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

P006860134

FACILITY: Consumers Energy-Ludington Pumped Storage Facility		**SRN / ID:** P0068
LOCATION: 3525 South Lakeshore Dr, LUDINGTON		**DISTRICT:** Cadillac
CITY: LUDINGTON		**COUNTY:** MASON
CONTACT:		**ACTIVITY DATE:** 09/02/2021
STAFF: Caryn Owens	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: On site inspection and Records Review		
RESOLVED COMPLAINTS:		

On Thursday, September 2, 2021, Caryn Owens of the Department of Environment, Great Lakes, and Energy (EGLE) – Air Quality Division (AQD) conducted a scheduled field inspection of Consumers Energy-Ludington Pumped Storage Facility (SRN: P0068) located at 3525 South Lakeshore Drive in Ludington, Mason County, Michigan. The site is located on the west side of South Lakeshore Drive, approximately 1-1/3 mile south of the West Chauvez Road and South Lakeshore Drive intersection. The entrance to the facility is gated and you need authorization to get into the facility.

The field inspection and records review were to determine compliance with the Permit to Install (PTI) 118-14A. The site was formerly an opt-out source, meaning the facility opted out of major source applicability by limiting operational and/or production limits potential to emit (PTE) to be below major source thresholds for NOx and SO2. However, when the new engine for the facility was permitted under 118-14A, the emissions were re-evaluated for the source is now considered a true minor source, and an area source for hazardous air pollutants (HAPs), and is subject to National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines under 40 CFR Part 63 Subpart ZZZZ, and subject to the New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines under 40 CFR Part 60, Subpart IIII. It should be noted that as long as the source is in compliance with 40 CFR Part 60, Subpart IIII, the source is in compliance with 40 CFR Part 63, Subpart ZZZZ.

Summary:

The activities covered during the field inspection and records review indicates the facility was in compliance with PTI 118-14A. Specific permit conditions that were reviewed are discussed below.

On-site Inspection:

At the time of the inspection, I followed Mr. Perry Lyford-Stojic, the Senior Engineer Lead of the facility, to the parking lot where we met, and escorted me through the facility to observe the permitted emission unit and provide onsite records.

The site consists of six reversing pump turbines which draw water from Lake Michigan and pump it into a man-made reservoir at night (when electricity demand and cost is low) and releases the water back into Lake Michigan during the day to produce energy. The reservoir is a 5 ½ mile asphalt lined reservoir. The turbine units were operating during the inspection.

The facility contains two diesel generating engine, one was a small diesel engine to operate the fire pump in case of an emergency. This unit is located below ground surface, and the stack is reportedly vented out to the ambient air above ground. The fire pump engine and associated stack were not observed during this inspection. This engine operates under exemption Rule 336.1285(2)(g).

The second diesel generator is located outside just northeast of the turbines. The engine commenced initial operation June 4, 2021. The new emergency generator consists of a diesel-fired CAT 3512C engine. The generator is rated at a heat input of 16.9 MMBTU/hr (on a High Heating Value, HHV Basis) and an electrical output of 1,750 kilowatts (kW) at 100% load. The generator serial number from the nameplate on the engine was 01000579.

The diesel generator is used to "black-start" the plant in case of emergencies. The engine is used to start one of the turbines which in turn can start the remaining turbines and get the fossil fuel plants operating. It is also used for back-up in case the plant is losing pressure. The engine is operated once

per month for 1 hour and two times per year for black-start testing. The diesel generator was not running during the inspection. The facility appeared clean and tidy, and no air quality concerns were observed during the inspection.

Records Review:

EUEMERGEN: This emission unit is for a 2,584 HP (1,750 kilowatts(KW)) CAT3512C diesel-fired emergency generator with a model year of 2007 or later, and a displacement of <10 liters per cylinder. The emission unit is uncontrolled.

I. Emission Limits:

The emission limits for EUEMERGEN are 6.4 grams per kilowatt-hour (g/kW-hr) of nonmethane hydrocarbons including NOx (NMHC+NOx), 3.5 g/kW-hr of carbon monoxide (CO), and 0.20 g/kW-hr of particulate matter (PM). The engine is certified to meet these emission limits.

II. Material Limits:

The sulfur content of the diesel fuel is to be ultra-low sulfur diesel, and not to exceed 0.0015 percent by weight sulfur. The most recent delivery of the diesel fuel was August 5, 2021 by Crystal Flash Muskegon. The invoice on the fuel delivery receipt showed the diesel was Premium Diesel Red Dyed fuel, and the specification of the diesel from Crystal Flash indicated the sulfur content was 15 ppm (or 0.0015 percent). The facility is in compliance with the permitted material limits. The fuel records are attached.

III. Process/Operational Restrictions:

At the time of the inspection EUEMERGEN was equipped with a non-resettable hour meter that was hard wired to the engine and displayed on the LCD screen. The engine has operated a total of 14 hours since it has been installed. As previously stated, the engine is operated once per month for 1 hour and two times per year for black -start testing. The usage is well below the permit limit of 560 hours per 12-month rolling time period, below the 100 hours per year for the purpose of necessary maintenance checks and readiness testing, and below the 50 hours per year in non-emergency situations.

The engine is a certified engine, and the facility operates and maintains the engine in accordance with the manufacturer's recommendations.

IV. Design/Equipment Parameters:

The nameplate capacity of EUEMERGEN shall not exceed 2,584HP (1,750 kW), based on the picture from the Initial Start-up Notification received by AQD via email on July 6, 2021, the engine is 1,750 kW.

As previously stated, EUEMERGEN is equipped with non-resettable hour meters to track the operating hours of the engine.

V. Testing/Sampling:

Testing/Sampling is not applicable at this time for EUEMERGEN, since it is still considered a certified engine.

VI. Monitoring/Recordkeeping:

The facility is operating the engine as certified by the manufacturer, and monitors and records the total hours of operation on a monthly basis. Once the engine has a years' worth a hours the 12-month rolling time period will begin. Additionally, the facility maintains the fuel supplier records accordingly.

VII. Reporting:

As previously stated, the facility submitted an initial start-up notification received via email on July 6, 2021, which indicated that engine start-up was June 4, 2021, and the facility is operating in a

certified manner. The initial start-up notification and picture of the nameplate on the engine is attached to this report.

VIII. Stack/Vent Restrictions:

During the inspection, the stack of the engine appeared to meet permitted limits of less than 16 inch diameter and at least 13.7 feet above ground surface.

IX. Other Requirements:

Based on the Conditions in the permit, the facility complies with the applicable provisions for the NSPS for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60, Subpart IIII) and NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR Part 63, Subpart ZZZZ).

NAME Cayn Owens DATE SUPERVISOR Shane Nixon 2021.12.16 09:46:35 -05'00'