

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

N763160594

FACILITY: RIVERSIDE - CLEAR LAKE CPF REVISED		SRN / ID: N7631
LOCATION: NE NW NW Section 35, T32N, R2E, HILLMAN		DISTRICT: Gaylord
CITY: HILLMAN		COUNTY: MONTMORENCY
CONTACT: Natalie Schrader , Compliance Coordinator		ACTIVITY DATE: 10/11/2021
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Onsite inspection and data evaluation activities for FCE for FY 2022. Note Facility is no longer a CPF, as of Oct. 2020, has been shutting in and decommissioning equip and now acts as booster to another CPF. sgl		
RESOLVED COMPLAINTS:		

On Monday, October 11, 2021, AQD District Staff mobilized to the Riverside Energy of Michigan, LLC (Riverside) Clear Lake Facility (N7631), located in T32N, R2E, Section 35, Atlanta, Montmorency County, Michigan to conduct an unannounced, scheduled compliance inspection of the facility. The referenced facility presently operates under Permit to Install No. 199-06A. A records request was made electronically on October 8, 2021, with the response received on October 14, 2021.

Previous site inspection activities were conducted on July 24, 2015 and July 23, 2018. No violations were noted in the inspection reports.

The site was operating, and the gate unlocked at the time of the inspection. Weather conditions were reported to be partly cloudy, calm with temps of about 67 degrees. No odors or plumes were noted.

FACILITY

Located in the NE1/4 of NW1/4 of NW ¼ of Section 35, T32N, R2E, West Central Montmorency Township. The sign at the gate identifies the address as 11040 East Rod and Gun Road. Riverside reports that the Clear Lake Facility is part of a consolidation project, the existing above ground tanks having been decommissioned and the flowlines emptied. Two engines were of record for the facility, one has been shut-in (October 2020) and the remaining engine is reported to be acting as an exempt remote booster for another CPF location.

At the time of the July 23, 2018, inspection the Facility was operated by Linn Operating, LLC. Notification of acquisition of the site by Riverside Energy Michigan LLC was received in 2019.

To reach the Facility, Staff traveled north of Atlanta on M-33 approximately nine miles. A right turn can be made either on or and traveled east on

1. Kolar Road (unpaved) until you reach the fork in the road (Kolar joins East Rod and Gun Road).
2. Lacross Road (aka County Road 628) travel approximately 1/3-mile, you will go past the power line to Kolar Road (first road on left), make a left and travel north approximately 2/10ths of a mile and follow the fork to the left, and travel approximately 1/10th of a mile till Kolar meets East Rod and Gun Road.

At the fork in the road, stay on East Rod and Gun Road to the left (north) and travel approximately one-tenth of a mile to an unpaved drive on your left. Make a left and travel approximately two-tenths of a mile (uphill and rutted) where the trail/drive makes a right, and travel approximately one-tenth of a mile. The drive ends at the gate to the Facility. Note that It

is heavily wooded from M-33 to the site, and in most cases, there is not extra room to make turn arounds.

The site is unmanned, and gated. Adjacent properties to the north, south and west are forested land owned by the State of Michigan. The NE1/4 of Section 35 consists of private small parcels and acreages.

REGULATORY

The Facility is a true minor with reference to criteria pollutants and Hazardous Air Pollutants (HAPs).

Permitting - Two permits are of record for the Facility. These include:

- 199-06

Issued on August 1, 2006 to Samson Resources. At the time of initial permitting the facility consisted of two NG-fired compressors and one glycol dehydration unit. The permittee requested a federally enforceable limit of 40 tons NOx/year to limit emission rates to below Potential for Significant Deterioration (PSD).

- 199-06A

In 2008, a permit modification was requested for removal of one engine (EUENGINE1) and it's associated permit conditions. The application further indicated that Samson Resources would be installing a 145 Hp CAT 3306NA, but that the engine was exempt from permitting under Rule 285 (g) which exempted engines of <10 million BTU/Hr maximum heat input from Rule 201 permitting. The permit application identified the maximum single HAP for the facility as formaldehyde. The resulting permit was issued on November 30, 2008. Correspondence with the Facility dated October 25, 2021, indicated that the Facility will be requesting a permit void.

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 delegation has not been received for area sources and 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)

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) Subparts IIII and Subpart JJJ for Compression Ignition (CI) and Spark Ignition (SI) Reciprocating Internal Combustion Engines (RICE), respectively. Riverside had reported previously that the existing RICE are remote engines and are not subject to the referenced subparts. No compliance determination has been made with reference to the subparts.

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 reports that the Clear Lake Facility (prior to being decommissioned) had an actual annual NG flow rate of less than 3 million standard cubic feet per day (MMcf/d) and is reported to be exempt from subpart requirements.

With respect to Subpart ZZZZ (RICE MACT), the facility engines are reported by the facility to be subject to 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.

NESHAP subparts JJJJJ 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.

EQUIPMENT

Permit No. 199-06A (still active at the time of the October 11, 2021, site inspection) identifies the following Emission Units (EUs) and Flexible Groups (FGs):

- EUDEHY

The Trimethylene glycol dehydration system includes a 125,000 BTU/Hr gas-fired, reboiler burner. The permit application reported an operating recirculation rate of 0.25 gallon per minute (gpm) and a maximum glycol recirculation rate of 1.5 gpm. Emission sources for the system are reported to be the regenerator still column and the burner for the reboiler. No pollution control is reported present for the system. Per the records provided by Riverside, the unit was shut-in in October 2020.

- EUENGINE2

This EU consists of one NG-fired RICE with 3-way catalyst and an Air to Fuel Ratio (AFRC) O2 sensor. Note that this engine was not operating at the time of the October 11, 2021, site inspection. Electronic communications with the Facility indicate that the equipment has been

shut in since October 2020, with the intent of future sale. The Facility reports that the engine was not operated without a catalyst for 2019 or 2020.

Review of District Files and annual emissions reports submitted by the facility indicate that at the time of permit modification (PTI 199-06A), one exempt (EUENGINE03) and one permitted (EUENGINE02) compressor engine existed onsite and that a third engine (EUENGINE01) associated with PTI 199-06 was removed. Historical records of permitting and change-outs provided the following information:

INSTALL DATE	MAERs ENGINE ID	TYPE	Dismantle Date	SOURCE
9/1/2006	EUENGINE01*	CAT G3408C LE, 425 Hp lean burn	apx. 2008	2008 PTI Application
9/1/2006	EUENGINE02** Unit 3246 SN 73B01232	CAT 398TA, 625 Hp, rich burn with reductive catalyst	swapped out with same model October 25, 2017 Shut-in 10/21/2020	2008 PTI Application
8/21/2008	EUENGINE03*	CAT 3306NA, 145 Hp, rich burn	10/1/2017	2008 PTI Application
10/1/2017	EUENGINE03A* Unit 173 SN 07Y07754	CAT 3306TA, 203 Hp, rich burn	Disconnected from this Facility as of 10/22/2020, presently is acting as a booster for different Facility	EI year 2020 MAERS and October 14, 2021, e-mail

* Note- exempt engine

** Note NGSG Field Maintenance Reports for October 25, 2017, document replacement of Cat 398TA S/N 73B01919 with S/N 73B01232. Plate was located and S/N confirmed as part of October 11, 2021, site inspection. Reported shut in since October 21, 2020.

Operational parameters noted at the time of the October 11, 2021, site inspection included the following for EUENGINE03A (exempt):

- RPMs – 1595
- Oil pressure – 74
- Inlet temp – 188
- Discharge temp - 85

Preventative Maintenance/Malfunction Abatement Plans (PM/MAPs) have been prepared for permitted engines and submitted to AQD in compliance with PTI conditions (SC III.1). Documents of record are summarized below:

Submittal Date	Approval Date
March 7, 2007	UNK
January 10, 2012	January 26, 2012
May 9, 2018	May 14, 2018
January 28, 2020	January 30, 2020

- FGFACILITY

Per permit this FG consists of EUDEHY, FGMETHANOL, EUENGINE2, as well as any exempt or grandfathered process equipment. At the time of the October 11, 2021, site inspection EUENGINE2 has been shut-in. Exempt equipment includes a compressor engine (EUENGINE3A). This RICE was installed in October 2017, replacing a previously existing exempt RICE (EUENGINE3), and now is associated with another CPF.

- FGMETHANOL

This FG consists of methanol storage equipment totaling less than 5,000 gallons for all equipment.

COMPLIANCE

At the time of the October 11, 2021, site visit, no visible emissions were noted to be coming from onsite stacks in the overcast skies, no heat shimmer could be seen in the cloudy skies or glycol odors noted, nor were there any significant liquids collected in the secondary containment of the brine tank other than could be accounted for by light rains that had occurred over the past few days.

MAERS- Annual emissions estimates are reported annually for the Facility as part of the Michigan Air Emissions Reporting System (MAERS). A review of the most recent MAERS submittal for the facility (received on January 20, 2021, for emissions associated with the calendar year 2020) included emissions for two engines and one glycol dehydrator onsite.

Except for NOx and CO emissions for the two engines, the emissions for the facility were calculated using MAERS emission factors. Total emissions reported for the year 2020 and 2019 are summarized below:

Calendar Year	Nox Emissions (TPY)	CO Emissions (TPY)	VOC Emissions (TPY)
2020	6.59	13.4	0.18
2019	4.81	9.57	0.14
Limits	NA	NA	NA

Permit Conditions –

High Level citations to 40 CFR Part 63, Subpart HH are included within permit conditions for EUDEHY and FGFACILITY. With respect to Subpart HH, as previously indicated the Facility reports not being subject to the referenced subpart based on NG flowrates of less than 3 MMcf/day. It should be noted that no conditions exist for FGMETHANOL, the EU is not discussed further.

EUDEHY- No emission limits, material limits, equipment limits, stack restrictions or testing requirements exist for the EU. Monitoring and recordkeeping requirements of 199-06A includes documentation of actual annual average flow rates (SC VI.1 (a) or (b) & VI.2) and/or actual annual benzene emission rates (SC VI.1 (c) or (d) & VI.3) for EUDHY. Records provided by Riverside reported actual average flow rates below the 3 MMcf/day.

EUENGINE2- 625 HP CAT 398TA

Permit conditions associated with EUENGINE2 do not include material limits. Emission limits associated with EUENGINE2, include 12-month rolling limits for both NOx and CO. The following table summarizes both the MAERS for the calendar year of 2019, as well as the 12-month rolling time total as of October 2020. All reported emissions were below permit limits.

12-month Rolling time period	NOX (tpy)	CO (tpy)
December 2019	0.87	2.93
October 2020	1.21	4.07
LIMIT	14.9	14.1

The above referenced emissions were calculated using manufacturer's engine specific emission factors in compliance with Appendix A and SC VI.6 & 7.

Operational limits and design/equipment parameters associated with EUENGINE02 limit operation of the engine and it's associated control device to no more than 200 hours without the control device per year. (SC III.2)(SC VI.4) Per records provided by Riverside EUENGINE02 was not operated without the catalyst for the calendar years 2019 or 2020.

The permittee is required to operate EUENGINE02 with it's add on control device installed, operated and maintained in a satisfactory manner (SC IV.1). Records provided by Riverside indicated Archrock catalyst verification documentation provided by Riverside dated October 16, 2019, indicated NOx and CO of 99.4% and 92.5%, respectively.

As required under the permit (SC III.1), a Preventative Maintenance/Malfunction Abatement Plan (PM/MAP) is required to be submitted for approval. District Files indicate that revisions to the original 2008 documents were submitted on April 27, 2018; October 12, 2018; and January 28, 2020. These revisions reflected changes in equipment or operator practices as ownership of the Facility changed.

Per the approved PM/MAP, the below operational parameters are monitored. Catalyst temperatures are recorded daily on field operator logs, and differential pressure across the catalyst is reported monthly by other staff. Data reviewed indicated that pre-catalyst temperatures and post catalyst temperatures met PM/MAP operational ranges of >700<1350 degrees Fahrenheit. Catalyst differential pressures are obtained by recording the difference of the pre and post catalyst pressures (recorded in inches of water column) and were collected monthly in compliance with the PM/MAP.

Maintenance requirements under the approved PM/MAP are reported by the Facility to meet the requirements of 40 CFR Part 63 Subpart ZZZZ (RICE MACT). Maintenance requirements include the following activities for >500 Hp, non-emergency, non-black start, 4-stroke rich burn, remote, stationary RICE every 2,160 hours (90 days) of operation or annually, whichever comes first (and replacement as necessary):

- Change oil and filters
- Inspect spark plugs
- Inspect all hoses and belts

Records presented appear to indicate service activities approximately every three months, consistent with the PM/MAP.

Catalyst maintenance under the PM/MAP includes the following activities every 12-18 months, or when the operating variables are out of their respective ranges. Emission checks using a portable emissions analyzer per the PM/MAP are required when either a monitored parameter (temperature or differential pressure) are out of range, or when a cleaned catalyst is installed (typically every 12-18 months). As previously indicated the most recent test date was conducted on October 16, 2019.

SC IV.2 requires that the permittee install, calibrate, maintain and operate a device to monitor and record the natural gas usage for EUENGINE02 on a continuous basis. Records provided by the

Facility as well as daily log sheets completed by Facility operators verified that the NG usage was being monitored continuously and was recorded on daily field log sheets.

A review of the onsite daily logs at the time of the site inspection indicated that daily hours of operation for EUENGINE02 are not recorded daily, in lieu the Facility reports downtime for each day. This data is not required by permit, and therefore does not reflect a compliance issue.

Testing requirements associated with EUENGINE02 are limited to verification testing (SC V.1) to conditions when requested by the District Supervisor. At the time of the site visit, no such request was of record on file.

Monitoring and recordkeeping requirements associated with EUENGINE02 include the following:

- Monitor and record on a continuous basis EUENGINE02 NG usage (SC VI.2) and maintain records of monthly fuel usage for the referenced engine (SC VI.5)
- Log of all maintenance activities conducted according to the PM/MAP (SC VI.3)
- Monthly and 12-month rolling total hours of operation without pollution control device for EUENGINE02 (SC VI.4), and
- Monthly and 12-month rolling total NOx and CO emissions for EUENGINE02 (SC VI.6 & 7).

Fuel usage onsite is monitored and recorded continuously. The data provided for the year 2020 by Riverside indicated that the Facility was maintaining monthly records of the fuel usage for the EUs onsite in compliance with their permit. The data is used to determine monthly and 12-month rolling NOx and CO emissions for EUENGINE02 in compliance with their permit. Emissions data presented was consistent with permit requirements and is presented previously in this document.

Reporting requirements for EUENGINE02 includes notification to the AQD District Supervisor of a change out of the referenced engine with an engine of an equivalent or lower emitting engine. (SC VII.1) The exact wording of the condition is "Except as provided by Rule 336.1285, if the engine is replaced with an equivalent-emitting or lower-emitting engine, the permittee shall notify...." Records indicate that no change out of engines has occurred since October 2017.

SC VIII.1 restricts the stack for EUENGINE02 to a maximum of 14-inches in diameter, and a minimum of 32 feet above land surface. As part of the 2017 engine change outs, the Facility confirmed the stack construction as 4-inches in diameter and 45 feet above land surface.

FGFACILITY - Source-wide Special conditions associated with FGFACILITY are limited to high level citations with respect to 40 CFR Part 63, Subpart HH (SC III.1) already addressed as well as testing (SC V.1) and material limits (SC II.1) with respect to hydrogen sulfide. As previously indicated, the Facility has an actual annual NG flow rate of less than 3 million standard cubic feet per day (MMcf/d) and is reported to be exempt from subpart requirements.

The permittee is restricted from burning any sour natural gas in FGFACILITY (SC II.1) and is required to verify H₂S and/or sulfur content upon request of the AQD District supervisor (V.1). Information provided by Riverside indicated that draeger tubes are used to verify H₂S concentrations. Data was provided for March 18, 2020, June 23, 2020, and August 25, 2020.

Data provided indicated consistent concentrations of 1ppm, well below permit limits of 1 grain of hydrogen sulfide per 100scf (16.5 ppm).

In addition to EUENGINE02, FGFACILITY includes an additional RICE (exempt from permitting) referred to EUENGINE03A. The units are included as part of the annual reporting. No source wide emission limits are associated with the site.

SUMMARY

On Monday, October 11, 2021, AQD District Staff mobilized to the Riverside Energy of Michigan, LLC (Riverside) Clear Lake Facility (N7631) to conduct an unannounced, scheduled compliance inspection of the facility. The referenced facility presently operates under Permit to Install No. 199-06A. A records request was made electronically on October 8, 2021, with the response received on October 14, 2021.

Previous site inspection activities were conducted on July 24, 2015 and July 23, 2018. No violations were noted in the inspection reports.

Located in the NE1/4 of NW1/4 of NW ¼ of Section 35, T32N, R2E, West Central Montmorency Township. The sign at the gate identifies the address as 11040 East Rod and Gun Road. Riverside reports that the Clear Lake Facility is part of a consolidation project, the existing above ground tanks having been decommissioned and the flowlines emptied. Two engines were of record for the facility, one has been shut-in (October 2020) and the remaining engine is reported to be acting as a remote booster for another CPF.

The compliance evaluation has been based on information provided for 2019 and 2020 for permitted EUs associated with 199-06A. Information provided indicated general compliance with permit conditions. The Facility has indicated it's intent to void the referenced permit.

NAME _____

DATE _____

SUPERVISOR _____