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

N576069805

FACILITY: Wolverine Power Supply - Hersey		**SRN / ID:** N5760
LOCATION: 1529 South 170th Avenue, HERSEY		**DISTRICT:** Cadillac
CITY: HERSEY		**COUNTY:** OSCEOLA
CONTACT: Charlie Sheldon , Cheif Operator		**ACTIVITY DATE:** 11/08/2023
STAFF: Rob Dickman	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Inspection of this opt out source.		
RESOLVED COMPLAINTS:		

Wolverine Power Supply Cooperative is an electric utility located near the town of Hersey, Osceola County. It is referred to as a “peaking station” meaning that it only produces electricity as needed (heavy use, malfunctions at other facilities, etc.). The facility consists of two natural gas fired turbines rated for 25 megawatts (MW) of output each, and a single Caterpillar 3512 diesel fired electric generator used to supply power to the facility in the event of extended electric outages and for startup of the turbines. As this is a peaking station, none of the permitted equipment was in operation during the inspection.

I inspected this facility per opt out Permit to Install (PTI) number 133-09. Accompanying me on site was Charles Sheldon, Hersey Plant Chief Operator. Required records were requested from Joe Hazewinkel, Director of Environmental Affairs, on October 12, 2023 and received on October 18, 2023. Review of these records as related to the PTI is included in this report. Following are the findings of this inspection. Any section marked “NA” indicates no applicable conditions in the PTI for that section.

EUCAT - CAT Mod. 3512, Diesel-fired, 1030 KW, 9.1 MM BTU/HR Diesel fired electrical generator. This unit will be used in the event of extended power outages or interruptions in electrical service to supply power to the facility primarily. Therefore, this engine will not operate very frequently.

Emission Limits

Oxides of Nitrogen (NOx) emissions are limited to 10 tons based on a 12-month rolling time period as determined monthly. Compliance with this limit is through natural gas usage and emissions calculations. Records provided by the facility indicate the highest NOx emissions during the review period was in August of 2023 at 0.15 tons. Total tons for the review period were 0.17 tons based on the 12-month rolling time period.

Material Limits

Fuel sulfur content is limited to 0.05% sulfur by weight. Records provided by the facility indicate sulfur content of the diesel fuel used is no greater than 15 ppm (ultra-low sulfur diesel) which equates to no greater than 0.0015% sulfur.

Process or Operational Restriction

Operation of this unit is limited to 500 hours per 12-month rolling time period. Upon inspection, total hours of operation for the life of the unit were 232.5 hours.

Design or Equipment Parameters

NA

Testing or Sampling

NA

Monitoring and Recordkeeping

Hours of operation for the unit are to be kept monthly. Records provided by the facility indicate this is being performed with most months at less than one hour.

Monthly and 12-month rolling NOx calculations are to be performed and records. Records provided by the facility indicate the highest NOx emissions during the review period was in August of 2023 at 0.15 tons. Total tons for the review period were 0.17 tons based on the 12-month rolling time period.

The sulfur content of diesel fuel burned in the unit is to be kept on a per shipment basis. The most recent shipment receipt, dated August 24, 2023, was provided and indicated sulfur content of diesel to be less than 15 ppm or 0.0015%.

Reporting

NA

Stack Restrictions

The stack for the unit must be at least 22 feet above ground level and have a maximum diameter at the exit of 12 inches. This stack appears to meet these parameters and does not appear to have been recently modified.

Other Requirements

NA

FGTURBINES – This flexible group is for two identical Rolls-Royce RB211 simple-cycle combustion turbines, fired by natural gas (Units 9 and 10). Each turbine is rated at 25,000 kilowatts. This flexible group is controlled by dry low NOx burners.

Emission Limits

NOx emissions are limited to 0.12 pounds per million BTU heat input, 35.3 pounds per hour, and 33 parts per million corrected to 15% oxygen, dry. No demonstration of compliance is required by the permit. Stack testing was last performed on these units in June of 2000. The results of this testing indicated compliance with emissions limits for NOx.

Carbon monoxide (CO) emissions are limited to 0.12 pounds per million BTU heat input. No demonstration of compliance is required by permit.

Material Limits

NA

Process or Operational Restrictions

Only pipeline quality natural gas as defined by 40 CFR 60.331(u) is allowed to be burned by this group. Briefly, this equates to 20 grains of sulfur per 100 standard cubic feet and 950 to 1100 BTU's per standard cubic foot. The facility has an agreement with their supplier, DTE Energy, to only provide gas of this quality.

Design or Equipment Parameters

NA

Testing or Sampling

Testing for NOx and CO can be requested. Currently, there is no plausible reason to request this testing.

Monitoring and Recordkeeping

Monthly usage by each turbine is required to be kept.

Reporting

NA

Stack Restrictions

Each turbine stack exit must be at least 45 feet above ground level and have a maximum exit diameter of 142 inches. The stacks are identical and appear correct.

Other Requirements

NA

FGFACILITY – Facility wide restrictions

Emission Limits

NOx and CO emissions are limited to 89.9 tons per year based on a 12-month rolling time period. Compliance with these limits is through fuel usage and emissions calculations. For the review period, the highest NOx value was in November of 2022 at 53.04 tons based on a 12-month rolling time period. For CO, the highest value was in December of 2022 at 21 tons based on a 12-month rolling time period.

Material Limits

Natural gas usage is not to exceed 1,463,000,000 cubic feet per year based on a 12-month rolling time period as determined at the end of each calendar month. For the review period, usage was calculated to be 208,234,000 cubic feet.

Process or Operational Restrictions

NA

Design or Equipment Parmeters

NA

Testing or Sampling

Verification of hydrogen sulfide or sulfur content of the natural gas may be requested. This analysis has not been requested and the is no plausible reason to request it.

Monitoring or recordkeeping

Monthly and 12-month rolling time period NO_x and CO emission calculation records are to be kept. For the review period, the highest NOx value was in November of 2022 at 53.04 tons based on a 12-month rolling time period. For CO, the highest value was in December of 2022 at 21 tons based on a 12-month rolling time period.

Monthly and 12-month rolling time period fuel use records are to be kept. The highest fuel amount used during the review period was in December of 2022 at 50,634,000 cubic feet.

Reporting

NA

Stack Restrictions

NA

Other Requirements

NA

At the time of the inspection, this facility was in compliance with all of their applicable air permitting.

NAME Rod Dickman DATE 11-16-23 SUPERVISOR Shane Nixon