

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

N613871299

FACILITY: RIVERSIDE - GREEN RIVER SOUTH (SNL) CPF		SRN / ID: N6138
LOCATION: 10691 E. CARTER RD. SUITE 201, MANCELONA TWP		DISTRICT: Cadillac
CITY: MANCELONA TWP		COUNTY: ANTRIM
CONTACT: Natalie Schrader , Sr. Compliance Coordinator		ACTIVITY DATE: 10/10/2023
STAFF: Lindsey Wells	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY24 on-site inspection and records review		
RESOLVED COMPLAINTS:		

Introduction

On October 10, 2023, AQD District staff Lindsey Wells and Sharon LeBlanc mobilized to the Green River South – Saturday Night Live Central Production Facility (CPF) to conduct an unannounced compliance inspection. This facility is identified as State Registration Number (SRN: N6138) and is located in the northeast quarter of the southwest quarter of Section 4 in Mancelona Township of Antrim County (Township 29 north, range 6 west, T29N R6W). The facility is currently operated by Riverside Energy.

The purpose of the on-site inspection and records review were to determine compliance with PTI 696-96A.

Summary

Based on the evaluation it appears the facility operates in general compliance with PTI 696-96A. No compliance issues were noted during the site visit or records review.

Facility Information

The facility is a CPF that compresses and dehydrates 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 a synthetic minor Title 5 opt-out source by virtue of the permit limiting emissions below major source thresholds.

Permits of Record

The facility was originally permitted under PTI 696-96, which was issued on December 23, 1996 to Mercury Exploration Company. Operational responsibility was transferred to Quicksilver Resources in January 1998. The issued permit included 2 engines (EUENGINE1 and EUENGINE2), a glycol dehydrator (EU-DEHY01), and FGFACILITY, which includes all process equipment at the facility.

At the time of inspection the facility operates under PTI 696-96A, which was issued on June 6, 2005 to Quicksilver Resources. PTI 696-96 became void upon issuance. Based on district files it appears that an updated PTI was desired that would incorporate change out language for equivalent emitting engines. The application also notes inclusion of the facility's 2 iron sponges, however iron sponges are not considered emission units, and any potential emissions during sponge media changeout would be covered by the general conditions in the permit. The glycol dehydrator reboiler was noted as having a maximum fuel flow of 123 standard cubic feet (SCF) per hour, glycol rate of 0.67 gallons per minute, and 40 pump strokes per minute.

Equipment of Record

District files note that the permitted engines in 2005 were a Caterpillar 3516 (Engine 1) rated at 1150 horsepower (HP), associated with skid 1010, and a Waukesha L7042 with control (Engine 2) rated at 912 HP, associated with skid 3961 in 2005. District records note that Engine 1 is the originally permitted CAT 3516 engine, although a facility provided maintenance record notes a swing in June 2004 for skid 1010, associated with Engine 1. Facility provided records from year 2005 listed a serial number of 4EK00223 for Engine 1. Records note that Engine 2 was replaced by an equivalent Waukesha in 2008 (a facility record circa 2005 notes a 2002 swing), a lower emitting Caterpillar 3516 in 2012 and an equivalent Caterpillar 3516 in June 2014. District files indicate that subsequent operators of record are Breitburn as of November 1, 2007 and Riverside Energy as of January 11, 2021. Riverside's 2021 MAP lists (2) CAT 3516s, both lean burn engines without air to fuel ratio controllers, associated with skid numbers 1010 and 861.

The last compliance inspection of record was conducted on 5/20/2020. At that time no compliance issues were noted.

Facility Access

Staff accessed the facility via M-66 north from Mancelona, and east on Lee Derrer Road. Once on Lee Derrer, the facility driveway is the first main drive on the south side and is located just west of 2430 Lee Derrer Road, noted as a large equine ranch at the time of inspection. The next north/south road to the east is Satterly Lake Road.

At the time of inspection the property layout appeared as follows:

The site is gated and unmanned. Each building includes safety lights that were illuminated green at the time of inspection. On the north end of the property is a secondary containment area that includes (2) 400 barrel (bbl) tanks and (1) 300 bbl tank. There is also a brine disposal (SWD) well located in this area. The northern building is white and houses one compressor/engine skid, the dehydrator, and a sales meter. The southern building is green and houses one compressor/engine skid. What appear to be (2) iron sponges are located in between the two buildings.

On-Site Inspection Notes

At the time of the 10/10/2023 inspection, the ambient temperature was 42 degrees (Fahrenheit), conditions were calm with intermittent drizzle of rain. No visible emissions were observed. Both engines were operating at the time of inspection, and each included an operator's monthly log sheet where daily engine/compressor readings are recorded.

Staff first accessed the south (green) compressor building via the north pedestrian door which is closest to the iron sponges. The engine was operating at the time of the inspection and the compressor skid is labeled #1010. Staff noted the following readings from the altronic/caterpillar panels. Oil pressure 70 psi, engine speed 1175 rpm. An electronic engine controller displayed a fault alarm. An Exterran Michigan CAT rebuild tag was affixed to the engine that read 9-23-13, Serial No 4EK00818. The meter on the engine block reads 86752.9 hrs, the digital readout on the altronic reads 146482, and a pencil notation reads 78583 swing. The building also includes small oil tanks.

Staff then accessed the north (white) compressor building. The engine was operating and the skid is labeled 861. Gauges at the engine block read 80 psi oil pressure and 78577.2 hrs. A digital panel labeled 'CAT Engine Supervisory System' displayed 1178 RPM. An Exterran Michigan CAT rebuild tag was affixed to the engine that read 9/22/14. The serial number could not be read from a collected image, but also noted were work order number (WO NO) 4294330 and location number B-292 for future reference. The dehydrator and sales meter are also located in the north (white) building. Near the sales meter are operators logs with what appear to be compressor fuel usage logs and sales meter readings. Also present was an operator's log with what appear to be glycol dehydrator readings (noted as 10 pump strokes per minute and 375 glycol temp), and hydrogen sulfide (H₂S) readings.

COMPLIANCE EVALUATION: PTI 696-96A

Requested records were received electronically on November 14, 2023. The records review has been incorporated into this report.

Note that no special conditions apply to EUDEHY-01 beyond those that apply by virtue of inclusion in FGFACILITY. EUDEHY-01 is noted in the identification table as having a 125,000 BTU/hr natural gas burner.

With the exception of conditions related to control device operation for Engine 2 which no longer apply as Engine 2 was replaced with a lean burn engine not equipped with controls, identical conditions apply to Engine 1 and Engine 2 and are as follows.

Both engines are subject to Process and Operational limits that require the permittee to implement an AQD approved malfunction abatement plan (MAP). The most recent MAP on file was received on February 2, 2021. The MAP indicates that offline checks are performed every 60-90 days, and oil changes are performed approximately every 2160 hours of operation, which roughly corresponds to a quarterly basis. Records provided 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.

Both engines are subject to testing upon request of the AQD district supervisor in order to verify emission rates of nitrogen oxides and carbon monoxide. To date, no testing has been requested.

The permittee is required to monitor, in a satisfactory manner, the natural gas usage from each engine on a continuous basis. At the time of inspection the sales meter log located in the north (white) compressor building was observed to include fuel meter readings.

The permittee is required to complete, make available in an acceptable format, and maintain for at least 5 years in an approved location, all required records. The required records include:

- Fuel usage

- A log of all significant maintenance activities conducted and all repairs made to each engine and any associated control device.
- Notification of any equivalent and/or less emitting engine, including acceptable emissions data to demonstrate that emissions meet the above criteria.

The provided records conformed to the above requirements. Riverside reports no engine swaps or changeouts since they took over operations of the site in January 2021.

Stack/Vent Restrictions

The permittee is required to discharge all exhaust gases from the engine vertically without obstruction, and the maximum exhaust diameter of the each stack vents is restricted to 16 inches. Minimum stack heights above ground level are 15 feet and 16 feet for Engines 1 and 2 respectively. Each engine exhaust is ducted through the rear of the building through a muffler, after which the exhaust stack is oriented vertically upward. The stack exits extend beyond the roofline, indicating they meet the minimum above ground height requirement. Riverside reports to have physically measured the stacks upon acquisition of the site, with each being at least 18 inches over minimum height requirements.

FGFACILITY includes all process equipment at the facility including equipment covered by other permits, grandfathered equipment, and exempt equipment.

FGFACILITY Emission Limits

Special Conditions 3.1a and b establish facility-wide emission limits of 89 tons per year (TPY) nitrogen oxides (NO_x) and 89 tons per year (TPY) carbon monoxide (CO) based on a 12-month rolling time period determined at the end of each calendar month. Requested records report 12-month maximum rolling emissions of 29 tons NO_x and 25 tons CO for FGFACILITY.

FGFACILITY Material Limits

SC 2.2 permits only sweet natural gas to be burned in FGFACILITY. The facility provided an operator's log for May 2022 that noted weekly, numerical H₂S readings in parts per million (ppm). The highest inlet and outlet readings on the log were 15 ppm and 2 ppm respectively, each below the definition of sour gas, defined as 1 grain hydrogen sulfide (H₂S) or 16 ppm. Records provided in the form of email correspondence detail that H₂S readings are obtained via weekly Dräger tube sampling on the inlet and outlet of the sponges. An outlet concentration greater than or equal to 4 ppm triggers sponge media change out.

Compliance Evaluation: Other Requirements

This section addresses the applicability of requirements not listed in PTI 696-96A that may apply to the facility.

The facility is required to report annual emissions using the air emissions reporting system. Records indicate that emissions were reported for the 2022 calendar year in a timely and appropriate manner. The facility appears to utilize the same method of emission calculation for annual reporting as is used for demonstrating compliance with PTI 696-96A. The 2023 calendar year emission report was submitted timely and is currently in review.

Although not identified in PTI 696-96A, 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 2400 MSCF per day, which is 2.4 MMSCF.

District files include a subpart ZZZZ notification to EPA 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 quarter mile radius overlay to indicate 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). Historic records provided by the facility list (2) 400 bbl and (1) 300 bbl tanks on-site. The three tanks present at the time of inspection appear to be the sizes listed.
- NSPS Subpart KKK (Equipment Leaks of VOC from onshore natural gas processing plants); The facility does not appear to currently process (extract or fractionate) natural gas liquids from field gas.
- NSPS Subpart OOOO (Standards of Performance for Crude Oil and 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.

Based on observations at the time of the October 10, 2023 site inspection and review of records provided by facility staff, the facility appears to be operating in general compliance with PTI 696-96A.

NAME Lindsey Wells

DATE 7-30-24

SUPERVISOR Shane Nixon