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

B648056936

FACILITY: DTE Gas Company - Columbus Compressor Station		**SRN / ID:** B6480
LOCATION: 1647 CAUGHILL RD., RICHMOND		**DISTRICT:** Warren
CITY: RICHMOND		**COUNTY:** SAINT CLAIR
CONTACT: Joe Neruda , Environmental Specialist		**ACTIVITY DATE:** 01/06/2021
STAFF: Shamim Ahammod	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Conducted a scheduled virtual inspection of DTE Gas Company-Columbus Compressor Station to determine the company's compliance with the requirements of the ROP No. MI-ROP-B6480-2018.		
RESOLVED COMPLAINTS:		

On January 6, 2021, Michigan Department of Environment, Great Lakes and Energy-Air Quality Division (EGLE-AQD) staff, I (Shamim Ahammod) conducted a scheduled off-site inspection of DTE Gas Company-Columbus Compressor Station located at 1647 Caughill RD, Richmond Michigan. The purpose of the inspection was to determine the company's compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); the Air Pollution Control Rules; and the conditions of Renewable Operating Permit (ROP) No. MI-ROP-B6480-2018.

Virtual Inspection

I pre-arranged a Microsoft Team Meeting at 1:00-4:00 PM for the scheduled virtual inspection with Mr. Joe Neruda, Environmental Specialist of DTE Gas Company-Columbus Compressor Station. At about 1:00 PM, DTE Staff, Mr. Neruda, and I, Shamim Ahammod (EGLE Staff) met at a virtual MS team meeting. I introduced myself to DTE staff and stated the purpose of the virtual inspection. Then I discussed the facility's operations and emissions units that are subject to the (ROP) No. MI-ROP-B6480-2018.

SOURCE DESCRIPTION

The facility is a natural gas storage and transmission facility. It uses two reciprocating internal combustion engines (RICE) under FGDELAVALS to compress natural gas for storage during summer months and transmission throughout the pipeline transmission system to customers during the winter months. The facility operates two glycol dehydration units under FGDEHY to remove moisture from natural gas when it is withdrawn from the storage field at reduced pressure. At the time of virtual inspection, gas was being withdrawn from the storage field and glycol dehydration units, EUDEHY1and EUDEHY2 were operating to remove the moisture from natural gas. The facility operates an emergency generator (EUEMERGEN) to generate electricity during an emergency.

Field Inspection and regulatory Analysis

At the time of virtual inspection, both compressors were not operating because gas was being withdrawn from the storage field at low pressure. Based on records, it appears both RICE engines, EU007 and EU008 were last operated in September 2020. EU007 and EU008 are used to compress natural gas for storage during the summer months.

SOURCE-WIDE CONDITIONS

MONITORING/RECORDING

As required in SC VII.1, Mr. Neruda provided me the source wide natural gas consumption rate from January 2019 through December 2020.

FGDEHY

FLEXIBLE GROUP CONDITIONS
At the time of virtual inspection, gas was being withdrawn from the storage field at low pressure and glycol dehydration units (EUDEHY1 and EUDEHY2) were operating to remove the moisture from the gas.

Emission Limits
Per SC I.1 and SC I.2, I have reviewed the VOC records for EUDEHY1 and EUDEHY2 for January 2019 through December 2020. The VOC emission limit for EUDEHY1 and EUDEHY2 is 6.2 tons per year and 1.9 tons per year respectively, for the 12-month rolling period as determined at the end of each calendar month.

In December 2019, for the 12-month rolling period as determined at the end of each calendar month, the VOC emission for EUDEHY1 was 203 lb (0.101 ton) that was below the permit limit (6.2 ton/year). Similarly, I reviewed the January through December 2020 data and found, end of the year (December 2020), for 12 months rolling period as determined at the end of each calendar month, the VOC emission for EUDEHY1 was 43 lb (0.0215 ton) that was below the permit limit (6.2 ton/year).

In December 2019, for the 12-month rolling period as determined at the end of each calendar month, the VOC emission for EUDEHY2 was 216 lb (0.108 ton) that was below the permit limit (1.9 ton/year). Similarly, I reviewed the January through December 2020 data and found, end of the year (December 2020), for the 12-month rolling period as determined at the end of each calendar month, the VOC emission for EUDEHY2 was 223 lb (0.111ton) that was below the permit limit (1.9 ton/year).

Process/operational Restrictions:
Per SC III.1, the permittee is required to keep the average glycol recirculation rate for EUDEHY2 below 14 gallons per minute. I reviewed the record of the average glycol recirculation rate for EUDEHY2 from January 2019 through December 2020 and found the average glycol recirculation rate for EUDEHY2 was below 14 gallons per minute. Based on records, the maximum glycol recirculation rate for EUDEHY2 was 12.1 gallons per minute which complied with the limit of 14 gallons per minute This satisfies the permit conditions outlined in SC III.1.

Design/Equipment parameters:
Per SC IV.1 and SC IV.2, a flash tank is installed, and flash tank exhaust gas is routed to an enclosed flare. Each DEHY system has an enclosed flare. There is an enclosed flare for DEHY1 and an enclosed flare for DEHY2.

Per SC IV.3, each enclosed flare is maintained and equipped with an operating temperature monitor. The operating temperature of each flare is recorded daily basis and logged. I reviewed the enclosed flare operating temperature record associated with DEHY1 and DEHY2 from January through December 2020. As required in SC III.2 (Process and operational restrictions), operation of the dehydrator shall not begin until the pilot flame reaches a minimum temperature of 1400 degree Fahrenheit. Per record reviews, I observed, EUDEHY1 and EUDEHY2 flare temperature was above than 1400-degree Fahrenheit during the operational period of January 2019 through December 2020._
Per SC IV.4, each enclosed flare is equipped with a flame detector.

Testing/Sampling
As specified in SC V.1, at least once each withdrawal season, the permittee is required to analyze the natural gas for nitrogen, carbon dioxide, hydrogen sulfide, C1 through C6 series hydrocarbons, benzene, toluene, xylene ethylbenzene, and heptane. The permittee has analyzed the natural gas for EUDEHY1 and EUDEHY2 on 1/8/2020 and 2/13/2020 respectively. I reviewed the gas analysis report for EUDEHY1 and EUDEHY2 and found they have analyzed the natural gas for nitrogen, carbon dioxide, hydrogen sulfide, C1 through C6 series hydrocarbons, benzene, toluene, xylene ethylbenzene, and heptane.

Monitoring/Recordkeeping:
Per SC VI.2, I reviewed the record of the amount of natural gas processed through each dehydrator (EUDEHY1 and EUDEHY 2) for each calendar month for January 2019 through December 2020.

Per SC VI.3, I reviewed the record of the average glycol recirculation rate for EUDEHY2 from January 2019 through December 2020 and found the average glycol recirculation rate for EUDEHY2 was below 14 gallons per minute.

Per SC VI.4, the operating temperature of each enclosed flare shall be monitored and recorded daily when the associated dehydrator is operating. I reviewed the enclosed flare operating temperature record associated with DEHY1 and DEHY2 from January through December 2020.

Per SC VI.5, the permittee shall calculate the VOC emission rates, as required in SC I.1 and I.2, from each dehydrator (EUDEHY1 and EUDEHY2) for each calendar month and 12-month rolling period. See details in SC 1.1 and I.2 of Emission Limits (FGDEHY).

Per VI.6, I reviewed the records of hours of natural gas processing, for each dehydrator (EUDEHY1 and EUDEHY2), for each month and 12-month rolling period.
For the requirement of SC VI.7, see details in SC III.1(Process/operational Restrictions-FGDEHY) and SC VI.3 (Monitoring and recordkeeping)

FGDELAVALS:

FGDELAVALS consists of two DeLaval 2000 horsepower, 4-cycles, lean-burn, spark ignition, natural gas-fired, reciprocating internal combustion engines, which are used to power natural gas pipeline compressors. At the time of inspection, I noted the operating hours of engine 1 was 96380 hours and engine 2 was 38822 hours.
Emission Units: EU007, and EU008
Pollution control equipment: Catalytic Oxidizers (DVCATOX1, DVCATOX2)

Emission Limits
Per SC I.1, I received an emissions test report for carbon monoxide (CO) emissions for engines 1 & 2 for the DTE Gas Columbus Compressor station via email from Mr. Neruda. The test was performed on August 4, 2020. The results of the testing indicate that the average Carbon Monoxide Reduction Efficiency for engines 1 and 2 are 98.5 and 99.4 respectively. It appears that Engines 1 and 2 comply with permit requirements for CO of 93% destruction efficiency.

Process/Operational Restrictions

As required in SC III.7 of Process/operational restrictions of FGDELAVALS, and as specified in 40 CFR 72.2, I received the records of natural gas usage per engine from January 2019 through December 2020. The reciprocating engines are fired only with pipeline natural gas.

Design/Equipment Parameters
Per SC IV.1, an oxidation catalyst system is installed. The permittee does not track four hours rolling average. Instead, the permittee has controls and shutdowns in place to immediately shut down the engine if the catalyst inlet temperature exceeds 1350 degrees F. As noted in the SSMP (Startup, shutdown, and malfunction plan), there are alarms and shutdown procedures in place that will shut the system down before the temperature exceeds 1350 degrees F. This satisfies the permit conditions set forth in SC IV.1.a that states "immediately shutting down the engine if the catalyst inlet temperature exceeds 1350 degrees F".

Testing/Sampling
On August 4, 2020, the permittee performed emissions test for carbon monoxide (CO) emissions for engines 1 & 2 for DTE Gas Columbus Compressor station to demonstrate compliance 40 CFR, Part 63, Subpart ZZZZ regulations.

Monitoring/Record keeping
As specified in SC VI.9, the permittee shall record the FGDELAVALS natural gas consumption rate for each calendar month. Mr. Neruda provided records of natural gas consumption of DELAVAL #1 and DELAVAL#2 from January 2019 through December 2020.

Reporting
As specified in SC VII.2 and VII.3, semiannual and annual reports are being submitted in a timely manner and no deviations were revealed.

Other Requirements
As mentioned in SC IX.1, the permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines. On August 4, 2020, an emission testing was performed on engines 1 & 2 at the inlet and outlet of each engine's catalyst to satisfy the requirements of 40 CFR Part 63 NESHAP Subpart ZZZZ.

EUEMERGEN engine

This facility has one emergency generator to generate electricity during emergency period. There is no pollution control equipment for emergency generator.

Emission Limits
Mr. Neruda sent a copy of emergency engine EPA certification to me via email. Since the engine is certified, the facility does not require to maintain SC I.1-3, according to SC VI.3 and VI.4.

Process/Operational restrictions
As required in SC III.1, Mr. Neruda provided me a copy of the emergency engine EPA certification which shows that the engine's fuel type is natural gas.

Design/Equipment Parameters
During the virtual inspection, the hour's meter displayed 890.2 hrs. It indicates that the total hours of operation of the emergency generator were 890.2 hours as of January 6, 2021.

Testing/Sampling
Since the engine is certified, the permittee does not require testing the engine.

Monitoring/recordkeeping
As required in SC VI.1, Mr. Neruda provided me a record mentioning the operation hours of an emergency generator. Based on his record, in 2020, the total operating hours of the emergency generator were 506.8 hours. Among them, 452 hours were spent for emergency operations and 54.8 hours were run for non-emergency situations. This satisfies the permit conditions outlined in SC VI.1.
Per SC VI.3, I received the documentation that the engine is certified.

FG-COLD Cleaners
The permittee frequently uses the FG-COLD Cleaners per Mr. Neruda's statement.
Emission Unit: EUCOLDCLEANER
Pollution Control Equipment: NA

As required in SC VI.2, the permittee provided the following information in my last inspection on 10/18/2019.

Station	Location	Model	Serial	Interface Area	Install Date	Solvent	Reid Vapor Pressure	Exemption
COL	Compressor Building	906601	87765	7.96 sqft	8/1/2001	Zep Dyna 143	0.067 kPA	281(h0

Based on the off-site inspection, review of records, and discussion with facility staff, the facility appears to comply with the conditions of ROP No. MI-ROP-B6480-2018.

NAME _____ DATE February 12, 2021 SUPERVISOR _____