

**DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Self Initiated Inspection**

P014853463

FACILITY: Riverside Energy Michigan, LLC - Broad Snowplow CP		SRN / ID: P0148
LOCATION: SW 1/4 NW 1/4 SW 1/4 SEC 10 T29N R5E, OSSINEKE		DISTRICT: Gaylord
CITY: OSSINEKE		COUNTY: ALPENA
CONTACT: Natalie Schrader , Compliance Coordinator		ACTIVITY DATE: 04/28/2020
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: self-initiated site inspection of opt-out facility. No compliance issues noted.		
RESOLVED COMPLAINTS:		

**INTRODUCTION**

On April 28, 2020, Gaylord District Staff conducted a self-initiated site inspection of the Riverside Energy Michigan, LLC (Riverside) Broad Snowplow Central Processing Facility (CPF) (P0148). The referenced Facility is located in Section 10, T29N, R5E, Ossineke Township, Alpena County, Michigan.

The Facility operates under Permit to Install (PTI) 164-10 issued on September 10, 2010. The referenced permit is an opt-out permit and allows for engine replacement and/or swings under FGENGINES Special Condition VII.1. The most recent site inspection was a self-initiated site inspection conducted September 1, 2016. No FCE is of record for the Facility.

At the time of the site inspection, the skies were mostly cloudy, with light winds, and temperatures of approximately 45 degrees Fahrenheit. The only visible emissions were noted from the glycol dehydrator stack which appeared to puff intermittently.

**FACILITY**

The Broad Snowplow CPF is an unmanned Facility located in the SW ¼, NW ¼, SW ¼, Section 10, T29N, R5E, amongst large, privately owned and undeveloped Hunt Club properties. Natural Gas (NG) collected from Antrim Formation NG wells in the area is dehydrated and compressed at the Facility prior to flowing to sales points.

The Facility does not presently report to MAERS.

Readily available aerials indicate that the site was constructed between June 2011 and June 2013. At the time of the permit issuance, the Facility was owned and operated by Samson Resources. Documentation available indicates that the Facility was operated by Linn Operating LLC (2017), Linn Energy LLC (2018) and in 2019, the Facility was purchased by Riverside.

The Facility is located in LaChine/Spratt, Michigan. To get to the Facility, District Staff traveled south on M-65 from it's intersection with M-32. Turn west (to the right) and travel on Beaver Lake Park Road to its intersection with Broad Road (approximately 1-mile). Turn south (left) and travel approximately 0.27-miles where the road forks. The Facility is located on the western fork/drive (Beaver Creek Road). Drive thru the gate pillars to the right at the end of Broad Road, and follow the road to the south and west into the hunt club, following the more well used roads. You will pass two different barns, and cross over a narrow wooden topped dam as you travel to the Facility. A tall deer fence divides the hunt club at Beaver Creek Road from the Turtle Lake hunt club located on the west side of the fence and HRF West Ossineke .

N6242 the HRF West Ossineke CPF is across the fence and visible from the road. The facility is a gated, unmanned Facility. In addition, an H.L. Brown CPF is located in the adjacent hunt club, and is clearly visible from the site.

**EQUIPMENT**

At the time of April 28, 2020 site inspection, the Facility was operating and consisted of two existing NG-fired compressor engines (EUENGINE1 and EUENGINE2), glycol dehydrator (EUDEHY) with process heater, one 400-barrel tank labeled "slop oil" (within a lined- secondary containment berm) onsite and assorted smaller oil/glycol/etal tanks. The site was tidy and well maintained.

EU	Equipment Description
EUENGINE1 AKA 8007 Booster	Cummins GTA 855E 225 HP With Catalyst
EUENGINE2 AKA Unit 5058	CAT 3306 TA 203 HP SN G6X05515* Birth Date 11/03/2008
EUDEHY	Glycol Dehydrator

\*Source 3/15/2019 ArchRock Catalyst Maintenance log

The stack for the compressor engine was noted to be over 1.5 times the building height. Operational parameters for EUENGINE1 include:

- RPM-1730
- Compressor Oil Temperature – 185 degrees F

Operational parameters for EUENGINE2 at the time of the inspection included:

- RPM – 1740
- Compressor Oil Temp – 165 degrees F
- Compressor Oil Pressure - 54

#### PERMITTING

As previously indicated, the Facility operates under PTI 164-10, issued on September 10, 2010, to Samson Resources Broad Club CPF. Included in the permit were conditions for two compressor engines under FGENGINEs, as well as FGFACILITY which encompasses all process equipment source wide including equipment covered by other permits, grandfathered and/or exempt from permitting.

The existing glycol dehydrator (EUDEHY) is identified as an exempt EU based on Rule 288 (b)(ii) at the time of permitting. The referenced Rule exempts glycol dehydration units processing Antrim Formation gas.

#### Federal Regulations -

The referenced facility does not process or store petroleum liquids and is therefore 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, based on information provided in the engineers eval form for PTI 164-10, the Facility was determined to be subject to NSPS (40 CFR Part 60) Subpart JJJJ, as applicable Reciprocating Internal Combustion Engines (RICE) were reported to commence construction after June 12, 2006. More recent communications with Riverside staff indicated that one or both engines may be subject to the referenced subpart. No compliance evaluation has been made with reference to the subpart. However, it appears under 60.4243(a)(2)(ii), that compliance requirements for one or both engines consists of engine maintenance as well as initial testing activities.

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 dehy units. Riverside staff report that the Facility is not subject to Subpart HH as the flowrate to the dehy is under 85,000MMcf/day and provided data sufficient to verify that status.

With respect to Subpart ZZZZ, the engineers eval form for PTI 164-10 indicated that the Facility RICE are subject to 40 CFR Part 63, Subpart ZZZZ. These requirements appear to have been incorporated into the Site Preventative Maintenance/Malfunction Abatement Plan (PM/MAP) received by District Staff on January 28, 2020 and approved on February 3, 2020. It should be noted that the required maintenance activities are assumed to meet requirements under 40 CFR Part 60, Subpart JJJJ.

## COMPLIANCE

No complaints, Notices of Violation, or enforcement activities are of record for the Broad Snow Plow CPF. Compliance status for the facility had been based on information provided in conjunction with the April 28, 2020, site inspection, as well as on supplemental data and reports submitted upon request or to meet permit requirements identified under PTI 164-10.

MAERS- Annual reporting of actual emissions for the facility under the MAERS program appears to not have been required of the site to date.

EUDEHY- The referenced EU consists of one glycol dehydrator and associated reboiler. Permit conditions associated with the EU consist of a high-level citation to 40 CFR Part 63, Subpart HH (S.C. III.1). Determination as to whether EUDEHY meets the exemption criteria in 40 CFR 63.764(e)(1)(i) or (ii) shall be determined based on monitoring and recordkeeping requirements under S.C. VI.1 and VI.2 or VI.3 and reporting requirements under S.C. VII.1. As previously indicated, the Facility indicates that it's flowrate is below the 85K MMcf/day applicability threshold and is not subject at this time.

No Stack height requirements/restrictions for EUDEHY are specified in PTI 164-10.

FGENGINES - The referenced FG consists of two NG-fired, RICE (EUENGINE1 and EUENGINE2) with 3-way catalysts. No material limits are associated with FGENGINES, however S.C. IV.2, VI.2 and VI.5 requires that the permittee installs, calibrates, maintains and operates in a satisfactory manner a device to continuously record the NG usage for each engine. Records provided were sufficient to confirm compliance with permit conditions.

FGENGINES at the time of permitting were equipped with an add-on control device (3-way catalyst) 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 at the Broad Snow Plow CPF has not operated without a control device since acquiring the site in 2019 nor in 2020.

**OPERATION LIMITS** – No later than 60 days after the issuance of Permit 160-12 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 (received October 15, 2010) 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. Subsequent submittals were received on:

- December 2, 2011,
- April 27, 2018,
- October 12, 2018 and
- January 28, 2020 (approved on February 3, 2020).

The PM/MAP includes the following engine maintenance activities:

Every 60-90 days of operation:

- Check and adjust valves
- Check engine compression
- Check timing, fuel pressure and all kill devices, and
- Check air filter and change pre-air filter.

Every 1440 -2160 hours of engine operation motor oil and filter change outs will occur. Engine swing/overhaul activities will occur approximately every 85,000 hours of engine operation or as needed. A review of maintenance logs provided appears to confirm that maintenance activities are occurring onsite. Though no major activities (engine swings or overhauls) were reported for the period of August 13, 2019 through May 7, 2020.

Catalyst maintenance activities outlined in the PM/MAP included the following monthly activities:

- Monitor and record differential pressure across the catalyst, and
- Monitor and record the catalyst inlet and outlet temperatures.

Service personnel will be called to investigate under the following monthly conditions:

- Differential pressure >4-inches water column at 80-100% max rpm,
- Pre-catalyst temperature is <750 degrees F, or other minimum temperature determined through testing,
- Post-catalyst temperature >1350 degrees F, which will result in and engine shutdown, and
- Differential temperature across the catalyst is negative.

In addition to monthly activities the following activities will be conducted every 12-18 months of catalyst operating time, or in the event of an engine malfunction where foreign fluids cause engine shutdown:

- Inspection, vacuuming of catalyst face and washing off of any fouling and built up ash, and
- Replacement of gaskets associated with catalyst.

Every 18-24 months of catalyst operation, the following activities will be required:

- Removal of catalyst insert for chemical wash and removal of surface contamination,
- Replacement of catalyst insert with cleaned or fresh insert, and
- Establish baseline differential pressures and temperatures.

Note that the PM/MAP indicated that portable emission analyzer testing (of the catalyst) will be done in conjunction with insert service.

A review of maintenance records provided by Riverside for the period of August 2019 through April 2020 appears to indicate general compliance with the MAP. The most recent catalyst inspection and cleaning/replacement (Archrock) for EUENGINE1 and EUENGINE2 was conducted on March 12, 2019 and April 9, 2019, respectively. Emissions testing for the two EUs was reported to have been conducted on March 15, 2019 and April, 9, 2019, respectively.

#### EMISSION LIMITS

Emissions for RICE associated with the Facility are calculated using emission factors from Manufacturer Spec sheets (SC VI.6, VI.7 and Appendix A) when available and are based on NG usage documented (SC IV.2 and SC VI.2). The 12-month rolling total emissions for the period ending March 2020 and their respective limits are summarized below:

Emission Unit	NOx Emissions (TPY)	NOx 12-month Rolling Limit (TPY)	CO Emissions (TPY)	CO 12-month Rolling Limit (TPY)
EUENGINE1	0.01	4.4 (S.C. I.1)	0.13	8.7 (S.C. I.2)
EUENGINE2	1.48	4.0 (S.C. I.3)	0.28	7.9 (S.C. I.4)

**TESTING ACTIVITIES** – Under the present permit verification of NOx and CO emissions were required at owners expense. (SC V.1) Records indicate that both engines were tested by Derenzo and Associates, and that District staff were onsite for testing activities conducted on June 29, 2011. District records indicate that the test results were received on August 1, 2011, and that the Facility was found to be in

compliance. Testing also appears to meet NSPS Part 60 subpart JJJJ, initial testing requirements for both engines.

**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 and CO emission calculation records for EUENGINE1 and EUENGINE2 as required by SC I.1 through SC I.4 and Appendix A. (SC VI.6 and SC VI.7)

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 stacks meet SC VIII.1, which limits the exhaust dimensions for the stack associated with FGENGINES to:

Emission Unit	Exhaust Diameter (inches)	Minimum Height Above Land Surface (feet)	Source
EUENGINE1 And EUENGINE2	16-inch	35 feet	Facility Operator
LIMIT	16-inch Maximum	35-feet Minimum	

**OTHER-** S.C. VII.1 allows for the swap out or exchange of an engine included in FGENGINES 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.

**FGFACILITY** – This FG encompasses both permitted and exempt EUs onsite. Permit conditions associated with the FG include:

- Permittee is prohibited from use of sour gas as fuel (SC II.1)

Sour gas is defined as H<sub>2</sub>S content of 1 grain or total sulfur content of 10 grains or more per 100 scf. Verification testing of H<sub>2</sub>S or total sulfur content may be required of the Facility under S.C. V.1. The Facility is reported as processing Antrim formation NG. No request of verification testing was found in district files. Field evaluations provided by the Facility for June 9, 2020, indicated “0 ppm” hydrogen sulfide.

As was included for EUDEHY, FGFACILITY includes a high-level citation requiring the permittee to be in compliance with applicable 40 CFR Part 63, Subpart HH requirements. As previously noted, the dehy flowrate is below the 85K MMcf/day applicability threshold.

**SUMMARY**

On April 28, 2020, Gaylord District Staff conducted a self-initiated site inspection of the Riverside Energy Michigan, LLC (Riverside) Broad Snowplow Central Processing Facility (CPF) (P0148). The referenced Facility is located in Section 10, T29N, R5E, Ossineke Township, Alpena County, Michigan.

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At the time of the site inspection, the skies were mostly cloudy, with light winds, and temperatures of approximately 45 degrees Fahrenheit. The only visible emissions were noted from the glycol dehydrator stack which appeared to puff intermittently.

No compliance issues were noted during the site investigation or in evaluation of data submitted upon request.

Sharon LeBlanc Digitally signed by Sharon LeBlanc  
Date: 2020.06.23 15:17:01 -0400  
NAME \_\_\_\_\_

DATE \_\_\_\_\_

Shane Nixon Digitally signed by Shane Nixon  
Date: 2020.06.23 15:17:33 -0400  
SUPERVISOR \_\_\_\_\_