

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

N662657276

<b>FACILITY:</b> Consumers Energy Co. - Jackson Generating Station		<b>SRN / ID:</b> N6626
<b>LOCATION:</b> 2219 CHAPIN ST, JACKSON		<b>DISTRICT:</b> Jackson
<b>CITY:</b> JACKSON		<b>COUNTY:</b> JACKSON
<b>CONTACT:</b> Douglas Mallory , Environmental, Health & Safety		<b>ACTIVITY DATE:</b> 03/03/2021
<b>STAFF:</b> Brian Carley	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> Scheduled compliance inspection		
<b>RESOLVED COMPLAINTS:</b>		

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**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 was also introduced to the new 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 February 1, 2020 through January 31, 2021. The timeframe for all requested 24 hour and 30 day rolling averages records was each day for the week of January 24, 2021. The timeframe requested for all hourly averages is January 25, 2021.)*

**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 1.6 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 27). 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 28). I have determined that they are in compliance 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. They were 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. They are well under their limits specified in SC I.1 through 8 (see attachments 3A, 3B, 4, 5, 6, and 8). 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). 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 185.9 hours (see attachment 2), which is well below their limit of 1,040 hours (SC III.1, SC VI.8). They are using the dry low-NOx combustion technology when they are operating except during times of startup or shutdown (SC III.2). They are monitoring and recording their natural gas usage on an hourly and monthly as required by SC VI.6 (see attachments 7A and 7B). 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, which is below their limit of 20 grains (see attachment 30). 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 June 22, 2020 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). 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 5.8 hours (see attachment 9), 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 (SC III.2). 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 10). They stated that they are following the manufacturers maintenance requirements (SC III.4). They were doing the testing required by the RICE MACT on this unit on the day of the inspection (SC IV.1). The last test was done on April 10, 2018 and the unit had run 149.47 hours since then. 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 12). They have submitted the required RICE MACT compliance reports (see 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. They told me that they run it approximately ½ hour each week as a maintenance/readiness check. This unit ran for a total of 24.5 hours with no hours of operation for non-emergency situations in 2020 (see attachment 13 and 14). 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. 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 October 22, 2020 (see attachment 15). They change the oil and filter annually since they had less than 500 hours of operation (only 115 hours of operation since last oil and filter change) and do not do an oil analysis program. At the time of the inspection, the unit has only run for 9.5 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 attachment 16). 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 18 through 21, 23, 24, 31, and 32). 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 625.25 hours (see attachment 17), which is well below their limit of 4,380 hours (SC III.3, VI.8).

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 as required by SC IV.1 (see attachment 33). They are monitoring and recording their natural gas usage on an hourly and monthly as required by SC VI.6 (see attachments 22A and 22B). 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, which is below their limit of 20 grains (see attachment 30). 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 June 22, 2020 to continue their certification in accordance with 40 CFR Part 75 (SC VI.2 and VI.4). The annual RATA was conducted on these CEMS during the week of June 22, 2020 to continue their certification in accordance with 40 CFR Part 75 (SC VI.1 and 2). 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). I determined that they are in compliance with this table.

#### **Table FGCOLDCLEANERS**

This table covers all parts cleaners on site. The solvent that they use does 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 25). 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 26). 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**

When then went back to Doug's office to discuss what I had determined their compliance status was from this inspection. 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 Curley

DATE 3/15/21

SUPERVISOR 