

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

B542169868

FACILITY: Wolverine Power Supply Cooperative		SRN / ID: B5421
LOCATION: 3150 143rd Avenue, DORR		DISTRICT: Kalamazoo
CITY: DORR		COUNTY: ALLEGAN
CONTACT: Russ Fein , Chief Operator		ACTIVITY DATE: 10/25/2023
STAFF: Cody Yazzie	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Onsite Inspection		
RESOLVED COMPLAINTS:		

On October 25, 2023 Air Quality Division (AQD) Staff (Cody Yazzie and Jared Edgerton) arrived at 3150 143rd Avenue, Dorr Michigan at 1:15 PM to conduct an unannounced air quality inspection of Wolverine Power – Vandyke Generating Plant (hereafter WP) SRN (B5421). Staff made initial contact with Russ Fein, Chief Operator, WP, who is the onsite environmental contact and took staff to his office for further discussions.

This facility is currently operated on a standby basis. It currently has two staff members that usually work one 7am-3pm shift Monday through Friday. This facility produces electrical power that is generated from a natural gas-fired 24.8 megawatt simple cycle turbine (EUTURBINE02) installed in 2001. EUTURBINE02 has a 386 horsepower diesel startup engine (EUSTARTER_ENGINE) that runs for around 15 minutes when EUTURBINE02 is starting up. In 2019 the facility has made EUTURBINE01 inoperable and started the process of removing the turbine. Since the decommissioning of EUTURBINE01 the facility has voided their ROP and kept operating under the Source Wide PTI permit MI-PTI-B5421-2014. WP is no longer considered a major source and is operating as a synthetic minor Source.

WP was last inspected by the AQD on March 13, 2020 and appeared to be in Compliance at that time with MI-ROP-B5421-2014 Staff asked, and Mr. Fein stated that the facility does not have any cold cleaners or emergency generators.

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

EUTURBINE01:

As stated in the previous inspection report EUTURBINE01 started the process of being removed from the facility on June 11th 2019. During the inspection the Staff observed that the unit was completely removed from the facility.

EUTURBINE02:

The facility refers to this turbine as unit #8. This turbine is subject to the federal requirements of 40 CFR 60, Subparts A and GG. The removal of the ROP requirements and issuance of the Source Wide PTI that the facility now operates under largely reverted the Special Conditions that reflected the original PTI No. 296-00 in the Source Wide PTI No. MI-PTI-B5421-2014.

As stated in the most recent stack test was performed on August 24, 2017. This stack test measured the NOx emissions and derived them into three different units of measure. The NOx

emission rates that were determined from the test were 105.2 ppmv, 0.374 lbs NO_x/MMBTU, and 125.3 lbs NO_x/hr. These all comply with the limits in the ROP special conditions (I.1-3).

Special Condition VI.1 requires that the facility monitor and record the amount of natural gas combusted in EUTURBINE02 during each calendar month. The facility must then use the Higher Heating Value of the natural gas to determine the actual monthly heat input to the turbine. The facility uses a measured 2004 lab result of 1,030 BTU's per cubic foot of natural gas as the Higher Heating Value to determine the monthly required Heat Input in EUTURBINE02. Staff was told that the facility does obtain a certificate of analysis for the natural gas used at the plant that gives the calculated Gross BTU per cubic foot. The most recent dates for these are March 2023 and September 2023. These analyses showed that the heating value varied from 1038 and 1042 BTU/cubic foot. While these are close to the value used by the facility Staff believes that the most recent value should be utilized when doing their emissions and heat input calculations.

Since January 2022 the largest natural gas usage for a single month was 22,074,000 cubic feet. This occurred in July 2022 and resulted in Heat Input Value of 22,736 MMBTU.

On a monthly basis WP is required to multiply the actual heat input to the turbine with the applicable emission limit derived from the last compliance test. The emission factor used by the facility was measured during the August 24, 2017 Stack Test. During this Stack Test the measured NO_x emission per MMBTU were 0.374 lbs of NO_x/MMBTU. The largest monthly emissions since January 2022 were calculated to be 4.26 Tons of NO_x in a single calendar month.

Special Condition VI.1 also requires that WP calculate and maintain NO_x emission records as determined on a 12-month rolling time period. The facility is keeping an accurate 12-month rolling NO_x emission calculation. In the reviewed time period starting in January 2022 the facility's largest 12-month rolling NO_x emission rate was calculated to be 26.97 TPY occurring in June 2022. This is well below the permitted 35 TPY permitted limit. The overall trend of the emissions since this point have also appeared to decrease.

As a part of being subject to NSPS GG the facility is required to meet the requirements of the fuel monitoring program outline in Appendix 2 of MI-PTI-B5421-2014. Currently the facility is testing the natural gas for sulfur content semiannually during the first and third quarters. The previous two test were conducted in March 2023 and September 2023. Tests of the sulfur content of the natural gas measured non-detect on a detection limit of 1.0 ppmw. The facility appears to be in compliance with the 0.8 percent by weight (8000 ppmw) limit that is required by NSPS GG 60.333 (b).

During the inspection EUTURBINE02 was not in operation but Staff did look and walk around the unit. Staff asked Mr. Fein when the most recent operation of EUTURBINE02 was. Staff was shown records that the facility most recently operated EUTURBINE02 on Friday October 20th, 2023.

EUSTARTER ENGINE:

This starter engine is operated for about 15 minutes to start EUTURBINE02. This engine is subject to the federal requirements of 40 CFR 63, Subparts A and ZZZZ. WP has the fuel in this analyzed for sulfur content annually. It was last tested on December 15, 2022 and measured less than 20 ppm of sulfur. This is less than the 0.05% by weight that is required. The facility is also keeping records of maintenance done on the engine. Records shown that the most recent maintenance

was conducted on November 30, 2022. Maintenance includes the inspection of the air cleaner, hoses, and belts. The last oil changed is documented as being done on November 30, 2022. If the facility has the oil test the facility documents this in the maintenance logs.

EUSTARTER_ENGINE is equipped with a non-resettable hour meter. The facility is recording the hours and reason that the unit is operated are being recorded. During the inspection the hour meter read 80.8 hours. The facility appears to be keeping record of the starter engine run hours. The facility reported that the starter engine had operated 21.5 hours during 2023.

BOILER:

This facility has a 1 MMBTU/hour natural gas fired boiler that is used for space heating. This appears to be exempt under Rule 282(2)(b)(i).

Conclusion of Inspection

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-PTI-B5421-2014. Moving forward the facility should use the most recent higher heating value to calculate the monthly emissions and heat input values for EUTURBINE02. Staff stated to Mr. Fein that a report of the inspection would be sent to the facility for their records. Staff concluded the inspection at 1:45 PM.-CJY

NAME Cody Yagis

DATE 11/16/23

SUPERVISOR [Signature]