DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY DIVISION

FCE Summary Report

Facility :	Linn Operating, LLC - Mid Charlton CPF	**SRN :**	N6153
Location :	SE4 SE4 NE4 SEC 26, T30N-R1W M-32	**District :**	Gaylord
		County :	OTSEGO
City :	CHARLTON TWP **State:** MI **Zip Code :** 49751	**Compliance Status :**	Compliance
Source Class :	SM OPT OUT	**Staff :**	Sharon LeBlanc
FCE Begin Date :	10/24/2016	**FCE Completion Date :**	11/30/2017
Comments :	Fiscal year 2018, unscheduled site inspection of Linn Operating LLC Facilty.		

List of Partial Compliance Evaluations :

Activity Date	Activity Type	Compliance Status	Comments
11/01/2017	Scheduled Inspection	Compliance	Scheduled site inspection for the 2018 fiscal year.
02/07/2017	MAERS	Compliance	2016 MAERS, Check MAERS for any review comments
02/02/2017	MAERS	Compliance	2016 MAERS, See MAERS for any review comments
11/22/2016	Relocation Notification	Compliance	Engine Swap - Waukesha F18GL 400 HP added to the existing compressor of Ajax 800LE. Claims exempt from PTI under R336.1285(g), small engine, and emissions below significance levels.

Name: Sharon LeBlanc **Date:** 11/30/2017 **Supervisor:** SN

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

N615342483

FACILITY: Linn Operating, LLC - Mid Charlton CPF		**SRN / ID:** N6153
LOCATION: SE4 SE4 NE4 SEC 26, T30N-R1W, CHARLTON TWP		**DISTRICT:** Gaylord
CITY: CHARLTON TWP		**COUNTY:** OTSEGO
CONTACT: Diane Lundin , Senior EHS Representative		**ACTIVITY DATE:** 11/01/2017
STAFF: Sharon LeBlanc	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled site inspection for the 2018 fiscal year.		
RESOLVED COMPLAINTS:		

On Tuesday, November 1, 2017, AQD District Staff mobilized to the Linn Operating LLC (AKA Linn) – Mid Charlton CPF (N6153), located in the SE1/4, SE1/4, NE ¼, Section 26, T30N, R1W, Charlton Township, Otsego County, Michigan to conduct a scheduled compliance inspection of the facility. The referenced facility presently operates under Permit to Install No. 712-96.

The most recent site inspection activities were conducted on July 16, 2013. No compliance issues were identified at that time.

A records request was made electronically on November 2, 2017. Linn representatives provided the requested records on November 10, 2017.

FACILITY

The referenced facility is a gated, un-fenced and unmanned CPF station operated by the Linn Operating LLC (AKA Linn). The referenced facility as historically been operated by Dominion Midwest Energy (effective 1997), High Mount Midwest Energy LLC. The station is reported to service 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 Facility is located at the end of a private drive south of M-32 and southwest of Swede Lake. To reach the facility, District Staff traveled approximately ¾ of a mile east of the intersection of M-32 and Dagon Road. There is a gate and a sign at the entrance of the drive, and the drive runs a short distance along M-32 before turning to the south one-half mile to the Facility located at the end of the drive.

REGULATORY

Permitting -The referenced facility operates under Permit to Install (PTI) No. 712-96, which was issued in 1996 to the Facility which was operated by Wolverine Environmental Production, Inc. 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 one Ajax Natural Gas (NG) fired compressor and one glycol dehydration unit with reboiler 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 November 14, 2016, AQD District Staff was notified that a Waukesha F18GL 400 horsepower compressor was installed at the Mid-Charlton Facility and started up on November 10, 2016. The correspondence indicated that the referenced engine was considered exempt from permitting under Rule 285(g), as the unit has less than 10 million BTU/hr heat input. The document also indicated that the engine was not excluded from exemption under Rule 278, as the emissions associated with the unit were below significance levels.

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 compliance with these subparts has not been determined as part of this inspection.

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);

In addition, one or more of the existing engine(s) have installation dates which may make them subject to NSPS Subparts IIII and JJJJ for Compression Ignition (CI) RICE and Spark Ignition (SI) RICE, respectively.

Subpart OOOO would apply to onshore affected facilities that are constructed, modified or reconstructed after August 23, 2011. According to the operator (LINN), the facility is subject to Quad O as an "affected facility" due to the installation of the booster compressor (fugitive emission source, increase in horsepower at a compressor station). This installation occurred after the effective date.

With respect to 40 CFR Part 63 (Maximum Achievable Control Technology Standards) the following Subparts may apply:

- Subpart HH (HAPS from Oil and NG Production Facilities)
- Subpart ZZZZ (RICE)

With respect to Subpart HH, the affected unit is believed to be the dehy unit. However, the facility may comply with the standard by demonstrating an average throughput is less than 85K cubic meters/day (or 3 MMscf/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, District files contain a copy of an October 18, 2013, renotification submitted by Linn to EPA Region V. The referenced document identifies the facility as an area source of Hazardous Air Pollutants (HAPs), and the Ajax engine onsite was reported to be remote not subject to initial subpart ZZZZ testing. Supplemental information provided by Linn representatives indicated that all of the engines are subject to the subpart. AQD has not been delegated authority for the referenced subpart.

EQUIPMENT

At the time of the November 1, 2017, site visit AQD Staff identified two compressors, one glycol dehydrator with reboiler, one brine tank and one brine tank with lined-secondary containment were present onsite. Each of the referenced pieces of equipment are housed separately. No visible emissions were noted onsite, though a heat shimmer was present

A review of District Files and MAERs records indicates the following equipment having been associated with the facility.

EQUIPMENT	DESCRIPTION	INSTALL DATE	DISMANTLE DATE	OTHER
Engine	Ajax 800LE no catalyst modified in July 2002	7/1/2006	NA	Engine sounds very loud
Booster Engine	Waukesha F18GL 400 HP	11/11/16	NA	Engine label has September 1999 date.
Dehydrator (AKA dehy)	TEG Kimray 40/15 pump	6/23/1989	NA	

Operational parameters for the above referenced engines include the following:

EUCOMP#2, Ajax 800LE , installed 7/1/2006

Date	Engine	RPMS	Source
11/1/2017	Ajax	329	Inspector/Onsite Daily Log
3/2/2017	Ajax	342	Operator Field Sheets
7/11/2017	Ajax	343	Operator Field Sheets
9/1/2017	Ajax	340	Operator Field Sheets

Booster Engine, Waukesha F18GL 400 HP, installed 11/11/16

Date	Engine	RPMS	Source
11/1/2017	Waukesha	1426	Inspector/Onsite Daily Log
3/2/2017	Waukesha	1485	Operator Field Sheets
7/11/2017	Waukesha	1419	Operator Field Sheets
9/1/2017	Waukesha	1418	Operator Field Sheets

The brine generated appears to be disposed of in one disposal well located to the east of the tanks. Chemical storage tanks were noted at several locations, but all appeared to be tidy, labeled and properly maintained.

A skid mounted engine was also noted at the far west end of the facility. The unit was reported present in the July 16, 2013, site report, at that time it was reported to be operating, but the inspector indicated that there did not appear to be a compliance issue due to its small size, which would exempt it from permitting. Available aerials appear to indicate that the skid mounted engine or other structure has been located at that location onsite as far back as 2005. It was not present in Google Earth aerials for 1998. In response to District Staff inquiry, Linn has indicated that the compressor is "Unit 120" and represents a supplemental compressor that was taken off-line when the Waukesha booster engine was installed onsite.

COMPLIANCE

At the time of the October 12, 2017, site visit, no visible emissions were noted to be coming from onsite stacks, nor were any odors noted. Liquids had collected in the secondary containment of the brine and slop tanks, some of which would have been the result of recent melted snows, which had also resulted in standing water at points on site and in the drive.

MAERS- Reporting of actual emissions for CO, NOx, 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 February 7, 2017 for emissions associated with the calendar year 2016) 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 2016 included CO and NOx of emissions of 10.25 and 5.38 tons, respectively. VOC emissions for the facility were reported to be 1.29 tons/year. Emission Limits for the three referenced parameters are 89 tons/year each.

Permit Conditions -Special conditions associated with Permit No. 745-96 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 NOx 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.

Calculation of actual emissions on a monthly and 12-month rolling total for CO, NOx, VOC and HAPS are required under special condition 15. The PTI specifies that emissions will be determined using emission factors from Appendix A. With the exception of NOx, CO and VOCs annual emissions are estimated using EPA emission factors from AP-42. NOx and CO annual emissions are determined using manufacturer data.

DATE	NOX (tpy)	CO (tpy)	VOC (tpy)	HAPs (tpy)
2014 (MAERS)	34.83	5.36	5.89	1.34 *
2015 (MAERS)	34.49	5.35	5.89	1.34 *
2016 (MAERS)	35.32	5.73	5.96	<1.5 *
September 2017	39.33	8.02	6.48	--
LIMIT	89	89	89	9

*Reflects AQD calculated formaldehyde emissions

Special condition No. 16 and/or 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 district request and in compliance with permit requirements Linn provided the applicable requested records. As previously noted the facility does not produce or process liquid hydrocarbons onsite. Fuel consumption and other equipment operational data provided in response to the request indicated consistent operation of the equipment overtime, and with operational data recorded during the November 1, 2017, site visit.

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. Per request, the Linn provided copies of maintenance reports for the NG compressors and associated engines conducted by Natural Gas Compression Systems and ARCHROCK Partners Operating, LLC. The two companies provided contracted engine maintenance services.

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. The facility does not have pollution control devices associated with onsite equipment.

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. Linn provided copes of hydrogen sulfide analysis dated September 30, 2011. The data reported that the hydrogen sulfide contents of the sample from the dehy inlet was below the 1 ppm detection limit. A more recent analysis was been requested of the facility, and on November 30, 2017, Linn staff reported that draeger tube samples indicated non-detect concentrations of H2S in the incoming gas stream.

During discussions regarding sampling, Linn staff indicated that the company has a program for annual sampling at the individual wells, but not at the CPFs. This program helps the company monitor and identify H2S in the gas stream. Linn has indicated that they will be evaluating the program to better address permit requirements.

SUMMARY

On Tuesday, November 1, 2017, AQD District Staff mobilized to the Linn– Mid Charlton CPF (N6158), located in the SE1/4, SE1/4, NE ¼, Section 26, T30N, R1W, Charlton Township, Otsego County, Michigan

to conduct a scheduled compliance inspection of the facility. The referenced facility presently operates under Permit to Install No. 712-96. The most recent site inspection activities were conducted on July 16, 2013.

A records request was made electronically on November 2, 2017. Records were provided electronically by Linn on November 10, 2017. Based on the information reviewed, and observations made the facility appears to be in general compliance with their permit.

NAME Shawn O'Blenc DATE 11/30/2017 SUPERVISOR SN