orange

Renaissance Power, LLC
950 N. Division
Carson City, MI 48811

DYNEGY

February 7, 2008

RECEIVED
FEB - 8 2008
AIR QUALITY DIVISION
GRAND RAPIDS DISTRICT

Ms. April Lazzaro
Michigan Department of Environmental Quality
Grand Rapids District Office -- AQD
350 Ottowa Avenue NW, Unit 10
Grand Rapids, MI 49503-2341

Subject: Renaissance Power LLC, SRN N6873
Corrections to Emission Test Report

Dear Ms. Lazzaro:

Renaissance Power conducted emission tests on Turbines 1-4 between July 10 and August 2, 2008, as required under condition D.V.2 of ROP-N6873-2004b. The report of the test results was submitted to the AQD District Supervisor on October 2, 2007.

During a phone conversation on January 3, 2008, you informed us that your review of the test report had revealed potential discrepancies in calculation of formaldehyde emission rates. We discussed these potential discrepancies with the stack test firm (NTH Consultants of Grand Rapids), and after review, NTH has prepared the attached corrected pages for the test report.

Please insert these corrected pages in your copy of the test report.

If you have any questions or require additional information, please feel free to contact me at 989-584-2333 ext. 225, or Larry Waite at 618-257-7091.

Sincerely,

Ted Lindenbusch
Plant Manager
Renaissance Power, LLC

cc: AQD Technical Programs Unit, Lansing

Attachments

Renaissance Turbine Emission Factors
(Based on July August 2007 Stack Testing)

Unit/Load	*PM-10*	*VOC*	*HCOH*	*Effective Date*
	(lb/MMBtu)	(lb/MMBtu)	(lb/MMBtu)	
CT 1 -- 100%	0.00440	0.00289	0.000372	July 11, 2007
CT1 -- 70%	0.00331	0.000360	0.000441	July 11, 2007
CT2 -- 100%	0.00443	0.00323	0.000442	July 17, 2007
CT 2 -- 70%	0.00552	0.00206	0.000504	July 17, 2007
CT 3 -- 100%	0.00346	0.00235	0.000377	August 2, 2007
CT 3 -- 70%	0.00536	0.00537	0.000887	August 2, 2007
CT 4 -- 100%	0.00366	0.00289	0.000926	July 30, 2007
CT 4 -- 70%	0.00411	0.00324	0.000455	July 30, 2007

EXECUTIVE SUMMARY

Renaissance Power, LLC retained NTH Consultants, Ltd. (NTH) to conduct a compliance performance testing on Gas Combustion Turbine Units 1 – 4 at the Renaissance Power facility located in Carson City, Michigan. The testing was conducted in compliance with the special conditions of the Michigan Department of Environmental Quality (MDEQ) ROP Permit No. MI-ROP-N6873-2004A and in accordance with specifications stipulated in 40 CFR Part 60, U.S. EPA Reference Methods 1 – 5, 3A, 25A and 40 CFR, Part 51, Reference Method 202. EPA Office of Solid Waste -846 (SW-846) Method 0011 was also performed for the determination of formaldehyde. The results of all testing can be found in Tables 1 - 16 located at the end of this report and are summarized below.

EXECUTIVE SUMMARY TABLE i

Summary of Gas Turbine 1 Emissions

Load Condition (Percent)	Particulate/PM10		Volatile Organic Compounds			Formaldehyde	
	(Lbs/MMBtu)	(Lbs/ MMScf)	(ppm@15% O2)	(Lbs/MMBtu)	(Lbs/ MMScf)	(Lbs/ MMBtu)	(Lbs/ MMScf)
100	4.40E-03	4.50	0.90	2.89E-03	3.50	3.72E-04	3.81E-01
70	3.31E-03	3.39	0.11	3.60E-04	4.63E-01	4.41E-04	4.51E-01

Summary of Gas Turbine 2 Emissions

Load Condition (Percent)	Particulate/PM10		Volatile Organic Compounds			Formaldehyde	
	(Lbs/ MMBtu)	(Lbs/ MMScf)	(ppm@15% O2)	(Lbs/MMBtu)	(Lbs/ MMScf)	(Lbs/ MMBtu)	(Lbs/ MMScf)
100	4.43E-03	4.53	0.99	3.23E-03	3.63	4.42E-04	4.52E-01
70	5.52E-03	5.64	0.64	2.06E-03	2.53	5.04E-04	5.15E-01

Summary of Gas Turbine 3 Emissions

Load Condition (Percent)	Particulate/PM10		Volatile Organic Compounds			Formaldehyde	
	(Lbs/MMBtu)	(Lbs/ MMScf)	(ppm@15% O2)	(Lbs/ MMBtu)	(Lbs/ MMScf)	(Lbs/MMBtu)	(Lbs/ MMScf)
100	3.46E-03	3.54	0.73	2.35E-03	2.71	3.77E-04	3.86E-01
70	5.36E-03	5.49	1.68	5.37E-03	6.09	8.87E-04	9.07E-01

Summary of Gas Turbine 4 Emissions

Load Condition (Percent)	Particulate/PM10		Volatile Organic Compounds			Formaldehyde	
	(Lbs/ MMBtu)	(Lbs/ MMScf)	(ppm@15% O2)	(Lbs/MMBtu)	(Lbs/ MMScf)	(Lbs/ MMBtu)	(Lbs/MMScf)
100	3.66E-03	3.75	0.88	2.89E-03	3.53	9.26E-04	9.47E-01
70	4.11E-03	4.20	0.99	3.24E-03	3.78	4.55E-04	4.65E-01

Ppm dry@15% O2: Parts per million dry, as propane, corrected to 15 percent oxygen

Lbs/MMBtu: Pounds per million British Thermal Unit

Lbs/MMScf: Pounds per million Standard Cubic Feet of natural gas

TABLE 2

SUMMARY OF VOC AND FORMALDEHYDE CONCENTRATONS AND EMISSIONS

RENAISSANCE POWER, LLC

GAS TURBINE 1

100% AND 70% LOAD

JULY 10 AND 11, 2007

Turbine 1 100 % Load Run No.	VOC Concentration (ppm@15%)	VOC Emission Rate (lbs/hr)	VOC Emission Rate (lbs/MMBtu)	VOC Emission Rate (lbs/MMSCF)
1	0.91	6.38	2.89E-03	3.63
2	0.89	6.06	2.89E-03	3.44
3	0.90	6.04	2.89E-03	3.45
Average	0.90	6.16	2.89E-03	3.50

Source	Run No.	FORMALDEHYDE Emission Rate (lbs/hr)	FORMALDEHYDE Emission Rate (lbs/MMBtu)	FORMALDEHYDE Emission Rate (lbs/MMSCF)
Turbine 1 100% Load	1	0.8842	4.91E-04	5.03E-01
	2	0.6313	3.50E-04	3.58E-01
	3	0.4938	2.75E-04	2.82E-01
	Average	0.6698	3.72E-04	3.81E-01

Turbine 1 70 % Load Run No.	VOC Concentration (ppm@15%)	VOC Concentration and Emission Rate lbs/Hr	VOC Concentration and Emission Rate (lbs/MMBtu)	VOC Concentration and Emission Rate (lbs/MMSCF)
1	0.15	0.84	4.97E-04	6.17E-01
2	0.06	0.36	1.99E-04	2.63E-01
3	0.12	0.69	3.84E-04	5.10E-01
Average	0.11	0.63	3.60E-04	4.63E-01

Source	Run No.	FORMALDEHYDE Emission Rate (lbs/hr)	FORMALDEHYDE Emission Rate (lbs/MMBtu)	FORMALDEHYDE Emission Rate (lbs/MMSCF)
Turbine 1 70% Load	1	0.6937	5.00E-04	5.12E-01
	2	0.5013	3.62E-04	3.71E-01
	3	0.6341	4.59E-04	4.70E-01
	Average	0.6097	4.41E-04	4.51E-01

ppm@15%: parts per million, dry, as propane, corrected to 15 percent oxygen
lbs/hr: pounds per hour
lbs/MMBtu: pounds per million British Thermal Units
lbs/MMSCF: pounds pers million standard cubic feet

"Corrected version--January 28, 2008"

TABLE 6

SUMMARY OF VOC AND FORMALDEHYDE CONCENTRATONS AND EMISSIONS

RENAISSANCE POWER, LLC

GAS TURBINE 2

100% AND 70% LOAD

JULY 16 AND 17, 2007

Turbine 2 100 % Load Run No.	VOC Concentration (ppm@15%)	VOC Emission Rate (lbs/hr)	VOC Emission Rate (lbs/MMBtu)	VOC Emission Rate (lbs/MMSCF)
1	0.95	6.40	3.11E-03	3.60
2	0.97	6.53	3.16E-03	3.69
3	1.06	6.39	3.41E-03	3.61
Average	0.99	6.44	3.23E-03	3.63

Source	Run No.	FORMALDEHYDE Emission Rate (lbs/hr)	FORMALDEHYDE Emission Rate (lbs/MMBtu)	FORMALDEHYDE Emission Rate (lbs/MMSCF)
Turbine 2 100% Load	1	0.8751	4.81E-04	4.92E-01
	2	0.7996	4.42E-04	4.52E-01
	3	0.7313	4.03E-04	4.13E-01
	Average	0.8020	4.42E-04	4.52E-01

Turbine 2 70 % Load Run No.	VOC Concentration (ppm@15%)	VOC Emission Rate lbs/Hr	VOC Emission Rate (lbs/MMBtu)	VOC Emission Rate (lbs/MMSCF)
1	0.95	5.33	3.06E-03	3.84
2	0.01	0.08	4.29E-05	0.06
3	0.94	5.63	3.06E-03	3.68
Average	0.64	3.68	2.06E-03	2.53

Source	Run No.	FORMALDEHYDE Emission Rate (lbs/hr)	FORMALDEHYDE Emission Rate (lbs/MMBtu)	FORMALDEHYDE Emission Rate (lbs/MMSCF)
Turbine 2 70% Load	1	0.6915	4.87E-04	4.98E-01
	2	0.7764	5.57E-04	5.70E-01
	3	0.7315	4.67E-04	4.78E-01
	Average	0.7331	5.04E-04	5.15E-01

ppm@15%: parts per million, dry, as propane, corrected to 15 percent oxygen
lbs/hr: pounds per hour
lbs/MMBtu: pounds per million British Thermal Units
lbs/MMSCF: pounds pers million standard cubic feet

"Corrected version--January 28, 2008"

TABLE 10

SUMMARY OF VOC AND FORMALDEHYDE CONCENTRATONS AND EMISSIONS

RENAISSANCE POWER, LLC

GAS TURBINE 3

100% AND 70% LOAD

AUGUST 1 AND 2, 2007

Turbine 3 100 % Load Run No.	VOC Concentration (ppm@15%)	VOC Emission Rate (lbs/hr)	VOC Emission Rate (lbs/MMBtu)	VOC Emission Rate (lbs/MMSCF)
1	0.56	3.66	1.81E-03	2.10
2	0.85	5.43	2.71E-03	3.11
3	0.79	5.11	2.53E-03	2.91
Average	0.73	4.73	2.35E-03	2.71

Source	Run No.	FORMALDEHYDE Emission Rate (lbs/hr)	FORMALDEHYDE Emission Rate (lbs/MMBtu)	FORMALDEHYDE Emission Rate (lbs/MMSCF)
Turbine 3 100% Load	1	0.5771	3.22E-04	3.29E-01
	2	0.6877	3.85E-04	3.93E-01
	3	0.7607	4.26E-04	4.36E-01
	Average	0.6752	3.77E-04	3.86E-01

Turbine 3 70 % Load Run No.	VOC Concentration (ppm@15%)	VOC Emission Rate lbs/Hr	VOC Emission Rate (lbs/MMBtu)	VOC Emission Rate (lbs/MMSCF)
1	1.74	8.21	5.55E-03	6.14
2	1.59	7.54	5.06E-03	5.74
3	1.70	8.32	5.49E-03	6.40
Average	1.68	8.02	5.37E-03	6.09

Source	Run No.	FORMALDEHYDE Emission Rate (lbs/hr)	FORMALDEHYDE Emission Rate (lbs/MMBtu)	FORMALDEHYDE Emission Rate (lbs/MMSCF)
Turbine 3 70% Load	1	1.267	9.27E-04	9.47E-01
	2	1.155	8.59E-04	8.78E-01
	3	1.163	8.75E-04	8.96E-01
	Average	1.195	8.87E-04	9.07E-01

ppm@15%: parts per million, dry, as propane, corrected to 15% Oxygen
lbs/hr: pounds per hour
lbs/MMBtu: pounds per million British Thermal Units
lbs/MMSCF: pounds pers million standard cubic feet

TABLE 14

SUMMARY OF VOC AND FORMALDEHYDE CONCENTRATONS AND EMISSIONS

RENAISSANCE POWER, LLC

GAS TURBINE 4

100% AND 70% LOAD

JULY 18 AND 30, 2007

Turbine 4 100 % Load Run No.	VOC Concentration (ppm@15%)	VOC Emission Rate (lbs/hr)	VOC Emission Rate (lbs/MMBtu)	VOC Emission Rate (lbs/MMSCF)
1	0.891	6.28	2.89E-03	3.57
2	0.876	6.06	2.89E-03	3.47
3	0.874	6.19	2.89E-03	3.54
Average	0.880	6.17	2.89E-03	3.53

Source	Run No.	FORMALDEHYDE Emission Rate (lbs/hr)	FORMALDEHYDE Emission Rate (lbs/MMBtu)	FORMALDEHYDE Emission Rate (lbs/MMSCF)
Turbine 4 100% Load	1	1.7814	9.90E-04	1.01E+00
	2	1.8306	1.02E-03	1.05E+00
	3	1.3630	7.63E-04	7.81E-01
	Average	1.6583	9.26E-04	9.47E-01

Turbine 4 70 % Load Run No.	VOC Concentration (ppm@15%)	VOC Emission Rate lbs/Hr	VOC Emission Rate (lbs/MMBtu)	VOC Emission Rate (lbs/MMSCF)
1	1.71	8.38	5.68E-03	6.50
2	0.94	4.59	2.98E-03	3.56
3	0.34	1.67	1.08E-03	1.28
Average	0.99	4.88	3.24E-03	3.78

Source	Run No.	FORMALDEHYDE Emission Rate (lbs/hr)	FORMALDEHYDE Emission Rate (lbs/MMBtu)	FORMALDEHYDE Emission Rate (lbs/MMSCF)
Turbine 4 70% Load	1	0.5809	4.40E-04	4.50E-01
	2	0.5961	4.51E-04	4.62E-01
	3	0.6313	4.73E-04	4.84E-01
	Average	0.6028	4.55E-04	4.65E-01

ppm@15%: parts per million, dry, as propane, corrected to 15% oxygen
lbs/hr: pounds per hour
lbs/MMBtu: pounds per million British Thermal Units
lbs/MMSCF: pounds pers million standard cubic feet

"Corrected version--January 28, 2008"

Sampling Calculations				
Client:	Dynegy			
Source:	Turbine 1	Site Location : Combined N & S outlet		
Project No:	16070427.00			
Date:	7/10/2007	7/10/2007	7/10/2007	
Test No:	#1	#2	#3	Average
Pitot Tube Calibration Factor:	0.84	0.84	0.84	
Meter Calibration Factor:	0.993	0.993	0.993	
Stack Length, inches:	123.8	123.8	123.8	
Stack Width, inches:	279	279	279	
Stack Diameter, inches:	0	0	0	
Nozzle Diameter, inches:	0.18	0.18	0.18	
Barometric Pressure, inches mercury:	29.92	29.92	29.92	
Static Pressure in Stack, inches water:	-1.1	-1.1	-1.1	
Duration of Sample, minutes:	120	120	120	
Meter Leak Rate, cfm:	0.000	0.001	0.000	
North Volume, cf:	32.417	32.49	29.395	
South Volume, cf :	39.21	36.3	37.51	
Average Meter Pressure, inches water:	1.07	0.96	0.94	
Average Meter Temperature, degrees F:	93.9	91.0	86.2	
Average Sqrt. Velocity Pressure, inches water :	1.9516	1.8677	1.8526	
Stack Gas Temperature, degrees F:	1104.1	1112.1	1107.1	1107.80
Percent Carbon Dioxide:	4.00	4.00	4.00	4.00
Percent Oxygen:	13.70	13.70	13.70	13.70
Percent Carbon Monoxide:	0	0	0	0.00
Liquid Volume Collected, milliliters:	143	90	117	116.67
Liquid Volume Collected, grams:	16.3	22.7	22.9	

Sample Train Calculations	Test 1	Test 2	Test 3	Average
Meter Volume, Actual, cf:	71.627	68.790	66.905	69.107
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	67.947	65.589	64.350	65.962
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	1.924	1.857	1.822	1.868
Vol. of H2O Collected, STP (68 deg. F, 29.92 in. Hg):	7.498	5.306	6.586	6.463
Total Gas Sampled, cf:	75.445	70.894	70.936	72.425
Percent Moisture:	9.94	7.48	9.28	8.902
Dry Molecular Weight, lb/lb-Mole:	29.188	29.188	29.188	29.188
Molecular Weight, at Stack Condition, lb/lb-Mole:	28.0761	28.3507	28.1493	28.192
Density Dry at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0755	0.0755	0.0755	0.075
Density Wet at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0726	0.0733	0.0728	0.073
Density Wet at Stack Cond, lb/cf:	0.0244	0.0246	0.0245	0.024
Area of Stack, Square Feet:	239.8625	239.8625	239.8625	
Pounds of Gas Sampled, Dry:	5.1275	4.9495	4.8560	4.978
Pounds of Gas Sampled, Wet:	5.4762	5.1962	5.1623	5.278
Isokinetic Sampling Rate, (%):	92.03	91.04	91.36	91.476
Excess Air at Test Location, (%):	170.6697	170.6697	170.6697	170.6697

Velocity and Flow Calculations	Test 1	Test 2	Test 3	Average
Average Stack Gas Velocity, ft/s:	191.50	182.84	181.72	185.35
Stack Gas Flow Rate, ACFM:	2,756,005.95	2,631,381.38	2,615,267.99	2,667,551.78
Stack Gas Flow Rate, SCFM:	927,443.51	881,017.90	878,400.35	895,620.59
Stack Gas Flow Rate, DSCFM:	835,269.63	815,082.82	796,848.66	815,733.70

Particulate Calculations	Test 1	Test 2	Test 3	Average
Filterable Particulate:				
Weight, mg:	3.14	4.14	4.38	3.89
Particulate, Grains Per DSCF:	0.00071	0.00097	0.00105	0.00091
Total particulate, lbs/hr:	5.10	6.81	7.17	6.36
LBS/1000 LBS GAS, Actual (wet):	0.00126	0.00176	0.00187	0.00163
LBS/1000 LBS GAS, Dry:	0.00135	0.00184	0.00198	0.00172
Total particulate, lbs/MMBtu:	2.84E-03	3.77E-03	4.00E-03	3.54E-03
Total particulate, lbs/MMSCF:	2.90	3.86	4.09	3.62
Condensible Particulate (Organic) :				
Weight, mg:	0.58440	0.49900	0.64410	0.58
Organic Particulate, Grains Per DSCF:	0.00013	0.00012	0.00015	0.00013
Organic particulate, lbs/hr:	0.95	0.82	1.05	0.94
LBS/1000 LBS GAS, Actual (wet):	0.00024	0.00021	0.00028	0.00024
LBS/1000 LBS GAS, Dry:	0.00025	0.00022	0.00029	0.00025
Total particulate, lbs/MMBtu:	5.28E-04	4.55E-04	5.88E-04	5.24E-04
Total particulate, lbs/MMSCF:	0.54	0.46	0.60	0.54
Condensible Particulate (Inorganic) :				
Weight, mg:	0.26285	0.39550	0.45415	0.37
Inorganic Particulate, Grains Per DSCF:	0.00006	0.00009	0.00011	0.00009
Inorganic particulate, lbs/hr:	0.43	0.65	0.74	0.61
LBS/1000 LBS GAS, Actual (wet):	0.00011	0.00017	0.00019	0.00016
LBS/1000 LBS GAS, Dry:	0.00011	0.00018	0.00021	0.00016
Total particulate, lbs/MMBtu:	2.38E-04	3.60E-04	4.15E-04	3.37E-04
Total particulate, lbs/MMSCF:	0.24	0.37	0.42	0.35
Total Particulate :				
Weight, mg:	3.98611	5.03593	5.47911	4.83
Total particulate, Grains Per DSCF:	0.00091	0.00118	0.00131	0.00113
Total particulate, lbs/hr:	6.48	8.28	8.97	7.91
LBS/1000 LBS GAS, Actual (wet):	0.00160	0.00214	0.00234	0.00203
LBS/1000 LBS GAS, Dry:	0.00171	0.00224	0.00248	0.00214
Total particulate, lbs/MMBtu:	3.60E-03	4.59E-03	5.00E-03	4.40E-03
Total particulate, lbs/MMSCF:	3.69	4.69	5.12	4.50

Formaldehyde Concentrations and Emissions	Test 1	Test 2	Test 3	spike	Average
Ambient Temperature:	85	85	85	85	
Meter Volume, Actual, liters:	15	15	15	15	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), liters, dry:	14.535	14.535	14.535	14.535	
Meter Volume, Actual, cf:	0.530	0.530	0.530	0.530	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	0.513	0.513	0.513	0.513	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	0.015	0.015	0.015	0.015	
Compound Molecular Weight:	30.0262	30.0262	30.0262	30.0262	
Weight (mg):	0.0041	0.003	0.0024	0.756	3.17E-03
mg/dscm :	0.2821	0.2064	0.1651	52.01	2.18E-01
ppm:	0.2260	0.1654	0.1323	41.67	1.75E-01
mg/dscf:	7.99E-03	5.84E-03	4.68E-03	1.47E+00	6.17E-03
lbs/hr:	0.8842	0.6313	0.4938	159.22	6.70E-01
lbs/MMBtu:	4.91E-04	3.50E-04	2.75E-04	8.88E-02	3.72E-04
lbs/MMSCF:	5.03E-01	3.58E-01	2.82E-01	9.08E+01	3.81E-01

VOC Concentration and Emissions	Test 1	Test 2	Test 3	Average
VOC Concentration, ppmv, as propane [1]:	1.00	1.00	1.00	1.00
VOC Concentration, ppmv, dry, as propane [1]:	1.11	1.08	1.10	1.10
VOC Concentration, ppmv as propane, corrected to 15% O2	0.910	0.886	0.903	0.90
VOC Emission Rate, lbs/hr:	6.38	6.06	6.04	6.16
VOC ppm to lb/scf Conversion Factor:	1.14E-07	1.14E-07	1.14E-07	
VOC Emission Rate, lbs/MMBtu	2.89E-03	2.89E-03	2.89E-03	2.89E-03
VOC Emission Rate, lbs/MMSCF	3.63	3.44	3.45	3.50

[1]VOC Concentration was less than the detection limit of the instrument. Minimum detection limit (1 ppm) was used

Sampling Calculations				
Client:	Dynegy			
Source:	Turbine 1	Site Location : Combined N & S outlet		
Project No:	16070427.00			
Date:	7/11/2007	7/11/2007	7/11/2007	
Test No:	#1	#2	#3	Average
Pitot Tube Calibration Factor:	0.84	0.84	0.84	
Meter Calibration Factor:	0.993	0.993	0.993	
Stack Length, inches:	123.8	123.8	123.8	
Stack Width, inches:	279	279	279	
Stack Diameter, inches:	0	0	0	
Nozzle Diameter, inches:	0.18	0.18	0.18	
Barometric Pressure, inches mercury:	29.88	29.88	29.88	
Static Pressure in Stack, inches water:	-1.1	-1.1	-1.1	
Duration of Sample, minutes:	137.5	130	130	
Meter Leak Rate, cfm:	0.000	0.001	0.000	
North Volume, cf:	31.234	31.326	32.275	
South Volume, cf :	32.51	33.16	32.74	
Average Meter Pressure, inches water:	0.68	0.75	0.76	
Average Meter Temperature, degrees F:	87.2	94.3	92.6	
Average Sqrt. Velocity Pressure, inches water :	1.5453	1.6332	1.6430	
Stack Gas Temperature, degrees F:	1114.2	1109.8	1109.3	1111.09
Percent Carbon Dioxide:	3.90	3.90	3.90	3.90
Percent Oxygen:	13.90	13.90	13.90	13.90
Percent Carbon Monoxide:	0	0	0	0.00
Liquid Volume Collected, milliliters:	106	89	91	95.33
Liquid Volume Collected, grams:	3.8	27.4	23.4	

Sample Train Calculations	Test 1	Test 2	Test 3	Average
Meter Volume, Actual, cf:	63.744	64.486	65.015	64.415
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	61.070	61.007	61.689	61.256
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	1.730	1.728	1.747	1.735
Vol. of H2O Collected, STP (68 deg. F, 29.92 in. Hg):	5.168	5.480	5.386	5.345
Total Gas Sampled, cf:	66.238	66.487	67.075	66.600
Percent Moisture:	7.80	8.24	8.03	8.024
Dry Molecular Weight, lb/lb-Mole:	29.180	29.180	29.180	29.180
Molecular Weight, at Stack Condition, lb/lb-Mole:	28.3078	28.2585	28.2823	28.283
Density Dry at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0754	0.0754	0.0754	0.075
Density Wet at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0732	0.0731	0.0731	0.073
Density Wet at Stack Cond, lb/cf:	0.0244	0.0245	0.0245	0.024
Area of Stack, Square Feet:	239.8625	239.8625	239.8625	
Pounds of Gas Sampled, Dry:	4.6073	4.6025	4.6540	4.621
Pounds of Gas Sampled, Wet:	4.8476	4.8573	4.9044	4.870
Isokinetic Sampling Rate, (%):	89.77	89.97	90.25	89.997
Excess Air at Test Location, (%):	178.1869	178.1869	178.1869	178.1869

Velocity and Flow Calculations	Test 1	Test 2	Test 3	Average
Average Stack Gas Velocity, ft/s:	151.60	160.14	161.00	157.58
Stack Gas Flow Rate, ACFM:	2,181,737.47	2,304,630.23	2,317,064.80	2,267,810.83
Stack Gas Flow Rate, SCFM:	728,513.61	771,737.82	776,143.63	758,798.35
Stack Gas Flow Rate, DSCFM:	671,678.91	708,126.87	713,823.44	697,876.41

Particulate Calculations	Test 1	Test 2	Test 3	Average
Filterable Particulate:				
Weight, mg:	3.76	1.98	1.35	2.36
Particulate, Grains Per DSCF:	0.00095	0.00050	0.00034	0.00060
Total particulate, lbs/hr:	5.46	3.04	2.06	3.52
LBS/1000 LBS GAS, Actual (wet):	0.00171	0.00090	0.00061	0.00107
LBS/1000 LBS GAS, Dry:	0.00179	0.00095	0.00064	0.00113
Total particulate, lbs/MMBtu:	3.94E-03	2.20E-03	1.49E-03	2.55E-03
Total particulate, lbs/MMSCF:	4.03	2.25	1.53	2.60
Condensible Particulate (Organic) :				
Weight, mg:	0.49080	0.29230	0.65810	0.48
Organic Particulate, Grains Per DSCF:	0.00012	0.00007	0.00016	0.00012
Organic particulate, lbs/hr:	0.71	0.45	1.01	0.72
LBS/1000 LBS GAS, Actual (wet):	0.00022	0.00013	0.00030	0.00022
LBS/1000 LBS GAS, Dry:	0.00023	0.00014	0.00031	0.00023
Total particulate, lbs/MMBtu:	5.15E-04	3.24E-04	7.30E-04	5.23E-04
Total particulate, lbs/MMSCF:	0.53	0.33	0.75	0.54
Condensible Particulate (Inorganic) :				
Weight, mg:	0.21470	0.25555	0.20545	0.23
Inorganic Particulate, Grains Per DSCF:	0.00005	0.00006	0.00005	0.00006
Inorganic particulate, lbs/hr:	0.31	0.39	0.31	0.34
LBS/1000 LBS GAS, Actual (wet):	0.00010	0.00012	0.00009	0.00010
LBS/1000 LBS GAS, Dry:	0.00010	0.00012	0.00010	0.00011
Total particulate, lbs/MMBtu:	2.25E-04	2.84E-04	2.28E-04	2.46E-04
Total particulate, lbs/MMSCF:	0.23	0.29	0.23	0.25
Total Particulate :				
Weight, mg:	4.46093	2.53042	2.20984	3.07
Total particulate, Grains Per DSCF:	0.00113	0.00064	0.00055	0.00077
Total particulate, lbs/hr:	6.49	3.88	3.38	4.59
LBS/1000 LBS GAS, Actual (wet):	0.00203	0.00115	0.00099	0.00139
LBS/1000 LBS GAS, Dry:	0.00213	0.00121	0.00104	0.00146
Total particulate, lbs/MMBtu:	4.68E-03	2.81E-03	2.45E-03	3.31E-03
Total particulate, lbs/MMSCF:	4.79	2.87	2.51	3.39

Formaldehyde Concentrations and Emissions	Test 1	Test 2	Test 3	spike	Average
Ambient Temperature:	71	73	75	75	
Meter Volume, Actual, liters:	15	15	15	15	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), liters, dry:	14.898	14.842	14.786	14.786	
Meter Volume, Actual, cf:	0.530	0.530	0.530	0.530	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	0.526	0.524	0.522	0.522	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	0.015	0.015	0.015	0.015	
Compound Molecular Weight:	30.0262	30.0262	30.0262	30.0262	
Weight (mg):	0.0041	0.0028	0.0035	0.707	3.47E-03
mg/dscm :	0.2752	0.1886	0.2367	47.81	2.33E-01
ppm:	0.2205	0.1511	0.1896	38.31	1.87E-01
mg/dscf:	7.79E-03	5.34E-03	6.70E-03	1.35E+00	6.61E-03
lbs/hr:	0.6937	0.5013	0.6341	125.22	6.10E-01
lbs/MMBtu:	5.00E-04	3.62E-04	4.59E-04	9.07E-02	4.41E-04
lbs/MMSCF:	5.12E-01	3.71E-01	4.70E-01	9.28E+01	4.51E-01

VOC Concentration and Emissions	Test 1	Test 2	Test 3	Average
VOC Concentration, ppmv as propane:	0.167	0.067	0.129	0.12
VOC Concentration, ppmv dry, as propane:	0.181	0.073	0.140	0.13
VOC Concentration, ppmv as propane, corrected to 15% O2	0.153	0.062	0.118	0.11
VOC Emission Rate, lbs/hr, as propane :	0.84	0.36	0.69	0.63
VOC ppm to lb/scf Conversion Factor:	1.14E-07	1.14E-07	1.14E-07	
VOC Emission Rate, lbs/MMBtu	4.97E-04	1.99E-04	3.84E-04	3.60E-04
VOC Emission Rate, lbs/MMSCF	6.17E-01	2.63E-01	5.10E-01	4.63E-01

Sampling Calculations				
Client:	Dynegy			
Source:	Turbine 2	Site Location : Combined N & S outlet		
Project No:	16070427.00			
Date:	7/16/2007	7/16/2007	7/16/2007	
Test No:	#1	#2	#3	Average
Pitot Tube Calibration Factor:	0.84	0.84	0.84	
Meter Calibration Factor:	0.993	0.993	0.993	
Stack Length, inches:	123.8	123.8	123.8	
Stack Width, inches:	279	279	279	
Stack Diameter, inches:	0	0	0	
Nozzle Diameter, inches:	0.195	0.195	0.195	
Barometric Pressure, inches mercury:	29.98	29.98	29.98	
Static Pressure in Stack, inches water:	-1.1	-1	-1	
Duration of Sample, minutes:	120	120	120	
Meter Leak Rate, cfm:	0.000	0.001	0.000	
North Volume, cf:	36.367	39.826	36.167	
South Volume, cf :	46.51	45.26	46.09	
Average Meter Pressure, inches water:	1.50	1.55	1.49	
Average Meter Temperature, degrees F:	85.4	98.8	95.2	
Average Sqrt. Velocity Pressure, inches water :	1.9572	1.9989	1.9535	
Stack Gas Temperature, degrees F:	1088.2	1095.0	1098.7	1093.97
Percent Carbon Dioxide:	3.80	3.70	3.40	3.63
Percent Oxygen:	14.20	14.30	14.80	14.43
Percent Carbon Monoxide:	0	0	0	0.00
Liquid Volume Collected, milliliters:	116	119	135	123.33
Liquid Volume Collected, grams:	13.4	19.9	18.6	

Sample Train Calculations	Test 1	Test 2	Test 3	Average
Meter Volume, Actual, cf:	82.877	85.086	82.257	83.407
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	80.098	80.270	78.092	79.486
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	2.268	2.273	2.212	2.251
Vol. of H2O Collected, STP (68 deg. F, 29.92 in. Hg):	6.091	6.538	7.230	6.620
Total Gas Sampled, cf:	86.188	86.808	85.322	86.106
Percent Moisture:	7.07	7.53	8.47	7.691
Dry Molecular Weight, lb/lb-Mole:	29.176	29.164	29.136	29.159
Molecular Weight, at Stack Condition, lb/lb-Mole:	28.3862	28.3231	28.1923	28.301
Density Dry at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0754	0.0754	0.0753	0.075
Density Wet at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0734	0.0732	0.0729	0.073
Density Wet at Stack Cond, lb/cf:	0.0250	0.0249	0.0247	0.025
Area of Stack, Square Feet:	239.8625	239.8625	239.8625	
Pounds of Gas Sampled, Dry:	6.0419	6.0524	5.8825	5.992
Pounds of Gas Sampled, Wet:	6.3251	6.3565	6.2187	6.300
Isokinetic Sampling Rate, (%):	89.27	88.12	88.53	88.640
Excess Air at Test Location, (%):	190.6552	194.6108	217.8008	201.0223

Velocity and Flow Calculations	Test 1	Test 2	Test 3	Average
Average Stack Gas Velocity, ft/s:	189.83	194.49	190.73	191.69
Stack Gas Flow Rate, ACFM:	2,731,990.29	2,799,088.37	2,744,997.59	2,758,692.08
Stack Gas Flow Rate, SCFM:	930,693.55	949,615.14	929,071.16	936,459.95
Stack Gas Flow Rate, DSCFM:	864,923.12	878,089.89	850,342.58	864,451.86

Particulate Calculations	Test 1	Test 2	Test 3	Average
Filterable Particulate:				
Weight, mg:	4.36	4.71	5.25	4.77
Particulate, Grains Per DSCF:	0.00084	0.00091	0.00104	0.00093
Total particulate, lbs/hr:	6.22	6.81	7.56	6.86
LBS/1000 LBS GAS, Actual (wet):	0.00152	0.00163	0.00186	0.00167
LBS/1000 LBS GAS, Dry:	0.00159	0.00171	0.00196	0.00175
Total particulate, lbs/MMBtu:	3.42E-03	3.76E-03	4.17E-03	3.78E-03
Total particulate, lbs/MMSCF:	3.50	3.85	4.27	3.87
Condensible Particulate (Organic) :				
Weight, mg:	0.62100	0.62200	0.64600	0.63
Organic Particulate, Grains Per DSCF:	0.00012	0.00012	0.00013	0.00012
Organic particulate, lbs/hr:	0.89	0.90	0.93	0.91
LBS/1000 LBS GAS, Actual (wet):	0.00022	0.00022	0.00023	0.00022
LBS/1000 LBS GAS, Dry:	0.00023	0.00023	0.00024	0.00023
Total particulate, lbs/MMBtu:	4.87E-04	4.97E-04	5.13E-04	4.99E-04
Total particulate, lbs/MMSCF:	0.50	0.51	0.53	0.51
Condensible Particulate (Inorganic) :				
Weight, mg:	0.15210	0.17203	0.22813	0.18
Inorganic Particulate, Grains Per DSCF:	0.00003	0.00003	0.00005	0.00004
Inorganic particulate, lbs/hr:	0.22	0.25	0.33	0.26
LBS/1000 LBS GAS, Actual (wet):	0.00005	0.00006	0.00008	0.00006
LBS/1000 LBS GAS, Dry:	0.00006	0.00006	0.00009	0.00007
Total particulate, lbs/MMBtu:	1.19E-04	1.38E-04	1.81E-04	1.46E-04
Total particulate, lbs/MMSCF:	0.12	0.14	0.19	0.15
Total Particulate :				
Weight, mg:	5.13060	5.50353	6.12213	5.59
Total particulate, Grains Per DSCF:	0.00099	0.00106	0.00121	0.00109
Total particulate, lbs/hr:	7.33	7.96	8.82	8.04
LBS/1000 LBS GAS, Actual (wet):	0.00179	0.00191	0.00217	0.00196
LBS/1000 LBS GAS, Dry:	0.00187	0.00200	0.00229	0.00205
Total particulate, lbs/MMBtu:	4.03E-03	4.40E-03	4.86E-03	4.43E-03
Total particulate, lbs/MMSCF:	4.12	4.50	4.98	4.53

Formaldehyde Concentrations and Emissions	Test 1	Test 2	Test 3	spike	Average
Ambient Temperature:	75	75	75	75	
Meter Volume, Actual, liters:	15	15	15	15	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), liters, dry:	14.836	14.836	14.836	14.836	
Meter Volume, Actual, cf:	0.530	0.530	0.530	0.530	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	0.524	0.524	0.524	0.524	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	0.015	0.015	0.015	0.015	
Compound Molecular Weight:	30.0262	30.0262	30.0262	30.0262	
Weight (mg):	0.004	0.0036	0.0034	0.177	3.67E-03
mg/dscm :	0.2696	0.2426	0.2291	11.93	2.47E-01
ppm:	0.2160	0.1944	0.1836	9.56	1.98E-01
mg/dscf:	7.63E-03	6.87E-03	6.49E-03	3.38E-01	7.00E-03
lbs/hr:	0.8751	0.7996	0.7313	38.70	8.02E-01
lbs/MMBtu:	4.81E-04	4.42E-04	4.03E-04	2.13E-02	4.42E-04
lbs/MMSCF:	4.92E-01	4.52E-01	4.13E-01	2.18E+01	4.52E-01

VOC Concentration and Emissions	Test 1	Test 2	Test 3	Average
VOC Concentration, ppmv [1]:	1.00	1.00	1.00	1.00
VOC Concentration, ppmv, dry, as propane [1]:	1.08	1.08	1.09	1.08
VOC Concentration, ppmv as propane, corrected to 15% O2	0.95	0.97	1.06	0.99
VOC Emission Rate, lbs/hr:	6.40	6.53	6.39	6.44
VOC ppm to lb/scf Conversion Factor:	1.14E-07	1.14E-07	1.14E-07	
VOC Emission Rate, lbs/MMBtu	3.11E-03	3.16E-03	3.41E-03	3.23E-03
VOC Emission Rate, lbs/MMSCF	3.60	3.69	3.61	3.63

[1]VOC Concentration was less than the detection limit of the instrument. Minimum detection limit (1 ppm) was used

Sampling Calculations				
Client:	Dynegy			
Source:	Turbine 2	Site Location : Combined N & S outlet		
Project No:	16070427.00			
Date:	7/17/2007	7/17/2007	7/17/2007	
Test No:	#2	#3	#4	Average
Pitot Tube Calibration Factor:	0.84	0.84	0.84	
Meter Calibration Factor:	0.993	0.993	0.993	
Stack Length, inches:	123.8	123.8	123.8	
Stack Width, inches:	279	279	279	
Stack Diameter, inches:	0	0	0	
Nozzle Diameter, inches:	0.195	0.195	0.195	
Barometric Pressure, inches mercury:	29.97	29.97	29.97	
Static Pressure in Stack, inches water:	-1.2	-1.2	-1.2	
Duration of Sample, minutes:	120	120	120	
Meter Leak Rate, cfm:	0.000	0.001	0.000	
North Volume, cf:	31.808	34.637	36.468	
South Volume, cf :	35.63	34.84	36.08	
Average Meter Pressure, inches water:	0.99	1.06	1.13	
Average Meter Temperature, degrees F:	76.0	86.6	89.8	
Average Sqrt. Velocity Pressure, inches water :	1.6380	1.6475	1.7141	
Stack Gas Temperature, degrees F:	1111.8	1058.9	1079.6	1083.42
Percent Carbon Dioxide:	3.90	3.80	3.80	3.83
Percent Oxygen:	14.10	14.10	14.10	14.10
Percent Carbon Monoxide:	0	0	0	0.00
Liquid Volume Collected, milliliters:	118	125	112	118.33
Liquid Volume Collected, grams:	17.1	21	14.7	

Sample Train Calculations	Test 1	Test 2	Test 3	Average
Meter Volume, Actual, cf:	67.438	69.477	72.548	69.821
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	66.210	66.905	69.470	67.529
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	1.875	1.895	1.967	1.912
Vol. of H2O Collected, STP (68 deg. F, 29.92 in. Hg):	6.359	6.873	5.964	6.399
Total Gas Sampled, cf:	72.570	73.778	75.434	73.927
Percent Moisture:	8.76	9.32	7.91	8.661
Dry Molecular Weight, lb/lb-Mole:	29.188	29.172	29.172	29.177
Molecular Weight, at Stack Condition, lb/lb-Mole:	28.2076	28.1313	28.2887	28.209
Density Dry at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0755	0.0754	0.0754	0.075
Density Wet at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0729	0.0727	0.0731	0.073
Density Wet at Stack Cond, lb/cf:	0.0245	0.0252	0.0250	0.025
Area of Stack, Square Feet:	239.8625	239.8625	239.8625	
Pounds of Gas Sampled, Dry:	4.9964	5.0461	5.2395	5.094
Pounds of Gas Sampled, Wet:	5.2921	5.3657	5.5169	5.392
Isokinetic Sampling Rate, (%):	90.23	89.54	88.84	89.538
Excess Air at Test Location, (%):	186.8045	186.1534	186.1534	186.3704

Velocity and Flow Calculations	Test 1	Test 2	Test 3	Average
Average Stack Gas Velocity, ft/s:	160.63	159.03	166.12	161.93
Stack Gas Flow Rate, ACFM:	2,311,763.85	2,288,711.49	2,390,728.67	2,330,401.34
Stack Gas Flow Rate, SCFM:	775,262.37	794,286.92	818,516.07	796,021.79
Stack Gas Flow Rate, DSCFM:	707,325.42	720,296.75	753,803.78	727,141.98

Particulate Calculations	Test 1	Test 2	Test 3	Average
Filterable Particulate:				
Weight, mg:	4.60	5.36	4.27	4.74
Particulate, Grains Per DSCF:	0.00107	0.00124	0.00095	0.00109
Total particulate, lbs/hr:	6.49	7.63	6.13	6.75
LBS/1000 LBS GAS, Actual (wet):	0.00191	0.00220	0.00171	0.00194
LBS/1000 LBS GAS, Dry:	0.00202	0.00234	0.00179	0.00205
Total particulate, lbs/MMBtu:	4.57E-03	5.48E-03	3.91E-03	4.66E-03
Total particulate, lbs/MMSCF:	4.68	5.60	4.00	4.76
Condensible Particulate (Organic) :				
Weight, mg:	0.61250	0.63450	0.54900	0.60
Organic Particulate, Grains Per DSCF:	0.00014	0.00015	0.00012	0.00014
Organic particulate, lbs/hr:	0.87	0.90	0.79	0.85
LBS/1000 LBS GAS, Actual (wet):	0.00026	0.00026	0.00022	0.00025
LBS/1000 LBS GAS, Dry:	0.00027	0.00028	0.00023	0.00026
Total particulate, lbs/MMBtu:	6.09E-04	6.49E-04	5.03E-04	5.87E-04
Total particulate, lbs/MMSCF:	0.62	0.66	0.51	0.60
Condensible Particulate (Inorganic) :				
Weight, mg:	0.27248	0.27188	0.30220	0.28
Inorganic Particulate, Grains Per DSCF:	0.00006	0.00006	0.00007	0.00006
Inorganic particulate, lbs/hr:	0.38	0.39	0.43	0.40
LBS/1000 LBS GAS, Actual (wet):	0.00011	0.00011	0.00012	0.00012
LBS/1000 LBS GAS, Dry:	0.00012	0.00012	0.00013	0.00012
Total particulate, lbs/MMBtu:	2.71E-04	2.78E-04	2.77E-04	2.75E-04
Total particulate, lbs/MMSCF:	0.28	0.28	0.28	0.28
Total Particulate :				
Weight, mg:	5.48098	6.26588	5.12220	5.62
Total particulate, Grains Per DSCF:	0.00128	0.00145	0.00114	0.00129
Total particulate, lbs/hr:	7.74	8.92	7.35	8.01
LBS/1000 LBS GAS, Actual (wet):	0.00228	0.00257	0.00205	0.00230
LBS/1000 LBS GAS, Dry:	0.00241	0.00273	0.00215	0.00243
Total particulate, lbs/MMBtu:	5.45E-03	6.40E-03	4.69E-03	5.52E-03
Total particulate, lbs/MMSCF:	5.58	6.55	4.80	5.64

Formaldehyde Concentrations and Emissions	Test 1	Test 2	Test 3	Average
Ambient Temperature:	70	70	80	80
Meter Volume, Actual, liters:	15	15	15	15
Meter Volume, STP (68 deg. F, 29.92 in. Hg), liters, dry:	14.971	14.971	14.694	14.694
Meter Volume, Actual, cf:	0.530	0.530	0.530	0.530
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	0.529	0.529	0.519	0.519
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	0.015	0.015	0.015	0.015
Compound Molecular Weight:	30.0262	30.0262	30.0262	
Weight (mg):	0.0039	0.0043	0.0038	4.00E-03
mg/dscm :	0.2605	0.2872	0.2586	2.69E-01
ppm:	0.2087	0.2301	0.2072	2.15E-01
mg/dscf:	7.38E-03	8.13E-03	7.32E-03	7.61E-03
lbs/hr:	0.6915	0.7764	0.7315	7.33E-01
lbs/MMBtu:	4.87E-04	5.57E-04	4.67E-04	5.04E-04
lbs/MMSCF:	4.98E-01	5.70E-01	4.78E-01	5.15E-01

VOC Concentration and Emissions	Test 1	Test 2	Test 3	Average
VOC Concentration, ppmv as propane [1]:	1.00	0.01	1.00	0.67
VOC Concentration, ppmv, dry, as propane [1]:	1.10	0.02	1.09	0.73
VOC Concentration, ppmv as propane, corrected to 15% O2:	0.95	0.01	0.94	0.64
VOC Emission Rate, lbs/hr:	5.33	0.08	5.63	3.68
VOC ppm to lb/scf Conversion Factor:	1.14E-07	1.14E-07	1.14E-07	
VOC Emission Rate, lbs/MMBtu	3.06E-03	4.29E-05	3.06E-03	2.06E-03
VOC Emission Rate, lbs/MMSCF	3.84	0.06	3.68	2.53

[1]VOC Concentration was less than the detection limit of the instrument. Minimum detection limit (1 ppm) was used

Sampling Calculations				
Client:	Dynegy			
Source:	Turbine 3	Site Location : Combined N & S outlet		
Project No:	16070427.00			
Date:	8/1/2007	8/1/2007	8/1/2007	
Test No:	#1	#2	#3	Average
Pitot Tube Calibration Factor:	0.84	0.84	0.84	
Meter Calibration Factor:	1.001	1.001	1.001	
Stack Length, inches:	123.8	123.8	123.8	
Stack Width, inches:	279	279	279	
Stack Diameter, inches:	0	0	0	
Nozzle Diameter, inches:	0.195	0.195	0.195	
Barometric Pressure, inches mercury:	30.08	30.08	30.08	
Static Pressure in Stack, inches water:	-1	-1	-1	
Duration of Sample, minutes:	120	120	120	
Meter Leak Rate, cfm:	0.000	0.001	0.000	
North Volume, cf:	44.2	43.2	43.8	
South Volume, cf :	45.14	46.025	45.205	
Average Meter Pressure, inches water:	1.58	1.57	1.58	
Average Meter Temperature, degrees F:	83.4	113.9	89.9	
Average Sqrt. Velocity Pressure, inches water :	1.7952	1.7714	1.7878	
Stack Gas Temperature, degrees F:	1118.0	1105.3	1113.3	1112.20
Percent Carbon Dioxide:	4.00	4.00	4.00	4.00
Percent Oxygen:	13.70	13.70	13.70	13.70
Percent Carbon Monoxide:	0	0	0	0.00
Liquid Volume Collected, milliliters:	158	160	156	158.00
Liquid Volume Collected, grams:	21.9	18.4	22.7	

Sample Train Calculations	Test 1	Test 2	Test 3	Average
Meter Volume, Actual, cf:	89.340	89.225	89.005	89.190
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	87.663	82.896	86.296	85.618
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	2.483	2.348	2.444	2.425
Vol. of H2O Collected, STP (68 deg. F, 29.92 in. Hg):	8.468	8.397	8.412	8.426
Total Gas Sampled, cf:	96.131	91.294	94.707	94.044
Percent Moisture:	8.81	9.20	8.88	8.963
Dry Molecular Weight, lb/lb-Mole:	29.188	29.188	29.188	29.188
Molecular Weight, at Stack Condition, lb/lb-Mole:	28.2025	28.1589	28.1943	28.185
Density Dry at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0755	0.0755	0.0755	0.075
Density Wet at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0729	0.0728	0.0729	0.073
Density Wet at Stack Cond, lb/cf:	0.0245	0.0246	0.0245	0.025
Area of Stack, Square Feet:	239.8625	239.8625	239.8625	
Pounds of Gas Sampled, Dry:	6.6153	6.2556	6.5121	6.461
Pounds of Gas Sampled, Wet:	7.0091	6.6461	6.9033	6.853
Isokinetic Sampling Rate, (%):	109.05	104.44	107.70	107.061
Excess Air at Test Location, (%):	170.6697	170.6697	170.6697	170.6697

Velocity and Flow Calculations	Test 1	Test 2	Test 3	Average
Average Stack Gas Velocity, ft/s:	176.03	173.14	175.08	174.75
Stack Gas Flow Rate, ACFM:	2,533,445.80	2,491,797.41	2,519,710.21	2,514,984.47
Stack Gas Flow Rate, SCFM:	849,802.72	842,634.13	847,700.03	846,712.29
Stack Gas Flow Rate, DSCFM:	774,944.42	765,128.88	772,409.46	770,827.59

Particulate Calculations	Test 1	Test 2	Test 3	Average
Filterable Particulate:				
Weight, mg:	4.09	4.48	4.48	4.35
Particulate, Grains Per DSCF:	0.00072	0.00083	0.00080	0.00078
Total particulate, lbs/hr:	4.78	5.46	5.30	5.18
LBS/1000 LBS GAS, Actual (wet):	0.00128	0.00148	0.00143	0.00140
LBS/1000 LBS GAS, Dry:	0.00136	0.00157	0.00151	0.00148
Total particulate, lbs/MMBtu:	2.66E-03	3.06E-03	2.97E-03	2.89E-03
Total particulate, lbs/MMSCF:	2.72	3.13	3.03	2.96
Condensible Particulate (Organic) :				
Weight, mg:	0.75620	0.62880	0.59240	0.66
Organic Particulate, Grains Per DSCF:	0.00013	0.00012	0.00011	0.00012
Organic particulate, lbs/hr:	0.88	0.77	0.70	0.78
LBS/1000 LBS GAS, Actual (wet):	0.00024	0.00021	0.00019	0.00021
LBS/1000 LBS GAS, Dry:	0.00025	0.00022	0.00020	0.00022
Total particulate, lbs/MMBtu:	4.93E-04	4.29E-04	3.92E-04	4.38E-04
Total particulate, lbs/MMSCF:	0.50	0.44	0.40	0.45
Condensible Particulate (Inorganic) :				
Weight, mg:	0.18315	0.18300	0.19330	0.19
Inorganic Particulate, Grains Per DSCF:	0.00003	0.00003	0.00003	0.00003
Inorganic particulate, lbs/hr:	0.21	0.22	0.23	0.22
LBS/1000 LBS GAS, Actual (wet):	0.00006	0.00006	0.00006	0.00006
LBS/1000 LBS GAS, Dry:	0.00006	0.00006	0.00007	0.00006
Total particulate, lbs/MMBtu:	1.19E-04	1.25E-04	1.28E-04	1.24E-04
Total particulate, lbs/MMSCF:	0.12	0.13	0.13	0.13
Total Particulate :				
Weight, mg:	5.02444	5.28762	5.26152	5.19
Total particulate, Grains Per DSCF:	0.00088	0.00098	0.00094	0.00094
Total particulate, lbs/hr:	5.87	6.45	6.23	6.19
LBS/1000 LBS GAS, Actual (wet):	0.00158	0.00175	0.00168	0.00167
LBS/1000 LBS GAS, Dry:	0.00167	0.00186	0.00178	0.00177
Total particulate, lbs/MMBtu:	3.28E-03	3.61E-03	3.49E-03	3.46E-03
Total particulate, lbs/MMSCF:	3.35	3.69	3.57	3.54

Formaldehyde Concentrations and Emissions	Test 1	Test 2	Test 3	spike	Average
Ambient Temperature:	85	85	90	90	
Meter Volume, Actual, liters:	15	15	15	15	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), liters, dry:	14.612	14.612	14.479	14.479	
Meter Volume, Actual, cf:	0.530	0.530	0.530	0.530	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	0.516	0.516	0.511	0.511	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	0.015	0.015	0.014	0.014	
Compound Molecular Weight:	30.0262	30.0262	30.0262	30.0262	
Weight (mg):	0.0029	0.0035	0.0038	0.707	0.0034
mg/dscm :	0.1984	0.2395	0.2624	48.82	0.2335
ppm:	0.1590	0.1919	0.2103	39.12	0.1870
mg/dscf:	5.62E-03	6.78E-03	7.43E-03	1.38E+00	6.61E-03
lbs/hr:	0.5771	0.6877	0.7607	141.24	0.6752
lbs/MMBtu:	3.22E-04	3.85E-04	4.26E-04	7.90E-02	3.77E-04
lbs/MMSCF:	3.29E-01	3.93E-01	4.36E-01	8.09E+01	3.86E-01

VOC Concentration and Emissions	Test 1	Test 2	Test 3	Average
VOC Concentration, ppmv as propane:	0.63	0.94	0.88	0.81
VOC Concentration, ppmv dry, as propane:	0.686	1.032	0.961	0.89
VOC Concentration, ppmv as propane, corrected to 15% C	0.563	0.846	0.788	0.73
VOC Emission Rate, lbs/hr:	3.66	5.43	5.11	4.73
VOC ppm to lb/scf Conversion Factor:	1.14E-07	1.14E-07	1.14E-07	
VOC Emission Rate, lbs/MMBtu	1.81E-03	2.71E-03	2.53E-03	2.35E-03
VOC Emission Rate, lbs/MMSCF	2.10	3.11	2.91	2.71

Sampling Calculations				
Client:	Dynegy			
Source:	Turbine 3	Site Location : Combined N & S outlet		
Project No:	16070427.00			
Date:	8/2/2007	8/2/2007	8/2/2007	
Test No:	#1	#2	#3	Average
Pitot Tube Calibration Factor:	0.84	0.84	0.84	
Meter Calibration Factor:	1.001	1.001	1.001	
Stack Length, inches:	123.8	123.8	123.8	
Stack Width, inches:	279	279	279	
Stack Diameter, inches:	0	0	0	
Nozzle Diameter, inches:	0.195	0.195	0.195	
Barometric Pressure, inches mercury:	29.99	29.99	29.99	
Static Pressure in Stack, inches water:	-1	-1	-1	
Duration of Sample, minutes:	120	120	120	
Meter Leak Rate, cfm:	0.000	0.001	0.000	
North Volume, cf:	32.6	32.991	35.796	
South Volume, cf :	32.465	34.275	34.305	
Average Meter Pressure, inches water:	0.87	0.90	0.93	
Average Meter Temperature, degrees F:	86.9	98.8	99.7	
Average Sqrt. Velocity Pressure, inches water :	1.3555	1.3610	1.3873	
Stack Gas Temperature, degrees F:	1128.3	1120.0	1123.4	1123.90
Percent Carbon Dioxide:	3.80	3.80	3.80	3.80
Percent Oxygen:	13.90	13.90	13.90	13.90
Percent Carbon Monoxide:	0	0	0	0.00
Liquid Volume Collected, milliliters:	128	124	108	120.00
Liquid Volume Collected, grams:	16.1	27.2	22.9	

Sample Train Calculations	Test 1	Test 2	Test 3	Average
Meter Volume, Actual, cf:	65.065	67.266	70.101	67.477
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	63.130	63.892	66.476	64.499
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	1.788	1.809	1.883	1.827
Vol. of H2O Collected, STP (68 deg. F, 29.92 in. Hg):	6.783	7.118	6.162	6.688
Total Gas Sampled, cf:	69.913	71.010	72.638	71.187
Percent Moisture:	9.70	10.02	8.48	9.403
Dry Molecular Weight, lb/lb-Mole:	29.164	29.164	29.164	29.164
Molecular Weight, at Stack Condition, lb/lb-Mole:	28.0809	28.0449	28.2169	28.114
Density Dry at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0754	0.0754	0.0754	0.075
Density Wet at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0726	0.0725	0.0729	0.073
Density Wet at Stack Cond, lb/cf:	0.0241	0.0242	0.0243	0.024
Area of Stack, Square Feet:	239.8625	239.8625	239.8625	
Pounds of Gas Sampled, Dry:	4.7601	4.8175	5.0124	4.863
Pounds of Gas Sampled, Wet:	5.0755	5.1485	5.2989	5.174
Isokinetic Sampling Rate, (%):	105.30	106.17	106.99	106.153
Excess Air at Test Location, (%):	177.5859	177.5859	177.5859	177.5859

Velocity and Flow Calculations	Test 1	Test 2	Test 3	Average
Average Stack Gas Velocity, ft/s:	133.85	134.12	136.44	134.81
Stack Gas Flow Rate, ACFM:	1,926,325.42	1,930,284.13	1,963,666.59	1,940,092.05
Stack Gas Flow Rate, SCFM:	640,021.65	644,743.29	654,462.71	646,409.22
Stack Gas Flow Rate, DSCFM:	577,927.83	580,114.90	598,941.70	585,661.48

Particulate Calculations	Test 1	Test 2	Test 3	Average
Filterable Particulate:				
Weight, mg:	5.43	5.42	4.86	5.23
Particulate, Grains Per DSCF:	0.00133	0.00131	0.00113	0.00125
Total particulate, lbs/hr:	6.57	6.51	5.79	6.29
LBS/1000 LBS GAS, Actual (wet):	0.00236	0.00232	0.00202	0.00223
LBS/1000 LBS GAS, Dry:	0.00251	0.00247	0.00213	0.00237
Total particulate, lbs/MMBtu:	4.81E-03	4.84E-03	4.35E-03	4.67E-03
Total particulate, lbs/MMSCF:	4.92	4.95	4.46	4.77
Condensible Particulate (Organic) :				
Weight, mg:	0.51940	0.63760	0.58740	0.58
Organic Particulate, Grains Per DSCF:	0.00013	0.00015	0.00014	0.00014
Organic particulate, lbs/hr:	0.63	0.77	0.70	0.70
LBS/1000 LBS GAS, Actual (wet):	0.00023	0.00027	0.00024	0.00025
LBS/1000 LBS GAS, Dry:	0.00024	0.00029	0.00026	0.00026
Total particulate, lbs/MMBtu:	4.60E-04	5.69E-04	5.27E-04	5.19E-04
Total particulate, lbs/MMSCF:	0.47	0.58	0.54	0.53
Condensible Particulate (Inorganic) :				
Weight, mg:	0.16540	0.17570	0.25690	0.20
Inorganic Particulate, Grains Per DSCF:	0.00004	0.00004	0.00006	0.00005
Inorganic particulate, lbs/hr:	0.20	0.21	0.31	0.24
LBS/1000 LBS GAS, Actual (wet):	0.00007	0.00008	0.00011	0.00008
LBS/1000 LBS GAS, Dry:	0.00008	0.00008	0.00011	0.00009
Total particulate, lbs/MMBtu:	1.46E-04	1.57E-04	2.30E-04	1.78E-04
Total particulate, lbs/MMSCF:	0.15	0.16	0.24	0.18
Total Particulate :				
Weight, mg:	6.11516	6.23057	5.70103	6.02
Total particulate, Grains Per DSCF:	0.00149	0.00150	0.00132	0.00144
Total particulate, lbs/hr:	7.40	7.48	6.79	7.23
LBS/1000 LBS GAS, Actual (wet):	0.00266	0.00267	0.00237	0.00257
LBS/1000 LBS GAS, Dry:	0.00283	0.00284	0.00250	0.00272
Total particulate, lbs/MMBtu:	5.42E-03	5.56E-03	5.11E-03	5.36E-03
Total particulate, lbs/MMSCF:	5.54	5.69	5.23	5.49

Formaldehyde Concentrations and Emissions	Test 1	Test 2	Test 3	spike	Average
Ambient Temperature:	73	80	88	88	
Meter Volume, Actual, liters:	15	15	15	15	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), liters, dry:	14.897	14.703	14.489	14.489	
Meter Volume, Actual, cf:	0.530	0.530	0.530	0.530	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	0.526	0.519	0.512	0.512	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	0.015	0.015	0.014	0.014	
Compound Molecular Weight:	30.0262	30.0262	30.0262	30.0262	
Weight (mg):	0.0087	0.0078	0.0075	0.838	8.00E-03
mg/dscm :	0.5840	0.5304	0.5176	57.83	5.44E-01
ppm:	0.4679	0.4250	0.4147	46.34	4.36E-01
mg/dscf:	0.0165	0.0150	0.0147	1.64	1.54E-02
lbs/hr:	1.267	1.155	1.163	127.113	1.19E+00
lbs/MMBtu:	9.27E-04	8.59E-04	8.75E-04	9.56E-02	8.87E-04
lbs/MMSCF:	9.47E-01	8.78E-01	8.96E-01	9.79E+01	9.07E-01

VOC Concentration and Emissions	Test 1	Test 2	Test 3	Average
VOC Concentration, ppmv as propane:	1.864	1.701	1.847	1.80
VOC Concentration, ppmv dry, as propane:	2.064	1.891	2.018	1.99
VOC Concentration, ppmv as propane, corrected to 15% O2:	1.740	1.593	1.701	1.68
VOC Emission Rate, lbs/hr:	8.21	7.54	8.32	8.02
VOC ppm to lb/scf Conversion Factor:	1.14E-07	1.14E-07	1.14E-07	
VOC Emission Rate, lbs/MMBtu	5.55E-03	5.06E-03	5.49E-03	5.37E-03
VOC Emission Rate, lbs/MMSCF	6.14	5.74	6.40	6.09

Renaissance Power, LLC
Turbine 4 100% Load
Calculations Sheet

Sampling Calculations				
Client:	Dynegy			
Source:	Turbine 4	Site Location : Combined N & S outlet		
Project No:	16070427.00			
Date:	7/18/2007	7/18/2007	7/18/2007	
Test No:	#1	#2	#3	Average
Pitot Tube Calibration Factor:	0.84	0.84	0.84	
Meter Calibration Factor:	1.001	1.001	1.001	
Stack Length, inches:	123.8	123.8	123.8	
Stack Width, inches:	279	279	279	
Stack Diameter, inches:	0	0	0	
Nozzle Diameter, inches:	0.195	0.195	0.195	
Barometric Pressure, inches mercury:	30.03	30.03	30.03	
Static Pressure in Stack, inches water:	-1	-1	-1	
Duration of Sample, minutes:	120	120	120	
Meter Leak Rate, cfm:	0.000	0.000	0.000	
North Volume, cf:	0	34.907	0	
South Volume, cf :	47.65	0	21.77	
Average Meter Pressure, inches water:	0.93	0.53	0.72	
Average Meter Temperature, degrees F:	49.3	50.9	50.0	
Average Sqrt. Velocity Pressure, inches water :	1.9178	1.8583	1.8990	
Stack Gas Temperature, degrees F:	1093.4	1097.4	1098.3	1096.36
Percent Carbon Dioxide:	4.00	4.00	4.00	4.00
Percent Oxygen:	13.70	13.70	13.70	13.70
Percent Carbon Monoxide:	0	0	0	0.00
Liquid Volume Collected, milliliters:	81	47	24	50.67
Liquid Volume Collected, grams:	10.8	6.2	7.9	

Sample Train Calculations	Test 1	Test 2	Test 3	Average
Meter Volume, Actual, cf:	47.650	34.907	21.770	34.776
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	49.722	36.274	22.675	36.224
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	1.408	1.027	0.642	1.026
Vol. of H2O Collected, STP (68 deg. F, 29.92 in. Hg):	4.321	2.504	1.502	2.776
Total Gas Sampled, cf:	54.043	38.779	24.177	38.999
Percent Moisture:	8.00	6.46	6.21	6.889
Dry Molecular Weight, lb/lb-Mole:	29.188	29.188	29.188	29.188
Molecular Weight, at Stack Condition, lb/lb-Mole:	28.2934	28.4655	28.4930	28.417
Density Dry at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0755	0.0755	0.0755	0.075
Density Wet at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0731	0.0736	0.0737	0.073
Density Wet at Stack Cond, lb/cf:	0.0249	0.0250	0.0250	0.025
Area of Stack, Square Feet:	239.8625	239.8625	239.8625	
Pounds of Gas Sampled, Dry:	3.7521	2.7374	1.7111	2.734
Pounds of Gas Sampled, Wet:	3.9531	2.8538	1.7809	2.863
Isokinetic Sampling Rate, (%):	57.07	42.45	25.92	41.812
Excess Air at Test Location, (%):	170.6697	170.6697	170.6697	170.6697

Velocity and Flow Calculations	Test 1	Test 2	Test 3	Average
Average Stack Gas Velocity, ft/s:	186.44	180.35	184.26	183.68
Stack Gas Flow Rate, ACFM:	2,683,250.29	2,595,488.12	2,651,813.21	2,643,517.21
Stack Gas Flow Rate, SCFM:	912,794.33	880,678.50	899,227.28	897,566.70
Stack Gas Flow Rate, DSCFM:	839,810.08	823,808.17	843,364.52	835,660.92

Formaldehyde Concentrations and Emissions	Test 1	Test 2	Test 3	spike	Average
Ambient Temperature:	75	75	75	75	
Meter Volume, Actual, liters:	15	15	15	15	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), liters, dry:	14.861	14.861	14.861	14.861	
Meter Volume, Actual, cf:	0.530	0.530	0.530	0.530	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	0.525	0.525	0.525	0.525	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	0.015	0.015	0.015	0.015	
Compound Molecular Weight:	30.0262	30.0262	30.0262	30.0262	
Weight (mg):	0.0084	0.0088	0.0064	0.741	7.87E-03
mg/dscm :	0.5652	0.5921	0.4306	49.86	5.29E-01
ppm:	0.4528	0.4744	0.3450	39.95	4.24E-01
mg/dscf:	0.0160	0.0168	0.0122	1.41	1.50E-02
lbs/hr:	1.7814	1.8306	1.3630	156.37	1.66E+00
lbs/MMBtu:	9.90E-04	1.02E-03	7.63E-04	8.75E-02	9.26E-04
lbs/MMSCF:	1.01E+00	1.05E+00	7.81E-01	8.96E+01	9.47E-01

VOC Concentration and Emissions	Test 1	Test 2	Test 3	Average
VOC Concentration, ppmv [1]:	1.00	1.00	1.00	1.00
VOC Concentration, ppmv dry, as propane[1]:	1.09	1.07	1.07	1.07
VOC Concentration, ppmv as propane, corrected to 15% O2:	0.891	0.876	0.874	0.88
VOC Emission Rate, lbs/hr:	6.28	6.06	6.19	6.17
VOC ppm to lb/scf Conversion Factor:	1.14E-07	1.14E-07	1.14E-07	
VOC Emission Rate, lbs/MMBtu	2.89E-03	2.89E-03	2.89E-03	2.89E-03
VOC Emission Rate, lbs/MMSCF	3.57	3.47	3.54	3.53

[1]VOC Concentration was less than the detection limit of the instrument. Minimum detection limit (1 ppm) was used

Sampling Calculations				
Client:	Dynegy			
Source:	Turbine 4	Site Location : Combined N & S outlet		
Project No:	16070427.00			
Date:	7/30/2007	7/30/2007	7/30/2007	
Test No:	#1	#2	#3	Average
Pitot Tube Calibration Factor:	0.84	0.84	0.84	
Meter Calibration Factor:	1.001	1.001	1.001	
Stack Length, inches:	123.8	123.8	123.8	
Stack Width, inches:	279	279	279	
Stack Diameter, inches:	0	0	0	
Nozzle Diameter, inches:	0.195	0.195	0.195	
Barometric Pressure, inches mercury:	30	30	30	
Static Pressure in Stack, inches water:	-1.3	-1.3	-1.3	
Duration of Sample, minutes:	125	125	125	
Meter Leak Rate, cfm:	0.000	0.001	0.000	
North Volume, cf:	32.13	31.04	31.06	
South Volume, cf :	33.065	37.342	37.61	
Average Meter Pressure, inches water:	0.88	0.96	0.97	
Average Meter Temperature, degrees F:	97.7	107.1	109.1	
Average Sqrt. Velocity Pressure, inches water :	1.3563	1.4081	1.4150	
Stack Gas Temperature, degrees F:	1111.5	1116.8	1117.6	1115.31
Percent Carbon Dioxide:	3.90	3.90	3.90	3.90
Percent Oxygen:	13.90	13.90	13.90	13.90
Percent Carbon Monoxide:	0	0	0	0.00
Liquid Volume Collected, milliliters:	62	126	126	104.67
Liquid Volume Collected, grams:	19.7	22.9	18.2	

Sample Train Calculations	Test 1	Test 2	Test 3	Average
Meter Volume, Actual, cf:	65.195	68.382	68.670	67.416
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	62.055	64.023	64.070	63.383
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	1.757	1.813	1.814	1.795
Vol. of H2O Collected, STP (68 deg. F, 29.92 in. Hg):	3.847	7.009	6.788	5.881
Total Gas Sampled, cf:	65.901	71.032	70.858	69.264
Percent Moisture:	5.84	9.87	9.58	8.428
Dry Molecular Weight, lb/lb-Mole:	29.180	29.180	29.180	29.180
Molecular Weight, at Stack Condition, lb/lb-Mole:	28.5274	28.0768	28.1090	28.238
Density Dry at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0754	0.0754	0.0754	0.075
Density Wet at STP (68 deg. F, 29.92 in. Hg), lb/cf:	0.0738	0.0726	0.0727	0.073
Density Wet at Stack Cond, lb/cf:	0.0248	0.0243	0.0243	0.024
Area of Stack, Square Feet:	239.8625	239.8625	239.8625	
Pounds of Gas Sampled, Dry:	4.6816	4.8300	4.8336	4.782
Pounds of Gas Sampled, Wet:	4.8604	5.1560	5.1492	5.055
Isokinetic Sampling Rate, (%):	95.50	98.52	97.88	97.301
Excess Air at Test Location, (%):	178.1869	178.1869	178.1869	178.1869

Velocity and Flow Calculations	Test 1	Test 2	Test 3	Average
Average Stack Gas Velocity, ft/s:	132.20	138.58	139.21	136.66
Stack Gas Flow Rate, ACFM:	1,902,536.24	1,994,345.90	2,003,427.88	1,966,770.00
Stack Gas Flow Rate, SCFM:	638,626.74	667,187.42	669,917.33	658,577.16
Stack Gas Flow Rate, DSCFM:	601,350.92	601,350.90	605,743.97	602,815.26

Particulate Calculations	Test 1	Test 2	Test 3	Average
Filterable Particulate:				
Weight, mg:	4.04	3.91	2.49	3.48
Particulate, Grains Per DSCF:	0.00100	0.00094	0.00060	0.00085
Total particulate, lbs/hr:	5.18	4.86	3.11	4.38
LBS/1000 LBS GAS, Actual (wet):	0.00183	0.00167	0.00107	0.00152
LBS/1000 LBS GAS, Dry:	0.00190	0.00178	0.00113	0.00160
Total particulate, lbs/MMBtu:	3.92E-03	3.68E-03	2.33E-03	3.31E-03
Total particulate, lbs/MMSCF:	4.01	3.77	2.39	3.39
Condensible Particulate (Organic) :				
Weight, mg:	0.60480	0.63720	0.73600	0.66
Organic Particulate, Grains Per DSCF:	0.00015	0.00015	0.00018	0.00016
Organic particulate, lbs/hr:	0.78	0.79	0.92	0.83
LBS/1000 LBS GAS, Actual (wet):	0.00027	0.00027	0.00032	0.00029
LBS/1000 LBS GAS, Dry:	0.00028	0.00029	0.00033	0.00030
Total particulate, lbs/MMBtu:	5.87E-04	5.99E-04	6.90E-04	6.25E-04
Total particulate, lbs/MMSCF:	0.60	0.61	0.71	0.64
Condensible Particulate (Inorganic) :				
Weight, mg:	0.18035	0.19555	0.16555	0.18
Inorganic Particulate, Grains Per DSCF:	0.00004	0.00005	0.00004	0.00004
Inorganic particulate, lbs/hr:	0.23	0.24	0.21	0.23
LBS/1000 LBS GAS, Actual (wet):	0.00008	0.00008	0.00007	0.00008
LBS/1000 LBS GAS, Dry:	0.00008	0.00009	0.00008	0.00008
Total particulate, lbs/MMBtu:	1.75E-04	1.84E-04	1.55E-04	1.71E-04
Total particulate, lbs/MMSCF:	0.18	0.19	0.16	0.18
Total Particulate :				
Weight, mg:	4.82479	4.74620	3.39246	4.32
Total particulate, Grains Per DSCF:	0.00120	0.00114	0.00082	0.00105
Total particulate, lbs/hr:	6.18	5.90	4.24	5.44
LBS/1000 LBS GAS, Actual (wet):	0.00219	0.00203	0.00145	0.00189
LBS/1000 LBS GAS, Dry:	0.00227	0.00216	0.00154	0.00199
Total particulate, lbs/MMBtu:	4.68E-03	4.46E-03	3.18E-03	4.11E-03
Total particulate, lbs/MMSCF:	4.79	4.57	3.25	4.20

Formaldehyde Concentrations and Emissions	Test 1	Test 2	Test 3	spike	Average
Ambient Temperature:	78	78	78	78	
Meter Volume, Actual, liters:	15	15	15	15	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), liters, dry:	14.763	14.763	14.763	14.763	
Meter Volume, Actual, cf:	0.530	0.530	0.530	0.530	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscf:	0.521	0.521	0.521	0.521	
Meter Volume, STP (68 deg. F, 29.92 in. Hg), dscm:	0.015	0.015	0.015	0.015	
Compound Molecular Weight:	30.0262	30.0262	30.0262	30.0262	
Weight (mg):	0.0038	0.0039	0.0041	0.7800	0.0039
mg/dscm :	0.2574	0.2641	0.2777	52.83	0.2664
ppm:	0.2062	0.2116	0.2225	42.3277	0.2134
mg/dscf:	0.0073	0.0075	0.0079	1.50	0.0075
lbs/hr:	0.5809	0.5961	0.6313	119.52	0.6028
lbs/MMBtu:	4.40E-04	4.51E-04	4.73E-04	8.96E-02	4.55E-04
lbs/MMSCF:	4.50E-01	4.62E-01	4.84E-01	9.17E+01	4.65E-01

VOC Concentration and Emissions	Test 1	Test 2	Test 3	Average
VOC Concentration, ppmv as propane[1]:	1.91	1.00	0.36	1.09
VOC Concentration, ppmv dry, as propane[1]:	2.03	1.11	0.40	1.18
VOC Concentration, ppmv as propane, corrected to 15% O2:	1.708	0.935	0.338	0.99
VOC Emission Rate, lbs/hr:	8.38	4.59	1.67	4.88
VOC ppm to lb/scf Conversion Factor:	1.14E-07	1.14E-07	1.14E-07	
VOC Emission Rate, lbs/MMBtu	5.68E-03	2.98E-03	1.08E-03	3.24E-03
VOC Emission Rate, lbs/MMSCF	6.50	3.56	1.28	3.78

[1]VOC Concentration was less than the detection limit of the instrument. Minimum detection limit (1 ppm) was used

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Mr. Larry Waite, P.E.
Dynegy Midwest Generation
3890 North Illinois Street
Swansea, Illinois 62226

January 28, 2008
16-070427-00

Re: Compliance Test Report Formaldehyde Corrections

Dear Mr. Waite:

Enclosed please find revised Executive Summary pages 1 and 2, Tables 2, 6, 10, and 14, and associated Calculations Sheets related to the formaldehyde volume correction discrepancy noted by the Michigan Department of Environmental Quality (MDEQ) in the Compliance Test Report for Emission Rate Determination at the Renaissance Power facility located in Carson City, Michigan.

If you have any questions concerning these revisions, please contact me at (616) 451-6262.

Sincerely,
NTH Consultants, Ltd.

Joe Mason

Joe Mason
Manager, Source Testing

performancereportrevisions