

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Other

N770664398

FACILITY: RIVERSIDE - CHESTONIA 31 CPF		SRN / ID: N7706
LOCATION: NW4 NE4 SEC 31 T30N R6W, CHESTONIA TWP		DISTRICT: Cadillac
CITY: CHESTONIA TWP		COUNTY: ANTRIM
CONTACT: Natalie Schrader ,		ACTIVITY DATE: 07/28/2022
STAFF: Jodi Lindgren	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Review of Records for FY22 Inspection		
RESOLVED COMPLAINTS:		

FACILITY DESCRIPTION

Jodi Lindgren of the Department of Environmental, Great Lakes, and Energy (EGLE) – Air Quality Division (AQD) conducted a review of records of Riverside Energy Michigan, LLC (Riverside) – Chestonia 31 CPF (N7706) located at 5410 Oslund Road in section 31, T30N-R6W, Chestonia Township, Antrim County, Mancelona, Michigan, 49659.

The Chestonia 31 CPF is an opt-out facility with PTI 20-07D issued on October 6, 2010. The facility may be subject to 40 CFR Part 63 Subpart ZZZZ (MACT ZZZZ) and 40 CFR Part 63 Subpart HH (MACT HH). EGLE-AQD is not delegated authority to enforce MACT HH. EGLE-AQD has been delegated authority to implement and enforce MACT ZZZZ, but compliance assessments for area sources have not been completed. The facility consists of two iron sponge systems for hydrogen sulfide treatment, two natural gas compressors, two natural gas fired reciprocating compressor engines, and a glycol dehydration system.

SCHEDULED INSPECTION

A. EUDEHY – Glycol dehydration system (dehy) processing natural gas from the Antrim zone. The dehy is exempt from R 336.1201(1) as it meets the requirements of exemption R 336.1288(2)(b) (ii) because it processes only Antrim natural gas. However, the dehy emissions must be included to demonstrate compliance with the emission limits of FGFACILITY. The Dehy is subject to 40 CFR Part 63, Subpart HH (NESHAP HH), which the State of Michigan is not delegated to enforce.

1. Emission Limits – There are no emission limits established for EUDEHY in PTI 20-07D. However, PTI 20-07D established facility wide emission limits which includes EUDEHY emissions. Therefore, the records supplied by Riverside does provide emission calculations for the dehy. The records indicate emissions for the dehy total 36.31 tpy of NOx and 31.57 tpy of CO calculated for a 12-month rolling time period of June 2021 to May 2022.

2. Material Limits – There are no material limits established in PTI 20-07D associated with this emission unit; therefore, this section is not applicable.

3. Process/Operational Restrictions – PTI 20-07D requires compliance with all the provisions of NESHAP HH. The dehy has been reported to meet an exemption (40 CFR 63.764(e)(1)(i)) from MACT HH with documentation of an actual annual average flow rate of natural gas less than 85,000 cubic meters per day or 3 MMCF/day. Records provided by Riverside indicate the greatest total monthly throughput was 1.271 MMCF during the inspection time period. The records also included an actual annual average flow rate of 0.041 MMCF/day.

4. Design/Equipment Parameters – There are no design or equipment parameters associated with this emission unit; therefore, this section is not applicable.

5. Testing/Sampling – There are no testing or sampling requirements associated with this emission unit; therefore, this section is not applicable.

6. Monitoring/Recordkeeping – PTI 20-07D imposes monitoring and recordkeeping to document actual annual average flow rate of natural gas to satisfy the NESHAP HH exemption criteria in 40 CFR 63.764(e)(1)(i). Riverside provided documentation to satisfy this exemption.

7. Reporting – PTI 20-07D requires submittal of all notifications and reports required by NESHAP HH. NESHAP HH requires documentation of actual annual average flow rate of natural gas to satisfy the NESHAP HH exemption criteria in 40 CFR 63.764(e)(1)(i) to be reported upon request. Riverside provided documentation to satisfy this exemption upon request of AQD staff.

8. Stack/Vent Restrictions – There are no stack or vent restrictions associated with this emission unit; therefore, this section is not applicable.

9. Other Requirements – There are no other requirements associated with this emission unit; therefore, this section is not applicable.

B. FGENGINES – Two natural gas fired reciprocating engines, EUENGINE1 and EUENGINE2. EUENGINE1 is a 1265 hp CAT 3516 lean burn engine equipped with an oxidation catalyst and air/fuel ratio controller (AFRC) for emission control. EUENGINE2 is a 1085 hp CAT 3516 lean burn engine equipped with an oxidation catalyst and air/fuel ratio controller (AFRC) for emission control. PTI 20-07D does not require EUENGINE1 nor EUENGINE2 to be outfitted with pollution control equipment. As such, Riverside calculates and reports uncontrolled emissions.

1. Emission Limits – For EUENGINE1, PTI 20-07D established a NO_x limit of 60 tons per year (tpy) and a CO limit of 30 tpy calculated at the end of each month using a 12-month rolling time period. For EUENGINE2, PTI 20-07D established a NO_x limit of 29 tpy and a CO limit of 30 tpy calculated at the end of each month using a 12-month rolling time period. Records provided by Riverside indicate EUENGINE1 had the potential to produce uncontrolled NO_x emissions of 16.22 tpy and uncontrolled CO emissions of 15.41 tpy calculated for a 12-month rolling time period of June 2021 to May 2022. It was reported that EUENGINE2 had the potential to produce uncontrolled NO_x emissions of 19.04 tpy and uncontrolled CO emissions of 15.9 tpy calculated for a 12-month rolling time period of June 2021 to May 2022. These records indicate compliance with the emission limits established in PTI 20-07D.

2. Material Limits – There are no material limits associated with this flexible group; therefore, this section is not applicable.

3. Process/Operational Restrictions – (1) PTI 20-07D requires an AQD approve preventative maintenance/malfunction abatement plan (PM/MAP). An AQD approval letter dated December 8, 2010 was issued for the PM/MAP received on September 30, 2010. (2) PTI 20-07D prohibits the operation of any engine equipped with an add-on control device for more than 200 hours per year without that control device consistent with the AQD approved PM/MAP. The records provided by Riverside indicate that the control equipment on EUENGINE1 was run 100% time during the time period of June 2021 to May 2022. The PM/MAP requires the catalyst inlet

temperature to be greater than or equal to 750°F, the outlet temperature to be less than or equal to 1350°F, the differential temperature across the catalyst to be negative, and catalyst operational parameters to be recorded monthly. Riverside provided EUENGINE1 operational logs of daily temperature readings from the inlet and outlet of the catalyst. For EUENGINE1, the lowest catalyst inlet temperature was 794°F, the greatest outlet temperature was 851°F, and all temperature differentials were negative with the smallest difference being -13°F. Riverside reported the AFRC on EUENGINE2 has been malfunctioning since November 2021. The AFRC is not required by PTI 20-07D nor the AQD approved MAP. Riverside indicated that the catalyst on EUENGINE2 was operational 100% time during the time period of June 2021 to May 2022. Riverside recorded daily catalyst inlet and outlet temperatures prior to November 2021. After November 2021, Riverside recorded monthly catalyst inlet and outlet temperatures. For EUENGINE2, the lowest catalyst inlet temperature was 788°F, the greatest outlet temperature was 868°F, and all temperature differentials were negative with the smallest difference being -8°F.

4. Design/Equipment Parameters – (1) PTI 20-07D prohibits the operation of any engine equipped with an add-on control unless the device is installed, maintained, and operated in accordance with the manufacturer’s recommendations and the approved PM/MAP. Riverside provided records showing regular maintenance and operational monitoring of the add-on control devices to satisfy PTI-20-07D and the approved PM/MAP. (2) PTI 20-07D mandates the installation, calibration, maintenance, and operation of a monitoring device to measure natural gas usage of FGENGINES on a continuous basis. Riverside demonstrated compliance by providing AQD staff with a calibration and maintenance record as well as a natural gas usage report for the time period June 2021 to May 2022. Natural gas usage by EUENGINE1 was reported as 55.119 MMCF annually and Natural gas usage by EUENGINE2 was reported as 59.219 MMCF annually using the 12-month rolling time period of June 2021 to May 2022.

5. Testing/Sampling – PTI 20-07D dictates that the AQD District Supervisor may request testing NOx and CO emission verification. No testing has been requested by the AQD Supervisor during the time constraints of this compliance evaluation.

6. Monitoring/Recordkeeping – Riverside demonstrated compliance with the monitoring and recordkeeping requirements of PTI 20-07D to document natural gas usage, calculate NOx and CO emissions, and maintain a log of all maintenance activities required by the PM/MAP for FGENGINES. Riverside provided AQD staff the required documentation upon request.

7. Reporting – There are no reporting requirements associated with this flexible group; therefore, this section is not applicable.

8. Stack/Vent Restrictions – PTI 20-07D requires EUENGINE1 and EUENGINE2 to have stacks with a maximum diameter of 8 inches and a minimum height above ground level of 37.5 feet. Previous inspections conducted by AQD staff indicated the stacks appeared to meet these requirements.

9. Other Requirements – There are no other requirements associated with this flexible unit; therefore, this section is not applicable.

B. FGFACILITY – All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.

1. Emission Limits – PTI 20-07D established a NO_x limit of 89.9 tpy calculated at the end of each month using a 12-month rolling time period. Records provided by Riverside indicate 71.57 tpy of NO_x emissions calculated for a 12-month rolling time period of June 2021 to May 2022. These records indicate compliance with the emission limits established in PTI 20-07D.

2. Material Limits – PTI 20-07D prohibits the burning of sour natural gas, which is defined as more than one grain of hydrogen sulfide (H₂S) or more than ten grains of total sulfur per 100 standard cubic feet (100 SCF). Riverside provided records demonstrating regular monitoring of H₂S concentrations. The highest concentration was reported on March 2, 2022 at 2.5ppmv which equates to 0.166 grains of H₂S per 100 SCF.

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EVALUATION SUMMARY

Conclusion – Based upon the review of records, it appears the source was in compliance with PTI 20-07D at the time of the evaluation.

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9. Other Requirements – There are no other requirements associated with this flexible group; therefore, this section is not applicable.

EVALUATION SUMMARY

Conclusion – Based upon the review of records, it appears the source was in compliance with PTI 20-07D at the time of the evaluation.

FACILITY DESCRIPTION

Jodi Lindgren of the Department of Environmental, Great Lakes, and Energy (EGLE) – Air Quality Division (AQD) conducted a review of records of Riverside Energy Michigan, LLC (Riverside) – Chestonia 31 CPF (N7706) located at 5410 Oslund Road in section 31, T30N-R6W, Chestonia Township, Antrim County, Mancelona, Michigan, 49659.

The Chestonia 31 CPF is an opt-out facility with PTI 20-07D issued on October 6, 2010. The facility may be subject to 40 CFR Part 63 Subpart ZZZZ (MACT ZZZZ) and 40 CFR Part 63 Subpart HH (MACT HH). EGLE-AQD is not delegated authority to enforce MACT HH. EGLE-AQD has been delegated authority to implement and enforce MACT ZZZZ, but compliance assessments for area sources have not been completed. The facility consists of two iron sponge systems for hydrogen sulfide treatment, two natural gas compressors, two natural gas fired reciprocating compressor engines, and a glycol dehydration system.

SCHEDULED INSPECTION

A. EUDEHY – Glycol dehydration system (dehy) processing natural gas from the Antrim zone. The dehy is exempt from R 336.1201(1) as it meets the requirements of exemption R 336.1288(2)(b) (ii) because it processes only Antrim natural gas. However, the dehy emissions must be included to demonstrate compliance with the emission limits of FGFACILITY. The Dehy is subject to 40 CFR Part 63, Subpart HH (NESHAP HH), which the State of Michigan is not delegated to enforce.

1. Emission Limits – There are no emission limits established for EUDEHY in PTI 20-07D. However, PTI 20-07D established facility wide emission limits which includes EUDEHY emissions. Therefore, the records supplied by Riverside does provide emission calculations for the dehy. The records indicate emissions for the dehy total 36.31 tpy of NOx and 31.57 tpy of CO calculated for a 12-month rolling time period of June 2021 to May 2022.

2. Material Limits – There are no material limits established in PTI 20-07D associated with this emission unit; therefore, this section is not applicable.

3. Process/Operational Restrictions – PTI 20-07D requires compliance with all the provisions of NESHAP HH. The dehy has been reported to meet an exemption (40 CFR 63.764(e)(1)(i)) from MACT HH with documentation of an actual annual average flow rate of natural gas less than 85,000 cubic meters per day or 3 MMCF/day. Records provided by Riverside indicate the greatest total monthly throughput was 1.271 MMCF during the inspection time period. The records also included an actual annual average flow rate of 0.041 MMCF/day.

4. Design/Equipment Parameters – There are no design or equipment parameters associated with this emission unit; therefore, this section is not applicable.

5. Testing/Sampling – There are no testing or sampling requirements associated with this emission unit; therefore, this section is not applicable.

6. Monitoring/Recordkeeping – PTI 20-07D imposes monitoring and recordkeeping to document actual annual average flow rate of natural gas to satisfy the NESHAP HH exemption criteria in 40 CFR 63.764(e)(1)(i). Riverside provided documentation to satisfy this exemption.

7. Reporting – PTI 20-07D requires submittal of all notifications and reports required by NESHAP HH. NESHAP HH requires documentation of actual annual average flow rate of natural gas to satisfy the NESHAP HH exemption criteria in 40 CFR 63.764(e)(1)(i) to be reported upon request. Riverside provided documentation to satisfy this exemption upon request of AQD staff.

8. Stack/Vent Restrictions – There are no stack or vent restrictions associated with this emission unit; therefore, this section is not applicable.

9. Other Requirements – There are no other requirements associated with this emission unit; therefore, this section is not applicable.

B. FGENGINES – Two natural gas fired reciprocating engines, EUENGINE1 and EUENGINE2. EUENGINE1 is a 1265 hp CAT 3516 lean burn engine equipped with an oxidation catalyst and air/fuel ratio controller (AFRC) for emission control. EUENGINE2 is a 1085 hp CAT 3516 lean burn engine equipped with an oxidation catalyst and air/fuel ratio controller (AFRC) for emission control. PTI 20-07D does not require EUENGINE1 nor EUENGINE2 to be outfitted with pollution control equipment. As such, Riverside calculates and reports uncontrolled emissions.

1. Emission Limits – For EUENGINE1, PTI 20-07D established a NOx limit of 60 tons per year (tpy) and a CO limit of 30 tpy calculated at the end of each month using a 12-month rolling time period. For EUENGINE2, PTI 20-07D established a NOx limit of 29 tpy and a CO limit of 30 tpy calculated at the end of each month using a 12-month rolling time period. Records provided by Riverside indicate EUENGINE1 had the potential to produce uncontrolled NOx emissions of 16.22 tpy and uncontrolled CO emissions of 15.41 tpy calculated for a 12-month rolling time period of June 2021 to May 2022. It was reported that EUENGINE2 had the potential to produce uncontrolled NOx emissions of 19.04 tpy and uncontrolled CO emissions of 15.9 tpy calculated for a 12-month rolling time period of June 2021 to May 2022. These records indicate compliance with the emission limits established in PTI 20-07D.

2. Material Limits – There are no material limits associated with this flexible group; therefore, this section is not applicable.

3. Process/Operational Restrictions – (1) PTI 20-07D requires an AQD approve preventative maintenance/malfunction abatement plan (PM/MAP). An AQD approval letter dated December 8, 2010 was issued for the PM/MAP received on September 30, 2010. (2) PTI 20-07D prohibits the operation of any engine equipped with an add-on control device for more than 200 hours per year without that control device consistent with the AQD approved PM/MAP. The records provided by Riverside indicate that the control equipment on EUENGINE1 was run 100% time during the time period of June 2021 to May 2022. The PM/MAP requires the catalyst inlet temperature to be greater than or equal to 750°F, the outlet temperature to be less than or equal to 1350°F, the differential temperature across the catalyst to be negative, and catalyst operational parameters to be recorded monthly. Riverside provided EUENGINE1 operational logs of daily temperature readings from the inlet and outlet of the catalyst. For EUENGINE1, the lowest catalyst inlet temperature was 794°F, the greatest outlet temperature was 851°F, and all temperature differentials were negative with the smallest difference being -13°F. Riverside reported the AFRC on EUENGINE2 has been malfunctioning since November 2021. The AFRC is not required by PTI 20-07D nor the AQD approved MAP. Riverside indicated that the catalyst on EUENGINE2 was operational 100% time during the time period of June 2021 to May 2022. Riverside recorded daily catalyst inlet and outlet temperatures prior to November 2021. After November 2021, Riverside recorded monthly catalyst inlet and outlet temperatures. For EUENGINE2, the lowest catalyst inlet temperature was 788°F, the greatest outlet temperature was 868°F, and all temperature differentials were negative with the smallest difference being -8°F.

4. Design/Equipment Parameters – (1) PTI 20-07D prohibits the operation of any engine equipped with an add-on control unless the device is installed, maintained, and operated in accordance

with the manufacturer's recommendations and the approved PM/MAP. Riverside provided records showing regular maintenance and operational monitoring of the add-on control devices to satisfy PTI-20-07D and the approved PM/MAP. (2) PTI 20-07D mandates the installation, calibration, maintenance, and operation of a monitoring device to measure natural gas usage of FGENGINES on a continuous basis. Riverside demonstrated compliance by providing AQD staff with a calibration and maintenance record as well as a natural gas usage report for the time period June 2021 to May 2022. Natural gas usage by EUENGINE1 was reported as 55.119 MMCF annually and Natural gas usage by EUENGINE2 was reported as 59.219 MMCF annually using the 12-month rolling time period of June 2021 to May 2022.

5. Testing/Sampling – PTI 20-07D dictates that the AQD District Supervisor may request testing NOx and CO emission verification. No testing has been requested by the AQD Supervisor during the time constraints of this compliance evaluation.

6. Monitoring/Recordkeeping – Riverside demonstrated compliance with the monitoring and recordkeeping requirements of PTI 20-07D to document natural gas usage, calculate NOx and CO emissions, and maintain a log of all maintenance activities required by the PM/MAP for FGENGINES. Riverside provided AQD staff the required documentation upon request.

7. Reporting – There are no reporting requirements associated with this flexible group; therefore, this section is not applicable.

8. Stack/Vent Restrictions – PTI 20-07D requires EUENGINE1 and EUENGINE2 to have stacks with a maximum diameter of 8 inches and a minimum height above ground level of 37.5 feet. Previous inspections conducted by AQD staff indicated the stacks appeared to meet these requirements.

9. Other Requirements – There are no other requirements associated with this flexible unit; therefore, this section is not applicable.

B. FGFACILITY – All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.

1. Emission Limits – PTI 20-07D established a NOx limit of 89.9 tpy calculated at the end of each month using a 12-month rolling time period. Records provided by Riverside indicate 71.57 tpy of NOx emissions calculated for a 12-month rolling time period of June 2021 to May 2022. These records indicate compliance with the emission limits established in PTI 20-07D.

2. Material Limits – PTI 20-07D prohibits the burning of sour natural gas, which is defined as more than one grain of hydrogen sulfide (H₂S) or more than ten grains of total sulfur per 100 standard cubic feet (100 SCF). Riverside provided records demonstrating regular monitoring of H₂S concentrations. The highest concentration was reported on March 2, 2022 at 2.5ppmv which equates to 0.166 grains of H₂S per 100 SCF.

3. Process/Operational Restrictions – There are no process or operational restrictions associated with this flexible group; therefore, this section is not applicable.

4. Design/Equipment Parameters – There are no design or equipment parameters associated with this flexible group; therefore, this section is not applicable.

5. **Testing/Sampling** – PTI 20-07D dictates that the AQD District Supervisor may request verification of hydrogen sulfide and/or sulfur content of the natural gas burned. No testing has been requested by the AQD District Supervisor during the time constraints of this compliance evaluation.

6. **Monitoring/Recordkeeping** –PTI 20-07D mandates monthly and 12-month rolling time period NOx emission calculations for FGFACILITY to be calculated at the end of each month. Riverside provided AQD staff the required documentation upon request.

7. **Reporting** – There are no reporting requirements associated with this flexible group; therefore, this section is not applicable.

8. **Stack/Vent Restrictions** – There are no stack or vent restrictions associated with this flexible group; therefore, this section is not applicable.

9. **Other Requirements** – There are no other requirements associated with this flexible group; therefore, this section is not applicable.

EVALUATION SUMMARY

Conclusion – Based upon the review of records, it appears the source was in compliance with PTI 20-07D at the time of the evaluation.

6. **Monitoring/Recordkeeping** –PTI 20-07D mandates monthly and 12-month rolling time period NOx emission calculations for FGFACILITY to be calculated at the end of each month. Riverside provided AQD staff the required documentation upon request.

7. **Reporting** – There are no reporting requirements associated with this flexible group; therefore, this section is not applicable.

8. **Stack/Vent Restrictions** – There are no stack or vent restrictions associated with this flexible group; therefore, this section is not applicable.

9. **Other Requirements** – There are no other requirements associated with this flexible group; therefore, this section is not applicable.

EVALUATION SUMMARY

Conclusion – Based upon the review of records, it appears the source was in compliance with PTI 20-07D at the time of the evaluation.

NAME



DATE

SUPERVISOR
