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

B648051410

FACILITY: DTE Gas Company - Columbus Compressor Station		**SRN / ID:** B6480
LOCATION: 1647 CAUGHILL RD., RICHMOND		**DISTRICT:** Southeast Michigan
CITY: RICHMOND		**COUNTY:** SAINT CLAIR
CONTACT: Joe Neruda , Environmental Specialist		**ACTIVITY DATE:** 10/18/2019
STAFF: Shamim Ahammod	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Conducted a scheduled inspection to determine the company's compliance with the conditions of Renewable Operating Permit (ROP) No. MI-ROP-B6480-2018.		
RESOLVED COMPLAINTS:		

On Friday, October 18, 2019, Michigan Department of Environment, Great Lakes and Energy (EGLE)-Air Quality Division (AQD) staff, I (Shamim Ahammod) conducted a scheduled inspection of DTE Gas Company-Columbus Compressor Station (SRN: B6480) located at 1647 Caughill Hill, Columbus, 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.

SOURCE DESCRIPTION:
The facility is a natural gas storage and transmission facility. It runs two reciprocating internal combustion engines (RICE) under Flexible group ID-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operates two glycol dehydration units under flexible group ID-FGDEHY to remove moisture from natural gas when it is withdrawn from the storage field at reduced pressure. The facility also operates an emergency generator, EUEMERGEN to produce electricity during emergencies and a cold cleaner.

INSPECTION:
At 10:30 AM, I arrived at the facility and greeted by Mr. Joe Neruda, Environmental Specialist. I introduced myself, provided credentials and stated the purpose of the inspection. During the pre-inspection meeting, we discussed the current ROP and requested the recordkeeping and monitoring information. After that we toured the facility. During the inspection, EUDEHY1and EUDEHY2 were not in operation. I was informed that these emission units only need to be operated when withdrawing natural gas from the storage field and only when moisture content of the natural gas exceeds pipeline quality standards. No gas was being withdrawn from the storage field at the time of the inspection. It appears to me that a flash tank and an enclosed flare were installed with both glycol dehydration units. At the time of inspection, both compressors, EU007 and EU008 were not in operation. I was informed that the facility was in full capacity. I observed catalytic oxidizers were installed with both engines. I inspected the parts cleaner equipment. It was not in operation during my visit. I observed the non-resettable hours meter in EUEMERGEN with a reading of 368.8 hours on October 18, 2019.

REGULATORY ANALYSIS

SOURCE-WIDE CONDITIONS

MONITORING/RECORDING
As required in SC VII.1, Mr. Neruda provided me the source wide natural gas consumption rate from January 2018 through September 2019.

EUEMERGEN

The facility operates a natural gas-fired emergency engine to generate electricity during emergencies. It subject to the New Source Performance Standard for Spark Ignition Internal Combustion engines promulgated in 40 CFR 60 Subpart JJJJ. There is no pollution control equipment for this emergency generator.

Emission Limits

I was provided with an EPA certificate demonstrating that EUEMERGEN is a certified engine. Since the engine is certified and operating it as a certified engine according to the manufacturer's emission-related written instruction, the facility does not require to maintain SC I.1-3 (emission limit) according to SC VI.3 and VI.4 (Monitoring/recordkeeping).

Material Limits: NA

Process/Operational restrictions

Per SC III.1 of EUEMERGEN, the permittee shall only fuel the engine with pipeline-quality natural gas. Pipeline quality natural gas definition in 40 CFR 60.331(u), "Natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions. Natural gas contains 20.0 grains or less of total sulfur per 100 standard cubic feet. Equivalents of this in other units are as follows: 0.068 weight percent total sulfur, 680 parts per million by weight (ppm) total sulfur, and 338 parts per million by volume (ppmv) at 20 degrees Celsius total sulfur. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1100 British thermal units (Btu) per standard cubic foot. Natural gas does not include the following gaseous fuels: landfill gas, digester gas, refinery gas, sour gas, blast furnace gas, coal-derived gas, producer gas, coke oven gas, or any gaseous fuel produced in a process which might result in highly variable sulfur content or heating value."

As stated in SC III.2 and 40 CFR 60.331(u), the pipeline-quality natural gas shall not have a total sulfur content in excess of 20 grains of sulfur per 100 Standard Cubic Foot (SCF) and have a caloric value between 950 and 1100 BTU per standard cubic foot. I reviewed a record, named DTE gas Pipeline Quality Natural Gas Tariff page issued by Michigan Public Service Commission and found the natural gas consumed at this facility does not contain more than 5 grains of total Sulfur per 100 cubic feet and have a gross calorific value between 950 and 1100 British thermal units (Btu) per standard cubic foot. Per SC III.3, for maintenance and readiness testing, the emergency generator was operated 50.1 hours which was below permit limit of 100 hours per year in 2018. Per SC III.5, since the permittee operates the EUEMERGEN according to requirement in 40 CFR 60.4243(d) (EUEMERGEN SC III. 2 through 4), the engine is considered as an emergency engine. Therefore, SC III.5 is not required for this engine. Per SC III.6, the permittee purchased a certified engine and operating it as a certified engine.

Design/Equipment Parameters

I observed a non-resettable hour meter was installed on the engine and the emergency generator has been operated with a total of 368.8 hours by October 18, 2019.

Testing/Sampling

According to SC V.1, if the permittee purchased a non-certified engine or operates a certified engine in a non-certified manner, the permittee shall conduct a performance test. Since the engine is certified and operates in certified manner, the testing requirement is not required for this engine.

Monitoring/recordkeeping
As required in SC VI.1, Mr. Neruda provided me a hard copy of records demonstrating operational hours of emergency generator. Based on record, the total operation time of the emergency generator was 105.5 hours in 2018. The emergency generator was operated 50.1 hours for maintenance and readiness tests and 55.4 hours for emergency use.
Per SC VI.3, I received a certification (certificate Number: FCEXB19.0ENA-003) provided by Environmental Protection Agency (EPA) that indicated the engine was certified.

Reporting
Per VII.4, since the engine is certified, no performance test is required.

FGDEHY

FLEXIBLE GROUP CONDITIONS

FGDEHY consists of two glycol dehydration units, EUDEHY1and EUDEHY2, each with emissions controlled by a thermal oxidizer. The purpose of the glycol dehydration unit is to remove excess moisture from natural gas when it is withdrawn from the storage field at reduced pressure.
Pollution Control Equipment: Enclosed flare

Emission Limits
Per VOC emission records, VOC emissions from both dehydrators were far below the permit limits. See details below:

Equipment	Pollutant	VOC emissions 12 months rolling period (October 2018 through September 2019)	Limit, basis on the 12-month rolling time period
EUDEHY1	VOC	101.5 lbs	12,400 lbs
EUDEHY2	VOC	183 lbs	2600 lbs

Material Limits: NA
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. Mr. Neruda provided the glycol recirculation rate via email. Based on records, the average glycol recirculation rate for EUDEHY2 was below 14 gallons per minute, calculated on a calendar month basis from January 2018 through September 2019.

Design/Equipment parameters:
Per SC IV.1, during the inspection, I observed a flash tank and it appears to be properly installed and maintained. As required in SC VI.2, the enclosed flare was installed with EUDEHY1 and EUDEHY2. Per SC IV.3-4, each of the enclosed flares for FGDEHY was equipped with a temperature monitor and flame detector.

Testing/sampling
As specified in SC V.1, the permittee is required to analyze the natural gas for nitrogen, carbon dioxide, hydrogen sulfide, C1 through C 6 series hydrocarbons, benzene, toluene, xylene ethylbenzene, and heptane at least once each withdrawal season. I was provided a gas analysis report for EUDEHY 1 and EUDEHY 2 analyzed on 1/28/2019. I reviewed these reports. This satisfies the permit conditions

set forth in SC V.1 as well as SC VI.8.

Monitoring/Recordkeeping
Per SC VI.1, SC VI.2, and. SC VI.6, I was provided the records of the amount of natural gas processed through each dehydrator (EUDEHY1 and EUDEHY 2) for each calendar month and 12-month rolling period from January 2018 through September 2018. I reviewed these documents.

Per SC VI.3 and SC VI.7, I received and reviewed the records of glycol re-circulation rate for each dehydrator from January 2018 through September 2018.

Per SC VI.4, from January 2018 through December 2018, the permittee provided the operating temperature of each enclosed flare on a daily basis when the associated dehydrator was operating. As required in SC VI.6, the permittee provided daily records of hours of natural gas processing for each dehydrator from January 2018 through September 2018. Per SC VI.8, at the time of inspection, Mr. Neruda provided me a wet gas analysis report with wet gas composition for Dehy 1 and Dehy2, which is required by SC VI.8.

Reporting
Per SC VII.2 and SC VII.3, semiannual and annual reports were received by AQD District office in a timely manner. During the entire reporting period, all monitoring and associated recordkeeping requirements in the ROP were met and no deviations were observed.
Stack/vent restrictions

Stack and vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above ground	Compliance (Yes/No)
1. SVDEHYDRATOR1	48.0	30	Yes
2. SVDEHYDRATOR2	Not restricted	17	Yes

Based on my observations, the exhaust stacks appeared vertical and unobstructed and the SVDEHYDRATOR 1 stack diameter appeared 48 inches or less in diameter and appeared to be at least 30 feet above ground in height. The SVDEHYDRATOR2 exhaust stack diameter does not have a maximum permitted diameter. SVDEHYDRATOR2 appeared to satisfy the minimum height of 17 feet above the ground.

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.
Emission Units: EU007, and EU008
Pollution control equipment: Catalytic Oxidizers (DVCATOX1, DVCATOX2)
Emission Limits
Per SC I.1, I was provided an emissions test report for carbon monoxide (CO) emissions for engines 1 & 2 for DTE Gas Company-Columbus Compressor station. The test was performed on August 15, 2019. The results of the testing indicate that the average Carbon Monoxide Reduction Efficiency for

engines 1 and 2 were 98.3 and 99.1 respectively. It appears that the Engines 1 and 2 are in compliance with permit requirements for CO of 93% destruction efficiency.

Material Limits: NA

Process/Operational Restrictions

Per SC III.7 and as specified in 40 CFR 72.2, the permittee shall only fire pipeline natural gas in the reciprocating engines at this facility. See details in SC III.1 of EUEMERGEN (Process/Operational restrictions).

Design/Equipment Parameters

Per SC IV.1, the catalysts were installed, maintained and operated in a satisfactory manner. 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 shutdowns in place. This satisfies the permit conditions set forth in SC IV.1.a that "immediately shutting down the engine if the catalyst inlet temperature exceeds 1350 degrees F''.

Testing/Sampling

On August 15, 2019, the permittee conducted 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/Recordkeeping

Per SC VI.1, VI.2, and VI.6 of FGDELAVALS and 40 CFR Part 63 Subpart ZZZZ, DTE records the temperature at the inlet of each catalyst on a continuous basis. I was provided the record of inlet temperature of each catalyst while engines were operating from February 2018 through September 2019. The temperature was recorded each 15 minutes interval. The thermocouples were most recently calibrated on 4/26/2019.

Per SC VI.4, the permittee is not required to install, maintain and operate a continuous emission monitoring system (CEMS) since the permittee installed and maintained Continuous Parameter Monitoring System (CPMS) as required in SC VI.1.

Per SC VI.9, Mr. Neruda provided the record the FGDELAVALS natural gas consumption rate for each calendar month from January 2018 through September 2019.

Reporting

As specified in SC VII.2 and VII.3, semiannual and annual reports were received by AQD District Office on time and no deviations were reported.

Stack/vent Restrictions: NA

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 September 6, 2018, an emission test was conducted 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.

FG-COLD CLEANERS

At the time of inspection, EUCOLDCLEANER was not in operation.

Material Limits
Per SC II.1, the permittee shall not use cleaning solvents containing more than five percent by weight of the following halogenate compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof. I was provided a material safety data sheet (SDS) and I found the solvent used in the FG-COLD CLEANER (Parts Washer) is ZEP DYNA 143. The MSDS does not list any halogenated solvents and therefore it appears to comply with the permitted material limits.

Design/equipment parameters
As specified in SC IV.1.a and SC IV.1.b, the cold cleaner has an air/vapor interface of not more than ten square feet and emissions were released to the general in-plant environment. Per SC IV.2, cold cleaner was equipped with a device for draining parts. As required in SC IV.3, lid to the cold cleaner was closed at the time of the inspection.

Monitoring/recordkeeping
As required in SC VI.2 of monitoring/recordkeeping, the permittee provided the following information:

Station	Location	Model	Serial	Interface Area	Installation Date	Solvent	Reid Vapor Pressure	Exemption
COL	Compressor Building	906601	87765	7.96 sqft	8/1/2001	Zep Dyna 143	0.067 kPA	281(2)(h)

Conclusion
Based on an onsite inspection, review of records, and discussion with DTE Gas Company-Columbus Compressor Station's staff, the facility appears to be in compliance with the conditions of ROP No. MI-ROP-B6480-2018.

NAME _____ DATE 12.05.19 SUPERVISOR _____

DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY DIVISION

FCE Summary Report

Facility :	DTE Gas Company - Columbus Compressor Station	**SRN :**	B6480
Location :	1647 CAUGHILL RD.	**District :**	Southeast Michigan
		County :	SAINT CLAIR
City :	RICHMOND **State:** MI **Zip Code :** 48062	**Compliance Status :**	Compliance
Source Class :	MAJOR	**Staff :**	Shamim Ahammod
FCE Begin Date :	12/6/2018	**FCE Completion Date :**	12/5/2019
Comments :	Conducted a scheduled inspection of DTE Gas Company-Columbus Compressor Station		

List of Partial Compliance Evaluations :

Activity Date	Activity Type	Compliance Status	Comments
11/27/2019	ROP Semi 1 Cert	Compliance	Semi-annual report from January 2019 to June 2019. The annual catalyst efficiency test plan was not submitted to the AQD at least 60 days prior to testing as required.
11/27/2019	MACT (Part 63)	Compliance	Carbon Monoxide Emissions Compliance Test Report, Units 1 and 2. TEST DATE: 08-15-2019.
10/18/2019	Scheduled Inspection	Compliance	Conducted a scheduled inspection to determine the company's compliance with the conditions of Renewable Operating Permit (ROP) No. MI-ROP-B6480-2018.
07/03/2019	ROP Other	Compliance	Letter signed by Matthew T. Paul, President and COO, DTE Gas, delegating Tom Anderson and Olukayode Dawodu (next level up manager) as Authorized Representatives.
03/27/2019	ROP Annual Cert	Compliance	No deviations.
03/27/2019	ROP SEMI 2 CERT	Compliance	No deviations.
03/19/2019	MAERS	Compliance	MAERS Certification form received March 15, 2019.

Name: _____ **Date:** 12.5.19 **Supervisor:** _____