

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

N615360702

|   |                                      |                                  |
|---|--------------------------------------|----------------------------------|
| <b>FACILITY:</b> RIVERSIDE - MID. CHARLTON CPF                                  |                                      | <b>SRN / ID:</b> N6153           |
| <b>LOCATION:</b> SE4 SE4 NE4 SEC 26, T30N-R1W, CHARLTON TWP                     |                                      | <b>DISTRICT:</b> Gaylord         |
| <b>CITY:</b> CHARLTON TWP   |                                      | <b>COUNTY:</b> OTSEGO            |
| <b>CONTACT:</b> Natalie Schrader , Compliance Coordinator                       |                                      | <b>ACTIVITY DATE:</b> 10/12/2021 |
| <b>STAFF:</b> Sharon LeBlanc  | <b>COMPLIANCE STATUS:</b> Compliance | <b>SOURCE CLASS:</b> SM OPT OUT  |
| <b>SUBJECT:</b> Onsite inspection and records review as part of FY2022 FCE. sgl |                                      |                                  |
| <b>RESOLVED COMPLAINTS:</b>   |                                      |                                  |

On October 12, 2021, AQD District Staff mobilized to the Riverside Energy of Michigan LLC (aka Riverside)– Mid Charlton CPF (N6153), located at 13599 M-32E in the SE1/4, SE1/4, NE ¼, Section 26, T30N, R1W, Charlton Township, Otsego County, Michigan to conduct a scheduled compliance inspection of the facility. The referenced facility presently operates under Permit to Install No. 38 -21.

The most recent site inspection activities were conducted on July 16, 2013, and November 1, 2017. No compliance issues were identified at the times of inspection.

A records request was made electronically on October 8, 2021. Riverside representatives provided the requested records on October 12, 2021.

#### FACILITY

The referenced facility is a gated, un-fenced and unmanned CPF station operated by the Riverside Energy of Michigan LLC (aka Riverside). The referenced facility as historically been operated by Dominion Midwest Energy (effective 1997), High Mount Midwest Energy LLC and later Linn Energy LLC. The station is reported to service Antrim Formation wells in the area. Activities onsite include separation of gas and brine from the incoming gas stream and compression of the gas in the lines.

The Facility is located at the end of a private drive south of M-32 and southwest of Swede Lake. To reach the facility, District Staff traveled approximately ¾ of a mile east of the intersection of M -32 and Dagon Road. There is a gate and a sign at the entrance of the drive, and the drive runs a short distance along M-32 before turning to the south one-half mile to the Facility located at the end of the drive.

#### REGULATORY

**Permitting** -The referenced facility historically operated under Permit to Install (PTI) No. 712-96, which was issued in 1996 to Wolverine Environmental Production, Inc. The PTI was issued as an opt-out permit, but not a Rule 201 permit and was issued around the same time as other Michigan Oil and Gas Association (MOGA) permits that did not undergo 201 reviews. Due to an engine failure which occurred earlier in 2021, the Facility requested a permit modification for an emergency replacement. The resulting permit (PTI38-21) was issued on July 15, 2021.

At the time of the 1996 permitting the facility consisted of one Ajax Natural Gas (NG) fired compressor and one glycol dehydration unit with reboiler and was reported to have the potential to emit over 100 tons of NOx. Permit 712-96 limited emissions to 89 tons per year for NOx, CO and VOCs.

On November 14, 2016, AQD District Staff was notified that a Waukesha F18GL 400 horsepower compressor was installed and started up at the Mid-Charlton Facility on November 10, 2016. The correspondence indicated that the referenced engine was considered exempt from permitting under Rule 285(g), as the unit has less than 10 million BTU/hr heat input. The document also indicated that the engine was not excluded from exemption under Rule 278, as the emissions associated with the unit were below significance levels.

**Federal Regulations** - Though not identified in the permit, the facility may be subject to Federal Regulation. Subparts frequently associated with oil and gas facilities are identified below. Note however, that compliance with these subparts has not been determined as part of this inspection.

The referenced facility does not process or store petroleum liquids, nor store them onsite and is therefore appears to not be subject to 40 CFR Part 60 (New Source Performance Standards AKA NSPS) Subparts;

- K, Ka or Kb (Storage vessels for Petroleum Liquids);
- KKK (Equipment Leaks of VOC from onshore NG Processing Plants);
- VV (Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry)

In addition, one or more of the existing engine(s) have installation dates which may make them subject to NSPS Subparts IIII and JJJ for Compression Ignition (CI) RICE and Spark Ignition (SI) RICE, respectively. Riverside has neither denied nor confirmed the applicability of the referenced NSPS to the engines onsite.

Subpart OOOO would apply to onshore affected facilities that are constructed, modified or reconstructed after August 23, 2011. According to the previous operator (Linn Energy LLC), the facility is subject to Quad O as an "affected facility" due to the installation of the booster compressor (fugitive emission source, increase in horsepower at a compressor station). This installation occurred after the effective date. On October 21, 2021, AQD received notification that CEDRIX submittal of annual reporting for compressor 3017(Ajax) (reported shutdown on 6/16/2021) at the referenced site.

With respect to 40 CFR Part 63 (Maximum Achievable Control Technology Standards) the following Subparts may apply:

- Subpart HH (HAPS from Oil and NG Production Facilities)
- Subpart ZZZZ (RICE)

With respect to Subpart HH, the affected unit is believed to be the dehy unit. However, the facility may comply with the standard by demonstrating an average throughput is less than 85K cubic meters/day (or 3 MMscf/day). Information provided by Riverside for the period of January 1, 2020 thru September 30, 2021 indicated an average of 883 Mcf, and below the threshold for applicability. A compliance determination has not been made with respect to this subpart, and at the time of report preparation AQD does not have authority to enforce the subpart.

With respect to Subpart ZZZZ, District files contain a copy of an October 18, 2013, renotification submitted by Linn Energy LLC to EPA Region V. The referenced document identifies the facility as an area source of Hazardous Air Pollutants (HAPs). PTI 38-21 contains a high-level citation requiring compliance under the referenced subpart. At the time of report preparation, AQD has been delegated authority to implement and enforce the subpart. However, at this time compliance determinations for Federal requirements under Subpart ZZZZ for Area Sources have not been made. Riverside has indicated that requirements under the subpart have been incorporated into the MAP for the Facility. Compliance with the MAP may indicate compliance with the referenced subpart.

## EQUIPMENT

At the time of the October 12, 2021, site visit AQD Staff identified two compressors, one glycol dehydrator with reboiler, one brine tank and one brine tank with lined-secondary containment were present onsite. Each of the referenced pieces of equipment are housed separately. No visible emissions were noted onsite.

A review of District Files and MAERs records indicates the following equipment having been associated with the facility.

| EQUIPMENT                       | DESCRIPTION   | INSTALL DATE | DISMANTLE DATE | OTHER  |
|---------------------------------|---|--------------|----------------|--|
| Engine<br>EUCOMP#2<br>Unit 3017 | Ajax 800LE no<br>catalyst modified in<br>July 2002                                | 7/1/2006     | July 2021      | Replaced due to<br>catastrophic<br>failure   |
| EUENGINE1                       | CAT 379 TA 415HP<br>with 3-way<br>catalyst and<br>AFRC Sn<br>72B1255<br>Unit 2143 | June 21 2021 | NA             | PTI-38-21<br>Formerly located<br>at Webber Creek<br>CPF<br>Manufacture<br>date 9/13/1986 |
| Exempt<br>Booster<br>Engine     | Waukesha F18GL<br>400 HP Sn<br>C-12657/2 Unit<br>303558                           | 11/11/2016   | NA             | Engine label has<br>September 1999<br>date.<br>Manufacture date<br>9/1/1998              |
| Dehydrator<br>(AKA dehy)        | TEG Kimray 40/15<br>pump  | 6/23/1989    | NA             |  |

Operational parameters for the above referenced engines include the following:

**EUENGINE1, CAT 379 TA 415 HP with 3-way catalyst.**

- RPM – 1060
- Oil Pressure – 74
- Oil Temp – 185
- Catalyst Inlet – 830
- Catalyst outlet - 952

**Booster Engine, Waukesha F18GL 400 HP without catalyst.**

- RPM – 1302
- Oil Pressure – 70
- Oil temp out - 180

The brine generated appears to be disposed of in one disposal well located to the east of the tanks. Chemical storage tanks were noted at several locations, but all appeared to be tidy, labeled and properly maintained.

A skid mounted engine was also noted at the far west end of the facility. The unit was reported present in the July 16, 2013, site report, at that time it was reported to be operating, but the inspector indicated that there did not appear to be a compliance issue due to its small size, which would exempt it from permitting. Available aerials appear to indicate that the skid mounted engine or other structure has been located at that location onsite as far back as 2005. It was not present in Google Earth aerials for 1998. In response to District Staff inquiry, Former operator Linn Operating LLC had indicated that the compressor is “Unit 120” and represented a supplemental compressor that was taken off-line when the Waukesha booster engine was installed onsite (2016).

**COMPLIANCE**

At the time of the October 12, 2021, site visit, no visible emissions were noted to be coming from onsite stacks, nor were any odors noted.

MAERS- Reporting of actual emissions for CO, NO<sub>x</sub>, VOCs and HAPs has historically been required under special condition 18 of PTI 712-96. Submittals have been made in a timely manner, with emissions estimates reported including emissions for two engines and one glycol dehydrator onsite.

Except for NO<sub>x</sub> and CO emissions for the two engines, the emissions for the facility were calculated using MAERS emission factors Emissions reported for the fiscal years 2019 and 2020 are summarized below:

| Calendar Year | CO (TPY) | NO <sub>x</sub> (TPY) | VOC (TPY) |
|---------------|----------|-----------------------|-----------|
| 2019          | 10.53    | 46.74                 | 7.66      |
| 2020          | 9.73     | 45.18                 | 2.88      |
|               |          |                       |           |

|       |    |    |    |
|-------|----|----|----|
| Limit | 89 | 89 | 90 |
|-------|----|----|----|

Information provided by Riverside indicates that the maximum annual emissions for the engines associated with the Facility would be:

| Engine                            | CO (TPY) | NOx (TPY) | VOC (TPY) |
|-----------------------------------|----------|-----------|-----------|
| Ajax EUCOMP#2<br>Unit 3017        | 7.79     | 50.61     | 8.57      |
| EUENGINE1<br>(no catalyst)        | 43.07    | 39.59     | 3.23      |
| EUENGINE1<br>(wth Catalyst)       | 8.62     | 3.96      | 1.62      |
| Waukesha Exempt<br>Booster Engine | 5.14     | 7.79      | 0.97      |

**Permit Conditions -** Under the previous permit for the site, conditions were limited to emission limits for the Facility, as well as reporting and recordkeeping requirements. Under 38-21, EU specific conditions exist solely for EUENGINE1. No conditions exist for the exempt waukesha booster engine, nor for the existing dehy unit.

#### **EUENGINE1-**

Emission Limits for the referenced engine (with 3-way catalyst) are limited to a 12-month rolling time period limit of 5 tpy of NOx (SC I.1). Emissions for RICE associated with the Facility are calculated using emission factors from Manufacturer Spec sheets (SC VI.6 and Appendix A) when available and are based on NG usage documented (SC IV.2, SC VI.2 and SC VI.5). The referenced engine has only operated since July 2021. NOx emissions for the period of July – September 2021 for 0.02 – 0.05 tons/month.

Information provided by Riverside indicated that catalyst verification testing following installation of EUENGINE1 indicated control efficiencies of 99.3% and 88.6% for NOx and CO, respectively.

No material limits exist in the PTI. However, the following fuel monitoring requirements are included under PTI 38-21:

- Installation, calibration, maintenance and operation in a satisfactory manner a device to monitor and record the natural gas usage for EUENGINE1 on a continuous basis (SC IV.2)
- Monitor and record in a satisfactory manner the natural gas usage for EUENGINE1 on a continuous basis (SC VI.2)

- The permittee shall keep in a satisfactory manner monthly fuel use records for EUENGINE1, as required by SC VI.2. (SC VI.5)

As part of the **October 12, 2021**, records, Riverside provided the required fuel monitoring information referenced above. The information was sufficient to meet the permit requirements.

EUENGINE1 is limited to use of only sweet natural gas (SC III.3). Riverside provided a copy of field log sheets for **May 4, 2021**, which identified a hydrogen sulfide content of 0ppm. Riverside has indicated that the concentration was measured with a Draeger tube.

EUENGINE1 is equipped with a pollution control device, and the following special conditions are applicable:

- Operational limit of 200 hours per year for engine without it's control device. (SC III.2)
- Proper installation, operation and maintenance of the add-on control device (SC IV.1 and VI.3)
- Documentation of the hours of engine operation without it's control device (SC VI.4)

Records provided by Riverside indicate that EUENGINE1 has not operated without a control device since installation onsite.

Note that emissions for the Ajax and Waukesha (PTI 712-96) which limited NOx to 89 tons, are summarized below:

| Engine                               | 12-month Rolling Time Period | NOx Emissions (TPY) | Limit (TPY) |
|--------------------------------------|------------------------------|---------------------|-------------|
| Ajax Engine<br>EUCOMP#2<br>Unit 3017 | 2020 calendar year           | 39.76               | 89          |
|                                      | Ending June 2021             | 34.75               | 89          |
| Waukesha Exempt<br>Booster Engine    | 2020 Calendar Year           | 5.50                | 89          |
|                                      | Ending Sept. 2021            | 7.41                | 89          |

**OPERATION LIMITS** – No later than 60 days after the issuance of Permit 38-21 the permittee is required to submit for review and approval a Preventative Maintenance/Malfunction Abatement Plan (PM/MAP). Records indicate that the required document was submitted in a timely manner (July 19, 2021) in compliance with the permit condition. (SC III.1) As previously indicated the required document has been submitted and is considered to have met the permit condition. Submittals reflected new operators or equipment changes and included:

- April 27, 2018
- October 12, 2018
- January 28, 2020,

The PM/MAP summarized engine maintenance activities to be conducted at various frequencies. The shortest being every 60-90 days. Historical data for the site indicated that the Facility and it's engines were being maintained in general compliance with the PM/MAP. EuENGINE1 has only been in place and records are insufficient to make a statement at this time with regards to the PM/MAP.

**TESTING ACTIVITIES** – Under the present permit verification of NOx emissions shall be required upon request of the AQD District Supervisor (SC V.1). District files do not contain a copy of a request for verification testing, therefore at this time the condition is not applicable.

**MONITORING/RECORDKEEPING** –Permit requirements for monitoring and recordkeeping include the following:

- Completion of all required calculations by the last day of the calendar month for the month prior and made available to AQD staff upon request, (SC VI.1)
- Monitor and record NG usage for EUENGINE1 on a continuous basis (SC IV.2, VI.2 and VI.5)
- Maintain a log of all maintenance activities conducted according to the PM/MAP (SC VI.3) and
- Monthly and 12-month rolling time period NOx emission calculation records for EUENGINE1 as required by SC I.1 and Appendix A. (SC VI.6)

Records provided by the Facility were sufficient to indicate compliance with the above referenced permit conditions. These records with respect to emission calculations and NG usage are summarized on spreadsheets generated monthly, which summarizes all the required information, as well as equipment descriptions and emission factor sources.

**STACK/VENT** - Communications with Riverside Staff, indicate that the existing stack meets SC VIII.1, which limits the exhaust dimensions for the stack associated with EUENGINE1 to:

| Emission Unit | Exhaust Diameter (inches) | Minimum Height Above Land Surface (feet) | Source            |
|---------------|---------------------------|--|-------------------|
| EUENGINE1     | 10-inch                   | 37 feet                                  | Facility Operator |
| LIMIT         | 16-inch Maximum           | 35-feet Minimum                          |                   |

**OTHER-** S.C. VII.1 allows for the swap out or exchange of EUENGINE1 with an engine of equivalent or lower emissions. Documentation of the activity and emissions for the engine to be provided within 30-days of the change. The Facility reports that no change out or engine swings have occurred since ownership/operation of the Facility by Riverside in August 2019. The replacement of the Ajax engine following catastrophic failure was completed in conjunction with a permit modification (PTI 38-21)

*In addition, high level-citations for NSPS subpart OOOOa (SC IX.1) and NESHAP subpart ZZZZ (SC IX.2) were included in PTI 38-21. As previously indicated, though delegated with respect to*

subpart ZZZZ, no determination of compliance has been made with respect to area sources. Site specific maintenance requirements are believed to be required under the subpart OOOOa for the Facility, but a compliance determination for area sources has not been made as part of this compliance evaluation.

#### SUMMARY

On October 12, 2021 AQD District Staff mobilized to the Riverside Energy of Michigan LLC (aka Riverside)– Mid Charlton CPF (N6153), located at 13599 M-32E in the SE1/4, SE1/4, NE ¼, Section 26, T30N, R1W, Charlton Township, Otsego County, Michigan to conduct a scheduled compliance inspection of the facility. The referenced facility is a gated, un-fenced and unmanned CPF station. Activities onsite include separation of gas and brine from the incoming gas stream and compression of gas in the lines. The referenced facility presently operates under Permit to Install No. 38-21.

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A records request was made electronically on October 8, 2021. Riverside representatives provided the requested records on October 12, 2021. Based on observations and information presented, it appears that the Facility is operating in general compliance with the PTI.

NAME \_\_\_\_\_

DATE \_\_\_\_\_

SUPERVISOR \_\_\_\_\_