

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection**

B648168553

FACILITY: ANR Pipeline Company - Capac Compressor Station		SRN / ID: B6481
LOCATION: 4876 KETTLEHUT RD., CAPAC		DISTRICT: Warren
CITY: CAPAC		COUNTY: SAINT CLAIR
CONTACT: Lisa Fishbeck , Environmental Analyst		ACTIVITY DATE: 08/01/2023
STAFF: Owen Pierce	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY 23 Inspection Report		
RESOLVED COMPLAINTS:		

On August 1, 2023, I (Owen Pierce EGLE - Air Quality Division) performed a scheduled targeted inspection of Mid Michigan Gas Storage Company - Capac Compressor Station located at 4876 Kettlehut Road, Capac, Michigan. The purpose of the inspection was to determine the facility's compliance with the Federal Clean Air Act; and Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451 and the conditions of Permit to Install (PTI) No. 136-20A. Upon arrival, I met with Lisa Fishbeck, Environmental Specialist, Nick Rudolph, Area Manager, and Mark Odgen, Mechanic and conducted a pre-inspection meeting where I introduced myself, presented our credentials, and stated the purpose of the inspection.

During the pre-inspection meeting, Nick explained the facility's processes and equipment. Mid Michigan Gas Storage Company - Capac Compressor Station is a natural gas compression and transmission station. The facility stopped injecting gas into the field in 2004. The Capac Compressor Station withdraws natural gas from the storage field twenty-four hours a day, seven days a week using a 700 HP electric motor reciprocating compressor to compress the gas prior to the dehydration system.

According to Lisa, the facility has eight storage tanks: a triethylene glycol (TEG) storage tank (5,264 gal), a maintenance TEG storage tank (2,200 gal), a condensate storage tank (900 gal), an above ground diesel fuel storage tank (1,000 gal) and handling equipment, two brine/hydrocarbon storage tanks (16,500 gal each), one used oil storage tank (300 gal), and one methanol storage tank (8,825 gal) that has been permanently out of service since 2015 though it has not been physically dismantled. In addition, Lisa explained that there are a total of 29 small natural gas fired heaters: 2 hot water heaters, 1 furnace, and 26 building heaters. All are exempt sources.

According to Lisa, three 10 MMBTU natural-gas powered heaters used to keep the pipeline from freezing were removed from service in 2017, but they have not been physically dismantled. Also, the facility had two 4,830 HP natural gas engines that were decommissioned and abandoned in-place in the former compressor building at the facility, but they have not been physically dismantled. In addition, the facility had a boiler, however it was removed approximately 7 years ago.

The facility operates a glycol dehydration system (EUCP003) to remove moisture and hydrocarbons from natural gas. The system consists of a flash vessel, heat exchanger and filters, distillation column, and a reboiler/surge tank. The emissions to the atmosphere from the glycol dehydration unit (EUCP003) are destroyed by a thermal oxidizer. A condenser is used as a backup to the thermal oxidizer. Capac Compressor Station also operates a diesel fuel-fired emergency electricity generator (EUCPGENERATOR) on-site for interruptions in power supply to the facility.

Permit History and Opt-out permit

Mid Michigan Gas Storage Company - Capac Compressor Station (formally known as ANR Pipeline Company) submitted a Permit to Install (PTI) application to establish opt-out limits to void their Title V permit. On March 31, 2021, EGLE-AQD approved and issued a Permit to Install (PTI) No. 136-20.

Mid Michigan Gas Storage Company - Capac Compressor Station was requesting to establish Title V opt-out limits for HAPs. Mid-Michigan decommissioned, disconnected, and removed equipment from the Capac site which lowered the potential for criteria pollutants and HAPs to below Title V thresholds. Due

to the change in policy for once-in always-in, Mid-Michigan would no longer be subject to NESHAP Subpart HHH if the facility is an area source of HAPs.

Mid Michigan Gas Storage Company - Capac Compressor Station proposed to limit the maximum dry gas throughput to 6 MMSCF/day for the glycol dehydrator system to ensure HAP emissions will remain below the applicable major source thresholds. The emergency generator proposed to have a 500 hrs/yr limit.

On September 13, 2022, AQD issued PTI No. 136-20A which changed the name of the owner of the facility changed from ANR Pipeline Company to Mid-Michigan Gas Storage Company (a subsidiary of TC Energy).

Facility Walkthrough Observations

During the facility walkthrough, I observed the EUCPGENERATOR which consists of a CAT 3406 DI diesel fuel-fired compression ignition (CI) engine (305 hp, 4 stroke) standby emergency electricity generator. The generator was observed as having a nameplate which displayed a maximum capacity of 305 hp and a non-resettable hours meter. At the time of the inspection, a reading of 653.5 hours was taken and recorded from the hours meter.

Next, CAPAC staff lead me to the EUCP003, and Nick pointed out all of components of the dehydration unit. Nick explained that after the wet natural gas is extracted from the storage field, it is contacted with TEG in an absorber in the contact tower to remove the moisture and hydrocarbons from the extracted natural gas. The dry natural gas is sent to the pipeline for customers and the water rich glycol is sent to the flash tank/3-phase separator where it separates the glycol, liquid hydrocarbons, and gases. The overhead gases are used as make up fuel (burned at about 370°F) in the natural gas-fired reboiler. The wet glycol is filtered through a carbon filter and passed through the reboiler (still column), heated at 400°F, to drive off water in the glycol. Recovered glycol is stored in a glycol surge tank. The vapors from the still column are passed through either a finned tube condenser (more cooling, used in summer) or a straight pipe condenser (less cooling, used in winter). The condensed vapors from the condensers are stored in the BTEX tank. The exhaust from the BTEX tank is incinerated using a thermal oxidizer (TO). If the thermal oxidizer is not operating properly, the emissions from the BTEX tank is condensed (backup emissions control) and the exhaust gas is vented to the atmosphere. If the exhaust is directly vented to the atmosphere from the condenser, its temperature is monitored and recorded.

Nick explained that if the oxidizer shuts down (malfunction) while the dehydrator is operating, the exhaust gas will be vented through the condenser stack. The temperature of the condenser will be monitored and maintained below 140°F. Usually the condenser stack is closed, but opens when the condenser is used.

Natural gas was being withdrawn from the storage field at the time of the inspection and EUCP003 was in operation.

PTI No. 136-20A Compliance Evaluation

EUCP003

Special Condition (SC) I.1 provides a daily VOC emission limit of 45.5 pounds, and SC I.2 sets a 12-month rolling time period VOC limit of 8.3 tons. I reviewed daily and 12 month rolling VOC emission records for EUCP003 from August 2022 through July 2023. The maximum daily VOC emission recorded was 1.6 pounds per day on November 18, 2022, and the highest 12 month rolling VOC emission recorded was 0.024 tons which occurred each month from March 2023 - June 2023.

SC I.3 limits the emission of Benzene to 1 ton (0.9 mega gram) over a 12 month rolling period. I reviewed the Benzene emission records from August 2022 through July 2023 and the highest recorded Benzene emission was 0.005 tons which occurred each month from January 2023 - June 2023.

SC II.1 sets a daily dry natural gas throughput limit of 6 MMscf/day. I reviewed the daily dry natural gas throughput records from August 2022 through July 2023 and the highest recorded natural gas throughput was 5.0 MMscf/day which occurred on October 23, 2022.

III. Process/Operational Restriction(s)

SC III.1 states that the permittee shall not operate the glycol dehydration unit unless the thermal oxidizer operating temperature is at least 760⁰C (1400⁰F). During the inspection, I observed the TO temperature was 1540⁰F, which is above the minimum operating temperature of 1400⁰F. I reviewed the TO daily temperature records from August 2022 through July 2023 and found the TO operating temperatures were always above the minimum operating temperature of 1400⁰F.

SC III.2 states that the permittee shall not operate the glycol dehydration unit during thermal oxidizer malfunction unless the condenser exhaust temperature is 140⁰F or less. According to the records from August 2022 through July 2023, the permittee used the condenser several times and the exhaust temperature of the condenser was less than 140⁰F each time.

Per SC III.3, the permittee shall not use stripping gas in EUCP003. During the pre-inspection meeting, Lisa stated that the facility does not use stripping gas.

IV. Design/Equipment Parameters

SC IV.1-6 pertains to the design and equipment parameters of EUCP003 and state the following:

1. The permittee shall not operate the glycol dehydration unit unless a properly operating flash tank is installed and operating properly.
2. The permittee shall not operate the glycol dehydration unit unless the glycol regenerator still is equipped with a properly installed and operating TO.
3. The permittee may operate the glycol dehydration unit in the event of a TO malfunction, if the glycol regenerator still is equipped with a properly installed and operating condenser.
4. The permittee shall equip and maintain an operating temperature monitor for the TO.
5. The permittee shall equip and maintain an exhaust gas temperature monitor for the condenser.
6. The permittee shall install, operate, and maintain a device to monitor and record the natural gas throughput on a dry basis through the glycol dehydration unit.

During the facility walkthrough, I observed the following: a flash tank, glycol regenerator still, condenser, operating temperature monitor for the TO, exhaust gas temperature monitor for the condenser, and a device to record the natural gas throughput on a dry basis all properly installed and operating. Based on these observations, the facility is in compliance with SC IV.1-6.

V. Testing/Sampling

SC V.1 states that the permittee shall determine the composition, including the VOC and benzene content of the natural gas processed in the glycol dehydration system at least once every five years, and the permittee shall recalculate the emission factor for VOC and Benzene each time the natural gas is analyzed. The most recent gas analyses were conducted on February 12, 2019 by a company called SPL. According to Chris McFarlane, US Natural Gas Air Compliance Manager, TC Energy, the 2019 gas analysis data was used to conduct a Glycol model run based on the design parameters of the glycol dehydration system. The results of the model run were used to calculate the emission factors for VOC and Benzene. The next gas analysis will need to be conducted by 2024.

VI. Monitoring/Recordkeeping

SC VI.1-8 pertains to the monitoring and recordkeeping parameters of EUCP003 and state the following:

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.

2. The permittee shall monitor and record the TO operating temperature on a daily basis when the glycol dehydration unit is operating, except in the event of a TO malfunction.
3. The permittee shall monitor and record the condenser exhaust gas temperature on a daily basis.
4. The permittee shall monitor and record total hours of operation of the glycol dehydrator system on a daily basis.
5. The permittee shall monitor and record the maximum dry gas throughput of the glycol dehydrator system on a daily basis.
6. The permittee shall monitor and record total hours of operation of the thermal oxidizer for each day.
7. The permittee shall calculate and record the amount of VOC emissions, in pounds, from the glycol dehydration unit for each calendar day.
8. The permittee shall separately calculate and record VOC and benzene emissions from the glycol dehydration unit on a monthly basis, in tons, and on a 12-month rolling time period basis, in tons per year.

Chris McFarlane provided me with all the required calculations and requested records from August 2022 through July 2023. Records include: TO operating temperatures recorded daily, condenser exhaust gas temperatures recorded daily, hours of operation of EUCP003, max dry gas throughput of the EUCP003, total operating hours of the TO, daily and 12-month rolling VOC emissions, and 12-month rolling emissions for benzene. Details of the provided records are explained above in SC I.1 - SC III.2. Based on an analysis of the provided records, the facility is in compliance for the time period of August 2022 - July 2023.

EUCPGENERATOR

The facility operates a CAT 3406DI diesel fuel-fired compression ignition (CI) engine (305 hp, 4 strokes) standby emergency electricity generator to generate electricity during emergencies. The engine was installed in 1978.

II. Material Limit

Per SC II.1, the permittee shall burn only ultra-low sulfur diesel fuel, in EUCPGENERATOR with the maximum sulfur content of 15 ppm (0.0015 percent) by weight, and a minimum Cetane index of 40 or a maximum aromatic content of 35 volume percent. Chris McFarlane provided a safety data sheet from the fuel supplier that indicates the name of the oil supplier or laboratory, the sulfur content, and the cetane index or aromatic content of the fuel oil. According to the safety data sheet, the permittee only burns ultra-low sulfur diesel fuel with the maximum sulfur content of 15 ppm (0.0015 percent) by weight.

III. Process/Operational restrictions

SC III.1 states that the the permittee shall not operate EUCPGENERATOR for more than 500 hours per year on a 12-month rolling time basis as determined at the end of each calendar month. The 500 hours include the hours for the purpose of necessary maintenance checks and readiness testing. I reviewed the EUCPGENERATOR operational hour records from August 2022 through July 2023. The highest reported 12-month rolling hours of operation for EUCPGENERATOR was 44.00 hours which occurred in March 2023 and April 2023.

IV. Design/Equipment Parameters

SC IV.1 states that the permittee shall equip and maintain EUCPGENERATOR with a non-resettable hours meter to track the operating hours. I observed a non-resettable hour meter on the engine and the total operation time of the emergency generator was 653.5 at the time of the inspection.

Per SC IV.2, the EUCPGENERATOR nameplate capacity shall not exceed 305 HP at full prime for the engine, as certified by the equipment manufacturer. At the time of inspection, I observed the capacity of the engine on the nameplate as being 305HP.

VI. Monitoring/recordkeeping

SC VI.2 states that the permittee shall monitor and record, in a satisfactory manner, the hours of operation for EUCPGENERATOR on a monthly and 12-month rolling time period basis. The facility provided records of the hour of operation for EUCPGENERATOR on a monthly and 12-month rolling time period basis from August 2022 through July 2023. Details are explained above in SC III.1 (Process/Operational restrictions).

SC VI.3 states that the permittee shall maintain fuel supplier certification records, ASTM specifications, or fuel sample analyses for each delivery, or storage tank of fuel oil, used in EUCPGENERATOR, demonstrating that the fuel meets the requirements of 40 CFR 80.510(b). The certification or analyses shall include the name of the oil supplier or laboratory, the sulfur content, and the cetane index or aromatic content of the fuel oil. As previously stated, Chris McFarlane provided a safety data sheet from the fuel supplier that indicates the name of the oil supplier or laboratory, the sulfur content, and the cetane index or aromatic content of the fuel oil. See more details in SC II.1 (Material Limit).

IX. OTHER REQUIREMENT(S)

SC IX.1 states that the permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and ZZZZ, as they apply to EUCPGENERATOR. (40 CFR Part 63, Subparts A and ZZZZ, 40 CFR 63.6595). EGLE-AQD has not accepted delegation to enforce the area source requirements for this NESHAP.

FGFACILITY CONDITIONS

SC I.1-2 set the Individual and Aggregate HAPs limits for the facility. The Individual HAP limit is 8.9 tpy based on a 12-month rolling time period, and the Aggregate HAP limit is 22.4 tpy based on a 12-month rolling time period. From August 2022 through July 2023, I reviewed the 12-month rolling HAP emissions. The maximum individual 12-month rolling HAP emission was Toluene at 0.69 tpy occurring in March 2023 and April 2023. The maximum aggregate 12-month rolling HAP emission was 1.57 tpy occurring in March 2023 and April 2023.

Conclusion

Based on the observations made during the inspection, and an analysis of the requested records, the facility is in compliance with the conditions and requirements of PTI No. 136-20A.

NAME Owen Pierce

DATE 9/19/2023

SUPERVISOR K. Kelly