



**Mercury and Air Toxics Standards Particulate Matter and
Hydrogen Chloride Emissions Test Report**

**We Energies
Presque Isle Power Plant
Flue 7 Stack
Marquette, Michigan
January 24, 2017**

**Report Submittal Date
February 23, 2017**

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Project No. M171002A

1.0 EXECUTIVE SUMMARY

MOSTARDI PLATT conducted a Mercury and Air Toxics Standards (MATS) Filterable Particulate Matter and Hydrogen Chloride emissions test program for the We Energies at the Presque Isle Power Plant on the Flue 7 Stack in Marquette, Michigan on January 24, 2017. This report summarizes the results of the test program and test methods used.

The test location, test date, and test parameters are summarized below.

TEST INFORMATION		
Test Location	Test Date	Test Parameters
Flue 7 Stack	January 24, 2017	Filterable Particulate Matter (FPM) and Hydrogen Chloride (HCl)

The purpose of the test program was to document the FPM and HCl emissions to qualify for the LEE designation as required by 40 CFR Part 63, Subpart UUUUU. Selected results of the test program are summarized below. A complete summary of emission test results follows the narrative portion of this report.

TEST RESULTS			
Test Location	Test Parameter	Emission Limit	Emission Rate
Flue 7 Stack	FPM	≤0.030 lb/mmBtu	0.0002 lb/mmBtu
	HCl	≤0.002 lb/mmBtu	0.0007 lb/mmBtu

Emissions on lb/mmBtu basis were determined using a standard F_d-Factor of 9,820 dscf/mmBtu for sub-bituminous coal. Plant operating data as provided by We Energies is included in Appendix A.

The Stationary Source Audit Sample Program audit sample was not obtained for this portion of the test program but will be submitted along with the results for Flue 5 and Flue 6.

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. Stuart Sands Project Manager (630) 993-2100 (phone) ssands@mp-mail.com

The test crew consisted of Messrs. J. Konrad, J. Volbrecht, M. Karum, and S. Sands of Mostardi Platt.

2.0 TEST METHODOLOGY

Emissions testing was conducted following the methods specified in 40CFR60, Appendix A. A schematic of the test section diagram is found in Appendix B and schematics of the sampling trains used are included in Appendix C. Calculation nomenclature and sample calculations are included in Appendix D. Laboratory analysis data are found in Appendix E. Copies of analyzer print-outs for each test run are included in Appendix F and field data sheets are found in Appendix G.

The following methodologies were used during the test program:

Method 1 Traverse Point Determination

Test measurement points were selected in accordance with Method 1. The characteristics of the measurement location are summarized below.

TEST POINT INFORMATION				
Location	Upstream Diameters	Downstream Diameters	Test Parameter	Number of Sampling Points
Flue 7 Stack	>2.0	>8.0	FPM	12
	>2.0	>8.0	HCl	1

Method 2 Volumetric Flowrate Determination

Gas velocity was measured following Method 2, for purposes of calculating stack gas volumetric flow rate. An S-type pitot tube, differential pressure gauge, thermocouple and temperature readout were used to determine gas velocity at each sample point. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix H.

Method 3A Oxygen (O₂)/Carbon Dioxide (CO₂) Determination

Stack gas molecular weight was determined in accordance with Method 3A. An ECOM analyzer was used to determine stack gas oxygen and carbon dioxide content and, by difference, nitrogen content. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix H and copies of the gas cylinder certifications are found in Appendix I.

Method 5 Filterable Particulate Matter (FPM) Determination

Stack gas FPM concentrations and emission rates were determined in accordance with USEPA Method 5, 40CFR60, Appendix A. An Environmental Supply Company, Inc. sampling train was used to sample stack gas at an isokinetic rate, as specified in the Method. Filter and probe temperatures were set to temperatures between 248 and 273° Fahrenheit in accordance with the USEPA letter which is appended. Particulate matter in the sample probe was recovered using an acetone rinse. The probe wash and filter catch were analyzed by Mostardi Platt in accordance with the Method in the Elmhurst, Illinois laboratory. Sample analysis data are found in Appendix E. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix H.

Modified Method 26 Hydrogen Chloride (HCl) Determination

Stack gas hydrogen chloride concentrations and emission rates were determined in accordance with a modified Method 26. An Environmental Supply Company sampling train was used to sample stack gas, in the manner specified in the Method at one sample point modified to use large impingers as allowed for per 40 CFR Part 63, Subpart UUUUU. Analyses of the samples collected were conducted by Maxxam Analytics of Mississauga, Ontario. Laboratory analysis data are found in Appendix F. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix H.

3.0 TEST RESULT SUMMARIES

Client: We Energies
Facility: Preque Isle Power Plant
Test Location: Flue 7 Stack
Test Method: 5

	Source Condition	Normal	Normal	Normal	
	Date	1/24/17	1/24/17	1/24/17	
	Start Time	7:25	9:50	12:20	
	End Time	9:32	11:56	14:24	
		Run 1	Run 2	Run 3	Average
Stack Conditions					
Average Gas Temperature, °F		325.3	330.9	330.7	329.0
Flue Gas Moisture, percent by volume		10.3%	9.2%	10.9%	10.1%
Average Flue Pressure, in. Hg		28.80	28.80	28.80	28.80
Gas Sample Volume, dscf		90.086	92.253	92.719	91.686
Average Gas Velocity, ft/sec		83.398	84.894	85.674	84.655
Gas Volumetric Flow Rate, acfm		354,684	361,048	364,365	360,032
Gas Volumetric Flow Rate, dscfm		205,939	210,688	208,592	208,406
Gas Volumetric Flow Rate, scfm		229,584	232,041	234,234	231,953
Average %CO ₂ by volume, dry basis		13.5	13.7	13.7	13.6
Average %O ₂ by volume, dry basis		5.8	5.7	5.7	5.7
Isokinetic Variance		98.8	98.9	100.4	99.4
Standard Fuel Factor Fd, dscf/mmBtu		9,820.0	9,820.0	9,820.0	9,820.0
Filterable Particulate Matter (Method 5)					
grams collected		0.0010	0.0010	0.0004	0.0008
mg/dscm		0.392	0.383	0.152	0.3091
mg/wscm		0.352	0.348	0.136	0.2783
mg/acm at stack conditions		0.228	0.223	0.087	0.1793
grains/acf		0.0001	0.0001	0.0000	0.0001
grains/dscf		0.0002	0.0002	0.0001	0.0002
lb/hr		0.302	0.302	0.119	0.241
lb/mmBtu (Standard Fd Factor)		0.0003	0.0003	0.0001	0.0002

**HCl Test Results Summary
 Presque Isle Power Plant
 We Energies
 Flue 7 Stack**

Run No.	Location	Date	Time	Meter Volume, dscf	O ₂ , % dry	HCl detected, mg	HCl Concentration ppmvd	DSCFM	HCl lbs/hr	HCl lbs/MMBtu
1	Stack	1/24/2017	7:25-8:55	65.59	5.80	0.4	0.14	205,939	0.166	0.0002
2	Stack	1/24/2017	9:50-11:20	65.26	5.70	0.4	0.14	210,688	0.171	0.0002
3	Stack	1/24/2017	12:20-13:50	65.27	5.70	1.5	0.54	208,592	0.634	0.0007
Average					5.73	0.77	0.27	208,406	0.324	0.0003

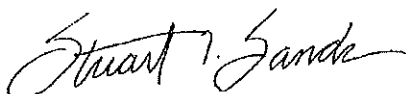
4.0 CERTIFICATION

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

Stuart Sands



Quality Assurance

Scott W. Banach