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

N334152918

FACILITY: DTE Gas Company - Kalkaska Compressor Station		**SRN / ID:** N3341
LOCATION: 1250 MichCon Lane, KALKASKA		**DISTRICT:** Cadillac
CITY: KALKASKA		**COUNTY:** KALKASKA
CONTACT: Karla Shawhan-Bonnee , Manager, Transmission Storage and Operations		**ACTIVITY DATE:** 03/04/2020
STAFF: Caryn Owens	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Scheduled Inspection and Records Review		
RESOLVED COMPLAINTS:		

On Wednesday, March 4, 2020, Caryn Owens of the Department of Environment, Great Lakes and Energy (EGLE) – Air Quality Division (AQD) conducted a scheduled field inspection of DTE Gas Company (N3341) located at 250 MichCon Lane in Kalkaska Township, Kalkaska County, Michigan. More specifically, the site is located on the south side of MichCon Lane, approximately ¼ mile east of US-131. The purpose of this inspection was to determine the facility's compliance with Renewable Operating Permit (ROP) MI-ROP-N3341-2016a. This facility is considered a major source due to the potential to emit of nitrogen oxides (NOx) exceeds 100 tons per year, and the potential to emit of any single hazardous air pollutant (HAP) (in this case formaldehyde) regulated by the federal Clean Air Act, Section 112, is more than 10 tons per year. EGLE was escorted by Ms. Karla Shawhan-Bonnee, the Northern Transmission Operations Manager at DTE, and Mr. Cummings, DTE Supervisor of Compression Operations during the field inspection. The site is a major source for National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (40 CFR, Part 63, Subpart ZZZZ – RICE MACT), but there are no applicable Conditions associated with the RICE MACT. Additionally, the site is subject to NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR, Part 63, Subpart DDDDD – Boiler MACT).

Evaluation Summary

The activities covered during this full compliance evaluation (FCE) appear to be in compliance with ROP MI-ROP-N3341-2016a. Review of the records for the facility indicates the facility was in compliance with emission limits in accordance to the ROP. No further actions are necessary at this time. Specific permit conditions that were reviewed are discussed below.

Source Description

The compressor station transmits pipeline quality natural gas to other communities around the area through the pipelines. The facility is not involved in the production of natural gas or oil, nor is it involved in the storage or processing of natural gas.

Three compressors are powered by three 2,700 horsepower reciprocating engines. The three engines are fueled with pipeline quality natural gas and use lean burn combustion systems that are intrinsically installed to each engine to control emissions. A natural gas engine and generator set are used as backup electrical power in the event power is lost from the primary grid to the site. The facility also contains a process heater for building heat, hot water heaters, and small storage tanks for hydrocarbon liquids, glycol, waste water, and lubricating oil. Additionally, the facility has a small use boiler used for service heating, which is rated 2.93 MMBTU per hour heat input.

The facility is located in a remote area with an electrical transmission facility to the east, the Kalkaska Gas Plant to the North, and wooded land south and west of the site. The facility is located approximately 3 miles southwest of the City of Kalkaska.

On-site Inspection:

During the field inspection it was overcast skies with wind speeds approximately 10 to 15 miles per hour out of the northwest, and approximately 35 degrees Fahrenheit. The facility was covered in snow, and consisted of: An office building and control room on the north-central portion of the Property; a compressor engine building that contained the three lean burn 2,700 horsepower engines and associated compressors; a tank battery area containing five above ground storage tanks ranging from 1,000-gallons to approximately 6,000 gallons containing either hydrocarbon liquids, fresh glycol, waste water, and lubricating oil, and an oil water separator tank. Three of the above ground storage tanks were horizontal. The remainder of the facility contained piping for transmitting pipeline gas for sales. The southwestern portion of the site contains three condensers that cool the

5. VOC	26.1 tpy	12-month rolling time period determined end of each calendar month	3.38 tpy – EUGMVH1 2.96 tpy – EUGMVH2 2.29 tpy – EUGMVH3
6. VOC	6.0 pph	Hourly	0.9 pph – EUGMVH1 0.8 pph – EUGMVH2 0.9 pph – EUGMVH3

ased on the records reviewed, the facility was within the permitted emission limits. The records are attached for reference.

- **Material Limits:**
  There are no applicable material limits for FGGMVHS.

- **Process/Operational Parameters:**
  According to DTE Energy, only sweet natural gas is burned at the facility. Additionally, the engines have not been modified since the previous inspection, and the lean burn combustion system appears to be operating properly.

- **Design/Equipment Parameters:**
  As previously stated, EUGMVH3 was the only engine operating during the inspection. EGLE observed that the hours are tracked, and EUGMVH3 was at 134,661 hours. As previously stated, even though Engines 1 and 2 were not operating during the inspection, Ms. Shawhan-Bonnee was able to show me the hours operated for each engine. EUGMVH1 (Engine 1) had 156,052 hours of operation and EUGMVH2 (Engine 2) had 140,838 hours of operation.

- **Testing:**
  Performance testing is completed at least once every five years to verify the emission rates of NOx, CO, and VOCs from each engine. The latest stack test was completed October 16 and 17, 2018. Based on the results of the most recent performance test, the facility was in compliance with the emission limits.

- **Monitoring/Recordkeeping:**
  The facility completes the required calculations for each engine, and records the amount of hours each engine operated on a daily basis. The NOx, CO, and VOC emissions are calculated on a monthly basis and are discussed above under emission limits. The monthly and 12-month rolling time period emissions records are attached.

- **Reporting:**
  During the reporting period the permittee verified all monitoring and associated recordkeeping requirements of the ROP were met and there were no deviations. The semi-annual and annual reports were submitted to EGLE on a timely basis.

  During the October 2018 stack testing, AQD performance test protocol and reporting requirements were followed.

- **Stack/Vent Restrictions:**
  Based on visible observations during the field inspection, the stacks EUGMVH1 EUGMVH2, and EUGMVH3 appeared to be in compliance with permitted limits.

- **Other Requirements:**
  There are no "Other Requirements" applicable with FGGMVHS.

FGBOILERS: This incorporates new and existing industrial boilers and process heaters fired by natural gas at a major source of HAPs and subject to 40 CFR Part 63, Subpart A and Subpart DDDDD. The current equipment includes a 2.93 MMBtu per hour boiler for engine jacket and space heating (EUBOILER1) and a 0.5 MMBtu per hour fuel gas heater (EUHEX). There is no pollution control equipment associated with the boilers at the facility covered under FGBOILERS.

- **Emission Limits:**
  There are no applicable emission limits for FGBOILERS.

pipeline gas prior to sending the natural gas to consumers, and a blow-down stack for pipeline maintenance. The facility was surrounded by fencing.

A main office building and service garages were located on the western portion of the site, but there was no permitted equipment in this area. EGLE stopped at the main office building prior to the inspection to sign in.

EGLE observed no visible emissions from the lean burn engine stacks, or the cooling towers associated with the stacks. EGLE observed a heat shimmer off engine 3 (EUGMVH3) cooling tower. During the inspection, only EUGMVH3 was operating. The facility was currently completing an Analysis of the engines to make sure they are working properly. Engine 2 (EUGMVH2) was going to be operating later today, and the engine 1 (EUGMVH1) was going to be operated tomorrow for the analysis. No other visible emissions were observed during the field inspection.

At the time of the field inspection, compressor engine EUGMVH3 was the only engine operating. The engine was identified on the screens in the control room as engine 3, which was the southern-most engine in the building. The engine was operating at 271 revolutions per minute (RPMs), 29.1 pounds per square inch (psi) pressure, and 174 degrees Fahrenheit. The hour meter on the engine was at 134,661 hours. These conditions were similar to AQDs last inspection of the facility from April 14, 2018, where Engine 3 was operating at 304 RPMs, 34.3 psi, and 172 degrees Fahrenheit, and 125,591 hours. During the most recent stack test, completed October 2018, the parameters of Engine 3 were around 329 RPMs, 37.1 psi, and 167 degrees Fahrenheit. The engine data is continuously monitored on LCD screens, and the recorded in the control room.

Even though Engines 1 and 2 were not operating during the inspection, Ms. Shawhan-Bonnee was able to show me the hours operated for each engine. EUGMVH1 (Engine 1) had 156,052 hours of operation and EUGMVH2 (Engine 2) had 140,838 hours of operation.

The facility is claiming the following exemptions at the facility:

- Approximately 9 natural gas forced air small furnaces that range between 50,000 BTU/hr to 165,000 BTU/hr meets exemption Rule 336.1282(2)(b)(i).
- Approximately 15 unit heaters, 2 water heaters, and a radiant heater that range between 2,500 BTU/hr to 110,000 BTU/hr, meets exemption Rule 336.1282(2)(b)(i).
- A backup generator in case of power failure 336.1285(2)(g)
- The above ground storage tanks in the tank battery area meet exemption Rules 336.1284(2)(e) and 336.1284(2)(i).

Records Review:

FGGMVHS: Three Cooper 2,700 HP two-stroke lean burn natural gas-fired reciprocating engines using lean combustion systems that are intrinsically installed to each engine for emission control. Only the southern-most engine (EUGMVH3) was operating during the field inspection.

- **Emission Limits:**

The highest reported emissions from each engine are in the right-hand column in the table below.

Pollutant	Permit Limit	Time Period	Highest Reported Emissions From 3/1/19 – 2/29/20 Or Test Results
1. NOx	52.12 tpy	12-month rolling time period determined end of each calendar month	8.98 tpy – EUGMVH1 12.41 tpy – EUGMVH2 2.99 tpy – EUGMVH3
2. NOx	64.2 pph	Hourly	12.9 pph – EUGMVH1 22.0 pph – EUGMVH2 13.4 pph – EUGMVH3
3. CO	28.68 tpy	12-month rolling time period determined end of each calendar month	13.2 tpy – EUGMVH1 10.32 tpy – EUGMVH2 8.82 tpy – EUGMVH3
4. CO	7.7 pph	Hourly	5.1 pph – EUGMVH1 4.5 pph – EUGMVH2 4.6 pph – EUGMVH3

- **Material Limits:**
  There are no applicable material limits for FGBOILERS.

- **Process/Operational Parameters:**
  According to DTE Energy, only sweet natural gas is burned at the facility. The boilers associated with FGBOILERS appear to be operated safely and with good air pollution control practices. A tune-up of the Cleaver Brooks Boiler (2.93 mmBTU) had its initial tune-up on October 21, 2015, and the heat exchanger (0.5 mmBTU) had its initial tune-up December 15, 2015 and the tune-ups will be completed every five years. According to Ms. Shawhan-Bonnee, the next tune-up is logged in the computer system and will be completed in the near future.

- **Design/Equipment Parameters:**
  There are no applicable design/equipment parameters for FGBOILERS.

- **Testing:**
  There are no applicable testing requirements for FGBOILERS.

- **Monitoring/Recordkeeping:**
  The facility keeps the records of the notifications and reports on file in the main office.

- **Reporting:**
  During the reporting period the permittee reported all monitoring and associated recordkeeping requirements of the ROP were met and there were no deviations. The semi-annual and annual reports were submitted to EGLE on a timely basis. Additionally, a Notification of Compliance Report was submitted to AQD on a timely basis and with the correct information. As previously stated, a tune-up of the boilers in FGBOILERS and a one-time energy assessment were completed by the January 31, 2016 compliance date. Boiler tune-ups and associated compliance reports should be submitted to AQD by the end of 2020.

- **Stack/Vent Restrictions:**
  There are no applicable stack/vent restrictions were associated with FGBOILERS.

- **Other Requirements:**
  The facility is subject to NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR, Part 63, Subpart DDDDD – Boiler MACT), and the requirements of this subpart have been addressed in the Conditions above.

NAME Caryn Owens DATE 3/4/20 SUPERVISOR SN