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

N612473003		
FACILITY: RIVERSIDE - BART STAR CPF		SRN / ID: N6124
LOCATION: SW SW SEC 1 T30N R5W, STAR TWP		DISTRICT: Gaylord
CITY: STAR TWP		COUNTY: ANTRIM
CONTACT: Natalie Schrader, Environmental Specialist		ACTIVITY DATE: 07/02/2024
STAFF: Lindsey Wells	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY24 on-site inspection and records review; no further action recommended;		
RESOLVED COMPLAINTS:		

Introduction

NO40470000

On July 2, 2024, AQD District staff Lindsey Wells and Tammie Puite mobilized to the Bart Star Central Production Facility (CPF) to conduct an unannounced compliance inspection. This facility is identified as State Registration Number (SRN: N6124) and is located in the southeast quarter of the southwest quarter of the southwest quarter of Section 1 in Star Township of Antrim County (Township 30 north, range 5 west, T30N-R5W). The facility is currently operated by Riverside Energy.

The purpose of the on-site inspection was to determine compliance with permit to install (PTI) 682-96. Records review is incorporated into this report.

Summary

Based on the evaluation it appears the facility operates in general compliance with PTI 682-96. No compliance issues were noted during the site visit or records review.

Facility Information

The facility is a CPF that dehydrates and compresses natural gas prior to transfer to a pipeline. Separators remove condensate and water from natural gas which is then compressed, dehydrated, and sent to a pipeline. The referenced facility is classified as an opt-out source by virtue of the permit limiting emissions below major source thresholds.

Permits of Record

The current permit 682-96 appears to be the original and only permit of record. It was issued on November 13, 1996 to Terra Energy Ltd. The permit application lists gas extraction as the general nature of the business and included natural gas compression, glycol dehydration, and separation of water from the gas stream. The file does not contain a name change notification from Terra to Quicksilver, but operator correspondence from Quicksilver begins in 2003. Transfer of ownership is recorded for Breitburn beginning 11/1/2007 and Riverside Energy beginning 9/1/2021.

Equipment of Record

The application package identifies two compressors by gas compressor skid (GCS) numbers 789 and 799. Both are also noted as 830 horsepower rich burn engines equipped with 3-way catalytic converters in the malfunction abatement plan (MAP). Also identified are a 125,000 btu/hr glycol dehydrator reboiler with a still column and two 400 barrel (bbl) produced water tanks.

Facility Access

There are multiple routes to the facility. Staff accessed the facility by travelling east on Alba Road, north on Patterson Road, then east on Van Tyle road, which is rough. The access drive on Van Tyle can be identified by its Y shape (note that an unidentified gated drive is located nearby to the west). A review of aerials is recommended. At the time of inspection the property layout appeared as follows:

The site is gated and unmanned. The compressor is equipped with green lights which were illuminated at the time of inspection. A large compressor building is located on the north end. The drive continues westward down a hill to a tank battery but does not go through. Both compressors exhaust out the west side of the building. The north compressor is skid 799 and the south compressor is skid 789.

On-Site Inspection Notes

At the time of the 7/2/2024 inspection, the ambient temperature was 62 degrees (Fahrenheit), conditions were intermittent light winds and rain. No visible emissions were observed. Both compressor engines were operating at the time of inspection. Each appears to be equipped with an add-on catalyst with leads on either side. Skid 789 (south) is equipped with an MECR Rich Burn Air to Fuel Ratio electronic controller (AFRC) that displayed readings of pre: 945 and post:

1012. The murphy-matic controller at the front of the skid displayed 1153 rpm. Located inside the murphy cabinet is a loose Michigan CAT rebuild tag dated 7/17/2017 Serial Number 49C00746, manufacture date 6/25/1980. The original CAT nameplate was located on the engine with the same serial number. Skid 799 (north) is also equipped with an AFRC. The fault indicator was illuminated solid red. Affixed to the engine was a Michigan CAT rebuild nameplate that appears to read a rebuild date of 3/19/2018, Serial Number 35B01192, manufacture date 1/4/1974. Also affixed to the engine was the original CAT nameplate with the same serial number. All plates appear to list a horsepower of 1033 and rated RPM of 1200.

COMPLIANCE EVALUATION: PTI 682-96

Requested records were received electronically on July 16, 2024. The records review has been incorporated into this report.

PTI 682-96 Special Condition 13 limits emissions of nitrogen oxides (NOx), carbon monoxide (CO), and volatile organic compounds (VOC) to 89 tons per year each, based on a 12-month rolling time period. Maximum total facility emissions for the evaluation period were reported as 10.58 tons NOx, 28 tons CO, and 0.59 tons VOC, as required by special condition 15. These emissions include catalyst control for the engines.

Engine 1 (skid 789) reported maximum emissions were 4.20 tpy NOx, 14.13 tpy CO, and 0.28 tpy VOC for the evaluation period. Engine 2 (skid 799) reported maximum emissions were 3.99 tpy NOx, 13.44 tpy CO, and 0.27 ton VOC. The facility uses AQD default emission factors from the air emissions reporting system to calculate emissions, consistent with their annual emission reporting. The facility used EPA emission factors to calculate maximums of 2.48 tons NOx, 0.62 tons CO, and 0.05 tons VOC from the glycol dehydrator process heater.

PTI 682-96 special condition 14 limits the emission of any individual hazardous air pollutant (HAP) to 9 tons per year (tpy) and total HAP emissions to 22.5 tpy, but only establishes HAP emission factors for glycol dehydrators processing from Prairie Duchein and Niagaran formations. The facility's reports to process Antrim formation only. Special conditions 16, 17, and 19 require the facility to monitor, record, and maintain for two years at an approved location the following records:

- Monthly fuel consumption in million cubic feet (MMCF)
- Monthly crude/condensate throughput to tanks, in barrels (bbls)
- Monthly hydrocarbon liquid trucked (bbls)
- Glycol circulated through the dehydrator in gallons per minute (gpm)
- A log of all significant maintenance activities and repairs made to equipment

Records of monthly fuel consumption are included in the facility's emission calculation records and are maintained in an electronic database. The facility reports that no crude oil/condensates are processed or stored at the facility, indicating there are no hydrocarbon liquids to be trucked. The facility reports the industry standard maximum glycol circulation rate of 0.67 gallons per minute.

The permittee follows a malfunction abatement plan (MAP) that was approved by the AQD on 8/25/2022. The MAP describes the following maintenance activities and repair action levels:

- offline checks are performed every 60-90 days
- oil changes are performed approximately every 1440-2160 hours of operation, which roughly corresponds to a quarterly basis.
- monthly catalyst checks including a maximum outlet temperature of 1350 Fahrenheit. The outlet temperature must be greater than the inlet temperature.
- The catalyst is washed or replaced every 12-18 months
- The catalyst is tested upon replacement

Records provided conform to the requirement to log all maintenance and repairs, and indicate that the facility performs service consistent with the MAP. The operators record engine and compressor parameters for on a daily log and scheduled service and repair details on a maintenance log. If the catalyst is continuously in use and maintained in accordance with the MAP, the permittee can apply AQD default control efficiencies of 90% NOx, 80% CO, and 50% VOC control to the calculated emissions.

Condition 19 also requires the facility to conduct all necessary maintenance and make all necessary attempts to keep all components of the process equipment in proper operating condition at all times. As noted above the facility monitors engine and compressor parameters daily. The facility also monitors dehydrator equipment daily and records indicate that H2S concentration is checked bi-weekly to assess iron sponge performance.

Special condition 18 requires the permittee to report emissions annually to the AQD. The facility's 2023 emission report was received timely and noted as acceptable.

Special condition 20 that details requirements for crude oil and condensate storage tanks is not applicable as the facility does not currently store crude oil or condensate on-site.

Special condition 21 is obsolete due to Rule 913 having been rescinded. However, the facility reports that neither engine operated without controls since Riverside assumed operation of the site in 2021.

Special condition 22 is a requirement to conduct, record, and provide upon request an applicability determination for NSPS subpart triple K (40 CFR Part 60 New Source Performance Standards for Onshore Natural Gas Processing Facilities). The facility is required to perform all required monitoring, maintain records for 2 years, and provide those records upon request if the facility is subject to the rule.

Special condition 23 specifies minimum requirements for any stack testing conducted at the facility in accordance with Rules 1001, 1003, and 1004. To date, no testing has been required or requested.

Special condition 24 limits the facility to processing only sweet gas as defined in Rule 119. Specifically, any gas that is not a sour gas. Sour gas is defined as 1 grain hydrogen sulfide or 10 grains of total sulfur per 100 standard cubic feet of gas. The facility provided an operator's log for May 2024 that noted bi-weekly, numerical H2S readings in parts per million (ppm). Records provided in the form of email correspondence detail that new equipment capable of automatic H2S readings is installed on the iron sponge, and an outlet concentration greater than or equal to 4 ppm triggers sponge media changeout. May 2024 readings were below at or below 1.75 ppm.

Although PTI 682-96 does not include change-out language, the facility reports no engine swaps or changeouts since they took over operations of the site in January 2021.

PTI 682-96 does not include stack/vent restrictions. The engines exhaust out of the side of the compressor building near the roof-line.

Compliance Evaluation: Other Requirements

This section addresses the applicability of requirements not listed in PTI 682-96 that may apply to the facility. The facility may be subject to federal regulations. Subparts frequently associated with this source category are identified below. Note however that compliance with these subparts has not been determined as part of this evaluation.

With respect to Maximum Achievable Control Technology Standards (MACT 40 CFR 63) the following subparts may apply:

- MACT Subpart HH (Hazardous Air Pollutants (HAPs) from oil and natural gas production facilities
- MACT Subpart ZZZZ (HAPS from Stationary Engines)

The facility has one dehydrator on-site that may be subject to MACT Subpart HH. The facility reports that they meet the exemption due to gas throughput of less than 3 million standard cubic feet per day (MMSCF). The provided records indicated an average throughput of less than 1460 MSCF per day, which is 1.46 MMSCF. District files include a 2/9/2011 subpart ZZZZ notification that the engines are greater than 500 horsepower, 4-stroke, remote engines. The facility's MAP does not identify subpart ZZZZ requirements. Provided records included an aerial map with a guarter mile radius overlay and claim of remote status.

With respect to New Source Performance Standards (40 CFR Part 60 NSPS) commonly associated with this source category are discussed below. Note that no compliance determinations have been made with respect to the following subparts.

- NSPS Subparts K, Ka or Kb (Storage vessels for Petroleum Liquids); At the time of the inspection the storage tanks present appear to be smaller than the lowest threshold of approximately 19,815 gallons or 471 barrels (bbl). The tanks currently present on-site are labeled as not in use.
- NSPS Subpart triple K (Equipment Leaks of VOC from onshore natural gas processing plants); The facility does not currently process (extract or fractionate) natural gas liquids (hydrocarbons) from field gas. As noted above the district files include the facility's 2004 applicability determination that the facility is not subject to the rule.
- NSPS Subpart OOOO (Standards of Performance for Crude Oil an NG Production, Transmission and Distribution) and Subpart OOOOa would apply to onshore affected facilities that are constructed, modified or reconstructed

after August 23, 2011, and September 18, 2015, respectively. Based on available information it appears that the referenced subpart is not applicable at this time but that future changes may be subject to the referenced subpart

 NSPS Subpart JJJJ for Spark Ignition (SI) Reciprocating Internal Combustion Engines (RICE) may apply in the future for subsequent/additional engines. Based on information in district files, the engines predate the applicability of JJJJ by virtue of pre 2006 manufacture dates observed on their nameplates.

Based on observations at the time of the July 2, 2024 site inspection and review of records provided by facility staff, the facility appears to be operating in general compliance with PTI 682-96.

indsey wells NAME

DATE 12-2-24

hane, Wixon SUPERVISOR