



## **Particulate Emission Compliance Test Report**

**We Energies  
Presque Isle Power Plant  
Flue 6 Stack  
Marquette, Michigan  
June 5, 2015**

**Report Submittal Date:  
July 15, 2015**

**RECEIVED**

**AUG 06 2015**

**AIR QUALITY DIV.**

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Mostardi Platt

**Project No. M152202L**

## 1.0 EXECUTIVE SUMMARY

MOSTARDI PLATT conducted a particulate emissions compliance test program for We Energies at the Presque Isle Power Plant on the Flue 6 Stack in Marquette, Michigan on June 5, 2015. This report summarizes the results of the test program and test methods used.

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

TEST INFORMATION		
Test Location	Test Date	Test Parameter
Flue 6 Stack	June 5, 2015	Filterable Particulate Matter (PM) (Method 5)

The purpose of this test program was to evaluate the particulate emissions on the Flue 6 Stack during normal operating conditions to satisfy compliance requirements of the operating permit. 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 Date	Parameter	Emission Rates
Flue 6 Stack	6/5/15	lb/hr	1.823
		lb/mmBtu	0.0031
		lbs/1000 lbs wet @50% excess air	0.00272
		lbs/1000 lbs dry @50% excess air	0.00294

All times recorded are CEMs times.

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

TEST PERSONNEL INFORMATION		
Location	Address	Contact
Test Coordinator	We Energies Presque Isle Power Plant Marquette, Michigan	Ms. Brenda Bergemann (414) 221-2459 (phone) Brenda.Bergemann@we-energies.com
Testing Company Representative	Mostardi Platt 888 Industrial Drive Elmhurst, Illinois 60126	Mr. Timothy A. Mei (630) 993-2100 (phone) tmei@mp-mail.com

The test crew consisted of Messrs. A. Hasan, L. Sorce, R. Iozzo, S. Van Daal, A. Tracy, and T. Mei of Mostardi Platt.

## 2.0 TEST METHODOLOGY

Emissions testing was conducted following the methods specified in 40 CFR, Part 60, Appendix A. A drawing depicting the sampling ports and test point locations is found in Appendix B, drawings depicting sampling trains are found in Appendix C, explanations of nomenclature and calculations are found in Appendix D, sample analysis data are found in Appendix E, reference method data are found in Appendix F, field data sheets are found in Appendix G and calibration data are found in Appendix H. Operating data are found in Appendix A.

The following methodologies were used during the test program:

### Method 1 Sample and Velocity Traverse 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 6 Stack	> 2.0	> 8.0	PM	12

### Method 2 Volumetric Flow Rate Determination

Gas velocity was measured following Method 2, for purposes of calculating the gas volumetric flow rate. An S-type pitot tube, incline manometer, thermocouple and temperature readout were used to determine gas velocity at each sample point at the Flue 6 Stack test location. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix H.

### Method 3A Carbon Dioxide (CO<sub>2</sub>) and Oxygen (O<sub>2</sub>) Determination

Stack gas carbon dioxide (CO<sub>2</sub>) and oxygen (O<sub>2</sub>) content was determined in accordance with Method 3A. A Servomex analyzer was used to determine flue gas CO<sub>2</sub> and O<sub>2</sub>. 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 Particulate Determination

Stack gas particulate concentrations and emission rates were determined in accordance with Method 5, 40 CFR, Part 60, Appendix A. An Environmental Supply Company, Inc. sampling train was used to sample stack gas at an isokinetic rate, as specified in the Method. 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. Laboratory 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.

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**AIR QUALITY DIV.****3.0 TEST RESULT SUMMARY**

Client: We Energies  
 Facility: Presque Isle Power Plant  
 Test Location: Flue 6 Stack  
 Test Method: 5

Source Condition	Normal	Soot Blowing	Normal	
Date	6/5/15	6/5/15	6/5/15	
Start Time	12:55	14:40	16:25	
End Time	14:10	15:49	17:35	
	Run 1	Run 2	Run 4	Average
<b>Stack Conditions</b>				
Average Gas Temperature, °F	315.8	313.8	315.1	314.9
Flue Gas Moisture, percent by volume	11.2%	12.0%	11.7%	11.6%
Average Flue Pressure, in. Hg	29.05	29.05	29.05	29.05
Gas Sample Volume, dscf	51.432	52.386	53.457	52.425
Average Gas Velocity, ft/sec	63.656	63.808	63.963	63.809
Gas Volumetric Flow Rate, acfm	242,978	243,558	244,150	243,562
Gas Volumetric Flow Rate, dscfm	142,548	141,945	142,559	142,351
Gas Volumetric Flow Rate, scfm	160,550	161,331	161,463	161,115
Average %CO <sub>2</sub> by volume, dry basis	12.9	12.9	12.9	12.9
Average %O <sub>2</sub> by volume, dry basis	6.8	6.8	6.8	6.8
Isokinetic Variance	101.5	103.8	105.5	103.6
Fd Factor, dscf/mmBtu	9,820.0	9,820.0	9,820.0	9,820.0
<b>Particulate Matter (Method 5)</b>				
grams collected	0.0059	0.0046	0.0047	0.0051
mg/dscm	4.051	3.101	3.105	3.4190
grains/acf	0.0010	0.0008	0.0008	0.0009
grains/dscf	0.0018	0.0014	0.0014	0.0015
lb/hr	2.163	1.648	1.658	1.823
lb/mmBtu (Standard Fd Factor)	0.0037	0.0028	0.0028	0.0031
lbs/1000 lbs wet	0.00300	0.00228	0.00230	0.00253
lbs/1000 lbs dry	0.00323	0.00247	0.00248	0.00272
lbs/1000 lbs wet at 50% excess air	0.00323	0.00247	0.00248	0.00272
lbs/1000 lbs dry at 50% excess air	0.00347	0.00267	0.00267	0.00294

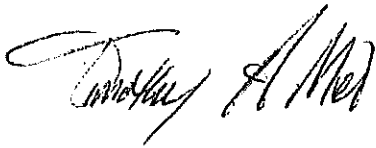
## 4.0 CERTIFICATION

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



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Timothy A. Mei

Program Manager



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Scott W. Banach

Quality Assurance