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

N816264059

FACILITY: CLAYTON UNIT CPF		**SRN / ID:** N8162
LOCATION: COBRA - CLAYTON UNIT FACILITY, MELITA		**DISTRICT:** Bay City
CITY: MELITA		**COUNTY:** ARENAC
CONTACT: JIM CLARK , SAFETY & FACILITY COMPLIANCE COORDINATOR		**ACTIVITY DATE:** 08/05/2022
STAFF: Nathanael Gentle	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: On-site Scheduled Inspection FY 22		
RESOLVED COMPLAINTS:		

On August 5, 2022, AQD staff conducted a scheduled onsite inspection at the Cobra Oil and Gas Corporation, Clayton Facility, SRN N8162. Staff arrived onsite at 9 AM and departed at 11:10 AM. The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment Great Lakes and Energy, Air Quality Division (AQD) Administrative Rules; and to evaluate compliance with the facilities Permit to Install (PTI) No. 303-08C. EGLE staff were assisted onsite by Mr. Jim Clark, and Mr. Sam Matthews. Records were provided by Mr. Jim Clark. At the time of inspection, the facility was found to be in compliance.

Facility Description and History

The Cobra Clayton Facility is located on La Grant Rd in Arenac County. Coordinates for the facility are 44.154341, -83.980992. The facility gathers, compresses, and dehydrates natural gas from multiple sweet wells before the gas is sent to Cobra's West Branch Production and Gathering Facility. The Clayton facility operates 24-hours a day, seven days a week. The station is manned daily, as necessary, to monitor equipment and perform maintenance. Personnel are always available on-call. Material routed to the facility is drawn from the Prairie Du Chien (PDC) zone. One Permit to Install (PTI) is associated with the facility, PTI No. 303-08C. PTI No. 303-08C was issued on August 22, 2017 for the replacement of the previous rich burn engines at the facility with the now lean burn engines.

Natural gas enters the facility and is first passed through one of three low pressure separators. In addition to the three low pressure separators, the facility has seven high pressure separators. Currently the high pressure separators are not being operated. After gas is passed through the separators, it is compressed by the onsite compressor engines. Gas is then sent to an onsite triethylene glycol (TEG) dehydration system. Once moisture is removed in the TEG dehydrator, gas is sent to Cobra's West Branch Production and Gathering Facility.

The Cobra Clayton Facility is a synthetic minor source of NOx, CO, VOCs, and HAPs. As a synthetic minor source, the facility is required to complete emission reporting to MAERS. These reports have historically been submitted timely and complete. No complaints are on record for the facility. The Cobra Clayton Facility was last inspected on March 9, 2018. At the time of the March 2018 inspection, the facility was found to be in compliance.

Compliance Evaluation

EUTEG-1

EUTEG-1 is a triethylene glycol dehydration system used to remove moisture from natural gas. The unit is equipped with a condenser into which exhaust gas is routed. Exhaust from the condenser is routed to the units reboiler burner where it is combusted, S.C. IV. 1.

Sampling and analysis of the EUTEG-1 inlet wet gas stream is completed once each calendar year, S.C. V. 1. Samples are collected at a port located right before the inlet to EUTEG-1. The samples are collected and analyzed by a third party. Records of the most recent gas sample analysis were provided and reviewed, S.C. VI. 4. The most recent sample was collected on 6/25/2021. Sample collection and analysis was completed by SPL Traverse City Laboratory. The sample was analyzed for the components required by S.C. V. 1. including, nitrogen, carbon dioxide, hydrogen sulfide, C1 through C6 series hydrocarbons, benzene, toluene, xylene, ethylbenzene, hydrogen sulfide and heptanes plus. Results from the sample analysis are entered into GLYCalc to calculate emissions from EUTEG-1. A sample GLYCalc report was provided by the facility. Gas composition parameters used in the GLYCalc report were verified to match those from the gas sample analysis.

Special Condition V. 1. requires samples be collected once per calendar year. As the most recent sample was collected in calendar year 2021, sampling and analysis must be completed before the end of calendar year 2022.

EUTEG-1 is equipped with a flow meter that tracks gas throughput. Staff write down flow amounts daily and enter the information into the company's production database. Gas throughput values are entered into GLYCalc to calculate VOC and benzene emission rates. Monthly and 12 month rolling emission records were provided for the period of January 2021 through June 2022, S.C. VI. 3. During the period reviewed, the highest 12 month rolling benzene emissions was 0.0260 tons at the end of January 2021, well below the emission limit of 0.29 tpy, S.C. I. 1. The highest 12 month rolling VOC emissions was 0.77 tons at the end of January 2021, well below the emission limit of 2.59 tpy, S.C. I. 2.

EUTEG-1 meets the exemption criteria in 40 CFR 63.764(e)(1)(ii) for glycol dehydrators with actual average benzene emissions less than 0.90 megagrams per year (0.99208 tons/year). The permitted benzene emission limit for EUTEG-1 is 0.29 tpy, S.C. I. 1. Therefore, maintaining compliance with the permitted emission limit ensures the exemption criteria in 40 CFR 63.764(e)(1)(ii) is met.

EUGEN-1

EUGEN-1 is a 232 HP diesel fired emergency generator engine. The engine is used as needed to provide energy to meters and electronics at the facility during periods in which energy is not available from the grid. EUGEN-1 is equipped with an hours meter. At the time of inspection, the hours meter was observed to read 2058.4 hours. EUGEN-1 shall not be operated for more than 500 hours per 12-month rolling period, S.C. III. 1. Records of hours of operation were provided and reviewed for the period of January 2021 through July 2022, S.C. VI. 1. During the period of records reviewed, the generator was operated for 68 hours in April 2022 and 38 hours in July 2022, well below the permitted limit of 500 hours per 12-month rolling time period.

EULOADOUT

Condensate separated out of the natural gas stream is routed to onsite storage tanks. The condensate is stored in the onsite storage tanks until is loaded out and trucked out of the facility. The loadout system is equipped with a vapor balance system, S.C. IV. 1. The vapor balance system ensures offset vapors from the unloading process are collected. A vapor recovery unit (VRU) is in place and routes vapors from the condensate and produced water tanks back to the separators at the inlet to the facility. In the event the VRU were to malfunction, or power was not available to the unit, a flare is available as backup. During the onsite inspection, the pilot of the flare was observed to be lit. The flare is equipped with a thermocouple to monitor the pilot status. If the pilot were to go out, the drop in temperature would trigger a callout to staff.

FGENGINES

FGENGINES consists of two natural gas fired reciprocating engines, EUENG-2 and EUENG-3. Both units are Caterpillar G3512 LE natural gas fired SI-4SLB engines with a rated capacity of 6.37 MMBtu/Hour. The engines are not subject to NSPS JJJJ as they were ordered and manufactured before June 12, 2006. The engines are not equipped with a control device as BACT for the units is no control as it would not be cost effective to control VOC emissions from the engine exhaust. In addition, the combustion chambers in the engines destroy VOCs in the fuel.

A Malfunction Abatement Plan (MAP) is in place for the two units, S.C. III. 1. A copy of the MAP was submitted to the AQD in August 2017. Routine maintenance is conducted on the units. Both compressor engines are leased by Cobra. Staff report maintenance on the units is conducted by the lease company.

Both EUENG-2 and EUENG-3 are equipped with devices to monitor and record the hours of operation, S.C. IV. 2. As part of daily rounds, staff record daily hours of operation, which are then entered into the facilities database. Records of monthly and 12-month rolling hours of operation were provided and reviewed for the period of January 2021 through June 2022.

During the period of records reviewed, the maximum monthly hours EUENG-2 was operated was 744 hours in August 2021. The minimum monthly hours EUENG-2 was operated was 671 hours in February 2022. The maximum 12-month rolling hours of operation for EUENG-2 was 8708 hours in October 2021. The minimum 12-month rolling hours of operation for EUENG-2 was 8649 hours in May 2021.

During the period of records reviewed, the maximum monthly hours EUENG-3 was operated was 744 hours in August 2021. The minimum monthly hours EUENG-3 was operated was 671 hours in February 2022. The maximum 12-month rolling hours of operation for EUENG-3 was 8708 hours in October 2021. The minimum 12-month rolling hours of operation for EUENG-3 was 8649 hours in May 2021.

Hours of operation are used to calculate NOx and CO emissions from the two units. Staff report the facility utilizes the manufacturer emission factors to complete emission calculations. Special Condition V. 1. states that the permittee shall verify NOx and CO emission factors for engines in FGENGINES by means of testing at the request of the AQD District Supervisor. At this time testing to verify emission factors for the units has not been requested for the facility.

Records of NOx and CO emissions were provided and reviewed for the period of January 2021 through June 2022, S.C. VI. 6 and S.C. VI. 7. During the period of records reviewed, the max 12-month rolling NOx emissions for both EUENG-2 and EUENG-3 was 16.51 tons, this is below permitted limit of 18 tpy, S.C. I. 1. and S.C. I. 3. During the period of records reviewed, the max 12-month rolling CO emissions for both EUENG-2 and EUENG-3 was 16.26 tons, this is below permitted limit of 21 tpy, S.C. I. 2. and S.C. I. 4.

FGFACILITY

FGFACILITY includes emission limits and conditions that apply source wide to the Cobra Clayton Facility. Only sweet natural gas is burned at the facility, S.C. II. 1. All wells feeding into the facility draw sweet material from the PDC Zone. Verification of H2S and/or sulfur content of the natural gas may be requested by the AQD District Supervisor, S.C. V. 1. At this time testing has not been requested. Gas that is not sent to sales is used as fuel for equipment onsite, S.C. III. 1.

As previously discussed, A vapor recovery unit (VRU) is in place that routes vapors from the condensate and produced water tanks back to the separators at the inlet to the facility, S.C. IV. 1. A flare is available as backup, S.C. III. 4. The pilot of the flare was observed to be lit during the onsite inspection.

The facility maintains a spreadsheet which is used to tabulate combined emissions for all equipment at the facility. Records of facility emissions were provided and reviewed for the period of January 2021 to June 2022, S.C. VI. 2. Emission records are maintained for all equipment onsite including the separators operating as exempt from needing a PTI. During the period of records reviewed, the highest NOx 12-month rolling emissions occurred at the end of May 2022 with 34.45 tons. This is below the permitted limit of 54 tpy, S.C. I. 1. The highest CO 12-month rolling emissions occurred at the end of May 2022 with 33.77 tons. This is below the facility limit of 60 tpy, S.C. I. 2. The highest VOC 12-month rolling emissions occurred at the January 2021 with 5.62 tons. This is well below the facility limit of 39 tpy, S.C. I. 3.

Individual and aggregate hazardous air pollutant (HAP) emissions are calculated and tracked by the facility. Records of 12 month rolling individual and aggregate HAP emissions were provided and reviewed for the period of January 2021 to June 2022, S.C. VI. 3. HAPs from the facility include formaldehyde, benzene, n-hexanes, and toluene. During the period of records reviewed, the largest individual HAP emissions was formaldehyde with 0.84 tpy. Well below the limit of 9 tpy for each individual HAP, S.C. I. 4. During period of records reviewed, the largest 12-month rolling total HAP emissions was 0.89 tons. Well below the permitted limit of 22.5 tpy, S.C. I. 5.

Summary

The Cobra Clayton Facility is located on La Grant Rd in Arenac County. The facility operates 24 hours a day, 7 days a week, gathering, compressing, and dehydrating natural gas from multiple sweet wells. The facility is a synthetic minor source of NOx, CO, VOCs, and HAPs. Based on the records reviewed and the observed activities onsite, the facility appears to be operating in accordance with the requirements of PTI No. 303-08C. At this time, the facility appears to be in compliance.

Nathanael Gerstle DATE 9/7/2022 SUPERVISOR Chris Hare

NAME