

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

FCE Summary Report

Facility : LINN Operating, Inc.	SRN : P0777
Location : SW SE SE 1/4 SEC 2, T30N, R6E	District : Gaylord
	County : ALPENA
City : WILSON TWP State: MI Zip Code : 49744	Compliance Status : Compliance
Source Class : SM OPT OUT	Staff : Sharon LeBlanc
FCE Begin Date : 1/1/2017	FCE Completion Date : 2/26/2018
Comments : scheduled inspection for 2018 fiscal year. Permitted in 2017, no previous MAERS or other reporting history.	

List of Partial Compliance Evaluations :

Activity Date	Activity Type	Compliance Status	Comments
01/16/2018	Scheduled Inspection	Compliance	Scheduled site inspection of synthetic minor facility permitted in 2017 fiscal year. Note physical address is 11166 Bussie Road, Herron, Michigan.
10/16/2017	Malfunction Abatement Plan	Compliance	Malfunction Abatement Plan (MAP) was submitted for referenced facility in compliance with PTI 195-16A, which is required for EUENGINE under condition III.1. Approval letter will be issued the week of 10/16/2017.

Name: Sharon LeBlanc Date: 2/27/2018 Supervisor: SN

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

P077743057

FACILITY: LINN Operating, Inc.		SRN / ID: P0777
LOCATION: SW SE SE 1/4 SEC 2, T30N, R6E, WILSON TWP		DISTRICT: Gaylord
CITY: WILSON TWP		COUNTY: ALPENA
CONTACT: Diane Lundin , EHS Advisor		ACTIVITY DATE: 01/16/2018
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled site inspection of synthetic minor facility permitted in 2017 fiscal year. Note physical address is 11166 Bussie Road, Herron, Michigan.		
RESOLVED COMPLAINTS:		

On Tuesday, January 16, 2018, AQD District Staff mobilized to the Linn Operating LLC – Black Bean Booster (P0777) located in SW ¼, SE ¼, SE ¼ of Section 2, T30N, R6E of Southeast Wilson Township, Alpena County, Herron, Michigan to conduct a scheduled, compliance inspection of the facility. The referenced facility presently operates under Permit to Install No. 195-16A, which was approved on August 31, 2017.

No previous site inspections are of record for this facility. A records request was made electronically on January 18, 2018. Records were received on February 26, 2018.

FACILITY

The referenced facility is a fenced and unmanned CPF station operated by Linn Operating LLC (AKA Linn) and is in the SW ¼, SE ¼, SE ¼ of Section 2, T30N, R6E of Southeast Wilson Township, Alpena County, Herron, Michigan. The sign at the gate identified the site as Linn Operating LLC, Black Bean #1 Booster Station, 11166 Bussie Road, Herron, Michigan. Activities onsite include compression of the incoming Antrim and Niagaran gas streams for transport via production lines to the Thunderbay North Central Processing Facility.

The compressor engine, is the primary emission source onsite. At the time of permitting a Cat 3408 TALE was operating onsite and was reported by Linn to be exempt from permitting as it was less than 10 million BTU/hr, and emissions were below significance levels and was reported to be part of the “Samson acquisition in 2010”. The permitted replacement engine is a Cat 3408 NA (EUENGINE).

A review of the permit application did not identify a glycol dehydrator or other emission source onsite.

A review of historical aerials using Google Earth indicated that the facility with respect to the present buildings and tanks was in place as far back as August 2005.

To reach the facility AQD Staff traveled approximately 13 miles east from Fairview, Michigan on M-72 to the intersection of M-65 and M-72 (Curran, Michigan). From there Staff traveled north on M-65 approximately 20 miles to Werth Road. Upon making a right-hand turn (east) onto Werth Road Staff traveled approximately 5 miles to Herron Road. From Werth Road, a left-hand turn (north) was made onto Herron Road and Staff traveled approximately 2.5 miles to Bussie Road. At Bussie Rd, a turn left (west) was made and travel approximately 1.25 miles to the booster station entrance on the right (north). There is a sign and gate at the entrance (11166 Bussier Rd). The gate was locked at the time of the site visit.

Weather conditions at the time of the inspection consisted of heavily overcast skies and temperatures in the low teen’s. Little to no winds were noted at the time of the inspection. A connected steam plume with no trail off was noted at the time of the inspection, as was a heat shimmer coming from a large opening in the roof above the compressor radiator.

REGULATORY

Permitting -The referenced facility operates under Permit to Install (PTI) No. 195-16A, issued on August 31, 2017. Linn permitted replacement of an existing booster engine (3408 TA LE) with a Cat 3408 NA Reciprocating Internal Combustion Engine (RICE) under PTI 195-16 (approved on March 31, 2017). Linn filed an application for a permit modification on June 20, 2017, to request a change in a permit condition

that required verification testing. The requested change was approved under 195-16A. Based on internal memo, the company agreed to installing a catalyst as pollution control rather than conduct verification stack testing to confirm emissions for EUENGINE.

Based on permit condition VII.1 which limits replacement under the existing permit of the existing engine with an equivalent or lower-emitting unit, the facility is considered a synthetic minor.

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, the Cat 3408 NA engine permitted for the site was verified at the time of permitting to have a manufacture date of 1996, before the 2006 applicability date, which would make it not subject to NSPS (40 CFR Part 60) Subparts JJJJ for Spark Ignition (SI) RICE.

40 CFR Part 60, Subpart OOOO would apply to onshore affected facilities that are constructed, modified or reconstructed after August 23, 2011. Google Earth images identify a compressor onsite as early as August 2005. Based on available information (permit application) the facility is not subject to OOOO or OOOOa, as overall horsepower at the site was reduced from 425 HP to 225 HP.

The facility in it's permit application indicated that the site was not subject to 40 CFR Part 61 Subpart V, National Emission Standards for Equipment Leaks (Fugitive Emissions).

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, no affected units are identified onsite, and therefore is not subject to the subpart.

With respect to Subpart ZZZZ, the facility was determined at the time of permitting to be an area source of HAPs, and in their permit application indicated that they would be subject to Subpart ZZZZ maintenance plan requirements for engines less than or equal to 500 HP. AQD at the time of report preparation does not have delegation for the referenced subpart, only a high-level citation was included in Permit 195-16A.

EQUIPMENT

At the time of the January 16, 2018, site visit AQD Staff identified one compressor engine onsite. The compressor is housed in the main building onsite, with a smaller building used to house material safety sheets, immediately to the south of the compressor building. The building floor was gravel, but no signs of spillage were noted.

PTI 195-16A identifies one RICE onsite, EUENGINE is described as one Natural Gas (NG)-fired reciprocating engine with a catalyst/pollution control device associated with the engine. Engine maintenance activities appear to be contracted to Archrock. An Archrock field records form was found on a clipboard onsite next to the compressor. The last Archrock visit was documented to have been January 12, 2018.

ENGINE	INFO	INSTALL DATE	REMOVAL DATE	COMMENT
CAT 3408 TALE	425 Hp	pre 2010	1/31/2017	

				Replaced by EUENGINE (manufacture date of 1997)
CAT 3408 NA (AKA EUENGINE)	255 HP SN	1/31/2017 catalyst installed 9/1/2017	NA	Permitted Engine (PTI 195-16A) (S/N 6NB01413)

A review of the onsite log sheet onsite indicated that visits in January had not been conducted daily. The existing log sheet was for the Month of January 2018, and documented what appears to be alternating daily visits to the site. The last site visit by Linn Staff was documented to have been January 14, 2018. Engine RPMS were consistent with the 1780-1781 RPMS noted by AQD Staff. No visible leaks, or unusual noises were noted at the time of the site visit that would indicate operational issues. The field log sheet has also been updated to include the catalyst operating data.

Discussions with Linn Staff indicated that Linn field staff were visiting the site daily but had not been documenting operational data at each visit. Daily documentation of operational data has since been implemented per the Facility's PM/MAP.

Additional Archrock maintenance sheets provided by the Facility included scheduled compressor maintenance activities for the period of February 23, 2017 through January 02, 2018. The referenced documentation included oil and filter changes as well as spark plug and belt inspections. The referenced activities appear to be consistent with the PM/MAP and Quad ZZZZ requirements as identified by the facility.

January 2, 2018, Archrock field logs reported that emissions testing was conducted for the catalyst and reported 97% NOx reduction in emissions and 88% CO reduction in emissions. Both of which are above the 90% NOx and 80% CO emission reductions indicated in the 195-16A permit application.

COMPLIANCE

PTI 195-16A in addition to general conditions, is limited to special conditions associated with the permitted Cat 3408 NA, with catalyst (EUENGINE). No complaints are of record for the facility. At the time of the December 18, 2017, site visit, no visible emissions were noted to be coming from the onsite stack.

MAERS- Reporting of actual emissions is required under general condition of the permit. Prior to the 2018 submittal for the 2017 calendar year, the facility is not of record as having been previously required to report annual emissions.

Permit Conditions - Upon arrival, District Staff noted that no visible emissions were coming from any of the operating engine onsite, General Condition 11, limits VEs to a 6-minute average of 20 percent opacity. Based on the lack of visible emissions noted at the time of the site visit, the facility appears to be in general compliance with the permit condition.

Emission limits associated with EUENGINE include 12-month rolling total emissions for CO (7 tpy) and NOx (45.9 tpy) are summarized as Special Condition (SC) EUENGINE I.1 and I.2, respectively.

Condition VI.5 requires the permittee to keep monthly and 12-month rolling CO and NOx emission calculations for EUENGINE as required by special conditions I.1 and I.2 and Appendix A. The required records are to be calculated by the last day of the calendar month, for the previous calendar month (SC VI.1) and kept on file at a location approved by the AQD Supervisor and made available to the Department upon request (SC VI.5 and VI.6). Records may be requested from the Linn Environmental Health and Safety Contact presently located in Traverse City, Michigan. A review of records provided at the request of District Staff indicated that emissions for EUENGINE have been in compliance with permit conditions. NOx and CO emissions reported by the facility for the referenced unit are presented below:

	NOx (tpy)	CO (tpy)	Data Source
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DATE (end of 12-month rolling time period)			
January 2018	26.63	4.37	Records provided by Facility
December 2017	28.63	3.97	Records provided by Facility
Limit (tpy)	45.9	7	

Note: total emissions are for EUENGINE, and reflect both with and without catalyst, though emission limits presented are with catalyst. A full 12-month reporting period has not yet been achieved without catalyst. 12-months of operation for the RICE has just been achieved for operation with and without catalyst.

EUENGINE condition III.1 requires submittal of a Preventative Maintenance/Malfunction Abatement Plan (PM/MAP) for the facility within 60 days of permit issuance. Linn staff submitted the required document dated October 5, 2017 within the 60-day requirement (received on October 11, 2017). The referenced document was approved by District Staff October 17, 2017.

Condition III.2 limits the operation of any engine equipped with an add-on control device outside of the operating conditions outlined in the PMMAP to 200 hours (12-month rolling total). Total hours of operation outside the PMMAP operational ranges are required to be determined both monthly and as a 12-month rolling total (SC III.2 and VI.4). Records provided from Linn for the period of September 1, 2017 (Installation) to January 29, 2018, indicated that the engine has not operated without a catalyst.

Condition IV.2 requires the installation, calibration, maintenance and operation of a device to monitor the NG usage for EUENGINE on a continuous basis. Condition VI.2 requires that the facility monitors and record in a satisfactory manner, the NG usage for EUENGINE on a continuous basis. Meters are used by the facility to continuously monitor fuel usage, and the data is reported daily on field operator log sheets, in compliance with permit conditions. Monthly fuel gas usage for the period of September 1 through December 31, 2017 ranged from 1.9 MMcf/month to 7.0 MMcf/month. The referenced data is used to calculate emissions for the referenced EU per Appendix A (SC VI.5).

DATE	Catalyst Temp (In)	CATALYST TEMP (Out)	DIFFERENTIAL PRESSURE (Inch H2O)	AFRC
1/16/2018	1107	1154	0.5	0.72 – 0.74
12/8/2017	1085	1174	1	NR
10/5/2017	1078	1150	0.5	NR
PMMAP RANGE	>750	<1250	+/- 2	NA

Condition VI.3 requires the permittee to maintain a record of all maintenance activities conducted according to the PM/MAP, and specifies that all records shall be on file at an approved location and made available to the Department upon request. As previously noted copies of service reports for EUENGINE1 by Archrock were provided upon request. Records may be requested from the Linn Environmental Health and Safety Contact presently located in Traverse City, Michigan. Records provided indicate general compliance with the permit condition.

Condition V.1 requires upon request of the AQD District Supervisor that the permittee verify NOx and CO emission factors used to calculate emissions for EUENGINE by testing at the owner’s expense. No request has been made to date and the condition is considered not applicable at this time.

Condition VII.1 allows for replacement of the existing engine with an equivalent-emitting or lower-emitting engine, with submittal of notification of the change-out and data verifying emissions within 30-days of the change out. At the time of report preparation no change out of the permitted engine is of record.

Condition VIII.1 requires a minimum stack height of 40 feet above land surface, and a maximum stack diameter of 6-inches. The existing stack associated with EUENGINE is approximately twice the building height, and appears to meet the permit conditions.

Condition IX.1 requires the permittee to comply with the provisions of 40 CFR Part 63, Subpart A and Subpart ZZZZ (RICE MACT) as they apply to EUENGINE. As part of the records submitted, Linn provided copies of Archrock maintenance outlining engine service activities as required under the referenced subpart. Records appear to indicate compliance with respect to required maintenance activities under the subpart.

SUMMARY

On Tuesday, January 16, 2018, AQD District Staff mobilized to the Linn Operating LLC – Black Bean Booster (P0777) located in SW ¼, SE ¼, SE ¼ of Section 2, T30N, R6E of Southeast Wilson Township, Alpena County, Herron, Michigan to conduct a scheduled, compliance inspection of the facility. The referenced facility presently operates under Permit to Install No. 195-16A, which was approved on August 31, 2017.

No previous site inspections are of record for this facility. A records request was made electronically on January 18, 2018. Records were received on February 26, 2018. No compliance issues were noted with respect to the facility.

NAME Shannon U. Blanc DATE 2/27/2018 SUPERVISOR SA