



**Mercury and Air Toxics Standard
Hydrogen Chloride Emissions Test Report**

**Lansing Board of Water and Light
Erickson Station
Unit 1 Stack
Lansing, Michigan
February 22, 2022**

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**Report Submittal Date
March 10, 2022**

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Project No. M220808

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1.0 EXECUTIVE SUMMARY

Mostardi Platt conducted a Mercury and Air Toxics Standards (MATS) hydrogen chloride emissions test program for the Lansing Board of Water and Light at the Erickson Station on the Unit 1 Stack in Lansing, Michigan on February 22, 2022. 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
Unit 1 Stack	February 22, 2022	Hydrogen Chloride (HCl)

The purpose of the test program was to document 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 Limits	LEE Emission Limits	Emission Rates
Unit 1 Stack	HCl	≤0.002 lb/mmBtu	≤0.001 lb/mmBtu	0.0012 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 Lansing Board of Water and Light is included in Appendix A.

The Stationary Source Audit Sample Program audit sample was obtained from ERA and analyzed by Mostardi Platt. The results of the audit sample were 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 the individuals associated with the test program are summarized below.

TEST PERSONNEL INFORMATION		
Location	Address	Contact
Test Coordinator	Lansing Board of Water and Light 1232 Haco Drive P.O. Box 13007 Lansing, Michigan 48912	Mr. Nathan Hude Environmental Regulatory Compliance (517) 490-3069 (cell phone) nathan.hude@lbwl.com
Test Facility	Lansing Board of Water and Light Erickson Station 1201 S. Washington Ave. Lansing, Michigan 48910	
Testing Company Representative	Mostardi Platt 888 Industrial Drive Elmhurst, Illinois 60126	Mr. Scott McGough Project Supervisor (630) 993-2100 (phone) smcgough@mp-mail.com

The test crew consisted of Messrs. D. Panek, R. Spoolstra and S. McGough 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
Unit 1 Stack	7.9	11.3	HCl	12

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 26A Hydrogen Chloride (HCl) Determination

Stack gas HCl concentrations and emission rates were determined in accordance with Method 26A, 40CFR60, Appendix A. An Environmental Supply Company sampling train was used to sample stack gas, in the manner specified in the Method. Analyses of the samples collected were conducted at the Elmhurst, Illinois laboratory of Mostardi Platt. 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. Stationary Source Audit Sample Program audit samples were obtained from ERA, Inc. and submitted for analysis to Mostardi Platt. The results of those audit samples were compared to the assigned value by ERA and found to be acceptable. The audit sample results and evaluation are appended to the final report.

3.0 TEST RESULT SUMMARIES

Client: Lansing Board of Water and Light
Facility: Erickson Station
Test Location: Unit 1 Stack
Test Method: 26A MATS

Source Condition	Normal	Normal	Normal	
Date	2/22/22	2/22/22	2/22/22	
Start Time	7:55	10:33	13:46	
End Time	10:00	12:21	15:34	
	Run 1	Run 2	Run 3	Average
Stack Conditions				
Average Gas Temperature, °F	221.2	223.3	218.8	221.1
Flue Gas Moisture, percent by volume	12.0%	11.9%	11.5%	11.8%
Average Flue Pressure, in. Hg	28.73	28.73	28.73	28.73
Gas Sample Volume, dscf	93.991	90.992	88.644	91.209
Average Gas Velocity, ft/sec	44.392	43.122	41.683	43.066
Gas Volumetric Flow Rate, acfm	604,569	587,266	567,671	586,502
Gas Volumetric Flow Rate, dscfm	395,890	383,639	375,358	384,962
Gas Volumetric Flow Rate, scfm	449,930	435,668	423,923	436,507
Average %CO ₂ by volume, dry basis	14.7	14.7	14.8	14.7
Average %O ₂ by volume, dry basis	4.8	4.8	4.7	4.8
Isokinetic Variance	101.8	101.7	101.3	101.6
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	3296	3777	4464	3846
ppm	0.82	0.97	1.17	0.98
mg/dscm	1.24	1.47	1.78	1.50
lb/hr	1.836	2.106	2.500	2.148
lb/mmBtu (Standard Fd Factor)	0.0010	0.0012	0.0014	0.0012

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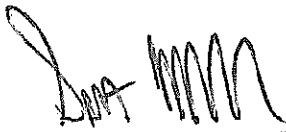
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4.0 CERTIFICATION

Mostardi Platt is pleased to have been of service to Lansing Board of Water and Light. If you have any questions regarding this test report, please do not hesitate to contact us at 630-993-2100.

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



Scott W. McGough

Program Manager



Scott W. Banach

Quality Assurance