

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

N178447586

FACILITY: ADA COGENERATION LIMITED PARTNERSHIP		SRN / ID: N1784
LOCATION: 7575 FULTON STREET EAST, ADA		DISTRICT: Grand Rapids
CITY: ADA		COUNTY: KENT
CONTACT: Buck Surratt , Facility Manager		ACTIVITY DATE: 01/09/2019
STAFF: Kaitlyn DeVries	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: The purpose of this inspection was to determine compliance with MI-ROP-N1784-2015.		
RESOLVED COMPLAINTS:		

On Wednesday January 9, 2019 Air Quality Division (AQD) staff Kaitlyn DeVries (KD) conducted an unannounced, scheduled inspection of Ada Cogeneration Limited Partnership, located at 7575 Fulton Street, Ada Michigan. The purpose of this inspection was to determine compliance with MI-ROP-N1784-2015.

KD arrived at the facility shortly before 10:00 am and met with Mr. Andy Kucharczyk, O&M Manager, and Mr. Buck Surratt, Facility Manager. Mr. Kucharczyk accompanied KD on the tour of the facility, while both Mr. Surratt and Mr. Kucharczyk supplied KD with the appropriate records. During the opening meeting, Mr. Surratt explained some of the history of the facility as well as the intent to schedule a ROP Pre-Application meeting with AQD and their consultants regarding the ROP application that is due in 2019.

### Facility Description

Ada Cogeneration Limited Partnership, (Ada Cogen) is an electricity and steam production facility and is located within the Access Business Group Corporate Complex. The facility sells steam to Access Business Group and electricity to Consumers Energy Company. A stationary source determination has previously been conducted, and since less than 50% of the steam production is sent to Access Business Group, these are separate stationary sources.

### Regulatory analysis

Ada Cogen is a major source of Carbon Monoxide, and Nitrogen Oxides and is subject to the Title V program. The facility is currently operating under Title V permit MI-ROP-N1784-2015. The facility is also subject to the provisions of 40 CFR Part 60 Subpart GG the Standards of Performance for Stationary Gas Turbines. Some of the requirements of Subpart GG have been streamlined within the permit, due to more stringent requirements.

### Compliance Evaluation

#### EUTURBINE and EUDUCTBURNER

EUTURBINE consists of a GE LM2500 Natural gas fired turbine used to produce steam and electricity. EUDUCTBURNER consists of natural gas fired duct burners that are used for supplemental steam generation but cannot be operated independently from the turbine. These two (2) emission units make up FGENERGY. Only pipeline quality natural gas is burned in the turbine and the duct burner, with water injection being used for control.

Nitrogen Oxides (NOx) emissions from the turbine are limited to 42 ppmv corrected to 15% O<sub>2</sub>, on a dry basis. Carbon Monoxide (CO) emissions from the turbine are limited to 0.13 pounds per MMBTU heat input, also based upon a one -hour block average. The duct burner has NOx emission limits of 0.10 pounds per MMBTU and 7.5 pounds per hour (pph). It also has a CO emission limit of 0.10 pounds per MMBTU. Compliance with the emission limits are demonstrated via stack testing, and the establishment of water injection rates used during stack testing to achieve the emission limits. Stack testing was most recently conducted in May 2016 indicated water: fuel injection rates as described in Table 1, below.

Table 1: Water Fuel Ratio's for EUTURBINE

Load	Duct Burner status	Water: Fuel Ratio
High	With Duct Burner	0.80
High	Without Duct Burner	0.82
Low	With Duct Burner	0.65
Low	Without Duct Burner	0.60

The facility monitors the water injection rate, the gas usage, and the hours of operation, the operators back calculate to ensure compliance with the emission limits. Additionally, the 2016 stack test demonstrated compliance with the emission limits. Table 2, below, outlines the emissions from the 2016 stack test.

Table 2: 2016 Stack Test Results

Emission Unit	Duct Burner Status	Load	CO Emission rate	NOx Emission Rate
EUTURBINE	With Duct burner	High	0.018 pounds/MMBTU	40.2 ppm at 15% O <sub>2</sub>
EUTURBINE <sup>A</sup>	Without Duct Burner	High	0.033 pounds/MMBTU	40.8 ppm at 15% O <sub>2</sub>
EUTURBINE	With Duct burner	Low	0.054 pounds/MMBTU	39.5 ppm at 15% O <sub>2</sub>
EUTURBINE <sup>A</sup>	Without Duct Burner	Low	0.064 pounds/MMBTU	38.8 ppm at 15% O <sub>2</sub>

<sup>A</sup> The difference of the emissions with and without the duct burner are compliant with the emission limits for EUDUCTBURNER alone.

Per Mr. Kucharczyk, the operators target an injection rate that is slightly higher than what is required to ensure compliance with the emission limits. Records of the hourly injection rates were readily available and indicate high load ratios averaging around 0.86 and low load injection rates averaging around 0.63, without the duct burner, and 0.73 with the duct burner. KD also looked at the operators handwritten calculations and did not notice any issues. The facility is also properly monitoring the fuel consumption of the turbine and the duct burners in order to properly calculate the emissions and the injection ratio. All records are also kept as specified in Appendix 3. The operators have posted procedures on how the calculations are to be done and how to control the NOx emission with the water injection range, as required by NSPS Subpart GG.

#### FGENERGY

This flexible group encompasses the turbine and the duct burner operations, with the aforementioned water injection used for control with the injection rates being established via 2016 stack testing to ensure compliance with the pound per hour emission limits. The facility maintains the records of the natural gas heat input rates to the turbine and the duct burner, including operation hours and the load. At the time of the inspection, the facility was operating at a low load of 16.2 MW with a water injection rate of 0.62. Table 3, below, outlines the 12-month rolling emission limits as well as the hourly emission limits for CO, NOx, Particulate Matter (PM), and Non-methane organic compounds (NMOC). The 12-month rolling emission results are current as of December 2018. The hourly emissions are based upon stack test results and achieving the targeted fuel to water ratio.

Table 3: Emissions data for FGENERGY

Pollutant	Emission Limit	Emissions
CO (pph)	91.5 pph	10.04 pph
CO (tpy)	240 tpy	38.37 tpy
NOx (pph)	47.9 pph	45.38 pph
NOx (tpy)	210 tpy	144.82
PM (pph)	5.61 pph	1.01 pph
PM (tpy)	16 tpy	4.40 tpy
NMOC (pph)	1.0 pph	0.23 pph
NMOC (tpy)	4.4 tpy	0.97 tpy

EUDUCTBURNER and EUTURBINE exhaust through the same stack, and the dimension, while not explicitly measured, appeared correct.

Ada Cogen has successfully submitted all required reports, including excess emissions reports and MAERS reporting. The reported emissions are consistent with what was reported for the 2017 MAERS reporting year, and will be evaluated against the 2018 data, once it is submitted.

#### FGCOLDCLEANERS

This flexible group covers any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(2)(h) or Rule 285(2)(r)(vi). Ada Cogen currently has one (1) of these emission units. It was closed at the time of the inspection, and per Mr. Kucharczyk, Ada Cogen is looking at possibly replacing the unit, and would like to discuss that during the proposed ROP Pre-Application meeting that will be scheduled in the near future.

#### FGRULE290

This flexible group covers all emission units that are exempt from the requirements of Rule 201 pursuant to Rules 278 and 290. Currently, Ada Cogen does not have any of these emission units. However, this flexible group is maintained within the ROP in the event that one of these emission units is installed.

#### Compliance Determination

Based upon the observations made during the inspection and a subsequent review of the records it appears that Ada Cogeneration Limited Partnership is in compliance with MI-ROP-N1784-2015.

NAME Kaitlyn Durkin DATE 1/14/2019 SUPERVISOR [Signature]