

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

N756070077

FACILITY: RIVERSIDE - MOSSBACK CPF		SRN / ID: N7560
LOCATION: SE4 SE4 SW4 SECTION 2 T31N R3W, LIVINGSTON TWP		DISTRICT: Gaylord
CITY: LIVINGSTON TWP		COUNTY: OTSEGO
CONTACT: Natalie Schrader , Environmental Specialist		ACTIVITY DATE: 11/09/2023
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: 2024 FCE Site inspection and records review. sgl		
RESOLVED COMPLAINTS:		

INTRODUCTION

On November 9, 2023, AQD District Staff conducted a, scheduled site inspection of the Riverside Energy Michigan LLC (Riverside), Mossback Central Processing Facility (CPF) (N7560). The referenced facility is located in the SE ¼, SE ¼, SW1/4 of Section 2, Township 31N, Range 3W, Livingston Township, Otsego County, Michigan.

The referenced facility is considered a synthetic minor opt-out and operates under Permit to Install (PTI) No. 348-05. The last compliance inspections of record were conducted on July 6, 2022 and March 23, 2020. At that time no compliance issues were noted, and the facility was determined in compliance with their permit.

The facility is a fenced, gated and unmanned facility is located on an approximately 60 acre parcel. Adjacent properties appear to consist of larger residential and former farmland.

Records required to make a compliance determination for the facility were requested electronically on September 8, 2023. The data provided (September 11th, 2023) has been reviewed and incorporated into this document.

FACILITY

The referenced site is located between Gaylord and Vanderbilt, Michigan. To reach the site Staff traveled north on Old 27 for approximately 5-miles from the intersection with M-32. Turn east (right) on Matelski Road, and travel until it dead ends at Nowak Road. At the intersection of Matelski and Nowak Roads make a left and travel north for approximately 0.2 miles. The gate is on the right hand (east) side of the road. The first drive on the right after making the turn onto Nowak is for a private residence. The next drive is for the site, and you will travel approximately 0.5 east on the drive before it turns to the south and arrives at the site.

A review of readily available aerials indicate that the Facility had not been constructed as of May 1993, but is present in April 1998 aerials. The Facility represented in the April 1998 aerial appears to be consistent with the existing site footprint.

At the time of the November 9, 2023, site inspection, weather conditions included clear to partly cloudy skies, with temps just above 40 degrees Fahrenheit. Little to

no wind was noted. No emissions were noted from the stacks onsite. No odors were detectable.

EQUIPMENT

Both permitted and exempt equipment is of record for the Facility. A review of MAERS submittals indicated the presence of the following equipment onsite:

Emission Units	MAERS installation date	Description	Other
EUENGINE1	8/24/2012	CAT 399 with EUENGINE Catalytic converter	per permit 348-05
EUDEHY	1/1/1998	Glycol dehydration System	Exempt under Rule
EUTANKS	NA	Two apx. 400 bbl ASTs	Inside lined secondary containment

In addition, the Facility is reported to have an iron sponge. District Files indicated the following engines associated with the site:

Emission Unit	Make/Model S/N	Installation Date	Removal Date	Comment
Unknown	4SLB, 1280 Hp	UNK	UNK	Referenced in Initial RICE MACT notification dated 2/9/2011.
Unit 785	CAT 3516	UNK	8/22/2012	
EUENGINE - Unit 785	CAT 399 TA	8/28/2012	NA	Sn Q54619

	830 HP, RB RICE equipped with 3- way catalyst			
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Operating parameters at the time of the November 9, 2023, site inspection are presented below:

Engine Unit 785 – CAT 399TA

RPM 1065

Pre-Catalyst 913 degrees F

Post-Catalyst 1003 degrees F

PERMITTING

Permits of record for the Facility include the following:

Permit No.	Approval Date	Void Date	Company Issued to
348-05	March 28, 2006	NA	Quicksilver Resources, Inc.*

*later operated by Breitburn Energy, and Presently Riverside.

REGULATORY

The Mossback like many O&G Facilities in northern Michigan does not process or store petroleum liquids onsite and therefore is not subject to one or more of the following 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);

ASTs associated with the site also are believed to be exempt from 40 CFR Part 60 Subpart K, Ka or Kb are date-based standards of Performance for Storage Vessels for Petroleum Liquids for which construction, reconstruction or modification commenced:

- After June 11, 1973, and Prior to May 19, 1978 (Subpart K)
- After May 18, 1978, and Prior to July 23, 1984 (Subpart Ka)
- After July 23, 1984, (Subpart Kb)

40 CFR Part 60 Subpart OOOO (Standards of Performance for Crude Oil and NG Production, Transmission and Distribution) and Subpart OOOOa would apply to onshore affected facilities that are constructed, modified, or reconstructed after August 23, 2011, and September 18, 2015, respectively. Based on available information it appears that the referenced subpart with a 1998 construction date is not applicable at this time but that future changes may be subject to the referenced subpart. No compliance determination has been made with reference to the subparts.

40 CFR Part 60 (NSPS) Subpart JJJJ for Spark Ignition (SI) Reciprocating Internal Combustion Engines (RICE) with manufacture dates before July 1, 2007. No manufacture date is available for the existing engine, though based on the installation date it is assumed to be prior to 2012, and no compliance determination has been made with reference to the subpart.

40 CFR Part 60 (NSPS) Subpart LLL - Standards of Performance for SO₂ Emissions from Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011. With respect to Subpart LLL, This Federal standard is applicable to Facilities operating sweetening units. No sweetening unit is associated with this site, therefore the referenced subpart is not applicable.

In addition to the NSPS Standards referenced above, the following 40 CFR Part 63 (Maximum Achievable Control Technology Standards A.K.A. MACT) Subparts may apply:

- Subpart HH (HAPS from Oil and NG Production Facilities)
- Subpart ZZZZ (Reciprocating Internal Combustion Engine aka RICE)
- Subpart JJJJJ (Industrial, Commercial and Institutional Boilers and Process Heaters)

With respect to Subpart HH, the applicable emission unit is the dehydration system. Exempt dehydration systems must meet one or both of the following conditions; actual annual NG flow rate of less than 3 million standard cubic feet per day (MMcf/d) or 85,000 cubic meters/day) or an uncontrolled benzene emission rate of less than 0.9 megagrams per year (or approximately 1 TPY) threshold. Based on Antrim formation gases being processed at the site, benzene concentrations would anticipated to be well below the threshold. 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 (RICE MACT), the facility engine was reported by the facility to be subject to the referenced subpart. Initial notification of applicability dated February 9, 2011, was found in the District files. 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. Based on a review of the PM/MAP for the facility it appears that requirements under the subpart have been incorporated into the PM/MAP. Compliance with the PM/MAP may indicate compliance with the referenced subpart.

Maintenance records supplied by the Facility for the referenced engines indicated that the RICE engines are on a monthly and quarterly maintenance schedule. No engine change records were found in District Files.

NESHAP subparts JJJJJJ pertain to Industrial, Commercial and Institutional Boilers and Process Heaters for Area source of HAPS, respectively. At the time of the site inspection, it appears that the reboiler of the glycol dehydration process would not be subject to the subpart, as a process heater is not subject for area sources. No compliance determination has been made with reference to the subpart.

Preventative Maintenance/Malfunction Abatement Plan (PM/MAP)

PM/MAP are required under the existing permit for EUENGINE located onsite. PM/MAP submittals of record in District Files include the following:

Submittal Date/Date Recv'd	Approval Date	Operator
August 24, 2012	UNK	NRer
Sept 22, 2016	October 21, 2016	NR

Reports Received

Reporting requirements for the Facility are limited to annual emissions reports which are discussed below. No CEDRI submittals are of record for this Facility.

COMPLIANCE

Since the March 23, 2020, site inspection there have been no complaints, violation notices or consent orders identified for the Facility.

Annual emissions are reported for the Facility as part of the MAERS reporting system. Annual submittals have historically been received in a timely manner, the emission estimates for the 2022 calendar year were submitted January 25, 2023.

Compliance status for the facility had been based on information obtained during the November 9, 2023, site inspection, as well as on supplemental data and reports submitted.

PTI 348-05 – Permit Conditions

Emission units covered by the above referenced PTI included EUENGINE and FGFACILITY. Records under the referenced permit are required to be maintained for a period of 5 years. Permit conditions for each of the referenced EUs are summarized below.

EUENGINE – The referenced engine consist of one NG-fired, 850 HP CAT 399 TA RICE. The engine is used for primary production and gas compression and is equipped with a catalytic control.

Emission limits associated with EUENGINE consist of 12-month rolling total NOx and CO emissions. Emission calculations for NOx and CO are required under SC 1.11 and 1.12, respectively. Emissions associated with EUENGINE consists of :

12-Month Rolling Time Period Ending	NOX Emissions (TPY)	CO Emissions (TPY)
December 31, 2023	2.5	0.25
July 30, 2023	1.33	0.18
Limits	45.4 (SC 1.1a)	4. (SC 1.1b)

In addition to the above emission limits, the permit requires the preparation and submittal of a PM/MAP (SC 1.2) within 60-days of permit issuance. The initial document was submitted in compliance with the permit conditions. The most recent revision of the document is dated January 25, 2022.

EUENGINE is equipped with a catalyst to control emissions and is subject to the following permit conditions:

- Operation of each engine equipped with a control device without the device for more than 200 hours per engine per year consistent with the PM/MAP (SC 1.2 and 1.3)
- Maintain monthly and 12-month rolling records of hours that EUENGINE operates without a control device. (SC 1.9)
- EUENGINE shall not operate unless the control device is installed, maintained and operated except as specified in SC 1.3. (SC 1.4)

The Facility reported that EUENGINE had not operated without it control devices. Differential pressures across the catalyst and pre and post catalyst temperatures indicate that the catalyst is operating properly.

- Change outs of one or more of these engines with an equivalent emission rates or lower emission rates, without add on control equipment are allowed with reporting (SC 3.3 and 3.6)

No engine changeouts are of record for 2022 or 2023 to date.

- Verification of NOx and CO emission rates from EUENGINE by testing at owners expense per the request of the District Supervisor (SC 1.5)

District files do not contain any requests for verification testing, nor verification testing results. Therefore, it would appear the above referenced condition is not applicable at this time.

Monitoring and Recordkeeping - The permittee is required under PTI 348-05 to maintain the following records:

- The permittee shall monitor NG usage from EUENGINE on a continuous basis. (SC 1.6)
- Maintain records of monthly fuel use for EUENGINE required by SC 1.6. (SC 1.10)

Records provided by the Facility, were noted to be complete and in compliance with permit conditions. Fuel Usage for 2022 and 2023 to date are summarized below:

Engine – 12-month rolling time period ending	Monthly Fuel Usage (MMcf/month)	12-month rolling total Fuel Usage (MMcf)
Dec. 2022	2.268 – 2.579	29.375
July 2023	2.213 – 2.434	28.342
LIMIT	NA	NA

- Maintain a log of all significant maintenance activities conducted and all repairs made to EUENGINE and any associated control device pursuant to SC 1.2. (SC 1.8)
- Notification of the AQD District Supervisor of any change/replacement of EUENGINE with an equivalent-emitting or lower-emitting engine and submit acceptable emissions data as verification (SC 1.8)

Maintenance records for the EUs indicate that the Facility conducts monthly scheduled service activities. In addition, approximately every 3 months service activities including changing oil and oil filters, adjusting valves, checking compression, belts, greasing bearings, checked timing, etal. No major repairs were noted in the logs for the calendar year 2022 or 2023 to date.

Maintenance records for the catalyst associated with EUENGINE were provided, with verification testing activities by Archrock on June 2, 2022. Control efficiencies for NOx and CO were reported to be 98.4% and 94.3%, respectively. Records provided indicate that the catalyst temperatures (both pre and post catalyst) as well as differential pressure across the catalyst are monitored and recorded at least once per month.

Stack and Vent Restrictions under PTI 348-05 include records provided by the facility report SVENGINE as 16-inch diameter, 37.5-foot stacks. (SC 1.13a) The Facility reports that the stack for EUENGINE was 16-inches in diameter and a height of 38-feet above land surface.

FGFACILITY - consists of all permitted and unpermitted equipment onsite. Permit conditions associated with FGFACILITY include emission limits, material limits, verification testing and recordkeeping/reporting/notification requirements.

Emission limits for the FG include 12-month rolling NOx and CO totals of 89 TPY each (SC 2.1a & 2.1b). Emission calculations are required to be calculated under SC 2.5 and 2.6. NG usage and emissions are calculated for the reboiler for EUDEHY and EUENGINE. 12-Month rolling total NOx and CO emissions reported for the FG include the following:

12-Month Rolling Time Period ending :	NOx Emissions (TPY)	CO Emissions (TPY)
December 2022	2.88	0.34
July 2023	1.71	0.28
LIMITS	89 (SC 2.1a)	89 (SC 2.1b)

Material Limits for the FG include a restriction to burning of only sweet natural gas in the Facility (SC 2.2). Verification of H2S concentrations and/or sulfur content of the NG burned in FGFACILITY is required under SC 2.3. Field log sheets for the Facility dated March 2022, indicate a concentration of 2-5 ppm H2S. In compliance with permit conditions.

SUMMARY

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Based on observations made, and records provided it appears that the Facility is in general compliance with their PTI conditions. sgl

NAME Mason J LeBlanc

DATE 5-9-24

SUPERVISOR Shane Nixon