

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

N178457019

<b>FACILITY:</b> ADA COGENERATION LIMITED PARTNERSHIP		<b>SRN / ID:</b> N1784
<b>LOCATION:</b> 7575 FULTON STREET EAST, ADA		<b>DISTRICT:</b> Grand Rapids
<b>CITY:</b> ADA		<b>COUNTY:</b> KENT
<b>CONTACT:</b> Buck Surratt , Facility Manager		<b>ACTIVITY DATE:</b> 01/15/2021
<b>STAFF:</b> Kaitlyn DeVries	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> The purpose of this inspection was to determine compliance with MI-ROP-N1784-2020b.		
<b>RESOLVED COMPLAINTS:</b>		

On Friday January 15, 2021 Department of Environment, Great Lakes, and Energy (EGLE) Air Quality Division (AQD) staff Kaitlyn DeVries (KD) conducted an announced, 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.

The inspection was announced in order to be conducted virtually due to additional safety precautions necessary due to the Covid-19 pandemic and the desire to minimize any potential spread of Covid-19. KD met virtually with Mr. Buck Surratt, Facility Manager, and Mr. Andrew Jones Sr. Environmental Specialist, Gas Fleet from Ada Cogeneration LLC’s corporate owner, TransAlta Corporation.

**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 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. 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 in FGCAM in the compliance evaluation section of this report.

**Compliance Evaluation**

EUTURBINE and EDUCTURNER

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 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. As previously mentioned, the NOx emissions from the turbine are subject to CAM, and that 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 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. Testing is required to be conducted within five (5) years of the date of the last test date, which coincides with May 2021. Mr. Surratt indicated that Ada Cogen is in the planning phase of having testing be conducted and plans to have Network Environmental conduct the required stack testing in May 2021.

*Table 1: Water Fuel Ratio's for EUTURBINE from 2016 Stack Testing*

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. Surratt, 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 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 0.63. 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 2020. 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	11.32 pph
CO (tpy)	240 tpy	46.33 tpy
NOx (pph)	47.9 pph	38.54 pph
NOx (tpy)	210 tpy	116.85 tpy
PM (pph)	5.61 pph	1.04 pph
PM (tpy)	16 tpy	4.35 tpy
NMOC (pph)	1.0 pph	0.23 pph
NMOC (tpy)	4.4 tpy	0.96 tpy

EUDUCTBURNER and EUTURBINE exhaust through the same stack. Since this was a virtual inspection, the stack dimensions were not measured, but in previous inspections the stacks have appeared to be of correct dimensions.

Ada Cogen has successfully submitted all required reports, including excess emissions reports and MAERS reporting, with the exception of the CAM forms, which will be discussed below in FGCAM.

FGCAM

This flexible group houses all of the requirements for demonstrating compliance with the provisions of 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 via 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 in 2016, but Ada Cogen is set to conduct testing, as required, again in May of 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. During the virtual inspection, KD asked Mr. Surratt and Mr. Jones about the requirements to submit CAM reports semiannually, as required in FGCAM Special Condition VII 4 and VII.5. KD asked Mr. Jones and Mr. Surratt if they were aware of these requirements. Both indicated they knew these were new requirements of the ROP. Mr. Jones went on to indicate that hew as less familiar with these requirements as TransAlta has recently acquired Ada Cogen. KD explained the CAM applicability and the submittals that are required. During a follow up e-mail KD also supplied both Mr. Jones and Mr. Surratt with the CAM forms. These forms should be submitted moving forward, and KD will expect to see them prior to the March 15, 2021 deadline as per FGCAM Special Condition VIII.2.

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 and per Mr. Surratt, the facility keeps it closed when not in use. The emission unit was not viewed during the virtual inspection.

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-N1784-2020b and other applicable air quality rules and regulations.

NAME Kaitlyn DeVries DATE 02/03/2021 SUPERVISOR HH