

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

N258668247

FACILITY: Holland BPW, 48th Street Peaking Station		SRN / ID: N2586
LOCATION: 491 E 48th St, HOLLAND		DISTRICT: Kalamazoo
CITY: HOLLAND		COUNTY: ALLEGAN
CONTACT: Trista Gregorski , Environmental Regulatory Specialist		ACTIVITY DATE: 05/24/2023
STAFF: Cody Yazzie	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled Onsite Inspection		
RESOLVED COMPLAINTS:		

On May 24, 2023 Air Quality Division (AQD) staff (Cody Yazzie) arrived at 491 East 48th Street, Holland Michigan at 2:30 PM to conduct an unannounced air quality inspection of Holland Board of Public Works, 48th Street Peaking Station (hereafter Holland BPW) SRN (N2586). Staff made initial contact with Trista Gregorski, Holland BPW, Environmental Regulatory Specialist, and stated the purpose of the visit. Mrs. Gregorski is the environmental contact and assisted Staff with requested records and escorted them around the facility.

Holland BPW consists of three combustion turbine generators. One turbine is a gas-fired unit with an output of approximately 80 megawatts and uses dry low NOx technology. The other two turbines are oil/gas fired with an output of approximately 40 megawatts each. These two turbines utilize water injection to control NOx emissions. The turbines are equipped with continuous emission monitoring systems to measure NOx emissions. The three turbines provide electrical power for the municipality.

Holland BPW was last inspected by the AQD on July 13, 2021 and appeared to be in Compliance at that time with MI-ROP-2586-2020. Staff asked, and Mrs. Gregorski stated that the facility does not have any emergency generator, boilers, or cold cleaners not already listed in the ROP.

Mrs. Gregorski gave staff a tour of the facility. Required personal protective equipment are safety glasses, high visibility vest, steel toe boots, hard hat, and hearing protection. Staff observations and review of records provided during and following the inspection are summarized below:

EUTURBINE9:

This emission unit is an 80 MW turbine with dry low NOx control used for generating electricity. This unit was installed in 1999 and according to the permit has not undergone any modification or reconstruction. This unit is equipped with a CEMS unit that is used to track NOx emissions data. MI-ROP-N2586-2020 does not allow for Holland BPW to operate the turbine at less than 50% of base load for more than one consecutive hour, during stable conditions, not to include start up and shut down. This unit is also required to be fueled by pipeline quality natural gas.

Holland BPW is required to keep records of the hours and load that the turbine is operated at. Miss Gregorski explained that the CEMS records and stores all this data. Staff requested that the facility provide records for when EUTURBINE9 on the Unit 9 emission spreadsheet the facility indicated that the unit was not operated at less than 50% baseload (40 MW) for more than one consecutive hour for the reviewed time period of January 2022 through April 2023. On the Unit 9 CEMS data it shows 1-hour increments in which it shows the load operation level. Staff received

the Unit 9 CEMS data for the time period of May 2022 through April 2023. The review of the CEMS data appears to show that the facility has not operated the Unit 9 turbine as less than 50% baseload for more than one consecutive hour.

The facility has two NOx emission limits that it is required to comply with. The first is an hourly average except during periods of startup and shutdown. This limit is 22 ppmv on a dry gas basis at 15% O₂. The second is an annual 12-month rolling limit. Holland BPW is limited to 222.5 TPY calculated on a 12-month rolling average. Holland BPW provided averaged hourly NOx emission data from May 2022 through April 2023. During this time, it did not appear that the facility exceeded the 22-ppm excluding startup and shutdown times. The facility did have a few times when these records showed that the ppm was higher than 22 ppm but these events were recorded with an indication of Startup/Shutdown. Based on the records provided Staff saw that the Unit 9 recorded NOx emissions data typically being between 7-12 ppm during normal operation.

The facility uses the CEMS data as an emission factor of NOx in lbs/MMBTU. The facility records monthly natural gas usage (mcf) and Heat Input (MMBTU) to calculate NOx emissions. From January 2021 through April 2023 the maximum NOx 12-month rolling emissions were 20.6 TPY which occurred in March 2023. Holland BPW is well below the permitted limit.

Holland BPW is required to test EUTURBINE9 for carbon monoxide emissions rates every five years from the date of the last test. The facility conducted this testing on July 27, 2020. Staff indicated to Mrs. Gregorski that testing would be due in 2025. The 2020 testing data produced an average emission factor of 2.99 pph of CO, which is well under the 125 pph CO permitted limit. The facility is calculating CO emissions for every month that are then used to do the 12-month rolling CO emissions. The equation that is used to calculate CO emission based on the turbine load and can be found in Appendix 7 of the ROP. In March 2023 Holland BPW emitted their largest amount of 12-month rolling CO emissions for the records reviewed from January 2021 through April 2023. This is well below the 222.5 TPY limit in the permit.

During the inspection EUTURBINE9 was not in operation. Staff took operational data from the units CEMS. Staff noted that the turbine was operating at a load of 0 MW and reading a value of 20.77% O₂. Staff also asked if in the past few years if the unit has undergone any major part replacements or reconstructions and was told that there have been no such activities besides regular preventative maintenance.

FGUNITS-7&8:

EUTURBINE7 and EUTURBINE8 are both 40 MW turbines with water injection used for generating electricity. Both units were installed in 1991 and according to the permit has not undergone any modification or reconstruction. Both units are equipped with a CEMS unit that is used to track NOx emissions data. These units were not in operation during the inspection.

The facility has two NOx emission limits that they are required to comply with. The first is a daily average except during periods of startup and shutdown. This limit is 95 ppmv on a dry gas basis at 15% O₂. The second is an annual 12-month rolling limit. Holland BPW is limited to 249 TPY combined between both turbines for their 12-month rolling average. Holland BPW provided CEMS hourly data for Unit 7 and Unit 8 for the time period of May 2022 through April 2023.

Holland BPW does have instances where these two turbines operate at the same time. The CEMS data did show that on 6/15/2022, 7/11/2022, 7/19/2022, 7/21/2022, 7/22/2022, 8/30/2022, 8/31/2022, 9/1/2022, and 3/13/2023 the facility did operate both turbines at the same time. During this time period the combined average ppm did not exceed the permitted limit of 95 ppmv at 15% O₂. When in operation the Unit 7 turbine appeared to have NO_x emissions 27-30 ppmv at 15% O₂, while the Unit 8 Turbine appeared to have NO_x emissions between 28-32 ppmv at 15% O₂ during typical operation.

The CEMS data did show that the facility did not exceed the 95-ppm excluding startup and shutdown times during times when a single turbine in operations either. On 1/30/2023 Staff noticed that the Unit 8 recorded NO_x emissions between 41 – 43 ppmv at 15% O₂ while only Unit 8 was in operation. Unit 8 was not exceeding the 95 ppmv limit, but just operating with higher NO_x emissions than normal.

The facility uses the CEMS data as an emission factor of NO_x in lbs/MMBTU. The facility records monthly natural gas usage (mcf) and Heat Input (MMBTU) to calculate NO_x emissions. Since January 2021 the maximum NO_x 12-month rolling emissions for EUTURBINE7 and EUTURBINE8 were 5.27 TPY and 8.66 respectively. The combined maximum 12-month rolling emissions are 11.93 TPY which is well below the permitted limit and occurred in July 2022.

Both EUTURBINE7 and EUTURBINE8 have the capacity of being fueled by No.2 diesel fuel oil. The fuel that Holland BPW purchases is an Ultra Low Sulfur Diesel from Crystal Flash. The facility provided the SDS sheet for diesel fuel which identifies the product as an Ultra Low Sulfur Diesel. The Ultra Low Sulfur Diesel cannot exceed 15 ppm sulfur content. This converts to 0.0015% sulfur content by weight. This is below the 0.3% by weight identified in special condition I.3.

Both EUTURBINE7 and EUTURBINE8 were operated on fuel oil in June 2021 and December 2022. Records showed that During July 2021, August 2021, and August 2022 only EUTURBINE8 was operated on diesel fuel. The facility is maintaining records of oil usage amount and Heat input of the oil. The records showed that the largest amount of oil used in a month for EUTURBINE7 occurred in June 2021, which used 3,949 gallons of oil. The largest amount of oil used in a month for EUTURBINE8 occurred in June 2021, which used 4,145 gallons of oil.

The facility is calculating SO₂ emissions that come from when the turbines when they are operated by both gas and oil. These calculated emissions are a few pounds of SO₂ emissions for the oil and gas fueled usage. Records show that this as 0.0 tons of SO₂ emissions for these months due to rounding. Both Turbines have 12-month rolling SO₂ emissions recorded as 0.0 TPY, which is well below the 249 TPY permit limit.

During the inspection EUTURBINE7 was not in operation. Staff took operational data from the units CEMS. Staff noted that the turbine was operating at a load of 0 MW and reading a value of 21.28% O₂. Staff also asked if in the past few years if the unit has undergone any major part replacements or reconstructions and was told that there have been no such activities besides regular preventative maintenance.

During the inspection EUTURBINE8 was not in operation. Staff took operational data from the units CEMS. Staff noted that the turbine was operating at a load of 0 MW and reading a value of 21.01% O₂. Staff also asked if in the past few years if the unit has undergone any major part

replacements or reconstructions and was told that there have been no such activities besides regular preventative maintenance.

FGCI-ENGINES:

Both turbines are equipped with black start engines to bring the turbines up to operating and startup speeds. These turbines are subject to Part 63 Subpart ZZZZ National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE). This regulation requires that every 500 hours of operation the oil be changed, and the hoses and belts be inspected. It also requires that every 1000 hours of operation the air cleaner be inspected and replaced as necessary. Holland BPW appears to be doing this on an annual basis. The last two times EUENGINE7 had the maintenance conducted was on November 19, 2021 and November 15, 2022. The last two times EUENGINE8 had the maintenance conducted was on November 19, 2021 and November 16, 2022. Holland BPW is also keeping record of all other preventative maintenance activities done to both units. Records are being kept for each engine's run time on an annual basis. EUENGINE7 had a total run time of 22.44 hours during 2022. EUENGINE8 had a total run time of 19.02 hours during 2022.

Each engine is equipped with a non-resettable hour meter. Staff did record hour meter readings during the inspection. Engine 7-hour meter was recorded as 145.08 hours. Engine 8-hour meter was recorded as 150.61 hours.

EUOILTANKS:

There are two 300,000 gallon oil tanks that are located at the facility. MI-ROP-N2586-2020 has them as subject to Part 60 Subpart Kb Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced After July 23, 1984. These tanks are used to house the Ultra Low Sulfur diesel fuel used by the blackstart engines and turbines. The only special requirement outlined in the ROP is that the facility maintain records of the dimensions of each storage tank.

Acid Rain Permit:

EUTURBINE7, EUTURBINE8, and EUTURBINE9 are subject to the CSPAR, Acid Rain, and Transport Rule requirements. Miss Gregorski showed staff that the required reports were being submitted to the USEPA. Staff was also provided with documentation that Holland BPW was not exceeding the emission allowances allocated by the program.

At the time of the inspection and based on a review of records obtained during or following the inspection, the facility appears to be in compliance with MI-ROP-N2586-2020. Staff stated to Mrs. Gregorski that a report of the inspection would be sent to the facility for their records. Staff concluded the inspection at 3:15 PM.-CJY

NAME Cody Yozzic

DATE 7/19/23

SUPERVISOR Mark [Signature]