

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

B558441360

FACILITY: MERIT ENERGY CO. - BLUE LAKE 27		SRN / ID: B5584
LOCATION: 0 BLUE LAKE RD, KALKASKA		DISTRICT: Cadillac
CITY: KALKASKA		COUNTY: KALKASKA
CONTACT: Vicki Kniss , Environmental Affairs Manager		ACTIVITY DATE: 08/09/2017
STAFF: Caryn Owens	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection and Records Review.		
RESOLVED COMPLAINTS:		

On Wednesday, August 9, 2017, Caryn Owens and Sharon LeBlanc of the DEQ-AQD conducted a scheduled field inspection and records review of Merit Energy Company (Merit) – Blue Lake 27 facility (B5584) located on southern portion of Blue Lake Road and Cameron Bridge Road in Blue Lake Township, Kalkaska County, Michigan. The purpose of this inspection was to determine the facility's compliance with permit to install (PTI) 55-04. Merit has opted out of major source applicability by limiting operational and/or production limits potential to emit (PTE) to be below major source thresholds. DEQ was accompanied by Sean Craven of Merit during the field inspection. The site is an area source for National Emission Standards for Hazardous Air Pollutants (NESHAP) from Oil and Natural Gas Production facilities (40 CFR, Part 63, Subpart HH), and NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR, Part 63, Subpart ZZZZ). The State of Michigan does not have delegated authority of the area source NESHAPs, and thus these areas were not reviewed by the DEQ at this time.

#### Evaluation Summary

Based on the activities covered during this field inspection, the facility appears to be in compliance with PTI 55-04. Review of the records for the facility indicates the facility was in compliance with emission limits in accordance with the current PTI. No further actions are necessary at this time. Specific permit conditions that were reviewed are discussed below.

#### On-site Inspection:

During the field inspection, the weather conditions were mostly sunny, with calm winds from west, and approximately 80 degrees Fahrenheit. Fuel enters the facility via pipeline on the northern portion of the site. Majority of the site has been shut-in and the natural gas is compressed and routed to Merit's Frederic 10 facility for further processing. The facility consisted of: one process heaters near the flare; a former separator building with former process heaters on the northern portion of the site; a former tank battery area on the eastern portion of the site; a flare with a visible pilot of the western portion of the site, a former amine plant building (which is no longer in operation); a glycol dehydrator system (which is also no longer in operation), and a compressor building with one engine on the south-southeastern portion of the site.

As previously stated majority of the equipment at the site has been shut-in or removed. This facility is used mostly as a booster station to transport natural gas to the Frederic 10 facility. The compressor engine was operating during the inspection and was a 275 horsepower (hp) Waukesha (F3711G) rich burn engine, with no control. The engine was identified on the logs at the facility as Unit #1, and operating at 515 revolutions per minute (RPM), 210 degrees Fahrenheit, and 20 pounds per square inch (psi) of pressure during the inspection. The stack on the compressor engine was approximately 16 feet above ground surface, and contained a muffler. Slight puffs of white smoke were noticed from the compressor stack, and the puffs were approximately 5 to 10 percent opacity. Once the natural gas is compressed it is sent via pipeline to the Merit Frederic 10 facility to be further processed for sales.

A flare, approximately 50 feet above ground surface, was located on the western portion of the site with a flare eye stack (approximately 30 feet above ground surface) located next to it. The flare appeared to have a clean burning flame.

#### PTI Compliance Evaluation:

**EUBLU27SGSP:** This emission unit was permitted as a sour gas sweetening plant, where natural gas, crude oil, condensate, and brine fluids are extracted from wells drilled into a production reservoir. These materials are transmitted through flow lines, generally located within a five mile radius of the central production facility. The temperature of this stream of material is increased by inline heaters and the fluids are then separated and stored in fixed roof tanks. The gas is compressed by internal combustion driven compressors, fueled by sweet natural

field gas. Historically, there was hydrogen sulfide present in some of the gas which was removed by an amine process and burned at the flare. Water vapor was removed from the gas by glycol dehydration and the remaining gas was sold.

As previously stated, the sweetening facility and glycol dehydrator have been shut-in and no longer operating. The flare at the site is still in operation, and is used only when the facility has to shut the wells in. The engine at the facility is currently used as a booster engine and discussed further in EUBKU27COMP1.

· **Emission Limits:**

EUBLU27SGSP is limited to 1500 pounds of sulfur per 24-hour period, which is equivalent to a mass flow rate of hydrogen sulfide (H<sub>2</sub>S) to the flare of 797 pounds per 24 hour period. Since the amine plant is no longer operating the facility has reported zero through-put and zero emissions of sulfur dioxide (SO<sub>2</sub>). Based on the records reviewed, EUBLU27SGSP was within the permitted emission limits.

· **Materials/Fuels:**

No material limits were applicable for EUBLU27SGSP.

· **Process/Operational Parameters:**

In the event that there is a malfunction at the facility, all the equipment at the facility routes to the onsite emergency/pressure relief flare. As previously stated, majority of the equipment is shut-in, and the gas is routed to the onsite emergency/pressure relief flare when the compressor is shut-down for maintenance.

The equipment at the facility has not operated in many years, therefore, records of non-certified visible emissions are not applicable at this time. As previously stated, the flare was lit and clean burning during the inspection.

If for any reason the sweetening plant was operational, Merit has monitors in place inside the buildings to monitor the H<sub>2</sub>S concentrations. If the H<sub>2</sub>S concentrations inside the buildings enclosing the sweetening operations reach 50 ppm, Merit would begin a safe and orderly shutdown of all processes and the facility would not operate until corrective measures were taken.

· **Design/Equipment Parameters:**

During the inspection the DEQ observed fencing around the Property and signs warning of poison gas.

· **Testing:**

Performance testing has not been completed at this facility.

· **Monitoring/Recordkeeping:**

The sweetening facility at the site has not operated in a while. The facility submits quarterly reports to the DEQ of the H<sub>2</sub>S content in the natural gas, which have been zero for many years now. No natural gas is sweetened at this facility.

· **Reporting:**

There are no above ground storage tanks to store condensate or crude oil. As previously stated, the sweetening portion of the facility has not operated in many years, so the visible emissions from the flare are not applicable at this time. Total fuel usage is discussed below under EUBLU27COMP1. Merit submits quarterly reports of the mass flow rate of H<sub>2</sub>S entering the facility. Since the sweetening plant is not operational, all the submitted reports show zero pounds of SO<sub>2</sub> in 24-hours.

· **Stack/Vent Restrictions:**

Based on visible observations during the field inspection, the stack of SVOL34FLARE under EUBLU27SGSP appeared to be in compliance with permitted limits of 4 inches diameter and 50 feet above ground surface.

**EUBLU27COMP1:** Natural Gas Fired Reciprocating Compressor Engine. During the inspection EUBLU27COMP1 was a 275 hp Waukesha reciprocating internal combustion engine used as a booster engine to transport natural gas to the Frederic 10 facility.

- **Emission Limits:**  
There are no applicable Emission Limits for EUBLU27COMP1.
- **Material Limits:**  
According to Merit, sour gas is not burned at the facility, due to the caustic nature of sour gas. Only sweet natural gas is burned at the facility. EUBLU27COMP1 is currently used as a booster engine to transport sweet natural gas down the pipeline.
- **Process Operational Restrictions:**  
Process Operational Restrictions are not applicable for EUBLU27COMP1.
- **Design/Equipment Parameters:**  
Design/Equipment Parameters are not applicable for EUBLU27COMP1.
- **Testing/Sampling:**  
Testing/Sampling requirements are not applicable for EUBLU27COMP1.
- **Monitoring/Recordkeeping:**  
The facility monitors and records the natural gas usage on a monthly and 12-month rolling time period basis for EUBLU27COMP1. The records are attached.
- **Reporting:**  
Reporting requirements are not applicable for EUBLU27COMP1.
- **Stack/Vent Restrictions:**  
The stack to EUCIENGINE is located south of the building and is vertically upward. No stack/vent restrictions are applicable for EUBLU27COMP1.
- **Other Requirements:**  
Although the PTI does not address "Other Requirements" for EUBLU27COMP1, the facility is subject the NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR, Part 63, Subpart ZZZZ). The State of Michigan does not have delegated authority of the area source NESHAP, and thus compliance with the federal requirements in accordance with the EUBLU27COMP1 was not reviewed by the DEQ at this time.

**EUBLU27DEHY:** A glycol dehydration system processing gas from the Niagaran formation. This system is currently shut down and not in use, but still remains onsite.

- **Emission Limits:**  
There are no applicable Emission Limits for EUBLU27DEHY.
- **Material Limits:**  
There are no material limits for EUBLU27DEHY.
- **Process Operational Restrictions:**  
The glycol dehydrator is connected to the onsite flare, however, no emissions are sent to the flare since the glycol dehydrator is currently shut down.
- **Design/Equipment Parameters:**  
Design/Equipment Parameters are not applicable for EUBLU27DEHY.
- **Testing/Sampling:**  
Testing/Sampling requirements are not applicable for EUBLU27DEHY.
- **Monitoring/Recordkeeping:**  
The facility has monitored and recorded the glycol recirculation rate, however, it is not currently recorded since EUBLU27DEHY is shut down.
- **Reporting:**  
Reporting requirements are not applicable for EUBLU27DEHY.

**Stack/Vent Restrictions:**

The stack/vent restrictions indicate there are no applicable stack height requirements for the flare with regards to EUBLU27DEHY. However, the flare stack height is also included above in EUBLU27SGSP, and appeared to be in compliance with permitted limits of 4 inches diameter and 50 feet above ground surface.

**Other Requirements:**

Although the PTI does not address "Other Requirements" for EUBLU27DEHY, if the facility operates EUBLU27DEHY again, then it would be subject to the NESHAP from Oil and Natural Gas Production facilities (40 CFR, Part 63, Subpart HH). The State of Michigan does not have delegated authority of the area source NESHAP.

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

**Emission Limits:**

The Emission Limits are described in the following table for FGFACILITY based on records from August 1, 2016 through July 31, 2017. The highest emissions are based on a 12-month rolling time period, and are reported within the permitted limits.

Pollutant	Limit Tons per year (tpy)	Highest Reported Emissions (from 8/2016 – 7/2017)
NOx	89 tpy	24 tpy
CO	89 tpy	1.7 tpy
VOC	40 tpy	0.28 tpy
SO <sub>2</sub>	40 tpy	0 tpy
PM	25 tpy	0.20 tpy
PM-10	15 tpy	0.20 tpy
Each HAP	Less than 9 tpy	0.05 tpy
Total HAPs	Less than 22 tpy	0.05 tpy

**Materials/Fuels:**

The facility is limited to only burning 15,500,000 standard cubic feet (scf) of natural gas at the facility based on a 12-month rolling time period. Based on the records reviewed, the highest usage of natural gas was reported as 8,900,000 scf. The facility was within the material limits for FGFACILITY.

**Process/Operational Parameters:**

There are no Process/Operational Parameters for FGFACILITY.

**Design/Equipment Parameters:**

There are no Design/Equipment Parameters for FGFACILITY.

**Testing:**

There are no Testing requirements for FGFACILITY.

**Monitoring/Recordkeeping:**

There are no Process/Operational Parameters for FGFACILITY.

**Reporting:**

The facility records monthly and 12-month rolling time period calculations for NOx, CO, VOCs, SO<sub>2</sub>, PM-10, and HAPs. The 12-month rolling time period emissions are discussed above under emission limits. The natural gas usage, and monthly and 12-month rolling time period emissions records are attached.

**Stack/Vent Restrictions:**

No Stack/Vent Restrictions were applicable for FGFACILITY.

**Other Requirements:**

No Other Requirements were applicable for FGFACILITY.

NAME Ann Owens

DATE 8/9/17

SUPERVISOR SN