

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

N624147287

FACILITY: SEMCO ENERGY Gas Company - Harris Station		SRN / ID: N6241
LOCATION: 23 1/2 MILE RD, PARTELLO		DISTRICT: Kalamazoo
CITY: PARTELLO		COUNTY: CALHOUN
CONTACT: Elisabeth Barr , Engineer III		ACTIVITY DATE: 12/12/2018
STAFF: Rex Lane	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

On December 12, 2018, Air Quality Division (AQD) staff (Rex Lane) arrived at SEMCO Energy Gas Co. – Harris Compressor Station (hereafter "facility") located on 23 ½ Mile Road (West side of 23 ½ Mile; North of V Drive North), Partello, Michigan at 10 am to conduct an announced inspection. Inspection was scheduled since facility personnel have other area job responsibilities and may not be present during normal business hours. Staff met with Ms. Elisabeth Barr, SEMCO, EOHS Analyst and Chad, SEMCO, Operator. Staff provided facility personnel with their business card.

The last air quality inspection was on 12/2/14 and the facility was determined to be compliant. The facility is permitted under Permit to Install (PTI) No. 182-08 and is a synthetic minor source for nitrogen oxides (NOx) and carbon monoxide (CO). Although PTI No. 182-08 does not establish legally enforceable facility wide restrictions on hazardous air pollutant (HAP) emissions, the facility is presumed to be an area source of HAPs based on engine hours of operation restriction and the use of engine oxidation catalyst controls. Required PPE is a hard hat, steel-toed boots, safety vest, FR coveralls (provided by facility upon request), safety glasses and hearing protection when engines are operating.

The facility was constructed in 1975 and is an existing natural gas (hereafter "gas") compression and storage facility. Odorized gas is received at the facility through a six-inch and four-inch pipeline and then is compressed further by one of two four-stroke rich-burn gas fired engines prior to injection into the storage reservoir (i.e. geologic formation). The producing wells (Lee # 11 and Lee # 2) are depleted oil and gas wells located off-site that are used to inject gas into the reservoir with a total storage capacity of 3.1 billion cubic feet (Bcf) [includes 1.1 Bcf from nearby Lacey Station in Barry County). Lee # 11 and Lee # 2 have a maximum allowable operating pressure of 1050 and 1250 psig, respectively. There is one observation well that is used to monitor reservoir pressure. Typical gas injection season is March to October and the typical withdrawal season is November to March. Gas withdrawn from the reservoir is heated by an on-site gas fired in-line heater (7.5 MMBtu/hour rated capacity) prior to being re-injected back into a six-inch pipeline.

There is no glycol dehydration equipment at the facility. Chad stated that condensate knock out tanks are located adjacent to Lee # 11 and Lee # 2 to remove moisture from the gas upon reservoir withdrawal. Odorant (methyl mercaptan) is injected into the pipeline a couple of miles away from the facility from a 150-gallon storage tank.

Information provided below is based on observations and discussions during the inspection and records requested and provided prior to and following the inspection:

PTI Exempt Equipment:

The facility installed four above ground storage tanks (ASTs) on a cement pad in 2015. All four ASTs are double-walled with an interstitial observation port located on the south and bottom side of each tank. The 1,000-gallon gas condensate tank is exempt from PTI requirements pursuant to Rule 284(2)(e). The 1,000-gallon new lube oil and 1,000-gallon used oil ASTs are exempt under Rule 284(2)(c). The 285-gallon engine coolant tank is exempt under Rule 285(2)(i). Per Chad, the facility does not have any solvent parts washers or cold cleaners. There is a small gas fired space heater in the air compressor building that is exempt per Rule 282(2)(b)(i). A 10-HP gas fired air compressor is used to transfer fluids out of the four ASTs through underground piping to the engine buildings.

The facility has a Kohler gas fired emergency generator with a February 2005 manufacture date and it is rated at 10.4 Kw/hour. The engine and generator are maintained by an outside vendor and it is equipped with a non-resettable hour meter (current reading – 536.4 hours). The emergency generator is exempt from PTI requirements per Rule 285(2)(g). The emergency generator is subject to 40 CFR Part 63, Subpart ZZZZ (i.e. RICE MACT) based on its manufacture date.

PTI No. 182-08:

EUENGINE1 is a 625-HP Caterpillar rich-burn gas fired reciprocating engine that was installed in 1990. Oxidation catalytic (NSCR) controls for CO and NOX reductions were installed on EUENGINE1 in 2008 as required by the air use permit. EUENGINE1 last had a complete engine overhaul in 2010. EUENGINE2 is a 650-HP Superior rich-burn gas fired reciprocating engine that was installed in 1981. Oxidation catalytic (NSCR) controls for CO and NOX reductions were installed on EUENGINE2 prior to 10/19/13 under the pre-2013 amendments to the RICE MACT. EUENGINE2 last had a complete engine overhaul in 2009.

In January 2013, the RICE MACT was amended to allow owners and operators of existing stationary 4-stroke spark ignition engines above 500 HP that are area sources of HAP emissions and where the engines are "remote" from human activity to use established management practices for these sources rather than having to meet numeric emission limits and conduct associated testing and monitoring. Under the RICE MACT, a remote area is defined as either a DOT Class 1 pipeline location, or, if the engine is not on a pipeline, if within a 0.25 mile radius of the facility there are 5 or fewer buildings intended for human occupancy. The facility updates their "remote area" determination on an annual basis and the most recent evaluation report (1/29/18) is attached to this inspection report. The AQD has not taken delegation authority from USEPA for this federal regulation at area sources of HAPs, therefore, staff did not evaluate the compressor engine's compliance with 40 CFR Part 63, Subpart ZZZZ.

The engine electronic control panel monitor displays the pre- and post-catalyst exhaust temperature and this data is recorded on an operator's log when personnel are on-site during engine operation. The engines are equipped with electronic non-resettable hour meters. The current hour meter readings for EUENGINE1 and EUENGINE2 are 31,409.6 hours and 16,104.0 hours, respectively. **Note:** The hour meters are replaced when new engine electronic control panels are installed so the listed hours do not reflect total operational hours since the engines were installed. Routine engine maintenance is done by facility staff, annual maintenance checks are outsourced, and service records are maintained and were looked at by staff. At the time of the inspection, the compressor engines were not in operation.

EUENGINE1:

Special Condition (SC) 1.1 – A review of attached operational records for 2017 – 2018 show compliance with the 7,033 hours limit for EUENGINE1. The highest 12-month rolling time period was 3,611 hours in May 2017 (51% of the allowable limit).

SC 1.2 – Annual engine and catalyst maintenance checks, annual catalyst activity tests and operator monitoring of pre- and post-catalyst exhaust temperature demonstrate that the permittee has installed, maintained and operated the catalytic converter in a satisfactory manner. Last annual engine emissions analysis was done on 10/2/17 and is scheduled to be done by end of December 2018. Catalyst was inspected and cleaned on 10/3/18 (attached records).

SC 1.3 – The permittee is maintaining monthly and 12-month rolling time period records of hours of operation for EUENGINE1.

EUENGINE2:

SC 2.1 - A review of attached operational records for 2017 – 2018 show compliance with the 7,033 hours limit for EUENGINE2. The highest 12-month rolling time period was 3,100 hours in October 2018 (44% of the allowable limit).

SC 2.2 - The permittee is maintaining monthly and 12-month rolling time period records of hours of operation for EUENGINE2.

Note: Last annual engine emissions analysis was done on 10/24/18. Catalyst was inspected on 10/3/18 and due to damage caused by back fire, the catalyst element was replaced with a new one on 10/24/18.

FGFACILITY:

SC 3.1a – A review of attached emission records for 2017-18 demonstrates compliance with the < 90 tons/year NOx emission limitation on a 12-month rolling time period. The highest reported NOx emission rate was 31.28 tons in November 2018 (35% of the allowable limit).

SC 3.1b - A review of attached emission records for 2017-18 demonstrates compliance with the 14.1 tons/year CO emission limitation on a 12-month rolling time period. The highest reported CO emission rate was 0.57 tons in November 2018 (4% of the allowable limit).

SC 3.2 – The permittee is required to keep in a satisfactory manner, monthly and 12-month rolling time period CO and NOx emission calculations for FGFACILITY, as required by SC 3.1a and 3.1b, & Appendix A.

Note: Appendix A is obsolete for EUENGINE2 because it does not account for installation of catalytic controls and reduction in CO and NOx emission rates for this engine. Staff recommends that the permittee use the results from the annual catalyst activity test to calculate the monthly and 12-month rolling time period emission rates for CO and NOx from EUENGINE1 and EUENGINE2 for compliance demonstration purposes under FGFACILITY.

SC 3.3 – The permittee has not changed out or replaced either EUENGINE1 or EUENGINE2 with an equivalent-emitting or lower-emitting engine. Facility staff indicated that there is no capital projects planned for engine replacement in the near future.

At the time of the inspection, it appears that the facility is in compliance with PTI No. 182-08 and all applicable state air quality rules and regulations. -RIL

NAME RIL

DATE 12/14/18

SUPERVISOR MA 12/19/2018

