AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
- ENVIRONMENTAL
- GEOTECHNICAL
- MATERIALS
- FORENSICS

November 04, 2014

Air Enforcement and Compliance
Assurance Branch (AE-17J)
Air and Radiation Branch
EPA, Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Permit No. MIN-SM-27139R0004-2013-01
Air Emissions Test Report
Shakopee Mdewakanton Sioux Community
Dakotah! Sport and Fitness
2100 Trail of Dreams Prior Lake, MN 55372
AET Project 02-02120

Air Enforcement and Compliance Department:

On behalf of the Shakopee Mdewakanton Sioux Community (SMSC), I am submitting the enclosed test report. This report documents the results of the NO_x Air Emissions Testing conducted September 23-24, 2014 on Diesel Generator EU 204 and EU 214 (owned by SMSC) located at Dakotah! Sport and Fitness in Prior Lake, Minnesota. This testing was conducted in adherence to the requirements of US EPA Construction Permit Number: MIN-SM-27139R0004-2013-01. The compliance testing on generator EU 203 was not conducted due to generator malfunction. The testing on this generator will be rescheduled once the generator malfunction is repaired.

Please find the enclosed test report titled:
Report of Air Emissions Testing of Diesel Generators
Dakotah! Sport and Fitness
Report date: November 04, 2014

Sincerely,
American Engineering Testing, Inc.

Matthew M. DesJardins
Sr. Environmental Scientist, QSTI
651-659-1313
mdesjardins@amengtest.com

AMERICAN ENGINEERING TESTING, INC.

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Report of Air Emissions Testing on Diesel Generators

Dakotah! Sport and Fitness
2100 Trail of Dreams
Prior Lake, MN 55372

EPA Permit Number: MIN-SM-27139R0004-2013-01
AET #02-02120

Report Date:

November 04, 2014

Field Testing Dates:

September 23-24, 2014

Prepared for:

Stanley Ellison
Shakopee Mdewakanton Sioux Community
2330 Sioux Trail NW
Prior Lake, MN 55372

Prepared By:

American Engineering Testing, Inc.
550 Cleveland Avenue North
St. Paul, Minnesota 55114

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EXECUTIVE SUMMARY

Dakotah! Sport and Fitness – Prior Lake, Minnesota
American Engineering Testing, Inc.
Test Dates: September 23-24, 2014

Air emission testing was conducted on Generators: EU 204 and EU 214 during September 23-24, 2014. The results are summarized below:

Emission Unit No.	Pollutant	Fuel	Emission Limit	Test Result
Diesel Generator EU 204 SN: 1DGN03437	NOx	Diesel Fuel	37.59 Lbs/Hr	38.83 Lbs/Hr
Diesel Generator EU 214	NOx	Diesel Fuel	9.11 Lbs/Hr	8.60 Lbs/Hr

Diesel Generator (EU 204)

Air Emission Test Results- September 23, 2014

NO_x Test Results	Run #1	Run #2	Run #3	**Average**
Stack Oxygen, $\%_d$	8.5	8.3	8.2	**8.3**
NO_x, PPM_{vd}	1884	1878	1902	**1888**
F_d , dscf/10^6 Btu	9190	9190	9190	**9190**
NOx Emissions Rate, Lbs/MMBtu	3.48	3.42	3.42	**3.44**
NOx Emissions Rate, Lbs/Hr	39.13	38.93	38.43	**38.83**
Total Fuel Used, Gallons	82	83	82	**82**

Diesel Generator (EU 214)

Air Emission Test Results- September 24, 2014

NO_x Test Results	Run #1	Run #2	Run #3	**Average**
Outlet #1 Stack Airflow Rate, DSCFM	890	870	870	**877**
Outlet #2 Stack Airflow Rate, DSCFM	870	890	900	**887**
Outlet #1 NO_x, PPM_{vd}	702	687	677	**689**
Outlet #2 NO_x, PPM_{vd}	680	671	662	**671**
Outlet #1 NOx Emissions Rate, Lbs/Hr	4.48	4.29	4.23	**4.33**
Outlet #1 NOx Emissions Rate, Lbs/Hr	4.25	4.28	4.28	**4.27**
Total NOx Emissions Rate, Lbs/Hr	8.73	8.57	8.50	**8.60**
Total Diesel Fuel Used, Gallons	43	43	45	**44**

1.0 INTRODUCTION

This document reports the results of the compliance test program conducted at:

Dakotah! Sport and Fitness
2100 Trail of Dreams
Prior Lake, MN 55372

Generators Owned/Operated by:
Shakopee Mdewakanton Sioux Community (SMSC)
2330 Sioux Trail NW
Prior Lake, MN 55372

Compliance testing was conducted on September 23-24, 2014 on Generators EU 204 and EU 214. Testing on Generator EU 213 was attempted on September 25, 2014 but was postponed due to generator malfunction. Generator EU 213 testing will be rescheduled once the repair is made. This testing was performed to determine compliance with EPA Construction Permit Number: MIN-SM-27139R0004-2013-01. The compliance testing was conducted in accordance with the following documents:

Test Protocol for Air Emissions Testing on Diesel Generators EU 204, EU 213, and EU 214
Dakotah! Sport and Fitness – Prior Lake, MN
Date: August 22, 2014
Post Marked (Certified Mail): August 22, 2014
Received by EPA Region: August 29, 2014

Test Protocol Addendum
Dakotah! Sport and Fitness – Prior Lake, MN
Date: September 15, 2014
Post Marked (Certified Mail): September 15, 2014
Received by EPA Region: September 17, 2014

The test protocol documents are enclosed in Appendix F.

On-site testing activities were conducted by Austin Lesmeister, and Rob McMullen of American Engineering Testing. Testing was coordinated on-site by Mr. Simeon Matthews of SMSC. Generator operating data was recorded and provided by Ziegler Cat. This compliance testing was not witnessed by a representative from the United States Environmental Protection Agency.

2.0 PROCESS DESCRIPTIONS

Dakotah! Sport and Fitness is an enterprise of the Shakopee Mdewakanton Sioux Community (SMSC) and is located in Scott County in Minnesota on reservation lands held by United States Government in trust for SMSC. SMSC operates diesel generators used for emergency backup power and peak load management for the facility. All of the generators operate on ultra-low sulfur diesel fuel.

2.1 Testing Conditions

Air emission testing was conducted at the generator operating conditions listed in Appendix C.

3.0 SUMMARY OF RESULTS

3.1 Generator (EU 204) NOx Emissions Testing

Generator EU 204 air emission testing was conducted on September 23, 2014 during the time frame listed below:

Test Run #01 – 08:45-09:44 hrs. – 09/23/14
Test Run #02 – 10:08-11:07 hrs. – 09/23/14
Test Run #03 – 11:23-12:22 hrs. – 09/23/14

A summary of the monitoring is as follows:

1. The NO_x concentration was measured in accordance with EPA Method 7E and the percent Oxygen was determined using EPA Method 3A. EPA Method 19 was used for the determination of the fuel factor. The NOx emission rate averaged 38.83 Lbs/Hr during the three test runs. The NO_x emission results are summarized in Table 1. Emission results for the individual test runs are enclosed in Appendix A. The analyzer field data and datasheets are located in Appendix B.

3.2 Generator (EU 214) NOx Emissions Testing

Generator EU 214 air emission testing was conducted on September 24, 2014 during the time frame listed below:

Test Run #01 – 12:04-13:03 hrs. – 09/24/14
Test Run #02 – 13:35-14:34 hrs. – 09/24/14
Test Run #03 – 15:05-16:02 hrs. – 09/24/14

A summary of the monitoring is as follows:

1. The NO_x concentration was measured in accordance with EPA Method 7E. Oxygen and Carbon Dioxide were determined using EPA Method 3A. Generator EU 214 is configured with two exhaust stacks; therefore identical, simultaneous air emission testing was conducted on each stack to determine the total NOx emission rate for the unit. The total NOx emission rate averaged 8.60 Lbs/Hr during the three test runs. The NO_x emission results are summarized in Table 2. Emission results for the individual test runs are enclosed in Appendix A. The analyzer field data and datasheets are located in Appendix B.

4.0 TEST PROCEDURES

Testing was conducted in accordance with the methods and procedures detailed in the following sections.

4.1 Volumetric Airflow Measurement

Volumetric airflow measurements were conducted at the outlets of generator EU 214 once during each test run. The location of the sampling site and sampling points were determined in accordance with EPA Method 1. Upstream and downstream distances to flow disturbances were measured and used to determine the minimum number of traverse points. A stack schematic of the Generator EU 214 test locations is enclosed in Figure 1.

The stack gas velocity and volumetric flow rate were determined in accordance with EPA Method 2. An electronic digital manometer in conjunction with an S-type pitot tube was used to measure the pressure differential at each traverse point. The stack temperature was measured using a digital thermometer and a type-k thermocouple. Ambient pressure was determined using a calibrated altimeter. EPA Method 3A was used to determine the dry stack gas molecular weight at the generator outlets. The Carbon Dioxide content was determined from the integrated gas sample (Tedlar bag) that was collected during each test run.

Stack gas moisture content was determined in accordance with EPA Test Method 4 using the large impinger technique. Temperatures were measured using a digital thermometer and fast-responding, low-mass thermocouples.

Calibration data for equipment used during testing is enclosed in Appendix E. Calculations and nomenclature used to determine volumetric airflow rates are enclosed in Appendix D.

4.2 Oxygen (O2) Concentration Measurement

Oxygen (O_2) measurements were conducted in accordance with EPA Test Method 3A. O_2 was measured in percent dry using a California Analytical Instrument, model 601P (paramagnetic) analyzer. The sample was extracted from the stack using a heated stainless steel probe, filter, and heated Teflon™ sample line. The stack gas was passed through a thermo-electric gas conditioner system to remove moisture prior to analysis using the paramagnetic analyzer. The analyzer was calibrated prior to testing and drift checks were performed following each test run. Analyzer calibration gas cylinder certificates are enclosed in Appendix E. Calculations and nomenclatures used are enclosed in Appendix D.

4.3 Nitrogen Oxides (NOx) Concentration Measurement

Nitrogen Oxides measurements were conducted in accordance with EPA Method 7E. NO_x was measured in PPM_{vd} using a using a chemiluminescence analyzer. The samples were extracted from the stack using a heated stainless steel probe, filter, and heated Teflon™ sample line. The stack gas passed through a thermo-electric gas conditioning system to remove moisture prior to analysis using a chemiluminescence analyzer. The analyzers were calibrated prior to testing and drift checks were performed following each test run. The NO_x and O_2 concentrations were used to calculate the Lbs/MMBtu emission rate on Generator EU 204. This rate combined with the generator's heat input was used to calculate the Lbs/Hr emission rate. Generator EU 214 NOx mass emission rate was measured utilizing stack airflow and the NOx gas concentration.

Analyzer calibration gas cylinder certificates are enclosed in Appendix E. Calculations and nomenclatures used are enclosed in Appendix D.

5.0 SIGNATURES

The services performed by American Engineering Testing, Inc. for this project have been conducted in a manner consistent with that level of skill and care ordinarily exercised by other members of the profession currently practicing in this area. The results included in this report relate only to the items being tested and at the time and conditions present during this test.

We verify that the test procedures were performed in accordance with the approved test plan and that the data presented in this test report are, to the best of our knowledge and belief, true, accurate, and complete.

Report Prepared By:
American Engineering Testing, Inc.

Matthew M. DesJardins, QSTI
Sr. Environmental Scientist

Report Reviewed By:
American Engineering Testing, Inc.

Camilla Pederson, PE
Senior Engineer

Tables

Table 1

Summary of Diesel Generator (EU204) Outlet Exhaust Emissions
Dakotah! Sport and Fitness- Prior Lake , MN
September 23, 2014
AET Project # 02-02120

Parameter	Run #1	Run #2	Run #3	Average
Run Time	8:45-9:44	10:08-11:07	11:23-12:22	
Stack Oxygen, $\%_{dry}$	8.5	8.3	8.2	**8.3**
F_d, dscf/10^6 BTU	9190	9190	9190	**9190**
Diesel Fuel Heating Value, BTU/gal	137,000	137,000	137,000	**137,000**
Generator Heat Input, MMBtu/Hr	11.23	11.37	11.23	**11.28**
NO_X Emission Results				
NO_x Concentration, PPMvd	1884	1878	1902	**1888**
NO_x Mass Rate, Lbs/MMBtu	3.48	3.42	3.42	**3.44**
NO_x Mass Rate, Lbs/Hr	39.13	38.93	38.43	**38.83**
Generator Operating Data				
Total Fuel used , (Gals)	82	83	82	**82**
Diesel Fuel Usage Rate , (Gals/Hr)	82	83	82	**82**
Generator Engine Speed, RPM	1800	1800	1800	**1800**
Generator Rate, KW	1153	1153	1153	**1153**

Table 2

Summary of Diesel Generator (EU214) Outlet Exhaust Emissions
Dakotah! Sport and Fitness - Prior Lake, MN
September 24, 2014
AET # 02-02120

Parameter	**Test Run #1**		**Test Run #2**		**Test Run #3**		**Averages**	
Test Location	**Outlet #1**	**Outlet #2**	**Outlet #1**	**Outlet #2**	**Outlet #1**	**Outlet #2**	**Outlet #1**	**Outlet #2**
Test Run Time	12:04-13:03		13:35-14:34		15:05-16:02			
Stack Temperature, °F	863	756	768	767	781	777	**804**	**766**
Stack Oxygen, $\%_{dry}$	10.3	10.1	10.2	10.0	10.1	9.9	**10.20**	**10.01**
Stack Carbon Dioxide, %dry	8.1	8.2	8.2	8.2	8.2	8.2	**8.17**	**8.20**
Moisture, %	9.45	9.02	8.28	8.00	8.65	8.20	**8.79**	**8.41**
Stack Flow Rate, DSCFM	890	870	870	890	870	900	**877**	**887**
NO_X Emission Results								
NO_X Concentration, PPMvd	702	680	687	671	677	662	**689**	**671**
NO_X Mass Rate, Lbs/Hr	4.48	4.25	4.29	4.28	4.23	4.28	**4.33**	**4.27**
Total Generator NO_X Mass Rate, Lbs/Hr	8.73		8.57		8.50		**8.60**	
Generator Operating Data								
Total Fuel used, (Gals)	43		43		45		**44**	
Diesel Fuel Usage Rate, (Gals/Hr)	43		43		45		**44**	
Generator Engine Speed, RPM	1,800		1,800		1,800		**1,800**	
Generator Rate, KW	557		557		557		**557**	

Figures

AMERICAN ENGINEERING TESTING, INC.	**PROJECT: Dakotah! Sport and Fitness Diesel Generator Testing**			**AET Project No.02-02120**
	SUBJECT: Generator EU 214 Test Locations **Outlet 1 and Outlet 2: Stack Diameters = 7.75 Inches A=5.0 Inches B=28.0 Inches**			**DATE 11/03/14**
	SCALE: NA	**DRAWN BY:** MMD	**CHECKED BY:** MMD	**Figure 1**

Appendix A

Analyzer Monitoring Results

Analyzer Monitoring Results Run #1

Diesel Generator EU 204
Dakotah! Sport and Fitness- Prior Lake , MN
AET Project # 02-02120

Date	Time	Outlet O_2 [%]	Outlet NOx [ppm_v]
9/23/2014	8:45	8.5	1807
9/23/2014	8:46	8.4	1807
9/23/2014	8:47	8.4	1815
9/23/2014	8:48	8.4	1819
9/23/2014	8:49	8.5	1823
9/23/2014	8:50	8.4	1826
9/23/2014	8:51	8.4	1824
9/23/2014	8:52	8.4	1834
9/23/2014	8:53	8.4	1831
9/23/2014	8:54	8.4	1836
9/23/2014	8:55	8.5	1837
9/23/2014	8:56	8.4	1836
9/23/2014	8:57	8.4	1830
9/23/2014	8:58	8.4	1821
9/23/2014	8:59	8.4	1827
9/23/2014	9:00	8.4	1834
9/23/2014	9:01	8.4	1832
9/23/2014	9:02	8.4	1829
9/23/2014	9:03	8.3	1831
9/23/2014	9:04	8.3	1832
9/23/2014	9:05	8.4	1843
9/23/2014	9:06	8.4	1839
9/23/2014	9:07	8.4	1842
9/23/2014	9:08	8.3	1837
9/23/2014	9:09	8.4	1837
9/23/2014	9:10	8.5	1844
9/23/2014	9:11	8.5	1836
9/23/2014	9:12	8.5	1827
9/23/2014	9:13	8.5	1822
9/23/2014	9:14	8.4	1820
9/23/2014	9:15	8.4	1820
9/23/2014	9:16	8.4	1817
9/23/2014	9:17	8.5	1825
9/23/2014	9:18	8.5	1817
9/23/2014	9:19	8.5	1817
9/23/2014	9:20	8.5	1816
9/23/2014	9:21	8.5	1864
9/23/2014	9:22	8.5	1851
9/23/2014	9:23	8.5	1849
9/23/2014	9:24	8.4	1839
9/23/2014	9:25	8.4	1840
9/23/2014	9:26	8.5	1829
9/23/2014	9:27	8.4	1836
9/23/2014	9:28	8.4	1823
9/23/2014	9:29	8.4	1819
9/23/2014	9:30	8.5	1831
9/23/2014	9:31	8.4	1829
9/23/2014	9:32	8.4	1821
9/23/2014	9:33	8.4	1821
9/23/2014	9:34	8.4	1824
9/23/2014	9:35	8.4	1819
9/23/2014	9:36	8.4	1831
9/23/2014	9:37	8.4	1830
9/23/2014	9:38	8.4	1826
9/23/2014	9:39	8.3	1849
9/23/2014	9:40	8.4	1853
9/23/2014	9:41	8.3	1842
9/23/2014	9:42	8.4	1830
9/23/2014	9:43	8.4	1840
9/23/2014	9:44	8.4	1829
	Average:	8.4	1830
	Start Zero Value:	0.1	2.7
	End Zero Value:	0.0	4.5
	Start Upscale Value:	11.0	949
	End Upscale Value:	11.0	941
	Actual Upscale Value:	11.1	971
	Bias Adjusted Average:	**8.5**	**1884**

Analyzer Monitoring Results Run #2

Diesel Generator EU 204
Dakotah! Sport and Fitness- Prior Lake , MN
AET Project # 02-02120

Date	Time	Outlet O_2 [%]	Outlet NOx [ppm_v]
9/23/2014	10:08	8.3	1803
9/23/2014	10:09	8.3	1815
9/23/2014	10:10	8.3	1813
9/23/2014	10:11	8.3	1816
9/23/2014	10:12	8.3	1821
9/23/2014	10:13	8.3	1818
9/23/2014	10:14	8.3	1822
9/23/2014	10:15	8.3	1821
9/23/2014	10:16	8.2	1813
9/23/2014	10:17	8.3	1818
9/23/2014	10:18	8.3	1827
9/23/2014	10:19	8.3	1834
9/23/2014	10:20	8.3	1873
9/23/2014	10:21	8.3	1854
9/23/2014	10:22	8.3	1842
9/23/2014	10:23	8.3	1835
9/23/2014	10:24	8.3	1843
9/23/2014	10:25	8.3	1838
9/23/2014	10:26	8.3	1832
9/23/2014	10:27	8.3	1822
9/23/2014	10:28	8.2	1802
9/23/2014	10:29	8.2	1802
9/23/2014	10:30	8.3	1817
9/23/2014	10:31	8.3	1820
9/23/2014	10:32	8.2	1805
9/23/2014	10:33	8.3	1814
9/23/2014	10:34	8.3	1817
9/23/2014	10:35	8.3	1817
9/23/2014	10:36	8.3	1811
9/23/2014	10:37	8.3	1814
9/23/2014	10:38	8.2	1806
9/23/2014	10:39	8.2	1809
9/23/2014	10:40	8.3	1819
9/23/2014	10:41	8.2	1815
9/23/2014	10:42	8.3	1823
9/23/2014	10:43	8.3	1817
9/23/2014	10:44	8.3	1821
9/23/2014	10:45	8.2	1820
9/23/2014	10:46	8.2	1808
9/23/2014	10:47	8.3	1818
9/23/2014	10:48	8.2	1815
9/23/2014	10:49	8.3	1822
9/23/2014	10:50	8.2	1827
9/23/2014	10:51	8.1	1848
9/23/2014	10:52	8.2	1836
9/23/2014	10:53	8.1	1835
9/23/2014	10:54	8.2	1834
9/23/2014	10:55	8.2	1842
9/23/2014	10:56	8.2	1857
9/23/2014	10:57	8.2	1865
9/23/2014	10:58	8.1	1879
9/23/2014	10:59	8.1	1869
9/23/2014	11:00	8.2	1872
9/23/2014	11:01	8.2	1879
9/23/2014	11:02	8.2	1888
9/23/2014	11:03	8.2	1875
9/23/2014	11:04	8.1	1859
9/23/2014	11:05	8.1	1865
9/23/2014	11:06	8.2	1859
9/23/2014	11:07	8.2	1866
	Average:	8.2	1832
	Start Zero Value:	0.0	4.49
	End Zero Value:	0.0	5.65
	Start Upscale Value:	11.0	941
	End Upscale Value:	11.0	958
	Actual Upscale Value:	11.1	971
	Bias Adjusted Average:	**8.3**	**1878**

Analyzer Monitoring Results Run #3

Diesel Generator EU 204

Dakotah! Sport and Fitness- Prior Lake , MN

AET Project # 02-02120

Date	Time	Outlet O_2 [%]	Outlet NOx [ppm_v]
9/23/2014	11:23	8.1	1856
9/23/2014	11:24	8.1	1856
9/23/2014	11:25	8.1	1874
9/23/2014	11:26	8.1	1875
9/23/2014	11:27	8.1	1864
9/23/2014	11:28	8.2	1862
9/23/2014	11:29	8.2	1883
9/23/2014	11:30	8.1	1858
9/23/2014	11:31	8.0	1844
9/23/2014	11:32	8.0	1861
9/23/2014	11:33	8.0	1874
9/23/2014	11:34	8.1	1883
9/23/2014	11:35	8.0	1860
9/23/2014	11:36	8.1	1862
9/23/2014	11:37	8.1	1883
9/23/2014	11:38	8.1	1883
9/23/2014	11:39	8.1	1882
9/23/2014	11:40	8.1	1884
9/23/2014	11:41	8.2	1883
9/23/2014	11:42	8.1	1866
9/23/2014	11:43	8.1	1866
9/23/2014	11:44	8.1	1862
9/23/2014	11:45	8.1	1872
9/23/2014	11:46	8.1	1855
9/23/2014	11:47	8.1	1870
9/23/2014	11:48	8.1	1870
9/23/2014	11:49	8.0	1878
9/23/2014	11:50	8.1	1872
9/23/2014	11:51	8.1	1876
9/23/2014	11:52	8.1	1891
9/23/2014	11:53	8.0	1877
9/23/2014	11:54	8.0	1879
9/23/2014	11:55	8.0	1883
9/23/2014	11:56	8.0	1874
9/23/2014	11:57	8.1	1878
9/23/2014	11:58	8.1	1886
9/23/2014	11:59	8.1	1886
9/23/2014	12:00	8.1	1881
9/23/2014	12:01	8.1	1884
9/23/2014	12:02	8.1	1879
9/23/2014	12:03	8.0	1881
9/23/2014	12:04	8.1	1864
9/23/2014	12:05	8.2	1872
9/23/2014	12:06	8.1	1866
9/23/2014	12:07	8.1	1884
9/23/2014	12:08	8.0	1860
9/23/2014	12:09	8.1	1883
9/23/2014	12:10	8.1	1869
9/23/2014	12:11	8.1	1864
9/23/2014	12:12	8.0	1853
9/23/2014	12:13	8.0	1863
9/23/2014	12:14	7.9	1888
9/23/2014	12:15	8.0	1891
9/23/2014	12:16	8.0	1883
9/23/2014	12:17	8.1	1901
9/23/2014	12:18	8.1	1905
9/23/2014	12:19	8.2	1902
9/23/2014	12:20	8.1	1867
9/23/2014	12:21	8.1	1881
9/23/2014	12:22	8.1	1885
	Average:	8.1	1875
	Start Zero Value:	0.0	5.65
	End Zero Value:	0.0	4.70
	Start Upscale Value:	11.0	958
	End Upscale Value:	11.0	961
	Actual Upscale Value:	11.1	971
	Bias Adjusted Average:	**8.16**	**1902**

Analyzer Monitoring Results Run #1

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
AET # 02-02120

		Outlet #1		Outlet #2	
Date	**Time**	**O_2 [%]**	**NO_x [ppm_v]**	**O_2 [%]**	**NO_x [ppm_v]**
9/24/2014	12:04	10.1	676	10.1	685
9/24/2014	12:05	10.1	685	10.1	690
9/24/2014	12:06	10.0	674	10.0	688
9/24/2014	12:07	10.1	672	10.0	691
9/24/2014	12:08	10.1	672	10.0	693
9/24/2014	12:09	10.1	669	10.1	690
9/24/2014	12:10	10.1	667	10.0	690
9/24/2014	12:11	10.1	666	10.0	690
9/24/2014	12:12	10.1	666	10.0	687
9/24/2014	12:13	10.1	678	10.1	691
9/24/2014	12:14	10.1	672	10.0	686
9/24/2014	12:15	10.1	670	10.0	685
9/24/2014	12:16	10.1	669	10.0	688
9/24/2014	12:17	10.1	679	10.0	691
9/24/2014	12:18	10.1	673	10.0	690
9/24/2014	12:19	10.1	671	10.0	687
9/24/2014	12:20	10.1	676	10.0	689
9/24/2014	12:21	10.1	681	10.0	690
9/24/2014	12:22	10.1	682	10.0	691
9/24/2014	12:23	10.1	678	10.0	692
9/24/2014	12:24	10.1	688	10.1	690
9/24/2014	12:25	10.0	678	10.0	690
9/24/2014	12:26	10.1	684	10.0	693
9/24/2014	12:27	10.1	685	10.0	689
9/24/2014	12:28	10.1	677	10.0	687
9/24/2014	12:29	10.0	675	10.0	686
9/24/2014	12:30	10.1	687	10.0	688
9/24/2014	12:31	10.1	684	10.0	688
9/24/2014	12:32	10.0	673	10.0	687
9/24/2014	12:33	10.1	682	10.0	691
9/24/2014	12:34	10.1	677	10.0	688
9/24/2014	12:35	10.0	679	10.0	687
9/24/2014	12:36	10.0	685	10.0	691
9/24/2014	12:37	10.0	687	10.0	694
9/24/2014	12:38	10.0	699	10.0	694
9/24/2014	12:39	10.0	696	10.0	694
9/24/2014	12:40	10.1	689	10.0	691
9/24/2014	12:41	10.1	688	10.0	690
9/24/2014	12:42	10.0	679	10.0	695
9/24/2014	12:43	10.0	686	10.0	694
9/24/2014	12:44	10.1	683	10.0	693
9/24/2014	12:45	10.1	686	10.0	690
9/24/2014	12:46	10.0	672	10.0	690
9/24/2014	12:47	10.0	672	10.0	691
9/24/2014	12:48	10.1	676	10.0	692
9/24/2014	12:49	10.1	669	10.0	690
9/24/2014	12:50	10.0	671	10.0	690
9/24/2014	12:51	10.0	680	10.0	688
9/24/2014	12:52	10.0	672	10.0	692
9/24/2014	12:53	10.0	673	10.0	693
9/24/2014	12:54	10.0	675	10.0	694
9/24/2014	12:55	10.0	671	10.0	692
9/24/2014	12:56	10.0	672	10.0	693
9/24/2014	12:57	10.1	686	10.0	692
9/24/2014	12:58	10.1	672	10.0	692
9/24/2014	12:59	10.1	672	10.0	690
9/24/2014	13:00	10.0	665	10.0	687
9/24/2014	13:01	10.1	667	10.0	692
9/24/2014	13:02	10.1	666	10.0	690
9/24/2014	13:03	10.1	665	10.0	691
	Average:	10.1	677	10.0	690
	Start Zero Value:	0.0	1	0.1	1
	End Zero Value:	0.0	3	0.1	3
	Start Upscale Value:	10.9	485	11.1	500
	End Upscale Value:	10.9	473	11.0	507
	Actual Upscale Value:	11.1	496	11.1	496
	Bias Adjusted Average:	**10.3**	**702**	**10.1**	**680**

Analyzer Monitoring Results Run #2

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
AET # 02-02120

		Outlet #1		Outlet #2	
Date	**Time**	**O_2 [%]**	**NO_x [ppm_v]**	**O_2 [%]**	**NO_x [ppm_v]**
9/24/2014	13:35	10.1	655	10.0	684
9/24/2014	13:36	10.1	656	10.0	684
9/24/2014	13:37	10.0	656	10.0	683
9/24/2014	13:38	10.1	659	10.0	685
9/24/2014	13:39	10.1	661	10.0	683
9/24/2014	13:40	10.1	685	10.0	686
9/24/2014	13:41	10.0	669	10.0	685
9/24/2014	13:42	10.1	671	10.0	686
9/24/2014	13:43	10.1	663	10.0	684
9/24/2014	13:44	10.0	655	10.0	680
9/24/2014	13:45	10.0	673	10.0	682
9/24/2014	13:46	10.0	666	10.0	679
9/24/2014	13:47	10.1	681	10.0	683
9/24/2014	13:48	10.0	667	10.0	682
9/24/2014	13:49	10.1	660	10.0	684
9/24/2014	13:50	10.0	661	10.0	683
9/24/2014	13:51	10.0	661	10.0	684
9/24/2014	13:52	10.0	660	10.0	685
9/24/2014	13:53	10.0	660	10.0	684
9/24/2014	13:54	10.0	658	10.0	682
9/24/2014	13:55	10.0	657	10.0	682
9/24/2014	13:56	10.1	657	10.0	680
9/24/2014	13:57	10.0	654	9.9	678
9/24/2014	13:58	10.0	659	10.0	685
9/24/2014	13:59	10.0	656	9.9	684
9/24/2014	14:00	10.0	660	9.9	687
9/24/2014	14:01	10.0	660	10.0	686
9/24/2014	14:02	10.0	661	10.0	682
9/24/2014	14:03	10.0	689	10.0	681
9/24/2014	14:04	10.0	676	9.9	677
9/24/2014	14:05	10.0	674	10.0	678
9/24/2014	14:06	10.0	668	10.0	679
9/24/2014	14:07	10.0	665	10.0	678
9/24/2014	14:08	10.0	660	10.0	676
9/24/2014	14:09	10.0	660	10.0	682
9/24/2014	14:10	10.0	658	10.0	680
9/24/2014	14:11	10.0	659	10.0	681
9/24/2014	14:12	10.0	656	10.0	679
9/24/2014	14:13	10.0	672	10.0	681
9/24/2014	14:14	10.0	660	10.0	678
9/24/2014	14:15	10.0	665	9.9	681
9/24/2014	14:16	10.0	659	10.0	683
9/24/2014	14:17	10.0	670	9.9	681
9/24/2014	14:18	10.0	668	9.9	682
9/24/2014	14:19	10.0	666	9.9	679
9/24/2014	14:20	10.0	669	10.0	680
9/24/2014	14:21	10.0	668	10.0	681
9/24/2014	14:22	10.0	671	9.9	679
9/24/2014	14:23	10.0	662	10.0	681
9/24/2014	14:24	10.0	673	9.9	679
9/24/2014	14:25	10.0	664	9.9	683
9/24/2014	14:26	10.0	672	9.9	680
9/24/2014	14:27	10.0	676	9.9	682
9/24/2014	14:28	10.0	661	10.0	680
9/24/2014	14:29	10.0	665	9.9	680
9/24/2014	14:30	10.0	674	9.9	677
9/24/2014	14:31	10.0	685	9.9	679
9/24/2014	14:32	10.0	684	9.9	677
9/24/2014	14:33	10.0	686	9.9	677
9/24/2014	14:34	10.0	680	9.9	679
	Average:	10.0	666	10.0	681
	Start Zero Value:	0.0	3	0.1	3
	End Zero Value:	-0.1	4	0.1	2
	Start Upscale Value:	10.9	473	11.0	507
	End Upscale Value:	10.8	491	11.0	502
	Actual Upscale Value:	11.1	496	11.1	496
	Bias Adjusted Average:	**10.2**	**687**	**10.0**	**671**

Analyzer Monitoring Results Run #3

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
AET # 02-02120

		Outlet #1		Outlet #2	
Date	**Time**	**O_2 [%]**	**NO_x [ppm_v]**	**O_2 [%]**	**NO_x [ppm_v]**
9/24/2014	15:03	9.9	674	9.9	666
9/24/2014	15:04	9.9	665	9.8	661
9/24/2014	15:05	9.9	675	9.8	674
9/24/2014	15:06	9.9	679	9.9	676
9/24/2014	15:07	9.9	674	9.9	671
9/24/2014	15:08	9.9	681	9.9	669
9/24/2014	15:09	9.9	672	9.9	670
9/24/2014	15:10	9.9	669	9.9	675
9/24/2014	15:11	9.9	680	9.9	676
9/24/2014	15:12	9.9	676	9.9	674
9/24/2014	15:13	9.9	676	9.9	674
9/24/2014	15:14	9.9	668	9.9	670
9/24/2014	15:15	9.9	675	9.9	670
9/24/2014	15:16	9.9	677	9.9	670
9/24/2014	15:17	9.9	683	9.9	669
9/24/2014	15:18	9.9	678	9.8	676
9/24/2014	15:19	9.9	670	9.8	673
9/24/2014	15:20	9.9	674	9.8	673
9/24/2014	15:21	9.9	675	9.9	672
9/24/2014	15:22	9.9	681	9.8	673
9/24/2014	15:23	9.9	675	9.9	673
9/24/2014	15:24	9.9	669	9.9	671
9/24/2014	15:25	9.9	665	9.8	674
9/24/2014	15:26	9.9	674	9.8	675
9/24/2014	15:27	9.9	674	9.9	676
9/24/2014	15:28	9.9	676	9.8	676
9/24/2014	15:29	9.9	670	9.8	678
9/24/2014	15:30	9.9	670	9.8	676
9/24/2014	15:31	9.9	668	9.9	670
9/24/2014	15:32	9.9	670	9.8	669
9/24/2014	15:33	9.9	672	9.8	677
9/24/2014	15:34	9.9	670	9.9	676
9/24/2014	15:35	9.9	670	9.9	675
9/24/2014	15:36	9.9	675	9.9	676
9/24/2014	15:37	9.9	670	9.8	672
9/24/2014	15:38	9.9	669	9.8	668
9/24/2014	15:39	9.9	672	9.8	675
9/24/2014	15:40	9.8	670	9.8	676
9/24/2014	15:41	9.9	669	9.8	671
9/24/2014	15:42	9.9	675	9.8	676
9/24/2014	15:43	9.9	673	9.9	674
9/24/2014	15:44	9.9	664	9.8	668
9/24/2014	15:45	9.9	668	9.9	671
9/24/2014	15:46	9.9	670	9.9	667
9/24/2014	15:47	9.9	672	9.9	667
9/24/2014	15:48	9.9	669	9.9	665
9/24/2014	15:49	9.9	669	9.8	665
9/24/2014	15:50	9.9	668	9.9	668
9/24/2014	15:51	9.9	676	9.9	668
9/24/2014	15:52	9.9	673	9.8	670
9/24/2014	15:53	9.9	671	9.8	670
9/24/2014	15:54	9.9	677	9.8	669
9/24/2014	15:55	9.9	669	9.9	667
9/24/2014	15:56	9.9	671	9.9	667
9/24/2014	15:57	9.9	666	9.8	666
9/24/2014	15:58	9.9	676	9.8	669
9/24/2014	15:59	9.9	663	9.8	668
9/24/2014	16:00	9.9	664	9.8	671
9/24/2014	16:01	9.9	670	9.8	673
9/24/2014	16:02	9.9	670	9.8	674
	Average:	9.9	672	9.8	671
	Start Zero Value:	-0.1	4	0.1	2
	End Zero Value:	-0.1	2	0.1	3
	Start Upscale Value:	10.8	491	11.0	502
	End Upscale Value:	10.8	495	11.0	505
	Actual Upscale Value:	11.1	496	11.1	496
	Bias Adjusted Average:	**10.1**	**677**	**9.9**	**662**

Appendix B

Analyzer Field Data and Data Sheets

AMERICAN ENGINEERING TESTING, INC.

EPA METHOD 3A
ANALYZER MONITORING
DATA SHEET

Client Name:	Dakotah! Sport and Fitness- Prior Lake , MN		Project Title:	Diesel Generator Testing	
Project Number:	AET Project # 02-02120		Client Contact:	Stanley Ellison	
Test Location:	Diesel Generator EU 204		Test Number: 10	Test Date: 9/23/2014	Duct Diameter: 11.75

Calibration Gas Composition	Cylinder No.	Cylinder Values O_2, %
Zero Nitrogen	SG880981	0.0
High-Level Span O_2/CO_2 in N_2	CC125527	21.3
Mid-Level Span O_2/CO_2 in N_2	EB0016054	11.1

Test Times:

Run #1	8:45-9:44
Run #2	10:08-11:07
Run #3	11:23-12:22

O_2 Analyzer System		Calibration Time, hrs:	6:48	O_2 Analyzer System		Calibration Time, hrs:	
O_2 Analyzer ID #:	14-0146	O_2 Analyzer Range, %:	25	O_2 Analyzer ID #:		O_2 Analyzer Range, %:	

O_2 Analyzer Calibration	Cylinder Value, %	Analyzer Response, %	Absolute Difference, %	Difference, % of Span
Zero Gas, %	0.0	0.0	0.0	0.0%
High-Level Span, %	21.3	21.3	0.0	0.1%
Mid-Level Span, %	11.1	11.1	0.0	-0.1%

O_2 Analyzer Recalibration	Cylinder Value, %	Analyzer Response, %	Absolute Difference, %	Difference, % of Span
Zero Gas, %				
High-Level Span, %				
Mid-Level Span, %				

System Bias Check	Cylinder Value, %	System Response, %	Absolute Difference, %	Difference, % of span
Zero Gas, %	0.0	0.1	0.1	0.2%
Upscale Gas, %	11.1	11.0	-0.1	-0.6%

System Bias Check	Cylinder Value, %	System Response, %	Absolute Difference, %	Difference, % of span
Zero Gas, %				
Upscale Gas, %				

Stratification Test Time, hrs: 8:45		O_2 %, 1 min. average	O_2 %, Deviation from Mean	Result:
Diameter x 0.167, in	2.0	8.5	0.0	Single Point
Diameter x 0.500, in	5.9	8.4	0.0	
Diameter x 0.833, in	9.8	8.4	0.0	

Response Test

	O_2 Time, Sec	Average Response Time, Sec:
Zero Gas to High Span	38	38
High Span to Zero Gas	37	

System Drift Checks	Time, Hrs	Initial System Response, %	Final System Response, %	Post Run System Drift, % of Span	System Performance, % of Span
Zero Gas, %	9:45	0.1	0.0	0.0%	0.2%
Upscale Gas, %		11.0	11.0	0.0%	-0.6%
Zero Gas, %	11:08	0.0	0.0	0.0%	0.2%
Upscale Gas, %		11.0	11.0	0.0%	-0.6%
Zero Gas, %	12:23	0.0	0.0	0.0%	0.2%
Upscale Gas, %		11.0	11.0	0.0%	-0.6%
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					

System Drift Checks	Time, Hrs	Initial System Response, %	Final System Response, %	Post Run System Drift, % of Span	System Performance, % of Span
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					

Analyzer Calibration Error =

$$\frac{\text{Analyzer Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 2% of Span or ≤ 0.5 % (whichever is larger)

Pre-Run System Bias =

$$\frac{\text{System Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 % (whichever is larger)

Post-Run System Bias and Drift =

$$\frac{\text{Final System Response - Initial System Response}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 % (whichever is larger)

Note: Recalibration Required if System Bias/Drift Exceeds 3%.

Form Completed by:	AJL	Date Completed: 9/23/2014	Present on Site:
Data Reviewed by:	MD	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114	REV - 063014

AMERICAN ENGINEERING TESTING, INC.

EPA METHOD 7E
ANALYZER MONITORING
DATA SHEET

Client Name:	Dakotah! Sport and Fitness- Prior Lake , MN	Project Title:	Dakotah! Sport and Fitness- Prior Lake , MN		
Project Number:	AET Project # 02-02120	Client Contact:	Stanley Ellison		
Test Location:	Diesel Generator EU 204	Test Number:	10	Test Date: 9/23/2014	Duct Diameter: 11.75

Calibration Gas Composition	Cylinder No.	Cylinder Values NO_x [ppm_v]
Zero Nitrogen	SG880981	0.0
High-Level Span NO_x in N_2	ALM024833	1960
Mid-Level Span NO_x in N_2	EB0023213	971

Test Times:

Run #1	8:45-9:44
Run #2	10:08-11:07
Run #3	11:23-12:22

NO_x Analyzer System		Calibration Time, hrs:	7:20
NO_x Analyzer ID #:	205929	NO_x Analyzer Range [ppm_v]:	5000

NO_x Analyzer Calibration	Cylinder Value, ppm_v	Analyzer Response, ppm_v	Absolute Difference, ppm_v	Difference, % of Span
Zero Gas, %	0	1	1	0.0%
High-Level Span, %	1960	1950	-10	-0.5%
Mid-Level Span, %	971	976	5	0.3%

System Bias Check	Cylinder Value, ppmv	System Response, ppmv	Absolute Difference, ppmv	Difference, % of span
Zero Gas, ppmv	0	3	3	0.1%
Upscale Gas, ppmv	971	949	-22	-1.1%

Stratification Test Time, hrs: 8:45	NO_x, ppm_v, 1 min. average	NO_x ppm_v, Deviation from Mean	Result:
Diameter x 0.167, in 2.0	1807	0.6%	Single Point
Diameter x 0.500, in 5.9	1819	0.1%	
Diameter x 0.833, in 9.8	1824	0.4%	

Converter Efficiency Test	Result	Converter Test Time/ Date
NO_x Peak Concentration, ppm_v:	967.0	7:51
NO_x Final Concentration, ppm_v:	951.8	9/23/14
NO_x Percent Conversion	98.4%	

Response Test	Time, Sec
Zero Gas to High Span	40
High Span to Zero Gas	40
Average Response Time, Sec:	40

System Drift Checks	Time, Hrs	Initial System Response, ppm_v	Final System Response, ppm_v	Post Run System Drift, % of Span	System Performance, % of Span
Zero Gas, %	9:45	3	4	0.1%	0.2%
Upscale Gas, %		949	941	-0.4%	-1.5%
Zero Gas, %	11:08	4	6	0.1%	0.3%
Upscale Gas, %		941	958	0.9%	-0.7%
Zero Gas, %	12:23	6	5	0.0%	0.2%
Upscale Gas, %		958	961	0.2%	-0.5%
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					

NO_x Analyzer System		Calibration Time, hrs:	
NO_x Analyzer ID #:		NO_x Analyzer Range [ppm_v]:	

NO_x Analyzer Recalibration	Cylinder Value, ppm_v	Analyzer Response, ppm_v	Absolute Difference, %	Difference, % of Span
Zero Gas, %				
High-Level Span, %				
Mid-Level Span, %				

System Bias Check	Cylinder Value, ppm_v	Analyzer Response, ppm_v	Absolute Difference, ppm_v	Difference, % of span
Zero Gas, ppmv				
Upscale Gas, ppmv				

System Drift Checks	Time, Hrs	Initial System Response, ppm_v	Final System Response, ppm_v	Post Run System Drift, % of Span	System Performance, % of Span
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					

Analyzer Calibration Error =

$$\frac{\text{Analyzer Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 2% of Span or ≤ 0.5 ppm (whichever is larger)

Pre-Run System Bias =

$$\frac{\text{System Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 ppm (whichever is larger)

Post-Run System Bias and Drift =

$$\frac{\text{Final System Response - Initial System Response}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 ppm (whichever is larger)

Recalibration Required if System Drift ≥ 3%.

Form Completed by: AJL	Date Completed: 9/23/2014	Present on Site:
Data Reviewed by: MD	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114	REV - 070114

EPA METHOD 3A
ANALYZER MONITORING
DATA SHEET

Client Name:	Dakotah! Sport and Fitness - Prior Lake, MN	Project Title:	2014 Generator Testing
Project Number:	AET # 02-02120	Client Contact:	Simeon Matthews
Test Location:	Generac Diesel Generator EU 214	Test Number: 2	Test Date: 9/24/2014 — Duct Diameter: 7.75

Calibration Gas Composition	Cylinder No.	Cylinder Values O_2 [%]
Zero Nitrogen	SG880981	0.0
High-Level Span O_2/CO_2 in N_2	CC125527	21.3
Mid-Level Span O_2/CO_2 in N_2	EB0016054	11.1

Test Times:

Run #1	12:04-13:03
Run #2	13:35-14:34
Run #3	15:05-16:02

O_2 Analyzer System #1		Calibration Time, hrs:	7:25
O_2 Analyzer ID #:	14-0146	O_2 Analyzer Range [%]:	25

O_2 Analyzer Calibration	Cylinder Value, %	Analyzer Response, %	Absolute Difference, %	Difference, % of Span
Zero Gas, %	0.0	-0.1	-0.1	-0.2%
High-Level Span, %	21.3	21.2	-0.1	-0.3%
Mid-Level Span, %	11.1	11.0	-0.1	-0.4%

System Bias Check	Cylinder Value, %	System Response, %	Absolute Difference, %	Difference, % of span
Zero Gas, %	0.0	0.0	0.0	-0.1%
Upscale Gas, %	11.1	10.9	-0.2	-0.9%

Stratification Test Time, hrs: 9:35		O_2 %, 1 min. average	O_2 %, Deviation from Mean	O_2 %, 1 min. average	O_2 %, Deviation from Mean
Diameter x 0.167, in	1.3	9.8	0.0	9.5	0.0
Diameter x 0.500, in	3.9	9.8	0.0	9.5	0.0
Diameter x 0.833, in	6.5	9.8	0.0	9.5	0.0

System Drift Checks	Time, Hrs	Initial System Response, %	Final System Response, %	Post Run System Drift, % of Span	System Performance, % of Span
Zero Gas, %	13:16	0.0	0.0	0.0%	-0.2%
Upscale Gas, %		10.9	10.9	-0.2%	-1.1%
Zero Gas, %	14:35	0.0	-0.1	-0.1%	-0.3%
Upscale Gas, %		10.9	10.8	-0.1%	-1.2%
Zero Gas, %	16:13	-0.1	-0.1	0.0%	-0.3%
Upscale Gas, %		10.8	10.8	-0.1%	-1.3%
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					

O_2 Analyzer System #2		Calibration Time, hrs:	7:25
O_2 Analyzer ID #:	205920	CO_2 Analyzer Range [%]:	25

O_2 Analyzer Calibration	Cylinder Value, %	Analyzer Response, %	Absolute Difference, %	Difference, % of Span
Zero Gas, %	0.0	0.0	0.0	0.2%
High-Level Span, %	21.3	21.3	0.0	0.0%
Mid-Level Span, %	11.1	11.1	0.0	0.1%

System Bias Check	Cylinder Value, %	System Response, %	Absolute Difference, %	Difference, % of span
Zero Gas, %	0.0	0.1	0.1	0.5%
Upscale Gas, %	11.1	11.1	0.0	-0.2%

Result:	Response Test	System 1, Sec	System 2, Sec
Single Point	Zero Gas to High Span	25	45
	High Span to Zero Gas	24	43

System Drift Checks	Time, Hrs	Initial System Response, %	Final System Response, %	Post Run System Drift, % of Span	System Performance, % of Span
Zero Gas, %	13:04	0.1	0.1	-0.1%	0.4%
Upscale Gas, %		11.1	11.0	-0.2%	-0.4%
Zero Gas, %	14:48	0.1	0.1	0.0%	0.3%
Upscale Gas, %		11.0	11.0	0.0%	-0.5%
Zero Gas, %	16:03	0.1	0.1	0.0%	0.3%
Upscale Gas, %		11.0	11.0	0.1%	-0.4%
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					

Analyzer Calibration Error =

$$\frac{\text{Analyzer Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 2% of Span or ≤ 0.5 % (whichever is larger)

Pre-Run System Bias =

$$\frac{\text{System Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 % (whichever is larger)

Post-Run System Bias and Drift =

$$\frac{\text{Final System Response - Initial System Response}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 % (whichever is larger)

Recalibration Required if System Drift ≥ 3%.

Form Completed by:	AJL	Date Completed: 9/24/2014	Present on Site:
Data Reviewed by:	MD	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114	REV - 070114

AMERICAN ENGINEERING TESTING, INC.

EPA METHOD 7E
ANALYZER MONITORING
DATA SHEET

Client Name:	Dakotah! Sport and Fitness - Prior Lake, MN	Project Title:	2014 Generator Testing		
Project Number:	AET # 02-02120	Client Contact:	Simeon Matthews		
Test Location:	Generac Diesel Generator EU 214	Test Number:	2	Test Date: 9/24/2014	Duct Diameter: 7.75

Calibration Gas Composition	Cylinder No.	Cylinder Values NO_x [ppm_v]
Zero Nitrogen	SG880981	0.0
High-Level Span NO_x in N_2	EB0023213	971.0
Mid-Level Span NO_x in N_2	EB0027078	496.0

Test Times:

Run #1	12:04-13:03
Run #2	13:35-14:34
Run #3	15:05-16:02

NO_x Analyzer System #1		Calibration Time, hrs:	7:25		NO_x Analyzer System #2		Calibration Time, hrs:		7:25
NO_x Analyzer ID #:	205929	NO_x Analyzer Range [ppm_v]:	1000		NO_x Analyzer ID #:	14-0131	NO_x Analyzer Range [ppm_v]:		1000
NO_x Analyzer Calibration	Cylinder Value, ppm_v	Analyzer Response, ppm_v	Absolute Difference, ppm_v	Difference, % of Span	**NO_x Analyzer Recalibration**	Cylinder Value, ppm_v	Analyzer Response, ppm_v	Absolute Difference, %	Difference, % of Span
Zero Gas, %	0	0	0	0.0%	Zero Gas, %	0	0	0	0.0%
High-Level Span, %	971	974	3	0.3%	High-Level Span, %	971	974	3	0.4%
Mid-Level Span, %	496	495	-1	-0.1%	Mid-Level Span, %	496	505	9	1.0%
System Bias Check	Cylinder Value, ppmv	System Response, ppmv	Absolute Difference, ppmv	Difference, % of span	**System Bias Check**	Cylinder Value, ppm_v	Analyzer Response, ppm_v	Absolute Difference, ppm_v	Difference, % of span
Zero Gas, ppmv	0	1	1	0.1%	Zero Gas, ppmv	0	1	1	0.1%
Upscale Gas, ppmv	496	485	-11	-1.1%	Upscale Gas, ppmv	496	500	4	0.5%

Stratification Test Time, hrs: 9:35		NO_x, ppm_v, 1 min. average	NO_x ppm_v, Deviation from Mean	**Result:**	**Converter Efficiency Test**	Result	Converter Test Time/ Date	**Response Test**	Time, Sec
Diameter x 0.167, in	1.3	530	2.4%	**Single Point**	NO_x Peak Concentration, ppm_v:	630.5	8:07	Zero Gas to High Span	45
Diameter x 0.500, in	3.9	517	0.2%		NO_x Final Concentration, ppm_v:	622.2	9/24/2014	High Span to Zero Gas	45
Diameter x 0.833, in	6.5	506	2.2%		NO_x Percent Conversion	98.7%		Average Response Time, Sec:	45

System Drift Checks	Time, Hrs	Initial System Response, ppm_v	Final System Response, ppm_v	Post Run System Drift, % of Span	System Performance, % of Span	**System Drift Checks**	Time, Hrs	Initial System Response, ppm_v	Final System Response, ppm_v	Post Run System Drift, % of Span	System Performance, % of Span
Zero Gas, %	13:16	1	3	0.2%	0.3%	Zero Gas, %	13:04	1	3	0.2%	0.3%
Upscale Gas, %		485	473	-1.3%	-2.4%	Upscale Gas, %		500	507	0.7%	1.2%
Zero Gas, %	14:35	3	4	0.1%	0.4%	Zero Gas, %	14:48	3	2	-0.1%	0.2%
Upscale Gas, %		473	491	1.9%	-0.6%	Upscale Gas, %		507	502	-0.6%	0.6%
Zero Gas, %	16:13	4	2	-0.2%	0.2%	Zero Gas, %	16:03	2	3	0.1%	0.3%
Upscale Gas, %		491	495	0.5%	-0.1%	Upscale Gas, %		502	505	0.4%	0.9%
Zero Gas, %						Zero Gas, %					
Upscale Gas, %						Upscale Gas, %					
Zero Gas, %						Zero Gas, %					
Upscale Gas, %						Upscale Gas, %					

Analyzer Calibration Error =

$$\frac{\text{Analyzer Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 2% of Span or ≤ 0.5 ppm (whichever is larger)

Pre-Run System Bias =

$$\frac{\text{System Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 ppm (whichever is larger)

Post-Run System Bias and Drift =

$$\frac{\text{Final System Response - Initial System Response}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 ppm (whichever is larger)

Recalibration Required if System Drift ≥ 3%.

Form Completed by: AJL	Date Completed: 9/24/2014		Present on Site:
Data Reviewed by: MD	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114		REV - 070114

AMERICAN ENGINEERING TESTING, INC.

EPA METHOD 3A
ANALYZER MONITORING
DATA SHEET

	Dakotah! Sport and Fitness - Prior Lake, MN	Project Title:	Diesel Generator Testing
Project Number:	AET # 02-02120	Client Contact:	Simeon Matthews

Test Location:	**Diesel Generator EU 214**			Duct Diameter:	N.A.				
Test No:	1	O_2 Analyzer ID #:	14-0130	CO_2 Analyzer ID #:	14-0130				
Date:	9/24/2014	Analyzer Range, %:	25	Analyzer Range, %	25				

Calibration Gas Composition	**Cylinder No.**	Cylinder Values	
		O2	CO2
Zero Nitrogen	SG880981	0.0	0.0
High-Level Span O2/CO2 in N2	CC125527	21.3	21.0
Mid-Level Span O2/CO2 in N2	EB0016054	11.1	10.7

Analysis Times:

Run #1	10:16
Run #2	0:00
Run #3	0:00

O_2 Analyzer System			**Time, hrs:**	**16:25**	**CO_2 Analyzer System**			**Time, hrs:**	**16:25**
O_2 Analyzer Calibration	Cylinder Value, %	Analyzer Response, %	Absolute Difference, %	Difference, % of Span	**CO_2 Analyzer Calibration**	Cylinder Value, %	Analyzer Response, %	Absolute Difference, %	Difference, % of Span
Zero Gas, %	0.0	0.0	0.0	0.0%	Zero Gas, %	0.0	0.0	0.0	0.0%
High-Level Span, %	21.3	21.3	0.0	0.0%	High-Level Span, %	21.0	21.0	0.0	0.0%
Mid-Level Span, %	11.1	11.1	0.0	0.0%	Mid-Level Span, %	10.7	10.9	0.2	1.0%
System Drift Checks	Time, Hrs	Initial Sys Cal Response, %	Final Sys Cal Response, %	System Drift/Bias, % of Span	**System Drift Checks**	Time, Hrs	Initial Sys Cal Response, %	Final Sys Cal Response, %	System Drift/Bias, % of Span
Zero Gas, %	16:39	0.0	0.0	0.0%	Zero Gas, %	16:39	0.0	0.0	0.0%
Upscale Gas, %		11.1	11.1	0.0%	Upscale Gas, %		10.9	10.9	0.0%
Zero Gas, %					Zero Gas, %				
Upscale Gas, %					Upscale Gas, %				
Zero Gas, %					Zero Gas, %				
Upscale Gas, %					Upscale Gas, %				
Zero Gas, %					Zero Gas, %				
Upscale Gas, %					Upscale Gas, %				
Zero Gas, %					Zero Gas, %				
Upscale Gas, %					Upscale Gas, %				

Analyzer Calibration Error =

$$\frac{\text{Analyzer Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 2% of Span or ≤ 0.5 % (whichever is larger)

Pre-Run System Bias =

$$\frac{\text{System Response - Analyzer Response}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 % (whichever is larger)

Post-Run System Bias and Drift =

$$\frac{\text{Final System Response - Initial System Response}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 % (whichever is larger)

Note: Recalibration Required if System Bias/Drift Exceeds 3%.

Form Completed by:	AJL	Date Completed:	9/24/2014	Present on Site:	
Data Reviewed by:	MD	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114			REV - 013004

	Outlet #1					
	T1R1 16:30		T1R2 16:31		T1R3 16:32	
	O_2	CO_2	O_2	CO_2	O_2	CO_2
Average Result, %:	10.2	8.3	10.1	8.4	10.2	8.4
Start Zero Value, %:	0.0	0.0	0.0	0.0	0.0	0.0
End Zero Value, %:	0.0	0.0	0.0	0.0	0.0	0.0
Start Upscale Value, %:	11.1	10.9	11.1	10.9	11.1	10.9
End Upscale Value, %:	11.1	10.9	11.1	10.9	11.1	10.9
Actual Upscale Value, %:	11.1	10.7	11.1	10.7	11.1	10.7
Bias Adjusted, %:	10.2	8.1	10.1	8.2	10.2	8.2

	Outlet #2					
	T1R1 16:33		T1R2 16:34		T1R3 16:35	
	O_2	CO_2	O_2	CO_2	O_2	CO_2
Average Result, %:	9.9	8.4	9.8	8.4	9.8	8.4
Start Zero Value, %:	0.0	0.0	0.0	0.0	0.0	0.0
End Zero Value, %:	0.0	0.0	0.0	0.0	0.0	0.0
Start Upscale Value, %:	11.1	10.9	11.1	10.9	11.1	10.9
End Upscale Value, %:	11.1	10.9	11.1	10.9	11.1	10.9
Actual Upscale Value, %:	11.1	10.7	11.1	10.7	11.1	10.7
Bias Adjusted, %:	9.9	8.2	9.8	8.2	9.8	8.2

Air Flow Results

Dakotah! Sport and Fitness- Prior Lake, MN
Generator EU 214
AET # 02-02120

Unit Tested:	Generator EU 214 Outlet #1
Test Location:	Stack
Stack Diameter, in:	7.75
Stack Length, in:	
Stack Width, in:	
Stack Area, sq ft	0.33
Conducted by:	RPM

Run Number			1		2		3	
Test Time, hrs.			9:36					
Test Date			9/24/2014		9/24/2014		9/24/2014	
Ambient Press, "Hg			29.20		29.20		29.20	
Static Press, "H2O			-1.070		-1.070		-1.090	
Pitot No.			14-P3270		14-P3270		14-P3270	
Pitot Cp			0.84		0.84		0.84	
% Oxygen			10.1		10.2		10.1	
% Carbon Dioxide			8.10		8.20		8.20	
Dry Bulb Temp, °F			763		768		781	
Point	Insertion	a°	Dp	SqRt Dp	Dp	SqRt Dp	Dp	SqRt Dp
A-1	3.2	0	1.350	1.162	1.250	1.118	1.330	1.153
2	3.8	0	1.420	1.192	1.310	1.145	1.240	1.114
3	4.5	0	1.730	1.315	1.430	1.196	1.400	1.183
4	5.5	0	1.830	1.353	1.520	1.233	1.560	1.249
5	8.2	0	1.970	1.404	2.250	1.500	2.270	1.507
6	9.2	0	1.990	1.411	2.190	1.480	2.190	1.480
7	9.9	0	2.230	1.493	2.210	1.487	2.230	1.493
8	10.5	0	2.300	1.517	1.440	1.200	2.150	1.466
B-1	3.2	0	1.400	1.183	1.210	1.100	1.230	1.109
2	3.8	0	1.560	1.249	1.480	1.217	1.250	1.118
3	4.5	0	1.800	1.342	1.410	1.187	1.300	1.140
4	5.5	0	1.880	1.371	2.010	1.418	1.720	1.311
5	8.2	0	2.110	1.453	2.260	1.503	2.250	1.500
6	9.2	0	2.320	1.523	2.180	1.476	2.390	1.546
7	9.9	0	2.160	1.470	2.200	1.483	2.200	1.483
8	10.5	0	2.270	1.507	2.240	1.497	2.120	1.456
	Average	0	1.895	1.371	1.787	1.327	1.802	1.332

Air Flow Results			
Parameter	Run #1	Run #2	Run #3
% Moisture	9.5	8.3	8.7
Stack Press, in.Hg	29.12	29.12	29.12
Molecular Wt, dry	29.70	29.72	29.72
Molecular Wt, wet	28.59	28.75	28.71
FPM	7,160	6,928	6,990
ACFM	2,300	2,300	2,300
SCFM	990	950	950
DSCFM	890	870	870

Air Flow Results

Dakotah! Sports and Fitness - Prior Lake, MN
EU 214 Outlet #2
AET # 02-02120

Unit Tested:	Generac Diesel Generator EU 214
Test Location:	EU 214 Outlet #2
Stack Diameter, in:	7.75
Stack Length, in:	
Stack Width, in:	
Stack Area, sq ft	0.33
Conducted by:	RPM

Run Number			1		2		3	
Test Time, hrs.			12:45		14:05		15:15	
Test Date			9/24/2014		9/24/2014		9/24/2014	
Ambient Press, "Hg			29.20		29.20		29.20	
Static Press, "H2O			-0.980		-1.060		-1.080	
Pitot No.			14-3270		14-3270		14-3270	
Pitot Cp			0.84		0.84		0.84	
% Oxygen			10.1		10.0		9.9	
% Carbon Dioxide			8.2		8.2		8.2	
Dry Bulb Temp, °F			756		767		777	
Point	Insertion	a°	Dp	SqRt Dp	Dp	SqRt Dp	Dp	SqRt Dp
A-1	3.2	0	1.350	1.162	1.370	1.170	1.360	1.166
2	3.8	0	1.400	1.183	1.430	1.196	1.500	1.225
3	4.5	0	1.560	1.249	1.620	1.273	1.740	1.319
4	5.5	0	1.490	1.221	1.550	1.245	1.790	1.338
5	8.2	0	2.090	1.446	2.490	1.578	2.070	1.439
6	9.2	0	2.320	1.523	2.230	1.493	2.160	1.470
7	9.9	0	2.150	1.466	2.060	1.435	2.140	1.463
8	10.5	0	2.050	1.432	2.130	1.459	2.240	1.497
B-1	3.2	0	1.240	1.114	1.160	1.077	1.380	1.175
2	3.8	0	1.410	1.187	1.250	1.118	1.360	1.166
3	4.5	0	1.250	1.118	1.870	1.367	1.650	1.285
4	5.5	0	1.650	1.285	1.770	1.330	1.930	1.389
5	8.2	0	1.830	1.353	1.940	1.393	2.170	1.473
6	9.2	0	2.150	1.466	2.190	1.480	2.240	1.497
7	9.9	0	2.220	1.490	2.360	1.536	2.230	1.493
8	10.5	0	2.180	1.476	2.160	1.470	2.230	1.493
	Average	0	1.771	1.323	1.849	1.351	1.887	1.368

Air Flow Results			
Parameter	Run #1	Run #2	Run #3
% Moisture	9.0	8.0	8.2
Stack Press, in.Hg	29.13	29.12	29.12
Molecular Wt, dry	29.71	29.71	29.71
Molecular Wt, wet	28.66	28.77	28.75
FPM	6,880	7,045	7,163
ACFM	2,300	2,300	2,300
SCFM	950	970	980
DSCFM	870	890	900

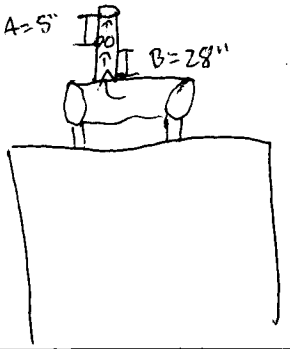
AMERICAN ENGINEERING TESTING, INC.

EPA Method 2
(Except where noted)

Client Name: SMSC - Dakota Sports + Fitness	Project Title: 2014 Generator Testing
Contact: Simeon Matthews	Project Number: 02-02120
Unit Tested: Generator EU 214 #	Test Location: Outlet #1

Test Data	T2 R1	T2 R2	T2 R3				Stack/Duct Information
Test Time	12:40	14:00	15:30				Configuration: Round
Test Date	9/24/14	9/24/14	9/24/14				Orientation: Vertical
Pitot Tube Leak Check	PASS	PASS	PASS				
Ambient Pressure in. Hg	29.20	29.20	29.20				Dimensions in: 7.75"
Static Pressure in. H20	-1.07	-1.07	-1.09				Distance Upstream ~~ft~~: 5"
Pitot Tube Coefficient, C_p	0.84	0.84	0.84				Distance Downstream ~~ft~~: 28"
O_2% (Method)	10.3	10.2	10.1				Port Dia. in: 2"
CO_2% (Method)	8.1	8.2	8.2				Port Length in: 3"
Wet Bulb °F (EPA Method 4)	—	—	—				Traverse Points: ~~8~~ 16
Dry Bulb °F (EPA Method 4)	763	768	781				Traverse Matrix: 2x8

No.	T-Ins. in.	a°	Δp	Δp	Δp	Δp	Δp	Δp	Conducted By: RPM
A 1	3.2	0	1.35	1.25	1.33				Equipment Information
2	3.8	0	1.42	1.31	1.24				Manometer ID: 14-0121
3	4.5	0	1.73	1.43	1.40				Thermometer ID: 14-1749T
4	5.5	0	1.83	1.52	1.56				Thermocouple ID: ~~14-E18~~
5	8.2	0	1.97	2.25	2.27				Thermocouple ID: 14-E18
6	9.2	0	1.99	2.19	2.19				Pitot Tube ID: 14-P3270
7	9.9	0	2.23	2.21	2.23				Barometer ID: 14-1272
8	10.5	0	2.30	1.44	2.15				Schematic of Stack
B 1	3.2	0	1.40	1.31	1.23				
2	3.8	0	1.56	1.21	1.25				
3	4.5	0	1.80	1.48	1.30				
4	5.5	0	1.88	1.41	1.72				
5	8.2	0	2.11	2.01	2.25				
6	9.2	0	2.32	2.26	2.39				
7	9.9	0	2.16	2.18	2.20				
8	10.5	0	2.27	2.20	2.12				
Average:		0	-----		-----		-----		



AMERICAN ENGINEERING TESTING, INC.

EPA Method 2
(Except where noted)

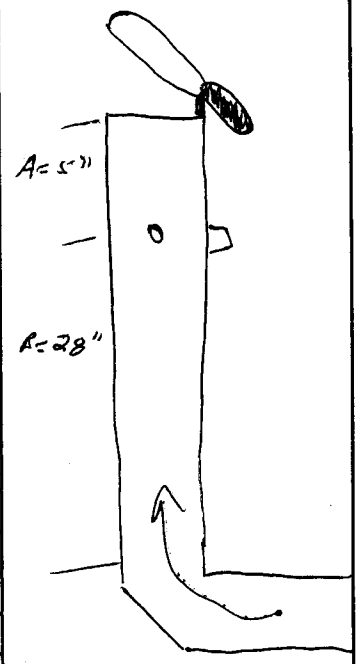
Page 1 of 1

Client Name: SMSC - Dakotah! Sports + Fitness	Project Title: 2014 Generator Testing
Contact: Simeon Matthews	Project Number: 02-02054
Unit Tested: Generac EU214	Test Location: Outlet #2

Test Data	T2R1	T2R2	T2R3				Stack/Duct Information
Test Time	12:45	14:05	15:25				Configuration: Round
Test Date	9/24/14	9/24/14	9/24/14				Orientation: Vertical
Pitot Tube Leak Check	PASS	PASS	PASS				
Ambient Pressure in. Hg	29.20	29.20	29.20				Dimensions in: 7.75"
Static Pressure in. H20	-0.98	-1.06	-1.08				Distance Upstream ft: 5"
Pitot Tube Coefficient, C_p	0.84	0.84	0.84				Distance Downstream ft.: 28"
O_2% (Method)	10.1	10.0	9.9				Port Dia. in: 2"
CO_2% (Method)	8.2	8.2	8.2				Port Length in: 3.25"
Wet Bulb °F (EPA Method 4)	—	—	—				Traverse Points: 16
Dry Bulb °F (EPA Method 4)	756	767	777				Traverse Matrix: 2x8

No.	T-Ins. in.	a°	Δp	Δp	Δp	Δp	Δp	Δp	Conducted By: RPM
A 1	3.2	0	1.35	1.37	1.36				Equipment Information
2	3.8	0	1.40	1.43	1.50				Manometer ID: 14-0121
3	4.5	0	1.56	1.62	1.74				Thermometer ID: 14-1748T
4	5.5	0	1.49	1.55	1.79				Thermocouple ID: 14-A18
5	8.2	0	2.09	2.49	2.07				Thermocouple ID: —
6	9.2	0	2.32	2.23	2.16				Pitot Tube ID: 14-P3270
7	9.9	0	2.15	2.06	2.14				Barometer ID: 14-1272
8	10.5	0	2.05	2.13	2.14				
B 1	3.2	0	1.24	1.16	1.38				
2	3.8	0	1.41	1.25	1.36				
3	4.5	0	1.25	1.47	1.65				
4	5.5	0	1.65	1.77	1.93				
5	8.2	0	1.83	1.94	2.17				
6	9.2	0	2.15	2.19	2.24				
7	9.9	0	2.22	2.36	2.23				
8	10.5	0	2.18	2.16	2.23				
Average:		0	-----		-----		-----		

Schematic of Stack



Method 4 Results Run #1

Generator EU 214 Outlet #1
Dakotah! Sport and Fitness- Prior Lake, MN
AET # 02-02120

Test Data	
Run Number:	1
Test Date:	09/24/14
Run Time, hrs:	12:04-13:04
Point Interval, hrs:	0:05:00
Conducted By:	RPM

Sampling Train Data	
Console ID Number:	14-1749
DGM Calibration Factor - Y_d:	0.998
Orifice DH@:	1.713
Thermocouple ID Number:	14-E18
Barometer ID Number:	14-1272
Probe Length, ft:	6'
Probe Liner Material:	SS
Ambient Pressure - Pbar, °F:	29.2
Stack Gas Molecular Weight:	29.70

Sample Volume Data	
Absolute Pm, in. Hg:	29.27
Absolute Tm, °R	534.5
Sample Volume - Vm, cuft:	33.83
Sample Volume - Vm(std), cuft:	32.614

Wet Catch Results		Initial Weight, g	Final Weight, g
Impinger #1-	Water	574.9	627.4
Impinger #2-	Water	634.9	639.1
Impinger #3-	Water		
Impinger #4-	Drierite	978.2	993.7
Total Initial Weight - Wi, g:			2,188.0
Total Final Weight - Wf, g:			2,260.2
Water Collected-Vlc,ml:			72.3
Proportion by Volume - Bws:			0.0945
Moisture Content, %:			9.45

Post-Test Leak Test - Sampling Train	
Test Vacuum, in. Hg:	6
Initial DGM, cuft:	95.444
Final DGM, cuft:	95.444
Test Time, min:	1
Leak Rate, cfm:	0.000
Max. Leak Rate, cfm:	0.02
Max. Leak Rate, %:	0.023
Test Status:	Pass

Post-Test Meter Calibration	
DGM Calibration Check Value - $Y_{qa:}$	1.022
DGM Calibration Factor - Y:	0.998
Difference, %	2.4

Test Time, hrs.	Clock Time, hrs.	DGM Reading cuft	Orifice Diff. DH, "H20	Vacuum	Stack Temp, °F	DGM Temp IN, °F	DGM Temp OUT, °F	Impinger Outlet Temp, °F
0:00:00	12:04	61.220	1.00	2	762	74	73	58
0:05:00	12:09	64.660	1.00	2	763	74	73	57
0:10:00	12:14	67.255	1.00	2	764	75	73	49
0:15:00	12:19	70.000	1.00	2	763	75	73	45
0:20:00	13:04	72.910	1.00	2	762	75	73	45
0:25:00	13:09	75.745	1.00	2	759	76	73	44
0:30:00	13:14	78.580	1.00	2	763	76	74	45
0:35:00	13:19	82.420	1.00	2	765	76	74	45
0:40:00	13:24	84.220	1.00	2	762	76	74	45
0:45:00	13:29	87.155	1.00	2	763	76	74	46
0:50:00	13:34	89.800	1.00	2	762	76	74	46
0:55:00	13:39	92.600	1.00	2	764	76	74	47
1:00:00	13:44	95.050	- - -	- - -	- - -	- - -	- - -	- - -
60	1:40	33.830	1.000	2.0	762.7	75.4	73.5	47.7

Form Completed by:	RPM	Date Completed: 9/24/2014	Present on Site:
Data Reviewed by:	MD	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114	REV - 063014

Method 4 Results Run #2

Generator EU 214 Outlet #1
Dakotah! Sport and Fitness- Prior Lake, MN
AET # 02-02120

Test Data	
Run Number:	2
Test Date:	09/24/14
Run Time, hrs:	13:35-14:35
Point Interval, hrs:	0:05:00
Conducted By:	RPM

Sampling Train Data	
Console ID Number:	14-1749
DGM Calibration Factor - Y_d:	0.998
Orifice DH@:	1.713
Thermocouple ID Number:	14-E18
Barometer ID Number:	14-1272
Probe Length, ft:	6'
Probe Liner Material:	SS
Ambient Pressure - Pbar, °F:	29.2
Stack Gas Molecular Weight:	29.70

Sample Volume Data	
Absolute Pm, in. Hg:	29.28
Absolute Tm, °R	537
Sample Volume - Vm, cuft:	35.33
Sample Volume - Vm(std), cuft:	33.913

Wet Catch Results	Initial Weight, g	Final Weight, g
Impinger #1- Water	627.4	682.7
Impinger #2- Water	639.1	640.4
Impinger #3- Water		
Impinger #4- Drierite	965.4	973.7
Total Initial Weight - Wi, g:		2,231.9
Total Final Weight - Wf, g:		2,296.8
Water Collected-Vlc,ml:		65.0
Proportion by Volume - Bws:		0.0828
Moisture Content, %:		8.28

Post-Test Leak Test - Sampling Train	
Test Vacuum, in. Hg:	6
Initial DGM, cuft:	131.130
Final DGM, cuft:	131.132
Test Time, min:	1
Leak Rate, cfm:	0.002
Max. Leak Rate, cfm:	0.02
Max. Leak Rate, %:	0.024
Test Status:	Pass

Post-Test Meter Calibration	
DGM Calibration Check Value - $Y_{qa:}$	1.029
DGM Calibration Factor - Y:	0.998
Difference, %	3.1

Test Time, hrs.	Clock Time, hrs.	DGM Reading cuft	Orifice Diff. DH, "H20	Vacuum	Stack Temp, °F	DGM Temp IN, °F	DGM Temp OUT, °F	Impinger Outlet Temp, °F
0:00:00	13:35	95.750	1.10	3	766	76	74	61
0:05:00	13:40	98.770	1.10	3	763	77	74	59
0:10:00	13:45	101.790	1.10	3	769	77	75	54
0:15:00	13:50	104.760	1.10	3	770	78	75	50
0:20:00	13:55	107.700	1.10	3	769	78	76	50
0:25:00	14:00	110.630	1.10	3	769	78	76	50
0:30:00	14:05	113.560	1.10	3	765	78	76	50
0:35:00	14:10	116.470	1.10	3	770	79	76	50
0:40:00	14:15	119.400	1.10	3	767	79	76	50
0:45:00	14:20	122.330	1.10	3	768	79	77	51
0:50:00	14:25	125.250	1.10	3	770	79	77	51
0:55:00	14:30	128.170	1.10	3	772	79	77	51
1:00:00	14:35	131.080	- - -	- - -	- - -	- - -	- - -	- - -
60	1:00	35.330	1.100	3.0	768.2	78.1	75.8	52.3

Form Completed by:	RPM	Date Completed: 9/24/2014	Present on Site:
Data Reviewed by:	MD	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114	REV - 063014

Method 4 Results Run #3

Generator EU 214 Outlet #1
Dakotah! Sport and Fitness- Prior Lake, MN
AET # 02-02120

Test Data	
Run Number:	3
Test Date:	09/24/14
Run Time, hrs:	15:03-16:03
Point Interval, hrs:	0:05:00
Conducted By:	RPM

Sampling Train Data	
Console ID Number:	14-1749
DGM Calibration Factor - Y_d:	0.998
Orifice DH@:	1.713
Thermocouple ID Number:	14-E18
Barometer ID Number:	14-1272
Probe Length, ft:	6'
Probe Liner Material:	SS
Ambient Pressure - Pbar, °F:	29.2
Stack Gas Molecular Weight:	29.70

Sample Volume Data	
Absolute Pm, in. Hg:	29.28
Absolute Tm, °R	540.7
Sample Volume - Vm, cuft:	35.73
Sample Volume - Vm(std), cuft:	34.063

Wet Catch Results		Initial Weight, g	Final Weight, g
Impinger #1-	Water	682.7	739.7
Impinger #2-	Water	640.4	642.4
Impinger #3-	Water		
Impinger #4-	Drierite	974.7	984.1
Total Initial Weight - Wi, g:			2,297.8
Total Final Weight - Wf, g:			2,366.2
Water Collected-Vlc,ml:			68.5
Proportion by Volume - Bws:			0.0865
Moisture Content, %:			8.65

Post-Test Leak Test - Sampling Train	
Test Vacuum, in. Hg:	7
Initial DGM, cuft:	167.450
Final DGM, cuft:	167.452
Test Time, min:	1
Leak Rate, cfm:	0.002
Max. Leak Rate, cfm:	0.02
Max. Leak Rate, %:	0.024
Test Status:	Pass

Post-Test Meter Calibration	
DGM Calibration Check Value - $Y_{qa:}$	1.021
DGM Calibration Factor - Y:	0.998
Difference, %	2.3

Test Time, hrs.	Clock Time, hrs.	DGM Reading cuft	Orifice Diff. DH, "H20	Vacuum	Stack Temp, °F	DGM Temp IN, °F	DGM Temp OUT, °F	Impinger Outlet Temp, °F
0:00:00	15:03	131.670	1.10	3	776	79	78	65
0:05:00	15:08	134.500	1.10	3	776	80	78	56
0:10:00	15:13	137.100	1.10	3	775	81	78	52
0:15:00	15:18	139.700	1.10	3	777	81	79	51
0:20:00	15:23	143.750	1.10	3	777	82	79	52
0:25:00	15:28	146.750	1.10	3	786	82	79	52
0:30:00	15:33	149.720	1.10	3	784	82	80	53
0:35:00	15:38	152.670	1.10	3	786	82	80	53
0:40:00	15:43	155.630	1.10	3	781	83	80	53
0:45:00	15:48	158.500	1.10	3	782	83	81	53
0:50:00	15:53	161.530	1.10	3	784	83	81	53
0:55:00	15:58	164.480	1.10	3	783	83	81	53
1:00:00	16:03	167.400	- - -	- - -	- - -	- - -	- - -	- - -
60	1:00	35.730	1.100	3.0	780.6	81.8	79.5	53.8

Form Completed by:	RPM	Date Completed: 9/24/2014	Present on Site:
Data Reviewed by:	MD	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114	REV - 063014

Method 4 Results Run #1

EU 214 Outlet #2
Dakotah! Sports and Fitness - Prior Lake, MN
AET # 02-02120

Test Data	
Run Number:	1
Test Date:	09/24/14
Run Time, hrs:	12:04-13:03
Point Interval, hrs:	0:05:00
Conducted By:	AJL

Sampling Train Data	
Console ID Number:	14-1478
DGM Calibration Factor - Y_d:	1.025
Orifice DH@:	1.667
Thermocouple ID Number:	14-A18
Barometer ID Number:	14-1272
Probe Length, ft:	6
Probe Liner Material:	SS
Ambient Pressure - Pbar, °F:	29.2
Stack Gas Molecular Weight:	29.71

Sample Volume Data	
Absolute Pm, in. Hg:	29.28
Absolute Tm, °R	531.6
Sample Volume - Vm, cuft:	34.154
Sample Volume - Vm(std), cuft:	34.013

Wet Catch Results		Initial Weight, g	Final Weight, g
Impinger #1-	Water	597.8	653.7
Impinger #2-	Water	575.0	579.3
Impinger #3-	Water		
Impinger #4-	Drierite	966.4	977.7
Total Initial Weight - Wi, g:			2,139.2
Total Final Weight - Wf, g:			2,210.7
Water Collected-Vlc,ml:			71.6
Proportion by Volume - Bws:			0.0902
Moisture Content, %:			9.02

Post-Test Leak Test - Sampling Train	
Test Vacuum, in. Hg:	4
Initial DGM, cuft:	186.355
Final DGM, cuft:	186.355
Test Time, min:	1
Leak Rate, cfm:	0.000
Max. Leak Rate, cfm:	0.02
Max. Leak Rate, %:	0.023
Test Status:	Pass

Post-Test Meter Calibration	
DGM Calibration Check Value - $Y_{qa:}$	1.073
DGM Calibration Factor - Y:	1.025
Difference, %	4.7

Test Time, hrs.	Clock Time, hrs.	DGM Reading cuft	Orifice Diff. DH, "H20	Vacuum	Stack Temp, °F	DGM Temp IN, °F	DGM Temp OUT, °F	Impinger Outlet Temp, °F
0:00:00	12:04	152.524	1.10	3	754	70	68	53
0:05:00		155.420	1.10	3	756	72	68	49
0:10:00		158.280	1.10	3	756	72	68	48
0:15:00		161.130	1.10	3	756	73	69	47
0:20:00		163.940	1.10	3	755	73	69	49
0:25:00		166.700	1.10	3	760	74	70	50
0:30:00		169.570	1.10	3	749	74	70	52
0:35:00		172.300	1.10	3	759	74	71	53
0:40:00		175.215	1.10	3	755	74	71	54
0:45:00		177.800	1.10	3	757	75	71	54
0:50:00		180.710	1.10	3	755	75	71	54
0:55:00		183.490	1.10	3	758	75	72	55
1:00:00	13:04	186.678	- - -	- - -	- - -	- - -	- - -	- - -
60	1:00	34.154	1.10	3	756	73	70	52

Form Completed by:	AJL	Date Completed: 9/24/2014	Present on Site:
Data Reviewed by:	MD	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114	REV - 063014

Method 4 Results Run #2

EU 214 Outlet #2
Dakotah! Sports and Fitness - Prior Lake, MN
AET # 02-02120

Test Data	
Run Number:	2
Test Date:	09/24/14
Run Time, hrs:	13:35-14:34
Point Interval, hrs:	0:05:00
Conducted By:	AJL

Sampling Train Data	
Console ID Number:	14-1478
DGM Calibration Factor - Y_d:	1.025
Orifice DH@:	1.667
Thermocouple ID Number:	14-A18
Barometer ID Number:	14-1272
Probe Length, ft:	6
Probe Liner Material:	SS
Ambient Pressure - Pbar, °F:	29.2
Stack Gas Molecular Weight:	29.71

Sample Volume Data	
Absolute Pm, in. Hg:	29.28
Absolute Tm, °R	535.6
Sample Volume - Vm, cuft:	35.336
Sample Volume - Vm(std), cuft:	34.928

Wet Catch Results	Initial Weight, g	Final Weight, g
Impinger #1- Water	653.7	705.8
Impinger #2- Water	579.3	582.7
Impinger #3- Water		
Impinger #4- Drierite	1,002.9	1,011.8
Total Initial Weight - Wi, g:		2,235.9
Total Final Weight - Wf, g:		2,300.3
Water Collected-Vlc,ml:		64.5
Proportion by Volume - Bws:		0.08
Moisture Content, %:		8

Post-Test Leak Test - Sampling Train	
Test Vacuum, in. Hg:	9
Initial DGM, cuft:	222.147
Final DGM, cuft:	222.149
Test Time, min:	1
Leak Rate, cfm:	0.002
Max. Leak Rate, cfm:	0.02
Max. Leak Rate, %:	0.024
Test Status:	Pass

Post-Test Meter Calibration	
DGM Calibration Check Value - $Y_{qa:}$	1.041
DGM Calibration Factor - Y:	1.025
Difference, %	1.6

Test Time, hrs.	Clock Time, hrs.	DGM Reading cuft	Orifice Diff. DH, "H20	Vacuum	Stack Temp, °F	DGM Temp IN, °F	DGM Temp OUT, °F	Impinger Outlet Temp, °F
0:00:00	13:35	186.752	1.10	5	764	74	73	60
0:05:00		189.500	1.10	5	766	75	73	60
0:10:00		192.350	1.10	5	766	76	74	57
0:15:00		195.300	1.10	5	768	76	74	52
0:20:00		198.250	1.10	5	768	77	74	49
0:25:00		201.130	1.10	5	764	77	74	49
0:30:00		204.040	1.10	5	767	77	75	48
0:35:00		207.000	1.10	5	767	77	75	48
0:40:00		210.000	1.10	5	766	78	75	48
0:45:00		213.000	1.10	5	765	78	75	50
0:50:00		216.010	1.10	5	768	78	75	50
0:55:00		219.100	1.10	5	770	78	75	50
1:00:00	14:35	222.088	- - -	- - -	- - -	- - -	- - -	- - -
60	1:00	35.336	1.100	5.0	766.6	76.8	74.3	51.8

Form Completed by:	AJL	Date Completed: 9/24/2014	Present on Site:
Data Reviewed by:	MD	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114	REV - 063014

Method 4 Results Run #3

EU 214 Outlet #2
Dakotah! Sports and Fitness - Prior Lake, MN
AET # 02-02120

Test Data	
Run Number:	3
Test Date:	09/24/14
Run Time, hrs:	15:05-16:02
Point Interval, hrs:	0:05:00
Conducted By:	AJL

Sampling Train Data	
Console ID Number:	14-1478
DGM Calibration Factor - Y_d:	1.025
Orifice DH@:	1.667
Thermocouple ID Number:	14-A18
Barometer ID Number:	14-1272
Probe Length, ft:	6
Probe Liner Material:	SS
Ambient Pressure - Pbar, °F:	29.2
Stack Gas Molecular Weight:	29.71

Sample Volume Data	
Absolute Pm, in. Hg:	29.28
Absolute Tm, °R	539.4
Sample Volume - Vm, cuft:	37.423
Sample Volume - Vm(std), cuft:	36.73

Wet Catch Results		Initial Weight, g	Final Weight, g
Impinger #1-	Water	705.8	759.4
Impinger #2-	Water	582.7	587.6
Impinger #3-	Water		
Impinger #4-	Drierite	977.0	988.1
Total Initial Weight - Wi, g:			2,265.5
Total Final Weight - Wf, g:			2,335.1
Water Collected-Vlc,ml:			69.7
Proportion by Volume - Bws:			0.082
Moisture Content, %:			8.2

Post-Test Leak Test - Sampling Train	
Test Vacuum, in. Hg:	6
Initial DGM, cuft:	259.717
Final DGM, cuft:	259.719
Test Time, min:	1
Leak Rate, cfm:	0.002
Max. Leak Rate, cfm:	0.02
Max. Leak Rate, %:	0.025
Test Status:	Pass

Post-Test Meter Calibration	
DGM Calibration Check Value - $Y_{qa:}$	0.987
DGM Calibration Factor - Y:	1.025
Difference, %	3.7

Test Time, hrs.	Clock Time, hrs.	DGM Reading cuft	Orifice Diff. DH, "H20	Vacuum	Stack Temp, °F	DGM Temp IN, °F	DGM Temp OUT, °F	Impinger Outlet Temp, °F
0:00:00	15:03	222.269	1.10	5	774	78	76	65
0:05:00		226.000	1.10	5	774	80	77	57
0:10:00		230.050	1.10	3	774	80	77	56
0:15:00		233.080	1.10	3	777	80	77	56
0:20:00		236.070	1.10	3	777	81	78	56
0:25:00		239.070	1.10	3	779	81	78	57
0:30:00		242.000	1.10	3	778	81	78	57
0:35:00		245.000	1.10	3	779	81	78	58
0:40:00		248.050	1.10	3	775	82	79	57
0:45:00		251.090	1.10	3	777	82	79	58
0:50:00		253.920	1.10	3	777	82	79	57
0:55:00		256.840	1.10	3	777	82	79	58
1:00:00	16:03	259.692	- - -	- - -	- - -	- - -	- - -	- - -
60	1:00	37.423	1.10	3	777	81	78	58

Form Completed by:	AJL	Date Completed: 9/24/2014	Present on Site:
Data Reviewed by:	MD	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114	REV - 063014

One Minute Average Datalogger Data

Dakotah! Sports and Fitness - Prior Lake, MN
Generator EU 204
September 23, 2014 - AET # 02-02120

Time	O_2 [%]	NOx [ppm_v]
6:41	20.9	2
6:42	20.9	2
6:43	20.9	2
6:44	20.9	2
6:45	20.9	2
6:46	20.8	1
6:47	20.8	1
6:48	2.5	1
6:49	0.0	1
6:50	0.0	1
6:51	0.0	1
6:52	10.8	1
6:53	21.3	1
6:54	21.3	1
6:55	21.3	1
6:56	21.3	1
6:57	18.8	1
6:58	19.6	1
6:59	20.6	1
7:00	11.2	1
7:01	11.1	1
7:02	11.1	1
7:03	3.8	1
7:04	0.1	3
7:05	0.1	3
7:06	0.1	1004
7:07	0.1	1952
7:08	0.1	1934
7:09	0.1	1954
7:10	0.1	1947
7:11	0.1	1967
7:12	0.1	1960
7:13	0.1	1951
7:14	0.1	1939
7:15	0.1	1949
7:16	0.2	1950
7:17	0.0	1073
7:18	0.0	8
7:19	0.0	5
7:20	0.0	4
7:21	0.0	4
7:22	0.0	3
7:23	0.0	2
7:24	0.0	1
7:25	0.0	0
7:26	0.0	0
7:27	0.0	0
7:28	0.0	0
7:29	0.0	1
7:30	0.0	1
7:31	0.1	217
7:32	0.1	1917
7:33	0.1	1963
7:34	0.1	1957
7:35	0.1	1949
7:36	0.1	1944
7:37	0.1	1949
7:38	0.1	1956
7:39	0.1	1953
7:40	0.1	1950

One Minute Average Datalogger Data

Dakotah! Sports and Fitness - Prior Lake, MN
Generator EU 204
September 23, 2014 - AET # 02-02120

Time	O_2 [%]	NOx [ppm_v]
7:41	0.1	1958
7:42	0.1	1694
7:43	0.1	992
7:44	0.1	983
7:45	0.1	980
7:46	0.1	976
7:47	0.1	976
7:48	9.2	899
7:49	20.3	69
7:50	20.9	758
7:51	20.9	967
7:52	20.9	966
7:53	20.9	964
7:54	20.9	963
7:55	20.9	961
7:56	20.9	961
7:57	20.9	960
7:58	20.9	960
7:59	20.9	960
8:00	20.9	960
8:01	20.9	960
8:02	20.9	959
8:03	20.9	960
8:04	21.0	959
8:05	21.0	960
8:06	21.0	960
8:07	21.0	961
8:08	21.0	959
8:09	21.0	957
8:10	21.0	957
8:11	20.9	955
8:12	20.9	954
8:13	20.9	952
8:14	20.9	952
8:15	20.9	950
8:16	20.9	950
8:17	20.9	948
8:18	20.9	949
8:19	20.9	951
8:20	20.9	952
8:21	21.0	930
8:22	21.0	186
8:23	15.0	13
8:24	11.0	25
8:25	11.0	4
8:26	11.0	3
8:27	11.0	3
8:28	5.8	60
8:29	0.1	854
8:30	0.1	946
8:31	0.1	948
8:32	0.1	949
8:33	0.0	948
8:34	7.4	1274
8:35	8.3	1806
8:36	8.3	1835
8:37	8.3	1854
8:38	8.3	1864
8:39	8.3	1876
8:40	8.3	1883

One Minute Average Datalogger Data

Dakotah! Sports and Fitness - Prior Lake, MN
Generator EU 204
September 23, 2014 - AET # 02-02120

Time	O_2 [%]	NOx [ppm_v]
8:41	8.2	1906
8:42	8.3	1925
8:43	8.4	1860
8:44	8.5	1811
8:45	8.5	1807
8:46	8.4	1807
8:47	8.4	1815
8:48	8.4	1819
8:49	8.5	1823
8:50	8.4	1826
8:51	8.4	1824
8:52	8.4	1834
8:53	8.4	1831
8:54	8.4	1836
8:55	8.5	1837
8:56	8.4	1836
8:57	8.4	1830
8:58	8.4	1821
8:59	8.4	1827
9:00	8.4	1834
9:01	8.4	1832
9:02	8.4	1829
9:03	8.3	1831
9:04	8.3	1832
9:05	8.4	1843
9:06	8.4	1839
9:07	8.4	1842
9:08	8.3	1837
9:09	8.4	1837
9:10	8.5	1844
9:11	8.5	1836
9:12	8.5	1827
9:13	8.5	1822
9:14	8.4	1820
9:15	8.4	1820
9:16	8.4	1817
9:17	8.5	1825
9:18	8.5	1817
9:19	8.5	1817
9:20	8.5	1816
9:21	8.5	1864
9:22	8.5	1851
9:23	8.5	1849
9:24	8.4	1839
9:25	8.4	1840
9:26	8.5	1829
9:27	8.4	1836
9:28	8.4	1823
9:29	8.4	1819
9:30	8.5	1831
9:31	8.4	1829
9:32	8.4	1821
9:33	8.4	1821
9:34	8.4	1824
9:35	8.4	1819
9:36	8.4	1831
9:37	8.4	1830
9:38	8.4	1826
9:39	8.3	1849
9:40	8.4	1853

One Minute Average Datalogger Data

Dakotah! Sports and Fitness - Prior Lake, MN
Generator EU 204
September 23, 2014 - AET # 02-02120

Time	O_2 [%]	NOx [ppm_v]
9:41	8.3	1842
9:42	8.4	1830
9:43	8.4	1840
9:44	8.4	1829
9:45	9.1	1690
9:46	11.0	144
9:47	11.0	25
9:48	11.0	17
9:49	11.0	12
9:50	11.0	10
9:51	11.0	8
9:52	11.0	7
9:53	11.0	6
9:54	11.0	5
9:55	11.0	4
9:56	5.5	119
9:57	0.1	1694
9:58	0.1	1887
9:59	0.1	1888
10:00	1.7	1866
10:01	0.0	1134
10:02	0.0	943
10:03	0.0	942
10:04	0.0	941
10:05	0.0	941
10:06	5.0	1019
10:07	8.2	1781
10:08	8.3	1803
10:09	8.3	1815
10:10	8.3	1813
10:11	8.3	1816
10:12	8.3	1821
10:13	8.3	1818
10:14	8.3	1822
10:15	8.3	1821
10:16	8.2	1813
10:17	8.3	1818
10:18	8.3	1827
10:19	8.3	1834
10:20	8.3	1873
10:21	8.3	1854
10:22	8.3	1842
10:23	8.3	1835
10:24	8.3	1843
10:25	8.3	1838
10:26	8.3	1832
10:27	8.3	1822
10:28	8.2	1802
10:29	8.2	1802
10:30	8.3	1817
10:31	8.3	1820
10:32	8.2	1805
10:33	8.3	1814
10:34	8.3	1817
10:35	8.3	1817
10:36	8.3	1811
10:37	8.3	1814
10:38	8.2	1806
10:39	8.2	1809
10:40	8.3	1819

One Minute Average Datalogger Data

Dakotah! Sports and Fitness - Prior Lake, MN
Generator EU 204
September 23, 2014 - AET # 02-02120

Time	O_2 [%]	NOx [ppm_v]
10:41	8.2	1815
10:42	8.3	1823
10:43	8.3	1817
10:44	8.3	1821
10:45	8.2	1820
10:46	8.2	1808
10:47	8.3	1818
10:48	8.2	1815
10:49	8.3	1822
10:50	8.2	1827
10:51	8.1	1848
10:52	8.2	1836
10:53	8.1	1835
10:54	8.2	1834
10:55	8.2	1842
10:56	8.2	1857
10:57	8.2	1865
10:58	8.1	1879
10:59	8.1	1869
11:00	8.2	1872
11:01	8.2	1879
11:02	8.2	1888
11:03	8.2	1875
11:04	8.1	1859
11:05	8.1	1865
11:06	8.2	1859
11:07	8.2	1866
11:08	9.1	1710
11:09	11.0	103
11:10	11.0	24
11:11	11.0	16
11:12	11.0	12
11:13	11.0	9
11:14	11.0	8
11:15	11.0	6
11:16	11.0	6
11:17	5.6	78
11:18	0.1	905
11:19	0.0	958
11:20	0.0	958
11:21	2.0	960
11:22	8.2	1613
11:23	8.1	1856
11:24	8.1	1856
11:25	8.1	1874
11:26	8.1	1875
11:27	8.1	1864
11:28	8.2	1862
11:29	8.2	1883
11:30	8.1	1858
11:31	8.0	1844
11:32	8.0	1861
11:33	8.0	1874
11:34	8.1	1883
11:35	8.0	1860
11:36	8.1	1862
11:37	8.1	1883
11:38	8.1	1883
11:39	8.1	1882
11:40	8.1	1884

One Minute Average Datalogger Data

Dakotah! Sports and Fitness - Prior Lake, MN
Generator EU 204
September 23, 2014 - AET # 02-02120

Time	O_2 [%]	NOx [ppm_v]
11:41	8.2	1883
11:42	8.1	1866
11:43	8.1	1866
11:44	8.1	1862
11:45	8.1	1872
11:46	8.1	1855
11:47	8.1	1870
11:48	8.1	1870
11:49	8.0	1878
11:50	8.1	1872
11:51	8.1	1876
11:52	8.1	1891
11:53	8.0	1877
11:54	8.0	1879
11:55	8.0	1883
11:56	8.0	1874
11:57	8.1	1878
11:58	8.1	1886
11:59	8.1	1886
12:00	8.1	1881
12:01	8.1	1884
12:02	8.1	1879
12:03	8.0	1881
12:04	8.1	1864
12:05	8.2	1872
12:06	8.1	1866
12:07	8.1	1884
12:08	8.0	1860
12:09	8.1	1883
12:10	8.1	1869
12:11	8.1	1864
12:12	8.0	1853
12:13	8.0	1863
12:14	7.9	1888
12:15	8.0	1891
12:16	8.0	1883
12:17	8.1	1901
12:18	8.1	1905
12:19	8.2	1902
12:20	8.1	1867
12:21	8.1	1881
12:22	8.1	1885
12:23	8.9	1742
12:24	11.0	156
12:25	11.0	25
12:26	11.0	17
12:27	11.0	12
12:28	11.0	10
12:29	11.0	8
12:30	11.0	7
12:31	11.0	6
12:32	11.0	5
12:33	11.0	5
12:34	5.8	68
12:35	0.1	880
12:36	0.1	961
12:37	0.0	961

One Minute Average Datalogger Data

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
September 24, 2014 - AET # 02-02120

	Outlet #1		Outlet #2	
Time	O_2 [%]	NOx [ppm_v]	O_2 [%]	NOx [ppm_v]
7:20	20.8	0	17.78	0
7:21	20.8	0	17.78	0
7:22	20.8	0	17.77	0
7:23	20.8	0	17.75	0
7:24	20.8	0	17.63	0
7:25	9.6	0	8.16	0
7:26	0.0	0	0.18	0
7:27	-0.1	0	0.06	0
7:28	-0.1	0	0.05	0
7:29	-0.1	0	0.04	0
7:30	4.0	0	2.99	0
7:31	21.2	1	18.35	0
7:32	21.2	0	19.82	0
7:33	21.2	0	19.82	0
7:34	17.1	0	16.1	0
7:35	11.0	0	10.34	0
7:36	11.0	0	10.34	0
7:37	6.4	45	6.19	267
7:38	0.0	870	0.09	862
7:39	0.0	975	0.08	899
7:40	0.0	970	0.08	975
7:41	0.0	976	0.08	976
7:42	0.0	975	0.08	977
7:43	0.0	979	0.08	977
7:44	0.0	981	0.08	977
7:45	0.0	983	0.08	977
7:46	0.0	981	0.08	974
7:47	0.0	975	0.08	974
7:48	0.0	978	0.08	974
7:49	0.0	974	0.08	975
7:50	0.2	884	0.23	689
7:51	0.0	500	0.06	505
7:52	0.0	493	0.06	505
7:53	0.0	495	0.06	506
7:54	9.1	464	10.9	279
7:55	20.1	26	19.34	8
7:56	21.2	6	21.27	0
7:57	21.2	1	21.31	0
7:58	19.6	1	19.88	6
7:59	11.0	8	11.12	4
8:00	11.0	1	11.12	0
8:01	17.7	1	19.03	0
8:02	20.7	1	20.97	0
8:03	20.9	1	20.99	0
8:04	21.0	1	22.11	0
8:05	20.9	142	24.08	0
8:06	20.9	615	24.06	59
8:07	20.9	624	24.04	670
8:08	20.9	623	24.03	670
8:09	20.9	630	24.03	669
8:10	20.9	623	24.04	668
8:11	20.8	630	24.05	667
8:12	20.8	624	24.06	666
8:13	20.9	625	24.07	666
8:14	20.8	622	24.07	665
8:15	20.8	622	24.08	665
8:16	20.8	630	24.07	665

One Minute Average Datalogger Data

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
September 24, 2014 - AET # 02-02120

	Outlet #1		Outlet #2	
Time	O_2 [%]	NOx [ppm_v]	O_2 [%]	NOx [ppm_v]
8:17	20.8	623	24.07	664
8:18	20.8	623	24.07	664
8:19	20.9	627	24.06	663
8:20	20.9	628	24.06	662
8:21	20.9	624	24.05	662
8:22	20.9	624	24.04	662
8:23	20.9	623	24.04	663
8:24	20.9	622	24.04	663
8:25	20.9	624	24.03	663
8:26	20.9	623	24.03	663
8:27	20.8	619	24.03	662
8:28	20.8	619	24.03	662
8:29	20.8	625	24.02	662
8:30	20.8	626	24.02	662
8:31	20.8	624	24.01	661
8:32	20.8	623	24	661
8:33	20.8	621	23.99	660
8:34	20.8	623	23.98	660
8:35	20.8	623	23.98	659
8:36	20.8	622	23.98	659
8:37	20.9	582	23.46	397
8:38	20.9	30	20.85	4
8:39	20.8	2	20.92	3
8:40	20.9	2	20.97	3
8:41	20.9	2	21.03	2
8:42	20.9	1	21.02	1
8:43	20.9	1	21.02	1
8:44	20.9	1	21.03	1
8:45	20.9	1	21.07	1
8:46	20.9	1	21.09	1
8:47	20.9	1	21.1	1
8:48	20.9	1	21.11	1
8:49	20.9	1	21.12	1
8:50	15.4	1	21.12	1
8:51	10.9	3	21.13	1
8:52	10.9	2	21.12	1
8:53	10.9	1	21.12	1
8:54	10.9	1	21.12	1
8:55	5.4	25	21.12	1
8:56	0.0	454	21.12	0
8:57	0.0	482	21.11	0
8:58	0.0	485	21.12	0
8:59	0.0	483	21.12	0
9:00	6.5	477	21.12	0
9:01	20.5	138	13.9	119
9:02	20.0	17	0.12	499
9:03	20.9	7	0.1	500
9:04	20.9	2	0.1	500
9:05	20.9	2	0.1	500
9:06	18.5	2	0.15	501
9:07	14.5	201	10.4	89
9:08	12.5	344	11.04	1
9:09	11.2	475	11.04	1
9:10	9.5	536	11.05	1
9:11	20.0	407	11.42	14
9:12	20.9	28	14.7	538
9:13	20.9	12	14.58	571

One Minute Average Datalogger Data

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
September 24, 2014 - AET # 02-02120

	Outlet #1		Outlet #2	
Time	O_2 [%]	NOx [ppm_v]	O_2 [%]	NOx [ppm_v]
9:14	20.9	7	19.29	222
9:15	20.9	6	20.98	23
9:16	20.9	5	21.01	16
9:17	20.9	5	21.03	14
9:18	20.9	5	21.05	13
9:19	20.9	4	21.03	13
9:20	20.9	4	21.06	9
9:21	20.9	4	21.09	6
9:22	20.9	3	21.08	6
9:23	19.8	11	15.42	290
9:24	9.8	245	9.57	557
9:25	9.5	568	9.47	625
9:26	9.5	625	9.51	655
9:27	9.5	644	9.5	668
9:28	9.5	664	9.51	675
9:29	9.9	679	9.49	680
9:30	10.5	682	9.49	683
9:31	10.8	673	9.5	688
9:32	10.4	635	9.47	690
9:33	9.9	567	9.47	696
9:34	9.8	549	9.46	699
9:35	9.8	530	9.45	702
9:36	9.8	521	9.45	703
9:37	9.8	516	9.45	704
9:38	9.7	506	9.42	705
9:39	9.8	506	9.43	706
9:40	9.8	506	9.42	712
9:41	9.8	509	9.41	713
9:42	9.8	495	9.44	715
9:43	9.8	499	9.45	713
9:44	9.8	494	9.45	713
9:45	9.9	492	9.44	712
9:46	9.8	487	9.44	714
9:47	9.8	490	9.43	715
9:48	9.8	491	9.45	715
9:49	9.8	488	9.43	713
9:50	11.4	490	12.55	646
9:51	14.8	426	15.04	542
9:52	15.1	388	15.34	533
9:53	19.3	325	20.85	60
9:54	20.7	154	20.99	15
9:55	20.8	160	20.98	15
9:56	20.8	63	20.99	13
9:57	20.9	29	21.02	10
9:58	20.9	21	21.02	9
9:59	20.9	18	21.04	7
10:00	20.9	16	21.04	6
10:01	20.9	14	21.09	5
10:02	20.9	13	21.08	4
10:03	20.9	12	21.06	3
10:04	20.9	11	21.06	4
10:05	18.5	11	16.08	241
10:06	10.7	116	9.14	581
10:07	9.9	336	9.39	649
10:08	9.8	377	9.42	675
10:09	9.9	395	9.43	688
10:10	9.9	411	9.43	697

One Minute Average Datalogger Data

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
September 24, 2014 - AET # 02-02120

	Outlet #1		Outlet #2	
Time	O_2 [%]	NOx [ppm_v]	O_2 [%]	NOx [ppm_v]
10:11	10.0	423	9.45	699
10:12	9.9	423	9.44	704
10:13	9.9	431	9.46	709
10:14	9.9	437	9.47	710
10:15	9.9	438	9.43	707
10:16	9.9	447	9.44	716
10:17	9.8	457	9.46	717
10:18	9.9	459	9.45	715
10:19	9.9	461	9.47	716
10:20	9.9	465	9.45	713
10:21	9.9	467	9.4	711
10:22	9.9	461	9.44	722
10:23	9.9	466	9.46	722
10:24	9.9	467	9.44	719
10:25	9.9	463	9.44	723
10:26	9.9	466	9.48	720
10:27	9.9	466	9.44	719
10:28	9.9	465	9.47	724
10:29	10.0	465	9.59	717
10:30	10.4	461	10.85	695
10:31	14.4	423	15.09	541
10:32	15.1	363	15.06	533
10:33	16.9	351	18.42	295
10:34	20.4	154	20.93	23
10:35	20.8	55	20.97	17
10:36	20.8	45	21	14
10:37	20.8	42	20.99	13
10:38	20.8	44	21.02	9
10:39	20.8	52	21.01	9
10:40	20.9	69	21.05	6
10:41	20.9	79	21.04	6
10:42	20.9	46	21.03	6
10:43	20.9	28	21.05	5
10:44	20.9	20	21.06	4
10:45	20.9	16	21.07	3
10:46	20.9	13	21.07	3
10:47	20.9	12	21.06	3
10:48	20.9	11	21.06	4
10:49	20.9	10	21.07	3
10:50	20.9	9	21.07	2
10:51	20.9	9	21.08	3
10:52	20.9	8	21.07	3
10:53	20.9	8	21.07	2
10:54	20.9	7	21.08	2
10:55	20.9	7	21.1	2
10:56	20.9	6	21.09	2
10:57	20.9	6	21.07	2
10:58	20.9	6	21.09	2
10:59	20.9	5	21.09	2
11:00	20.9	5	21.08	2
11:01	20.9	5	21.09	2
11:02	20.9	5	21.1	2
11:03	20.9	4	21.11	2
11:04	20.9	4	21.08	2
11:05	18.9	4	16.7	172
11:06	11.1	83	9.51	556
11:07	10.1	313	9.69	619

One Minute Average Datalogger Data

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
September 24, 2014 - AET # 02-02120

	Outlet #1		Outlet #2	
Time	O_2 [%]	NOx [ppm_v]	O_2 [%]	NOx [ppm_v]
11:08	10.2	389	9.75	651
11:09	10.2	412	9.79	669
11:10	10.4	421	10.05	669
11:11	10.5	419	10.03	667
11:12	10.5	419	10.03	674
11:13	10.5	427	10.05	677
11:14	10.5	424	10.06	678
11:15	10.5	438	10.08	680
11:16	10.5	434	10.08	679
11:17	10.5	431	10.05	682
11:18	10.5	432	10.03	683
11:19	10.5	429	10.04	683
11:20	10.5	430	10.02	680
11:21	10.4	427	10.04	687
11:22	10.4	436	10.07	688
11:23	10.4	435	10.04	687
11:24	10.4	436	10.04	690
11:25	10.5	435	10.05	686
11:26	10.4	432	10.02	685
11:27	10.4	438	10.05	690
11:28	10.4	444	10.05	688
11:29	10.4	458	10.04	688
11:30	10.5	446	10.04	691
11:31	10.4	440	10.01	687
11:32	10.4	440	10.03	689
11:33	10.4	442	10.04	690
11:34	10.4	444	10.06	689
11:35	10.5	443	10.06	690
11:36	10.4	447	10.05	690
11:37	10.5	448	10.05	690
11:38	10.4	446	10.04	691
11:39	10.4	446	10.02	690
11:40	10.4	445	10.02	692
11:41	10.4	448	10.03	692
11:42	10.5	445	10.05	695
11:43	10.5	447	10.03	692
11:44	10.5	443	10.05	691
11:45	10.5	443	10.03	690
11:46	10.4	443	10.02	691
11:47	10.4	450	10.03	694
11:48	10.4	445	10.01	691
11:49	10.4	445	10.03	692
11:50	10.4	451	10.05	693
11:51	10.4	448	10.01	691
11:52	10.4	448	10.05	690
11:53	10.4	449	10.05	687
11:54	10.4	445	10.05	693
11:55	10.4	449	10.03	690
11:56	10.4	452	10.04	690
11:57	13.0	429	10.03	692
11:58	13.5	312	10.03	691
11:59	14.0	289	10.02	691
12:00	14.0	282	10.02	689
12:01	19.2	205	10.02	687
12:02	20.1	8	10.07	690
12:03	10.2	379	10.05	689
12:04	10.1	676	10.05	685

One Minute Average Datalogger Data

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
September 24, 2014 - AET # 02-02120

	Outlet #1		Outlet #2	
Time	O_2 [%]	NOx [ppm_v]	O_2 [%]	NOx [ppm_v]
12:05	10.1	685	10.05	690
12:06	10.0	674	10	688
12:07	10.1	672	10.02	691
12:08	10.1	672	10.04	693
12:09	10.1	669	10.05	690
12:10	10.1	667	10.04	690
12:11	10.1	666	10.04	690
12:12	10.1	666	10.02	687
12:13	10.1	678	10.06	691
12:14	10.1	672	10.02	686
12:15	10.1	670	10.04	685
12:16	10.1	669	10.02	688
12:17	10.1	679	10.04	691
12:18	10.1	673	10.03	690
12:19	10.1	671	10.03	687
12:20	10.1	676	10.03	689
12:21	10.1	681	10.03	690
12:22	10.1	682	10.02	691
12:23	10.1	678	10.04	692
12:24	10.1	688	10.05	690
12:25	10.0	678	9.99	690
12:26	10.1	684	10.03	693
12:27	10.1	685	10.03	689
12:28	10.1	677	10.03	687
12:29	10.0	675	10.01	686
12:30	10.1	687	10.03	688
12:31	10.1	684	10.03	688
12:32	10.0	673	9.99	687
12:33	10.1	682	10.03	691
12:34	10.1	677	10.02	688
12:35	10.0	679	10	687
12:36	10.0	685	9.97	691
12:37	10.0	687	9.97	694
12:38	10.0	699	9.99	694
12:39	10.0	696	10	694
12:40	10.1	689	10.02	691
12:41	10.1	688	10.03	690
12:42	10.0	679	9.99	695
12:43	10.0	686	9.99	694
12:44	10.1	683	10.01	693
12:45	10.1	686	10.02	690
12:46	10.0	672	9.97	690
12:47	10.0	672	9.96	691
12:48	10.1	676	10.01	692
12:49	10.1	669	10	690
12:50	10.0	671	9.99	690
12:51	10.0	680	10	688
12:52	10.0	672	9.98	692
12:53	10.0	673	9.97	693
12:54	10.0	675	9.98	694
12:55	10.0	671	9.97	692
12:56	10.0	672	9.96	693
12:57	10.1	686	10.01	692
12:58	10.1	672	10.01	692
12:59	10.1	672	10.03	690
13:00	10.0	665	10	687
13:01	10.1	667	10.01	692

One Minute Average Datalogger Data

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
September 24, 2014 - AET # 02-02120

	Outlet #1		Outlet #2	
Time	O_2 [%]	NOx [ppm_v]	O_2 [%]	NOx [ppm_v]
13:02	10.1	666	10	690
13:03	10.1	665	10.03	691
13:04	10.1	682	10.77	318
13:05	10.1	677	11.02	11
13:06	10.1	681	11.01	8
13:07	10.1	678	11.01	6
13:08	10.1	684	11.01	5
13:09	10.1	671	11.01	4
13:10	10.1	674	11.01	3
13:11	10.1	675	4.74	232
13:12	10.1	674	0.09	511
13:13	10.1	667	0.08	508
13:14	10.1	666	0.08	507
13:15	10.0	667	0.08	507
13:16	10.0	665	6.69	603
13:17	10.5	479	9.99	681
13:18	10.9	22	9.99	686
13:19	10.9	10	10.01	682
13:20	10.9	7	10	687
13:21	10.9	5	10.04	685
13:22	10.9	4	10.02	687
13:23	10.9	3	10.03	687
13:24	10.5	25	10.02	686
13:25	10.1	568	10.03	686
13:26	10.1	652	10.03	684
13:27	10.1	653	10.05	682
13:28	7.4	648	10.05	681
13:29	0.0	508	10	682
13:30	0.0	475	10.01	685
13:31	-0.1	473	10.01	684
13:32	-0.1	473	10.05	681
13:33	6.1	483	10.05	680
13:34	10.0	640	9.99	682
13:35	10.1	655	10.03	684
13:36	10.1	656	10.04	684
13:37	10.0	656	10	683
13:38	10.1	659	10.02	685
13:39	10.1	661	10.01	683
13:40	10.1	685	10.01	686
13:41	10.0	669	9.98	685
13:42	10.1	671	10.01	686
13:43	10.1	663	10.01	684
13:44	10.0	655	9.95	680
13:45	10.0	673	9.97	682
13:46	10.0	666	9.98	679
13:47	10.1	681	10	683
13:48	10.0	667	9.99	682
13:49	10.1	660	10	684
13:50	10.0	661	9.99	683
13:51	10.0	661	9.99	684
13:52	10.0	660	10	685
13:53	10.0	660	9.98	684
13:54	10.0	658	9.96	682
13:55	10.0	657	9.99	682
13:56	10.1	657	10.01	680
13:57	10.0	654	9.94	678
13:58	10.0	659	9.97	685

One Minute Average Datalogger Data

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
September 24, 2014 - AET # 02-02120

	Outlet #1		Outlet #2	
Time	O_2 [%]	NOx [ppm_v]	O_2 [%]	NOx [ppm_v]
13:59	10.0	656	9.93	684
14:00	10.0	660	9.94	687
14:01	10.0	660	9.96	686
14:02	10.0	661	9.96	682
14:03	10.0	689	9.96	681
14:04	10.0	676	9.94	677
14:05	10.0	674	9.98	678
14:06	10.0	668	9.97	679
14:07	10.0	665	9.98	678
14:08	10.0	660	9.96	676
14:09	10.0	660	9.96	682
14:10	10.0	658	9.97	680
14:11	10.0	659	9.97	681
14:12	10.0	656	9.95	679
14:13	10.0	672	9.95	681
14:14	10.0	660	9.95	678
14:15	10.0	665	9.93	681
14:16	10.0	659	9.95	683
14:17	10.0	670	9.94	681
14:18	10.0	668	9.94	682
14:19	10.0	666	9.93	679
14:20	10.0	669	9.95	680
14:21	10.0	668	9.95	681
14:22	10.0	671	9.94	679
14:23	10.0	662	9.96	681
14:24	10.0	673	9.92	679
14:25	10.0	664	9.94	683
14:26	10.0	672	9.94	680
14:27	10.0	676	9.94	682
14:28	10.0	661	9.95	680
14:29	10.0	665	9.94	680
14:30	10.0	674	9.91	677
14:31	10.0	685	9.92	679
14:32	10.0	684	9.93	677
14:33	10.0	686	9.92	677
14:34	10.0	680	9.9	679
14:35	9.4	682	9.92	680
14:36	10.8	299	9.91	677
14:37	10.8	13	9.9	679
14:38	10.8	9	9.9	678
14:39	10.8	6	9.92	679
14:40	10.8	4	9.9	677
14:41	10.8	4	9.9	679
14:42	4.9	29	9.93	676
14:43	0.0	462	9.93	674
14:44	-0.1	487	9.91	676
14:45	-0.1	488	9.93	674
14:46	-0.1	491	9.93	672
14:47	-0.1	489	9.93	673
14:48	5.9	503	8.41	636
14:49	9.9	656	0.1	507
14:50	10.0	664	0.08	503
14:51	10.0	665	0.07	502
14:52	10.0	666	0.07	503
14:53	10.0	667	6.9	595
14:54	10.0	675	9.82	659
14:55	9.9	674	10.45	252

One Minute Average Datalogger Data

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
September 24, 2014 - AET # 02-02120

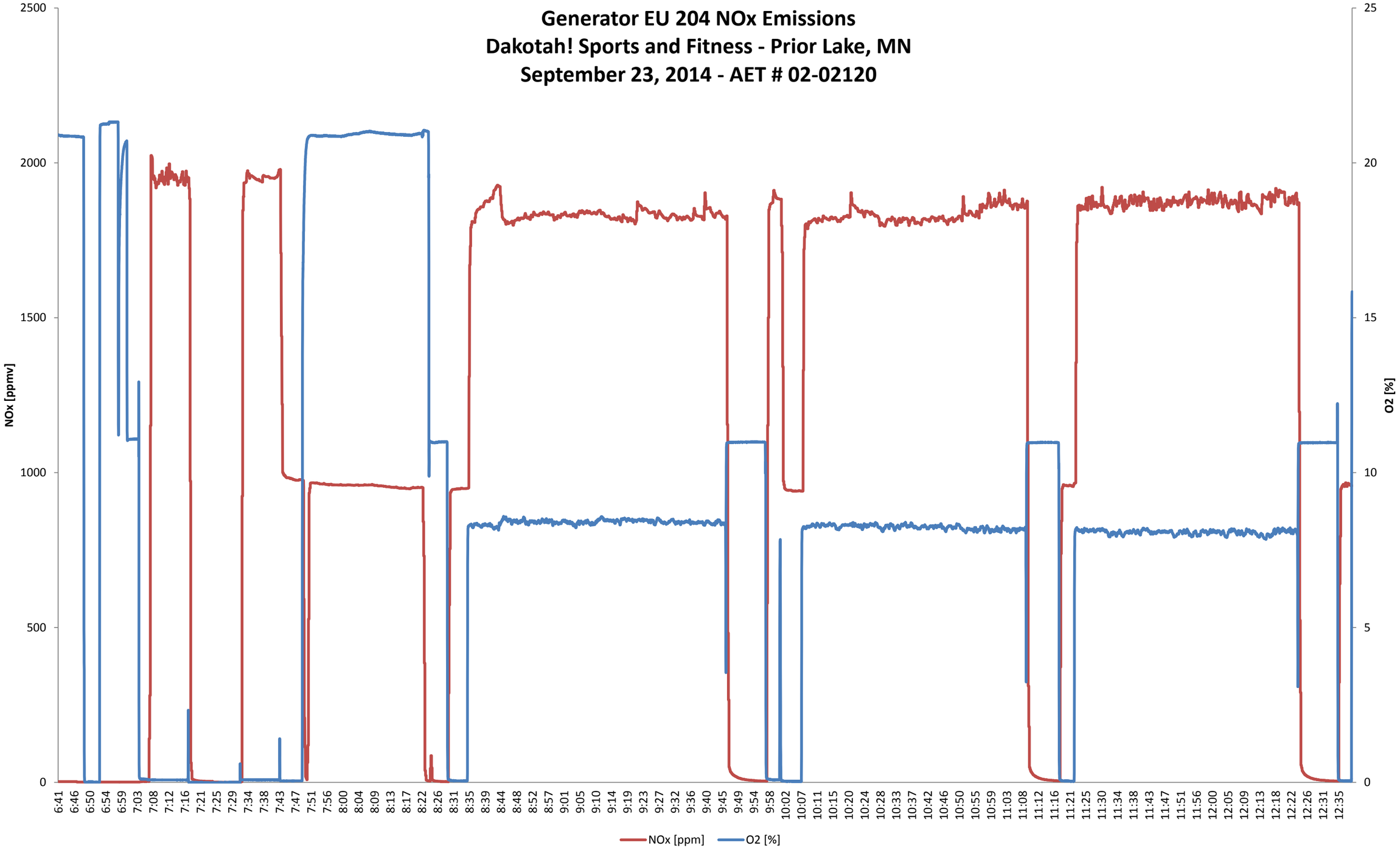
	Outlet #1		Outlet #2	
Time	O_2 [%]	NOx [ppm_v]	O_2 [%]	NOx [ppm_v]
14:56	9.9	676	11	6
14:57	9.9	674	10.99	4
14:58	10.0	674	10.99	3
14:59	9.9	673	11	2
15:00	9.9	682	11	2
15:01	9.9	677	10.25	390
15:02	9.9	673	9.9	664
15:03	9.9	674	9.87	666
15:04	9.9	665	9.82	661
15:05	9.9	675	9.82	674
15:06	9.9	679	9.85	676
15:07	9.9	674	9.87	671
15:08	9.9	681	9.88	669
15:09	9.9	672	9.86	670
15:10	9.9	669	9.85	675
15:11	9.9	680	9.86	676
15:12	9.9	676	9.86	674
15:13	9.9	676	9.87	674
15:14	9.9	668	9.88	670
15:15	9.9	675	9.88	670
15:16	9.9	677	9.85	670
15:17	9.9	683	9.85	669
15:18	9.9	678	9.84	676
15:19	9.9	670	9.83	673
15:20	9.9	674	9.84	673
15:21	9.9	675	9.86	672
15:22	9.9	681	9.84	673
15:23	9.9	675	9.85	673
15:24	9.9	669	9.86	671
15:25	9.9	665	9.83	674
15:26	9.9	674	9.83	675
15:27	9.9	674	9.85	676
15:28	9.9	676	9.82	676
15:29	9.9	670	9.83	678
15:30	9.9	670	9.82	676
15:31	9.9	668	9.85	670
15:32	9.9	670	9.84	669
15:33	9.9	672	9.83	677
15:34	9.9	670	9.85	676
15:35	9.9	670	9.86	675
15:36	9.9	675	9.85	676
15:37	9.9	670	9.84	672
15:38	9.9	669	9.8	668
15:39	9.9	672	9.81	675
15:40	9.8	670	9.8	676
15:41	9.9	669	9.83	671
15:42	9.9	675	9.83	676
15:43	9.9	673	9.85	674
15:44	9.9	664	9.84	668
15:45	9.9	668	9.86	671
15:46	9.9	670	9.85	667
15:47	9.9	672	9.88	667
15:48	9.9	669	9.86	665
15:49	9.9	669	9.84	665
15:50	9.9	668	9.85	668
15:51	9.9	676	9.86	668
15:52	9.9	673	9.83	670

One Minute Average Datalogger Data

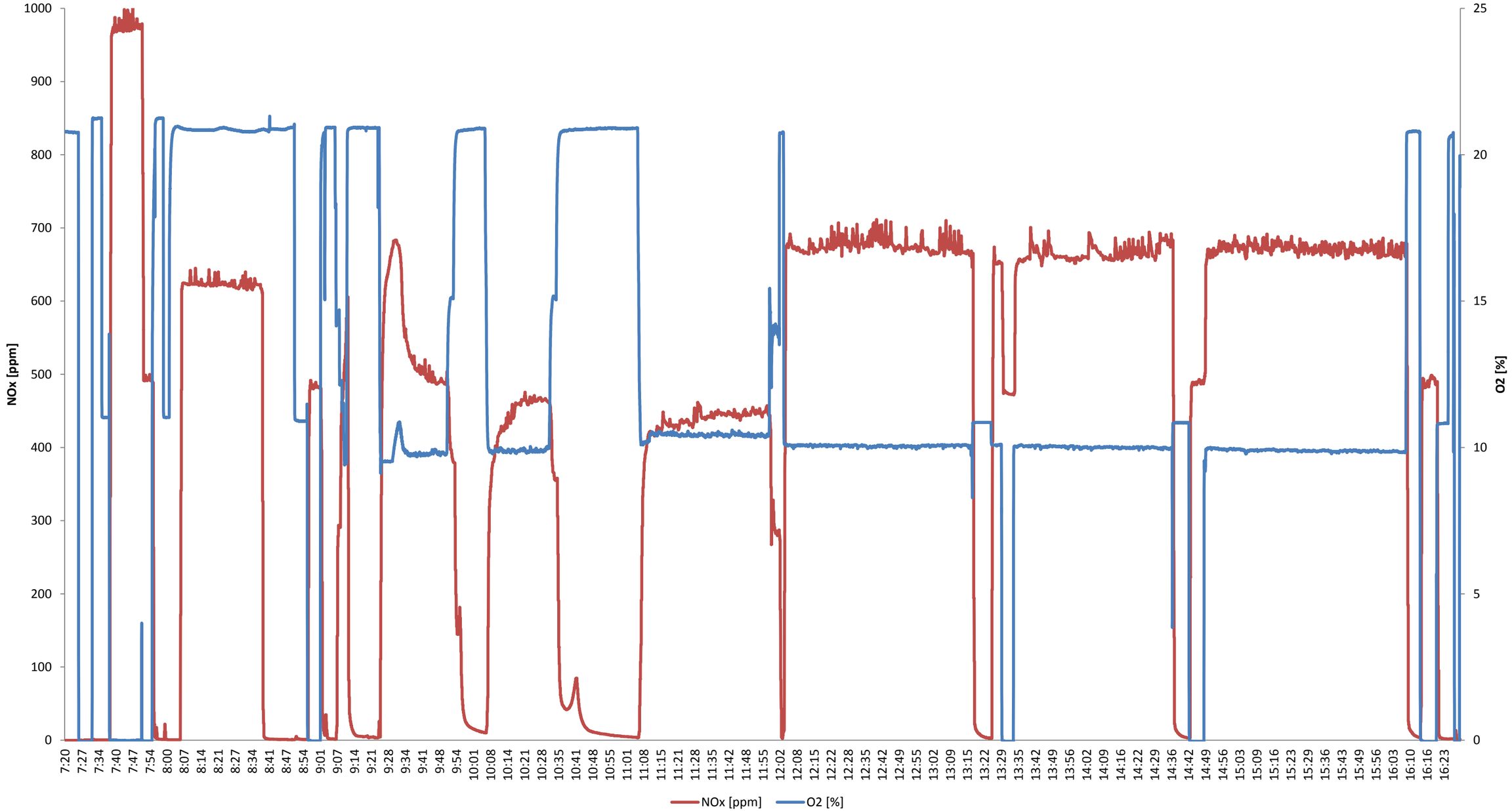
Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
September 24, 2014 - AET # 02-02120

	Outlet #1		Outlet #2	
Time	O_2 [%]	NOx [ppm_v]	O_2 [%]	NOx [ppm_v]
15:53	9.9	671	9.84	670
15:54	9.9	677	9.84	669
15:55	9.9	669	9.87	667
15:56	9.9	671	9.86	667
15:57	9.9	666	9.83	666
15:58	9.9	676	9.84	669
15:59	9.9	663	9.84	668
16:00	9.9	664	9.84	671
16:01	9.9	670	9.82	673
16:02	9.9	670	9.84	674
16:03	9.9	665	10.6	327
16:04	9.9	668	11.01	9
16:05	9.8	669	11.01	6
16:06	9.8	672	11.02	5
16:07	10.6	667	11.01	3
16:08	20.7	326	11.01	3
16:09	20.8	14	3.3	294
16:10	20.8	9	0.07	505
16:11	20.8	6	0.07	505
16:12	20.8	4	2.25	506
16:13	7.9	44	15.02	477
16:14	0.0	474	20.97	16
16:15	-0.1	483	20.98	5
16:16	-0.1	487	20.98	3
16:17	-0.1	495	20.98	2
16:18	-0.1	495	20.98	2
16:19	1.1	488	11.47	189
16:20	10.8	210	7.45	368
16:21	10.8	3	7.48	436
16:22	10.8	2	12.71	300
16:23	10.8	2	7.06	519
16:24	16.0	2	7.05	530
16:25	20.6	2	7.05	533
16:26	15.9	2	7.06	536
16:27	-0.1	6	7.05	538
16:28	1.5	1	19.05	171

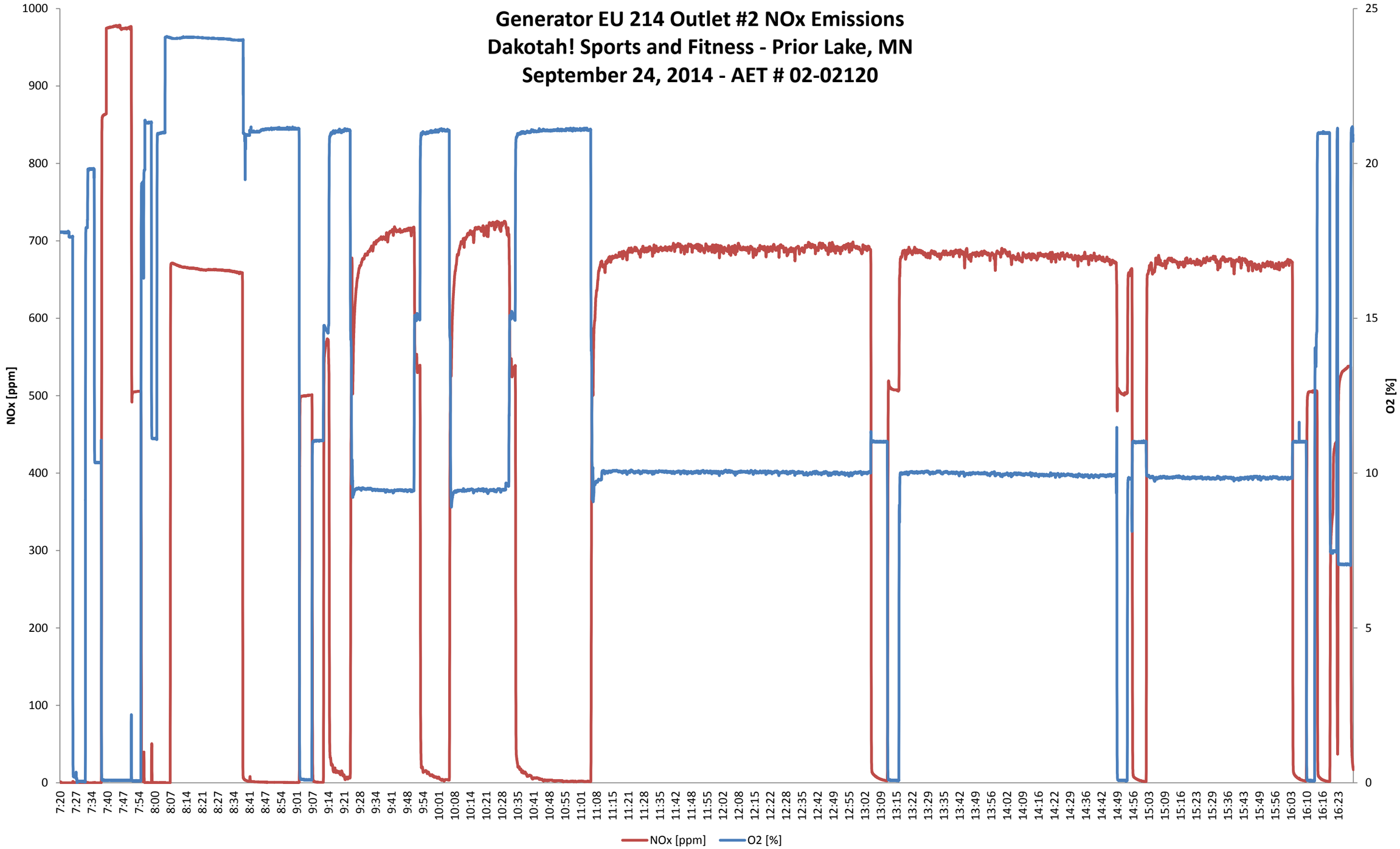
Generator EU 204 NOx Emissions
Dakotah! Sports and Fitness - Prior Lake, MN
September 23, 2014 - AET # 02-02120



Generator EU 214 Outlet #1 NOx Emissions
Dakotah! Sports and Fitness - Prior Lake, MN
September 24, 2014 - AET # 02-02120



Generator EU 214 Outlet #2 NOx Emissions
Dakotah! Sports and Fitness - Prior Lake, MN
September 24, 2014 - AET # 02-02120



Appendix C

Production and Operation Information

Summary of Operating Data

Diesel Generator EU 204
Dakotah! Sport and Fitness- Prior Lake , MN
September 23, 2014 - AET # 02-02120
Data Collected by: Ziegler Personnel

Run #1 8:45-9:44

Time	Fuel Meter (Gals)	Fuel Usage (Gal/HR)	RPM	Kw
8:45	3009	82	1800	1153
9:00	3029	82	1800	1153
9:15	3050	82	1800	1153
9:30	3080	82	1800	1153
9:45	3091	82	1800	1153
Total/Average:	82	82	1800	1153

Run #2 10:08-11:07

Time	Fuel Meter (Gals)	Fuel Usage (Gal/HR)	RPM	Kw
10:08	3123	83	1800	1153
10:23	3143	83	1800	1153
10:38	3164	83	1800	1153
12:53	3185	83	1800	1153
11:08	3206	83	1800	1153
Total/Average:	83	83	1800	1153

Run #3 11:23-12:22

Time	Fuel Meter (Gals)	Fuel Usage (Gal/HR)	RPM	Kw
11:23	3224	82	1800	1153
11:38	3244	82	1800	1153
11:53	3265	82	1800	1153
12:08	3285	82	1800	1153
12:23	3306	82	1800	1153
Total/Average:	82	82	1800	1153

Summary of Operating Data

Dakotah! Sport and Fitness - Prior Lake, MN
Generac Diesel Generator EU 214
September 24, 2014 - AET # 02-02120
Data Collected by Ziegler Personnel

Run #1 12:04-13:03

Time	Fuel Meter (Gals)	Fuel Usage (Gal/HR)	RPM	Kw
17:35	435	43	1800	557
17:50	445	43	1800	557
18:05	456	43	1800	557
18:20	467	43	1800	557
18:35	478	43	1800	557
Average:	43	43	1800	557

Run #2 13:35-14:34

Time	Fuel Meter (Gals)	Fuel Usage (Gal/HR)	RPM	Kw
19:00	501	43	1800	557
19:15	512	43	1800	557
19:30	522	43	1800	557
19:45	533	43	1800	557
20:00	544	43	1800	557
Average:	43	43	1800	557

Run #3 15:03-16:02

Time	Fuel Meter (Gals)	Fuel Usage (Gal/HR)	RPM	Kw
20:20	568	45	1800	557
20:35	579	45	1800	557
20:50	590	45	1800	557
21:05	601	45	1800	557
20:20	613	45	1800	557
Average:	45	45	1800	557

Appendix D

Calculations and Nomenclature

Emission Rate Calculation

$$E = C_d * F_d \quad \frac{20.9}{(20.9 - \%O_{2d})}$$

E= emission rate in lb/million Btu

C_d= concentration standard

F_d= fuel factor (dry)

O_{2d}= dry oxygen %

Analyzer Bias Adjustment Calculation

$$\text{Bias Adjusted Concentration} = \left(C_j - C_{DO}\right)\left(\frac{C_H}{C_{DH} - C_{DO}}\right)$$

Where :

C_j = Uncorrected average concentration

C_{DO} = Average zero gas drift check concentration

C_H = Actual concentrat ion of the drift check calibration gas

C_{DH} =Average measured concentration of the drift check calibration gas

$$HI_o = M_o \frac{GCV_o}{10^6} \qquad (Eq.\ F\text{-}19)$$

Where:
HI_o = Hourly heat input rate from oil, mmBtu/hr.
M_o = Mass rate of oil consumed per hour,
GCV_O = Gross calorific value of oil,
10^6 = Conversion of Btu to mmBtu.

$$E_{(NOx)_h} = ER_{(NOx)_h} HI_h \qquad (Eq.\ F\text{-}24a)$$

Where:
$E_{(NOX)h}$ = NO_X mass emissions rate in lbs/hr for the hour.
$ER_{(NOX)h}$ = Hourly average NO_X emission rate for hour h, lb/mmBtu,
HI_h = Hourly average heat input rate for hour h, mmBtu/hr.

Volumetric Air Flow Calculations

EPA Method 1

Equivalent Diameter

$$De = \frac{2 \cdot L \cdot W}{L + W}$$

Where:

De = Equivalent diameters

L = Stack length

W = Stack width

EPA Method 2

Absolute Stack Pressure

$$P_s = Pb + \frac{P_{stat}}{13.6}$$

Where:

P_s = Absolute stack pressure, (in. Hg)

Pb = Barometric pressure, (In. Hg)

P_{stat} = Stack static pressure, (in. H2O)

Average Stack Gas Velocity

$$vs = 60 \cdot Kp \cdot Cp \cdot \left(\sqrt{\Delta p}\right)avg \cdot \sqrt{\frac{Ts(avg)}{Ps \cdot Ms}}$$

Where:

vs = Average stack gas velocity, (fpm)

Kp = Pitot tube constant, 85.49 $\left(\frac{ft}{sec}\left[\frac{(lb/lb-mole)(in.\ Hg)}{(°R)(in.\ H2O)}\right]\right)$

Cp = Pitot tube coefficient, dimensionless

Δp = Velocity head of stack gas, (In. H2O)

Ts = Absolute stack temperature, (°R)

Ps = Absolute stack pressure, (In. Hg)

Ms = Molecular weight of stack gas, wet basis (lb/lb-mole)

Volumetric Air Flow Calculations. (continued)

EPA Method 2 (Continued)

Actual Volumetric Air Flow Rate

$$Q_a = A \cdot v_s$$

Where:

Q_a = Volumetric stack gas flow rate, actual (acfm)

A = Cross-sectional area of stack, (ft^2)

v_s = Average stack gas velocity, (fpm)

Standard Volumetric Air Flow Rate

$$Q_s = Q_a \cdot \left[\frac{T_{std} \cdot P_s}{T_s \cdot P_{std}} \right]$$

Where:

Q_s = Volumetric stack gas flow rate corrected to standard conditions, (scfm)

Q_a = Volumetric stack gas flow rate, actual (acfm)

T_{std} = Standard absolute temperature, (528 °R)

P_s = Absolute stack pressure, (in. Hg)

T_s = Absolute stack temperature, (°R)

P_{std} = Standard absolute pressure, 29.92 in. Hg

Dry Standard Volumetric Air Flow Rate

$$Q_{sd} = (1 - B_{ws}) \cdot Q_s$$

Where:

Q_{sd} = Dry volumetric stack gas flow rate corrected to standard conditions, (dscfm)

B_{ws} = Water vapor in the gas stream, proportion by volume

Q_s = Volumetric stack gas flow rate corrected to standard conditions, (scfm)

Volumetric Air Flow Calculations. (continued)

EPA Method 3

Dry Molecular Weight

$$Md = 0.440(\%CO_2) + 0.320(\%O_2) + 0.280(\%N_2 + \%CO)$$

Where:

Md = Molecular weight of stack gas, dry basis (lb / lb - mole)
$\%CO_2$ = Percent CO_2 by volume, dry basis
$\%O_2$ = Percent O_2 by volume, dry basis
$\%N_2$ = Percent N_2 by volume, dry basis
$\%CO$ = Percent CO by volume, dry basis

Stack Gas Molecular Weight

$$Ms = Md \cdot (1 - Bws) \div 18.0 \cdot Bws$$

Where:
Ms = Molecular weight of stack gas, wet basis (lb / lb - mole)
Md = Molecular weight of stack gas, dry basis (lb / lb - mole)
Bws = Water Vapor in the gas stream, proportion by volume

Calculation of Percent Moisture from Wet Bulb/Dry Bulb Temperatures

$$svp = 0.1804 \bullet 10^{\left(\frac{\left(7.5 \bullet \left(\frac{T_w - 32}{1.8}\right)\right)}{237.7 + \left(\frac{T_w - 32}{1.8}\right)}\right)}$$

Where :

svp = Saturated Vapor Pressure, In. Hg.
T_w = Wet Bulb Temperatur e, °F

$$vp = svp - \left(0.000367 \bullet P \bullet (T_d - T_w) \bullet \left(1 + \left(\frac{T_w - 32}{1571}\right)\right)\right)$$

Where :

vp = Vapor Pressure, In. Hg.
svp = Saturated Vapor Pressure, In. Hg.
P = Absolute Stack Pressure, In. Hg.
T_d = Dry Bulb Temperatur e, °F
T_w = Wet Bulb Temperatur e, °F

$$\%Moisture = 100 \bullet \left(\frac{vp}{P}\right)$$

Where :

vp = Vapor Pressure, In. Hg.
P = Absolute Stack Pressure, In. Hg.

Emission Calculations

Total Milligrams Collected to Parts Per Million by Volume

$$\left(\frac{\text{Mass Collected}}{\text{Volume Sampled}}\right) \bullet 0.001 \bullet \left(\frac{1}{\text{Molecular Wt.}}\right) \bullet 24.05 \bullet 1{,}000{,}000$$

Where:
Mass Collected = Total weight of analyte collected, mg
Volume Sampled = Total volume of gas sampled at standard conditions, L
0.001 = Conversion, milligrams to grams
Molecular Wt. = Molecular weight of analyte
24.05 = Liters per gram-mole

Parts Per Million by Volume to Pounds Per Hour

$$\left(\frac{\text{PPMv}}{1{,}000{,}000}\right) \bullet \left(\frac{1}{24.05}\right) \bullet \left(\frac{\text{Molecular Wt.}}{1}\right) \bullet 28.32 \bullet \left(\frac{1}{453.59}\right) \bullet \text{SCFM} \bullet 60$$

Simplified:

$$\text{PPMv} \bullet \text{Molecular Wt.} \bullet 0.000000156 \bullet \text{SCFM}$$

Where:
24.05 = Liters per gram-mole
Molecular Wt. = Molecular weight of analyte
28.32 = Conversion, Liters to cubic feet
453.59 = Conversion, grams to pounds
SCFM = Gas flow rate, standard cubic feet per minute
60 = Minutes per hour

Oxygen-Based F-Factor, Dry Basis

$$E = (C_d \bullet F_d)\frac{20.9}{20.9 - \%O_{2d}}$$

Where:

E = Emission Rate, lbs/mmBtu

C_d = Pollutant Concentration, lb/DSCF

F_d = F-Factor from EPA Method 19

O_{2d} = Stack Gas Oxygen Content, Dry Basis, %

Particulate – Lbs/mmbtu Calculation

(gr/dscf)*(F-factor)*(1 lb/7000gr)*(20.9/(20.9-O_2) = lb/mmBTU heat

Appendix E

Calibration Data

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
• ENVIRONMENTAL
• GEOTECHNICAL
• MATERIALS
• FORENSICS

CERTIFICATE OF ELECTRONIC MANOMETER CALIBRATION

AET I.D. No: 14-0121
Type: Dwyer 470 Mark III
Calibration Procedure No.: 03-ENV-026
Date Calibrated: 5/12/2014
Due Date for Next Calibration: 5/12/2015

	Manometer	Reference	Difference, %	Leak Check (Pass/Fail)
Pressure Side				Pass
Low	0.48	0.500	4.0%	
Mid	0.96	1.000	4.0%	
High	1.43	1.500	4.7%	
Vacuum Side				Pass
Low	0.48	0.500	4.00%	
Mid	0.96	1.000	4.00%	
High	1.44	1.500	4.00%	

As Found/As Left results are the same for all values unless noted.

Calibration Criteria: ± 5.0 % of Reference Pressure
Calibration Result: (Pass) / **Fail**

Test Conditions
Temperature: 70 °F
Rel. Humidity: 74 %

Reference Standard
AET I.D. No: 14-0162
Model: Dwyer
Description: Oil 0-2"
Cal. Due Date: 1/16/2019

American Engineering Testing, Inc. (AET) certifies that the above-listed equipment was calibrated in accordance with the AET Calibration Procedure listed above. This calibration was performed using instrumentation and standards with calibration traceable to nationally-recognized standards maintained by the United States National Institute of Standards and Technology (NIST).

Performed By: _____ Date 5/13/14
Reviewed By: _____ Date 5/13/14

Electronic Manometer Calibration DS - REV012506

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
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• GEOTECHNICAL
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• FORENSICS

CERTIFICATE OF BAROMETER CALIBRATION

Barometer I.D.:	14-1272
Barometer Type:	Thommen
Calibration Procedure No.:	03-ENV-028
Date Calibrated:	5/12/2014
Due Date for Next Calibration:	5/12/2015

Reference, in Hg	Barometer as Found, in Hg	Barometer as Left, in Hg
28.84	28.87	28.87

Calibration Criteria: ± 0.1 in Hg

Calibration Result: **Pass** / **Fail**

Test Conditions

Temperature: 69 °F

Rel. Humidity: 68 %

Reference Standard

I.D. No:	14-0046
Model:	Princo
Description:	Mercury Barometer
Cal. Due Date:	1/15/2017

American Engineering Testing, Inc. (AET) certifies that the above-listed equipment was calibrated in accordance with the AET Calibration Procedure listed above. This calibration was performed using instrumentation and standards with calibration traceable to nationally-recognized standards maintained by the United States National Institute of Standards and Technology (NIST).

Performed By: _____ Date 5/13/14

Reviewed By: _____ Date 5/13/14

550 Cleveland Avenue North| St. Paul, MN 55114
Phone 651-659-9001| Toll Free 800-972-6364| Fax 651-659-1379| www.amengtest.com| AA/EEO

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
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EPA METHOD 5
DRY GAS METER AND ORIFICE CALIBRATION

AET I.D. No:	14-1748
Calibration Procedure No:	03-ENV-023
Date Calibrated:	8/18/2014
Due Date for Next Calibration:	8/18/2015
Leak Check from Meter Box Inlet Result:	Pass
Leak Check from Pump to Orifice Result:	Pass
Dry Gas Meter Calibration Coefficient, Yd:	1.025
Orifice Calibration, dH@:	1.667

Reference Standards

AET I.D. No:	14-0160	AET I.D. No:	14-1748T	AET I.D. No:	14-AF13
Model:	Apex	Model:	Jenco	Model:	Type K
Description:	Calibrated Orifice Kit	Description:	Temperature Display	Description:	Thermocouple
Cal. Due Date:	8/18/2015	Cal. Due Date:	8/18/2014	Cal. Due Date:	5/12/2015

AET I.D. No:	14-0033
Model:	Altimeter
Description:	Barometer
Cal. Due Date:	5/12/2015

American Engineering Testing, Inc. (AET) certifies that the above-listed equipment was calibrated in accordance with the AET Calibration Procedure listed above. This calibration was performed using instrumentation and standards with calibration traceable to nationally-recognized standards maintained by the United States National Institute of Standards and Technology (NIST).

Performed By: _____ Date: 8/20/14

Reviewed By: _____ Date: 8/20/14

EPA METHOD 5
ORIFICE CALIBRATION CHECK

Orifice Kit I.D. No:	14-0160
Calibration Procedure No:	03-ENV-023
Date Calibration Checked:	8/18/2014
Due Date for Next Calibration Check:	8/18/2015

Orifice Serial No:	Difference in calculated Y from Smaller Orifice	Difference in calculated Y from Larger Orifice	Result PASS/FAIL
40		-1.16%	PASS
48	-1.14%	-1.01%	PASS
55	-1.00%	-0.03%	PASS
63	-0.03%	0.34%	PASS
73	0.34%		PASS

Criteria: An orifice must be recalibrated if the difference in the calculated Y determined from the next smaller or larger orifice size exceeds 2%.

American Engineering Testing, Inc. (AET) certifies that the above-listed equipment was calibrated in accordance with the AET Calibration Procedure listed above. This calibration was performed using instrumentation and standards with traceable to nationally-recognized standards maintained by the United States National Institute of Standards and Technology (NIST).

Performed By: _____ Date: 8/20/14

Reviewed By: _____ Date: 8/20/14

FINAL CALIBRATION RESULTS

Date:	08/18/14
AET I.D. No:	14-1748
Barometric Pressure, In. Hg:	29.91
Theoretical Critical Vacuum, In. Hg:	14.11
Leak Check from Meter Box Inlet Result:	Pass
Leak Check from Pump to Orifice Result:	Pass
Performed By:	AJL

CONVERSION FACTORS

1 mm Hg = 0.13330 kPa

1 mm = 0.03937 inch
1 cu ft = 28.32 liters

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

---------- DRY GAS METER READINGS ----------							-CRITICAL ORIFICE READINGS-						-- Average Temperatures --		
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	-- Ambient Temperature --			DGM	DGM	Ambient
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average	Outlet	Overall	Temp
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)	(deg F)	(number)	(see above)	(in Hg)	(deg F)	(deg F)	(deg F)	(deg R)	(deg R)	(deg R)
0.27	5.00	107.300	108.824	1.524	73.0	72.0	73.0	72.0	40	0.244	16.0	74.0	74.0	74.0	532.0	532.5	534.0
0.27	5.00	144.101	145.628	1.527	72.0	72.0	72.0	72.0	40	0.244	16.0	75.0	75.0	75.0	532.0	532.0	535.0
0.61	5.00	110.820	113.038	2.218	73.0	72.0	74.0	73.0	48	0.350	16.0	74.0	74.0	74.0	532.5	533.0	534.0
0.61	5.00	113.038	115.263	2.225	74.0	73.0	74.0	73.0	48	0.350	16.0	74.0	74.0	74.0	533.0	533.5	534.0
1.12	5.00	118.762	121.707	2.945	74.0	73.0	75.0	73.0	55	0.460	16.0	74.0	74.0	74.0	533.0	533.8	534.0
1.12	5.00	121.707	124.656	2.949	75.0	73.0	75.0	74.0	55	0.460	16.0	74.0	74.0	74.0	533.5	534.3	534.0
1.81	5.00	125.202	128.997	3.795	75.0	74.0	75.0	74.0	63	0.592	16.0	74.0	74.0	74.0	534.0	534.5	534.0
1.81	5.00	128.997	132.784	3.787	75.0	74.0	75.0	74.0	63	0.592	16.0	74.0	74.0	74.0	534.0	534.5	534.0
3.43	5.00	133.326	138.572	5.246	74.0	73.0	74.0	73.0	73	0.821	15.0	74.0	74.0	74.0	533.0	533.5	534.0
3.43	5.00	138.577	143.830	5.253	74.0	73.0	76.0	74.0	73	0.821	15.0	74.0	74.0	74.0	533.5	534.3	534.0

********** RESULTS **********

--- DRY GAS METER ---		--------- ORIFICE ---------			-- DRY GAS METER --		--------- ORIFICE ---------	
VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	CALIBRATION FACTOR		CALIBRATION FACTOR	
CORRECTED	CORRECTED	CORRECTED	CORRECTED	NOMINAL	Y		dH@	
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr	Value	Variation	Value	Variation
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)	(number)	(number)	(in H2O)	(in H2O)
1.511	42.8	1.577	44.7	1.596	1.044	1.85%	1.514	-0.152
1.515	42.9	1.576	44.6	1.598	1.040	1.45%	1.517	-0.149
				Average:	1.042	1.65% Average:	1.516	-0.151
2.199	62.3	2.267	64.2	2.294	1.031	0.57%	1.654	-0.012
2.204	62.4	2.267	64.2	2.294	1.029	0.35%	1.653	-0.014
				Average:	1.030	0.46% Average:	1.654	-0.013
2.919	82.7	2.977	84.3	3.013	1.020	-0.55%	1.760	0.093
2.920	82.7	2.977	84.3	3.013	1.019	-0.59%	1.758	0.092
				Average:	1.020	-0.57% Average:	1.759	0.092
3.763	106.6	3.831	108.5	3.878	1.018	-0.71%	1.714	0.047
3.755	106.3	3.831	108.5	3.878	1.020	-0.49%	1.714	0.047
				Average:	1.019	-0.60% Average:	1.714	0.047
5.232	148.2	5.315	150.5	5.379	1.016	-0.95%	1.691	0.025
5.231	148.2	5.315	150.5	5.379	1.016	-0.94%	1.690	0.023
				Average:	1.016	-0.94% Average:	1.690	0.024
				Average Yd:	1.025	Average dH@:	1.667	
				Maximum Deviation from Average, %:	1.65%	aximum Deviation from Average:	0.151	

Calibration Criteria:

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.

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
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CERTIFICATE OF DIGITAL TEMPERATURE DISPLAY CALIBRATION

AET I.D. No: 14-1748T
Calibration Procedure No.: 03-ENV-027
Date Calibrated: 8/18/2014
Due Date for Next Calibration: 8/18/2015

Reference	Channel #1	Channel #2	Channel #3	Channel #4	Channel #5	Channel #6
1900 °F	1902	1902	1902	1902	1902	
1700 °F	1701	1701	1701	1701	1701	
1500 °F	1500	1500	1500	1500	1500	
1300 °F	1299	1299	1299	1299	1299	
1100 °F	1100	1100	1100	1100	1100	
900 °F	899	899	899	899	899	
700 °F	699	699	699	699	699	
500 °F	496	496	496	496	496	
300 °F	299	299	299	299	299	
100 °F	97	97	97	97	97	

As Found/As Left results are the same for all values unless noted.

Calibration Criteria: ± 0.75% of Absolute Temperature
Maximum Deviation, %: 0.54% Circle value used in calculation above
Calibration Result: **Pass / Fail**

Test Conditions
Temperature: 74 °F
Rel. Humidity: 80 %

Reference Standard
AET I.D. No: 14-0157
Model: CL540ZA
Description: Thermocouple Simulator
Cal. Due Date: 11/14/2014

American Engineering Testing, Inc. (AET) certifies that the above-listed equipment was calibrated in accordance with the AET Calibration Procedure listed above. This calibration was performed using instrumentation and standards with calibration traceable to nationally-recognized standards maintained by the United States National Institute of Standards and Technology (NIST).

Performed By: _____ Date 8/18/14

Reviewed By: _____ Date 8/20/14

Digital Temperature Display Calibration DS - REV012506

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
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• FORENSICS

EPA METHOD 5
DRY GAS METER AND ORIFICE CALIBRATION

AET I.D. No:	14-1749
Calibration Procedure No:	03-ENV-023
Date Calibrated:	5/12/2014
Due Date for Next Calibration:	5/12/2015
Leak Check from Meter Box Inlet Result:	Pass
Leak Check from Pump to Orifice Result:	Pass
Dry Gas Meter Calibration Coefficient, Yd:	0.998
Orifice Calibration, dH@:	1.713

Reference Standards

AET I.D. No:	LL 40-73	AET I.D. No:	14-01448	AET I.D. No:	14-AF13
Model:	Apex	Model:	Omega	Model:	Type K
Description:	Calibrated Orifice Kit	Description:	Temperature Display	Description:	Thermocouple
Cal. Due Date:	5/12/2014	Cal. Due Date:	5/12/2015	Cal. Due Date:	5/12/2015

AET I.D. No:	14-1272
Model:	Altimeter
Description:	Barometer
Cal. Due Date:	10/16/2014

American Engineering Testing, Inc. (AET) certifies that the above-listed equipment was calibrated in accordance with the AET Calibration Procedure listed above. This calibration was performed using instrumentation and standards with calibration traceable to nationally-recognized standards maintained by the United States National Institute of Standards and Technology (NIST).

Performed By: _____ Date: 5/12/14

Reviewed By: _____ Date: 5/12/14

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
• ENVIRONMENTAL
• GEOTECHNICAL
• MATERIALS
• FORENSICS

EPA METHOD 5
ORIFICE CALIBRATION CHECK

Orifice Kit I.D. No:	LL 40-73
Calibration Procedure No:	03-ENV-023
Date Calibration Checked:	5/12/2014
Due Date for Next Calibration Check:	5/12/2015

Orifice Serial No:	Difference in calculated Y from Smaller Orifice	Difference in calculated Y from Larger Orifice	Result PASS/FAIL
40		-1.45%	PASS
48	-1.43%	-1.75%	PASS
55	-1.72%	0.13%	PASS
63	0.13%	0.03%	PASS
73	0.03%		PASS

Criteria: An orifice must be recalibrated if the difference in the calculated Y determined from the next smaller or larger orifice size exceeds 2%.

American Engineering Testing, Inc. (AET) certifies that the above-listed equipment was calibrated in accordance with the AET Calibration Procedure listed above. This calibration was performed using instrumentation and standards with traceable to nationally-recognized standards maintained by the United States National Institute of Standards and Technology (NIST).

Performed By: _____ Date: 5/12/14

Reviewed By: _____ Date: 5/12/14

FINAL CALIBRATION RESULTS

Date:	05/12/14
AET I.D. No:	14-1749
Barometric Pressure, In. Hg:	28.90
Theoretical Critical Vacuum, In. Hg:	13.63
Leak Check from Meter Box Inlet Result:	Pass
Leak Check from Pump to Orifice Result:	Pass
Performed By:	AJL

CONVERSION FACTORS

1 mm Hg = 0.13330 kPa

1 mm = 0.03937 inch
1 cu ft = 28.32 liters

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

---------- DRY GAS METER READINGS ----------									-CRITICAL ORIFICE READINGS-						-- Average Temperatures --		
		Volume	Volume	Volume	Initial Temps.		Final Temps.		Orifice	K' Orifice	Actual	-- Ambient Temperature --			DGM	DGM	Ambient
dH	Time	Initial	Final	Total	Inlet	Outlet	Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average	Outlet	Overall	Temp
(in H2O)	(min)	(cu ft)	(cu ft)	(cu ft)	(deg F)	(deg F)	(deg F)	(deg F)	(number)	(see above)	(in Hg)	(deg F)	(deg F)	(deg F)	(deg R)	(deg R)	(deg R)
0.27	5.00	25.721	27.276	1.555	66.0	65.0	66.0	65.0	40	0.244	16.0	69.0	69.0	69.0	525.0	525.5	529.0
0.27	5.00	27.276	28.838	1.562	78.0	71.0	77.0	72.0	40	0.244	16.0	71.5	71.7	71.6	531.5	534.5	531.6
0.59	5.00	70.796	73.067	2.271	70.0	70.0	70.0	70.0	48	0.350	14.5	70.0	70.0	70.0	530.0	530.0	530.0
0.59	5.00	73.076	75.348	2.272	70.0	70.0	70.0	70.0	48	0.350	14.5	70.0	70.0	70.0	530.0	530.0	530.0
1.10	5.00	34.809	37.829	3.020	68.0	67.0	69.0	68.0	55	0.460	17.0	69.0	69.0	69.0	527.5	528.0	529.0
1.10	5.00	37.829	40.857	3.028	69.0	68.0	69.0	68.0	55	0.460	17.0	69.0	69.0	69.0	528.0	528.5	529.0
1.82	5.00	41.753	45.637	3.884	69.0	68.0	70.0	69.0	63	0.592	17.0	69.0	69.0	69.0	528.5	529.0	529.0
1.82	5.00	45.637	49.527	3.890	70.0	69.0	70.0	69.0	63	0.592	17.0	69.0	69.0	69.0	529.0	529.5	529.0
3.48	5.00	50.553	55.991	5.438	70.0	69.0	70.0	69.0	73	0.821	15.0	70.0	70.0	70.0	529.0	529.5	530.0
3.48	5.00	56.006	61.377	5.371	70.0	69.0	92.0	75.0	73	0.821	15.0	70.0	70.0	70.0	532.0	536.5	530.0

********** RESULTS **********

--- DRY GAS METER ---		--------- ORIFICE ---------			-- DRY GAS METER --		--------- ORIFICE ---------	
VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	CALIBRATION FACTOR		CALIBRATION FACTOR	
CORRECTED	CORRECTED	CORRECTED	CORRECTED	NOMINAL	Y		dH@	
Vm(std)	Vm(std)	Vcr(std)	Vcr(std)	Vcr	Value	Variation	Value	Variation
(cu ft)	(liters)	(cu ft)	(liters)	(cu ft)	(number)	(number)	(in H2O)	(in H2O)
1.510	42.8	1.531	43.4	1.589	1.014	1.65%	1.573	-0.139
1.491	42.2	1.527	43.3	1.593	1.024	2.67%	1.562	-0.151
				Average:	1.019	2.16% Average:	1.568	-0.145
2.188	62.0	2.199	62.3	2.286	1.005	0.72%	1.651	-0.061
2.189	62.0	2.199	62.3	2.286	1.005	0.68%	1.651	-0.061
				Average:	1.005	0.70% Average:	1.651	-0.061
2.924	82.8	2.890	81.8	2.999	0.988	-0.94%	1.791	0.078
2.929	82.9	2.890	81.8	2.999	0.987	-1.11%	1.789	0.076
				Average:	0.988	-1.03% Average:	1.790	0.077
3.760	106.5	3.719	105.3	3.859	0.989	-0.87%	1.785	0.073
3.763	106.6	3.719	105.3	3.859	0.988	-0.93%	1.784	0.071
				Average:	0.989	-0.90% Average:	1.785	0.072
5.282	149.6	5.154	146.0	5.359	0.976	-2.19%	1.776	0.063
5.149	145.8	5.154	146.0	5.359	1.001	0.33%	1.766	0.053
				Average:	0.988	-0.93% Average:	1.771	0.058
				Average Yd:	0.998	Average dH@:	1.713	
				Maximum Deviation from Average, %:	2.16%	ximum Deviation from Average:	0.145	

Calibration Criteria:

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.

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
• ENVIRONMENTAL
• GEOTECHNICAL
• MATERIALS
• FORENSICS

CERTIFICATE OF DIGITAL TEMPERATURE DISPLAY CALIBRATION

AET I.D. No: 14-1749T
Calibration Procedure No.: 03-ENV-027
Date Calibrated: 5/12/2014
Due Date for Next Calibration: 5/12/2015

Reference	Channel #1	Channel #2	Channel #3	Channel #4	Channel #5	Channel #6
1900 °F	1900	1900	1899	1900	1900	
1700 °F	1700	1700	1699	1699	1699	
1500 °F	1499	1499	1499	1499	1499	
1300 °F	1299	1299	1299	1299	1299	
1100 °F	1100	1100	1100	1100	1100	
900 °F	900	900	899	899	899	
700 °F	700	700	700	700	700	
500 °F	498	498	497	497	497	
300 °F	301	301	300	300	300	
100 °F	99	99	98	98	98	

As Found/As Left results are the same for all values unless noted.

Calibration Criteria: ± 0.75% of Absolute Temperature
Maximum Deviation, %: 0.36% Circle value used in calculation above
Calibration Result: **Pass** / **Fail**

Test Conditions
Temperature: 69 °F
Rel. Humidity: 68 %

Reference Standard
AET I.D. No: 14-0157
Model: CL-300-K-2100F
Description: Thermocouple Simulator
Cal. Due Date: 11/14/2014

American Engineering Testing, Inc. (AET) certifies that the above-listed equipment was calibrated in accordance with the AET Calibration Procedure listed above. This calibration was performed using instrumentation and standards with calibration traceable to nationally-recognized standards maintained by the United States National Institute of Standards and Technology (NIST).

Performed By: _____ Date 5/12/14
Reviewed By: _____ Date 5/12/14

Digital Temperature Display Calibration DS - REV012506

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
• ENVIRONMENTAL
• GEOTECHNICAL
• MATERIALS
• FORENSICS

CERTIFICATE OF THERMOCOUPLE CALIBRATION

AET I.D. No:	14-A18
Thermocouple Type:	K-type
Calibration Procedure No.:	03-ENV-025
Date Calibrated:	5/12/2014
Due Date for Next Calib.:	5/12/2015
Temp Display I.D. No.:	14-0115

Reference		Thermocouple		
Setting, °F	Indicated, °F	Reading, °F	Difference, °F	% of Abs Temp
100	100.1	100.5	0.4	0.07%
300	300	302	2	0.26%
500	500	504	4	0.42%

As Found/As Left results are the same for all values unless noted.

Calibration Criteria: ± 1.5 % of Absolute Temperature

Calibration Result: (Pass) / **Fail**

Test Conditions

Temperature: 70 °F

Rel. Humidity: 70 %

Reference Standard

AET I.D. No:	14-0158
Model:	Omega CL1000
Description:	Dry Well Calibrator
Cal. Due Date:	1/9/2015

American Engineering Testing, Inc. (AET) certifies that the above-listed equipment was calibrated in accordance with the AET Calibration Procedure listed above. This calibration was performed using instrumentation and standards with calibration traceable to nationally-recognized standards maintained by the United States National Institute of Standards and Technology (NIST).

Performed By: _____ Date: 5/12/14

Reviewed By: _____ Date: 5/12/14

550 Cleveland Avenue North| St. Paul, MN 55114
Phone 651-659-9001| Toll Free 800-972-6364| Fax 651-659-1379| www.amengtest.com| AA/EEO

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
• ENVIRONMENTAL
• GEOTECHNICAL
• MATERIALS
• FORENSICS

CERTIFICATE OF THERMOCOUPLE CALIBRATION

AET I.D. No:	14-E18
Thermocouple Type:	K-type
Calibration Procedure No.:	03-ENV-025
Date Calibrated:	5/12/2014
Due Date for Next Calib.:	5/12/2015
Temp Display I.D. No.:	14-0115

Reference		Thermocouple		
Setting, °F	Indicated, °F	Reading, °F	Difference, °F	% of Abs Temp
100	100.3	99.4	-0.9	-0.16%
300	301	303	2.0	0.26%
500	501	505	4.0	0.42%

As Found/As Left results are the same for all values unless noted.

Calibration Criteria: ± 1.5 % of Absolute Temperature

Calibration Result: (Pass) / Fail

Test Conditions

Temperature: 70 °F

Rel. Humidity: 70 %

Reference Standard

AET I.D. No:	14-0158
Model:	Omega CL1000
Description:	Dry Well Calibrator
Cal. Due Date:	1/9/2015

American Engineering Testing, Inc. (AET) certifies that the above-listed equipment was calibrated in accordance with the AET Calibration Procedure listed above. This calibration was performed using instrumentation and standards with calibration traceable to nationally-recognized standards maintained by the United States National Institute of Standards and Technology (NIST).

Performed By: _____ Date: 5/12/14

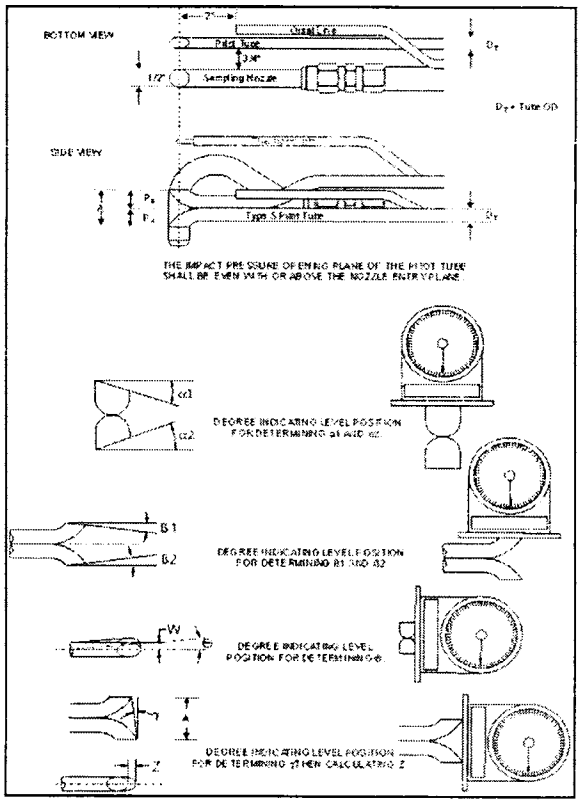
Reviewed By: _____ Date: 5/12/14

550 Cleveland Avenue North | St. Paul, MN 55114
Phone 651-659-9001 | Toll Free 800-972-6364 | Fax 651-659-1379 | www.amengtest.com | AA/EEO

14 - P 3270

APEX INSTRUMENTS SOURCE TESTING EQUIPMENT

Type S Pitot Tube Inspection Form



PITOT TUBE/PROBE # 4985

Parameter	Value	Allowable Range	Check
Assembly Level?	yes	Yes	OK
Ports Damaged?	no	No	OK
$\alpha 1$	0	$-10° < \alpha 1 < +10°$	OK
$\alpha 2$	0	$-10° < \alpha 2 < +10°$	OK
1	1	$-5° < b1 < +5°$	OK
1	0	$-5° < \beta 2 < +5°$	OK
γ	0		
θ	0		
$Z = A \tan \gamma$	0.000	$Z \leq .125"$	OK
$W = A \tan \theta$	0.000	$W \leq .031"$	OK
Dt	0.375	.188" to .375"	OK
A/2Dt	1.161333	$1.05 \leq P_A/D_t \leq 1.5$	OK
A	0.871	$2.1D_t \leq A \leq 3D_t$	OK

Certification

I certify that pitot tube/probe number 4985 meets or exceeds all specifications, criteria and/or applicable design features and is hereby assigned a pitot tube certification factor of 0.84. See 40 CFR Pt. 60, App. A, EPA Method 2.

Certified by: QP 2-1-14

Personnel (Signature/Date)

4985-2014

AIR LIQUIDE Air Liquide America Specialty Gases LLC
Scott
1290 COMBERMERE STREET, TROY, MI 48083
Phone: 248-589-2950 Fax: 248-589-2134

CERTIFIED MASTER CLASS
Single-Certified Calibration Standard

CERTIFICATE OF ACCURACY: Certified Master Class Calibration Standard

Product Information
Document # : 56855935-001
Item No.: M0002690-P-30AL
P.O. No.: 18114

Cylinder Number: ALM006548
Cylinder Size: 30AL
Certification Date: 04Sep2014
Expiration Date: 04Sep2017
Lot Number: TRO0117431

Customer

AMERICAN ENGINEERING TESTING
550 CLEVELAND AVENUE NORT
ST PAUL, MN 55114
US

CERTIFIED CONCENTRATION

Component Name	Concentration (Moles)		Accuracy (+/-%)
NITROGEN DIOXIDE	200.	PPM	2
NITROGEN		BALANCE	

TRACEABILITY

Traceable To

Scott Reference Standard

Reviewed by: [signature]

Date: 10/2/14

APPROVED BY: [signature]
ROBERT MCCRANDALL

DATE: 9/5/14

SPECIFICATIONS

Component Name	Requested Concentration (Moles)		Certified Concentration (Moles)		Blend Tolerance Result (+/- %)	Certified Accuracy Result (+/- %)
NITROGEN DIOXIDE	200.	PPM	200.	PPM	.0	2.00
NITROGEN		BAL		BAL		

TRACEABILITY

Traceable To
Scott Reference Standard

PHYSICAL PROPERTIES

Cylinder Size: 30AL

Pressure: 2015 PSIG
Expiration Date: 04Sep2017

SPECIAL HANDLING INSTRUCTIONS

Do not use or store cylinder at or below the stated dew point temperature. Possible condensation of heavier components could result. In the event the cylinder has been exposed to temperatures at or below the dew point, place cylinder in heated area for 24 hours and then roll cylinder for 15 minutes to re-mix.

Use of calibration standards at or below dew point temperature may result in calibration error.

Reviewed by: [signature]

Date: 10/2/14

AIR LIQUIDE Air Liquide America Specialty Gases LLC | Scott

RATA CLASS

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22012

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

P.O. No.: 59933-71-65000
Document # : 47534369-010

Customer
CLEAN AIR ENGINEERING

DON ALLEN
500 WEST WOOD STREET
PALATINE IL 60067
US

ANALYTICAL INFORMATION Gas Type : NO

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

Cylinder Number: ALM014489 **Certification Date:** 13Sep2012 **Exp. Date:** 14Sep2020
Cylinder Pressure*:** 1950 PSIG **Batch No:** TRO0065370

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
NITRIC OXIDE	4,510	PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	4,520.	PPM		Reference Value Only

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 3600	23Mar2017	KAL003350	3456. PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
CAI/600/X11041	06Sep2012	CHEMI

ANALYZER READINGS

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

First Triad Analysis

NITRIC OXIDE
Date: 06Sep2012 Response Unit: MV
Z1 = 0.00000 R1 = 3456.000 T1 = 4518.000
R2 = 2455.000 Z2 = 0.00000 T2 = 4518.000
Z3 = 0.00000 T3 = 4518.000 R3 = 3456.000
Avg. Concentration: 4519. PPM

Second Triad Analysis

Date: 13Sep2012 Response Unit: MV
Z1 = 0.00000 R1 = 3456.000 T1 = 4508.000
R2 = 3456.000 Z2 = 0.00000 T2 = 4508.000
Z3 = 0.00000 T3 = 4508.000 R3 = 3456.000
Avg. Concentration: 4509. PPM

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.9999
Constants: A = 1.39025789
B = 0.999809741 C = 0
D = 0 E = 0

Reviewed by: _____

Date: 10/2/14

APPROVED BY: _____
HILARY THATCHER

AIR LIQUIDE Air Liquide America Specialty Gases LLC

Scott

RATA CLASS

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22013
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 60309-71-65000
Document # : 49613363-006

Customer
CLEAN AIR ENGINEERING

500 WEST WOOD STREET
PALATINE IL 60067
US

ANALYTICAL INFORMATION Gas Type : NO,BALN

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

Cylinder Number: ALM024833 Certification Date: 05Mar2013 Exp. Date: 06Mar2021
Cylinder Pressure***: 2010 PSIG Batch No: TRO0076020

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
NITRIC OXIDE	1,960	PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	1,960.	PPM		Reference Value Only

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2937	15Mar2013	KAL003311	2937. PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	14Feb2013	FTIR

ANALYZER READINGS

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

First Triad Analysis

NITRIC OXIDE
Date: 26Feb2013 Response Unit: PPM
Z1 = 0.27325 R1 = 2946.974 T1 = 1977.887
R2 = 2947.310 Z2 = 0.67009 T2 = 1978.934
Z3 = 1.50361 T3 = 1980.459 R3 = 2952.464
Avg. Concentration: 1971. PPM

Second Triad Analysis

Date: 05Mar2013 Response Unit: PPM
Z1 = 0.09744 R1 = 2919.854 T1 = 1946.952
R2 = 2927.062 Z2 = 1.48865 T2 = 1953.316
Z3 = 1.56170 T3 = 1955.919 R3 = 2941.455
Avg. Concentration: 1957. PPM

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99986E-1
Constants: A = 0.00000E+0
B = 6.19561E-1 C = 1.50000E-5
D = 0.00000E+0 E = 0.00000E+0

Reviewed by: [signature]

Date: 10/2/14

APPROVED BY: [signature]
Rob McCrandall

LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis

- EPA PROTOCOL GAS -

Customer	Minneapolis Oxygen (Minneapolis, MN)
Date	March 06, 2014
Delivery Receipt	DR-50679
Gas Standard	21.0% CO2, 21.0% Oxygen/Nitrogen - EPA PROTOCOL
Part Number:	SPC NAE03038
Final Analysis Date	March 03, 2014
Expiration Date	March 03, 2022

DO NOT USE BELOW 100 psig

Cylinder Data

Cylinder Serial Number:	CC-125527	Cylinder Outlet:	CGA 590
Cylinder Volume:	133 Cubic Feet	Cylinder Pressure:	1900 psig, 70°F
Expiration Date:	March 03, 2022		

Analytical Data

EPA Protocol, Section No. 2.2, Procedure G-2

Replicate Concentrations

Carbon Dioxide: 21.0% +/- 0.20%

Oxygen: 21.3% +/- 0.06%

Nitrogen: Balance

Reference Standard(s):

GMIS/SRM:	GMIS/GMIS	GMIS/GMIS
Cylinder Number:	EB-0026839/CC-185129	CC-231332/CC-159090
Concentration:	6.847% CO2/13.92% CO2	9.97% Oxygen/20.68% Oxygen
Expiration Date:	10/13/20 - 06/24/14	04/06/14 - 04/06/14

Certification Instrumentation

Component:	Carbon Dioxide	Oxygen	Reviewed by:
Make/Model:	Nicolet 6700	Servomex 244a	
Serial Number:	APW1100563	1847	
Principal of Measurement:	FTIR	Paramagnetic	Date: 3/18/14
Last Calibration:	February 05, 2014	February 05, 2014	

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

Certified by: Cole Dylewski

Cole Dylewski

PGVP Vendor ID: E12014

"UNMATCHED EXCELLENCE"
2048 APEX COURT APOPKA, FLORIDA 32703 ~ PHONE (407)-292-2990 FAX (407)-292-3313
WWW.LIQUIDTECHCORP.COM
APOPKA, FL • HOUSTON, TX

SCOTT-MARRIN, INC. PGVP Vendor ID: H12013
6531 Box Springs Blvd • Riverside, CA 92507-0725
Phone: +1(951)653-6780 • Fax: +1(951)653-2430 • www.scottmarrin.com

Report Of Analysis
EPA Protocol Gas Mixtures

BARR01
TO: Barr Engineering Co
Attn: Benjamin Wiltse
5150 West 76th Street
Edina, MN 55439-2900
(952) 832-2885

REPORT NO: 64559-04
REPORT DATE: March 10, 2014
CUSTOMER PO NO: BAW02192014

CYLINDER NUMBER: CC63465
CYLINDER SIZE: 150A (123 std cu ft)
CYLINDER PRESSURE: 1750 psig

COMPONENT	CONCENTRATION (v/v) ± EPA UNCERTAINTY	REFERENCE STANDARD		ANALYZER MAKE, MODEL, S/N, DETECTION	REPLICATE ANALYSIS DATA
Carbon monoxide	500 ± 5 ppm	GMIS	SRM 1680b	Carle Insts Model 8000	3/4/2014
			Samp#: 2-I-23	Serial # 8249	497 ppm
		Cyl#: CC323	Cyl#: CAL015763	Methanation/FID	496 ppm
		583 ± 2 ppm	496.7 ± 1.6 ppmv	Gas Chromatography	497 ppm
		Exp: 6/4/2021	Exp: 2/20/2017	LAST CAL DATE: 3/3/2014	$\bar{x}$: 497 ppm
Nitrogen	Balance				

CERTIFICATION DATE: March 4, 2014 EPA EXPIRATION DATE: March 5, 2022

Reviewed by: [signature]

Date: 10/2/14

ppm = µmole/mole % = mole-% $\bar{x}$ = EPA weighted mean

The above analyses were performed in accordance with Procedure G1 of the EPA Traceability Protocol, Report Number EPA600/R-12/531, dated May 2012.

The above analyses should not be used if the cylinder pressure is less than 100 psig.

ANALYST: [signature] M.J.Monson APPROVED: [signature] J. T. Marrin

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

SCOTT-MARRIN, INC.
6531 BOX SPRINGS BLVD. • RIVERSIDE, CA 92507
TELEPHONE (951) 653-6780 • FAX (951) 653-2430

Report Of Analysis
EPA Protocol Gas Mixtures

BARR01
TO: Barr Engineering Co
Attn: Benjamin Wiltse
5150 76th Street S
Edina, MN 55439-2900
(952) 832-2885

REPORT NO: 61943-02
REPORT DATE: October 5, 2012
CUSTOMER PO NO: BAW08202012

CYLINDER NUMBER: CC94443
CYLINDER SIZE: 150A (141 std cu ft)
CYLINDER PRESSURE: 2000 psig

COMPONENT	CONCENTRATION (v/v) ± EPA UNCERTAINTY	REFERENCE STANDARD	ANALYZER MAKE, MODEL, S/N, DETECTION	REPLICATE ANALYSIS DATA	
				9/20/2012	9/27/2012
Nitric oxide	487 ± 3 ppm	GMIS	TECO Model 42CHL	487 ppm	487 ppm
NOx	487 ppm	CYLINDER #: CC50638	Serial # 58299-317	487 ppm	486 ppm
Nitrogen dioxide	< 2 ppm	@ 547 ppmv	Continuous Chemiluminescence	488 ppm	487 ppm
			LAST CAL DATE: 9/27/2012 MEAN:	487 ppm	487 ppm
O2-free Nitrogen	Balance				

EPA EXPIRATION DATE: September 27, 2014

Reviewed by: [signature]

Date: 10/2/14

ppm = umole/mole **% = mole-%**

The above analyses were performed in accordance with Procedure G1 of the EPA Traceability Protocol, Report Number EPA-600/R97/121, dated September 1997.
The above analyses are invalid if the cylinder pressure is less than 150 psig.

ANALYST: D.C. Marrin D.C.Marrin **APPROVED:** J. T. Marrin

STANDARD CALIBRATION GASES IN ALUMINUM CYLINDERS

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis

- EPA PROTOCOL GAS -

Customer	Minneapolis Oxygen (Minneapolis, MN)
Date	February 14, 2014
Delivery Receipt	DR-50349
Gas Standard	11.0% CO2, 11.0% Oxygen/Nitrogen - EPA PROTOCOL
Part Number:	SPC NAE03000
Final Analysis Date	February 12, 2014
Expiration Date	February 12, 2022

DO NOT USE BELOW 100 psig

Cylinder Data

Cylinder Serial Number:	EB-0016054	Cylinder Outlet:	CGA 590
Cylinder Volume:	133 Cubic Feet	Cylinder Pressure:	1900 psig, 70°F
Expiration Date:	February 12, 2022		

Reviewed by: [signature]

Date: 3 - 4 - 14

Analytical Data

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

Replicate Concentrations

Carbon Dioxide: 10.7% +/- 0.06%

Oxygen: 11.1% +/- 0.06%

Nitrogen: Balance

Reference Standard(s):

GMIS/SRM:	GMIS/GMIS	GMIS/GMIS
Cylinder Number:	EB-0026839/CC-185129	CC-231332/CC-159090
Concentration:	6.847% CO2/13.92% CO2	9.97% Oxygen/20.68% Oxygen
Expiration Date:	10/13/20 - 06/24/14	04/06/14 - 04/06/14

Certification Instrumentation

Component:	Carbon Dioxide	Oxygen
Make/Model:	Nicolet 6700	Servomex 244a
Serial Number:	APW1100563	1847
Principal of Measurement:	FTIR	Paramagnetic
Last Calibration:	February 05, 2014	January 30, 2014

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

Certified by: [signature]

Cole Dylewski

PGVP Vendor ID: E12014

"UNMATCHED EXCELLENCE"
2048 APEX COURT APOPKA, FLORIDA 32703 ~ PHONE (407)-292-2990 FAX (407)-292-3313
WWW.LIQUIDTECHCORP.COM
APOPKA, FL • HOUSTON, TX

SPECIALTY GASES OF AMERICA, INC.
AMERICAN INDUSTRIAL GASES, INC.
AMERICAN RARE GASES, INC.

6055 BRENT DR. TOLEDO, OH 43611
419-729-7732 FAX 419-729-2411

THE AMERICAN GAS GROUP

www.americangasgroup.com

ANALYTICAL REPORT

Certificate ID: 110312003 **Date:** 11/3/2012

Customer Name: Matheson, MN

Customer Address: 305 2nd ST NW

New Brighton MN 55112

Purchase Order: 93-3096 **Work Order:** 825709-03

Lot Number: 1022HG12 **Product Name:** 4-Component Mixture, EPA Protocol

Size: AS **Pressure:** 2210 psig @ 80 Deg F

Content: Ven ID# C12012

Serial #: EB0023213

Analysis Date: 11/3/2012

Shelf Life: 24 months **Expiration Date:** 11/3/2014

Component	Nominal	Actual	Accuracy	Method
Nitric Oxide	970 ppm	971 ppm	+/- 2% rel	Chemiluminescence
Nitrogen Oxides (NOx)	970 ppm	972 ppm	+/- 2% rel	Chemiluminescence
Carbon Monoxide	970 ppm	973 ppm	+/- 2% rel	NDIR
Sulfur Dioxide	970 ppm	980 ppm	+/- 2% rel	NDUV
Nitrogen	Balance	Balance		

REFERENCE STANDARD

Std Type	Std #	Cyl #	Concentration	Exp Date
GMIS	1119EZ10	ND28626	985.000000	10/19/2013
GMIS	1119EZ10	ND28626	986.000000	10/19/2013
GMIS	0705HA12	EB0024920	983.500	9/13/2014
GMIS	1109GH11	EB0025942	1019.0000	2/15/2014

INSTRUMENTATION

Component	Instrument / ID
NO	Rosemount 951A
NOx	Rosemount 951A
CO	Horiba VA-3000
SO2	Ametek WR Series 900

Reviewed by: _____

Date: 11/9/12

Note: * ANALYZED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS - SEPTEMBER 1997:G1
* DO NOT USE STANDARD WHEN PRESSURE IS BELOW 150 PSIG

Protocol
Specialty Gases of America, Inc

Issued by: Josh Jones

US EPA ARCHIVE DOCUMENT

LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis

- EPA PROTOCOL GAS -

Customer	Minneapolis Oxygen (Minneapolis, MN)
Date	December 18, 2013
Delivery Receipt	DR-49596
Gas Standard	470 ppm CO, 470 ppm NO, 470 ppm SO2/Nitrogen - EPA PROTOCOL
Final Analysis Date	December 17, 2013
Expiration Date	December 17, 2021
Part Number	EPA 465470C

DO NOT USE BELOW 100 psig

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

Reported Concentrations

Carbon Monoxide: 470 ppm +/- 4.5 ppm
Nitric Oxide: 496 ppm +/- 2.0 ppm
Sulfur Dioxide: 479 ppm +/- 4.3 ppm
Nitrogen: Balance
Total NOx: 496 ppm
**** NOx for Reference Use Only ****

Reviewed by:

Date: 12/18/13

Reference Standards

SRM/GMIS:	GMIS	GMIS/GMIS	GMIS/GMIS
Cylinder Number:	EB-0023403	CC-92964/CC-184989	CC-54548/CC-251490
Concentration:	510.29 ppm CO	249.68 ppm/495.42 ppm NO	102.43 ppm SO2/507.877 ppm SO2
Expiration Date:	10/22/14	08/23/15 - 10/22/14	09/20/14 - 04/12/15

Certification Instrumentation

Component:	Carbon Monoxide	Nitric Oxide	Sulfur Dioxide
Make/Model:	NEXUS 6700	NEXUS 6700	NEXUS 6700
Serial Number:	APW1200289	APW1200289	APW1200289
Principal of Measurement:	FTIR	FTIR	FTIR
Last Calibration:	November 20, 2013	November 20, 2013	November 20, 2013

Cylinder Data

Cylinder Number:	EB-0027078	Cylinder Volume:	135 Cubic Feet
Cylinder Outlet:	CGA 660	Cylinder Pressure:	1925 psig, 70°F
Expiration Date:	December 17, 2021		

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

Certified by: Cole Dylewski

Cole Dylewski

PGVP Vendor ID: E12013

"UNMATCHED EXCELLENCE"
2048 APEX COURT APOPKA, FLORIDA 32703 ~ PHONE (407)-292-2990 FAX (407)-292-3313
WWW.LIQUIDTECHCORP.COM
APOPKA, FL • HOUSTON, TX

LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis

- EPA PROTOCOL GAS -

Customer	Minneapolis Oxygen (Minneapolis, MN)
Date	February 07, 2014
Delivery Receipt	DR-50310
Gas Standard	50.0 ppm CO, 50.0 ppm NO, 50.0 ppm SO2/Nitrogen - EPA PROTOCOL
Final Analysis Date	February 04, 2014
Expiration Date	February 04, 2017
Part Number:	SPC NAE04019

DO NOT USE BELOW 100 psig

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

Reported Concentrations

Carbon Monoxide: 50.4 ppm +/- 0.48 ppm
Nitric Oxide: 48.8 ppm +/- 0.43 ppm
Sulfur Dioxide: 50.6 ppm +/- 0.48 ppm
Nitrogen: Balance
Total NOx: 48.9 ppm
**** NOx for Reference Use Only ****

Reference Standards

SRM/GMIS:	GMIS	GMIS	GMIS
Cylinder Number:	EB-0017129	ND-45512	EB-0014698
Concentration:	50.81 ppm CO	49.98 ppm NO	50.67 ppm SO2
Expiration Date:	10/20/14	07/18/15	09/20/14

Certification Instrumentation

Component:	Carbon Monoxide	Nitric Oxide	Sulfur Dioxide
Make/Model:	Nicolet 6700	Nicolet 6700	Nicolet 6700
Serial Number:	APW1100563	APW1100563	APW1100563
Principal of Measurement:	FTIR	FTIR	FTIR
Last Calibration:	January 08, 2014	January 15, 2014	January 15, 2014

Cylinder Data

Cylinder Number:	EB-0033204	Cylinder Volume:	136 Cubic Feet
Cylinder Outlet:	CGA 660	Cylinder Pressure:	1950 psig, 70°F
Expiration Date:	February 04, 2017		

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

Certified by: Cole Dylewski

Cole Dylewski

Reviewed by: _____

PGVP Vendor ID: E12014

Date: 3/18/14

"UNMATCHED EXCELLENCE"
2048 APEX COURT APOPKA, FLORIDA 32703 ~ PHONE (407)-292-2990 FAX (407)-292-3313
WWW.LIQUIDTECHCORP.COM
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LIQUID TECHNOLOGY CORPORATION

"INDUSTRY LEADER IN SPECIALTY GASES"

Certificate of Analysis

- EPA PROTOCOL GAS -

Customer	Minneapolis Oxygen (Minneapolis, MN)
Date	March 17, 2014
Delivery Receipt	DR-50767
Gas Standard	95.0 ppm CO, 95.0 ppm NO, 95.0 ppm SO2/Nitrogen - EPA PROTOCOL
Final Analysis Date	March 10, 2014
Expiration Date	March 10, 2022
Part Number:	SPC NAE04040

DO NOT USE BELOW 100 psig

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

Reviewed by: [signature]

Date: 4-4-14

Reported Concentrations

Carbon Monoxide: 95.9 ppm +/- 0.90 ppm
Nitric Oxide: 93.5 ppm +/- 0.90 ppm
Sulfur Dioxide: 94.6 ppm +/- 0.93 ppm
Nitrogen: Balance
Total NOx: 93.6 ppm
**** NOx for Reference Use Only ****

Reference Standards

SRM/GMIS:	GMIS	GMIS	GMIS
Cylinder Number:	EB-0015869	ND-45697	CC-54548
Concentration:	106.098 ppm CO	97.467 ppm NO	102.433 ppm SO2
Expiration Date:	10/20/14	07/18/15	09/20/14

Certification Instrumentation

Component:	Carbon Monoxide	Nitric Oxide	Sulfur Dioxide
Make/Model:	NEXUS 6700	NEXUS 6700	NEXUS 6700
Serial Number:	APW1200289	APW1200289	APW1200289
Principal of Measurement:	FTIR	FTIR	FTIR
Last Calibration:	February 20, 2014	February 26, 2014	February 26, 2014

Cylinder Data

Cylinder Number:	EB-0039959	Cylinder Volume:	136 Cubic Feet
Cylinder Outlet:	CGA 660	Cylinder Pressure:	1950 psig, 70°F
Expiration Date:	March 10, 2022		

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

Certified by: [signature]

Cole Dylewski

PGVP Vendor ID: E12014

"UNMATCHED EXCELLENCE"
2048 APEX COURT APOPKA, FLORIDA 32703 ~ PHONE (407)-292-2990 FAX (407)-292-3313
WWW.LIQUIDTECHCORP.COM
APOPKA, FL • HOUSTON, TX

Linde Canada Ltd / ltée
530 Watson Street East
Whitby ON L1N 5R9

HiQ® Certificate / Certificat HiQ®

24092634 NITROGEN CEM GRADE A31 BCOFA/ 24092634 AZOTE CEM GRADE A31 BCOFA ***PURE***

Component Composant	Nominal Nominale	Certified Certifiée
Nitrogen / AZOTE		99.999 %
SO2 < 0.1 PPM		
NOX < 0.1 PPM		
THC < 0.5 PPM		
CO < 0.5 PPM		
CO2 < 1 PPM		
H2O < 1 PPM		
O2 < 5 PPM		

Cylinder Details/ Détails - bouteille:
Cylinder Size/ Taille de la bouteille: 152 [illegible]/ Capacité: 3.900 M3 Valve Outlet/ Robinet de sortie: 580 Nominal Pressure/Pression nominale: 2,000 PSG

Analytical Details/ Détails d'analyse:
INMS and NIST traceability through Linde laboratory standard calibration mixtures.
Traçabilité IÉNM et NIST par le biais des mélanges d'étalonnage standards des laboratoires de Linde.

Reviewed by: [signature]

Date: 6/30/14

Linde Canada Limited plant management quality system is ISO 9001 registered. The product furnished under the referenced lot number is certified to contain the component concentration listed above. All values are mole/mole basis gas phase unless otherwise indicated. The reported uncertainty is at the 95% confidence level assuming a normal distribution. Linde Canada Limited warrants that the above product conforms at time of shipment to the above description. The customers exclusive remedy should any of the products furnished under this certificate of analysis not conform to the manufacturers description shall be to receive replacement of the product or refund of the purchase price.

Le système de gestion de la qualité des usines de Linde Canada limitée a été enregistré avec la Norme internationale ISO 9001. Il est certifié que tout produit fourni, avec un numéro de lot spécifié, contient la concentration d'éléments ci-dessus mentionnés. Tous les valeurs sont exprimés en mole/ phase gazeuse, sauf indication contraire. Les incertitudes indiquées dans les descriptions sont des incertitudes élargies correspondant à un niveau de confiance d'environ 95 p. 100. Elles sont fondées sur une distribution normale. Linde Canada limitée garantit qu'au moment de l'expédition, le produit est conforme à la description ci-dessus. Si l'un des produits fournis en vertu de ce certificat d'analyse n'est pas conforme à la description du fabricant, le recours exclusif du client sera d'exiger le remboursement ou le remplacement du produit.

To reorder, please quote/ Pour renouveler une commande, veuillez indiquer le code: P24085229
Certificate Date (mm/dd/yy) / Date du certificat (mm/jj/aa) :06/13/2013 Use by / Utilisé par: 06/13/2016

Approved Signature/ Approbation du Signataire [signature]
Analyst/Analyste: Guihai Zhao

Lot No./ No. lot	Cylinder No./ No. bouteille	Code	Page
1252480	SG880981	P24085229	1/1

Appendix F

Test Protocol

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
- ENVIRONMENTAL
- GEOTECHNICAL
- MATERIALS
- FORENSICS

September 15, 2014

Air Enforcement and Compliance
Assurance Branch (AE-17J)
Air and Radiation Branch
EPA, Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Test Protocol Addendum for Test Protocol for Air Emissions Testing on Diesel Generators EU 204, EU 213, and EU 214
Permit No. MIN-SM-27139R0004-2013-01
Shakopee Mdewakanton Sioux Community
Dakotah! Sport and Fitness
2100 Trail of Dreams
Prior Lake, MN 55372
AET Project 02-02120

Air Enforcement and Compliance Department:

Recently it was determined that Generators EU 113 and EU 114 each have two exhausts that will require simultaneously emission testing on each unit. To determine the NO_x emission mass rate in Lbs/Hr, each generator exhaust will now require airflow, molecular weight, and moisture testing not specified in the original test protocol document (dated August 21, 2014). On behalf of the Shakopee Mdewakanton Sioux Community (SMSC), I am submitting the following document titled:

Test Protocol Addendum
Date: September 15, 2014

Please contact me with questions regarding the emissions testing described above or the submittal of this document.

Sincerely,
American Engineering Testing, Inc.

Matthew M. DesJardins
Sr. Environmental Scientist,
651-659-1313
mdesjardins@amengtest.com

Test Protocol Addendum

Test Protocol for Air Emissions Testing on Diesel Generators EU 204, EU 213, and EU 214

Dakotah! Sport and Fitness
2100 Trail of Dreams
Prior Lake, MN 55372

EPA Permit #: MIN-SM-27139R0004-2013-01

AET #: 02-02120

Addendum Date: September 15, 2014

Test Protocol Date: August 21, 2014

Prepared for:
Stanley Ellison
Shakopee Mdewakanton Sioux Community
2330 Sioux Trail NW
Prior Lake, MN 55372

Prepared By:
American Engineering Testing, Inc.
550 Cleveland Avenue North
St. Paul, Minnesota 55114

Revisions:

1. **Subtraction to Part III Test Information:**

4. Test Methods and Procedures

   A. NO_x emission testing will be conducted at the outlet exhaust of Diesel Generator EU 204 ~~EU 213, and EU 213~~ in accordance with the EPA test methods listed below.

1. **Addition to Part III Test Information:**

   B. NO_x emission testing will be conducted at the outlet exhausts of Diesel Generators EU 213 and EU 214 in accordance with the EPA test methods listed below.

   - EPA Method 1 for the location of sampling ports and traverse points. Stack measurements will be verified on-site. The absence of cyclonic flow will be verified. A stack schematic will be provided in the final report.
   - EPA Method 2 for velocity and volumetric flow rate. One measurement will be conducted at each generator exhaust during each test run.
   - EPA Test Method 3A for the determination of Oxygen and Carbon-Dioxide content. Three, 60-minute test runs will be conducted on each generator exhaust.
   - EPA Method 4 for the determination of stack gas moisture. Three, 60- minute test runs will be conducted on each generator exhaust.
   - EPA Test Method 7E for the determination of NO_x concentration. Three, 60-minute test runs will be conducted on each Generator exhaust.

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
- ENVIRONMENTAL
- GEOTECHNICAL
- MATERIALS
- FORENSICS

August 22, 2014

Air Enforcement and Compliance
Assurance Branch (AE-17J)
Air and Radiation Branch
EPA, Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Permit No. MIN-SM-27139R0004-2013-01
Notification of Intent to Conduct Compliance Air Emissions Testing
Shakopee Mdewakanton Sioux Community
Dakotah! Sport and Fitness
2100 Trail of Dreams
Prior Lake, MN 55372
AET Project 02-02120

Air Enforcement and Compliance Department:

On behalf of the Shakopee Mdewakanton Sioux Community (SMSC), this letter serves to notify the US EPA Region V of the intention to conduct NO_x air emissions compliance testing on (three) Diesel-fired Generator (owned by SMSC) located at Dakotah Sport and Fitness in Prior Lake, Minnesota on September 23-25, 2014. This compliance testing is being conducted in adherence to the requirements of US EPA Construction Air Permit Number: MIN-SM-27139R0004-2013-01.

Please find the enclosed test protocol document titled:
Test Protocol for Air Emissions Testing on Diesel Generators EU 204, EU 213, and EU 214.
Date: August 21, 2014

Please contact me with questions regarding the emissions testing described above or the submittal of this document.

Sincerely,
American Engineering Testing, Inc.

Matthew M. DesJardins
Sr. Environmental Scientist,
651-659-1313
mdesjardins@amengtest.com

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
- ENVIRONMENTAL
- GEOTECHNICAL
- MATERIALS
- FORENSICS

Test Protocol for Air Emissions Testing on Diesel Generators EU 204, EU 213, and EU 214

Dakotah! Sport and Fitness
2100 Trail of Dreams
Prior Lake, MN 55372

EPA Permit No: MIN-SM-27139R0004-2013-01
AET #02-02120

Date:

August 21, 2014

Prepared for:

Stanley Ellison
Shakopee Mdewakanton Sioux Community
2330 Sioux Trail NW
Prior Lake, MN 55372

Prepared By:

American Engineering Testing, Inc.
550 Cleveland Avenue North
St. Paul, Minnesota 55114

www.amengtest.com

TABLE OF CONTENTS
AET PROJECT No. 02-02120

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PART II. TEST COMPANY INFORMATION 1
PART III. TEST INFORMATION 1
PART IV. EMISSION POINT INFORMATION 3
PART V. CONTROL EQUIPMENT INFORMATION 3
PART VI. PROCESS EQUIPMENT INFORMATION 3
PART VII. QUALITY CONTROL INFORMATION 3

APPENDICES

A Field Data Sheets

PART I. FACILITY INFORMATION

1. Facility Address:

Dakotah! Sport and Fitness
2100 Trail of Dreams
Prior Lake, MN 55372

2. Owner:

Shakopee Mdewakanton Sioux Community
2330 Sioux Trail NW
Prior Lake, MN 55372

Contact: Mr. Stanley Ellison
Title: Director, Land and Natural Resources Department
Phone No: (952) 496-6158
E-Mail: stan.ellison@shakopeedakota.org

3. Reservation

Shakopee Mdewakanton Sioux Community

4. Facility Description

Dakotah! Sport and Fitness is an enterprise of the Shakopee Mdewakanton Sioux Community (SMSC). The facility is located in Scott County, Minnesota on reservation lands held by United States government in trust for SMSC. SMSC owns and operates three diesel generators EU 204, EU 213, and EU 214. The generators are used for emergency backup power and peak load management for the facility.

PART II. TEST COMPANY INFORMATION

1. Name of testing company, contact person and telephone number:

American Engineering Testing, Incorporated
550 Cleveland Avenue North
St. Paul, MN 55114

Contact: Mr. Matthew M. DesJardins
Title: Sr. Environmental Scientist
Phone No: (651) 659-1313
Fax No: (651) 659-1379
E-Mail: mdesjardins@amengtest.com

PART III. TEST INFORMATION

1. Reason the emission units are to be tested:

A. Air Emission testing is being conducted to show compliance with the requirements of Construction Air Permit No: MIN-SM-27139R0004-2013-01, in section 2.0 Unit Specific

Requirements, A. Emission Limitations and Standards, 1. Nitrogen Oxide (NOx) Limitations and Requirements, vi and B. Monitoring and Testing, 2. Performance Testing, i-vi.

2. A summary of the sources and their corresponding limits are shown in Table 1.

Table 1
Proposed Performance Test Locations and Parameters

Emission Unit No.	Rated Capacity	Applicable Regulation	Pollutant	Emission Limits
Diesel Generator EU 204 SN: 1DGN03437	1250 kW 1678 HP	U.S. EPA Permit: MIN-SM-27139R0004-2013-01 Section 2.0, A., 1., i	NO_x	37.59 Lbs/Hr
Diesel Generator EU 213	600 kW 864 HP	U.S. EPA Permit: MIN-SM-27139R0004-2013-01 Section 2.0, A., 1., ii	NO_x	9.11 Lbs/Hr
Diesel Generator EU 214	600 kW 864 HP	U.S. EPA Permit: MIN-SM-27139R0004-2013-01 Section 2.0, A., 1., iii	NO_x	9.11 Lbs/Hr

3. Testing Schedule

Testing is scheduled to be conducted on September 23-25, 2014.

Tuesday September 23, 2014	Wednesday September 24, 2014	Thursday September 25, 2014	Friday September 26, 2014
Generator Air Emission Testing	Generator Air Emission Testing	Generator Air Emission Testing	Contingency Test Date

4. Test Methods and Procedures

A. NO_x emission testing will be conducted at the outlet exhausts of Diesel Generators EU 204, EU 213, and EU 213 in accordance with the EPA test methods listed below.

- EPA Test Method 1 for the location of sampling ports and traverse points. Stack measurements will be verified on-site.
- EPA Test Method 3A for the determination of Oxygen content. Three, 60-minute test runs will be conducted on each Generator exhaust.
- EPA Test Method 7E for the determination of NO_x concentration. Three, 60-minute test runs will be conducted on each Generator exhaust.
- NO_X emission rates will be calculated as Lbs/Hr in accordance with EPA Test Method 19.

5. Proposed Deviations from EPA Methods

A. No deviations from the EPA Methods are being proposed.

6. Sampling Equipment

A. NO_X and Oxygen concentration measurements will be conducted on a continuous basis using chemiluminescence and paramagnetic analyzers respectively. Sample gas will be transported to the analyzers through a heated Teflon® sample line and a thermo-electric gas conditioning system. The results will be reported on a dry basis.

PART IV. EMISSION POINT INFORMATION

1. Process Diagram and Stack Schematic
A. Stack schematic depicting the location of test ports will be provided in the final report.

PART V. CONTROL EQUIPMENT INFORMATION

1. Diesel Generator EU 204, EU 213, EU 214

A. Control Equipment Description

The generators do not have any add-on pollution control equipment.

PART VI. PROCESS EQUIPMENT INFORMATION

1. Process Description

The generators listed above provide emergency power and peak load management for the Dakotah! Sport and Fitness facility.

2. Fuel

Ultra low sulfur (0.0015%) diesel fuel

3. Maximum Rated Capacity

See Table 1 in PART III. TEST INFORMATION of this document.

4. Process Parameter Monitoring

The following parameters will be recorded during testing:

Diesel fuel usage, Gal/Hr
Generator speed, RPM
Generator percent of rated power (based on kW), %
Generator Rate, Amps

PART VII. QUALITY CONTROL INFORMATION

1. Field Data Sheets

Copies of field data sheets that will be used for testing are enclosed in Appendix A.

2. Sample Handling

Direct analyses on-site will be performed for NOx and O_2 emissions.

Appendix A

Field Data Sheets

AMERICAN ENGINEERING TESTING, INC.

EPA METHOD 3A
ANALYZER MONITORING
DATA SHEET

Client Name:		Project Title:	
Project Number:		Client Contact:	
Test Location:		Test Number:	Test Date: / Duct Diameter:

Calibration Gas Composition	Cylinder No.	Cylinder Values O_2 [%]	Cylinder Values CO_2 [%]
Zero Nitrogen			
High-Level Span O_2/CO_2 in N_2			
Mid-Level Span O_2/CO_2 in N_2			

Test Times:
Run #1
Run #2
Run #3

O_2 Analyzer System		Calibration Time, hrs:		
O_2 Analyzer ID #:		O_2 Analyzer Range [%]:		
O_2 Analyzer Calibration	Cylinder Value, %	Analyzer Response, %	Absolute Difference, %	Difference, % of Span
Zero Gas, %				
High-Level Span, %				
Mid-Level Span, %				
System Bias Check	Cylinder Value, %	System Response, %	Absolute Difference, %	Difference, % of span
Zero Gas, %				
Upscale Gas, %				

CO_2 Analyzer System		Calibration Time, hrs:		
CO_2 Analyzer ID #:		CO_2 Analyzer Range [%]:		
CO_2 Analyzer Calibration	Cylinder Value, %	Analyzer Response, %	Absolute Difference, %	Difference, % of Span
Zero Gas, %				
High-Level Span, %				
Mid-Level Span, %				
System Bias Check	Cylinder Value, %	System Response, %	Absolute Difference, %	Difference, % of span
Zero Gas, %				
Upscale Gas, %				

Stratification Test Time, hrs:		O_2 %, 1 min. average	O_2 %, Deviation from Mean	CO_2 %, 1 min. average	CO_2 %, Deviation from Mean
Diameter x 0.167, in					
Diameter x 0.500, in					
Diameter x 0.833, in					

Result:

Response Test	O_2 Time, Sec	CO_2 Time, Sec	Average Response Time, Sec:
Zero Gas to High Span			
High Span to Zero Gas			

System Drift Checks	Time, Hrs	Initial System Response, %	Final System Response, %	Post Run System Drift, % of Span	System Performance, % of Span
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					

System Drift Checks	Time, Hrs	Initial System Response, %	Final System Response, %	Post Run System Drift, % of Span	System Performance, % of Span
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					

Analyzer Calibration Error =

$$\frac{\text{Analyzer Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 2% of Span or ≤ 0.5 % (whichever is larger)

Pre-Run System Bias =

$$\frac{\text{System Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 % (whichever is larger)

Post-Run System Bias and Drift =

$$\frac{\text{Final System Response - Initial System Response}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 % (whichever is larger)

Recalibration Required if System Drift ≥ 3%.

Form Completed by:	Date Completed:	Present on Site:
Data Reviewed by:	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114	REV - 070114

AMERICAN ENGINEERING TESTING, INC.

EPA METHOD 7E
ANALYZER MONITORING
DATA SHEET

Client Name:		Project Title:	
Project Number:		Client Contact:	
Test Location:		Test Number:	Test Date: / Duct Diameter:

Calibration Gas Composition	**Cylinder No.**	Cylinder Values NO_x [ppm_v]
Zero Nitrogen		
High-Level Span NO_x in N_2		
Mid-Level Span NO_x in N_2		

Test Times:
Run #1
Run #2
Run #3

NO_x Analyzer System		Calibration Time, hrs:		
NO_x Analyzer ID #:		NO_x Analyzer Range [ppm_v]:		
NO_x Analyzer Calibration	Cylinder Value, ppm_v	Analyzer Response, ppm_v	Absolute Difference, ppm_v	Difference, % of Span
Zero Gas, %				
High-Level Span, %				
Mid-Level Span, %				

NO_x Analyzer System		Calibration Time, hrs:		
NO_x Analyzer ID #:		NO_x Analyzer Range [ppm_v]:		
NO_x Analyzer Recalibration	Cylinder Value, ppm_v	Analyzer Response, ppm_v	Absolute Difference, %	Difference, % of Span
Zero Gas, %				
High-Level Span, %				
Mid-Level Span, %				

System Bias Check	Cylinder Value, ppmv	System Response, ppmv	Absolute Difference, ppmv	Difference, % of span
Zero Gas, ppmv				
Upscale Gas, ppmv				

System Bias Check	Cylinder Value, ppm_v	Analyzer Response, ppm_v	Absolute Difference, ppm_v	Difference, % of span
Zero Gas, ppmv				
Upscale Gas, ppmv				

Stratification Test Time, hrs:		NO_x, ppm_v, 1 min. average	NO_x ppm_v, Deviation from Mean	**Result:**
Diameter x 0.167, in				
Diameter x 0.500, in				
Diameter x 0.833, in				

Converter Efficiency Test	Result	Converter Test Time/ Date
NO_x Peak Concentration, ppm_v:		
NO_x Final Concentration, ppm_v:		
NO_x Percent Conversion		

Response Test	Time, Sec
Zero Gas to High Span	
High Span to Zero Gas	
Average Response Time, Sec:	

System Drift Checks	Time, Hrs	Initial System Response, ppm_v	Final System Response, ppm_v	Post Run System Drift, % of Span	System Performance, % of Span
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					

System Drift Checks	Time, Hrs	Initial System Response, ppm_v	Final System Response, ppm_v	Post Run System Drift, % of Span	System Performance, % of Span
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					
Zero Gas, %					
Upscale Gas, %					

Analyzer Calibration Error =

$$\frac{\text{Analyzer Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 2% of Span or ≤ 0.5 ppm (whichever is larger)

Pre-Run System Bias =

$$\frac{\text{System Response - Cylinder Value}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 ppm (whichever is larger)

Post-Run System Bias and Drift =

$$\frac{\text{Final System Response - Initial System Response}}{\text{Span}} \times 100$$

Criteria ≤ 5% of Span or ≤ 0.5 ppm (whichever is larger)

Recalibration Required if System Drift ≥ 3%.

Form Completed by:	Date Completed:	Present on Site:
Data Reviewed by:	American Engineering Testing, Inc 550 Cleveland Ave N. St. Paul, MN 55114	REV - 070114