

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

N757530170

FACILITY: LINN Operating INC - Maple Forest 1-3 CPF		SRN / ID: N7575
LOCATION: SW NE NW OF S3 T28N R3W, MAPLE FOREST		DISTRICT: Cadillac
CITY: MAPLE FOREST		COUNTY: CRAWFORD
CONTACT: Diane Lundin , Senior EHS Representative		ACTIVITY DATE: 06/25/2015
STAFF: Caryn Owens	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection and Records Review		
RESOLVED COMPLAINTS:		

On Thursday, June 25, 2015, Caryn Owens of the DEQ-AQD and Bill Duley of the DEQ-OOGM conducted a scheduled on-site inspection of Linn Energy (Linn) – State Maple Forest CPF (N7575) located in the southwest quarter of the of the northeast quarter of the northwest quarter of Section 3, Township 28 North, Range 3 West in Maple Forest Township, Crawford County, Michigan. More specifically, the site is located on the east side of North Sherman Road, ¼ mile south of the North Sherman Road and West Krause Road intersection. The purpose of this inspection was to determine the facility's compliance with permit to install (PTI) 352-08. Linn has opted out of major source applicability by limiting operational and/or production limits potential to emit (PTE) to be below major source thresholds. DEQ was unaccompanied during the field inspection, an inspection brochure was not given to anyone at this facility, but a brochure will be emailed to the company with this inspection report. The site is an area source for National Emission Standards for Hazardous Air Pollutants (NESHAP) from Oil and Natural Gas Production facilities (40 CFR, Part 63, Subpart HH), and NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR, Part 63, Subpart ZZZZ). The State of Michigan does not have delegated authority of the area source NESHAPs, and thus these areas were not reviewed by the DEQ at this time.

During the field inspection, the weather conditions were cloudy, with winds from the northeast, approximately 5 miles per hour, and 70 degrees Fahrenheit. The site consisted of one main compressor building, and a 400 barrel (bbl) tank and a 300 bbl tank which were located east of the compressor building. A large, horizontal separator vessel was located just east of the main compressor building. Inside the main compressor building, the equipment consisted of: two compressors; separator equipment; and a glycol dehydrator system. The glycol dehydrator was in southeastern portion of the compressor building, and was used to dry the field gas prior to transporting it to the sales line. DEQ observed a heat shimmer from the glycol dehydrator reboiler. No visible emissions were observed from the glycol dehydrator system.

Inside the compressor building, the northernmost engine was a 1085 horsepower (hp) Caterpillar 3516LE lean burn engine, identified on the logs at the facility as Unit CM3032 #1, and identified below as EUENGINE1. The engine was operating at 1040 revolutions per minute (RPM), 192 degrees Fahrenheit, and 55 pounds per square inch (psi), and was uncontrolled. The stack on the compressor engine was at least 25 feet above ground surface, no visible emissions were observed from the northern compressor engine stack.

The southernmost engine was a 1085 hp Caterpillar 3516LE lean burn engine, identified on the logs as Unit CM-3041 #2, and identified below as EUENGINE2. The engine was operating at 1057 RPM, 192 degrees Fahrenheit, and 62 psi, and no control. The stack on the compressor engine was at least 25 feet above ground surface, no visible emissions were observed from the southern compressor engine stack.

### Records Reviewed

**EUDEHY:** EUDEHY underlying applicable requirements are based off 40 CFR, Part 63, Subpart HH requirements. The site is an area source and the State of Michigan has not been given delegated authority of 40 CFR, Part 63, Subpart HH for area sources. Therefore, a compliance analysis of EUDEHY was not conducted at this time.

**FGENGINES:** Two 1085 hp Caterpillar 3516LE natural gas fired reciprocating internal combustion engines with no emission control.

**Emission Limits:** EUENGINE1 and EUENGINE2 are each limited to 23.11 tons of NOx per 12-month rolling time period and 20.9 tons of CO per 12-month rolling time period. Based on the records reviewed from May 2014 through May 2015, the highest emissions for EUENGINE1 were 15.14 tons of NOx per

12-month rolling time period 13.62 tons of CO per 12-month rolling time period.

The records for EUENGINE2 show the highest emissions for NOx were 14.79 tons per 12-month rolling time period, and 13.31 tons of CO per 12-month rolling time period. Based on the records reviewed, EUENGINE1 and EUENGINE2 are within the permitted emission limits.

- **Materials/Fuels:** No material limits were applicable for FGENGINES.
- **Process/Operational Parameters:** The facility submitted a Malfunction Abatement Plan (MAP) on January 30, 2009 and was approved by the DEQ on May 7, 2010. Based on review of the MAP and maintenance records, the engines were inspected daily. The engines were shut down while performing general maintenance such as: replacing filters, valves, spark plugs, oxygen sensors, and/or repair leaks. The records did not show maintenance concerns with the engines, and Linn appears to be following the MAP for the facility.
- **Testing Sampling Equipment:** The facility used engine specific emission factors to calculate the emissions for NOx and CO. Performance testing has not been completed at this facility.
- **Monitoring/Recordkeeping:** The facility monitors the natural gas usage for FGENGINES on a continuous basis and records the monthly fuel use for each engine at the facility. The facility records monthly and 12-month rolling time period calculations for NOx and CO. The 12-month rolling time period emissions are discussed above under emission limits. The natural gas usage, and monthly and 12-month rolling time period emissions records are attached.
- **Reporting:** The facility has not swapped out an engine at the facility since the PTI was issued.
- **Stack/Vent Restrictions:** Based on visible observations during the field inspection, the stacks of FGENGINES appeared to be in compliance with permitted limits of 22 feet and 25 feet above ground surface, respectively.

**FGFACILITY:** Conditions that include all source-wide activities at the facility.

- **Emission Limits:** No emission limits were applicable for FGFACILITY.
- **Materials/Fuels:** According to Linn, no sour gas is burned at the facility.
- **Process/Operational Parameters:** As previously stated, the facility is subject to NESHAP 40 CFR, Part 63, Subpart HH. This NESHAP was not addressed during the field inspection or records review.
- **Testing Sampling Equipment:** DEQ did not require the facility to verify the H2S or sulfur content of the natural gas at this time.
- **Monitoring/Recordkeeping:** Linn completes all required calculations applicable for the facility. The recordkeeping was acceptable to the DEQ.
- **Reporting, Stack/Vent Restrictions, Other Requirements:** No Reporting, Stack/Vent Restrictions, Other Requirements were applicable for FGFACILITY.

**Evaluation Summary:** Based on the field inspection and records review, the facility is in compliance with PTI 352-08, and no further actions are necessary at this time.

NAME Camp Owens

DATE 6/25/15

SUPERVISOR 