Gain:			0.0000
Total Weight Gain:			0.0172

	Condensate	Silica Gel
	grams	grams
Initial:	200.0	250.0
Final:	439	266.5
Gain:	239	16.5

	Condensate	Silica Gel
	grams	grams
Initial:	200.0	250.0
Final:	484.5	298
Gain:	284.5	48

GRACE CONSULTING, INC.
LABORATORY ANALYSIS

Company: Hoosier Energy

Location: Merom Unit 1

Test Date: 10/18/2011

Run 3

Filter No.	11-155
Acetone No.	282
Back Half No.	0
Acetone volume (ml)	72
Acetone Blank Volume (ml)	200
D.I. H2O Blank Volume (ml)	0
Total Impinger Volume (ml)	501

Blank

Filter No.	0
Acetone No.	74
Back Half No.	0
Acetone volume (ml)	0
Acetone Blank Volume	200
D.I. H2O Blank Volum	0
Total Impinger Volume	0

	Final Weight	Initial Weight	Weight Gain
Filter	0.6280	0.6155	0.0125
Acetone	5.2967	5.2898	0.0069
Back Half	0.0000	0.0000	0.0000
Acetone Blank:			0.0001
D.I. H_2O Blank:			0.0000
Total Method 5 Weight Gain:			0.0193
Total Back Half Weight Gain:			0.0000
Total Weight Gain:			0.0193

	Final Weight	Initial Weight	Weight Gain
Filter	0.0000	0.0000	0.0000
Acetone	5.1649	5.1647	0.0002
Back Half	0.0000	0.0000	0.0000
Acetone Blank:			0.0002
D.I. H_2O Blank:			0.0000
Total Method 5 Weight Gain:			0.0000
Total Back Half Weight Gain:			0.0000
Total Weight Gain:			0.0000

	Condensate grams	Silica Gel grams
Initial:	200.0	250.0
Final:	501	284
Gain:	301	34

G.C.I. Laboratory Analysis

Client:	Hoosier Energy	**Date:**	10-18-11 and 10-20-11
Plant Site:	Merom	**Project Number:**	11-350
Test Location:	Unit 1	**Analyst:**	Lee Moomaw
		Barium Normality:	0.0100

H2SO4 Lab

Run Number	Sample Number	Volume of Solution	Volume of Aliquot	Mls to Titrate			Avg.
Run 1 - Low	1	125	25	11.30		11.30	11.300
Run 2 - Low	2	200	40	10.40		10.50	10.450
Run 3 - Low	3	125	25	13.00		13.20	13.100
Run 1 - Mid	1	375	75	13.80		14.00	13.900
Run 2 - Mid	2	125	25	11.10		11.00	11.050
Run 3 - Mid	3	240	40	10.60		10.60	10.600
Run 1 - High	1	125	25	12.60		12.50	12.550
Run 2 - High	2	125	25	13.60		13.40	13.500
Run 3 - High	3	225	45	11.50		11.40	11.450
Blank		100	10	0.100		0.100	

GRACE CONSULTING, INC.

LABORATORY ANALYSIS

Company: Hoosier Energy

Location: Merom Unit 2

Test Date: 10/19/2011

RUN 1

Filter No.	11-156
Acetone No.	102
Back Half No.	0
Acetone volume (ml)	65
Acetone Blank Volume (ml)	200
D.I. H2O Blank Volume (ml)	0
Total Impinger Volume (ml)	527.5

	Final Weight	Initial Weight	Weight Gain
Filter	0.7102	0.6217	0.0885
Acetone	5.4113	5.3925	0.0188
Back Half	0.0000	0.0000	0.0000
Acetone Blank:			0.0001
D.I. H_2O Blank:			0.0000
Total Method 5 Weight Gain:			0.1072
Total Back Half Weight Gain:			0.0000
Total Weight Gain:			0.1072

	Condensate grams	Silica Gel grams
Initial:	200.0	250.0
Final:	527.5	286.5
Gain:	327.5	36.5

RUN 2

Filter No.	11-158
Acetone No.	17
Back Half No.	0
Acetone volume (ml)	96
Acetone Blank Volume (ml)	200
D.I. H2O Blank Volume (ml)	0
Total Impinger Volume (ml)	518

	Final Weight	Initial Weight	Weight Gain
Filter	0.7235	0.6233	0.1002
Acetone	5.1320	5.1195	0.0125
Back Half	0.0000	0.0000	0.0000
Acetone Blank:			0.0001
D.I. H_2O Blank:			0.0000
Total Method 5 Weight Gain:			0.1126
Total Back Half Weight Gain:			0.0000
Total Weight Gain:			0.1126

	Condensate grams	Silica Gel grams
Initial:	200.0	250.0
Final:	518	281
Gain:	318	31

GRACE CONSULTING, INC.

LABORATORY ANALYSIS

Company: Hoosier Energy

Location: Merom Unit 2

Test Date: 10/19/2011

Run 3

Filter No.	11-159
Acetone No.	97
Back Half No.	0
Acetone volume (ml)	75
Acetone Blank Volume (ml)	200
D.I. H2O Blank Volume (ml)	0
Total Impinger Volume (ml)	507

Blank

Filter No.	0
Acetone No.	74
Back Half No.	0
Acetone volume (ml)	0
Acetone Blank Volume	200
D.I. H2O Blank Volum	0
Total Impinger Volume	0

	Final Weight	Initial Weight	Weight Gain
Filter	0.7276	0.6263	0.1013
Acetone	5.1456	5.1312	0.0144
Back Half	0.0000	0.0000	0.0000
Acetone Blank:			0.0001
D.I. H_2O Blank:			0.0000
Total Method 5 Weight Gain:			0.1156
Total Back Half Weight Gain:			0.0000
Total Weight Gain:			0.1156

	Final Weight	Initial Weight	Weight Gain
Filter	0.0000	0.0000	0.0000
Acetone	5.1649	5.1647	0.0002
Back Half	0.0000	0.0000	0.0000
Acetone Blank:			0.0002
D.I. H_2O Blank:			0.0000
Total Method 5 Weight Gain:			0.0000
Total Back Half Weight Gain:			0.0000
Total Weight Gain:			0.0000

	Condensate grams	Silica Gel grams
Initial:	200.0	250.0
Final:	507	279
Gain:	307	29

G.C.I. Laboratory Analysis

Client:	Hoosier Energy	**Date:**	10-19, 20 & 21-2011
Plant Site:	Merom	**Project Number:**	11-350
Test Location:	Unit 2	**Analyst:**	Lee Moomaw
		Barium Normality:	0.0100

H2SO4 Lab

Run Number	Sample Number	Volume of Solution	Volume of Aliquot	Mls to Titrate			Avg.
Run 1 - Low	1	150	30	11.30		11.40	11.350
Run 2 - Low	2	150	30	11.50		11.60	11.550
Run 3 - Low	3	175	35	10.90		11.10	11.000
Run 1 - Mid	1	150	30	11.30		11.10	11.200
Run 2 - Mid	2	150	30	10.90		10.70	10.800
Run 3 - Mid	3	125	25	11.00		10.80	10.900
Run 1 - High	1	150	30	12.60		12.60	12.600
Run 2 - High	2	225	45	13.50		13.40	13.450
Run 3 - High	3	125	25	10.90		10.80	10.850
Blank		100	10	0.100		0.100	

GRACE CONSULTING, INC.
EMISSIONS TESTING SERVICES

P.O. Box 58
510 Dickson St.
Wellington, OH 44090

Phone: 440-647-6672
Fax: 440-647-6673

Chain of Custody

Customer Name			Report Attention: Stacy Sword
Report Address			Project Name: Hoosier Energy - Merom 11-350
Billing Address			Purchase Order #
City	State	Zip	Indicate state where samples were collected: IN
Phone			Compliance ☐ Non-Compliance ☐

Sample Identification		date collected	Sample Description	Analysis Required
Run 1 Unit 1 5B	11-162	10/18/2011	Sample filter - plastic petri dish	RM5B
Run 1 Unit 1 5B		10/18/2011	acetone rinse - 250 mL polyethylene bottle	RM5B
Run 2 Unit 1 5B	11-163	10/18/2011	Sample filter - plastic petri dish	
Run 2 Unit 1 5B		10/18/2011	acetone rinse - 250 mL polyethylene bottle	
Run 3 Unit 1 5B	11-155	10/18/2011	Sample filter - plastic petri dish	
Run 3 Unit 1 5B		10/18/2011	acetone rinse - 250 mL polyethylene bottle	
Run 1 Unit 2 5B	11-156	10/19/2011	Sample filter - plastic petri dish	
Run 1 Unit 2 5B		10/19/2011	acetone rinse - 250 mL polyethylene bottle	
Run 2 Unit 2 5B	11-158	10/20/2011	Sample filter - plastic petri dish	
Run 2 Unit 2 5B		10/20/2011	acetone rinse - 250 mL polyethylene bottle	
Run 3 Unit 2 5B	11-159	10/20/2011	Sample filter - plastic petri dish	
Run 3 Unit 2 5B		10/20/2011	acetone rinse - 250 mL polyethylene bottle	
Acetone Blank		10/20/2011	blank solution - 250 mL polyethylene bottle	

Turnaround Time Requested: Normal Rush

Date Results are needed: _____

Rush results requested by: Fax Mail

Fax # _____

Notes:

Relinquished By:	Date	Time	Received By:	Date	Time
hes	10/21/11				
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Recieved By:	Date	Time
Relinquished By:	Date	Time	Recieved By:	Date	Time

GRACE CONSULTING, INC.
EMISSIONS TESTING SERVICES

P.O. Box 58
510 Dickson St.
Wellington, OH 44090

Phone: 440-647-6672
Fax: 440-647-6673

Chain of Custody

Customer Name			Report Attention Stacy Sword
Report Address			Project Name Hoosier Energy - Merom 11-350
Billing Address			Purchase Order #
City	State	Zip	Indicate state where samples were collected: IN
Phone			Compliance ↑ Non-Compliance ↑

Sample Identification	date collected	Sample Description	Analysis Required
Run 1 Unit 1 8A	10/18/2011	water rinse - 250 mL polyethylene bottle	RM8A - barium/thorin titration for H2SO4 content
Run 2 Unit 1 8A	10/18/2011	water rinse - 250 mL polyethylene bottle	
Run 3 Unit 1 8A	10/18/2011	water rinse - 250 mL polyethylene bottle	
Run 1 Unit 2 8A	10/19/2011	water rinse - 250 mL polyethylene bottle	
Run 2 Unit 2 8A	10/19/2011	water rinse - 250 mL polyethylene bottle	
Run 3 Unit 2 8A	10/20/2011	water rinse - 250 mL polyethylene bottle	
Run 1 Unit 1 8A LOW LOAD	10/20/2011	water rinse - 250 mL polyethylene bottle	
Run 2 Unit 1 8A LOW LOAD	10/20/2011	water rinse - 250 mL polyethylene bottle	
Run 3 Unit 1 8A LOW LOAD	10/20/2011	water rinse - 250 mL polyethylene bottle	
Run 1 Unit 1 8A MID LOAD	10/20/2011	water rinse - 250 mL polyethylene bottle	
Run 2 Unit 1 8A MID LOAD	10/20/2011	water rinse - 250 mL polyethylene bottle	
Run 3 Unit 1 8A MID LOAD	10/20/2011	water rinse - 250 mL polyethylene bottle	

Turnaround Time Requested: Normal Rush

Date Results are needed: _____

Rush results requested by: Fax Mail

Fax # _____

Notes:

Relinquished By:	Date	Time	Received By:	Date	Time
hes	10/21/11				
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Recieved By:	Date	Time
Relinquished By:	Date	Time	Recieved By:	Date	Time

GRACE CONSULTING, INC.
EMISSIONS TESTING SERVICES

P.O. Box 58
510 Dickson St.
Wellington, OH 44090

Phone: 440-647-6672
Fax: 440-647-6673

Chain of Custody

Customer Name			Report Attention: Stacy Sword
Report Address			Project Name: Hoosier Energy - Merom 11-350
Billing Address			Purchase Order #
City	State	Zip	Indicate state where samples were collected: IN
Phone			Compliance 1 Non-Compliance 1

Sample Identification	date collected	Sample Description	Analysis Required
Run 1 Unit 2 8A LOW LOAD	10/21/2011	water rinse - 250 mL polyethylene bottle	RM8A - barium/thorin titration for H2SO4 content
Run 2 Unit 2 8A LOW LOAD	10/21/2011	water rinse - 250 mL polyethylene bottle	
Run 3 Unit 2 8A LOW LOAD	10/21/2011	water rinse - 250 mL polyethylene bottle	
Run 1 Unit 2 8A MID LOAD	10/21/2011	water rinse - 250 mL polyethylene bottle	
Run 2 Unit 2 8A MID LOAD	10/21/2011	water rinse - 250 mL polyethylene bottle	
Run 3 Unit 2 8A MID LOAD	10/21/2011	water rinse - 250 mL polyethylene bottle	

Turnaround Time Requested: Normal Rush

Date Results are needed: _____

Rush results requested by: Fax Mail

Fax # _____

Notes:

Relinquished By:	Date	Time	Received By:	Date	Time
hes	10/21/11				
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Recieved By:	Date	Time
Relinquished By:	Date	Time	Recieved By:	Date	Time

PLANT DATA SHEETS

Calibration Detail

Plant: MEROM

Report Period: 10/18/2011 00:00 Through 10/19/2011 07:00

Source: UNIT#1

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
OPAC_1A										
10/18/2011 06:34	0.00	0.16	0.2	29.73	30.12	0.4	4.0	DIFF	Passed	Yes
10/19/2011 06:34	0.00	0.00	0.0	29.73	30.25	0.5	4.0	DIFF	Passed	Yes
OPAC_1B										
10/18/2011 06:34	0.00	0.00	0.0	25.16	25.59	0.4	4.0	DIFF	Passed	Yes
10/19/2011 06:34	0.00	0.22	0.2	25.16	25.54	0.4	4.0	DIFF	Passed	Yes

No Quarterly Type Calibration Records Found

Calibration Error: Failed Test | Failed Level | Maintenance Limit

Opacity Matrix

Plant: MEROM
Source: UNIT#1
Parameter: 6-Minute OPACCOMB
Report Period: 10/18/2011 00:00 Through 10/18/2011 23:59 Time Online Criteria: 1

		0-5	6-11	12-17	18-23	24-29	30-35	36-41	42-47	48-53	54-59
10/18/11	0	5.91	6.77	6.78	7.16	7.49	7.47	7.71	7.55	7.68	7.68
	1	7.30	7.05	7.15	7.06	8.13	7.02	6.77	6.79	6.72	6.63
	2	6.63	6.55	6.50	6.32	6.30	6.24	6.43	6.47	6.55	6.29
	3	6.30	6.46	6.52	6.45	6.62	6.51	6.87	6.47	6.63	6.45
	4	6.49	6.64	6.42	6.42	6.39	6.64	6.60	6.43	6.45	6.51
	5	6.62	6.68	7.10	7.35	8.17	8.00	8.25	7.62	7.62	7.98
	6	8.19	8.23	6.79	5.92	5.86	[illegible]C	5.65	5.45	5.47	5.66
	7	5.50	5.39	5.29	5.33	5.32	5.48	5.48	5.61	5.60	5.60
	8	5.53	5.43	5.74	5.52	5.66	5.81	6.23	6.21	6.22	6.50
	9	6.33	6.43	6.38	6.53	6.85	6.90	7.24	6.98	6.97	6.98
	10	6.84	6.84	6.94	6.92	6.90	7.00	7.16	6.88	6.87	7.01
	11	6.89	6.88	7.01	6.74	6.91	7.03	6.87	6.84	6.75	6.87
	12	6.82	6.77	6.70	6.72	6.76	7.08	6.92	7.50	7.12	7.25
	13	7.06	7.41	7.38	6.92	6.98	7.08	6.94	7.15	6.91	7.00
	14	6.93	6.81	6.96	7.05	6.89	6.81	7.10	7.08	6.86	6.94
	15	6.97	7.02	6.99	6.98	7.01	7.03	7.00	7.03	7.12	6.68
	16	7.00	6.79	7.21	6.99	7.03	7.06	7.53	7.30	7.20	6.81
	17	6.89	6.72	6.75	6.80	6.64	6.68	6.60	6.85	6.70	6.62
	18	6.76	6.56	6.79	6.50	6.43	6.50	6.59	6.72	6.69	6.71
	19	6.57	6.57	6.70	6.60	6.59	6.65	6.55	6.77	6.66	6.59
	20	6.61	6.42	6.43	6.38	6.43	6.46	6.50	6.81	6.76	6.58
	21	6.69	6.40	6.54	6.46	6.45	6.35	6.46	6.24	6.45	6.43
	22	6.46	6.21	6.13	6.28	6.37	6.27	6.31	6.38	6.74	6.36
	23	6.38	6.40	6.25	6.25	6.12	6.21	6.52	6.41	6.63	6.45

E = Offline
I = Invalid
T = Out of Control

M = Maintenance
C = Calibration

Greater > 100

Calibration Detail

Plant: MEROM

Report Period: 10/19/2011 00:00 Through 10/21/2011 08:00

Source: UNIT#2

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
OPAC_2A										
10/19/2011 07:34	0.00	0.21	0.2	28.49	28.53	0.0	4.0	DIFF	Passed	Yes
10/19/2011 13:08	0.00	-0.21	0.2	28.49	28.65	0.2	4.0	DIFF	Passed	Yes
10/20/2011 07:34	0.00	0.00	0.0	28.49	28.67	0.2	4.0	DIFF	Passed	Yes
10/21/2011 07:34	0.00	0.03	0.0	28.49	28.36	0.1	4.0	DIFF	Passed	Yes
OPAC_2B										
10/19/2011 07:34	0.00	0.06	0.1	27.98	28.51	0.5	4.0	DIFF	Passed	Yes
10/19/2011 13:08	0.00	0.11	0.1	27.98	28.50	0.5	4.0	DIFF	Passed	Yes
10/20/2011 07:34	0.00	0.02	0.0	27.98	28.57	0.6	4.0	DIFF	Passed	Yes
10/21/2011 07:34	0.00	-0.04	0.0	27.98	28.56	0.6	4.0	DIFF	Passed	Yes

No Quarterly Type Calibration Records Found

Calibration Error: Failed Test | Failed Level | Maintenance Limit

Opacity Matrix

Plant: MEROM
Source: UNIT#2
Parameter: 6-Minute OPACCOMB
Report Period: 10/19/2011 00:00 Through 10/20/2011 23:59 Time Online Criteria: 1

		0-5	6-11	12-17	18-23	24-29	30-35	36-41	42-47	48-53	54-59
10/19/11	0	5.88	5.87	5.86	6.00	5.88	6.06	6.07	6.00	6.61	6.29
	1	6.31	6.42	6.54	6.56	6.48	6.55	6.38	6.30	6.32	6.26
	2	6.18	6.07	6.11	6.06	6.24	6.46	6.61	6.58	6.75	6.69
	3	6.78	6.81	6.76	6.84	6.91	7.17	7.68	7.48	7.03	6.90
	4	6.97	6.93	6.78	6.57	6.69	6.89	6.85	6.99	7.00	7.31
	5	7.40	7.41	7.81	7.86	7.59	7.49	7.69	7.45	7.64	7.69
	6	7.65	7.48	7.60	7.60	7.70	7.70	7.57	7.59	7.66	7.68
	7	7.53	7.55	7.69	7.63	7.48	12.00 IC	7.42	7.47	7.60	7.58
	8	7.74	7.70	7.86	7.95	7.91	7.74	7.62	7.67	7.42	7.44
	9	7.50	7.57	7.34	7.45	7.39	7.16 I	0.00 I	0.00 I	0.00 FI	0.00 FM
	10	0.00 FM	0.00 FM	0.00 FM	0.00 FM	0.00 FM	0.00 FM	0.00 FM	0.00 FM	0.00 FM	38.85 FM
	11	0.00 FIM	FI	FI	FI	FI	FI	FI	53.10 FIM	62.87 FM	64.16 FM
	12	59.05 FM	72.11 FM	70.36 FM	79.32 FM	79.79 FM	58.60 IM	71.66 IM	75.79 IM	85.30 IM	93.98 IM
	13	61.37 IMC	22.57 IMC	19.37 IM	19.28 IM	19.42 IM	EM	19.97	E	13.61	12.93
	14	12.54	12.31	11.47	10.65	10.46	10.32	10.22	10.25	10.96	10.47
	15	10.10	E	E	18.22	14.98	13.06	12.99	11.67	10.98	10.95
	16	11.24	11.84	10.77	10.79	10.71	11.40	11.88	11.75	11.38	10.92
	17	11.56	11.41	9.41	7.59	7.61	8.21	7.32	8.20	9.66	10.97
	18	9.07	11.90	12.97	8.52	6.31	5.35	5.37	6.30	5.75	5.59
	19	5.46	5.55	5.43	5.39	5.54	6.18	5.71	5.65	5.67	5.84
	20	5.71	6.06	6.70	8.51	8.53	9.20	12.19	14.57	15.33	13.62
	21	11.03	10.00	8.66	8.21	8.21	8.27	8.54	8.05	8.41	7.79
	22	9.22	9.33	9.01	8.81	8.69	8.70	8.47	8.32	8.13	7.92
	23	7.34	7.16	7.61	8.00	7.91	7.62	7.38	7.38	7.48	7.40

E = Offline
I = Invalid
T = Out of Control
M = Maintenance
C = Calibration
Greater > 100

Opacity Matrix

Plant: MEROM
Source: UNIT#2
Parameter: 6-Minute OPACCOMB
Report Period: 10/19/2011 00:00 Through 10/20/2011 23:59 Time Online Criteria: 1

		0-5	6-11	12-17	18-23	24-29	30-35	36-41	42-47	48-53	54-59
10/20/11	0	7.89	7.43	7.14	6.97	6.96	6.96	7.01	6.85	6.89	6.85
	1	7.04	7.24	8.12	7.60	6.93	7.08	7.05	6.97	6.93	6.82
	2	6.36	6.42	6.58	6.75	6.74	6.59	6.57	6.49	6.57	6.94
	3	7.25	6.77	6.90	7.11	7.15	7.07	6.60	6.55	6.84	6.94
	4	7.40	7.46	7.64	7.55	7.23	6.97	6.91	18.17	6.99	6.50
	5	6.45	6.75	6.83	6.92	7.03	7.18	7.46	8.04	8.63	8.54
	6	8.59	8.50	8.45	8.64	8.68	8.41	8.43	8.32	8.33	8.38
	7	8.29	8.26	8.09	8.02	8.27	12.55 IC	8.40	8.23	8.24	8.27
	8	8.09	9.66	7.98	8.08	8.11	7.88	7.72	7.87	7.64	7.65
	9	7.75	7.70	7.57	7.58	7.51	7.78	7.97	7.87	7.75	7.85
	10	7.56	7.67	7.58	7.49	7.42	7.37	7.44	7.48	7.52	7.44
	11	7.54	7.48	7.45	7.40	7.60	7.63	7.72	7.38	7.48	7.40
	12	7.44	7.45	7.91	8.08	7.50	7.36	7.46	7.35	7.30	7.64
	13	7.38	7.35	7.37	7.43	7.57	7.48	7.49	7.46	7.43	7.28
	14	7.35	7.41	7.46	7.56	7.50	7.40	7.41	7.30	7.50	7.57
	15	7.62	7.48	7.43	7.58	7.79	7.63	8.01	7.88	7.54	7.45
	16	7.43	7.58	7.88	7.83	7.64	7.40	7.42	7.57	7.42	7.57
	17	7.64	7.46	7.53	7.47	7.77	7.51	7.62	7.41	7.58	7.46
	18	7.55	7.62	7.36	7.66	7.72	7.63	7.63	7.59	7.64	7.60
	19	7.77	7.61	7.39	7.64	7.42	7.60	7.56	7.39	7.41	7.44
	20	7.47	7.46	7.47	7.74	7.46	7.45	7.33	7.43	7.46	7.46
	21	7.33	7.27	7.26	7.22	7.35	7.43	7.13	7.37	7.35	6.95
	22	7.05	6.93	7.33	7.52	7.20	6.79	7.15	7.30	7.39	7.28
	23	8.22	7.32	7.47	7.44	7.42	7.23	7.33	7.64	7.57	7.60

F = Offline
I = Invalid
T = Out of Control

M = Maintenance
C = Calibration

Greater > 100

Average Data

Plant: MEROM
Interval: 15 Minute
Type: Roll
Report Period: 10/18/2011 07:00 Through 10/18/2011 15:00
Time Online Criteria: 1 minute(s)

Unit 1 High Load

Source		UNIT#1
Parameter (Unit)		LOADMW (MW)
10/18/11	07:00	524.1
10/18/11	07:15	524.0
10/18/11	07:30	526.2
10/18/11	07:45	526.8
10/18/11	08:00	527.4
10/18/11	08:15	528.3
10/18/11	08:30	528.3
10/18/11	08:45	528.0
10/18/11	09:00	528.0
10/18/11	09:15	529.1
10/18/11	09:30	529.2
10/18/11	09:45	530.9
10/18/11	10:00	531.1
10/18/11	10:15	530.4
10/18/11	10:30	531.1
10/18/11	10:45	529.8
10/18/11	11:00	528.8
10/18/11	11:15	529.1
10/18/11	11:30	528.7
10/18/11	11:45	528.4
10/18/11	12:00	528.5
10/18/11	12:15	529.1
10/18/11	12:30	530.0
10/18/11	12:45	530.0
10/18/11	13:00	530.1
10/18/11	13:15	528.6
10/18/11	13:30	528.6
10/18/11	13:45	529.9
10/18/11	14:00	529.5
10/18/11	14:15	530.4
10/18/11	14:30	528.7
10/18/11	14:45	528.6
10/18/11	15:00	530.6

Average	528.8
Minimum	524.0
Maximum	531.1
Summation	17,461.3
Included Data Points	33
Total number of Data Points	33

F = Unit Offline E = Exceedance C = Calibration S = Substituted U - Startup
I = Invalid M = Maintenance T = Out Of Control * = Suspect D - Shutdown

Report Generated: 10/21/11 12:25 Report Version 3.1.1130 HOOSIER\CEMS

Average Data

Plant: MEROM
Interval: 15 Minute
Type: Roll

Report Period: 10/20/2011 12:00 Through 10/20/2011 16:00
Time Online Criteria: 1 minute(s)

Unit 1 Mid Load

Source	UNIT#1
Parameter (Unit)	LOAD MW (MW)
10/20/11 12:00	398.9
10/20/11 12:15	399.7
10/20/11 12:30	399.9
10/20/11 12:45	400.0
10/20/11 13:00	400.0
10/20/11 13:15	400.2
10/20/11 13:30	399.7
10/20/11 13:45	400.1
10/20/11 14:00	399.9
10/20/11 14:15	400.0
10/20/11 14:30	398.6
10/20/11 14:45	398.8
10/20/11 15:00	398.4
10/20/11 15:15	398.2
10/20/11 15:30	398.3
10/20/11 15:45	398.4
10/20/11 16:00	400.0

Average	399.7
Minimum	398.3
Maximum	400.2
Summation	6,794.3
Included Data Points	17
Total number of Data Points	17

F = Unit Offline E = Exceedance C = Calibration S = Substituted U - Startup
I = Invalid M = Maintenance T = Out Of Control * = Suspect D - Shutdown

Average Data

Plant: MEROM
Interval: 15 Minute
Type: Roll

Report Period: 10/20/2011 07:00 Through 10/20/2011 11:00
Time Online Criteria: 1 minute(s)

Unit 1 Low Load

Source		UNIT#1
Parameter (Unit)		LOADMW (MW)
10/20/11	07:00	320.0
10/20/11	07:15	320.6
10/20/11	07:30	321.2
10/20/11	07:45	320.7
10/20/11	08:00	320.5
10/20/11	08:15	321.4
10/20/11	08:30	320.7
10/20/11	08:45	320.5
10/20/11	09:00	320.8
10/20/11	09:15	320.3
10/20/11	09:30	320.1
10/20/11	09:45	320.9
10/20/11	10:00	320.8
10/20/11	10:15	320.7
10/20/11	10:30	320.5
10/20/11	10:45	320.6
10/20/11	11:00	330.9

Average	321.2
Minimum	320.0
Maximum	330.9
Summation	5,461.0
Included Data Points	17
Total number of Data Points	17

F = Unit Offline
I = Invalid
E = Exceedance
M = Maintenance
C = Calibration
T = Out Of Control
S = Substituted
* = Suspect
U - Startup
D - Shutdown

Average Data

Plant: MEROM
Interval: 15 Minute
Type: Roll

Report Period: 10/19/2011 07:00 Through 10/19/2011 09:30
Time Online Criteria: 1 minute(s)

Unit 2 High Load
Run 1 only

Source	UNIT#2
Parameter (Unit)	LOADMW (MW)
10/19/11 07:00	530.0
10/19/11 07:15	528.2
10/19/11 07:30	528.8
10/19/11 07:45	528.9
10/19/11 08:00	530.7
10/19/11 08:15	529.7
10/19/11 08:30	527.7
10/19/11 08:45	527.4
10/19/11 09:00	527.0
10/19/11 09:15	527.0
10/19/11 09:30	527.0

Average	528.4
Minimum	527.0
Maximum	530.7
Summation	5,812.2
Included Data Points	11
Total number of Data Points	11

F = Unit Offline E = Exceedance C = Calibration S = Substituted U - Startup
I = Invalid M = Maintenance T = Out Of Control * = Suspect D - Shutdown

Average Data

Plant: MEROM
Interval: 15 Minute
Type: Roll

Report Period: 10/20/2011 07:00 Through 10/20/2011 13:00
Time Online Criteria: 1 minute(s)

Unit 2 High Load
Runs 2 & 3

Source		UNIT#2
Perameter (Unit)		LOADMW (MW)
10/20/11	07:00	532.9
10/20/11	07:15	532.0
10/20/11	07:30	532.7
10/20/11	07:45	532.7
10/20/11	08:00	532.3
10/20/11	08:15	528.4
10/20/11	08:30	526.8
10/20/11	08:45	527.6
10/20/11	09:00	527.8
10/20/11	09:15	527.8
10/20/11	09:30	527.8
10/20/11	09:45	528.6
10/20/11	10:00	527.1
10/20/11	10:15	525.1
10/20/11	10:30	526.9
10/20/11	10:45	526.5
10/20/11	11:00	526.9
10/20/11	11:15	527.4
10/20/11	11:30	528.4
10/20/11	11:45	528.6
10/20/11	12:00	529.3
10/20/11	12:15	528.2
10/20/11	12:30	529.5
10/20/11	12:45	528.5
10/20/11	13:00	528.8

Average	528.8
Minimum	525.1
Maximum	532.9
Summation	13,220.6
Included Data Points	25
Total number of Data Points	25

F = Unit Offline E = Exceedance C = Calibration S = Substituted U - Startup
I = Invalid M = Maintenance T = Out Of Control * = Suspect D - Shutdown

Average Data

Plant: MEROM
Interval: 15 Minute
Type: Roll
Report Period: 10/21/2011 07:00 Through 10/21/2011 11:00
Time Online Criteria: 1 minute(s)

Unit 2 Low Load

Source		UNIT#2
Parameter (Unit)		LOADMW (MW)
10/21/11	07:00	301.4
10/21/11	07:15	299.9
10/21/11	07:30	299.2
10/21/11	07:45	300.5
10/21/11	08:00	299.8
10/21/11	08:15	298.7
10/21/11	08:30	299.6
10/21/11	08:45	299.4
10/21/11	09:00	299.9
10/21/11	09:15	299.0
10/21/11	09:30	300.8
10/21/11	09:45	299.0
10/21/11	10:00	299.8
10/21/11	10:15	299.4
10/21/11	10:30	300.2
10/21/11	10:45	308.6
10/21/11	11:00	341.5

Average	302.8
Minimum	298.7
Maximum	341.5
Summation	6,146.9
Included Data Points	17
Total number of Data Points	17

F = Unit Offline E = Exceedance C = Calibration S = Substituted U - Startup
I = Invalid M = Maintenance T = Out Of Control * = Suspect D - Shutdown

Average Data

Plant: MEROM
Interval: 15 Minute
Type: Roll

Report Period: 10/21/2011 12:00 Through 10/21/2011 16:45
Time Online Criteria: 1 minute(s)

UNIT 2 MID LOAD

Source	UNIT#2
Parameter (Unit)	LOADMW (MW)
10/21/11 12:00	393.4
10/21/11 12:15	388.7
10/21/11 12:30	397.6
10/21/11 12:45	400.3
10/21/11 13:00	399.6
10/21/11 13:15	399.7
10/21/11 13:30	400.4
10/21/11 13:45	399.4
10/21/11 14:00	399.8
10/21/11 14:15	400.1
10/21/11 14:30	399.8
10/21/11 14:45	400.6
10/21/11 15:00	417.6
10/21/11 15:15	436.6
10/21/11 15:30	445.7
10/21/11 15:45	454.5
10/21/11 16:00	475.1
10/21/11 16:15	495.7
10/21/11 16:30	502.8
10/21/11 16:45	508.0

Average	425.8
Minimum	388.7
Maximum	508.0
Summation	8,515.7
Included Data Points	20
Total number of Data Points	20

F = Unit Offline E = Exceedance C = Calibration S = Substituted U - Startup
I = Invalid M = Maintenance T = Out Of Control * = Suspect D - Shutdown

QSTI CERTIFICATION

SOURCE EVALUATION SOCIETY

Qualified Source Testing Individual

LET IT BE KNOWN THAT

HAROLD E. STILES

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 3RD DAY OF FEBRUARY 2009 AND EFFECTIVE UNTIL FEBRUARY 2ND, 2014

Peter R. Westlin, QSTI/QSTO Review Board

C. David Bagwell, QSTI/QSTO Review Board

Peter S. Pakalnis, QSTI/QSTO Review Board

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

APPLICATION NO. 2009-266

1995

* Provided via email to E. Chatfield at his request 1/4/12.
- injection data during test.

H2SO4 Mitigation Daily I

Date: 10/18/2011

	Unit 1		Unit 2		
Time	Reagent Injection Flow Rate (PPH)	MW Gross	Reagent Injection Flow Rate (PPH)	MW Gross	Reason for loss of injection flow
0100	1948	322	0	495	unloading truck, verified flow thru sightglass
0200	1825	399	1839	465	
0300	1749	429	1540	432	
0400	2043	402	1497	395	
0500	1759	386	1569	387	
0600	1815	386	1440	389	
0700	1777	444	1411	419	
0800	0	522	1554	473	unloading truck, verified flow thru sightglass
0900	2062	520	1611	489	
1000	2138	530	1668	495	
1100	2024	524	1625	530	
1200	1996	526	1611	530	
1300	1967	534	1682	542	
1400	2005	530	1632	536	
1500	1901	530	1725	536	
1600	1815	536	1910	542	
1700	1920	538	1811	531	
1800	1878	535	1702	533	
1900	1777	534	1647	539	
2000	1768	531	1467	535	
2100	1796	533	1663	535	
2200	1720	535	1625	537	
2300	1872	519	1597	519	
2400	1844	492	1745	494	
	Average Daily Unit Load	489.0416667		494.9167	
	Daily Operating Hours	24		24	

H2SO4 Mitigation Daily I

Date: 10/20/2011

	Unit 1		Unit 2		
Time	Reagent Injection Flow Rate (PPH)	MW Gross	Reagent Injection Flow Rate (PPH)	MW Gross	Reason for loss of injection flow
0100	0	176	1625	458	Unit #1 down due to outage
0200	1540	308	1628	462	
0300	1613	326	1625	475	
0400	1540	328	1620	469	
0500	1565	326	1511	487	
0600	1499	325	1654	495	
0700	1473	348	1611	523	
0800	1416	301	1682	497	
0900	1882	320	1782	535	
1000	1644	320	1754	533	
1100	1758	328	1753	542	
1200	1815	311	1868	515	
1300	1806	339	1711	524	
1400	1673	404	1654	539	
1500	1511	412	1810	549	
1600	1645	394	0	529	unloading truck, verified flow thru sightglass
1700	1597	392	0	520	unloading truck, verified flow thru sightglass
1800	0	414	1910	535	unloading truck, verified flow thru sightglass
1900	1749	465	1928	530	
2000	1708	496	2085	531	
2100	1691	527	2039	533	
2200	1644	529	2079	530	
2300	1701	526	1754	527	
2400	1749	502	1725	507	
	Average Daily Unit Load	379.875		514.375	
	Daily Operating Hours	24		24	

H2SO4 Mitigation Daily I

Date: 10/19/2011

	Unit 1		Unit 2		
Time	Reagent Injection Flow Rate (PPH)	MW Gross	Reagent Injection Flow Rate (PPH)	MW Gross	Reason for loss of injection flow
0100	1692	446	1540	451	
0200	1689	421	1382	420	
0300	1720	437	1311	433	
0400	1663	421	1226	416	
0500	1444	447	0	450	Unlaoding truck verified flow through sight glass RAL set @ 10 Hz
0600	1668	471	0	490	Unlaoding truck verified flow through sight glass RAL set @ 15 Hz
0700	1749	507	1668	526	
0800	1720	525	1753	535	
0900	1644	529	1768	532	
1000	1777	528	1725	531	
1100	0	381	0	375	U1 & U2 off line
1200	0	0	0	0	U1 & U2 off line
1300	0	0	0	0	U1 & U2 off line
1400	0	0	0	0	U1 & U2 off line
1500	0	0	0	0	U1 & U2 off line
1600	0	0	0	0	U1 & U2 off line
1700	0	0	0	3	U1 & U2 off line
1800	0	0	0	63	U1 & U2 off line
1900	0	0	0	186	U1 & U2 off line
2000	0	0	1197	295	U1 off line
2100	0	0	1511	304	U1 off line
2200	0	0	1483	347	U1 off line
2300	0	0	1654	446	U1 off line
2400		64	1639	453	U1 off line
	Average Daily Unit Load	215.7083333		302.3333	
	Daily Operating Hours	11hr 49min	11hr 49min	17hr 57min	

H2SO4 Mitigation Daily I

Date: 10/21/2011

	Unit 1		Unit 2		
Time	Reagent Injection Flow Rate (PPH)	MW Gross	Reagent Injection Flow Rate (PPH)	MW Gross	Reason for loss of injection flow
0100	1705	472	1786	480	
0200	1712	455	1669	466	
0300	1901	438	1669	450	
0400	1628	441	1149	445	
0500	1654	397	0	414	INJECTION OFF TO TEST SYSTEM 2 MILL
0600	1720	402	998	416	
0700	1654	414	1026	421	
0800	1692	476	1311	338	
0900	1654	521	1383	299	
1000	1777	525	1368	300	
1100	1711	534		305	TRUCK UNLOADING FLOW VERIFIED THROUGH SIGHT GLASS RAL SET AT 16 HZ.
1200		527	1269	298	TRUCK UNLOADING FLOW VERIFIED THROUGH SIGHT GLASS RAL SET AT 16 HZ.
1300	2129	532	1511	379	
1400	1958	533	1796	404	
1500	1939	549	1989	417	
1600	1872	505	1725	385	
1700	1845	527	1673	430	
1800	1806	530	1745	490	
1900	1834	531	1695	508	
2000	1872	532	1696	512	
2100	1872	530	1782	512	
2200	1845	531	1796	512	
2300	1559	521	0	0	HE OUTAGE UNIT 2
2400	1606	534	0	0	HE OUTAGE UNIT 2
	Average Daily Unit Load	498.2083333		382.5417	
	Daily Operating Hours	24		24	

EMISSIONS
TEST REPORT
FOR
HOOSIER ENERGY
MEROM GENERATING STATION
UNIT 1
December 7-10, 2010

Job # 10-480

Test Report Date: 01-10-11

INTRODUCTION

This report presents the results of the emissions tests performed for Hoosier Energy at the Merom Generating Station, Unit 1.

The purpose of the tests was to determine the emissions of the unit. The results can be found in the Summary of Test Results section of this report.

The testing was performed by Grace Consulting, Inc., located at 510 Dickson Street, Wellington, OH 44090. Present during the testing were Hal Stiles, Dave Moody, Ricky Prosser, and Steve Tully from Grace Consulting, Inc. Craig Chrispell was present to observe the testing from Hoosier Energy. .

The tests were performed on December 7-10, 2010. The testing was completed in accordance with USEPA test methods as published in the July 1, 2010 Federal Register, - "Standards of Performance for New Stationary Sources" and subsequent revisions.

The sampling and analytical procedures can be found in the Sampling and Analytical Procedures section of this report. The raw field data and the equations used to determine the final results are presented in the Appendix section.

SUMMARY OF TEST RESULTS

The following presents the results of the emissions tests performed for Hoosier Energy at the Merom Generating Station, Unit 1.

H_2SO_4 Analysis

Method 8A

Run #	Description	lb/dscf	ppm dry	lb/mmBtu
1	High Load	3.97E-06	15.61	0.060
2	High Load	4.25E-06	16.72	0.069
3	High Load	3.79E-06	14.91	0.056
AVG.		4.00E-06	15.75	0.062
1	Mid Load	4.16E-06	16.38	0.071
2	Mid Load	4.72E-06	18.58	0.082
3	Mid Load	4.68E-06	18.44	0.080
AVG.		4.52E-06	17.80	0.078
1	Low Load	3.08E-06	12.13	0.057
2	Low Load	3.97E-06	15.65	0.073
3	Low Load	4.21E-06	16.59	0.078
AVG.		3.76E-06	14.79	0.069

The complete results can be found on the computer printouts following.

GRACE CONSULTING, INC.

H2SO4 Analysis

Hoosier Energy
Merom Station
Unit 1 Stack
10-480

Run Number			1	2	3
Date			12/7/2010	12/7/2010	12/8/2010
Location			Unit 1 Stack	Unit 1 Stack	Unit 1 Stack
Comment			High Load	High Load	High Load
Start Time			19:05	21:58	0:54
End Time			20:05	22:58	1:54
Barometric Pressure	In. Hg.	Pb	29.62	29.62	29.62
Volume Sampled	dcf	Vm	21.035	21.145	20.985
Meter Correction Factor		Y	0.976	0.976	0.976
Orifice Pressure	In. H2O		0.42	0.39	0.39
Meter Temperature	Degree F		53.0	54.0	53.0
Percent O2	%		7.4	8.4	7
Sample Time	min.		60	60	60
Volume of Solution	ml		100.5	102.5	93.5
Volume of Aliquot	ml		10	10	10
Normality of Barium	N		0.0091	0.0091	0.0091
Volume toTitrate Blank	ml		0.00	0.00	0.00
Volume to Titrate sample	ml		8.40	8.85	8.60
F-Factor			9,780	9,780	9,780
Corrected Sample Volume	dscf	Vms	20.94	21.01	20.89
H2SO4 Concentration	lb/dscf		3.97E-06	4.25E-06	3.79E-06
H2SO4 Concentration	ppm dry		15.61	16.72	14.91
H2SO4 Emissions	lb/mmBtu		0.060	0.069	0.056

Averages:			H2SO4 Emissions:	lb/dscf	4.00E-06
				ppm dry	15.75
Percent O2:	7.60	%		lb/mmBtu	0.062

EMISSIONS
TEST REPORT
FOR
HOOSIER ENERGY
MEROM GENERATING STATION
UNIT 2
December 8-10, 2010

Job # 10-480

Test Report Date: 01-10-11

INTRODUCTION

This report presents the results of the emissions tests performed for Hoosier Energy at the Merom Generating Station, Unit 2.

The purpose of the tests was to determine the emissions of the unit. The results can be found in the Summary of Test Results section of this report.

The testing was performed by Grace Consulting, Inc., located at 510 Dickson Street, Wellington, OH 44090. Present during the testing were Hal Stiles, Dave Moody, Ricky Prosser, and Steve Tully from Grace Consulting, Inc. Craig Chrispell was present to observe the testing from Hoosier Energy.

The tests were performed on December 8-10, 2010. The testing was completed in accordance with USEPA test methods as published in the July 1, 2010 Federal Register, - "Standards of Performance for New Stationary Sources" and subsequent revisions.

The sampling and analytical procedures can be found in the Sampling and Analytical Procedures section of this report. The raw field data and the equations used to determine the final results are presented in the Appendix section.

SUMMARY OF TEST RESULTS

The following presents the results of the emissions tests performed for Hoosier Energy at the Merom Generating Station, Unit 2.

H_2SO_4 Analysis

Method 8A

Run #	Description	lb/dscf	ppm dry	lb/mmBtu
1	High Load	3.82E-06	15.03	0.056
2	High Load	3.29E-06	12.97	0.049
3	High Load	3.20E-06	12.60	0.048
AVG.		3.44E-06	13.53	0.051
1	Mid Load	2.58E-06	10.14	0.041
2	Mid Load	2.80E-06	11.01	0.044
3	Mid Load	3.90E-06	15.36	0.062
AVG.		3.09E-06	12.17	0.049
1	Low Load	1.43E-06	5.62	0.025
2	Low Load	1.56E-06	6.13	0.027
3	Low Load	1.94E-06	7.63	0.033
AVG.		1.64E-06	6.46	0.028

The complete results can be found on the computer printouts following.

GRACE CONSULTING, INC.

H2SO4 Analysis

Hoosier Energy
Merom Station
Unit 2 Stack
10-480

Run Number			1	2	3
Date			12/8/2010	12/8/2010	12/8/2010
Location			Unit 2 Stack	Unit 2 Stack	Unit 2 Stack
Comment			High Load	High Load	High Load
Start Time			17:22	19:57	22:25
End Time			18:22	20:57	23:25
Barometric Pressure	In. Hg.	Pb	29.65	29.65	29.65
Volume Sampled	dcf	Vm	21.057	21.105	21.045
Meter Correction Factor		Y	0.976	0.976	0.976
Orifice Pressure	In. H2O		0.4	0.39	0.39
Meter Temperature	Degree F		57.0	59.0	58.0
Percent O2	%		7	7.1	7.2
Sample Time	min.		60	60	60
Volume of Solution	ml		80.0	87.0	62.0
Volume of Aliquot	ml		10	10	10
Normality of Barium	N		0.0091	0.0091	0.0091
Volume toTitrate Blank	ml		0.00	0.00	0.00
Volume to Titrate sample	ml		10.10	8.00	10.90
F-Factor			9,780	9,780	9,780
Corrected Sample Volume	dscf	Vms	20.82	20.79	20.77
H2SO4 Concentration	lb/dscf		3.82E-06	3.29E-06	3.20E-06
H2SO4 Concentration	ppm dry		15.03	12.97	12.60
H2SO4 Emissions	lb/mmBtu		0.056	0.049	0.048

Averages:				
		H2SO4 Emissions:	lb/dscf	3.44E-06
			ppm dry	13.53
Percent O2:	7.10 %		lb/mmBtu	0.051