

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection**

P019555947

FACILITY: MUSKEGON DEVELOPMENT COMPANY -- Gingell Lake		SRN / ID: P0195
LOCATION: NE SW SE SEC 14 T30N R2W, CHESTER TWP		DISTRICT: Gaylord
CITY: CHESTER TWP		COUNTY: OTSEGO
CONTACT: Bennett Myler,		ACTIVITY DATE: 10/07/2020
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY 2021 scheduled site inspection of opt-out site. Report summarizes both records review and site visit activities. sgl		
RESOLVED COMPLAINTS:		

On October 7, 2020, AQD District Staff mobilized to the Muskegon Development Gingell Lake CPF Facility (P0195), located in Chester Township, Otsego County, Michigan to conduct an scheduled, compliance inspection of the facility. The referenced facility presently operates under Permit to Install No. 4-11. A records request was made electronically on September 11, 2020. Records were received on October 28, 2020. This document reflects both the site inspection and records review for the Facility.

Previous site inspection activities were conducted on March 20, 2017 and October 3, 2019. No compliance issues were identified with respect to the facility at that time.

FACILITY

The referenced facility is a gated and unmanned CPF station operated by the Muskegon Development Company and is located in the NE ¼ SW ¼ SE 1/4 of Section 14, T30N R2W. The station is reported to service Antrim Formation wells in the area. Activities onsite include separation of gas and brine from the incoming Natural Gas (NG) stream and compression of the gas in the lines to aid in transport. Hydrogen sulfide warning signs are present on site.

Access to the CPF is from a gated drive located on M-32 east of Gaylord, Michigan. The nearby intersections to the CPF gate and entrance road, include Turtle Lake Road (1.75 miles) to the west and Pineridge drive (1/4-mile) to the east. To reach the facility Staff traveled approximately 12-miles east of the EGLE Office on M-32. The Facility drive is on the left-hand side of the road (north).

A review of aerial photos readily available on the internet indicate that the location was an active oil and gas facility as early as May 1993. The permit application indicated an installation date of 2004. Annual emissions reports submitted by the Facility since 2012 indicates an installation date of July 2000.

Immediately adjacent properties appear to be predominantly undeveloped parcels, with oil and gas wells, with some residences closer to M-32. To the south of the CPF across M-32 are small residential properties

Weather conditions at the time of the site inspection included partly cloudy skies, temps of low 50's .

REGULATORY

Permitting -The referenced facility operates under Permit to Install (PTI) No. 4-11, which was issued on February 3, 2011. At the time of permitting the Facility had an existing 325 HP CAT G3406TA compressor engine. The engine was existing onsite at the time of permitting, and per the Permit engineer eval form, had been installed under the exemption because actual emissions were under 40 tons NOx per year. In anticipation of increased utilization, the Facility applied for a permit for compressor operation and emissions above the 40 tons NOx per year.

The PTI was issued as a synthetic minor opt-out permit based on the ability to swap out permitted engine(s) onsite. The facility is considered an area source of HAPs.

Modeling during the permitting process indicated that the Facility would require a minimum stack height of 39 feet. The existing stack height was reported to be 25 feet above grade. The company agreed to increase the stack height.

At the time of the 2011 permitting. The Facility was reported to have one glycol dehydrator with reboiler, one compressor engine, and one 80 barrel above ground storage tank (mung oil). 4-11 included conditions for the engine, the dehydrator and "FGFACILITY".

The engine(s) include the following:

Emission Unit	Description	Control	Install Date	Removal Date
Engine1	CAT 3406 TA Rich Burn 325 HP No Catalyst SN 4fd02186	None	7/1/2000 (per MAERS)* 2004 (per application)	NA

*Note that the onsite compressor has a notation stating "New Engine 3-2-2011".

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.

Federal Regulations - 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, Subparts JJJJ for Spark Ignition internal combustion engines (ICE), District staff requested clarification regarding applicability of RICE NESHAP for both engines. But the requested information was not provided during report preparation.

40 CFR Part 60, Subpart OOOO would apply to onshore affected facilities that are constructed, modified or reconstructed after August 23, 2011. 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.

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)

With respect to Subpart HH, the affected unit is believed to be the dehy unit. In addition, the 2017-2018 MAERS report submitted by the Facility reported total VOC emissions for the dehy of 61.64 lbs/year which would verify the average benzene emissions at less than 0.9 Mg/yr (1.10 ton/yr). 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 (AKA RICE MACT), the company at the time of report preparation has provided no information indicating that the existing RICE would not be subject to the referenced subpart. 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 implement or enforce the subpart for area sources.

At the issuance of permit 4-11, it was believed that the engine associated with the Facility would be subject to the anticipated RICE MACT and/or NSPS RICE regulations and documented as such in the permit engineer evalform.

EQUIPMENT

At the time of the October 7, 2020, site visit AQD Staff identified one compressor with RICE and no catalyst (EUENGINE1), one glycol dehydrator (EUDEHY), one separator and the one above ground tank with lined-secondary containment were present onsite.

The RICE is housed in a separate building, and no emissions or heat waves were noted from the stacks. EUENGINE1 reported to be a CAT 3406TA, no catalyst, Sn 4fd02186. Information provided by the Facility indicated that there have been no engine rebuilds or swaps from August 2019 thru to present.

The dehy (installed 2/1/1996) are housed in the smaller building to the north of the engine building onsite. no odors or visible emissions were noted from the dehy stack.

Review of District Files and annual emissions reports submitted by the facility indicate that in 1996, a single compressor and glycol dehydrator (with reboiler) existed onsite. As previously indicated the facility is reported to process only Antrim gas.

COMPLIANCE

At the time of the October 7, 2020 site visit, no visible emissions were reported to be associated with the dehy stack.

Prior compliance issues with the Facility are limited to failure to submit a 2011 air pollution report (MAERS) in a timely manner (Violation Notice dated May 3, 2012). As previously indicated the March 20, 2017 site inspection indicated that a MAP as required by permit was not found in district files. Both issues were resolved.

MAERS- The Facility reports annual emissions as part of the Michigan Air Emission Reporting System (MAERS). A review of records indicate that annual emissions reported included emissions for one RICE (EUENGINE01) and one glycol dehydrator (EUGLYDEHY) onsite. Reporting appears to be complete and submitted in a timely manner. The most recent reporting for calendar year 2019 was submitted on February 13, 2020. Reported emissions are summarized later in the report.

Malfunction Abatement Plan

A Malfunction Abatement Plan (MAP) (Revision Date July 5, 2017), is of record for the Facility and its associated RICE. The referenced document was submitted to meet special condition III.1 (SC III.1) of permit 4-11 and was approved by District Staff on July 10, 2017.

Per the Facility MAP, a daily pumper log is completed documenting operational data for the compressors and their associated RICE. In order to address engine maintenance and service, every 60-90 days, the Facility reports that their engine service company conducts the following :

- Check and adjust valves
- Check engine compression
- Check timing
- Check fuel pressure
- Change or check air filter
- Check all kill devices

Every 3000 hours the Facility reports their engine/compressor service contractor will conduct all of the above activities as well as change the motor oil and filter.

In addition to the above activities, the engine/compressor service contractor is reported to conduct every 85,000 hours an swing or overhaul of existing engine.

A review of the maintenance records provided for EUENGINE1 (Cat 3406) indicated that with respect to the referenced activities, that Natural Gas Compression Systems (AKA NGCS) had been contracted to conduct maintenance activities. The field maintenance reports clearly identified the engine model and serial number, as well as the date and location of the work and appropriate operating data for the unit. Evaluation based on calendar days and reported scope of activities appeared to indicate that activities are conducted in general compliance with the MAP. Compressor daily log sheets were not found onsite by engine controls as is the case with many other facilities.

Note that at the time of the October 7, 2020, site inspection, the EUENGINE1 was noted to smell hot. RPMS were documented to be 1605, and above those reported the previous year, the oil temp was reported to be 75 degrees. Discharge temp from cylinder 4 was reported to be 309 degrees. A review of Natural Gas Compression Systems maintenance logs indicate higher operational RPM for the past 2 -3 months. With the exception of RPMs, operational data noted appears to be consistent with that reported in maintenance records and the company's operational spreadsheets.

Permit Conditions -Special conditions associated with Permit No. 4-11 include conditions for EUDEHY, EUENGINE1 and the Facility as a whole.

EUDEHY – Under this emission unit, the permittee is required to comply with all provisions of the National Emission Standards for Hazardous Pollutants, 40 CFR Part 63, Subpart HH, as they apply to EUDEHY (SC III.1 and FG FACILITY SC III.1). As previously identified, the Facility reports being exempt from the referenced subpart based on exemption criteria in:

- 40 CFR 63.764(e)(1)(i) which exempts glycol dehydrators with actual annual average flow rates of NG below than 85,000 cubic meters per day (SC VI.1 and VI.2) or
- 40 CFR 63.764(e)(1)(ii) which exempts glycol dehydrators with actual average benzene emissions less than 0.90 megagrams per year (SC VI.1 and VI.3).

October 2019 – September 2020 gas sales report daily actual average of 354 Mcf/day or 10,027 cubic meters/day. Total gas sales for the same period were reported to be 138,094 Mcf or 3,910,350 cubic meters/day. The facility reports that they are below the 3 MMscf/day actual average and exempt from Subpart HH.

Emissions for EUDEHY have consistently reported to be 61.64 lb/year for the calendar years, 2016 through 2019. Emissions are calculated based on MAERS EFs, not the GRI-GLYCalc or approved direct measurements (SC VI.1 (c) & (d)). However, if the total emissions were assumed to reflect benzene, reported emissions would be less than the 0.90 megagrams per year, and the Facility exempt from the subpart and in compliance with the referenced subpart. No compliance evaluation has been made with reference to the subpart.

EUENGINE1 -Conditions include testing, design/equipment parameters, operational restrictions, record keeping, reporting and emission limits.

Permit 4-11, EUENGINE1 includes a number of conditions that are specific to emission units with add on control devices. As previously noted the permitted engine is not equipped with a catalyst and these conditions would not apply:

- Installation, maintenance and operation of the control device in a satisfactory manner (SC IV.1).
- Limited operation of the emission unit to 200 hours or less without the control device within a 12-month rolling time period (SC III.2).
- Monthly records of total monthly and 12-month rolling total hours in which the emission unit operated without the control device. (SC VI.4)

Under Permit 4-11, EUENGINE1 has both NOx and CO limits. The following table summarizes both the MAERS for the calendar years of 2017 and 2018 as well as the 12-month rolling time total as of September 2019. All reported emissions were below permit limits.

EUENGINE1, CAT 3406 TA

CALENDAR YEAR	NOx (tons/year)	CO (tons/year)
12-month rolling ending September 2020	38.37	2.27
2019	36.51	2.16
12-month rolling ending Aug. 31 st , 2019	36.63	2.17
2018	39.16	2.31
2017	45.54	2.69
LIMIT	63.7 (SC I.1)	10 (SC I.2)

Calculation of actual emissions on a monthly and 12-month rolling total for CO and NOx are based on engine manufacturer specs for each engine in compliance with conditions VI.1, VI.6, VI.7 and Appendix A of the permit. Records provided indicated compliance with permit conditions.

District files contain no copies of requests by District Staff for formal verification of NOx and CO emission factors by testing be conducted for EUENGINE1. Therefore, condition SC V.1 is not applicable at this time.

Monitoring and recordkeeping conditions for EUENGINE1 include:

- Fuel usage for each engine on a continuous method, (SC IV.2, VI.2 and VI.5)
- Maintain a log of all maintenance activities conducted according to the PM/MAP (VI.3)
- Monthly and 12-month rolling total NOx emission calculations (SC VI.6)
- Monthly and 12-month rolling total CO emissions (SC VI.7)

Upon request the facility provided copies of maintenance field reports for EUENGINE1 as required under the PM/MAP for FGENGINES. As indicated previously the records verified that maintenance activities were being conducted in general compliance with the PM/MAP.

With reference to continuous monitoring and recordkeeping of fuel usage for EUENGINE1, the Facility has provided appropriate monthly records for the CAT 3406TA. This data is used to determine total emissions for the Facility on a monthly and 12-month rolling average. 12-month rolling totals are reported annually as part of the MAERS reporting process and are summarized earlier in this report. Data reported appears consistent with emission records provided, totals reported are below permit limits for EUENGINE1 and in compliance with permit conditions.

Reporting requirements under Permit 4-11 (SC VII.1) include notification (except as provided in Rule 285) of replacement of any engine with an equivalent or lower emitting engine. The notification is required to include acceptable emissions data to show that the alternate engine meets the equivalent or lower emissions. Records provided indicate that no engine swap or rebuilds has been made of EUENGINE1 for the period of January 2018 through September 2020.

Stack requirements for FGENGINES include the following:

ENGINE	EUENGINE1 (CAT 3406)
Reported Exhaust Diameter (inches)	6
Maximum Exhaust Diameter (inches)	6 (SC VIII.1)
Reported Height (ft above land surface)	39
Minimum Height (ft above land surface)	39 (SC VIII.1)

SC IX.1 requires the stack height for the compressor engine meet requirements within 60 days of the permit issuance. As indicated in the above table, stack dimensions were in compliance with permit conditions at the time of the site inspection.

FGFACILITY – Conditions under this flexible group are limited to use as fuel of natural gas with hydrogen sulfide contents of less than 1 grain or a maximum of 10 grains of total sulfur per 100 standard cubic feet (SC II.1). Verification is required upon request of H2S or sulfur contents by the Facility (SC V.1). District Staff requested verification as part of the August 29, 2019, records request. Verification was provided using dragger tubes indicating less than 5 ppm hydrogen sulfide on the influent gas stream. Compliance with the limit are concentrations of 16.5 ppm H2S or below.

In addition, the permit contains a high-level citation with respect to 40 CFR Subpart HH as applicable to the site. (SC III.1). As previously indicated, the Facility appears to be exempt from the requirements of the referenced Subpart.

SUMMARY

On October 7, 2020, AQD District Staff mobilized to the Muskegon Development Gingell Lake CPF Facility (P0195), located in Chester Township, Otsego County, Michigan to conduct an unscheduled, self-initiated compliance inspection of the facility. The referenced facility presently operates under Permit to Install No. 4-11. A records request was made electronically on September 11, 2020. Records were received on October 28, 2020.

Previous site inspection activities were conducted on March 20, 2017 and October 3, 2019, no compliance issues were identified. Information obtained and reviewed as part of the compliance evaluation indicate that the facility operates in general compliance with their permit.

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