

N8174  
MAWNA

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

N817440931

FACILITY: DETROIT WATER & SEWAGE DEPT-CONNERS CREEK CSO		SRN / ID: N8174
LOCATION: 11900 FREUD ST, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT:		ACTIVITY DATE: 08/02/2017
STAFF: Stephen Weis	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: Synthetic Minor
SUBJECT: Compliance inspection of the Great Lakes Water Authority Connors Creek CSO facility in Detroit. The Connors Creek facility is scheduled for inspection in FY 2017.		
RESOLVED COMPLAINTS:		

**Location:**

Great Lakes Water Authority (formerly Detroit Water and Sewerage Department)  
Conner Creek CSO (SRN N8174)  
11900 Freud Street  
Detroit

**Date of Activity:**

Wednesday, August 2, 2017

**Personnel Present:**

Steve Weis, DEQ-AQD Detroit Office  
Luther Blackburn, GLWA  
David McCord, GLWA  
Vijay Valecha, GLWA

**Purpose of Activity**

A self-initiated inspection of the Great Lakes Water Authority (GLWA) Conner Creek Combined Sewer Overflow (CSO) Retention Treatment Basin (RTB) facility (hereinafter "Conner Creek CSO" or "Conner Creek facility") was conducted on Wednesday, August 2, 2017. The Conner Creek CSO 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 Conner Creek 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 Conner Creek CSO occupies a parcel of land on the south side of Freud Street just west of Clairpointe Street, extending over ¼ mile south from Freud. The facility is bordered to the east by the daylighted end run of Conner Creek as it flows out to the Detroit River. The area around the facility is a mix of land uses - the area on the east side of Clairpointe is residential, with the closest residence located about 75 yards from the facility; the areas on the other sides of the facility are primarily light and heavy industrial properties. The DTE Conner Creek Power Plant property is located directly to the west/southwest of the Conner Creek facility.

The Conner Creek CSO 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.

There are 18 CSO facilities in the GLWA's regional sewer system in Wayne, Oakland and Macomb Counties. According to the GLWA website ([www.glwater.org](http://www.glwater.org)), the CSO-RTB facilities are part of a four-part strategy to address combined sewer overflows:

- Source reduction – reduce the amount of storm water flow that enters the wastewater system;
- In-system storage – maximize the use of existing storage space in the sewer system during storms;

- Wastewater treatment plant expansion – expand the capacity of primary treatment from 1.5 billion to 1.7 billion gallons per day to treat more flows during storms;
- End-of-pipe treatment – construct facilities to store and treat the combined sewage, preventing it from entering area waterways unless it is treated and disinfected.

The following description of a GLWA CSO-RTB facility is taken from the GLWA website:

*"A CSO RTB is an underground tank that temporarily stores and treats combined sewage that previously was discharged through outfalls during storms. Flows diverted to the RTB are screened and treated with a disinfectant and discharged to the river if RTB storage capacity is exceeded. Materials removed by the screens are sent to the wastewater treatment plant (WWTP) for disposal. The stored flows are sent to the WWTP after the storm has subsided and capacity is available in the sewer system. Many times the flows are small enough to be completely captured and stored in the RTB."*

The Conner Creek CSO receives sewage flow from three sources – the Conners Pump Station (SRN M4842), the Freud Pump Station (SRN M4843) and the Forebay, which receives sewage collected from the area of Interstate 94. There is a description of the Conner Creek CSO on the GLWA website:

*"Detroit's largest CSO control facility, the Conner Creek CSO RTB eliminated three outfalls and has dramatically improved water quality in Conner Creek and the Detroit River since going into operation in November 2005. This RTB provides 62 million gallons of total storage, with 30 million gallons in the retention treatment basin and 32 million gallons in upstream structures. High-speed mixers are used to rapidly disinfect flows and achieve the required fecal coliform limits. This facility was sized to provide 5 minutes of detention for settling and disinfection for the peak flow from the 10-year, 1-hour storm."*

Sewage that enters the Conner Creek facility is first stored in the 32 million gallon capacity upstream basin, then, which overflows to the 30 million gallon capacity retention treatment basin, where the sewage is screened and disinfected. Treated effluent is typically discharged to the GLWA Water Resource Recovery Facility (WRRF, formerly known as the Detroit Wastewater Treatment Plant, SRN B2103) for more comprehensive treatment via lift stations (being so close to the Detroit River, the Conner Creek CSO is located on a low elevation point relative to the sewage system). If the amount of water at the facility is approaching the facility's storage capacity, then the treated effluent can be discharged to the Detroit River via Conner Creek.

The diesel-fired engine the facility was installed to provide emergency back-up power to the pumps in case of a power outage. This allows the Conner Creek CSO to operate in case of a power outage. The engine is a Caterpillar Model 3516C generator rated at 1,825 kW electrical output, with a maximum heat input rate of 18.31 MMBTU per hour.

The facility's building is heated with unit heaters, and a building HVAC system. I was told that there are no boilers at this facility.

### **Facility Operating Schedule**

The Conner Creek CSO is available for use on a 24 hour per day basis every day of the year.

### **Inspection Narrative**

I arrived at the facility with GLWA staff at 2:45pm. We walked around the facility's building, and GLWA staff described the facility operations to me. The facility receives sewage from three sources – the Freud Pump Station, the Conners Pump Station, and a Forebay that collects sewage from the I-94 area. The facility has 62 million gallons of capacity for storage and treatment. Wastewater is screened and disinfected. The facility uses 10 bar screens and racks to remove larger material from the influent wastewater stream prior to it entering the basins; the material that is removed is collected and disposed of via landfill. It was explained that lift stations are used to direct treated effluent from the facility to the Detroit River Interceptor as the Conner Creek CSO is located in a low spot in the system.

We walked to the back of the facility's building, and looked at the generator. We opened the panel of the engine compartment, and I looked at the information on the generator's nameplate. It is a Caterpillar Model 3516C unit, and the model year was listed as 2003. This unit has a built-in fuel tank at the bottom with a capacity of 2,500 gallons.

We then walked to the odor control units, which are located at the rear of the facility near Conner Creek; this is the downstream end of the basins. There are 4 odor control units that are sized to treat 25,000 cubic feet per minute of air.

We stopped at looked at the bar screens and racks, and the roll-off boxes that are used to collect the material removed from the influent wastewater.

We left the facility at 3:35pm.

### **Permits/Regulations/Orders/**

#### **Permits**

The facility currently has two active air permits, PTI Nos. 243-00 and 346-08. PTI No. 243-00 addresses the odor control system at the Conner Creek CSO. PTI No. 346-08 is a General Permit for Diesel Fuel-Fired Engine Generators with Maximum Capacity of five Megawatts. This permit was approved by DEQ-AQD on October 31, 2008. Recall that the model year of the Caterpillar generator, based on information from the unit's nameplate, is listed as 2003.

#### **PTI No. 243-00**

Special Condition (SC) 1 – This condition is no longer applicable. It required the permittee to send any notifications required by the permit to Wayne County Department of Environment; this agency is longer in operation.

SC 2 – This SC simply lists the equipment that makes up the odor control system. There are no specific requirements related to these conditions.

SC 3 – Compliance. GLWA has an operations and maintenance procedure, and I was told that they keep a maintenance log for the odor control system.

SC 4 – Compliance. I was told by GLWA that the odor control system is operated whenever water is in the pump station sump. The four carbon adsorption units were operating during the site visit.

SC 5 – I was told by GLWA staff that any maintenance that is performed on the odor control system is recorded in a maintenance log. The information is also recorded in GLWA's internal facility maintenance database. Compliance.

SC 6 – Compliance. The exhaust gases from the four carbon adsorption units are discharged vertically to the ambient air. The stack parameters provided in this SC were not verified.

#### **PTI No. 346-08**

#### **Emission Limits**

Special Condition (SC) 1.1 limits NOx emissions to 515 lbs./1,000 gallons of diesel fired. There is no specific requirement to perform a compliance test to demonstrate compliance with this emission limit (testing may be required per SC 1.7). Rather, the testing/monitoring method involves recording to amount of diesel fuel used in the generator on a monthly and 12 month rolling time period basis.

#### **Material Usage Limits**

SC 1.2 – Compliance. GLWA only burns diesel fuel in the generator.

SC 1.3 – This requirement does not apply as any electricity produced by the generator is not sold to the utility power distribution system

SC 1.4 – As of the finalizing of this report, GLWA has not produced any records to demonstrate that diesel fuel usage is no more than 136,000 gallons per 12 month rolling period. The generator is the same make and model as those used at other GLWA facility. Based on information in the permit applications for this type of engine at the other facilities, this type of engine has 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

136,000 gallons per 12 month rolling time period. It is assumed that the facility is complying with the requirement.

#### Process/Operational Limits

SC 1.5 – Compliance. GLWA states that the generator is operated in accordance with manufacturer's recommendations.

SC 1.6 – Compliance. The total capacity from the generator is less than 2 MW; the permit limit is 5 MW.

#### Testing

SC 1.7 – DEQ-AQD has not requested that a compliance emissions test be performed on the generator.

#### Monitoring

SC 1.8 – 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.

#### Recordkeeping/Reporting/Notification

SC 1.9 – Compliance. GLWA tracks records of malfunctions and maintenance performed on the generator.

SC 1.10 - This requirement does not apply as any electricity produced by the generator is not sold to the utility power distribution system.

SC 1.11 – 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.

#### Stack/Vent Restrictions

SC 1.12 – Compliance. Emissions from the generator are vented to the ambient air, unobstructed and vertically.

#### Miscellaneous/Allowed Modification

These conditions do not apply. The General Permit for Diesel Generators is no longer being issued by DEQ-AQD. Any future replacements or modifications to this generator would need to go through permit review by DEQ-AQD.

#### Federal regulations

The generator at the Conner Creek CSO was permitted in October of 2008. One would assume that it was installed at some point after the permit was issued. Based on this assumed installation date, the generator appears to meet 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). This paragraph states that Subpart IIII applies to owners and operators of engines that commence construction after July 11, 2005.

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 Conner Creek CSO facility is a minor, or area 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. The generator at the Conner Creek facility is classified as a new stationary RICE, as defined in Subpart ZZZZ. Paragraph 63.6590(c) states that new stationary RICE located at an area source meets the requirement of Subpart ZZZZ by meeting the requirements of 40 CFR Part 60 Subpart IIII, and that no further requirements of Subpart ZZZZ apply to the RICE.

#### Compliance Determination

Based upon the results of the August 2, 2017 site visit and subsequent records review and correspondence with GLWA, the Belle Isle facility is not complying with all of the applicable requirements of Permit to Install No. 346-08.

NAME Steelman

DATE 9/28/17

SUPERVISOR JK