

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

N662668496

FACILITY: Consumers Energy Co. - Jackson Generating Station		SRN / ID: N6626
LOCATION: 2219 CHAPIN ST, JACKSON		DISTRICT: Jackson
CITY: JACKSON		COUNTY: JACKSON
CONTACT: Douglas Mallory , Environmental, Health & Safety		ACTIVITY DATE: 08/03/2023
STAFF: Brian Carley	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled on-site inspection.		
RESOLVED COMPLAINTS:		

Facility Contact: Doug Mallory, Compliance Coordinator

Phone: 517-841-5723

Email: doug.mallory@cmsenergy.com

PURPOSE

I arrived at the facility and met with Doug Mallory and Jason Prentice, Consumers Energy - Environmental Services for the purpose of determining compliance with their ROP No. MI-ROP-N6626-2019a. I also met with the Plant Manager, Janna Spitz. We then discussed the status of the plant and all seven turbines, which were operating at the time of the inspection.

BACKGROUND

Consumers Energy – Jackson Generating Station currently operates as an intermediate demand plant with seven CTG's. Each CTG is connected to a heat recovery steam generator (HRSG) equipped with a natural gas-fired duct burner, creating a single emission unit, which is referred to as a CTG/HRSG train. Of those seven CTG's, six are natural gas-fired GE LM6000 with steam injection rated at 440 million British thermal units per hour (MMBtu/hr) with HRSGs rated at 222 MMBtu/hr each. The remaining CTG is a natural gas-fired GE 7EA CTG with dry low-NOx burner (DLNB) rated at 1,043 MMBtu/hr with a HRSG equipped with a duct burner rated at 249 MMBtu/hr. This facility also has two steam turbine generators (non-emissive), a diesel fired emergency reciprocating internal combustion engine (RICE) generator, an emergency/standby diesel fired RICE pump, a parts cleaner and two wet mechanical draft cooling towers equipped with drift eliminators. This facility is subject to Prevention of Significant Deterioration (PSD) regulations, 40 CFR Part 60 Subpart GG, 40 CFR Part 63 Subpart ZZZZ (aka RICE MACT) as an area source, the Acid Rain Program, and Cross State Air Pollution Rule (CSAPR).

COMPLIANCE INSPECTION

(Note: The timeframe for all requested 12 month rolling averages and 12 month rolling period records is July 1, 2022 through June 30, 2023. The timeframe for all requested 24 hour and 30 day rolling averages records was each day for the week of June 25, 2023. The timeframe requested for all hourly averages is June 26, 2023.)

Source-Wide

This table covers the source-wide formaldehyde emission limit of all process equipment including equipment covered by other permits, grand-fathered equipment, and exempt equipment. I did a review of their records to determine compliance with their emission limits for this table. They are well under their limits specified in Special Condition (SC) I.1 (9.9 tons/year) with a total plantwide formaldehyde emission for the requested timeframe of 0.96 tons (see attachment 1). They also provided the emission factors used to determine the formaldehyde emissions for FGLMDB1-6 and EUEADB7 as required in SC VI.1 (see attachment 2). They also provided a list of the other sources of formaldehyde emissions, their rated capacity, and their potential 12 month rolling mass emissions as required in SC VI.2.c (see attachment 3). I have determined that they are complying with this table.

Table EUEADB7

This table covers Unit 7EA, which is a natural gas-fired CTG with a dry low-NOx burner and duct burner. This unit was operating during my inspection and I did not observe any visible emission coming from this stack (SC I.9). I did a review of their records to determine compliance with their emission limits for this table that they were required to keep per SC VI.3, VI.5, VI.6, VI.8, and VI.9. They are well under their limits specified in SC I.1 through 8 (see attachments 4, 5, 6, 7, 8, 9, and 11). The emission factors for PM2.5, PM10, and VOC are based on the last stack test and are 4.00E-03 (PM2.5, PM10) and 2.57E-03 (VOC) as required to keep per SC VI.9. They demonstrate compliance with the NOx ppm limits and mass emission limits and CO mass

emission limits in this table using CEMS. The monitoring, calculating, and recordkeeping of the pollutants meet the requirements of SC VI.2, VI.3, VI.4, VI.5, and VI.9. They have only been in startup or shutdown in the last 12 months for 147.91 hours (see attachment 4), which is well below their limit of 1,040 hours (SC III.1, SC VI.8). They are also keeping records of the duration and all dates of each startup and shutdown as required by SC VI.11(f) (see attachment 14). They are using the dry low-NOx combustion technology when they are operating except during times of startup or shutdown (SC III.2). They informed that they have not had to update their malfunction abatement plan (MAP) since my last inspection on March 3, 2021 (SC III.3).

They are monitoring and recording their natural gas usage on an hourly and monthly as required by SC VI.6 (see attachments 10). They are not claiming an allowance for fuel bound nitrogen (see attachment 29) that is allowed per Subpart GG (SC VI.10). They are firing only natural gas when running and the agreement with the supplier states that the total sulfur content of the natural gas contains not more than 5.0 grains/100 cubic feet (ft³), which is below their limit of 20 grains/100 ft³. The analysis of the gas used for fuel showed a sulfur content of 0.055 grains/100 ft³ in August 2022 and 0.067 grains/100 ft³ in July 2023 (see attachment 13). The results of the last stack test conducted in June 2020 as required by SC V.1 and 2 showed that they were complying with their emission limits and they are using the results to keep track of those emissions (see file for June 2020 emissions test report). An annual relative accuracy test audit (RATA) was conducted on these CEMS during the week of May 15, 2023 to continue their certification in accordance with 40 CFR Part 75 (SC VI.2 and VI.4). They are in compliance with their Acid Rain permit and CSAPR requirements that are attached to their ROP as appendices (SC IX.2 and IX.3). Using a range finder, I was able to determine that the stack for this unit was 106 feet above the ground, which meets the minimum height requirement of 105 feet in SC VIII.1. I determined that they are in compliance with this table.

Table EUEDG

This table covers their 1,337-horsepower (HP) emergency/stand-by diesel fired generator that is subject to 40 CFR Part 52 (PSD) and the RICE MACT as an area source. They are required to monitor and record the hours of operation for this unit, for the timeframe requested, they operated 4.0 hours (see attachment 15), which is well below their limit of 800 hours and is their only PSD requirement for this piece of equipment (SC III.1 and VI.1). They are maintaining the required temperature and pressure when operating this unit as required by SC III.2 (see attachment 16). They provided me with a MSDS for the diesel fuel that they use with this unit and it meets all requirements for non-road diesel fuel required by SC III.3 (see attachment 17). They stated that they are following the manufacturers maintenance requirements as required by SC III.4. The last test was done on April 3, 2021 (SC VI.1) and the unit had run 239.04 hours since then (see attachment 18). They stated that they have not had a malfunction with this unit (SC VI.3 and VII.8). They do their maintenance on the unit and its control device every fall as required by SC VI.5 (see attachment 19). They have submitted the required RICE MACT compliance reports (see attachment 20 and files). They have not had any deviations of the RICE MACT requirements with this unit (SC VI.6). I determined that they are in compliance with this table.

Table EUDFP

This table covers the emergency diesel-fired pump that is subject to the RICE MACT as an area source. The fire pump does not have any air pollution control or monitoring equipment installed on it. They told me that they run it approximately ½ hour each week as a maintenance/readiness check. This unit ran for a total of 25.6 hours with no hours of operation for non-emergency situations during the timeframe requested and had a total of 24.4 hours in 2022 and 14 hrs this year as of July 31, 2023 (see attachment 21). This is well below the limit of 100 hours/year of operations and 50 hours/year for non-emergency situations as required in SC III.1. This unit has a non-resettable hour meter installed as required by SC IV.1. This meter showed a reading of 173.5 hours of total operation at the time of inspection. They are following the manufacturers operation and maintenance instructions (SC III.2 and III.8). Since this unit is classified as an emergency device, no after treatment control device is required to be installed on it (SC III.3). The last oil and filter change on this unit was done on November 14, 2022 (see attachment 22). They change the oil and filter annually since they had less than 500 hours of operation and do not do an oil analysis program. At the time of the inspection, the unit has only run for 17 hours since its last oil and filter change (SC III.4 and VI.5). They also inspected the air cleaner, belts, and hoses on October 22, 2020 (see attachments 23 and 24). They do these inspections annually since they did not meet the minimum hours (1,000 hours for the air cleaner and 500 hours for the belts and hoses) to inspect them more often and record the results of the inspections and any maintenance as required by SC III.5 and III.7 and VI.5. They stated that there were no malfunctions of this equipment during the 12 month timeframe which meets the requirements of SC VI.2. They haven't had any deviations/malfunctions to report with this unit (SC VI.3). I have determined that they are in compliance with this table.

Table FGLMDB1-6

This table covers Units 1 through 6 natural gas fired CTGs (GE LM6000) with steam injection and duct burners. They were operating during my inspection and I did not observe any visible emission coming from their stacks (SC I.15). I did a review of their records to determine compliance with their emission limits for this table. They are under their limits specified in SC I.1 through 14 (see attachments 4, 6, 7, and 25 through 30). They demonstrate compliance with the NOx ppm limits and mass emission limits and CO mass emission limits in this table using CEMS. The monitoring, calculating, and recordkeeping of the pollutants meet the requirements of SC VI.2, VI.3, VI.4, VI.5, VI.9, VI.10, and VI.12. They stated that they are still following the manufacturer's recommendations for operating the turbines and using steam injection except during periods of startup or shutdown (SC III.1 and 2). They have only been in startup or shutdown in the last 12 months for 696.5 hours (see attachment 25), which is well below their limit of 4,380 hours (SC III.3, VI.8). They informed that they have not had to update their malfunction abatement plan (MAP) since my last inspection on March 3, 2021 (SC III.3). They are monitoring the heat input rate for each turbine and duct burner and all six units are below their annual limit of 440 MMBtu/hr for the turbines and 220 MMBtu/hr for the duct burners for calendar year 2022 as required by SC IV.1 (see attachment 31). They are monitoring and recording their natural gas usage on an hourly and monthly as required by SC VI.6 (see attachments 32). They are not claiming an allowance for fuel bound nitrogen (see attachment 29) that is allowed per Subpart GG (SC VI.11). They are firing only natural gas when running and the agreement with the supplier states that the total sulfur content of the natural gas contains not more than 5.0 grains/100 cubic feet (ft³), which is below their limit of 20 grains/100 ft³. The analysis of the gas used for fuel showed a sulfur content of 0.055 grains/100 ft³ in August 2022 and 0.067 grains/100 ft³ in July 2023 (see attachment 13). The results of the last stack test conducted in June 2020 as required by SC V.1 and 2 showed that they were complying with their emission limits and they are using the results to keep track of those emissions (see file for June 2020 emissions test report). An annual relative accuracy test audit (RATA) was conducted on these CEMS during the week of May 15, 2023 to continue their certification in accordance with 40 CFR Part 75 (SC VI.2 and VI.4). They are complying with their Acid Rain permit and the CSAPR requirements that are attached to their ROP as appendices (SC IX.1 through 8). Using a range finder, I was able to determine that a representative stack for this flexible group was 141 feet above the ground, which meets the minimum height requirement of 140 feet in SC VIII.1. I determined that they are in compliance with this table.

Table FGCOLDCLEANERS

This table covers all parts cleaners on site. The parts cleaner on site is no longer being used and I was informed that all the solvent has been removed from the unit (see attachment 33). They are looking at removing this unit from this site and removing this table from their ROP during the next renewal cycle. The solvent that they used prior to being emptied on June 30, 2022 did not contain any of following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof, which meets the requirements of SC II.1 (see attachment 34). Since this unit is still on site, they are keeping the records that they are required to keep per SC VI.2. The parts cleaner they currently have on site is labeled Snap-on SO 240841. The size of their parts cleaner was 4.9 square foot air-to-vapor interface area and is exempt per Rule 281(2)(h). The solvent that they use (see attachment 26) has a vapor pressure of .2 mm Hg @ 68° F (and 0.6mm Hg @ 100° F) or approximately .004 psi (see attachment 35). I was able to see the written operating instructions on the wall above the parts cleaner, which had its lid closed at that time (SC VI.3). I determined that they are in compliance with this table.

COMPLIANCE DETERMINATION

Based on the findings of this inspection, their MAERS submittal, and the annual and semi-annual reports, I have determined that they are in compliance with their permit.

NAME Brian Culey DATE 8/8/23 SUPERVISOR [Signature]