

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

B649737472

FACILITY: JAGUAR ENERGY - OTSEGO LAKE 27 GAS PLANT		SRN / ID: B6497
LOCATION: 27 E MARLETTE RD, WATERS		DISTRICT: Gaylord
CITY: WATERS		COUNTY: OTSEGO
CONTACT: John Ward ,		ACTIVITY DATE: 11/02/2016
STAFF: Becky Radulski	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: FY17 scheduled inspection and records review		
RESOLVED COMPLAINTS:		

Traveled to B6497 Jaguar Energy LLC Otsego 27 Gas Plant located east of Waters in Otsego County. The inspection was to complete a Full Compliance Evaluation (FCE) and determine compliance with MI-ROP-B6497-2013. This is an ROP source.

The Otsego 27 Gas Plant is a gas sweetening facility that receives natural gas liquids from 3 wells, 2 Antrim and 1 Niagaran. The facility consists of one inline heater, one amine reboiler, one glycol dehydrator, one natural gas compressor engine, one condensate storage tank and one flare. Two iron sponges were installed in Fall of 2015 to further treat the gas stream after it leaves the plant prior to the compressor engine preparing it for the sales line.

Gas and crude oil fluids, known as natural gas liquids, are extracted from 3 wells approximately 1.5 miles from the central production facility. The natural gas liquids are transmitted through flow lines to the gas sweetening facility. At the gas sweetening facility, the natural gas liquids are sent through the inline heater. The inline heater increases the temperature of the natural gas liquids and the natural gas liquids are separated. The separated natural gas liquids include natural gas and condensate.

The natural gas has hydrogen sulfide (H₂S) and water present. Because there is H₂S present, the natural gas is considered sour gas. The sour gas is put through a sweetening process that uses amine to remove the H₂S. To prevent the H₂S from being released to the atmosphere, the H₂S is sent to the flare and burned. In the burning process the H₂S converts to sulfur dioxide (SO₂). The resulting SO₂ is released to atmosphere. Because there is water present in the natural gas, the natural gas is then put through the glycol dehydration system and the water, now steam, is removed. The steam is sent to atmosphere. The resulting gas goes through 2 iron sponges, then is compressed by the natural gas fired internal compressor engine, sent to the sales line, and sold. Both the amine and glycol are then reused.

The condensate is stored on site in the 18,000 gallon condensate storage tank and later trucked off site for sale. The truck loading process uses a vapor recovery system, additionally, the tank vents to the flare.

LOCATION

The facility is located east of Waters on Marlette Road. The access road is a seasonal road on the north side of Marlette Rd approximately 1 mile east of Sherman Road. The gas plant is approximately ½ mile north of Marlette Road.

The three wells that feed the gas plant are located about 1.5 miles south of the Otsego 27 facility. To get to the wells, go south at the Marlette/Sherman Rd intersection about 1 mile to Krause Rd. Turn east on Krause, the wells are approximately 1 mile east of Sherman Rd.

REGULATORY DISCUSSION

The facility is subject to MI-ROP-B6497-2013, which was issued March 6, 2013. The facility has the potential to emit over 100 tpy Sulfur Dioxide (SO₂).

The facility is not major for HAPs.

EUENGINE is subject to 40 CFR Part 63, Subpart ZZZZ, which has not been delegated to MDEQ from EPA.

EUDEHY is subject to 40 CFR Part 63, Subpart HH, which has not been delegated to MDEQ from EPA.

The 3 wells that feed into the gas plant have a compressor engine to boost pressure in the line. The wells/booster engine are located approximately 1.5 miles south of the gas plant, and not considered part of the stationary source for B6497. EPA issued a determination as part of NSPS OOOOa, that for oil/gas sources, a ¼ distance for new construction/new modification would allow for being part of the same source. This ruling does not apply to B6497 as it is not new construction/modification (and the distance is over ¼ mile).

INSPECTION NOTES

Met with the Operator, Bryan, at the facility. Toured the facility and reviewed records as noted below. Each section of the ROP and MAP were discussed.

The facility was shut in from January 16 to August 2, 2016.

The facility has a fence and locked gate. The entrance has signs indicating poisonous gas is present. The gas plant was operating during the inspection. The flare had 0-5% VE tail after the flame. A sulfur odor was present by the gas plant and engine building, as well as closer to the flare.

H₂S was read by the Operator using Dragger tubes at the inlet to the facility. The location where the H₂S was read is the white piping coming out of the ground south of the building. Records were reviewed in the plant office.

The plant was viewed – an H₂S alarm system is in the building. The volumetric flow chart for the current week was operating and viewed. A photo of the flow chart for last week is attached. The flow chart is replaced weekly.

Two iron sponges are located on the NE corner of the plant. The two iron sponges were added in 2015.

The compressor prior to the sales line was viewed. Maintenance records for the compressor were reviewed. The skid the engine sits on has a lip. A small oil tank sits on the skid and uses the lip as containment. The engine was operating. The exhaust stack on the north side of the building was observed. No VE, stack has a muffler.

Any liquids that condensate in the system consisting of the iron sponges, compressor bottles, dehy system, inlet scrubbers and any valves goes to the large bullet tank to be sold as condensate/NGL.

Any liquids that come from the flare gas go to a knockout tank located under the knockout building (small building south side of the lined tank area). The knockout tank is pumped to the tank. The fluid captured in this tank can contain product to be sold after the water is separated out.

RECORDS REVIEW

SOURCE-WIDE CONDITIONS

III.1 requires the facility to not process wells other than those wells specified in the permitting process without prior notification to AQD. There are 3 wells that feed the gas plant, which appear to be the original permitted wells. Confirmed with Operator.

III.2 requires a malfunction abatement plan (MAP) be submitted and followed. The facility submitted an updated MAP dated November 30, 2015, which was approved by AQD March 14, 2016. The conditions of the MAP were reviewed with Bryan, and maintenance records were viewed onsite. A 2012 version of the MAP is posted on the wall in the office, Bryan will follow up with John Ward to get a copy of the 2015 version of the MAP.

The facility records maintenance for the gas treating unit, reboilers and engine manually on hardcopies and keeps the records onsite. The MAP indicates the records are maintained in a database or spreadsheet – which is not accurate. The MAP should be updated to say “the records are kept in log sheets onsite”.

The operator inspects the equipment on site daily. He has a maintenance sheet for the sweetening plant and another for the AJAX engine that gets completed daily. A daily operational journal is kept onsite that is completed each day. Any fluids added or issues are noted in the journal.

The MAP calls for daily inspections of the amine reboiler pressure, temperature, re-boiler level, surge level, as well as the glycol reboiler pressure, temperature, surge level and circulation rate. These parameters are checked by the Operator daily; however they are not addressed on a daily check sheet. Instead, the Operator notes in the daily journal any time a fluid is added to the reboiler or dehydrator. The MAP maintenance sheets should be updated to reflect the parameters indicated in the MAP.

The MAP was updated one year ago. The two issues above should be addressed and updated in a new MAP. The facility will be going through ROP renewal soon and can update the MAP at that time including the above changes.

IX.1 requires a fence and warning signs at permitter. The facility is fenced, with a locked gate. There is a sign posted at the entrance saying “Danger – Poison Gas”.

EUSWEETENING

The sweetening process removes H₂S from the sour gas using amine. The H₂S laden gas stream is sent to a flare and burned, resulting in SO₂ emissions.

I.1, VI.3 limits SO₂ emissions to 56.25 pounds per hour based on a 24 hour average; calculate and record SO₂. SO₂ emissions are calculated and submitted to AQD monthly using the flow rate determined in VI.1 and the H₂S concentration from VI.2.

III.1, III.2, III. 3 FLARE conditions requires the facility to operate a continuously burning pilot flame at the flare, sweet natural gas; shut of EUSWEETENING if pilot goes out; all emergency

relief valves vent to flare. The system is designed so that if the flare goes out the facility shuts in and the Operator is called. The wells will go into a holding pattern where the gas/fluids are pushed back into the ground until the flare can be lit. The flare burns sweet natural gas. All emergency relief valves vent to the flare.

III.4, VI.4 requires H₂S monitors in gas plant; alarm at 50 ppm, shutdown at 100 ppm. This was discussed with John Ward on a previous visit. The H₂S monitors were viewed and the system is set up to shut down as required.

VI.1 requires the continuous recording of volumetric flow entering the plant. The meter was updated with a different unit in 2015. The meter has an electric clock and is set up for 7 days. The charts no longer automatically drop and must be manually switched once per week. The charts are taken monthly to a company that uses an integrator computer program to read the flow. The flow chart tendencies appeared steadier with less trips to the low end than when visited in 2015.

VI.2 requires monthly determinations of H₂S content using a colorimetric tube. Bryan performed the colorimetric tube reading for November while I observed. The reading was 0.6%, or 6,000 ppm. Bryan posts the colorimetric tubes in the office at the gas plant for each month – they are taped to paper on the office wall.

VI.6 – requires non-certified VE readings from flare daily. Records were reviewed showing that the flare has been read daily. Operator placed check each day, if there was an issue he would note in the daily journal and make corrections – Bryan indicated there have been not issues with VE at flare. I asked Operator to note if there are visible emissions daily instead of the check for future.

VII.1-3 – semi annual, annual and deviation reporting. The facility is prompt in their reporting.

VII.4 – monthly calculations including mass flow rate of H₂S going to flare, SO₂ emissions. The facility is typically prompt in their monthly reporting, however was late with their March 2016 monthly report. The late report was noted as a deviation on the Semi1 deviation report.

EUDEHY

III.1 requires EUDEHY to vent to the flare. The dehy is piped to vent to flare.

VI.1, IX.1 requires the facility to comply with 40 CFR Part 63 Subpart HH. This condition is enforced by EPA. However, the volume data on the monthly SO₂ emission reports show the volume of natural gas is less than 85,000 cubic meters per day.

EUENGINE

30 hp natural gas fired compressor engine that compresses gas prior to entering the sales line. The engine is exempt but included in the ROP because it is subject to 40 CFR Part 63 Subpart ZZZZ.

IX.1 requires the facility to comply with 40 CFR Part 63 Subpart ZZZZ. This condition is enforced by EPA.

EUTANK

III.1 requires a vapor recovery system be installed in the load out area. A vapor recovery system has been installed.

III.2 requires the tank to be vented to the flare. The tank is piped to vent to the flare.

MAERS

This is a ROP source and MAERS is reviewed by Staff annually. The 2016 submittal was reviewed with no issues. The 2017 submittal will be reviewed when received, any issued will be addressed at that time.

MACES

MACES was reviewed. More detail was added to the description. The regulatory screen was updated to reflect that the source is NOT major for NOx as it was marked. The facility is only major for SO2. NOx is not a permitted emission for any EU in the ROP.

COMPLIANCE DETERMINATION

Based on the inspection and monthly records reviews, the facility appears to be in compliance with MI-ROP-B6497-2013 other than the issues related to the MAP identified above, which can be corrected in the next MAP revision when the ROP renewal takes place.

NAME Becky Radulski

DATE 11/3/16

SUPERVISOR 

