

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

N618961053

<b>FACILITY:</b> MUSKEGON DEVELOPMENT, Lower Chub Lake/Viking Lake		<b>SRN / ID:</b> N6189
<b>LOCATION:</b> T29 N R2W SEC 18		<b>DISTRICT:</b> Gaylord
<b>CITY:</b> CHESTER TWP		<b>COUNTY:</b> OTSEGO
<b>CONTACT:</b> Bennett Myler ,		<b>ACTIVITY DATE:</b> 10/12/2021
<b>STAFF:</b> Sharon LeBlanc	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> SM OPT OUT
<b>SUBJECT:</b> FY 2022 FCE for Lower Chub Lake and Viking Lake Facility. Site inspection as well as records review are summarized under this activity. sgl		
<b>RESOLVED COMPLAINTS:</b>		

On October 12, 2021, AQD District Staff mobilized to the Muskegon Development Lower Chub/Viking Lake Facility (N6189), located in Chester Twp, Otsego County, Michigan to conduct a scheduled compliance inspection of the facility. The referenced facility presently operates under Permit to Install No. 743-96. A records request was made electronically on November 4, 2021. Records were received on December 6, 2021, and the review is incorporated into this report.

Recent inspection for the facility was conducted on April 22, 2014 and October 12, 2017. The facility was reported to be in non-compliance at the time of the April 22, 2014, site inspection based on failure to submit a revised Malfunction Abatement Plan (MAP) reflecting engine changes onsite and reported annual emissions in MAERS above permit limits. No compliance issues were noted with the October 12, 2017, site inspection.

Weather conditions at the time of the site inspection were partly overcast and in the low 60's. Scattered showers had been experienced earlier in the day.

#### FACILITY

The referenced facility consists of two adjacent unmanned CPF stations in a fenced yard and operated by the Muskegon Development Company. The facility is located in Section 18, T29N R2W. The facility historically reported servicing approximately 19 Antrim Formation wells in the area. Activities onsite include separation of gas and brine from the incoming gas stream and compression of the gas in the lines. The northern CPF is the Lower Chubb Lake CPF and the southern is the Viking Lake CPF. At the time of the October 12, 2017, site inspection the two CPFs had been combined, with the Viking Lake acting as a back up. At the time of the inspection, the Viking Lake compressor (which had been reported shut in in early December 2016) and dehy units had been dismantled. Gases that normally would have been routed to Viking Eus are now (post meter) processed by Lower Chub EUs.

To reach the facility Staff traveled south from the intersection of Old State Road and Lower Chub Lake Road approximately 3/4 miles the facility is located to the right (west) and is visible thru the trees.

#### REGULATORY

**Permitting** -The referenced facility operates under Permit to Install (PTI) No. 743-96, which was issued to the Facility in 1996. The PTI was issued as an opt-out permit, but not a Rule 201 permit and was issued around the same time as other Michigan Oil and Gas Association (MOGA) permits

that did not undergo 201 reviews. The PTI conditions were generic and refer to the stationary source as a whole rather than conditions that address individual pieces of equipment.

At the time of permitting the facility consisted of three NG-fired compressors, two “reboiler-glycol” and two glycol dehydration units and was reported to have the potential to emit over 100 tons of NOx. The referenced permit limits the emissions to 89 tons per year for NOx, CO and VOCs.

On May 25, 2007, Muskegon Development submitted a request that manufacturer emission factors be used rather than those provided in Appendix A of the PTI for emissions.

**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);

With regards to the existing engine(s) it appears that based on install dates that EUENGINE01, the Caterpillar 3512 LE TA would not be subject to NSPS Subparts IIII and JJJJ for Compression Ignition (CI) RICE and Spark Ignition (SI) RICE, respectively. District staff requested clarification regarding applicability of RICE NESHAP for both engines. But the requested information was not provided during report preparation.

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 existing glycol dehydrator units. However, the facility reports that it is not subject to the subpart because it’s average throughput is less than 85K cubic meters/day (<3 MMcf/day). 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, 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. 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

## EQUIPMENT

At the time of the October 12, 2021, site visit AQD Staff identified three compressor engines, glycol dehydrators and one brine tank with lined-secondary containment were present onsite. Equipment associated with the sites are housed separately.

Review of District Files and annual emissions reports submitted by the facility indicate the following compressor engine history;

Location	Engine	Install Date	Dismantle Date
Lower Chub	Cat 3512 LE TA (860 HP) (aka LC Engine #1 or EUENG01LC) SN 7NJ00734	10/1/1999	NA
	Cat 3406 TA Rich burn (aka LC Engine #2 or EUENG02LC) SN 4FD03255	11/1/2008	NA
	Cat 398 TA V12	In place in 2006 per report, but no longer present per most recent MAP or in MAERS for calendar year 2016	
Viking Lake	Cat 398 TA with catalyst	8/1/1991	6/30/2011
	Cat 3406 TA with Catalyst (EUENG03VIK)	7/1/2011	Shut-in mid-December 2016, Dismantled 2/23/2018
unknown	Cat G3516 LCTA	Identified in 2010 MAP, but not in most recent MAP revision or in MAERS for calendar year 2016	

It should be noted that based on installation dates in MAERS, that the Malfunction Abatement Plan (MAP) for the compressor engines presently on file at the District Office (Revised February 18, 2010) needed to be updated to reflect the compressor engines existing onsite. The facility was notified electronically of the need for an update/revision electronically October 17, 2017. The revised document was received on November 2, 2017, reviewed on November 9, 2017, and an approval letter issued for the referenced document.

Per MAERs the existing glycol dehydrators (two) were installed in 1989 and 1991 for Lower Chubb and Viking Lake CPF, respectively. The EU for Viking Lake per the MAERs submittal for the 2019 calendar year indicates that it was dismantled on June 20, 2019. Previous site investigations indicated that neither unit appeared to have a condenser associated with it. Dehy throughput was reported to be less than 3.0 mmcf/d for the 2020 calendar year and the 2021 calendar year to date (through September 2021).

## COMPLIANCE

At the time of the October 12, 2021, site visit, no visible emissions were noted to be coming from onsite stacks, nor were there any liquids above those that had collected as a result of the most recent rains in the secondary containment area for the brine tank.

MAERs- Reporting of actual emissions for CO, NO<sub>x</sub>, VOCs and HAPs is required under special condition 18 of the permit. A review of the most recent MAERs submittal for the facility (received on March 9, 2021 for emissions associated with the calendar year 2020) included emissions for two engines and one glycol dehydrator onsite.

Except for NO<sub>x</sub> and CO emissions for the two engines, the annually reported emissions for the facility were calculated using MAERs emission factors.

Permit Conditions -Special conditions associated with Permit No. 743-96 are limited to record keeping, reporting and emission limits. Emission limits for the facility are defined in special conditions 13 and 14. These two conditions limit CO, VOC and NO<sub>x</sub> emissions to 89 tons/year for each referenced parameter as well as individual HAPs to below 9 tons/year and total HAPs to below 22.5 tons/year. It should be noted that "annual" limits are based on 12-month-rolling time periods.

Reporting Period	NOX (tpy)	CO (tpy)	VOC (tpy)	Single HAPS (tpy)**
2019	50.56	11.77	2.48	1.14
2020	46.56	10.90	2.29	1.06
12-month Rolling as of September 30, 2021	43.41	10.17	1.33	0*
Limit	89	89	89	9

\*Appendix A HAP emission factors indicate "nil" for Antrim wells.

\*\* AQD Calculated for Formaldehyde, source MAERs

The 2014 FCE reports indicates that the facility was notified of the emissions discrepancy. However, no resolution of the issue could be found within the permit files. Further evaluation of emissions data as part of this 2022 FCE failed to identify a discrepancy.

Calculation of actual emissions on a monthly and 12-month rolling total for CO, NO<sub>x</sub>, VOC and HAPS are required under special condition 15. The PTI specifies that emissions will be determined using emission factors from Appendix A. In correspondence dated May 25, 2007, Muskegon Development requested permission to use manufacturer's engine specific emission factors. EFs from Appendix A to be used for compliance purposes were limited to emissions from the glycol dehydrators. A review of the EFs from Appendix A, and those used by the company for MAERS purposes indicate that for the compliance submittal the EFs used were from Appendix A in compliance with the permit condition. For MAERS purposes, the company uses the MAERS EFs for the glycol dehydrators.

Emissions reported for the 2019 and 2020 calendar years as well as for the 12-month rolling total documented for September 2021, are in compliance with the permit conditions.

Special condition No. 16, 17 require Monthly records of:

- Fuel consumption, in million cubic feet (MMcf)
- Crude/condensate throughput to the tank in barrels (bbls)
- Hydrocarbon liquid trucked offsite (bbls), and
- Oil and gas processed onsite

Upon request the company provided copies of monthly records of fuel consumption and gas production for both the Lower Chub Lake and Viking Lake CPFs for the period of January 2020 thru September 2021 and are summarized below. It should be noted that no hydrocarbon liquids are trucked offsite, nor is any oil processed onsite. Incoming gas being processed is metered independently from either the field associated with the lower chub, or from Viking Lake. All incoming gas is processed by equipment associated with the lower chub.

Location/Date	Gas Processed (MCF/Month)	Total Gas Processed (MCF)*	Fuel Consumption (MMCF)
Lower Chub/2020	19130 - 22500	250285	34.239
Lower Chub/2021*	18914 – 21347	183949	31.893
Viking/2020	6287 – 8202	84777	12.942
Viking 2021*	5678 - 7721	65666	12.055
Facility/2020	--	335062	57.78
Facility/2021	--	249615	54.03

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**\*Totals for 2021 were reported for the period of January 1 through September 30, 2021.**

**Special condition 19 requires the owner or operator of the source to conduct all necessary maintenance and make all necessary attempt to keep all components of the process equipment in proper working order and maintain a log of significant maintenance activities and all repairs made to the equipment. A review of records provided by the Facility indicated that maintenance was contracted to Natural Gas Compression Systems, and that activities required to keep all components of the process equipment working have been conducted in compliance with the permit condition.**

**Special condition 20 applies to crude oil or condensate storage tanks greater than or equal to 952 barrels, and the liquid having a true vapor pressure of greater than 1.5 psia. This condition is not applicable as the facility does not store crude or condensate onsite.**

**Special condition 21 applies to malfunction of a pollution control device and limits bypass of the control device for a period not to exceed 48 hours per event nor a total of 144 hours per calendar year. Prior to installation of the caterpillar 3406 TA engine (Viking Lake) in July 2011 and since decommissioned, there was no control device associated with the facility.**

**Special condition 22 requires the owner or operator of an oil-gas facility constructed on or after January 20, 1984 to determine if they are subject to Federal standards in 40 CFR, Part 60, Subpart KKK. No hydrocarbon liquids are reported to be produced at the facility, so the facility is reported not to be subject to the referenced Subpart.**

**Special condition 23 refers to requirements associated with verification stack testing for CO, VOC, NOx or HAP. No request for verification testing was found in District Files, so the condition in not applicable at the time of the report preparation.**

**Special condition 24 requires the facility to only process sweet gas as defined in Rule 119 (less than 1 grain of hydrogen sulfide per 100 scf). Information provided by the facility on November 22, 2017, indicated that stain tubes collected in November 29, 2021, reported <10 ppm H<sub>2</sub>S (equivalent to 0.61 grain H<sub>2</sub>S/100 scf). Based on the information provided it appears that the facility is in compliance with the permit condition.**

## **SUMMARY**

**On October 12, 2021, AQD District Staff mobilized to the Muskegon Development Lower Chub/Viking Lake Facility (N6189), located in Chester Twp, Otsego County, Michigan to conduct a scheduled compliance inspection of the facility. The referenced facility presently operates under Permit to Install No. 743-96. A records request was made electronically on November 4, 2021. Records were received on December 6, 2021, and the review is incorporated into this report.**

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**Based on observations made at the time of the site inspection, as well as information provided and reviewed for the facility it would appear that the facility is operating in general compliance with their permit.**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

SUPERVISOR \_\_\_\_\_