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

N662059153

FACILITY: Great Lakes Water Authority - Lake Huron Plant		**SRN / ID:** N6620
LOCATION: 3993 Metcalf Road, FORT GRATIOT		**DISTRICT:** Warren
CITY: FORT GRATIOT		**COUNTY:** SAINT CLAIR
CONTACT: Christopher Steary , Manager		**ACTIVITY DATE:** 08/06/2021
STAFF: Kerry Kelly	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: On-site inspection for FY 2021		
RESOLVED COMPLAINTS:		

On August 6, 2021, I (Kerry Kelly, EGLE-AQD) conducted a targeted, announced inspection of Great Lakes Water Authority – Lake Huron Water Treatment Plant located at 3993 Metcalf Road, Fort Gratiot, Michigan. The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment Great Lakes and Energy, Air Quality Division (EGLE-AQD) Rules; Permit-to-Install (PTI) Number 232-98B.

Great Lakes Water Authority (GLWA) operates a drinking water treatment plant in Fort Gratiot, Michigan. At the plant, water is received, via gravity, from Lake Huron, treated, and pumped to customers. The Lake Huron Plant is located in northwestern St. Clair County where it is surrounded primary by residential properties.

Based on material limit of 328,333 gallons of diesel fuel use in PTI 232-98B, for the engines at the Lake Huron Plant, it appears the facility is an area source of hazardous air pollutants (HAPs). Using the AP-42 HAP emission factor the most abundant HAP for uncontrolled diesel engines (formaldehyde), a heating value of 144,000 Btu/gallon (as stated in PTI 232-98B), and the limit of 328,333 gallons of diesel fuel; the PTE for a single HAP (formaldehyde) would be 0.04 tons per year and the aggregate of the HAPs listed in AP-42 Chapter 3 for diesel-fired engines would be less than 1 ton.

I arrived on site at approximately 8:45 AM. I was directed to the Administration building by security. At the Administration building I met Mr. Chris Steary, Plant Manager and Ms. Andrea Miller, Plant Engineer. Mr. Steary and Ms. Miller answered questions and described the equipment and processes at the facility. According to Mr. Steary, the plant employs approximately 31 people and operates 24 hours/day, 7 days a week. Mr. Steary explained that chlorine, aluminum sulfate, coagulation C308P, fluoride, phosphoric acid, and sodium bisulfite are used in the treatment process. As water enters the treatment plant, chlorine is added to minimize the growth of organisms on pipes and tanks. Next, aluminum sulfate and coagulation C380P are added, followed by sedimentation and filtration, to remove particles. Before water leaves the facility, chlorine, fluoride, and phosphoric acid are added. Chlorine is added to disinfect the water, fluoride is added to prevent tooth decay in consumers, and phosphoric acid is added as corrosion control. Sodium bisulfite is added to de-chlorinate the water.

Mr. Steary and Ms. Miller showed me around the facility including the chemical building, basement, and engines.

ENGINES

PTI 232-99B was issued to Detroit Water and Sewerage Department – Lake Huron Plant (now Great Lakes Water Authority – Lake Huron Water Treatment Plant) for eight identical, model 3516B, diesel-fired generators (EUENGINE1 – EUENGINE8). According to the

permit, the engines were installed in 1999 and are used for emergency power or peak shaving. I inspected each engine, which were all the same model (3516B) and manufacturer (Caterpillar). EUENGINE1 – EUENGINE8 are combined in PTI 232-99B into the flexible group FGENGINES. The permit allows the engines to be used for peak shaving, however, according to Mr. Steary, DTE prohibits GLWA from using the engines for peak shaving.

Each engine is equipped with an hours meter. I viewed the total hours of each engine during the inspection. The total hours indicated on the hours meters were:

ENGINE ID	HOURS
EUENGINE1	717
EUENGINE2	692
EUENGINE3	708
EUENGINE4	705
EUENGINE5	695
EUENGINE6	657
EUENGINE7	646
EUENGINE8	665

PTI 232-98B

Special condition I.1. in PTI 232-99B restricts the NOx emissions from FGENGINES to 39.95 tons per year on a 12-month rolling basis. Mr. Steary provided 12-month rolling NOx emission rates (Attachment 1). The highest reported 12-month rolling NOx from July 2019 through July 2021 was 2.36 tons per year reported for the 12-month period ending July 2020. This is below the 39.95 ton/year limit.

The sulfur content in the diesel fuel used in FGENGINES is limited to 0.05 percent by weight in special condition II. 1. of PTI 232-99B. Mr. Steary provided a copy of the sulfur content of the fuel (Attachment 2). The ultra-low sulfur diesel fuel spec sheet provided by Mr. Steary lists the sulfur content of the diesel fuel as 15 ppm (0.0015 percent). It appears the sulfur content in the fuel used is within the limits of special condition II.1.

Special condition II.2. limits the 12-month rolling diesel fuel usage for the engines to 328,333 gallons. Mr. Steary provided 12-month rolling fuel use rates (Attachment 1). Based on the fuel use records provided by Mr. Steary, the highest 12-month rolling fuel use was 19,411.5 gallons/year reported for the 12-month period ending July 2020. The reported fuel use is below the limit in special condition II.2 of PTI 232-99B.

I inspected the fuel tanks for FGENGINES and observed a device to monitor and record the fuel use as required in special condition IV.1.

It appears, based on my observation of the stacks for each of the engines in FGENGINES, that the stack height and diameter for each engine is within permit limits.

It appears the permitted engines at GLWA are not subject to the Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (40 CFR 60 Subpart IIII) because construction of the engines, according to the PTI, commenced prior to July 11, 2005. Applicability and compliance with the National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (40 CFR 63 Subpart ZZZZ) was not evaluated because EGLE-AQD has not accepted delegation to implement and enforce 40 CFR 63 Subpart ZZZZ at area sources of HAPs.

FUEL BURNING EQUIPMENT

HEATERS
In the hallways at the facility I observed ten Modine space heaters. These space heaters all appeared to be the same size. Ms. Miller sent me a picture of the nameplate on one of the heaters. The nameplate indicates the space heater is natural gas-fired and has a heat input capacity of 200,000 BTU/hour.

The facility also has two 404,622 BTU/hour gas-fired heaters used for heating the garage.

I inspected two natural gas-fired heaters on the roof of the Chemical building used to heat supply air in the winter. Documentation posted with the units indicated a heat input of 1.2 MMBtu/hour and 2.4 MMBtu/hour.

The heaters I observed appear to be exempt from the requirement in R 336.1201, to obtain a permit to install, per R 336.1282(2)(b)(i) because they are used for space heating, burn sweet natural gas, and have a rated heat input capacity of less than 50,000,000 BTU/hour.

BOILERS
The four boilers at the facility are used for heating the Administration building and Chemical building. I inspected the nameplate on each boiler. According to the nameplates, all four boilers are natural gas-fired. One of the boilers has a heat input rating of 4.184 MMBtu/hour and the other three boilers each have a heat input rating of 2.5 MMBtu/hour. All four boilers at the facility appear to be exempt from the requirement in R 336.1201, to obtain a permit to install, per R 336.1282(2)(b)(i) because they are used for space heating, burn sweet natural gas, and have a rated heat input capacity of less than 50,000,000 BTU/hour.

The boilers, based on the nameplate capacity, do not appear to be subject to the New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Dc, because the maximum design heat input capacity is less than 10,000,000 Btu/hour. It appears the boilers are not subject to the National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63 Subpart JJJJJJ, per 40 CFR 63.11195(e) because they are gas-fired.

DEHUMIDIFIERS
Mr. Steary showed me two, 400,000 BTU/hour, natural gas-fired, Munters dehumidifiers located in the basement. The dehumidifiers appear to to be exempt from the requirement in R 336.1201, to obtain a permit to install, per R 336.1282(2)(b)(i) because they burn sweet natural gas and have a rated heat input capacity of less than 50,000,000 BTU/hour.

MAINTENANCE EQUIPMENT
In the maintenance room I inspected a steel cutter, grinder, saw, drill, enclosed sand-blast unit, welding equipment, and cold cleaner, all vented indoors. The lid to the cold cleaner was closed during my inspection, had an air/vapor interface of approximately 6 square feet, and had operating instructions posted in a conspicuous place. Mr. Steary provided the SDS for the cleaner used in the parts washer (Attachment 3), which is mineral spirits. The cold cleaner appears to be exempt from the requirement in R 336.1201, to obtain a permit to install, per R 336.1281(2)(h) because it has an air/vapor interface less than 10 square feet. It appears GLWA is operating the cold cleaner in compliance with R 336.1707.

STORAGE TANKS

DIESEL

On the eastern end of FGENGINES there are two, 15,000 gallon above ground diesel fuel storage tanks. The fuel spec sheet, provided by Mr. Steary, states the "product meets the ASTM Specifications for D 975 (Diesel Fuel)" (Attachment 2).

The facility also has a 3,000 gallon underground storage tank used to store diesel fuel for motor vehicles.

The diesel storage tanks appear to be exempt from the requirement in R 336.1201, to obtain a permit to install, per R 336.1284(2)(d) because they are used to store number 2-D diesel fuel as specified in ASTM D975 diesel fuel.

GASOLINE

The facility also has a 3,000 gallon underground storage tank used to store gasoline for motor vehicles. The gasoline storage tank appears to be exempt from the requirement in R 336.1201, to obtain a permit to install, per R 336.1284(2)(g)(ii) because it is a gasoline dispensing facility.

The gasoline storage tank appears to be subject to R 336.1704. R 336.1704 requires the tank be vaportight and equipped with: a permanent submerged fill pipe, a vapor balance system or equivalent control, an interlocking system or procedure to ensure vaportight collection line is connected before any gasoline can be loaded, and a device to ensure that the the vaportight collection line shall close upon disconnection so as to prevent release of gasoline vapor. R 336.1704 also requires a person responsible for the operation of all control measures develop written procedures for the operation of all control measures and the procedures shall be posted in an accessible, conspicuous location near the stationary vessel. I did not evaluate GLWA's compliance with this rule during the inspection.

Applicability and compliance with the National Emission Standard for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities (40 CFR 63 Subpart CCCCCC) was not evaluated because EGLE-AQD has not accepted delegation to implement and enforce 40 CFR 63 Subpart CCCCCC.

CHLORINE

Mr. Steary showed me the room where liquid chlorine is stored below ground. According to Mr. Steary the chlorine is stored in 2,000 lb (approximately 168 gallons) tanks. I observed about 5 chlorine storage tanks during the inspection. These tanks appear to be exempt from the requirement in R 336.1201, to obtain a permit to install, per R 336.1284(2)(j) because they are they are less than 500 gallons and chlorine has a boiling point lower than 0 degrees Celsius. R 336.1284(2)(j) exempts pressured storage of acetylene, hydrogen, oxygen, helium, and other substances that have a boiling point of 0 degrees Celcius or lower. This exemption excludes chlorine and anhydrous ammonia pressured storage in quantities greater than 500 gallons.

PHOSPHORIC ACID

I observed two phosphoric acid storage tanks at the facility. Signs posted near the tanks indicate the concentration of phosphoric acid is 75 percent. These tanks

appear to be exempt per R336.1284(2)(h)(2) because they are used to store phosphoric acid of a weight percent less than 99.

CONCLUSION

Based on my inspection, it appears GLWA – Lake Huron Treatment Plant is in compliance with the evaluated State and Federal air quality regulations and the conditions of PTI 232-99B.

NAME K. Kelly DATE 8/11/2021 SUPERVISOR Joyce