

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

N697425749

FACILITY: Breitburn Operating LP- Beaver Creek DRZ		SRN / ID: N6974
LOCATION: NW 1/4 SE 1/4 Section 17, GRAYLING		DISTRICT: Cadillac
CITY: GRAYLING		COUNTY: CRAWFORD
CONTACT: Carolann Knapp , Admin Assist/Compression		ACTIVITY DATE: 06/12/2014
STAFF: Caryn Owens	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Shane's scheduled inspection completed by Caryn Owens & Rob Dickman. Records Review completed buy Caryn Owens.		
RESOLVED COMPLAINTS:		

On June 12, 2014, Caryn Owens and Rob Dickman of the DEQ-AQD inspected Breitburn Operating LP (Breitburn) – Beaver Creek DRZ site (N6974) located in the northwest quarter, of the southeast quarter, of Section 17 in Beaver Creek Township, Crawford County, Michigan. More specifically the site is located on the west side of Tangelo Road, approximately ¼ mile north of the 7 Mile and Tangelo Roads in Grayling, Michigan. This site requires the inspector to wear fire resistant clothing (FRC), have an H<sub>2</sub>S monitor, and be trained in H<sub>2</sub>S. DEQ was escorted through the facility by Jim Rob of Breitburn. DEQ handed an inspection brochure to Mr. Rob at the beginning of the inspection. The field inspection and records review were conducted to determine compliance with permit to installs (PTIs) 120-01D and 149-12. The site is currently site that has opted out of being a major source by limiting the operational and/or production limits potential to emit (PTE) to be below the major source thresholds. The site extracts Natural gas liquids (NGL) from the natural gas which makes the facility subject to 40 CFR Part 60 Subpart KKK. The design capacity of the NGL plant is less than ten million cubic feet per day (actual is 5 MMSCF/day), which lessens the monitoring and recordkeeping required by 40 CFR 60 Subpart KKK. The site is an area source for National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63 Subpart HH, and NESHAP 40 CFR Part 63 Subpart ZZZZ. However, the State of Michigan does not have delegated authority of the area source NESHAPs, and thus these regulations were not addressed by the DEQ.

#### On-site Inspection:

During the field inspection it was clear and approximately 77°F, with calm winds. The site consisted of five heater-treaters; seven bullet and four vertical storage tanks for oil, natural gas liquids and condensate; a glycol dehydrator system; four gas fired compressor engines; an electric engine; a hot oil heater for the amine process; and a flare.

Beaver Creek DRZ is an oil and gas facility that treats sour natural gas prior to transfer to a pipeline. Natural gas from the wells is passed through field separators to remove hydrocarbon condensate and water. The gas is then passed through an amine sweetening plant to remove hydrogen sulfide. Process heaters and compressors are also used to aid in the removal of liquid hydrocarbons and control the gas pressure as necessary for further pipeline transport or fuel use.

Rob Dickman's observations are as follows:

Following are observations made as part of an inspection conducted by Caryn Owens at the Beaver Creek gas processing facility in Grayling, Michigan on June 12, 2014. The intent of this inspection was to determine the facility's compliance with Michigan Air Pollution Control Rules any applicable permits to install.

Prior to entering the facility, no visible emissions or odors were noted ~~from~~. A waste flare is located at the site and was in operation. Opacity from that flare was 0-5% and it appeared to have a pilot system.

This facility brings in sour gas and condensate from over 100 wells. The raw stream is treated through amine tower to remove the hydrogen sulfide content. It is then separated in to various saleable components including consumer usable natural gas and propane.

Pertinent equipment on site included several large storage tanks including high pressure storage, two small engines used to run condensers, one large Waukesha V-12 engine with catalytic controls, and one glycol dehydrator with a flash tank. Because of the sour gas, each building was equipped with an in shack warning system that appeared to be working.

#### Records Review:

#### EUENGINE4

EUENGINE4 is a Waukesha engine with a model No. of M-24275, which is used as an emergency generator. The emergency engine is tested by operating 15 minutes per week, and was not operating at the time of the inspection. The non-resettable hour meter for the engine showed 378 hours of operation.

- A. **EMISSION LIMITS** – There are no emission limits associated with this emission unit; therefore; this section is not applicable.
- B. **MATERIAL USAGE LIMITS** – There are no material usage limits associated with this emission unit; therefore, this section is not applicable.
- C. **PROCESS/OPERATIONAL LIMITS** – Engine usage is limited to 500 hours per 12-month rolling time period. Based on the records reviewed, EUENGINE4 operated between 17 to 78 hours of operation per 12-month rolling time period from May 2013 thru May 2014. The hours of operation ranged from 0.9 to 4.9 hours per month from May 2013 thru May 2014. The records are attached.
- D. **EQUIPMENT RESTRICTIONS** – There are no equipment restrictions associated with this emission unit; therefore, this section is not applicable.
- E. **TESTING** – There are no testing requirements associated with this emission unit; therefore, this section is not applicable.
- F. **MONITORING** – The engine is equipped with an hour meter which monitors the hours of operation. Facility staff record the hours of operation at the end of each month to fulfill recordkeeping requirements.
- G. **RECORDKEEPING/REPORTING/NOTIFICATION** – Hours of operation were maintained by Ms. Carolann Knapp of Breitburn, and were forwarded to AQD staff.

### EUENGINE3

EUENGINE3 is a 4-stroke rich burn engine used to provide compression for the propane refrigeration unit. During the inspection EUENGINE3 was operating at 1186 RPM and the oil pressure was at 60 psi. EUENGINE3 did not use a catalyst or AFRC. EUENGINE2 and EUENGINE3 are located inside the NGL plant that is subject to 40 CFR Part 60, Subpart KKK. VOC leaks from these engines are captured by a closed vent system and transported to the onsite flare for destruction.

- A. **EMISSION LIMITS** – There are no emission limits associated with this emission unit; therefore; this section is not applicable.
- B. **MATERIAL USAGE LIMITS** – There are no material usage limits associated with this emission unit; therefore, this section is not applicable.
- C. **PROCESS/OPERATIONAL LIMITS** – A MAP was previously reviewed and approved by AQD staff. Engine maintenance records were reviewed and compared to the MAP. The maintenance on the compressor engine and associated controls was performed in accordance with the MAP.
- D. **EQUIPMENT RESTRICTIONS** – There are no equipment restrictions associated with this emission unit; therefore, this section is not applicable.
- E. **TESTING** – Testing has not been conducted at this facility; Breitburn uses manufacturer supplied emission factors for the specific engine to determine emissions. .
- F. **MONITORING** – Natural gas usage from the compressor engine is required to be monitored. Based on the records reviewed, the natural gas usage rate ranged from 0.20 to 0.49 mmscf/month from May 2013 thru May 2014.
- G. **RECORDKEEPING/REPORTING/NOTIFICATION** – Records of maintenance activities were available upon request. A review of the records demonstrates that the facility is maintaining the compressor engine properly.

### EUENGINE1 and EUENGINE2

EUENGINE1 is a 4-stroke rich burn Waukesha engine equipped with an AFRC and a 3-way catalytic converter, used for natural gas production and compressing the gas. During the inspection, the compressor was operating at 828 RPM, with an oil temperature of 133 °F, and oil pressure of 42 psi. The inlet temperature of the catalytic converter was 966 °F, and the outlet temperature was 980 °F. DEQ did not observe a reading for the AFRC.

EUENGINE2 is a 4-stroke rich burn engine quipped with an AFRC and a 3-way catalytic converter, used to provide compression for the propane refrigeration unit. During the inspection EUENGINE2 was operating at 1206 RPM and the oil pressure was at 60 psi.

- A. **EMISSION LIMITS** – There are no emission limits associated with this emission unit; therefore; this section is not applicable.
- B. **MATERIAL USAGE LIMITS** – There are no material usage limits associated with this emission unit; therefore, this section is not applicable.
- C. **PROCESS/OPERATIONAL LIMITS** – A MAP was previously and reviewed and approved by AQD staff. Engine maintenance records were reviewed and compared to the MAP. The maintenance on the compressor engines and associated controls were performed in accordance with the MAP.

Based on the records obtained from Ms. Knapp, EUENGINE1 and EUENGINE2 did not operate without the catalyst from May 2013 thru May 2014.

- D. **EQUIPMENT RESTRICTIONS** – EUENGINE1 and EUENGINE2 are not allowed to operate unless a catalyst and AFRC are installed and operating properly. At the time of the inspection EUENGINE1 and EUENGINE2 were equipped with AFRCs and pre and post temperature gauges. During the inspection, EUENGINE1 had a pre-catalyst temperature of 966 °F and a post-catalyst temperature of 980°F. The AFRC reading was not observed at the time of the inspection because buttons would need to be pushed to record the readings, and DEQ did not want to accidentally change settings. Maintenance sheets were hanging from each engine at the facility, and were filled out to the date of the inspection.

EUENGINE2 had an AFRC reading of 0.743, 1571, the pre- and post-catalyst temperatures were not recorded because buttons would need to be pushed to record the readings, and DEQ did not want to accidentally change settings.

- E. **TESTING** – Testing has not been conducted at this facility; Breitburn uses manufacturer supplied emission factors for the specific engine to determine emissions.
- F. **MONITORING** – Natural gas usage consumed by the compressor engine is required to be monitored. Based on the records reviewed, the natural gas usage rate for EUENGINE1 ranged from 4.05 to 4.77 mmscf/month, and from 0.32 to 0.54 mmscf/month for EUENGINE2, from May 2013 thru May 2014.
- G. **RECORDKEEPING/REPORTING/NOTIFICATION** – Records of maintenance activities were available upon request. A review of the records demonstrates that the facility is maintaining the compressor engines.

The records indicate there are no monthly hours where EUENGINE1 and EUENGINE2 operated without a catalyst. EUENGINE1 has no 12-month rolling total hours of operation without a catalyst from May 2013 thru May 2014, and EUENGINE2 has 18 hours based on a 12-month rolling total hours for May 2013 and June 2013, and then no hours based on 12-month rolling total hours of operation without a catalyst until May 2014. EUENGINE1 and EUENGINE2 are below the permitted 200 hours per engine per 12-month rolling time period.

## FGHEATERS

FGHEATERS includes all natural gas fired process heaters and boilers located at the facility; total capacity is less than 20 MMBTU/hour.

- A. **EMISSION LIMITS** – There are no emission limits associated with this emission unit; therefore; this section is not applicable.
- B. **MATERIAL USAGE LIMITS** – There are no material usage limits associated with this emission unit; therefore, this section is not applicable.
- C. **PROCESS/OPERATIONAL LIMITS** – There are no process/operational limits associated with this emission unit; therefore, this section is not applicable.
- D. **EQUIPMENT RESTRICTIONS** – There are no equipment restrictions associated with this emission unit; therefore, this section is not applicable.
- E. **TESTING** – There are no testing requirements associated with this emission unit; therefore, this section is not applicable.

- F. **MONITORING** – There are no monitoring requirements associated with this emission unit; therefore, this section is not applicable.
- G. **RECORDKEEPING/REPORTING/NOTIFICATION** – Natural gas usage records for FGHEATERS are maintained electronically. Based on the records reviewed, the monthly natural gas usage for FGHEATERS ranged from 4.3 to 5.3 mmscf/month. The records are maintained in accordance with the permit.

### FGSWEETENING

FGSWEETENING includes all the equipment located at the facility used for sweetening the natural gas.

- A. **EMISSION LIMITS** – Sulfur dioxide (SO<sub>2</sub>) emissions from the flexible group is limited to 88.1 tons per 12-month rolling time period. The highest SO<sub>2</sub> emissions in the last twelve months was 17.8 tons per 12-month rolling time period, which is well below the permit limit.

SO<sub>2</sub> emissions are also limited to 6,076 pounds per day, based on a daily average. Records indicate that the highest SO<sub>2</sub> emissions on a daily average were 1,140 pounds, which is in compliance with the PTI.

- B. **MATERIAL USAGE LIMITS** – There are no material usage limits associated with this flexible group; therefore, this section is not applicable.
- C. **PROCESS/OPERATIONAL LIMITS** – Hydrogen sulfide is removed from the natural gas stream and is either injected back into the ground or it is routed to the onsite flare.

Each building was equipped with a warning system due to the sour gas that appeared to be working during the inspection. Green lights were on for each building during the inspection. According to Mr. Rob, corrective actions are taken if the H<sub>2</sub>S levels are too high at the facility.

A MAP was previously submitted and reviewed by AQD staff. As a requirement of the PTI, the facility is not allowed to operate the sweetening process unless a MAP is implemented and maintained.

- D. **EQUIPMENT RESTRICTIONS** – Fencing around the perimeter of the facility to prevent access by unauthorized individuals.
- E. **TESTING** – There are no specific testing requirements associated with this flexible group; therefore, this section is not applicable.
- F. **MONITORING** – The facility is required to monitor the H<sub>2</sub>S concentration on a continuous basis in any building enclosing the gas sweetening process. During the inspection, AQD staff observed H<sub>2</sub>S monitors inside the buildings.

The H<sub>2</sub>S concentration of all gases is required to be measured using stain tubes (Draeger Tubes). The facility measures the acid gas on a monthly basis. The Detroit River Zone (DRZ) gas is not measured as the gas is never burned in the flare. The DRZ gas is injected and the wells are shut in during a facility upset. Non acid gas and non DRZ gas is measured on a monthly basis. The results of the stain tube tests are used for calculating the facility's SO<sub>2</sub> emissions, the records indicate the non acid gas and non DRZ gas range between 2500 to 6300 ppm.

- G. **RECORDKEEPING/REPORTING/NOTIFICATION** – Records of the H<sub>2</sub>S concentration of the gases were available upon request, with the exception of the DRZ gas.

Monthly, 12-month rolling time period, and daily SO<sub>2</sub> emissions were available upon request. Ms. Knapp submitted these records in a timely manner.

Based on the records reviewed, SVFLARE H<sub>2</sub>S concentrations and DRZ gas was not burned in the flare.

### FGFACILITY

All process equipment located at the facility including equipment covered by other permits, grandfathered equipment, and exempt equipment.

- A. **EMISSION LIMITS** – NO<sub>x</sub>, CO, and SO<sub>2</sub> emissions are all limited to 89 tons per 12-month rolling time period. Records indicate that the highest emissions of NO<sub>x</sub>, CO, and SO<sub>2</sub> per 12-month rolling time period were 27 tons, 26 tons, and 18 tons, respectively.

- B. MATERIAL USAGE LIMITS** – The amount of gas sent to the flare is limited to 100 million standard cubic feet (MMscf) per 12-month rolling time period. Records indicate that the highest current gas flow rate to the flare is 32 MMscf per 12-month rolling time period.
- C. PROCESS/OPERATIONAL LIMITS** – The facility uses a “photoelectric eye” to determine the presence of a flame at the flare.
- D. EQUIPMENT RESTRICTIONS** – Since the facility is subject to 40 CFR 60 Subpart KKK, the facility needs to demonstrate compliance with 40 CFR 60.18 in regard to the flare. Based on DEQs observations, the flare appeared to demonstrate compliance with 40 CFR 60.18. The flame was visible, and continuously lit.
- E. TESTING** – There are currently no testing requirements associated with this flexible group; therefore, this section is not applicable.
- F. MONITORING** – Monitoring for leaks from the equipment subject to 40 CFR 60 Subpart KKK is required on a weekly basis. The monitoring involves visually inspected the equipment for the presence of any liquids dripping. Facility personnel informed AQD staff that the equipment is checked on a daily basis and any leaks are repaired in a timely manner.
- G. RECORDKEEPING/REPORTING/NOTIFICATION** – Emission and natural gas usage records were available upon request and completed in a satisfactory manner.

All semi-annual reports required by 40 CFR 60 Subpart KKK were previously submitted and reviewed by AQD staff.

#### EUDEHY

A glycol dehydration system processing gas from the Richfield and DRZ contains a 0.075 MMBTU/hr natural gas fired burner. The glycol dehydration system is controlled by a condenser.

- A. EMISSION LIMITS** – VOC emissions are limited to 4.0 tons per 12-month rolling time period. Records indicate that the highest VOC emissions were 0.03 tons.
- B. MATERIAL USAGE LIMITS** – The facility does not use stripping gas in the glycol dehydration system.
- C. PROCESS/OPERATIONAL LIMITS** – The glycol recirculation rate shall not exceed 0.8 gallons per minute. During the field inspection, the glycol recirculation rate was 0.49 gallons per minute, and records indicated the glycol recirculation rate varied between 0.42 and 0.53 gallons per minute. The exhaust gas temperature shall be 140°F or less. Records indicated the temperature of the exhaust gas varied between 23 °F and 137 °F.
- D. EQUIPMENT RESTRICTIONS** – During the field inspection, the flash tank and condenser appeared to be installed and operating properly.
- E. TESTING** – The analytical results of the wet gas stream sample was completed December 10, 2013. All the required constituents outlined in the PTI were analyzed. The wet gas stream is sampled on an annual basis.
- F. MONITORING** – Calculations and records were available upon request and completed in a satisfactory manner. The VOC emissions from the Glycol dehydration system were calculated using the GRI-GLYCalc Version 3.0.
- G. RECORDKEEPING/REPORTING/NOTIFICATION** – There are currently no recordkeeping/reporting/notification requirements associated with this flexible group; therefore, this section is not applicable.

**Summary** – Based upon the field inspection and records review, AQD staff considers the facility in compliance with applicable state air pollution control regulations as well as PTI Nos. 120-01D and 149-12.

NAME Caryn Owens

DATE 6/24/14

SUPERVISOR 

