

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

N662041515

FACILITY: Great Lakes Water Authority - Lake Huron Plant		SRN / ID: N6620
LOCATION: 3393 Metcalf Road, LAKEPORT		DISTRICT: Southeast Michigan
CITY: LAKEPORT		COUNTY: SAINT CLAIR
CONTACT: Christopher Steary, Manager		ACTIVITY DATE: 08/25/2017
STAFF: Kerry Kelly	COMPLIANCE STATUS: Compliance	SOURCE CLASS:
SUBJECT: 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.		
RESOLVED COMPLAINTS:		

On August 25, 2017, I (Kerry Kelly, MDEQ-AQD) conducted a targeted, unannounced 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 Environmental Quality, Air Quality Division (MDEQ-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.

Upon arriving at the facility gate, I was escorted by security to the office of Mr. Chris Steary, Plant Manager. I introduced myself, showed by photo credentials, and explained the purpose of my visit to Mr. Steary. According to Mr. Steary, the plant employs approximately 30 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 showed me around the facility including the maintenance area, basement, main floor, and emergency generators.

SPACE HEATING

SPACE HEATERS

In the hallways at the facility, I observed several space heaters. These space heaters all appeared to be the same size. Mr. Steary took a photo of the nameplate on one of the space heaters (attachment 1). The nameplate indicates the space heater is natural gas-

fired and has a heat input capacity of 200,000 BTU/hour. The space 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 three boilers at the facility, used for space heating, are located in the basement. I inspected and took a photo of the nameplate on each boiler (attachment 2). According to the nameplates, all three boilers are natural gas-fired. One of the boilers has a heat input rating of 4.128 MMBtu/hour and the other two boilers each have a heat input rating of 7.520 MMBtu/hour. All three 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 facility is not subject to the National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters because the facility is an area source of hazardous air pollutants.

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 3 square feet, and had operating instructions posted in a conspicuous place. Mr. Steary provided the MSDS 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 the cold cleaner is in compliance with R 336.1707.

ENGINES

PTI 232-99B was issued to Detroit Water and Sewerage [sic] 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 all appeared to be the same model (3516B) and manufacturer (Caterpillar), and took a photo of the nameplate on one of the engines (attachment 4). EUENGINE1 – EUENGINE8 are combined, in PTI 232-99B, into the flexible group FGENGINES.

Special condition I.1. in PTI 232-99B restricts the NO_x emissions from FGENGINES to 39.95 tons per year on a 12-month rolling basis. Mr. Steary provided 12-month rolling NO_x emission rates (attachment 5). The highest reported 12-month rolling NO_x from January 2016 through July 2017 was 1.98 tons per year. This is well 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 6). 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 5). Based on the fuel use records provided by Mr. Steary, the highest 12-month rolling fuel use was 16,250 gallons/year. 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. During the inspection I recorded the fuel tank lifetime usage as 303,954 gallons and the current amount stored as 10,837.77 gallons.

Mr. Steary also provided records of the generator maintenance log (attachment 7) and the "Generator Exercise Form" (attachment 8) which includes the generator run hours and fuel usage.

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 the MDEQ-AQD has not adopted by reference 40 CFR 63 Subpart ZZZZ at area sources of HAPs.

STORAGE TANKS

DIESEL

On the eastern end of FGEngines there are two, 15,000 gallon 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 5). These 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.

CHLORINE

Mr. Steary showed me the room where liquid chlorine is stored under below ground. According to Mr. Steary the chlorine is stored in 2,000 lb (approximately 168 gallons) tanks. 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 less than 500 gallons and have a boiling point lower than 0 degrees Celsius.

PHOSPHORIC ACID

I observed two phosphoric acid storage tanks at the facility. According to Mr. Steary, the concentration of phosphoric acid is 75 percent (attachment ---). 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 9/18/07 SUPERVISOR SK

