

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

B610651040

FACILITY: CLOVERLAND ELECTRIC COOPERATIVE - DETOUR		SRN / ID: B6106
LOCATION: 836 HIGHWAY M-134, DETOUR		DISTRICT: Upper Peninsula
CITY: DETOUR		COUNTY: CHIPPEWA
CONTACT: ROGER LINE , DIRECTOR OF GENERATION		ACTIVITY DATE: 10/16/2019
STAFF: Michael Conklin	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Targeted inspection for FY 20.		
RESOLVED COMPLAINTS:		

Facility: Cloverland Electric Cooperative – DeTour (SRN: B6106)

Location: 836 M-134, DeTour

Contact: Roger Line, Director of Generation, 906-632-5171

Regulatory Authority

Under the Authority of Section 5526 of Part 55 of NREPA, the Department of Environment, Great Lakes, and Energy may upon the presentation of their card, and stating the authority and purpose of the investigation, enter and inspect any property at reasonable times for the purpose of investigating either an actual or suspected source of air pollution or ascertaining compliance or noncompliance with NREPA, Rules promulgated thereunder, and the federal Clean Air Act.

Facility Description

Cloverland Electric Cooperative (CEC) is a utility company that serves five counties in the eastern Upper Peninsula (Chippewa, Mackinac, Schoolcraft, Delta and Luce). The Detour generating facility is a 4 MW station and considered a “peak” station, meaning the station is used during a high demand for electricity and power outages. Diesel generators are commonly used as peak shaving units due to their ability to come online quickly, respond to fluctuation in loads, and provide extensive durability.

The DeTour station is located in a rural area about a half mile south of DeTour Village. This facility was constructed in 1975 and operates two Fairbanks Morse 38TD8-1/8, compression ignited (CI) reciprocating internal combustion engines (RICE) that are shaft coupled to electric generators. Each genset unit is a 12 liter, 2-stroke, opposing piston engine, with a maximum rated power output of 4,364 HP and fires fuel oil no. 2. The generator has a nominal power output of 3,000 KWe. Each engine is housed inside a warehouse building with exhaust emissions routed outside through two vertical stacks (one for each engine). The engines are equipped with oxidation catalysts to control CO and VOC emissions.

Emissions

Pollutants emitted from the combustion process of fuel oil-fired RICE units include nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs), and particulate matter (PM). Sulfur oxides emissions are directly related to the sulfur content of the fuel. The formation of nitrogen oxides is related to the combustion temperature in the engine cylinder, and CO and VOC emissions are primarily a result of incomplete combustion. PM emissions can include trace amounts of metals and condensable, semi-volatile organics which result from incomplete combustion, volatilized lubricating oil, and engine wear. PM in the form of blue smoke is caused by lubricating oil that leaks into the combustion chamber past worn piston rings and is partially burned. Black smoke is a result of carbon particles combining to form soot. Liquid particles that form during an engine cold start, or low operation, appear as white smoke. Emissions vary according to the air-to-fuel ratio, ignition timing, torque, speed, ambient temperature, humidity, and other factors.

Emissions Reporting

CEC – DeTour is considered a synthetic minor source and has obtained an Opt Out Permit To Install (PTI) for NOx. This facility is required to report its annual emissions to Michigan Air Emissions Reporting System (MAERS). For 2018, the plant reported burning 7,000 gallons of fuel oil in EUENGINE7. The table below shows the facility’s 2018 MAERS submittal.

Pollutant	Pounds per year (PPY)

CO	910
NOx	4228
PM10	297.5
PM2.5	297.5
SO2	277.9
VOC	345.1

Compliance History

A letter of violation was issued on March 26, 2019, for failing to conduct performance tests and submit compliance reports for 40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Combustion Engines. CEC recognized the issues and began submitting the semi-annual compliance reports and scheduled performance tests on the engines for August 16, 2019. EUENGINE6 was not tested on this date, however, it is scheduled to be tested on October 16, 2019. A semiannual compliance report for CEC – DeTour was received on July 19, 2019, for the certification of compliance with 40 CFR Part 63, Subpart ZZZZ for the time period of January 1 – June 30, 2019. No deviations were reported. On October 17, 2019, the AQD received a copy of the test results from the August stack test. The results for EUENGINE7 showed an average CO concentration of 8.0 ppmv at 15% O₂. Per 40 CFR Part 63, Subpart ZZZZ, the CO concentration allowable limit must be less than 23 ppm at 15% O₂ or meet the CO removal efficiency requirement of 70%. Since EUENGINE7 had an average CO concentration of 8.0 ppmv at 15% O₂, this shows compliance with the Subpart ZZZZ requirements.

Regulatory Analysis

CEC – DeTour is currently subject to PTI No. 193-09 for two 3,000 KWe RICE generator units. Each engine is also subject to the federal NESHAP 40 CFR Part 63, Subpart ZZZZ. The RICE units are not subject to the federal NSPS for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60 Subpart IIII) because the engines were manufactured prior to 2006. The 30,000 gallon fuel oil storage tank is considered exempt per Rule 336.1284(d).

Inspection

On October 16, 2019, I conducted a scheduled inspection on the CEC – DeTour station. I arrived at the station and met with Roger Line, Director of Generation. I explained to Mr. Line that the purpose of the inspection was to ensure compliance with PTI No. 193-09 and all other applicable air pollution control rules and federal regulations.

The inspection began by reviewing records of fuel oil analysis records, along with 12-month rolling NOx emissions and KW-hr production. Records were provided for years 2008 through 2019. The 12 month rolling NOx emissions for each month during these years were all below 90 tpy, and the KW-hr production for each month were all below 5,080,000 KW-hr. Fuel oil invoices provided stated that the product was “ULS#2”, which stands for No.2 diesel ultra-low sulfur. This fuel is certified to contain 0-15 ppm of sulfur. This shows compliance with SC II.1, under FGENGINES, that states the sulfur content of the diesel fuel shall not be greater than 0.005%.

During the inspection, EUENGINE6 was running for a stack test while EUENGINE7 was not. For EUENGINE6 the generator was showing a 2000 KWe output. Mr. Line confirmed this is the maximum generator output that the facility can produce. Mr. Paul Rodriguez, from August Mack Environmental, was recording the catalyst inlet temperature, pressure drop, and power output during each test run. The catalyst inlet temperature was at 560 F and the pressure drop was staying between 0.025 and 0.050 inches of water. Results of the test will be sent to AQD to review to determine compliance for CO emissions with NESHAP Subpart ZZZZ. There are no plans of any changes to the facility in the near future.

Compliance

Based on this inspection, it appears that Cloverland Electric Cooperative – DeTour is in compliance with PTI No. 193-09 and all other applicable air pollution control rules and federal regulations.

NAME Michael Bellin

DATE 10/21/2019

SUPERVISOR EDL