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Mercury Low Emitting Electrical Generating Unit Demonstration Test Report

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We Energies
Presque Isle Power Plant
Flue 5 Stack
Marquette, Michigan
Project No. M172202Q Rev. 1
July 25 through September 5, 2017

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Presque Isle Power Plant
Flue 5 Stack
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Report Resubmittal Date
November 15, 2017

Project No. M172202Q Rev. 1

2099 Industrial Drive
Bolingbrook, Illinois 60490
630-993-2100

1.0 EXECUTIVE SUMMARY

MOSTARDI PLATT conducted a mercury (Hg) low emitting electrical generating unit (LEE) test program for We Energies at the Presque Isle Power Plant in Marquette, Michigan. This report summarizes the results of the test program and test methods used.

The test location, test dates, and test parameter are summarized below.

TEST INFORMATION		
Test Location	**Test Dates**	**Test Parameter**
Flue 5 Stack	July 25 through September 5, 2017	Mercury (Hg)

The purpose of this test program was to demonstrate the LEE status per 40CFR63, UUUUU (Utility MATS Rule) Section 63.10005 (h)(1)(ii)(A or B) of the Flue 5 Stack. The test consisted of nine paired Method 30B Hg sampling runs. Each trap pair was sampled for a time frame of between 67-120 total hours. Note that due to the size of each trap set data file, the files are only included in the electronic copy of this test report. The hard copy report includes a separate CD which contains the minute data for each trap set. A standard F_c factor of 1,840 scf/mmBtu for sub-bituminous coal was utilized to calculate emissions on a lb/TBtu basis. Carbon dioxide (CO_2) data was taken from CEM hourly data and corrected from a wet basis to dry basis utilizing a default moisture value of 8%. Pounds per year emissions were calculated using the average lb/Tbtu emissions, the maximum potential heat input and 8,760 hrs/yr of operation. Selected results of the test program are summarized below.

Parameter	Dates	LEE Demonstration	LEE Demonstration Requirement	Pass/Fail
Hg	7/25/17-9/5/17	0.486 lb/TBtu and 4.24 lb/yr maximum potential to emit	≤ 1.200 lb/TBtu and 29.0 lbs/yr	Pass

The test results from this test program indicate that the Presque Isle Power Plant Flue 5 Stack demonstrated the level to achieve Hg LEE status per 40CFR63, UUUUU Section 63.10005 (h)(1)(ii)(B).

The identifications of individuals associated with the test program are summarized below.

TEST PERSONNEL INFORMATION		
Location	**Address**	**Contact**
Test Coordinator	We Energies 333 West Everett Street Environmental Department A231 Milwaukee, Wisconsin 53203	Mr. Rob Bregger (414) 221-2772 (phone) rob.bregger@we-energies.com
Test Facility	We Energies Presque Isle Power Plant 2701 Lakeshore Boulevard, North Marquette, Michigan 49885	Ms. Amanda Studinger (906) 226-5704 (phone) amanda.studinger@we-energies.com
Testing Company Representative	Mostardi Platt 888 Industrial Drive Elmhurst, Illinois 60126	Mr. Pat Lyons Project Manager (630) 993-2100 (phone) plyons@mp-mail.com

2.0 TEST METHODOLOGY

Emission testing was conducted following the methods specified in 40 CFR, Part 60, Appendices A and B, USEPA Method 30B. A drawing depicting the sampling port and test point location is found in Appendix A of this test report, drawings depicting the sampling train is found in Appendix B of this test report, calculation and nomenclature explanations are found in Appendix C of this test report, sample analysis data are found in Appendix D of this test report, mercury sampling QA/QC data are found in Appendix E of this test report, reference method test data are found in Appendix F of this test report, CEMs data are found in Appendix G of this test report, and field data sheets are found in Appendix H of this test report.

The following methodology was used during the test program:

Mercury Determination by Method 30B (Sorbent Trap Method)

Paired trains were utilized sampling one test point at the Flue 5 Stack test location.

Per Method 30B sampling, each sample was collected on the paired in-situ sorbent traps. A tube of silica was used to capture remaining moisture prior to the sample reaching the gas metering system. Expected concentrations for the test runs were calculated based on previous Method 30B test data to total approximately 1000 ng of Hg collected on each trap during sampling.

The sample train used for this test program was designed by APEX, Inc. and meets all requirements for Method 30B sampling. Each sample was extracted at one sample point, within 10% of the centroid of the stack.

Run 3 which was performed from August 11 through August 25, did not meet the QA requirements of Method 30B due to a high spike recovery. This run is not included in the test data averages.

The mercury traps were analyzed offsite utilizing an Ohio Lumex analyzer. A complete summary of emission test results follows the narrative portion of this report.

3.0 TEST RESULTS SUMMARY

Method 30B (Sorbent Trap) Mercury Test Results Summary
We Energies
Presque Isle Power Plant
Flue 5

Test No.	Total Hours Sampled	Operating Days	Start Date	Start Time	End Date	End Time	V_m (standard L)	ng detected	ppb	ug/dscm	ug/wscm	lb/Tbtu (Fc Factor)
1A	67	4	7/25/2017	11:15	7/28/2017	6:13	1,082.205	478.2	0.053	0.442	0.407	0.380
1B							1,090.976	401.1	0.044	0.368	0.338	0.316
Average								439.7	0.049	0.405	**0.372**	**0.348**
2A	120	5	7/28/2017	6:30	8/2/2017	6:32	1,960.648	1,127.8	0.069	0.575	0.529	0.494
2B							1,945.393	1,081.5	0.067	0.556	0.511	0.478
Average								1,104.7	0.068	0.566	**0.520**	**0.486**
4A	73	3	8/15/2017	7:44	8/18/2017	9:08	1,184.725	742.0	0.075	0.626	0.576	0.543
4B							1,193.728	714.9	0.072	0.599	0.551	0.519
Average								728.5	0.073	0.613	**0.564**	**0.531**
5A	70	3	8/18/2017	9:33	8/21/2017	7:52	1,139.805	508.9	0.054	0.446	0.411	0.387
5B							1,147.795	618.4	0.065	0.539	0.496	0.467
Average								563.7	0.059	0.493	**0.453**	**0.427**
6A	72	3	8/21/2017	8:15	8/24/2017	8:57	1,174.887	578.8	0.059	0.493	0.453	0.460
6B							1,183.597	636.3	0.064	0.538	0.495	0.502
Average								607.6	0.062	0.515	**0.474**	**0.481**
7A	95	4	8/24/2017	9:18	8/28/2017	7:00	1,509.823	642.5	0.051	0.426	0.392	0.363
7B							1,523.114	571.0	0.045	0.375	0.345	0.319
Average								606.8	0.048	0.400	**0.368**	**0.341**
8A	95	4	8/28/2017	7:31	9/1/2017	6:37	1,535.953	864.0	0.067	0.563	0.518	0.483
8B							1,548.658	931.8	0.072	0.602	0.554	0.517
Average								897.9	0.070	0.582	**0.536**	**0.500**
9A	114	5	9/1/2017	6:58	9/5/2017	6:49	1,543.941	1,161.9	0.090	0.753	0.692	0.657
9B							1,558.747	1,275.7	0.098	0.818	0.753	0.715
Average								1,218.8	0.094	0.785	**0.723**	**0.686**
Total Times	706	31	Overall Total Weighted Average									0.486

Maximum Potential to Emit

$$0.486 \text{ lb/Tbtu} * \frac{995 \text{ mmBtu/hr (Maximum Rated Heat Input)}}{1{,}000{,}000 \text{ mmBtu/Tbtu}} * 8760 \text{ hr/yr} = 4.24 \text{ lbs/yr}$$

4.0 CERTIFICATION

MOSTARDI PLATT is pleased to have been of service to We Energies. If you have any questions regarding this test report, please do not hesitate to contact us at 630-993-2100.

CERTIFICATION

As project manager, I hereby certify that this test report represents a true and accurate summary of emissions test results and the methodologies employed to obtain those results, and the test program was performed in accordance with the methods specified in this test report.

MOSTARDI PLATT

Program Manager

Pat Lyons

Quality Assurance

Scott W. Banach