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

N601546937

FACILITY: PARTELLO COMPRESSOR STATION		**SRN / ID:** N6015
LOCATION: 21663 24 MILE RD, PARTELLO		**DISTRICT:** Kalamazoo
CITY: PARTELLO		**COUNTY:** CALHOUN
CONTACT: John Britton ,		**ACTIVITY DATE:** 11/09/2018
STAFF: Rex Lane	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

On November 9, 2018, MDEQ, Air Quality Division (AQD) staff (Rex Lane) arrived at Michigan Gas Utilities – Partello Compressor Station (Facility) located at 21663 24 Mile Road, Olivet, Michigan, at 9 am to conduct a scheduled inspection. Staff emailed the facility to request operations and emission records that are required to be maintained under Permit to Install (PTI) No. 527-97E for the glycol dehydrators, compressor engines and overall operations. On 11/8/18, the 2017-18 records were received from Ms. Shelly Heston, Senior Air Quality Engineer, WEC Energy Group. Specific records were printed off for the inspection and are attached to this inspection activity report. Upon arrival, staff met with Mr. John Britton, Storage Supervisor; Mr. Jim Schaum, Operations Manager (Coldwater, MI) and Mr. Nathan Lee, Compliance Supervisor, Michigan Gas Utilities Corporation. Staff provided facility personnel with their inspector credentials and business card.

The last AQD inspection was on 12/11/14 and the facility was determined to be compliant at that time. The facility is permitted under PTI No. 527-97E and is a synthetic minor source for nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs) and hazardous air pollutants (HAPs). Required PPE is a hard hat, safety glasses and vest, steel toed boots and hearing protection. Staff asked multiple questions prior to the site inspection related to facility operations.

The facility was constructed in 1974 and is an existing natural gas compressor station and storage facility. Three gas providers, Panhandle Energy (un-odorized), Vector Pipeline (starting 2019) and ANR Pipeline (odorized) feed gas through an 8-inch pipeline to the Facility where it is compressed further by one of two engines prior to injection into one of thirteen on-site producing wells (i.e. depleted oil and gas wells) serving two storage field reservoirs, Cortright-Lee and Partello-Anderson. The facility odorizes all gas being injected into the field and upon re-injection into the pipeline with methyl mercaptan (i.e. injection rate approximately 0.75 pounds/MMCF gas). The Cortright-Lee and the Partello-Anderson storage fields have a total capacity of 2.1 billion cubic feet and 1.7 billion cubic feet, respectively. Natural gas injection pressure range for the Cortright-Lee field is 1350 – 1380 psia and 700 – 900 psia for the Partello-Anderson storage field. Typical natural gas injection season is April to October and the typical withdrawal season is November through March each year. Natural gas withdrawn from the Cortright-Lee storage field and the Partellow-Anderson storage field is routed through a dedicated glycol dehydrator, EU-DEHY02 and EU-DEHY03, respectively, to remove excess moisture from the stored natural gas prior to being re-injected back into the pipeline.

Staff had a few questions regarding the 12-month rolling records for July 2017 through September 2018 that were submitted prior to the inspection. The compressor engines and glycol dehydrators each operate for only about six months of the calendar year which may explain why the same rolling value may be logged for several months. Following the inspection, the facility provided corrected rolling averages for the compressor engine fuel use and hours of operations spreadsheet (attached).

Staff was then given a tour of the facility. The only process equipment that was in operation during the inspection was glycol dehydrator EU-DEHY02 for the Cortright-Lee field. 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:

A 500-gallon methyl mercaptan horizontal above ground storage tank (AST) is located just inside the security gate for the facility. The process equipment is used to odorize natural gas and is exempt from PTI requirements pursuant to Rule 288(a). The facility has a 210-barrel (8,820 gallon) methanol AST (EU-METHANOL) that is included in PTI No. 527-97E since it was not exempt upon its installation date (August 2008) but would now be exempt under Rule 284(2)(n) based on tank capacity; and a 400-barrel (16,800 gallon) natural gas condensate AST installed in August 2008 that is exempt per Rule 284(2)(e). The methanol and condensate ASTs are equipped with raised steel wall and secondary containment system (i.e. plastic liner). The facility has a re-heater for gas withdrawn from wells in the Cortright portion of the Cortright-Lee storage field which is exempt per Rule

282(2)(b)(i). The facility has a natural gas fired emergency generator that was installed in 1992 and undergoes readiness testing once weekly for ½ hour. The engine and generator are maintained by facility personnel and it is equipped with a non-resettable hour meter (current reading 317.5 hours). The emergency generator is exempt from PTI requirements per Rule 285(2)(g) and is subject to 40 CFR Part 63, Subpart ZZZZ (i.e. RICE MACT) based on its manufacture date. The emergency generator is equipped with a non-resettable hour meter and current reading is 317.5 hours. Maintenance on the emergency generator is done by facility staff.

PTI No. 527-97E:

EU-DEHY03 and EU-DEHY02:

Special Condition (SC) 1.1a and 1.1c – Records reviewed for the requested time period listed above indicates compliance with the VOC and benzene emission limits for EU-DEHY03. The highest 12-month rolling value noted was 11% of the VOC emission limit and 3% of the benzene emission limit.

SC 1.1b and 1.1d - Records reviewed for the requested time period indicates compliance with the VOC and benzene emission limits for EU-DEHY02. The highest 12-month rolling value noted was 22% of the VOC emission limit and 13% of the benzene emission limit.

SC 1.2 – An orifice flow meter from the seven injection wells for the Cortright-Lee storage field is monitored for flow and flow is tracked to determined operating hours for EU-DEHY02. The highest 12-month rolling value during the time period reviewed was 40% of the operating hour limitation. EU-DEHY02 was in operation during the inspection at a flow rate of 657 MCF/hour or approximately 15 MMCF/24-hours.

SC 1.3 – Still vent exhaust temperature for EU-DEHY03 and EU-DEHY02 is required to be maintained at or below 90 degrees F to process natural gas through the glycol dehydrators. The temperature thermocouple is mounted a few inches below the top of each still vent exit point and temperature readout is monitored and tracked inside the building using the DEMAXX software program. EU-DEHY02 was in operation during the inspection and had a still vent exhaust temperature of 32.5 degrees F. EU-DEHY03 was not in operation at the time of the inspection. The DEMAXX software is programmed to alarm and notify plant personnel if the still vent exhaust temperature exceeds 85 degrees F during gas dehydration operations. The still vent thermocouple for each dehydrator is calibrated on an annual basis and the most recent calibration date was 10/8/18. During the period of records review, the highest still vent temperature recorded for EU-DEHY02 and EU-DEHY03 was 47.2 degrees F (1/26/18) and 50.4 degrees F (1/26/18), respectively.

SC 1.4 – The flash tank is installed and operating properly on both glycol dehydration units and tank exhaust is routed to the reboiler burner.

SC 1.5 – At least once each calendar year, the permittee is required to collect and analyze a sample of the wet gas stream for each dehydrator for nitrogen, carbon dioxide, hydrogen sulfide (H2S), C1 through C6 series hydrocarbons, benzene, toluene, xylene, ethylbenzene and heptanes plus. Copies of the most recent wet gas analysis results for EU-DEHY02 (11/21/17) and EU-DEHY03 (1/9/18) are attached to this report.

SC 1.6 – The permittee has installed and maintained in a satisfactory manner a device to monitor and record the still vent exhaust temperature of each glycol dehydrator.

SC 1.7 through 1.11 – The permittee is maintaining the required records.

SC 1.12 – The still vents for both glycol dehydrators appear to meet the stack diameter and height restrictions.

Note: EU-DEHY02 and EU-DEHY03 are not subject to 40 CFR Part 63, Subpart HHH because this regulation only applies at storage facilities that are a major source of HAPs. The Facility is a synthetic minor source of HAPs per PTI No. 527-97E.

FG-ENGINES:

SC 2.1a – EU-Engine03 was retired in September 2014 and removed from the facility in 2017. This special condition is now obsolete.

SC 2.1b – A review of requested operation records indicates compliance with the NOx emission limit for EU-Engine05. The highest 12-month rolling value was about 6% of the allowable NOx limit.

SC 2.1c - A review of requested operation records indicates compliance with the NOx emission limit for EU-Engine06. The highest 12-month rolling value was about 39% of the allowable NOx limit.

SC 2.2 – Based on a review of operation records, the permittee is maintaining monthly and 12-month rolling NOx

emission calculations in a satisfactory manner for each engine included in FG-ENGINES.

SC 2.3 - Based on a review of operation records, the permittee is maintaining monthly and 12-month rolling hours of operation and fuel consumption records in a satisfactory manner for each engine included in FG-ENGINES.

SC 2.4a through 2.4c – The stack vents for each engine appear to meet the stack diameter and height restrictions.

Note: EU-ENGINE05 is a Waukesha 750 horsepower rich-burn natural gas fired reciprocating engine that was installed in 1982. EU-ENGINE05 had a complete overhaul in May 2008 at about 30,000 hours and the current hour reading is 43,385 hours. EU-ENGINE05 is scheduled to be replaced in 2021-22 and the facility will need to go through new source review permitting for the replacement engine. EU-ENGINE06 is a Caterpillar 1,085 horsepower lean-burn natural gas fired reciprocating engine that was installed in 2005. EU-ENGINE06 had a top end overhaul at about 23,000 hours and is scheduled for a major overhaul in 2019. Engine maintenance and overhauls are generally done in- house but may be contracted out.

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. 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 and the remote area determination is required to be completed on an annual basis. Staff reviewed the Facility's remote area aerial map during the inspection for the past several years. Since the 2014 AQD inspection, the facility has purchased an additional 61 acres (facility total acreage – 71) surrounding the main operations and there is now only one domicile within a 0.25-mile radius. The AQD has not taken delegation authority from USEPA for the RICE MACT at area sources of HAPs, therefore, staff did not evaluate the compressor engine's compliance with this federal regulation.

FG-FACILITY:

SC 3.1a - A review of requested operation records indicates compliance with the CO emission limit for FG-FACILITY. The highest 12-month rolling value noted was about 11% of the allowable CO limit.

SC 3.1b - A review of requested operation records indicates compliance with the VOC emission limit for FG-FACILITY. The highest 12-month rolling value noted was about 18% of the allowable VOC limit.

SC 3.1c - A review of requested operation records indicates compliance with the NOx emission limit for FG-FACILITY. The highest 12-month rolling value was about 12% of the allowable NOx emission limit.

SC 3.1d and e - A review of requested operation records indicates compliance with the individual and total HAPs emission limit for FG-FACILITY. The highest 12-month rolling time value was about 2% (i.e. benzene) of the allowable individual HAPs emission limit and about 1% of the total HAPs emission limit.

SC 3.2 - Based on a review of operation records, the permittee is maintaining monthly and 12-month rolling CO, VOC and NOx emission calculations in a satisfactory manner for FG-FACILITY.

SC 3.3 - Based on a review of operation records, the permittee is maintaining monthly and 12-month rolling individual HAP and total HAPs emission calculations in a satisfactory manner for FG-FACILITY.

Summary: At the time of the inspection, it appears that Michigan Gas Utilities' Partello Station is in compliance with PTI No. 527-97E and all applicable state air quality rules and regulations. -RIL

NAME RIL DATE 11/14/18 SUPERVISOR MB 11/15/2018