

M4844

MANILA

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

M484440746

FACILITY: Detroit Water & Sewerage, Bluehill Pump Station		SRN / ID: M4844
LOCATION: 17145 Mack, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT:		ACTIVITY DATE: 07/14/2017
STAFF: Stephen Weis	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: Synthetic Minor
SUBJECT: Compliance inspection of the Great Lakes Water Authority Bluehill Pump Station in Detroit. The Bluehill Pump Station is scheduled for inspection in FY 2017.		
RESOLVED COMPLAINTS:		

Location:

Great Lakes Water Authority (formerly Detroit Water and Sewerage Department)
Bluehill Pump Station (SRN M4844)
17145 Mack Avenue
Detroit

Date of Activity:

Friday, July 14, 2017

Personnel Present:

Steve Weis, DEQ-AQD Detroit Office
Nabil Kamash, GLWA

Purpose of Activity

A self-initiated inspection of the Great Lakes Water Authority (GLWA) Bluehill Pump Station (hereinafter "Bluehill Pump Station" or "Bluehill facility") was conducted on Friday, July 14, 2017. The Bluehill Pump Station is on my list of sources targeted for an inspection during FY 2017. The purpose of this inspection was to determine compliance of operations at the Bluehill facility with applicable rules, regulations and standards as promulgated by Public Act 451 of 1994 (NREPA, Part 55 Air Pollution Control), applicable Federal standards, and any applicable permits and orders.

Facility Description

The Bluehill Pump Station is located near the northeast corner of Mack Avenue and Cadieux Road. The facility property, which is approximately 1.7 acres in area, has frontage along Mack Avenue, and is accessible from Neveux Street east of Cadieux. The Bluehill facility is located in an area dominated by residential properties, along with some commercial properties along Mack and along Cadieux just north of Mack. The nearest permanent residences are apartment buildings located to the north and northeast of the facility approximately 80 yards away from the fenceline.

The Bluehill Pump Station operates as part of the Great Lakes Water Authority's sewerage system. The system was formerly owned and operated by the Detroit Water and Sewerage Department (DWSD), but GLWA began a 40 year lease with the City of Detroit that provided for GLWA's operation of the regional water and sewerage system on January 1, 2016. The Bluehill facility is a municipal pumping station that operates as part of the sewage lines serving the east and northern suburbs and the east side of Detroit. Sewage that flows to the Bluehill facility is pumped to points downstream in the sewage system. There are six pumps at the facility, four that are used to pump stormwater, and two that are used to pump sanitary sewage to the sewer interceptor system.

The Bluehill facility consists of a building that houses the six pumps; three diesel-fired emergency engines; and two above ground storage tanks that store diesel fuel for use in the emergency engines. The three diesel-fired engines at the Bluehill facility were installed in August of 1999 to provide emergency back-up power to the wastewater pumps in case of a power outage. This allows the Bluehill facility to operate when needed to pump sewage through the facility to downstream points in the sewage system. The three engines are Caterpillar Model

3516B generators rated at 1,825 kW electrical output, with a maximum heat input rate of 18.31 MMBTU per hour.

Facility Operating Schedule

The Bluehill Pump Station is available for use on a 24 hour per day basis every day of the year. The facility is not regularly staffed. GLWA staff visit and check the site regularly, and perform maintenance/readiness checks of the engines once per month.

Inspection Narrative

Nabil and I arrived at the Bluehill Pump Station just before 10:00am. Nabil and I entered the facility, and we started off by walking around the pump building. Nabil explained that there are six pumps at the Bluehill, four that are used to pump stormwater, while the other two pump sanitary sewage. I noticed that the pump building had some masonry chimneys, so I inquired as to whether there are any boilers in use at the facility. Nabil told me that there used to be boilers at this facility to provide heat to the pump building, but that they had been removed. The facility has been using natural gas-fired unit heaters to provide building heat. I observed a couple of Reznor space heaters that were labeled as "GUH", which stands for gas unit heater, by GLWA.

Nabil and I then took a look at the engines at the facility. We went into the control room for the generators. An operational log is kept in the control room through which GLWA staff who operate and maintain the equipment at the facility keep monthly records of the engine start-ups, as well as the hours of operation and the amount of fuel used each month. The fuel usage and hours of operation information that is kept on site at the facility does not directly match the format required in the PTI for the engines, as there is no running 12 month total of the hours and fuel usage. I was told that this information is provided to a contact at GLWA where it is compiled and maintained in the required format. I was told that the point of contact for this information is Steve Kuplicki of GLWA. The last entry in the log book was entered earlier in July 2017, and showed an hour meter reading of 307 hours for generator No. 1, 245 hours for generator No.2 and 488 hours for generator No. 2.

Nabil and I then looked at the diesel storage tanks. According to the information on the label affixed at one end of the tanks, the tanks were installed in August of 1999. According to Nabil, this date should also correspond to the date that the engines were installed at the facility.

We left the facility at 10:15am.

Permits/Regulations/Orders/

Permits

The facility currently has one active air permit, PTI No. 252-99B. The original permit, PTI No. 252-99, was applied for in June 1999 by DWSD to address the pending installation of the three Caterpillar engines. The PTI limited the hours of operation of the engines to 500 hours per year to limit the potential emissions from the engines to below major thresholds (the permit also limited emissions of NOx to 12 tons per year). The permit was issued in July of 1999.

PTI No. 252-99A was issued to allow an increase in the hours of operation of the engines from 500 hours per year to 2,550 total combined operating hours per year. DWSD applied for this permit revision in May of 2002 to increase the allowed hours of operation of the engines so that the engines could be operated for electrical load peak shaving in addition to their use in providing emergency back-up power to the pumps. This PTI also increased the allowable NOx emissions to 39.4 tons per year. PTI No. 252-99A was issued in September of 2002.

The current PTI, No. 252-99B, was issued on December 1, 2008. DWSD applied for this permit to change the permitting operating limit on the engines from an hours of operation basis to a fuel restriction basis. DWSD requested this change on the basis that the hours of operation limit from the past versions of the permit were based on 100 percent load during the operation of the engines. DWSD provided that the engines are frequently operated at reduced loads, but that any operation was essentially being regulated, from an emissions standpoint, as being at 100 percent load. The fuel usage restriction was calculated based on the NOx limit of 39.4 tons per year. Thus, the current permit still serves to limit the potential emissions from the engines to below major source thresholds.

The compliance status of the Bluehill Pump Station facility with the requirements of PTI No. 252-99B is

summarized, as follows:

Special Condition I.1 (Emission Limits) – This condition limits the total emissions of nitrogen oxides (NO_x) from the operation of the two engines to 39.95 tons per year. As of the finalizing of this report, GLWA has not provided me with valid information demonstrating how NO_x emissions are being calculated and tracked by GLWA. Based on the low usage of these generators (typically an hour or less per generator, per month), the NO_x emissions should be well below the permitted limit. The application materials that were submitted for PTI No. 252-99A provide a Caterpillar guaranteed NO_x emission rate of 30.9 pounds per hour, based on 100% load. The four engines would need to operate for 2,585 hours during a 12-month time period to meet the permit limit. Based on the operational logs that I looked at, the engines look to be in compliance with this emission limit.

Special Condition II.1 (Material Limits) – The facility is **in compliance** with this condition. All of the fuel that is used at GLWA facilities is ultra low sulfur diesel, and has a sulfur content of less than 0.05% by weight.

Special Condition II.2 – As of the finalizing of this report, GLWA has not produced any records to demonstrate that diesel fuel usage is no more than 328,333 gallons per 12 month rolling period. The engines have a maximum fuel consumption rate of 130.8 gallons per hour, per engine. Given the number of hours that the engines are being used, the diesel fuel usage should be well below 328,333 gallons per 12 month rolling time period. It is assumed that the facility is complying with the requirement.

Special Condition IV.1 (Design/Equipment Parameters) – There is no device associated with the engines to monitor the fuel usage. Rather, the fuel usage is monitored based on the flow of fuel to each engines' day tank. Compliance.

Special Condition VI.1 (Monitoring/Recordkeeping) – As of the finalizing of this report, GLWA has not demonstrated that the monthly calculations of the NO_x emissions from the engines are being performed and recorded. Non-compliance.

Special Condition VI.2 – GLWA maintains fuel specifications for each delivery of fuel at GLWA facilities. Compliance.

Special Condition VI.3 – As of the finalizing of this report, GLWA has not demonstrated that the monthly and 12 month rolling time period records of diesel fuel usage is being maintained. Non-compliance.

Special Conditions VIII.1 and 2 – These conditions put forth the ambient exhaust parameters for the three engines. This information was provided in the PTI applications. The stack parameters were not evaluated during this site visit.

Federal regulations

The engines were installed in 1999, and have not been modified since they were installed. The installation date for these engines is prior to the dates that make up the applicability criteria associated with 40 CFR Part 60, Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines), as put forth in 60.4200(a). Thus, the three engines at the Bluehill facility are not subject to Subpart IIII.

The requirements of 40 CFR Part 63, Subpart ZZZZ (National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines) apply to owners and/or operators of stationary reciprocating internal combustion engines (RICE) at both major and area (or minor) sources of hazardous air pollutant (HAP) emissions, except if the RICE is being tested at a test cell/stand. The Bluehill facility is a minor source of HAP emissions, as the potential to emit HAPs is less than 10 tons of any single HAP, and less than 25 tons for combined HAP emissions. Engines that meet the definition of "Emergency Stationary RICE" in Subpart ZZZZ are not subject to the provisions and requirements of this Subpart. In order to be considered an emergency RICE, the operation of the engines must meet the requirements put forth in 40 CFR 63.6640(f). If the operation of an engine does not comply with the requirements in 63.6640(f), then the engine is not considered to be an emergency stationary RICE for the purposes of this Subpart, and the engine is subject to the requirements of Subpart ZZZZ. Among the criteria for an engine to be classified as an emergency stationary RICE is the requirement put forth in 63.6640(f)(4) that while an engine can operate for up to 50 hours per year in non-emergency situations, after May 3, 2014, the 50 hours per year cannot be used for peak shaving or non-emergency demand response. The hours of operation of the engines is quite low, but if any of the operating hours at the Bluehill facility occurred for purposes of peak shaving, then the engines could conceivably be subject to the requirements of Subpart ZZZZ.

Compliance Determination

Based upon the results of the July 14, 2017 site visit and subsequent records review, the Bluehill Pump Station facility is not in compliance with all of the applicable requirements of Permit to Install 252-99B.

NAME Steve Wes

DATE 9/28/17

SUPERVISOR JK