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

B797748577

FACILITY: ZEELAND BOARD OF PUBLIC WORKS		**SRN / ID:** B7977
LOCATION: 347 E. Washington Ave., ZEELAND		**DISTRICT:** Grand Rapids
CITY: ZEELAND		**COUNTY:** OTTAWA
CONTACT: Robert Mulder , Power Supply Manager		**ACTIVITY DATE:** 04/11/2019
STAFF: Kaitlyn DeVries	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: The purpose of this inspection was to determine compliance with MI-ROP-B7977-2017.		
RESOLVED COMPLAINTS:		

On Thursday April 11, 2019 Air Quality Division (AQD) Staff Kaitlyn DeVries conducted an unannounced, scheduled inspection of Zeeland Board of Public Works located at 347 E. Washington Avenue, Zeeland Michigan. The purpose of this inspection was to determine compliance with MI-ROP-B7977-2017.

KD arrived in the vicinity of the plant around 10:00 am. Prior to entering, KD observed the area for any excess emissions or odors; none were noted. KD checked in at the main office building located at 350 E. Washington, where she soon met with Mr. Robert Mulder, Power Supply & Market Operations Manager who accompanied her on the tour of the facility and provided her with the associated records. Operator, Brian, also joined for the tour of the facility.

Facility Description

Zeeland Board of Public Works (ZBPW) is a municipally owned and operated electric generating station consisting of seven (7) duel fuel engines. All of the engines have the capability to burn both diesel fuel and natural gas, and is primarily used for peaking. Diesel fuel is used for ignition of the internal combustion engines, and then they switch over to natural gas. The total capacity for the seven (7) units combined is approximately 24,000 kW. All of the engines utilize catalytic oxidation to control emissions.

Regulatory Analysis

ZBPW is currently operating under Title V permit MI-ROP-B7977-2017 and is a major source of Nitrogen Oxides (NOx). The engines at the facility are also subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63 Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines, as an area source for Hazardous Air Pollutants (HAPs). The AQD does not currently have delegation over Subpart ZZZZ, however, the requirements of the regulation are written into the permit.

Compliance Evaluation

EU-ENGINE011

Engine 11 is a 6 MW (8300 HP) engine and is the newest of the engines located at the facility. This engine was installed in 1981.

This engine has a sulfur dioxide (SO_2) limit of 0.59 lb/MMbtu, when firing diesel fuel. Compliance with this limit is demonstrated via the use of ultra-low sulfur fuel, with a sulfur content that does not exceed 50 ppm (0.005%). Records of the most recent fuel received, from November 2018, had a sulfur content of 15 ppm, maximum.

Engine 11 has energy production limitations based upon the fuel type that is combusted in the engine. ZBPW tracks the fuel used in the engine, as well as the energy produced. This engine is limited to 1,008 megawatt hours (MWH) per 12-month time period for diesel fuel, and 18,637 MWH per 12-month rolling time period for combined natural gas and diesel fuel. For the period of April 2018 through March 2019, the 12-month rolling energy production for Engine 11 was 480 MWH. The engine has a 500-hour operating limit per 12-month time period. The Engine operated for a total of 96.2 hours from April 2018 through March 2019. ZBPW most recently conducted USEPA Method 9 visible emission observations on August 24, 2018, indicating a 6-minute average opacity of approximately 5%.

Maintenance reports for Engine 11 were obtained and indicate that regular maintenance is conducted on the unit, and the maintenance is done in accordance with the Preventative Maintenance Plan and Malfunction

Abatement Plan (PMP/MAP) that the facility maintains.

KD observed the stack from the exterior of the facility and the stack exhausts unobstructed vertically upwards, but KD did not explicitly measure the dimensions.

FG-ENGINES001

This flexible group covers six (6) duel fuel internal combustion engines. These engines are EU-ENGINE001, EU-ENGINE002, EU-ENGINE007, EU-ENGINE008, EU-ENGINE009, and EU-ENGINE010. Each of these engines are equipped with an oxidizing catalyst and are subject to the provisions of 40 CFR Part 63 Subpart ZZZZ; the requirements of this subpart are evaluated in FG-RICEMACT. The engines vary in size ranging from 1600 hp to 7760 hp. The units were installed between 1966 and 1975 with EU-ENGINE001 being the oldest, and EU-ENGINE010 being the newest, of the engines in this flexible group.

These engines have a sulfur dioxide (SO_2) limit of 1.11 lb/MMbtu, when firing diesel fuel. Compliance with this limit is demonstrated via the use of ultra-low sulfur fuel, with a sulfur content that does not exceed 1.0 % by weight, based on a heat value of 18,000 BTU per pound of diesel fuel. Records of the most recent fuel received, from November 2018, had a sulfur content of 15 ppm, maximum.

ZBPW tracks the amount of natural gas and diesel fuel combusted in each engine, the hours of operation, and the amount of energy produced by each engine. Of these six (6) engines, Engine 10 has produced the most energy during the period of April 2018 through March 2019, producing 347 MWH of energy. EU-ENGINE009 and EUENGINE010 require USEPA Method 9 Visible Emissions readings at least every 100 hours of operation. During the period of April 2018 through March 2019 EU-ENGINE009 operated for a total of 54.2 hours, and EU-ENGINE010 operated for a total of 72.1 hours. ZBPW most recently conducted Method 9 readings on September 20, 2018 for EU-ENGINE009 and on September 19, 2018 for EU-ENGINE010, both indicating a 6-minute average opacity of 5%.

Maintenance reports for these engines were obtained and indicate that regular maintenance is conducted on the unit, and the maintenance is done in accordance with the Preventative Maintenance Plan and Malfunction Abatement Plan (PMP/MAP) that the facility maintains.

KD observed the stack from the exterior of the facility and the stack exhausts unobstructed vertically upwards, but KD did not explicitly measure the dimensions.

FG-RICEMACT

These engines have a Carbon Monoxide (CO) limit of 23 ppmvd at 15% O2 or 70% reduction or more. Compliance with this limit is demonstrated via stack testing. ZBPW most recently conducted stack testing in August 2018. The Stack test results indicate destruction of 77% or greater for all of the engines. The facility monitors and records the pressure drop across the catalyst and the temperature of the exhaust for each of the engines per Table 2b of 40 CFR 63.6603. ZBPW tracks the hours of operation for each of the engines as well, with each of the engines operating between a range of 14.7 hours to 96.2 hours for the time period of April 2018 through March 2019.

KD observed the stacks from the exterior of the facility and the stacks exhaust unobstructed vertically upwards, but KD did not explicitly measure the dimensions.

Additionally, ZBPW has successfully been submitting the required compliance notifications for 40 CFR Part 63 Subpart ZZZZ.

FG-COLDCLEANERS
Currently, ZPBW only has one (1) cold cleaner. During the inspection, the unit was closed and properly labeled, but not in use. Per Mr. Mulder, ZBPW uses a citrus based solvent in the unit. The unit is not heated or agitated.

Miscellaneous

Also located on site, are two (2) 10,000-gallon diesel fuel storage tanks. These tanks are exempt from Rule 201 permitting under Rule 284(2)(d). ZBPW also has a 1.4 MMBTU natural gas fired water heater, which is also

exempt from Rule 201 permitting under Rule 282(2)(b)(i).

The 2018 MAERS report was reviewed as a part of this Full Compliance Evaluation, and the Emission reported in the MAERS Report are consistent with the operating parameters reported during the inspection. Additionally, all compliance reports have been received.

Compliance Determination

Based upon the observations made during the inspection and a subsequent review of the records, it appears as if Zeeland Board of Public Works is in compliance with MI-ROP-B7977-2017.

NAME Kaitlyn Dahm DATE 4/22/2019 SUPERVISOR