CO COMPLIANCE
TEST REPORT
FOR
WOLVERINE POWER COOPERATIVE
SUMPTER GENERATING STATION
UNIT 2
BELLEVILLE, MI
July 28, 2015

RECEIVED
SEP 25 2015
AIR QUALITY DIVISION

Job # 15-300

Test Report Date: 08-17-15

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
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RENEWABLE OPERATING PERMIT REPORT CERTIFICATION

Authorized by 1994 P.A. 451, as amended. Failure to provide this information may result in civil and/or criminal penalties.

Reports submitted pursuant to R 336.1213 (Rule 213), subrules (3)(c) and/or (4)(c), of Michigan's Renewable Operating Permit (ROP) program must be certified by a responsible official. Additional information regarding the reports and documentation listed below must be kept on file for at least 5 years, as specified in Rule 213(3)(b)(ii), and be made available to the Department of Environmental Quality, Air Quality Division upon request.

Source Name: Wolverine Power Cooperative, Sumpter Generating St | County: Wayne

Source Address: 8509 Rawsonville Road | City: Belleville

AQD Source ID (SRN): M4854 | ROP No.: MI-ROP-M4854-2014 | ROP Section No.: N/A

Please check the appropriate box(es):

☐ **Annual Compliance Certification (Pursuant to Rule 213(4)(c))**

Reporting period (provide inclusive dates): From _____ To _____

☐ 1. During the entire reporting period, this source was in compliance with **ALL** terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference. The method(s) used to determine compliance is/are the method(s) specified in the ROP.

☐ 2. During the entire reporting period this source was in compliance with all terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference, **EXCEPT** for the deviations identified on the enclosed deviation report(s). The method used to determine compliance for each term and condition is the method specified in the ROP, unless otherwise indicated and described on the enclosed deviation report(s).

☐ **Semi-Annual (or More Frequent) Report Certification (Pursuant to Rule 213(3)(c))**

Reporting period (provide inclusive dates): From _____ To _____

☐ 1. During the entire reporting period, **ALL** monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred.

☐ 2. During the entire reporting period, all monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred, **EXCEPT** for the deviations identified on the enclosed deviation report(s).

☒ **Other Report Certification**

Reporting period (provide inclusive dates): From July 28, 2015 To July 28, 2015

Additional monitoring reports or other applicable documents required by the ROP are attached as described:

Carbon Monoxide (CO) compliance stack testing. Performed on Unit 2.

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this report and the supporting enclosures are true, accurate and complete

Brian L. Warner, CHMM	VP-Environmental Strategy	(231) 775-5700
Name of Responsible Official (print or type)	Title	Phone Number
[signature]		9/23/15
Signature of Responsible Official		Date

* Photocopy this form as needed.

EQP 5736 (Rev 11-04)

INTRODUCTION

This report presents the results of the Emissions tests performed for Wolverine Power Cooperative at the Sumpter Generating Station on Unit 2.

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

The testing was performed by Grace Consulting, Inc., 317-838-7101, located at 684 Tower Road, Plainfield, IN 46168. Present during the testing were Eric DeArmon and Stephen Thornton from Grace Consulting, Inc. Laura Hoisington with Wolverine Power and Stephanie Jarrett with FTC&H were present during testing. Also present to observe the testing were Mark Dziadosz and Jett Krawiec with the Michigan Department of Environmental Quality.

The tests were performed on July 28, 2015 The testing was completed in accordance with USEPA test methods as published in the July 1, 2015 Federal Register, - "Standards of Performance for New Stationary Sources" and subsequent revisions.

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

SUMMARY OF TEST RESULTS

The following presents the results of the Compliance tests performed for Wolverine Power Cooperative at the Sumpter Generating Station on Unit 2.

GASEOUS EMISSIONS
METHOD 10

Run	CO ppm	CO lb/mmBtu	CO lb/hr	CO lb/MMcf fuel	O2 %
1	1.60	0.003	2.42	2.05	14.60
2	1.90	0.004	2.88	2.45	14.60
3	1.50	0.003	2.30	1.95	14.70
Avg.	**1.67**	**0.004**	**2.53**	**2.15**	**14.63**

STRATIFICATION

Date	Monitor	Highest Point	Lowest Point	Average	Greatest Deviation
07-28-15	CO	1.59	0.98	1.24	0.35 ppm
07-28-15	O_2	14.54	14.49	14.52	0.18%

Permit number: MI-ROP-M4854-2014

SRN: M4854

Based on the results of the testing, the emissions limit of 63.8 lb/hr was met.

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

Grace Consulting, Inc.

Sampling System Bias Check and Measured Value Correction

Wolverine Power Cooperative
Sumpter - Unit 2

Date: 7/28/2015
Pollutant: CO
Monitor Span: 49.61

Run Number	Average Measured Value	Initial Zero Gas Bias	Final Zero Gas Bias	Zero Gas Drift	Initial Upscale Gas Bias	Final Upscale Gas Bias	Upscale Gas Drift	Calibration Gas	Corrected Value, Dry Basis
1	1.41	0.15	-0.50	-1.31	25.15	25.00	-0.30	25.11	1.60
2	1.62	-0.50	-0.09	0.83	25.00	24.98	-0.04	25.11	1.90
3	1.53	-0.09	0.13	0.44	24.98	25.08	0.20	25.11	1.50

$$Cgas = (Cavg - Co) * Cma / (Cm - Co) \qquad \text{Eq. 6C-1}$$

where:
Cgas = Effluent gas concentration, dry basis, ppm
Cavg = Average gas concentration indicated by gas analyzer, dry basis, ppm
Co = Average of initial and final system calibration bias check responses for the zero gas, ppm
Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm
Cma = Actual concentration of the upscale calibration gas, ppm

Grace Consulting, Inc.

Sampling System Bias Check and Measured Value Correction

Wolverine Power Cooperative
Sumpter - Unit 2

Date: 7/28/2015
Pollutant: O2
Monitor Span: 21.16

Run Number	Average Measured Percent	Initial Zero Gas Bias	Final Zero Gas Bias	Zero Gas Drift	Initial Upscale Gas Bias	Final Upscale Gas Bias	Upscale Gas Drift	Calibration Gas	Corrected Percent, Dry Basis
1	14.49	0.43	0.23	-0.95	10.86	11.00	0.66	10.93	14.60
2	14.47	0.23	0.27	0.19	11.00	10.80	-0.95	10.93	14.60
3	14.39	0.27	0.23	-0.19	10.80	10.72	-0.38	10.93	14.70

Cgas = (Cavg - Co) * Cma / (Cm - Co) Eq. 6C-1

where:
Cgas = Effluent gas concentration, dry basis, percent
Cavg = Average gas concentration indicated by gas analyzer, dry basis, percent
Co = Average of initial and final system calibration bias check responses for the zero gas, percent
Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, percent
Cma = Actual concentration of the upscale calibration gas, percent

DESCRIPTION OF FACILITY PRODUCTION OPERATIONS:

Sumpter Generating Facility operates four nominal 83 MW electrical output General Electric PG7121 (EA) simple cycle combustion turbines, fueled by pipeline quality natural gas, equipped with dry low oxides of nitrogen control. The facility renewable operating permit number is MI-ROP-M4854-2014.

POLLUTANTS MEASURED:

O2 and CO (Method 3A and 10)

MONITORING DATA COLLECTED:

The Sumpter Generating Facility operates a Data Acquisition and Handling System (DAHS), which monitored and recorded the following information during the Compliance testing:
Fuel Flow (HSCF)

The Btu content of the natural gas was given as 850 Btu/cf.

Test Methods used at Wolverine Power Cooperative – Sumpter Generating Station, Unit 2

Method 3A

Testing for emissions of O_2 was performed in accordance with EPA Method 3A. The sampling train consisted of a stainless steel probe, a condenser with peristaltic pumps, Teflon sample lines, a manifold with flow controllers and control valves, a sample pump and Servomex O_2 analyzer. The O_2 analyzer was calibrated using USEPA Protocol one gases. The analyzer was connected to a STRATA data acquisition system, which recorded all calibrations, bias checks and test data in one-minute averages. A 0-21.16 percent scale for the O_2 analyzer was used for the O_2 testing.

Method 10

Testing for emissions of CO was performed in accordance with EPA Method 10. The sampling train consisted of a stainless steel probe, a condenser with peristaltic pumps, Teflon sample lines, a manifold with flow controllers and control valves, a sample pump and Thermal Electron Model 48 Gas Filter Correlation CO analyzer. The CO analyzer was calibrated using USEPA Protocol one gases. The analyzer was connected to a STRATA data acquisition system, which recorded all calibrations, bias checks and test data in one-minute averages. A 0-49.61 ppm scale CO analyzer was used for the CO testing. Data was reported in CO lb/mmBtu, lb/hr and lb/MMCF.