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

N334132721

FACILITY: DTE Gas Company - Kalkaska Compressor Station		**SRN / ID:** N3341
LOCATION: 250 MichCon Lane, KALKASKA		**DISTRICT:** Cadillac
CITY: KALKASKA		**COUNTY:** KALKASKA
CONTACT: Karla Shawhan-Bonnee , Supervisor		**ACTIVITY DATE:** 12/08/2015
STAFF: Caryn Owens	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Field Inspection and Records Review		
RESOLVED COMPLAINTS:		

On Tuesday, December 8, 2015, Caryn Owens and Shane Nixon of the Department of Environmental Quality (DEQ) – 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-N3341-2011a. This facility is considered a major source due to the potential to emit 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. DEQ was unaccompanied during the field inspection, an inspection brochure was not given to anyone during the onsite inspection, but a brochure will be emailed to the company with this inspection report. 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) and will be subject to NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR, Part 63, Subpart DDDDD – Boiler MACT) with the compliance date of January 31, 2016.

Evaluation Summary

The activities covered during this full compliance evaluation (FCE) appear to be in compliance with ROP MI-ROP-N3341-2011a. 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

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 to reduce emissions of air contaminants to the atmosphere. 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 submitted the Initial notification on May 7, 2013, stating that the facility is subject to the Boiler MACT. The compliance date for the Boiler MACT is January 31, 2016. Therefore a compliance determination of the Boiler MACT was not assessed during this inspection.

On-site Inspection:

During the field inspection it was overcast skies with wind speeds approximately 5 miles per hour out of the south, and approximately 35 degrees Fahrenheit. The facility 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 seven underground 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. The remainder of the facility contained piping for transferring pipeline gas to where it needs to go. 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. DEQ stopped at the main office building prior to the inspection to meet with Ms. Karla Shawhan-Bonnee, the Northern Transmission Operations Manager at DTE, however she wasn't in, so DEQ was granted to inspect the facility without a DTE representative. The area containing the permitted equipment was fenced in, and the gate was open during the field inspection. DTE employees were working during the inspection, but they didn't seem to mind the DEQ walking around the facility.

DEQ observed no visible emissions from the lean burn engine stacks, or the cooling towers associated with the stacks. DEQ observed a heat shimmer off engine 2 (EUGMVH2) and engine 3 (EUGMVH3) cooling towers. During the inspection, only EUGMVH3 was operating. It appeared EUGMVH2 was shut down for service, since there was an alarm when DEQ entered the control room, and the DTE employees were working on EUGMVH2 during the inspection. Based on no heat shimmer from engine 1 (EUGMVH1) cooling tower, it appears it wasn't operating the day of the inspection. A slight petroleum-like odor was noted in the area between the control room and the engine building, but the odors were not present off site. 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, without a control device. 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 303 revolutions per minute (RPMs), 36.8 pounds per square inch (psi), and 163.7 degrees Fahrenheit. The brake horse power (bhp) was at 1,561 horsepower, the heat rate was 6855 BTU/bhp-hr, and the fuel flow was 2.41 mmscf per hour. The hour meter on the engine was at 121,880 hours. The engine data is continuously monitored on LCD screens, and the recorded in the control room.

Records Review:

EUBACKUPGENSET: A Waukesha L36GL natural gas engine, 800 horsepower with no control. The engine is used to turn a generator as backup electrical power source in event of power loss to the site. EUBACKUPGENSET was not operating during the inspection.

- No Emission Limits, Material Limits, Design/Equipment Parameters, Monitoring/Recordkeeping, Reporting or Stack/Vent Restrictions conditions are applicable for EUBACKUPGENSET.

- **Process/Operational Parameters:**
  SC III.1 to III.3: According to Ms. Shawhan-Bonnee, DTE conducts a weekly test run, of 1 hour, for EUBACKUPGENSET. The hours for EUBACKUPGENSET accumulated for the year 2015 are 47 hours.

- **Other Requirements:**
  SC IX.1: EUBACKUPGENSET is subject to the RICE MACT for a major source, and the applicable requirements were addressed in the conditions above.

FGGMVHS: Three Cooper 2,700 HP two-stroke lean burn natural gas-fired reciprocating engines using lean combustion systems and no add-on control. Only the southern-most engine (EUGMVH3) was operating during the field inspection.

- **Emission Limits:**
  SC 2.1: FGGMVHS is limited to 52.12 tons of NOx per 12-month rolling time period for each engine, and 64.2 pounds per hour (pph) for each engine. Emissions for CO are limited to 28.68 tons per 12-month rolling time period for each engine, and 7.7 pph for each engine. Emissions for VOCs are limited to 26.1 tons per 12-month rolling time period for each engine, and 6.0 pph for each engine. The highest reported emissions from each engine are in the right hand column in the table below.

Pollutant	Limit	Time Period	**Highest Reported Emissions** November 1, 2014 through November 30, 2015 Or Test Results
1. NOx	52.12 tpy	12-month rolling time period as determined at the end of each calendar month	1.48 tpy – EUGMVH1 2.64 tpy – EUGMVH2 2.51 tpy – EUGMVH3
2. NOx	64.2 pph	Test Results	6.0 pph – EUGMVH1 7.7 pph – EUGMVH2 5.3 pph – EUGMVH3
3. CO	28.68 tpy	12-month rolling time period as determined at the end of each calendar month	7.94 tpy – EUGMVH1 13.60 tpy – EUGMVH2 13.17 tpy – EUGMVH3

4. CO	7.7 pph	Test Results	6.1 pph – EUGMVH1 5.0 pph – EUGMVH2 6.4 pph – EUGMVH3
5. VOC	26.1 tpy	12-month rolling time period as determined at the end of each calendar month	1.96 tpy – EUGMVH1 3.43 tpy – EUGMVH2 3.31 tpy – EUGMVH3
6. VOC	6.0 pph	Test Results	0.7 pph – EUGMVH1 0.4 pph – EUGMVH2 0.7 pph – EUGMVH3

- **Material Limits:**
  SC II.1: According to Ms. Shawhan-Bonnee, only sweet natural gas is burned at the facility.

- **Process/Operational Parameters:**
  SC III.1 to III.3: According to Ms. Shawhan-Bonnee, the engines have not been modified since the previous inspection, and the lean burn combustion system appears to be operating properly.

- **Design/Equipment Parameters:**
  SC IV.1: As previously stated, EUGMVH3 was the only engine operating during the inspection. DEQ observed that the hours are tracked, and EUGMVH3 was at 121,880 hours. DEQ could not observe the number of hours for the other two engines, since the engines were not in operation, the LCD screens were not on.

- **Testing:**
  SC V.1: Performance testing shall be 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 May 21 and 22, 2013. Based on the results of the most recent performance test, the facility was in compliance with the emission limits, and the AQD performance test protocols were followed.

- **Monitoring/Recordkeeping:**
  SC VI.1 through VI.3: 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:**
  SC VII.1 through VII.3: 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 the DEQ on a timely basis.

- **Stack/Vent Restrictions:**
  SC VIII.1 through VIII.3: Based on visible observations during the field inspection, the stacks EUGMVH1 EUGMVH2, and
  EUGMVH3 appeared to be in compliance with permitted limits.

- **Other Requirements:**
  SC IX.1: The engines associated with FGGMVHS have no applicable requirements with regards to the RICE MACT for non-emergency, spark ignition, 2-stroke lean burn engines greater than 500 hp located at a major source of HAPs.

  SC IX.2 and IX.3: On March 27, 2013, DEQ concurred that the stack heights for FGGMVHS are at the permitted limits.

NAME Dawn Owens DATE 12/8/15 SUPERVISOR