

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

N634668848

FACILITY: RIVERSIDE - GARFIELD 1-9/8-9 COMPRESSOR STATION		SRN / ID: N6346
LOCATION: SECTION 9 GARFIELD TWP, S BOARDMAN		DISTRICT: Gaylord
CITY: S BOARDMAN		COUNTY: KALKASKA
CONTACT: Natalie Schrader , Environmental Specialist		ACTIVITY DATE: 08/03/2023
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: scheduled site inspection for FY 2023. Note compliance issues with reporting of differential pressure on catalyst resolved at time of report prep. Records review have been incorporated into document. sgl		
RESOLVED COMPLAINTS:		

INTRODUCTION

August 3, 2023, AQD District Staff conducted an unannounced site inspection of the Riverside Energy of Michigan, LLC (AKA Riverside) Garfield 1-8/8-9 Compressor Station (N6346). The referenced facility is located in the NW ¼ of NE ¼ Section 9, Township 25 N, Range 5W, Garfield Township, Kalkaska County, Michigan. Note that Riverside took over operations of this site in 2022, previously it was operated by Breitburn Operating LP.

The referenced facility is considered a synthetic minor opt-out and operates under Permit to Install (PTI) 397-97B. The permit limits operational and/or production to that which result in emissions below major source thresholds. The last compliance inspections of record was conducted August 10, 2018. At the time of the inspection no compliance issues were noted, and the facility was determined in compliance with their permit.

The facility is an unmanned, unfenced, gated facility. Records required to make a compliance determination for the facility were requested electronically on July 31, 2023, and received on August 9, 2023. The data provided has been reviewed and incorporated into this document.

FACILITY

Readily available database records indicate the Garfield 1-9/8-9 Central Production Facility (CPF) was originally permitted by Mercury Exploration. The function of the Facility at the time of initial permitting reported the site as and oil and gas processing facility. More recent records indicate that the Facility is a NG processing facility, with removal of water from the gas stream using a small glycol dehydrator and increase pressure of the Natural Gas (NG) in the line for transport.

However, a file review identified a construction waiver request dated August 19, 1997, as well as the waiver approval dated September 10, 1997. Notification of startups for the Garfield 1-8 (dated September 19, 1997) and Garfield 1-9 (dated October 7, 1997) are also on file. The Facility has had multiple operators since initial construction. These have included the following:

- Union Oil Company of California (UNOCAL) (Prior to March 31, 1999)
- Mercury Explorations (1999 - 2004)
- Quicksilver Resources Inc. (2004--2007)
- Breitburn Management Company LLC (2007-2022)
- Riverside Energy of Michigan LLC (2022-present)

The Facility is located in the central-northern portion of Section 9, off Lease Road. The site can be accessed by traveling west from the intersection of 4-mile and I-75 on 4-mile road until it meets S. Military Road. Then south on Military Road approximately 3-miles until the intersection of military road and Fletcher Road (aka W. Fletcher Road). From here there appears to be multiple options:

- Maple Road Options–

Turn right and travel west on Fletcher Road apx. 6-miles to Maple Road. Head north on Maple Road 2-miles to 8-Point Road, or 2.5-3 miles to Lease Road.

1. Aerial maps indicate that a left turn (west) at the intersection of 8-point and Maple Roads and travel approximately 1-mile west on 8-Point Road where the road makes a sharp right turn (north) and continues for approximately 1 mile ending at the site.
2. If you continue north on Maple Road past 8-Point Road, prior to the curve where Maple Road turns into 10-Point Road is an access road that forks to the left known as Lease Road. Lease Road is referenced in previous reports when traveling to site, and you will pass through/by two other stations until you reach the Garfield 1-8/8-9 Facility.

At the time of the inspection, clear skies, with temps in the upper 70's to low 80 degrees Fahrenheit. Light winds with variable direction were noted. No emissions were noted from the stacks onsite. No odors were detectable.

Adjacent properties appeared to consist undeveloped large acreages. The Facility as well as adjacent properties to the E,S and W are owned by the MDNR, to the N of Section 9, they are identified as State Military ownership.

Readily available aerials show some of the presently existing structures onsite as early as May 1993, with the remainder present in aerials dated June 2011.

PERMITTING

Permits of record for the Facility include the following:

Permit No.	Approval Date	Void Date	Issued to
397-97	9/25/1997	6/28/2005	Mercury Exploration
397-97A	6/28/2005	5/1/2014	Quicksilver Resources Inc.
397-97B	5/1/2014	NA	Breitburn Operating LP

Note that the most recent permit (397-97B) was issued for removal of EUENGINE1 from the Facility. EUENGINE2, is referred to in the present permit as EUENGINE.

REGULATORY

The referenced facility does not process or store petroleum liquids 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);

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 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) may apply in the future. The existing RICE is not subject to the referenced subpart based on manufacture dates before July 1, 2007. No compliance determination has been made with reference to the subpart.

With respect to 40 CFR Part 63 (Maximum Achievable Control Technology Standards A.K.A. MACT) the following 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 Facility's reported actual annual NG flow rate of less than 3 million standard cubic feet per day (MMcf/d) or 85,000 cubic meters/day makes the unit exempt from emission control requirements under 40 CFR Part 63 Subpart HH for minor sources of HAPS. Confirmation of this status was provided by the Facility in electronic correspondence dated August 24, 2023. A compliance determination has not been made with respect to this subpart.

With respect to Subpart ZZZZ (RICE MACT), the facility engines are reported by the facility to be subject to the referenced subpart. District Files contain a copy of the Initial Notification of Applicability dated December 20, 2010, for sources >500HP. 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.

NESHAP subparts JJJJJ pertain to Industrial, Commercial and Institutional Boilers and Process Heaters for Area source of HAPS. At the time of the site inspection, it appears that the 250K btu/HR 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.

EQUIPMENT

Per prior inspection reports and/or permits, the Facility at one time had two compressors, two dehy's, a heater treater, flare and a single 400 bbl brine AST. The Facility reports that generally two wells are flowing (1-9 and 8-9), though at present only one (8-9) is operating, so only one dehy is in operation.

Per Riverside, equipment operating onsite include one glycol dehydration system for processing of NG from the Prairie-du-Chien. Per information provided in MAERS, the unit was installed in August 1991. No Permit conditions are associated with the dehy.

A historical evaluation of Rule 288 exemptions for oil and gas processing equipment indicated that the wording of Rule 288 (1980 to present) as it pertains to glycol dehydrators is as follows:

- Rule 288(b)(1993 -2008) -A glycol dehydrator at an oil well site that is controlled by a condenser.
- Rule 288(b) and the present Rule 288(2)(b),(2008-present) -A glycol dehydrator that meets either condition;
 - i. Is located at an oil well site and is controlled by a condenser or other control equipment of equivalent or better efficiency.
 - ii. Located at a site or facility that only processes NG from the Antrim Zone.

Further evaluation by District staff noted that a Rule 279 exemption dated May 27, 1997 is documented in "Infolog". Rule 279 (1993 until rescinded in 2003) reads as follows:

"R 336.1279 Permit system exemption; other sources. The permit system does not apply to other sources as specified in writing by the department".

The May 27, 1997 Info log exemption reads as follows:

Pursuant to rule 279 of the air pollution control rules promulgated under article II, chapter 1, part 55, of the natural resources and environmental protection act, 1994 PA 451, the following emission units with limited emissions are exempt from the requirement for a permit to install: 2. ***A glycol dehydrator located at an oil and/or gas well site or central production facility where one or more of the following conditions are met:***

a: Air emissions from the glycol dehydrator are controlled by a properly operating condenser, or by other control equipment of equivalent or better efficiency.

b: At sites or facilities that only process natural gas from either Antrim or Prairie de Chien formations.

Based on the timing of the Rule 279 exemption for glycol dehydrators processing field gas from Prairie du Chein formation zones, and the issuance of the 1997 PTI, it appears that the EU is grandfathered under the Rule 279 exemption. The company reports monitoring fuel use and processing volumes for the EU.

To meet Subpart HH exemption criteria, the Facility is required to document the actual annual average NG flow rate to EUDEHY of 3 million standard cubic feet per day (MMcf/d) or 85,000 cubic meters/day (SC VI.1(b) and VI.2) or actual average benzene emissions less than 0.90 megagrams per year (< 1.0 ton/year) (SC VI.1(b) or VI.3). The Facility reports actual annual average flows of less than 3 MMCF/d.

In addition to the glycol dehydration system, the Facility was permitted prior to 2014 for two compressor engines. Notification of engine change outs were found in District files and consist of:

Date	Engine Removed	New Engine	Other
7/1/2008	CAT 398 NA	CAT 398 NA	PTI 397-97A SC 1.7 (EUENGINE1)
5/8/2008	CAT 398 NA	CAT 398 NA	PTI 397-97A SC 1.7 (EUENGINE2 or EUENGINE)

Documented engines associated with the site include the following:

Emission Unit	Make/Model S/N	Installation Date	Removal Date	Information Source
EUENGINE1	CAT 398 NA 500HP with catalyst	UNK	2014	Operator
EUENGINE Unit 903 (formerly EUENGINE2)	CAT 398 NA 500HP with catalyst	1998*	2008*	Operator
EUENGINE Unit 903 (formerly EUENGINE2)	CAT 398 NA 500 HP with catalyst	2008**	2019	Onsite
EUENGINE Unit 903 (formerly EUENGINE2)	CAT 398 NA 500 HP with catalyst SN 6B00539	2019***	NA	Onsite

*MAERS reports installation date of engine as 1/1/1998. District files indicate at least one swing has occurred since 1998.

** August 10, 2018, inspection report indicates that the SN for CATG398 NA installed at that time was 73B01719. The January 21, 2014, site inspection report indicated the serial no. was 7330179.

*** Compressor building wall had paint marking indicating “new engine on “10/17/2019” and “top end May 11, 2022”. Engine Plate indicated 5/8/2019 rebuild date, location Saginaw, Manufacture date 9/17/1965. SN 67B00539. Note that this SN was confirmed in correspondence associated with the August 3, 2023, site visit.

At the time of the August 3, 2023, site inspection the following information was collected from operators logs and equipment gauges.

Emission Unit	RPM	Engine Oil Pressure (PSI)	Hours	Pre-catalyst (degree F)	Post-catalyst (degree F)
EUENGINE	802	39	62113	815	890

COMPLIANCE

Since the August 10, 2018, site inspection there have been no complaints, violation notices or consent orders or other compliance issues identified for the Facility. Annual emissions are reported by Riverside for the Facility as part of the MAERS reporting system. Annual submittals are received in a timely manner. The most recent MAERS was submitted on February 8, 2023, for the 2022 calendar year.

Compliance status for the facility had been based on information obtained during the August 3, 2023, site inspection, as well as on supplemental data and reports submitted upon request (received on August 9, 2023) to meet permit requirements identified under PTI 397-97B.

EUENGINE- The referenced NG-fired RICE and associated pollution control device. No emission limits or material limits are associated with EUENGINE.

OPERATION LIMITS – No later than 60 days after the issuance of Permit 397-97B the permittee was 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 in compliance with the permit condition. (SC III.1) Documents contained in District files are summarized below:

PM/MAP Submittal Date	Approval Date	Comments
October 23, 1997	October 29, 1997	Req. under permits 396-97 & 397-97. Document refers to both Garfield 1-8 and 1-9 Facilities.
August 5, 2005	Unk	Unk

August 2, 2022

August 25, 2022

Riverside Submittal

Per the PTI the proper installation, operation and maintenance of the add-on control device is required (SC IV.1). In addition to the PM/MAP requirements above, the permittee is limited to operation of any engine equipped with an add-on control device for more than 200 hours. (SC III.2) EUENGINE records provided by Riverside indicated that the engine did not operate without the pollution control device since they have taken over the site.

TESTING ACTIVITIES – Under the present permit verification of NOx and CO emissions are required upon request of the AQD District Supervisor. (SC V.1) District files contain no copies of written requests for verification testing, thus the permit condition not applicable at the time of report preparation.

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

- Monitor in a satisfactory manner, the natural gas usage for EUENGINE on a monthly basis. (SC VI.2)

Fuel Usage reported for EUENGINE is summarized below:

Emission Unit	Fuel Usage (MCF) for 2022 and 2023 to date (6/1/2023)
EUENGINE	834 – 1179

12-Month rolling total fuel usage for EUENGINE is summarized below:

12-Month Rolling time period ending	Fuel Usage (MMCF)
December 2022	10.485
June 2023	12.429

- Maintain a log of all maintenance activities conducted according to the PM/MAP (SC VI.3)

SC VI.3 requires the permittee shall maintain a log of all maintenance activities conducted according to the PM / MAP (pursuant to SC III.1). Riverside reports that records prior to their taking over operation are not available. Records provided appear to confirm that both engine and catalyst maintenance activities are completed on a maintenance schedule consistent with the PM/MAP.

In addition to quarterly service activities, records provided confirm RICE head replacement in May 2022, as well as document downtime for well treatments, etc.

Records provided for the 3-way catalyst confirm that consistent with the PM/MAP which reports proper O2 content being critical for achieving the desired 90% destruction, that the O2 sensor is inspected/changed quarterly. Records provided confirmed that a new catalyst element was installed May 24, 2022, and followed by emission testing on May 31, 2022. With destruction efficiencies reported higher than standard 90% and 80% destruction efficiencies for NOx and CO respectively. Pre and Post catalyst temperatures were reported daily on operator logs, as well as monthly by maintenance contractors. However, differential pressures were not documented after the first couple months. This was brought to the attention of the Riverside environmental contact, who is following up on the issue, and has indicated that the information will be collected and documented in the future.

REPORTING – Reporting requirements include SC VII.1 which requires notification (except as provided in Rule 285 and within 30-days) if any engine under EUENGINE is replaced with an equivalent or lower emitting engine. No change in engine is documented since Riverside took over operation of the Facility (August 2022). For EUENGINE history refer to previously reported history at the beginning of this document.

STACK/VENT - Permit 397-97B (SC VIII.1) limits the exhaust dimensions for the stack associated with EUENGINE to a maximum exhaust diameter of 16-inches and minimum height of 18-ft. Stack height verification activities were conducted as part of the August 3, 2023, field event. Stack height was determined using a Nikon Range Finder and was in general compliance with the 18-foot above land surface Permit requirements.

OTHER REQUIREMENTS- No other requirements exist for EUENGINE.

FGFACILITY –This FG includes all process equipment source-wide including equipment covered by other permits, grandfathered equipment and exempt equipment. Only a limited number of restrictions exist for FGFACILITY and include the following:

- NOx and CO Emission Limits of 89 ton per year (12-month rolling total) per pollutant (SC I.1 &2)

Annual Emissions reported as part of the MAERS program for the Facility for calendar years 2020 and 2021 (submitted by Breitburn) included the following:

Calendar Year	NOX (TPY)	CO (TPY)	VOC (TPY)
2020	4.37	9.43	3.45
2021	3.15	6.8	4.42
Limit	89 (SC I.1)	89 (SC I.2)	NA

12-Month rolling emission totals for NOx and CO calculated by Riverside are summarized below:

12-month rolling period ending	NOx (TPY)	CO (TPY)
December 2022	0.89	1.79
June 2023	1.05	2.12
Limit	89 (SC I.1)	89 (SC I.2)

In addition to the above referenced restrictions PTI 397-37B includes the following with reference to FGFACILITY:

- No sour gas (>1 grain of hydrogen sulfide or > 10 grains of total sulfur per 100 standard cubic feet) shall be burned on site (SC II.1)
- Verification of H2S and or sulfur content upon request to ensure compliance with SC II.1 (SCV.1) and

Riverside Staff verified H2S concentrations using Draeger tube sampling on August 8, 2023. Concentrations reported were 1.5 ppm for the incoming gas stream. One-grain of Hydrogen Sulfide is equivalent to 16.5 ppm H2S.

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, unless otherwise specified in any special condition (SC.VI.1)
- Monthly and 12-month rolling time period NOx and CO emission calculation records for each engine in FGENGINES as required by SCI.1 and Appendix A. (SC VI.2) and

A review of data provided by Riverside staff for the Facility indicated that the required calculations are being kept.

SUMMARY

August 3, 2023, AQD District Staff conducted an unannounced site inspection of the Riverside Energy of Michigan, LLC (AKA Riverside) Garfield 1-8/8-9 Compressor Station (N6346). The referenced facility is located in the NW ¼ of NE ¼ Section 9, Township 25 N, Range 5W, Garfield Township, Kalkaska County, Michigan. Note that Riverside took over operations of this site in 2022, previously it was operated by Breitburn Operating LP.

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At the time of the inspection, clear skies, with temps in the upper 70's to low 80 degrees Fahrenheit. Light winds with variable direction were noted. No emissions were noted from the stacks onsite. No odors were detectable.

With the exception of operators failing to document differential pressures for the catalyst associated with EUENGINE as required in the PM/MAP submitted by the Facility, no other discrepancies were noted during the August 3, 2023, site visit and subsequent records review. This error has at the time of document preparation been corrected by the Facility. Based on observations made and information provided by Riverside, the Facility appears to be operating in general compliance with permit conditions.

NAME Sharon J LeBlanc

DATE 11-20-23

SUPERVISOR Shane Nixon