

**DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection**

N687349665

FACILITY: DTE Electric Company - Renaissance Power Plant		SRN / ID: N6873
LOCATION: 950 N. Division, CARSON CITY		DISTRICT: Grand Rapids
CITY: CARSON CITY		COUNTY: MONTCALM
CONTACT: Matt Kaleyta , Plant Supervisor		ACTIVITY DATE: 07/10/2019
STAFF: Kaitlyn DeVries	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: The purpose of this inspection was to determine compliance with MI-ROP-N6873-2015a.		
RESOLVED COMPLAINTS:		

On Wednesday July 10, 2019 Department of Environment, Great Lakes, and Energy (EGLE) Air Quality Division (AQD) staff Kaitlyn DeVries conducted an unannounced, scheduled inspection of DTE Electric Company – Renaissance Power Plant located at 950 N. Division, Carson City, Michigan. The purpose of this inspection was to determine compliance with MI-ROP-N6873-2015a. This inspection was conducted in tandem with required stack testing.

Upon arrival at the facility, KD checked in with Mr. Harry Brophy, who was one of the CEMS technicians and viewed the required safety video. Mr. Brophy then escorted KD into the control room where she was able to view that Units 2 and 4 were the only units in operation that day. A Relative Accuracy Test Audit (RATA) was being conducted on Unit 2, while testing for VOC, PM10, and Formaldehyde was being done on Unit 4. Mr. Brophy escorted KD on a basic tour of the facility; after the tour and checking in on the testing that was being conducted, KD met with Mr. Matt Kaleyta, Plant Supervisor and Ms. Rosemary Peiffer, Secretary. Ms. Peiffer supplied KD with much of the records.

### Facility Description

DTE Electric Company – Renaissance Power Plant (RPP) is a natural gas-fired electric generating facility comprised of four (4) simple cycle combustion turbines. It was intended at one point for these units to become combined cycle units, but this change did not occur. The facility has some other ancillary equipment located on site, consisting of a diesel-fired backup emergency generator, a diesel-fired fire pump for fire control, and a natural gas fired heating unit to condition the natural gas prior to being combusted in the turbines.

### Regulatory Analysis

RPP is considered a major source for Nitrogen Oxides (NO<sub>x</sub>) and Carbon Monoxide (CO) and is subject to the Title V Program. Currently RPP is a minor source of Hazardous Air Pollutants. RPP is currently operating under MI-ROP-N6873-2015a. In addition to being subject to the Title V program, RPP is subject to the Acid Rain Program and the Cross-State Air Pollution Rules (CSAPR). Other emission units located at the facility are subject to the New Source Performance Standards (NSPS) provisions of 40 CFR Part 60 Subpart Dc, 40 CFR Part 60 Subpart GG, and the National Emission Standards for Hazardous Air Pollutants provision of 40 CFR Part 63 Subpart ZZZZ.

### Compliance Evaluation

The facility has a source-wide Sulfur Dioxide (SO<sub>2</sub>) emission limit of 43.7 tons per year (tpy) based upon a 12-month rolling time period. This limit applies to all combustion equipment located on site. As of June 2019, the 12-month rolling SO<sub>2</sub> emissions were 1.1 tons.

#### *EU-HEATERSC*

This emission unit consists of a 13 MMBtu/hr. in-line natural gas-fired heater for heating natural gas prior to use in the turbines. This emission unit is subject to the provision of 40 CFR Part 60 Subpart Dc for Small Industrial-Commercial-Institutional Steam Generating Units. An Initial Notification was received on September 27, 2017. This emission unit was included in the original permitting since the project during New Source Review permitting was subject to review under the Prevention of Significant Deterioration regulations.

#### *FGTURBINE1-4SC*

There are four (4) Westinghouse (now Siemens) natural gas fired combustion turbines that operate in the simple cycle mode. Each of the four (4) units are equipped with Dry low-NOx combustors that are integral to the firing process and are not considered to be control devices. These turbines are subject to the Standards of Performance of 40 CFR Part 60 Subpart GG for Stationary Gas Turbines. Some of the requirements of Subpart GG are incorporated into the permit requirements while others have been subsumed due to more stringent permit requirements and the use of CEMS.

As previously mentioned, only Units 2 and 4 were in operation during the time of the inspection. Unit 2 was operating at a load of 159.9 MW, and Unit 4 was operating at a load of 162.8 MW.

All of the units have Continuous Emission Monitoring Systems (CEMS) for NOx, and CO. The units have several emission limits and are each applied individually per turbine. The emission limits are outlined in Table 1.

Table 1: Emission Limits applicable to each turbine individually. All emission data is through June 2019 unless otherwise specified.

Pollutant	Limit	Actual Emissions			
		Unit 1	Unit 2	Unit 3	Unit 4
Nitrogen Oxides (NOx)	15 ppmv at 15% Oxygen, dry <sup>A</sup>	14.8 ppm	12.0 ppm	13.0 ppm	12.0 ppm
NOx	189.2 tons per year (tpy)	21.1 tpy	17.2 tpy	24.0 tpy	23.2 tpy
Carbon Monoxide (CO)	15 ppmv at 15% oxygen, dry <sup>A</sup>	1.0 ppm	0.4 ppm	0.4 ppm	1.0 ppm
CO	115.2 tpy	11.2 tpy	19.1 tpy	19.3 tpy	22.1 tpy
VOC	8.1 tpy	1.7 tpy <sup>B</sup>	1.5 tpy <sup>B</sup>	2.0 tpy <sup>B</sup>	2.0 tpy <sup>B</sup>
Particulate Matter less than 10 microns in diameter (PM10)	9 pounds per hour (pph)	5.6 pph	5.6 pph	5.6 pph	5.6 pph
PM10	14.6 tpy	1.9 tpy <sup>B</sup>	1.7 tpy <sup>B</sup>	2.2 tpy <sup>B</sup>	2.0 tpy <sup>B</sup>
Formaldehyde	6.5 tpy <sup>C</sup>	0.3 tpy			

<sup>A</sup> The limit is based upon an average of all operating hours in a calendar day; Units 2 and 4 values are from July 10, 2019 for NOx and CO. Units 1 and 3 are historic data for NOx, CO, PM10, and VOC – see attached records

<sup>B</sup> Emissions data is through May 2019.

<sup>C</sup> This limit is applicable to all of the turbines combined.

RPP is properly tracking the daily, and monthly emissions for NOx, CO, VOC, PM10, and the monthly records for formaldehyde, as required.

As previously mentioned, RPP was conducting testing as required by FG-TURBINE1-4SC Special Condition V.2. Testing for VOC, PM10, and Formaldehyde is required at least one (1) year prior to the expiration of MI-ROP-N6873-2015a, which was May 15, 2020. Testing was conducted late, and a Violation Notice was previously sent with a date of June 12, 2019. No additional action will be taken regarding the late testing. Any clarification as to the date the next test is required will be clarified in the upcoming ROP renewal.

Each unit also has an individual opacity limit of 10%, excluding uncombined water vapor, per a 6-minute average. Federal Reference Method 9 readings are required to be conducted by a Certified reader at least once

per 1,624 hours of operation. Method 9 records indicate the readings were last conducted on May 16, 2018 for Unit 1 and June 29, 2018 for Units 2, 3, and 4. No opacity was recorded for any of the units. No opacity was noted by KD during the inspection either.

Sulfur content in the natural gas is limited to 0.5 grains per 100 standard cubic feet. The facility only burns pipeline quality natural gas which has a sulfur content of less than 0.5 grains per 100 standard cubic feet. RPP is tracking the amount of natural gas that is used in each turbine on an hourly basis, as required, and the hours of operation for each of the turbines.

Each turbine in this flexible group are limited to a 12-month rolling operational time of 3,250 hours. Records indicate that the 12-month rolling operations as of June 2019 for each of the turbines (1-4, respectively) is 578 hours, 451 hours, 631 hours, and 629 hours. The facility implemented and maintains a startup/shutdown/malfunction plan and follows it to minimize emissions during startup and shutdown. The facility is keeping records of the hours of startup and shutdown for each of the four (4) units. As of June 2019, the 12-month rolling hours of startup/shutdown for each of the four (4) units (Units 1 – 4, respectively) were 33 hours, 29 hours, 52 hours, and 34 hours.

KD did not explicitly measure the stacks, but they appeared to be of correct dimensions. RPP has successfully been submitting all required reports, including excess emissions reports, semi-annual and annual reports, and MAERS reports. The emissions data reported in this inspection appear to be consistent with that reported for the 2018 MAERS.

#### FG-ENGINESC

This flexible group ins comprised of two (2) engines both subject to the provisions of 40 CFR Part 63 Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines. EU-EDG is a nominally rated 6,000,000 BTU/Hr. diesel fired emergency engine; EU-DFP is a diesel fired emergency pump for fire control. Both of these units are equipped with hour meters and operate less than the allowed 500 hours per year.

The engines are limited to 21,000 gallons of diesel fuel per 12-month rolling time period. Based on the usage records, as of June 2019 the 12-month rolling diesel fuel usage was 617.4 gallons.

Both units require routine maintenance, such as oil and filter changes every 500 hours of operation, or annually, whichever comes first. Per Mr. Kaleyta, the manufacturer does the required maintenance on the units. The most recent maintenance was conducted on the units in May 2019, and March 2019.

#### FG-COLDCLEANERS

This flexible group is for any new or existing cold-cleaning parts washers with an air/vapor interface of less than 2 square feet in area and is exempt from Rule 201 permitting under Rule 2812(h). Currently the facility has one (1) of these units and it is maintained by Safety Kleen.

#### Compliance Determination

Based upon the observations made during the inspection and a subsequent review of the records it appears that DTE Electric Company – Renaissance Power Plant is in compliance with MI-ROP-N6873-2015a.

NAME *Justin D. ...* DATE 7/25/2019 SUPERVISOR *[Signature]*

