

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

N693970079

<b>FACILITY:</b> RIVERSIDE - OLD VANDY NORTH CPF		<b>SRN / ID:</b> N6939
<b>LOCATION:</b> SW SW SW Sec 17 T32N R3W, GAYLORD		<b>DISTRICT:</b> Gaylord
<b>CITY:</b> GAYLORD		<b>COUNTY:</b> OTSEGO
<b>CONTACT:</b> Natalie Schrader , SR. Production assistant		
<b>STAFF:</b> Sharon LeBlanc	<b>COMPLIANCE STATUS:</b> Compliance	<b>ACTIVITY DATE:</b> 11/09/2023
<b>SUBJECT:</b> FY 2024 FCE site inspection and records review. sgl		
<b>RESOLVED COMPLAINTS:</b>		

## **INTRODUCTION**

November 9, 2023, AQD District Staff conducted a scheduled site inspection of the Riverside Energy Michigan, LLC (Riverside) Old Vandy CPF (N6939). The referenced facility is located in the SW ¼, SW ¼ of Section 17, Township 32 N, Range 3W, Corwith Township, Otsego County, Vanderbilt, Michigan. The street address is 9095 Lewis Road.

The referenced facility is considered a synthetic minor opt-out and operates under Permit to Install (PTI) No.s 26-01B. The last compliance inspection of record was conducted on 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 and gated facility. At the time of the site inspection it was 41 degrees F, mostly cloudy with winds of 5-10 mph to the East. No visible emissions or odors were noted at the time of the site inspection.

Records required to make a compliance determination for the facility were requested electronically on September 8, 2023. The data provided (September 12, 2023) has been reviewed and incorporated into this document.

## **FACILITY**

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 at the Riverside Old Vandy North Facility.

Records indicate that the Facility reports annual emissions for the equipment onsite through the MAERS reporting system. The most recent submission being for the 2022 calendar year submitted on February 8, 2023.

Readily available aerials indicate that the site was constructed after April 1998 with the present footprint existing in aerials dated August 2005.

The Facility is located at 9095 Lewis Road, just north of the intersection of Lewis and McGregor Roads. The Facility is bermed on the southern edge. To reach the site travel west on McGregor approximately 2- miles from the intersection of Old 27 and McGregor. At the intersection of Lewis and McGregor Roads make a right hand turn. The site is the first drive on your right (apx. 0.09-miles).

## **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:

<b>Emission Units</b>	<b>MAERS installation date</b>	<b>Description</b>
EUENGINE3 Unit 1086	10/1/2014*	CAT 3516LE 1265 HP, with catalyst
EUENGINE4 Unit 1224	10/1/2014*	CAT 3516LE 1265 HP, with catalyst
EUDEHY	2/1/2002	Ethylene glycol dehydration system for Antrim Formation

\*10/17/2014 per Facility correspondence.

In lieu of ASTs for slop water or brine, the Facility appears to make use of the Chaffee D1-17-SWD disposal well onsite.

District Files indicated the following engines associated with the site:

<b>Equipment ID</b>	<b>Emission Unit</b>	<b>Make/Model S/N</b>	<b>Installation Date</b>	<b>Removal Date</b>
Unit 1086	EUENGINE1	CAT 3516 LE 1265 Hp SN 4EK03713	10/7/2014	6/22/2021 (Like for like swap)
	EUENGINE1 (AKA EUENGINE3)	CAT 3516 LE 1265 HP Permitted with no control, operated with CC SN 4EK02350	6/22/2021	NA

<b>Unit 1224</b>				
	<b>EUENGINE2 (AKA EUENGINE4)</b>	<b>CAT 3516 LE 1265 HP Permitted with no control, operated with CC SN 4EKD0749</b>	<b>10/7/2014</b>	<b>NA</b>

## **PERMITTING**

Permits of record for the Facility include the following:

<b>Permit No.</b>	<b>Approval Date</b>	<b>Void Date</b>	<b>Company Issued to</b>
<b>26-01</b>	<b>February 20, 2001</b>	<b>January 28, 2008</b>	<b>Atlas Gas &amp; Oil company</b>
<b>26-01A</b>	<b>January 28, 2008</b>	<b>January 30, 2014</b>	<b>Chevron Michigan LLC</b>
<b>26-01B*</b>	<b>January 30, 2014</b>	<b>NA</b>	<b>Chevron Michigan LLC</b>

\*was issued for the replacement of the two existing compressor engines with the present RICE onsite.

## **REGULATORY**

The Old Vandy North CPF 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);

No ASTs are associated with the site also so 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 2001-2002 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 unit 1224, though based on the installation date it is assumed to be prior to 2014, and no compliance determination has been made with reference to the subpart. Paperwork received for a like-for-like swap of EUENGINE 1 for 3 indicated that Unit 1086 has a manufacture date of 1998.**

**40 CFR Part 60 (NSPS) Subpart LLL - Standards of Performance for SO<sub>2</sub> 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 JJJJJJ (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. Permit 26-01B contains a high-level citation with respect to Subpart HH. 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. PTI 26-01B contains a high-level citation for the referenced subpart (SC IX.1). 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.

With respect to Subpart HH, the applicable emission unit is the dehydration system. Exemption from the referenced subparts exist for systems in which the natural gas flow rate through the system is less than NG threshold of actual annual NG flow rate of less than 3 million standard cubic feet per day (MMcf/d) or 85,000 cubic meters/day) or uncontrolled benzene emission rate was anticipated to be greater than 0.9 megagrams per year (or approximately 1 TPY) threshold. Average flow rates are reported below the 3 MMSCF/day 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 engines are reported by the facility to be subject to the referenced subpart. A high-level citation to the referenced Subpart was writing into SC IX.1 for FGENGINES. At the time of report preparation, AQD has been delegated authority to implement and enforce the subpart. However, 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.

### **Preventative Maintenance/Malfunction Abatement Plan (PM/MAP)**

PM/MAP are required under existing permits for EUs located onsite. The most recent PM/MAP submittals of record was dated December 17, 2019, and was approved on January 29, 2020.

### **Reports Received**

The riverside Old Vandy North CPF with the exception of annual emissions reporting, is not subject to other reporting requirements.

### **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 most recent submittal was received for the 2022 calendar year February 8, 2023.

**PTI 26-01B – Permit Conditions**

Emission units covered by the above referenced PTI included EUDEHY, EUENGINE1 and EUENGINE2 (FGENGINES) and FGFACILITY. FGENGINES are permitted to operate without a control device, however, the Facility has installed and operates with a catalyst. Records under the referenced permit are required to be maintained for a period of 5 years.

EUDEHY –The referenced system is a glycol dehydration system which processes NG from the Antrim formation. The system contains a 125,000 BTU/Hr NG fired burner (reboiler) for recycling the glycol. Permit conditions associated with the EU consist of monitoring and recordkeeping requirements to document EUDEHY meeting (or not) exemption criteria in 40 CFR 63.746(e)(1)(i) & (ii). (SC VI.2, VI.3 and SC VI.4) Records provided indicated that the Facility is not subject to Subpart HH, and that reporting requirements under SC VII.1 do not apply.

FGENGINES (EUENGINE1 and EUENGINE2) – The two referenced engines at the time of permitting consist of one NG-fired, 1265 HP CAT 3516LE RICE. The two engines are used for gas compression. Both units were permitted without control devices but are operated with control devices.

Operating parameters noted at the time of the site inspection included:

EUENGINE1 (Unit 1086) (Building 2) operates with catalyst

<b>Engine</b>	Unit 1086 CAT 3516 LE with Catalyst
<b>Hours</b>	126,236
<b>RPM</b>	1002
<b>Oil Pressure</b>	50 psi

EUENGINE2 (Unit 1224)(Building 1) operates with catalyst

<b>Engine</b>	Unit 1224 CAT 3516 LE with Catalyst
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<b>Hours</b>	<b>33,457</b>
<b>RPM</b>	<b>1052</b>
<b>Oil Pressure</b>	<b>50</b>

Permit conditions for engines EUENGINE1 and EUENGINE2 are summarized below:

Emission Limits – SC I.1-I.4 restrict NOX and CO emission limits to not to exceed 44.5 TPY and 30 TPY, for each 12-month rolling time period and each engine respectively. Calculated emissions (SC VI.6 & 7) reported for the two engines are summarized below:

**EUENGINE1 (Unit 1086, aka EUENGINE3)**

<b>12-month rolling time period ending</b>	<b>NOx uncontrolled (TPY)</b>	<b>CO uncontrolled (TPY)</b>	<b>NOx controlled (TPY)</b>	<b>CO controlled (TPY)</b>
December 2022	9.49	9.01	9.23	0.01
July 2023	9.06	8.61	8.82	0.01
<b>LIMIT</b>	<b>44.5 (SC I.1)</b>	<b>30 (SC I.2)</b>	<b>44.5(SC I.1)</b>	<b>30 (SC I.2)</b>

**EUENGINE2 (Unit 1224, aka EUENGINE4)**

<b>12-month rolling time period ending</b>	<b>NOx uncontrolled (TPY)</b>	<b>CO uncontrolled (TPY)</b>	<b>NOx controlled (TPY)</b>	<b>CO controlled (TPY)</b>
December 2022	18.23	17.32	16.81	0.26
July 2023	18.44	17.52	17.56	0.12
<b>LIMIT</b>	<b>44.5 (SC I.3)</b>	<b>30 (SC I.4)</b>	<b>44.5(SC I.3)</b>	<b>30 (SC I.4)</b>

The permittee is required under PTI 26-01B to prepare and submit a PM/MAP (SC 3.1) As previously noted a PM/MAP for the Facility, which included EUENGINE1 and EUENGINE2 was submitted by Riverside, the most recent document dated December

7, 2019. The referenced PM/MAP was approved in correspondence dated January 29, 2020.

Note that engines required to operate with add-on control devices, must meet the following permit conditions:

- Operation of each engine without an air/fuel ratio controller and 3-way catalyst for more than 200 hours per engine per year consistent with the PM/MAP (SC III.2)
- Maintain monthly and 12-month rolling records of hours that EUENGINE1 and EUENGINE2 operated without controls. (SC VI.4)
- EUENGINE1 and EUENGINE2 shall not operate unless the air/fuel ration controller and 3-way catalyst is installed, maintained and operated except as specified in SC III.2. (SC IV.1)

As previously indicated, the engines permitted under 26-01B did not have add-on controls. Hence the existing emission limits for the Facility. The Facility reports operating both units with add-on controls, and follows the appropriate maintenance and operations monitoring and recordkeeping. Neither unit was reported to operate in 2022 or the 2023 calendar year to date without it’s catalyst.

No material limits exist, for the referenced RICE, however, permit conditions require installation, calibration, maintenance of a device to continuously monitor and record the natural gas usage for each engine (SC IV.2). NG usage records provided by the Facility indicate that both monthly and 12-month rolling usage records (SC VI.2 and VI.5) are maintained and recorded the following information:

<b>12-month rolling time period ending</b>	<b>12-month rolling NG usage for Unit 1084 (MMcf)</b>	<b>12-month rolling NG usage for Unit 1224 (MMcf)</b>
December 2022	32.245	61.954
July 2023	30.801	62.682
<b>LIMIT</b>	<b>NA</b>	<b>NA</b>

Verification of NOx and CO emission rates from EUENGINE1 and EUENGINE2 by testing at owners expense per the request of the District Supervisor (SC V.1) 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.

Maintain a log of all significant maintenance activities conducted and all repairs made to EUENGINE1 and EUENGINE2 and any associated air pollution control device. (SC VI.3) Records provided indicated that annual testing and cleaning activities are conducted for the catalysts associated with each engine onsite. The most recent activities for Unit 1086 were conducted June 2021 and August 2022. The



most recent activities for Unit 1224 were conducted March-April of 2022 and May of 2023.

Maintenance records for the EUs indicate that the Facility conducts monthly scheduled service activities for RICE onsite. In addition, approximately every 2-3 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 period of January 2022 through July 2023.

As previously indicated the a like-for-like switch of EUENGINE1 occurred June of 2021. Notification was received on June 22, 2021, in compliance with SC VII.1.

Stack heights for the two RICE onsite are reported to be consistent with the following permit conditions.

- Stack SVENGINE1 is limited to a diameter of not to exceed 12-inches, and a minimum height requirement of 43 feet above land surface (SC VIII.1)
- Stack SVENGINE2 is limited to a diameter of not to exceed 12-inches, and a minimum height of 43 feet above land surface (SC VIII.2)

**FGFACILITY** – This FG consists of all process equipment at the Facility including equipment covered by other permits, grandfathered equipment and exempt equipment. Noted in the records provided was material use for onsite heaters as well as other previously documented equipment.

Emission Limits- Facility wide emission limits of 89 TPY for both NOx and CO, based on a 12-month rolling average. (SC I.1 and I.2). Emission calculations are calculated on a monthly and 12 month rolling time period in compliance with SC VI.2. Facility wide monthly fuel use records are readily available to the department upon request (SC VI.3). Facility wide emissions reported are summarized below:

<b>12-month rolling time period ending</b>	<b>NOx Emissions (TPY)</b>	<b>CO Emissions (TPY)</b>
December 2022	34.79	2.46
July 2023	35.98	2.53
<b>Limit</b>	<b>89 (SC I.1)</b>	<b>89 (SC I.2)</b>

SC II.1 restricts the permittee from burning any sour NG in FGFACILITY. H2S data submitted to the District Office indicated that inlet gas was reported to be 0ppm H2S and in compliance with the permit condition.

### **SUMMARY**

November 9, 2023, AQD District Staff conducted a scheduled site inspection of the Riverside Energy Michigan, LLC (Riverside) Old Vandy CPF (N6939). The referenced facility is located in the SW  $\frac{1}{4}$ , SW  $\frac{1}{4}$  of Section 17, Township 32 N, Range 3W, Corwith Township, Otsego County, Vanderbilt, Michigan. The street address is 9095 Lewis Road.

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Readily available aerials indicate that the site was constructed after April 1998 with the present footprint existing in aerials dated August 2005.

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 at the Riverside Old Vandy North Facility.

Records indicate that the Facility reports annual emissions for the equipment onsite through the MAERS reporting system. The most recent submission being for the 2022 calendar year submitted on February 8, 2023.

Based on observations, and records provided it appears that the Facility is operating in general compliance with permit conditions.

NAME Maeson J LeBlanc

DATE 1-29-24

SUPERVISOR Shane Nixon