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Mercury and Air Toxics Standard

Hydrogen Chloride Emissions Test Report

We Energies
Presque Isle Power Plant
TOXECON Outlet Duct
Marquette, Michigan
Project No. M161902H
May 14, 2016

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Report Submittal Date
July 20, 2016

Project No. M161902H

888 Industrial Drive
Elmhurst, Illinois 60126
630-993-2100

1.0 EXECUTIVE SUMMARY

MOSTARDI PLATT conducted a Mercury and Air Toxics Standards (MATS) Hydrogen Chloride emissions test program for the We Energies at the Presque Isle Power Plant on the TOXECON Outlet Duct in Marquette, Michigan on May 14, 2016. 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**
TOXECON Outlet Duct	May 14, 2016	Hydrogen Chloride (HCl)

The purpose of the test program was to document the 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**
TOXECON Outlet Duct	HCl	≤0.002 lb/mmBtu	0.0003 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 obtained from ERA and submitted for analysis to Maxxam Analytical. The results of the audit sample was compared to the assigned value by ERA and found to be acceptable. The audit sample result and evaluation are appended to this report.

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. Brenda Bergemann (414) 221-2453 (phone) brenda.bergemann@we-energies.com
Testing Company Representative	Mostardi Platt 888 Industrial Drive Elmhurst, Illinois 60126	Mr. Rich Sollars Senior Project Manager (630) 993-2100 (phone) rsollars@mp-mail.com

The test crew consisted of Messrs. M. Lind, P. Lyons, P. Repuyan, S. Cronin, and R. Sollars 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 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 (O_2)/Carbon Dioxide (CO_2) 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.

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 SUMMARY

Client: We Energies
Facility: Preque Isle Power Plant
Test Location: TOXECON Outlet Duct
Test Method: Modified Method 26

Source Condition	Normal Full Load			
Date	5/14/16	5/14/16	5/14/16	
Start Time	8:00	9:45	11:27	
End Time	9:35	11:20	13:02	
	Run 1	Run 2	Run 3	Average
Stack Conditions				
Average Gas Temperature, °F	326.6	326.9	332.1	328.5
Flue Gas Moisture, percent by volume	10.9%	10.8%	12.2%	11.3%
Average Flue Pressure, in. Hg	29.24	29.24	29.24	29.24
Gas Sample Volume, dscf	87.235	87.519	86.794	87.183
Average Gas Velocity, ft/sec	64.593	65.251	65.001	64.948
Gas Volumetric Flow Rate, acfm	1,306,108	1,319,408	1,314,355	1,313,290
Gas Volumetric Flow Rate, dscfm	763,186	771,329	751,634	762,050
Gas Volumetric Flow Rate, scfm	856,642	865,018	856,093	859,251
Average %CO_2 by volume, dry basis	14.1	14.0	13.9	14.0
Average %O_2 by volume, dry basis	5.7	5.7	5.9	5.8
Isokinetic Variance	108.5	107.7	109.6	108.6
Standard Fuel Factor Fd, dscf/mmBtu	9,820.0	9,820.0	9,820.0	9,820.0
Hydrogen Chloride (HCl) Emissions				
ug of sample collected	800.00	870.00	780.00	816.67
ppm	0.21	0.23	0.21	0.22
mg/dscm	0.32	0.35	0.32	0.33
lb/hr	0.926	1.014	0.894	0.945
lb/mmBtu (Standard Fd Factor)	0.0003	0.0003	0.0003	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

Rich Sollars

Quality Assurance

Scott W. Banach