

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

P002368270

FACILITY: RIVERSIDE - ECHO 10 CPF		SRN / ID: P0023
LOCATION: Echo Twp SE NW SW Sec 14, CENTRAL LAKE		DISTRICT: Cadillac
CITY: CENTRAL LAKE		COUNTY: ANTRIM
CONTACT: Natalie Schrader ,		ACTIVITY DATE: 03/14/2023
STAFF: Jodi Lindgren	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Report of site inspection and record review as part of the FY23 FCE		
RESOLVED COMPLAINTS:		

FACILITY DESCRIPTION

On Tuesday, March 14, 2023, Jodi Lindgren of the Department of Environmental, Great Lakes, and Energy (EGLE) – Air Quality Division (AQD) conducted an unannounced field inspection of Riverside Energy Michigan, LLC (Riverside) – Echo 10 CPF (P0023) located approximately five miles south-southwest of East Jordan on the west side of Kidder Road, 0.08 miles north of Lewis Road and 0.7 miles south of Schroeder Road, in section 14, T31N-R7W, Echo Township, Antrim County, Michigan, 49727. The facility was unmanned at the time of inspection.

The Echo 10 CPF is an opt-out facility with PTI 289-09 issued on January 20, 2010. The facility has two compressor buildings that house two compressors, two compressor engines, and one glycol dehydration system (dehy), which includes the dehy burner, pump, and flash tank. A tank battery with one 400 bbl AST for production brine.

SCHEDULED INSPECTION

A. EUDEHY – Glycol dehydration system (dehy) processing natural gas from the Antrim zone. The dehy will remain exempt from R 336.1201(1) permitting requirements if the requirements of exemption

R 336.1288(2)(b)(ii) continue to be met by only processing Antrim natural gas. The dehy is subject to 40 CFR Part 63, Subpart HH (NESHAP HH). Records for emissions and fuel usage of the dehy were available to demonstrate compliance with NESHAP HH.

1. Emission Limits – There are no emission limits established in PTI 289-09 associated with this emission unit; therefore, this section is not applicable.
2. Material Limits – There are no material limits established in PTI 289-09 associated with this emission unit; therefore, this section is not applicable.
3. Process/Operational Restrictions – There are no process or operational restrictions associated with this emission unit beyond compliance with NESHAP HH regulations. However, the dehy is exempt from NESHAP 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 actual annual average flow rate of natural gas is 1.7802 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 289-09 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** – Recordkeeping requirements pursuant PTI 289-09 were provided to AQD staff upon request. Riverside appears to be compliant with the notification requirements of NESHAP HH.

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 Caterpillar reciprocating engines designated as EUENGINE1 and EUENGINE2. Both engines are equipped with catalytic control, but Riverside does not account for emission reduction in the calculations. All calculations are completed as if there is no emission control.

EUENGINE1 is a 1265 hp CAT 3516 lean burn engine with the unit number of 1005. The engine serial number is 4EK6L717. The manufacture or rebuild date was not legible. At the time of the inspection, the engine had an oil pressure of 58 psi, coolant system temperature of 190°F, a compressor oil temperature of 189°F, a compressor oil pressure of 58 psi, and 49,616.3 hours of operation. This was consistent with the records kept on site which indicated that earlier on the same day, EUENGINE1 was running with an RPM of 1381, engine oil pressure of 56 psi, coolant system temperature of 187°F, a compressor oil temperature of 185°F, and a compressor oil pressure of 56 psi.

EUENGINE2 is a 1265 hp CAT 3516 lean burn engine with a unit number of 1712. The engine serial number is 4EK04490 with a rebuild date of June 25, 2011. At the time of the inspection, the engine had an oil pressure of 57 psi, coolant system temperature of 192°F, a compressor oil temperature of 163°F, and a compressor oil pressure of 43 psi. This was consistent with the records kept on site which indicated that earlier on the same day, EUENGINE2 was running with an RPM of 898, engine oil pressure of 53 psi, coolant system temperature of 190°F, a compressor oil temperature of 165°F, and a compressor oil pressure of 45 psi.

1. **Emission Limits** – For EUENGINE1, PTI 289-09 established a NO_x limit of 49.39 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. Records provided by Riverside indicate 14.21 tpy of NO_x emissions and 13.5 tpy CO emissions calculated for a 12-month rolling time period of April 2022 to March 2023. For EUENGINE2, PTI 289-09 established a NO_x limit of 49.39 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. Records provided by Riverside indicate 13.87 tpy of NO_x emissions and 12.22 tpy CO emissions calculated for a 12-month rolling time period of April 2022 to March 2023. These records indicate compliance with the emission limits established in PTI 289-09.

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

3. Process/Operational Restrictions – PTI 289-09 requires an AQD approve preventative maintenance/malfunction abatement plan (PM/MAP). A PM/MAP was submitted on November 16, 2015 and approved by AQD. The PTI 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. EUENGINE1 and EUENGINE2 are equipped with catalytic add-on control devices for which Riverside provided monitoring and maintenance records thus compliant with PTI 289-09. Riverside does not apply control efficiencies while calculating emissions. The maintenance records provided by Riverside indicate a full maintenance service and inspection of EUENGINE1 on May 5, 2022, August 1, 2022, October 27, 2022, and January 18, 2023. The provided records also indicated a full maintenance service and inspection of EUENGINE2 on May 5, 2022, July 26, 2022, October 24, 2022, and January 17, 2023. Additional maintenance was conducted on EUENGINE1 and EUENGINE2 as needed which was determined by their monitoring program.

4. Design/Equipment Parameters – PTI 289-09 dictates proper installation, maintenance, and operation of an engine add-on control device. EUENGINE1 and EUENGINE2 are equipped with catalytic add-on control devices for which Riverside provided monitoring and maintenance records thus compliant with PTI 289-09. The PTI requires 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 provided AQD staff with a calibration and maintenance record as well as a natural gas usage report for the time period April 2022 to March 2023. The provided documentation reported the monthly fuel usage of EUENGINE1 was 4.28 MMCF in March 2023 with a total usage of 48.286 MMCF for the 12-month rolling time period of April 2022 to March 2023. The records indicated the monthly fuel usage of EUENGINE2 was 3.335 MMCF in March 2023 with a total usage of 43.722 MMCF for the 12-month rolling time period of April 2022 to March 2023. The records indicate the natural gas usage monitoring devices for EUENGINE1 and EUENGINE2 was tested and calibrated on April 20, 2023.

5. Testing/Sampling – PTI 289-09 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 monitoring and recordkeeping requirements of PTI 289-09 to document natural gas usage and calculate NOx and CO emission for FGENGINES. A maintenance log conducted according to the approved PM/MAP is mandated in the PTI 289-09 as well. Riverside provided AQD staff the required documentation upon request.

7. Reporting – Recordkeeping requirements pursuant PTI 289-09 were provided to AQD staff upon request. Neither engine included in FGENGINES have be replaced since the last inspection in 2018.

8. Stack/Vent Restrictions – PTI 289-09 requires EUENGINE1 and EUENGINE2 to have stacks with a maximum diameter of twelve inches and a minimum height above ground level of 37.5 feet. The engine exhaust stack appeared to meet these requirements during the inspection.

9. Other Requirements – There are no other requirements associated with this flexible group; 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 289-09 established a NOx limit of 89 tons per year (tpy) and a CO limit of 60 tpy calculated at the end of each month using a 12-month rolling time period. Records provided by Riverside indicate 28.08 tpy of NOx emissions and 25.72 tpy CO emissions calculated for a 12-month rolling time period of April 2022 to March 2023.

2. Material Limits – PTI 289-09 prohibits the burning of sour natural gas, which is defined as more than one grain of hydrogen sulfide or more than ten grains of total sulfur per 100 standard cubic feet. Riverside does not burn sour gas. Riverside monitors hydrogen sulfide concentrations at the facility inlet. The highest reading reported was 6 ppm which is equivalent to 0.36 grains of hydrogen sulfide.

3. Process/Operational Restrictions – FGFACILITY is subject to 40 CFR Part 63 Subpart HH. Riverside maintained and provided AQD records demonstrating the dehy is exempt from NESHAP 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.

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 289-09 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. However, Riverside provided monitoring records for hydrogen sulfide at the facility inlet, which demonstrated compliance with the sulfur limitations.

6. Monitoring/Recordkeeping – There are no monitoring and recordkeeping requirements associated with this flexible group; therefore, this section is not applicable.

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.

NAME 

DATE 11-14-23

SUPERVISOR 