

M4842

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

M484240742

FACILITY: Detroit Water & Sewerage, Conners Pump Station		SRN / ID: M4842
LOCATION: 12244 East Jefferson, 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 Conners Pump Station in Detroit. The Conners Pump Station is scheduled for inspection in FY 2017.		
RESOLVED COMPLAINTS:		

Location:

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

Date of Activity:

Friday, July 14, 2017

Personnel Present:

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

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 Friday, July 14, 2017. The Conners 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 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 Fiat Chrysler Jefferson North Assembly Plant is located 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 area about 200 yards (1/8 of a mile) to the east of the facility.

The Conners 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 Conners facility is a municipal pumping station that operates as part of the sewage system serving the east and northern suburbs and the east side of Detroit. The Conners facility receives more flow from the northern communities, whereas the Freud Pump Station (12300 Freud, SRN M4843) receives more flow from the eastern portion of the service area. Sewage that flows to the Conners facility is pumped to points downstream in the sewage system. There are 12 pumps at the facility, eight that are used to pump storm water, and four that are used to pump sanitary sewage. 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, 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 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 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 building near the east end of the property is the switch gear house, which contains electrical components for the operations at the facility. The four engines are located to the west of the main driveway, and the two 8,000 gallon diesel fuel storage tanks 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 that the four generators 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 DEQ-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. 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

I arrived at the facility at 8:45am. I was met by Kaydo and Nabil. We looked at the generators, then we went into the engine control room to look at the operational logs. I was told that staff working at the facility track the usage of the engines, writing down information relating to hours and fuel usage, and tracking maintenance performed on the engines. I inquired about the other requirements in the permit – the sulfur content of the fuel, and the NOx emission calculations. I was told that this information is maintained by GLWA for all of the pump stations at an offsite, central location. The hours readings consisted of recording the reading from the hours meter on each generator at the beginning and end each time that they operate. The fuel usage is based on taking monthly readings of the amount of fuel in the two diesel fuel storage tanks (at the beginning and end of the month), and comparing it to any fuel deliveries. The fuel usage and hours of operations information that is kept on site at the facility does not directly match the format required in the PTI for the engines, and 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 later found out that the point of contact for this information is Steve Kuplicki of GLWA.

We then took a short walk around the facility, and Kaydo and Nabil briefly described the facility operations to me.

We left the facility at 9:25am.

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 DWSD to address the pending installation of the two 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 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 Conners Pump Station facility with the requirements of PTI No. 260-99B 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 NOx 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 NOx emissions should be well below the permitted limit. The application materials that were submitted for PTI No. 260-99A provide a Caterpillar guaranteed NOx 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 NOx 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 two 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 two 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 July 14, 2017 site visit and subsequent records review, the Conners Pump Station facility is not in compliance with all of the applicable requirements of Permit to Install 260-99B.

Attachments to this report: information relating to the Peerless boiler at the facility.

NAME

Steelless

DATE

9/28/17

SUPERVISOR

JK