

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

B722235428

FACILITY: JAGUAR ENERGY, FREDERIC 15 GAS PLANT		SRN / ID: B7222
LOCATION: SEC 15 T28N R4W, FREDERIC		DISTRICT: Cadillac
CITY: FREDERIC		COUNTY: CRAWFORD
CONTACT: John Ward , Operator		ACTIVITY DATE: 07/08/2016
STAFF: Shane Nixon	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: on-site inspection and records review		
RESOLVED COMPLAINTS:		

AQD staff met with John Ward, North Star Operating and Consulting and operator of the facility, to perform an inspection of Jaguar Energy's Frederic 15 facility. The purpose of the inspection was to determine the facility's compliance with Renewable Operating Permit (ROP) No. MI-ROP-B7222-2013 and applicable state and federal air pollution control regulations. The facility was not operating at the time of the inspection and records indicate the facility has been shut down since February 2016. Mr. Ward was uncertain when the facility would be restarted.

The Frederic 15 is a natural gas sweetening facility which uses an amine process to remove hydrogen sulfide from the incoming natural gas. Feedstock entering the plant is passed through a heater where small quantities of crude oil are separated and piped to a pressurized vessel for storage. The natural gas is routed to the amine process for hydrogen sulfide removal and a glycol dehydrator for water removal by use of two stage compressor. After sweetening and dehydration, the gas is transferred to the sales pipeline. The hydrogen sulfide laden amine is regenerated by use of a reboiler. Hydrogen sulfide acid gas is then routed to an incinerator for oxidation which converts the acid gas to sulfur dioxide.

The glycol dehydrator and compressor engine are subject to federal regulations in which the Air Quality Division has not been delegated authority to enforce. Therefore, a determination of compliance with the applicable federal regulations as they pertain to the dehydrator and engine was not performed. The dehydrator is also subject requirements in the ROP pertaining to Air Pollution Control rules and are enforceable by AQD. These restrictions require the dehydrator to be vented to the incinerator or emergency flare. Mr. Ward indicated the dehydrator is vented to the emergency flare.

EUSWEETENING – Amine gas sweetening process to remove hydrogen sulfide from natural gas. The hydrogen sulfide is burned to form sulfur dioxide using an incinerator.

- 1. Emission Limits** – Sulfur dioxide emissions from the emission unit is limited to 1,332 pounds per day based on a 24-hour average and 55.5 pounds per hour based on a 24-hour average. Monthly reports submitted by Jaguar Eenergy demonstrate compliance with the emission limit. In the last 12 months, the highest sulfur dioxide emissions occurred on January 14, 2016. Emissions at that time were 38.8 pounds per hour based on a 24-hour and 931 pounds per day based on a 24-hour average.
- 2. Material Limits** – There are no material limits associated with this emission unit; therefore, this section is not applicable.
- 3. Process/Operational Restrictions** – The emergency flare is equipped with a continuously burning pilot flame. In the event that the pilot flame is extinguished, an alarm is activated and a callout system notifies Mr. Ward of the outage. The wells feeding the facility are shut-in if the pilot flame is not reignited with 60 minutes.

As required by the ROP, the fuel used for the pilot flame in the emergency flare is sweet natural gas. Mr. Ward indicated there are no lines in place in which sour gas could be used as a fuel source for the flare pilot. Mr. Ward further stated that only sweet gas is burned as fuel within the facility.

All relief valves and the vapor return system for loadout of the pressurized storage vessel is vented to the emergency flare to prevent emissions of hydrogen sulfide per the requirements of the ROP.

During an emergency event, the facility is required to immediately shut-in within one second and all sour gas is required to be flared. At any other time, sour gas from the amine unit or sour gas directly

from the wells cannot be sent to the flare. Mr. Ward stated during the inspection that there have been no emergency events in the time during which he has been an operator of the facility.

A continuous in-shed monitoring program was in place at the time of the inspection. The ROP requires that all inflow streams to the plant be shut off if the concentration of hydrogen sulfide within the building is greater than 100 parts per million. A lower threshold of 20 parts per million for shut off of the inflow has been implemented for worker safety.

4. **Design/Equipment Parameters** – The incinerator is equipped with oxygen and combustor temperature monitoring equipment. Audible alarms are used to notify the operator when the oxygen content and combustor temperature drop below the levels listed in the ROP. The actual operating set points for the oxygen and combustor temperature are higher than those values listed in the ROP.
5. **Testing/Sampling** – The hydrogen sulfide concentration going to the plant is checked on a monthly basis using colormetric tubes until recently due to the facility not operating.
6. **Monitoring/Recordkeeping** – The incinerator oxygen monitoring and recording devices are required to be calibrated on a monthly basis and the incinerator monitoring and recording devices are required to be calibrated on a quarterly basis. Records of the calibrations maintained at the facility demonstrate compliance with the requirements of the ROP.

Continuous records of the incinerator temperature and oxygen content were made available for AQD to review. The records indicate the temperature and oxygen content at the outlet of the combustion chamber of the incinerator were maintained above the minimum levels listed in the Process/Operational Restrictions section of the ROP.

7. **Reporting** – Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented. No deviations were noted in any of the reports.

Jaguar Energy is required to submit monthly reports containing the mass flow rate of sour gas, the monthly hydrogen sulfide concentration, and the daily and hourly sulfur dioxide emissions from the facility, which are used for demonstrating compliance with the sulfur dioxide emission limits. An internal file review by AQD staff determined the monthly report for March was not submitted. AQD staff followed up with Mr. Don Shuster, consultant for Jaguar Energy, to inquire about the missing report. A monthly report, although late, was promptly submitted after contacting Mr. Shuster. AQD staff informed Mr. Shuster via email that the late submittal needs to be noted as a deviation in the semiannual deviation report and annual certification of compliance.

8. **Stack/Vent Restrictions** – The incinerator stack appeared to be constructed in accordance with the parameters listed in the ROP based upon observations made by AQD staff during the inspection.
9. **Other Requirements** – Fencing and a locked gate is used as a means to prevent unauthorized access to the facility as required by Rule 336.1403(5)(b).

Based upon records observed at the facility, the facility has been maintained in accordance with the preventative maintenance and malfunction abatement plan. At this time, there has been no need to revise the minimum temperature or oxygen content of the incinerator as allowed in the requirements of the ROP.

Conclusion – Based upon the on-site inspection and records review, AQD staff considers the facility to be in compliance with ROP No. MI-ROP-B7222-2013 despite a monthly report was not submitted in a timely manner. Jaguar Energy has a history of submitting all reports on time. The late report is a minor infraction nature due to the fact the facility was not operating during the reporting period. However, failure to submit future reports in a timely manner can be viewed as a violation.

NAME Shawn Nixon

DATE 7/11/16

SUPERVISOR 