DTE

COMPLIANCE TEST REPORT

for

QUARTERLY HYDROGEN CHLORIDE (HCL) EMISSIONS

EG-09 BOILER No. 9A

(SRN: B2811)

4th Quarter 2019

Trenton Channel Power Plant
Trenton, Michigan

November 26, 2019

Prepared By:
Environmental Management & Resources
Environmental Field Services Group
DTE Corporate Services, LLC
7940 Livernois H-136
Detroit, MI 48210

DTE

1.0 INTRODUCTION

DTE Energy's Environmental Management and Resources (EM&R) Field Services Group performed 4th Quarter – 2019 Hydrogen Chloride (HCl) emissions testing on the exhaust of EG-09 Boiler No. 9A at the Trenton Channel Power Plant, located in Trenton, Michigan. The testing was required by the 40 CFR Part 63, Subpart UUUUU (Mercury and Air Toxics Standards - MATS) to document quarterly HCl stack emissions. The testing was conducted on November 26, 2019.

Testing was performed pursuant to ASTM Method D6348.

The fieldwork was performed in accordance with EPA Reference Methods and DTE Energy Intent to Test[1], which was approved in a letter by Mr. Thomas Maza from the Michigan Department of Environment, Great Lakes & Energy (EGLE) dated January 20, 2017[2]. The following DTE Energy personnel participated in the testing program: Mr. Thomas Snyder, Environmental Specialist, Mr. Mark Grigereit, Principal Engineer, and Mr. Fred Meinecke, Senior Environmental Technician. Mr. Snyder was the project leader. Mr. Austin Sash, Staff Engineer at the plant provided process coordination for the testing program.

2.0 SOURCE DESCRIPTION

The Trenton Channel Power Plant (TCHPP) located at 4695 W. Jefferson Avenue, Trenton, Michigan, employs the use of one coal-fired boiler. EG-09 Boiler No. 9A Stack is a Combustion Engineering Boiler, nominally rated at 520 net megawatts (NMW). However, the current operation reduces the capability of the Boiler 9A to 460 NMW.

Boiler 9A is equipped with a Dry Sorbent Injection (DSI) and Activated Carbon Injection (ACI) air quality control system. The DSI system is used to control acid gas, PM, PM10, PM2.5, and NOx emissions from each unit. Trona is received at the plant where inline mills further refine the Trona. The ACI system is used to control Mercury emissions from each unit.

Testing was performed on EG-09 Boiler No. 9A while operating at normal load conditions, per Subpart UUUUU.

---

[1] MDEQ, Test Plan, Submitted January 5, 2017. (Attached-Appendix A)

[2] MDEQ, Approval Letter, dated January 20, 2017. (Attached-Appendix A)

DTE

3.0 SAMPLING AND ANALYTICAL PROCEDURES

DTE Energy obtained emissions measurements in accordance with procedures specified in the USEPA *Standards of Performance for New Stationary Sources* or listed as an approved "*Other Test Method*". The sampling and analytical methods used in the testing program are indicated in the table below:

Sampling Method	Parameter	Analysis
ASTM Method D6348	HCl, CO_2, and, Moisture Content	FTIR
USEPA Method 19	Emission Rate Calculations	Stoichiometric Calculations

3.1 MOISTURE (ASTM D6348)

3.1.1 Sampling Method

Moisture content in the exhaust was evaluated using ASTM D6348, "Measurement of Vapor Phase Organic Emissions by Extractive Fourier Transform Infrared (FTIR)".

3.2 CARBON DIOXIDE (ASTM D6348)

3.2.1 Sampling Method

Carbon dioxide (CO_2) emissions were evaluated using ASTM D6348, "Measurement of Vapor Phase Organic Emissions by Extractive Fourier Transform Infrared (FTIR)".

3.2.2 Sampling Train Calibration

The CO_2 analyzer was calibrated according to procedures outlined in USEPA Methods 3A and 7E. Zero, span, and mid range calibration gases were introduced directly into the analyzer to verify the instruments linearity, prior to sampling, and again at the completion of each test run. The CO_2 emissions were corrected for bias according to USEPA Method 7E.

3.3 HYDROGEN CHLORIDE AND CARBON DIOXIDE (ASTM D6348)

3.3.1 Sampling Method

Hydrogen chloride and carbon dioxide emissions were evaluated using ASTM D6348, "Measurement of Vapor Phase Organic Emissions by Extractive Fourier Transform Infrared (FTIR)". Single point sampling was performed. Triplicate 60-minute test runs

DTE

4.0 OPERATING PARAMETERS

The test program included the collection of boiler load and stack emissions CEMs data during each test run. Parameters recorded included gross Megawatts (GMW) and CEMs data (SO_2, NO_x, CO_2, and opacity). Additionally, dry sorbent injection rates (DSI) and activated carbon injection rates (ACI), in pounds per hour (lb/hr), are reported. Operational Data collected during the testing is presented in Appendix D.

During each day of emissions sampling, a representative coal sample was collected from the unit and analyzed for ultimate and proximate analysis, including % Sulfur, % Ash, and heat content. The results of the coal analysis was used to calculate an Fc value for each day of testing and used in the lb/MMBtu calculations. Results of the fuel analysis can be referred to in Appendix F. HCl emissions testing was performed at maximum normal operating load and representative of site specific normal operating conditions according to 40 CFR part 63.10007.

5.0 DISCUSSION OF RESULTS

Table 1 presents the HCl emission testing results from EG-09 Boiler No. 9A. HCl emissions are presented in parts per million on a wet basis (ppm_w) and pounds per million BTU (lbs/MMBtu). The EG-09 Boiler No. 9A HCl emissions during the testing averaged 0.54ppm. EG-09 Boiler No. 9A demonstrated average HCl emissions below the Subpart UUUUU limit of 0.002 lb/MMBtu.

The auxiliary test data presented in the results table for each test includes the unit load in gross megawatts (GMW), DSI injection rate (lb/hr), ACI injection rate (lb/hr), and CO_2 concentration ($\%_{wet}$).

DTE

6.0 CERTIFICATION STATEMENT

"I certify that I believe the information provided in this document is true, accurate, and complete. Results of testing are based on the good faith application of sound professional judgment, using techniques, factors, or standards approved by the Local, State, or Federal Governing body, or generally accepted in the trade."

Mr. Thomas Snyder, QSTI

This report prepared by:

Mr. Thomas Snyder, QSTI
Environmental Specialist, Field Services Group
Environmental Management and Resources
DTE Energy Corporate Services, LLC

This report reviewed by:

Mr. Mark Grigereit, QSTI
Principal Engineer, Field Services Group
Environmental Management and Resources
DTE Energy Corporate Services, LLC

DTE

RESULTS TABLES

DTE

TABLE NO. 1
HYDROGEN CHLORIDE EMISSIONS TESTING RESULTS
Trenton Channel Power Plant - EG09 Boiler No. 9A
November 26, 2019

Test	Test Date	Test Time (DAHS Time)	Unit Load (GMW)	DSI Injection Rate (lb/hr)	ACI Injection Rate (lb/hr)	CO_2 Concentration ($\%_{wet,\ corrected}$)	HCl Concentration ($ppmv_{wet}$)	HCl Emissions (lbs/MMBtu)[1][2]
HCl-1	**26-Nov-19**	8:04-9:04	394	347	197	11.6	0.55	0.0009
HCl-2		9:16-10:16	394	314	197	11.6	0.55	0.0009
HCl-3		10:27-11:27	394	329	197	11.6	0.53	0.0009
	Average:		***394***	***330***	***197***	***11.6***	***0.54***	***0.0009***

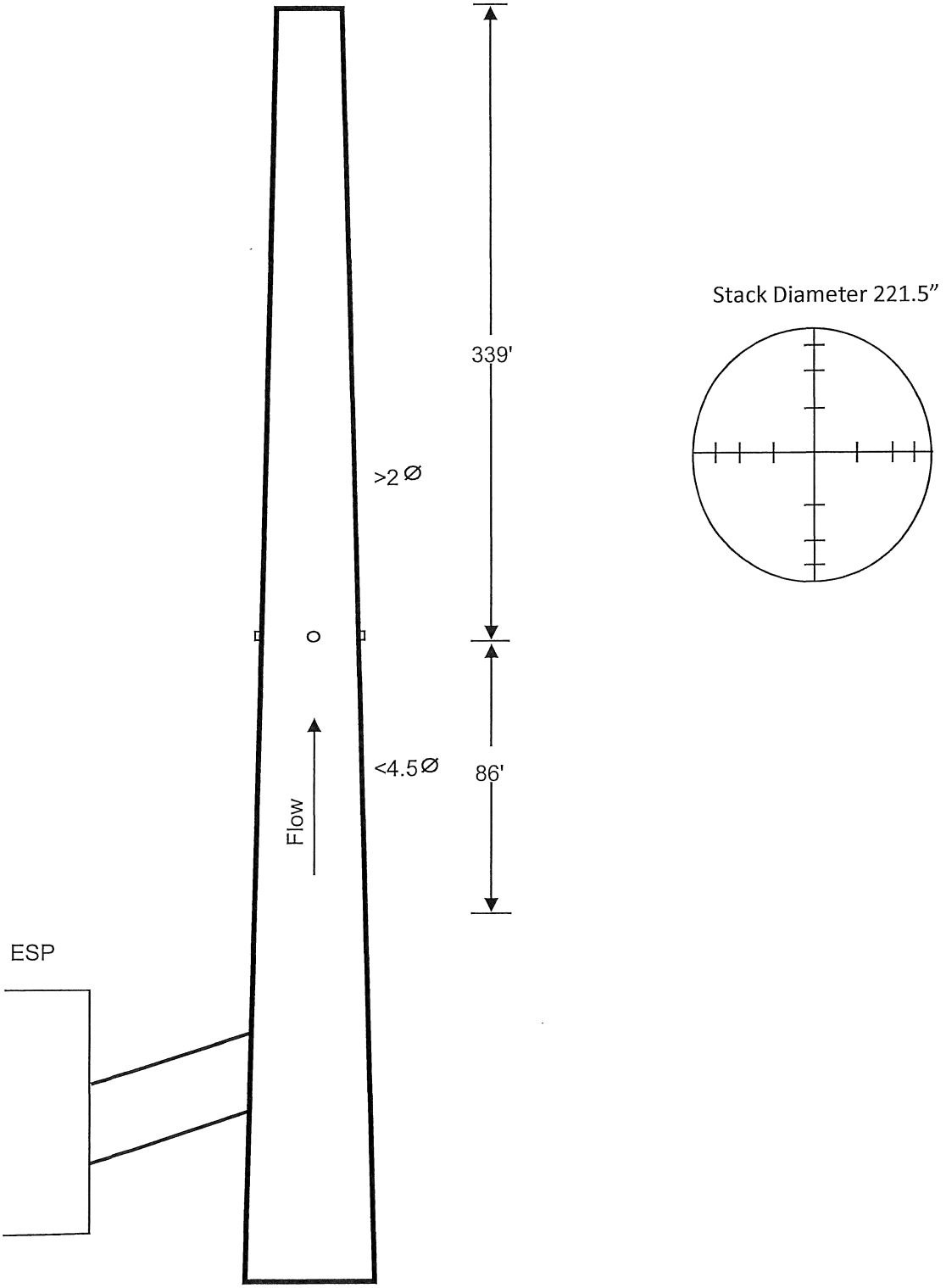
(1) Corrected to (%R)
(2) MATS Limit = 0.002 lb/MMBtu

DTE

FIGURES

DTE

Figure 1 – Sampling Location
Trenton Channel Power Plant – EG09 Boiler No. 9A
November 26, 2019



Stack Diameter 221.5”

DTE

Figure 2 – ASTM D6348
Trenton Channel Power Plant
November 26, 2019