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

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| FACILITY: Great Lakes Water Authority - Conners Pump Station | | SRN / ID: M4842 |
| LOCATION: 12244 East Jefferson, DETROIT | | DISTRICT: Detroit |
| CITY: DETROIT | | COUNTY: WAYNE |
| CONTACT: Thomas C Hall , Team Leader | | ACTIVITY DATE: 06/21/2021 |
| STAFF: Stephen Weis | COMPLIANCE STATUS: Compliance | SOURCE CLASS: SM OPT OUT |
| SUBJECT: Compliance inspection of the Great Lakes Water Authority Conners Pump Station facility in Detroit. The facility is scheduled for inspection in FY 2021. | | |
| RESOLVED COMPLAINTS: | | |

Location:

Great Lakes Water Authority
Conners Pump Station (SRN M4842)
12244 East Jefferson Avenue
Detroit 48215

Date of Activity:

Monday, June 21, 2021

Personnel Present:

Steve Weis, EGLE-AQD Detroit Office
Thomas Hall, Team Leader, Great Lakes Water Authority

Purpose of Activity

A self-initiated inspection of the Great Lakes Water Authority (GLWA) Conners Pump Station (hereinafter "Conners Pump Station" or "Conners facility") was conducted on Monday, June 21, 2021. The Conners Pump Station was on my list of sources targeted for an inspection during FY 2021. The purpose of this inspection was to determine compliance of operations at the Conners 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 Conners Pump Station occupies a parcel that is roughly 3.5 acres in size located on the south side of East Jefferson Avenue about 200 yards west of Conner. The area around the facility is a mix of land uses. The Stellantis Jefferson North Assembly Plant facility is located to the north directly across Jefferson, and the property directly to the east of the Conners facility is occupied by the East Lake Baptist Church. There is a residential neighborhood about 200 yards (1/8 of a mile) to the east of the facility, east of Clairpointe Street. The property directly to the west of the Conners facility has been developed into a warehouse/transport facility since my last site visit.

The Conners Pump Station is part of the Great Lakes Water Authority's wastewater sewerage and treatment system. According to their website (www.glwa.org), GLWA provides wastewater treatment services to nearly 2.8 million customers in 79 communities in southeast Michigan. A map of the GLWA wastewater service area is attached to this report for reference. The Conners facility is a municipal pumping station that operates as part of the sewage system that services the east and northern suburbs and the east side of Detroit. The Conners facility receives more flow from the

northern communities, whereas the nearby Freud Pump Station (12300 Freud, SRN M4843) receives more flow from the eastern portion of the service area. There are 12 pumps at the facility, eight that are used to pump storm water, and four that are used to pump sanitary sewage. Sewage that flows to the Conners facility is pumped to points downstream in the sewage system. During typical dry weather conditions, the influent sewage that enters the Conners Pump Station is directed, using the sanitary pumps, to the Detroit River Interceptor (DRI). Under dry weather conditions, the sewage in the DRI is directed to the GLWA's Water Resource Recovery Facility, (or WRRF, 9300 West Jefferson, SRN B2103). During wet weather high flow events, sewage is directed to on-site basins where it is screened and disinfected, after which it is directed to the Conner Creek Combined Sewer Overflow Retention Treatment Basin (CSO RTB) for storage and further treatment of the sewage. The Conner Creek CSO RTB facility (11900 Freud Street, SRN N8174) is located approximately 1/3 of a mile away from the Conners Pump Station. If the storage capacity at the CSO RTB facility is exceeded, then the sewage that was treated at the facility is discharged to the Detroit River. Otherwise, when the wet weather event is over and there is once again available capacity in the sewer system, the sewage that was stored at the Conner CSO RTB is sent to the WRRF, via the DRI, for more comprehensive treatment.

The Conners Pump Station consists of a couple of buildings; the building closest to Jefferson contains part of the water treatment process and the stormwater and sanitary sewage pumps, and the building near the east end of the property is the switch gear house, which contains electrical components for the operations at the facility. There are four engines/generators located on the west side of the main driveway, and two 8,000 gallon diesel fuel storage tanks that store the fuel that is used by the engines are located just in front of the engines. The control room for the engines is located just to the south of them.

The four diesel-fired engines at the Conners facility were installed in October of 1999 to provide emergency back-up power to the pumps in case of a power outage. This allows the Conners facility to function during an interruption in electrical service. I was told by GLWA staff that the four engines are capable of powering the 8 storm water pumps during a wet weather event. The four 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.

There are two boilers at the Conners facility. They are both the same model – Peerless 21A-07, rated at 1.26 MMBTU/hour maximum heat input. Based on the rated heat input capacity, these boilers are exempt from EGLE-AQD permitting requirements, and from the requirements of 40 CFR Part 60, Subpart Dc. One of the boilers has been permanently decommissioned.

Facility Operating Schedule

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

Inspection Narrative

Thomas and I arrived at the facility at 12:55pm. We entered the facility via the main gate from East Jefferson, and we parked along the facility's main driveway across from the engines.

Thomas pointed out the south end of the facility property, where the gates are located that regulate the flow through the facility. The gates were in the open position at the time, with flow

from the facility being directed to the Conner Creek CSO-RTB facility. We then went to the control room for the engines, which is in a small building structure located to the south of the engines. Thomas showed me the log book that contains the Generator Exercise Forms that are completed when any of the engines are operated to track operating parameters, as well as the hour meter reading and the amount of fuel in the fuel tanks that supply the engines on a monthly basis. Fuel usage is determined by taking monthly readings of the amount of fuel in the two diesel fuel storage tanks (at the beginning and end of the month), and factoring in any fuel deliveries. Thomas explained that, as at other GLWA pump station facilities, Pie and Ovation data systems also track engine operation, logging the run time of the engines and the fuel level in the storage tanks. I took pictures of the Generator Exercise Form for April 2021, of a screen from Ovation that shows the engine operating status, and of the engines, which are attached to this report for reference.

I inquired about the other recordkeeping requirements in the permit, such as tracking the sulfur content of the fuel, and estimating the NOx emission from the operation of the engines. I was told that this information is maintained by GLWA for all of the pump stations at an offsite, central location, and this information can be provided for review.

We then went into the pump building at the north end of the facility. I was told that the building has been in operation since 1926. Thomas pointed out the storm water pumps. I was told that the eight stormwater pumps are each rated at 204 gallons per minute. I took a picture of the ground level of the building that is attached for reference. We walked to a lower level of the building and observed the pumps and some of the basins in which water is received. We looked at the four pumps that move sanitary sewage back on the main floor.

We left the facility at 1:30pm.

Permits/Regulations/Orders/

Permits

The facility currently has one active air permit, PTI No. 260-99B. The original permit, PTI No. 260-99, was applied for in June 1999 by the Detroit Water and Sewerage Department (or DWSD, the former owner and operator of the facility) to address the pending installation of the four 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. 260-99A 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. 260-99A was issued on August 18, 2002.

The current PTI, No. 260-99B, 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 NO_x 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.

I exchanged emails with GLWA staff requesting information to demonstrate compliance with the requirements of the PTI. Copies of some of the emails are attached for reference.

The compliance status of the Conners Pump Station facility with the requirements of PTI No. 260-99B is summarized, as follows:

I. Emission Limits

Special Condition (SC) I.1 limits the total emissions of nitrogen oxides (NO_x) from the operation of the four engines to 39.95 tons per year. The application materials that were submitted for PTI No. 260-99A 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. Thomas provided me with a copy of a spreadsheet that GLWA maintains titled "Monthly Generator Report_No_x And Fuel Summary-2020" that is used to track the monthly hours of operation of the engines, the fuel usage, and NO_x emission estimates, including 12 month rolling totals. The spreadsheet for 2020 shows that the 12 month rolling total at the end of December 2020 is 1.43 tons of NO_x. A copy of the spreadsheet entry for the Conner facility is attached for reference. The spreadsheet looks to have divided the emissions estimate in pounds by 1,000 to derive the estimate in tons, so the reported tons are high by a factor of two. I was also provided with the MAERS calculation sheet for the 2020 reporting year. The NO_x emission estimate provided on the MAERS sheet shows 1,430 pounds, or 0.715 tons. A copy of the MAERS calculation sheet is attached for reference.

II. Material Limits

SC II.1 limits the sulfur content of the diesel fuel used by the generators to 0.05 percent by weight. 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. Thomas provided me with a couple of Certificate of Analysis documents that were provided by GLWA's fuel oil supplier, Waterfront Petroleum. These documents show the results of laboratory analyses performed in January and July of 2021 of fuel that was delivered to the facility. Copies of the Certificate of Analysis documents are attached to this report for reference.

SC II.2 limits the diesel fuel usage to no more than 328,333 gallons per 12 month rolling period. The records provided for 2020 show a 12-month rolling time period fuel usage of 5,874 gallons at the end of December 2020. The engines have a maximum fuel consumption rate of 130.8 gallons per hour, per engine.

III. Process/Operational Restrictions

There are no conditions/requirements in this section of the PTI.

IV.1 Design/Equipment Parameters

SC IV.1 requires that a device to monitor and record the fuel usage for each engine be installed, calibrated, maintained and operated. There is not a specific fuel monitoring device associated with

each of the engines to monitor the fuel usage. Rather, the fuel usage is monitored based on monitoring and measuring the fuel level and flow from the diesel storage tanks associated with the engines, and the flow of fuel to each engines' day tank. Compliance.

V. Testing/Sampling

There are no testing and sampling requirements in the PTI.

VI. Monitoring/Recordkeeping

SC VI.1 requires that GLWA maintain monthly and 12-month rolling time period records of NOx emissions for the engines. These records are maintained. Copies of these records are attached to this report for reference.

SC VI.2 requires that GLWA keep records of the sulfur content for each fuel oil shipment received for use by the engines. Copies of fuel specifications provided by GLWA's fuel supplier that were provided for my review are attached to this report for reference.

SC VI.3 requires that monthly and 12-month rolling time period records be kept of the fuel usage of the engines. These records are maintained by GLWA, and examples were provided to me for my review. Copies of fuel usage records are attached to this report for reference.

VII. Reporting

There are no reporting requirement conditions in the PTI.

VIII. Stack/Vent Restrictions

SCs VIII.1-4 put forth the ambient exhaust parameters for the four engines. This information was provided in the PTI applications. The stack parameters were not evaluated during this site visit.

IX. Other Requirements

There are no conditions associated with this section of the PTI.

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 four engines at the Conners 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 Conners 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. 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 Conners 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 June 21, 2021 site visit and subsequent records review, the Conners Pump Station facility is in compliance with all of the applicable requirements of Permit to Install No. 260-99B.

Attachments to this report: map of the GLWA service area; pictures from the site visit; some email exchanges with GLWA discussing information and records; fuel usage records and calculations; fuel certification documentation.

NAME Steve Weis

DATE 5/5/22

SUPERVISOR JK