

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N178468165

FACILITY: ADA COGENERATION LLC		SRN / ID: N1784
LOCATION: 7575 FULTON STREET EAST, ADA		DISTRICT: Grand Rapids
CITY: ADA		COUNTY: KENT
CONTACT: Steve Wonnacott , Plant Manager		ACTIVITY DATE: 06/27/2023
STAFF: Michael Cox	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled Unannounced Inspection		
RESOLVED COMPLAINTS:		

On Tuesday June 27, 2023, Department of Environment, Great Lakes, and Energy Air Quality Division (AQD) staff Michael Cox (MTC) conducted an unannounced, scheduled inspection of Ada Cogeneration LLC (a Subsidiary of TransAlta Corporation), located at 7575 Fulton Street, Ada Michigan. The purpose of this inspection was to determine compliance with MI-ROP-N1784-2020b and all other applicable air quality rules and regulations. Prior to entrance into the facility, odor and visible emissions observations were taken. No odors or visible emissions were noted. MTC met with Mr. Carl Rotach, Facility Engineer, who provided a facility walkthrough and answered site specific questions. Requested records following the inspection were provided by Mr. Steve Wonnacott, Facility Manager.

Facility Description

Ada Cogeneration LLC, (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-N1784-2020b. The facility is also subject to Nes Source Performance Standards (NSPS) 40 CFR Part 60 Subpart GG, Standards of Performance for Stationary Gas Turbines. Some of the requirements of NSPS 40 CFR Part 60 Subpart GG have been streamlined within the permit, due to more stringent requirements. During the ROP renewal process, it was discovered that the NOx emissions from EUTURBINE and FGENERTY were subject to the provisions of 40 CFR Part 64 Compliance Assurance Monitoring (CAM). The requirements were subsequently written into the flexible group FGCAM, of the ROP. This will be evaluated further under FGCAM in the compliance evaluation section of this report.

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. The turbine can, however, be operated independently of the duct burner. 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 is limited to 42 ppmv corrected to 15% O₂, on a dry basis. Carbon Monoxide (CO) emissions from the turbine is limited to 0.13 pounds per MMBTU heat input, based upon a one -hour block average. As previously mentioned, the NOx emissions from the turbine are subject to CAM, which will be discussed in FGCAM. 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 is 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 on November 2, 2021, indicated water-to-fuel injection rates as described in the table, below. Testing is required to be conducted within five (5) years of the date of the last test date, which coincides with November 2026.

Water Fuel Ratio's for EUTURBINE from 2021 Stack Testing

Load	Duct Burner status	Water: Fuel Ratio
High	With Duct Burner	0.85
High	Without Duct Burner	0.90
Low	With Duct Burner	0.66
Low	Without Duct Burner	0.75

The facility monitors the water injection rate, the gas usage, and the hours of operation, and the operators back calculate to ensure compliance with the emission

limits. Additionally, the 2021 stack test demonstrated compliance with the emission limits. The table below, outlines the emissions from the 2021 stack test.

2021 Stack Test Results

Emission Unit	Duct Burner Status	Load	CO Emission rate	NOx Emission Rate
EUTURBINE	With Duct burner	High	0.012 pounds/MMBTU	40.3 ppm at 15% O ₂
EUTURBINE ^A	Without Duct Burner	High	0.023 pounds/MMBTU	40.6 ppm at 15% O ₂
EUTURBINE	With Duct burner	Low	0.060 pounds/MMBTU	39.2 ppm at 15% O ₂
EUTURBINE ^A	Without Duct Burner	Low	0.051 pounds/MMBTU	41.3 ppm at 15% O ₂

^A The difference of the emissions with and without the duct burner are compliant with the emission limits for EUDUCTBURNER alone.

During the facility walkthrough Mr. Rotach stated that the operators target an injection rate that is slightly higher than what is required to ensure compliance with the emission limits. 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 being kept as required in Appendix 3 and were reviewed for the time period of January 2022 through June 27, 2023. 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 40 CFR Part 60, Subpart GG.

One (1) stack is listed in association with EUTURBINE and EUDUCTBURNER. EUTURBINE and EUDUCTBURNER exhaust through the same stack. The stack was observed venting unobstructed vertically. The stacks appeared to be consistent with the dimensions listed in MI-ROP-N1784-2020b.

FGENERGY:

This flexible group consists of the turbine and the duct burner operations, with the water injection used for control. The injection rates were established during the November 2, 2021, 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 14.4 MW with a water injection rate of 0.67. The table 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 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	8.875 pph
CO (tpy)	240 tpy	18.756 tpy
NOx (pph)	47.9 pph	44.689 pph
NOx (tpy)	210 tpy	187.815 tpy
PM (pph)	5.61 pph	0.638 pph
PM (tpy)	16 tpy	2.67 tpy
NMOC (pph)	1.0 pph	0.15 pph
NMOC (tpy)	4.4 tpy	0.64 tpy

*Emission records were reviewed for the time period of January 2022 through May 2023.

One (1) stack is listed in association with this flexible group. EUTURBINE and EUDUCTBURNER exhaust through the same stack. The stack was observed venting unobstructed vertically. The stacks appeared to be consistent with the dimensions listed in MI-ROP-N1784-2020b.

Ada Cogen has submitted all required reports, including excess emissions reports, ROP Semi-annual and Annual Certifications, CAM reports, and MAERS reporting.

FGCAM:

This flexible group lists the requirements for demonstrating compliance with 40 CFR Part 64 Compliance Assurance Monitoring. In prior ROP's, CAM requirements were omitted as the emissions from the processes were thought to be exempt from the requirements of CAM. However, since establishing the water to fuel injection ratio is established by compliance testing, CAM is applicable, and was subsequently written into the ROP during the last renewal.

Testing to establish the water to fuel injection ratio was most recently conducted on November 2, 2021. Ada Cogen continuously monitors the water to fuel injection ratio, which is used as the indicator for demonstrating compliance with the emission limits in EUTURBINE and FGENERGY. The facility is submitting the required CAM reports.

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) cold cleaner on site and was noted to be closed. This unit was noted to be serviced by Saftey-Kleen and contained Petroleum Naphtha as the solvent. The cold cleaner was noted to have less than ten (10) square feet air/vapor interface.

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 emission units utilizing Rule 290. However, this flexible group is maintained within the ROP in the event that one of these emission units is installed in the future.

Compliance Determination

Based upon the observations made during the inspection and the review of the records it appears that Ada Cogeneration LLC(a Subsidiary of TransAlta

Corporation), is in compliance with MI-ROP-N1784-2020b and other applicable air quality rules and regulations.

NAME Michael T. Corp
DATE 7/13/2023
SUPERVISOR MM