DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Self Initiated Inspection 5

P026024614

FACILITY: SAVOY ENERGY LP - Goetz 8 CPF		**SRN / ID:** P0260
LOCATION: SECT 8 T6S-R3E (ADRIAN TOWNSHIP), ADRIAN		**DISTRICT:** Jackson
CITY: ADRIAN		**COUNTY:** LENAWEE
CONTACT: Jack Rokos , Operations Manager		**ACTIVITY DATE:** 02/18/2014
STAFF: Sersena White	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: A self initiated inspection was conducted in preparation for a meeting regarding a different Savoy location that the Lenawee County Health Department had been receiving calls about. Staff from the Heatlh Department and the Office of Oil, Gas, and Minerals were also present.		
RESOLVED COMPLAINTS:		

SRN: P0260
Company: Savoy Energy LP – Goetz 8 Trust CPF
Location of Permitted Emission Units: Section 8, T6S, R3E, Adrian Township 49221
Company Mailing Address: 920 Hastings Street, Suite A, PO Box 1560, Traverse City, MI 49685-1560
Purpose of Inspection: Self-Initiated Inspection regarding the installation of New Emission Unit(s) and compliance with Federal and State regulations, and Lenawee County Health Department request
Contact Person: Mr. Jack Rokos, Operations Manager
E-mail: barb@savoyexp.com Attention: Mr. Jack Rokos (Barbara J. Parrish is the Administrative Assistant) & Wayne Cockrum: E-mail: wcockrum@etcinc.com Principal Engineer with Environmental Consulting & Technology (ECT) for Savoy
Company Phone number: 231 941-9552 Fax: 231 941-9885
Company website: http://www.savoyenergy.info/

On February 18, 2014, I arrived at the site at approximately 11:00 a.m. This was an Office of Oil, Gas and Minerals (OOGM) pre-arranged educational tour due to concerns about benzene emissions resulting from flaring at a different, but similar gas and oil well site located near the city of Adrian. The arrangement was made by Kristy Shimko, Geologist who is located in the Lansing District office. This site visit was at the request of the Lenawee County Health Department because they were receiving the calls from concerned citizens, about the odors and potential health impact of exposure to emissions from the flare. Representing the Lenawee County Health Department were Ms. Martha Hall, the Environmental Health Director and Ms. Patsy Bourgeois, the Health Officer. I became involved due to the fact that this site and the site at issue will be permitted to install emissions units related to oil and gas processing.

I was instructed to contact Wayne Cockrum, Principal Engineer with ECT, located in Traverse City, to get the required recordkeeping. He was contacted via e-mail on February 27, 2014. I received the records via e-mail on March 7, 2014 from Barb Parrish.

The permit to install 121-11A is for three natural-gas fired reciprocating engines and one glycol dehydration reboiler system processing oil and gas from crude oil, natural gas, and brine fluid wells. The wells identified in the Goetz Total MCF's spreadsheet are: Goetz 2-8, Goetz 3-8A, Ruesink 4-8, Ruesink 5-8A, Ruesink 1-16, Ruesink 2-16, Buehrer 1-17, Ruesink 4-16A, Drogowski 5-16A, Ruesink 6-16, Ruesink 7-16, Ruesink 8-16, Warner 1-21, Thompson 2-22, Thompson 3-22, Warner 1-22A, Ruesink 7-8, Lover 1-6, Day 2-27 and Lowe 2-31; a total of 20 wells.

The process description from the permit application: Crude oil, natural gas, and brine fluids are produced from wells drilled into producing reservoirs. The fluids are transported via pipe lines to a central processing facility that separates the oil, natural gas, and water. The separated materials are either stored or receive further processing for sale or disposal.

The pumped crude oil/gas/brine entering the facility passes through a line heater and heater treater to separate the oil, water and gas. The gas is compressed using a natural gas fired reciprocating internal combustion engine, and dried through a triethylene glycol dehydrator reboiler. The natural gas is sent

either to a sales line or a flare. The oil is stored in tanks on site and loaded onto trucks for transportation to refineries for further processing. The brine water is stored on site for transfer to a salt water disposal facility.

The schematic of the site provided by Kristy shows six wells piped to individual line heater and treater units. The oil, gas and water are metered individually at each treater. The treaters separate the fluid for each of the metered components. The oil is piped to one of four 400 barrel storage tanks; the water is piped to one of two 400 barrel storage tanks, the gas is piped to a Natural Gas Liquid (propane) tank.

All of the 400 barrel tanks are exempt from requiring a permit to install under Rule 284(i) – Storage or transfer operations of volatile organic compounds or non-carcinogenic liquids in a vessel that has a capacity of not more than 40,000 gallons where the contents have a true vapor pressure of not more than 1.5 psia at the actual storage conditions. Because they are exempt, they are not identified in the permit. There are 42 gallons to a barrel; therefore the tanks are 16,800 gallons each.

There were no visible emissions from the following processes: treater/heater, the compressor, the engines providing power to the compressor, or from the dehydration reboiler unit which has a condenser installed for control, although the condenser is not identified in the permit.

The flare only had the pilot burning at the time of the inspection and it was orange in appearance, indicating good combustion according to Kristy who inspects these facilities regularly. The flare is located prior to the gas plant processing building.

FGENGINES: Three natural gas fired reciprocating engines with 3-way catalyst (EUENGINE1 and EUENGINE3). ENGINE2 is a compressor engine.

Only two of the three reciprocating engines are equipped with a catalytic converter to control emissions. The third functions as a compressor. All three of these engines are less than 10,000,000 BTU/hour and would be otherwise exempt from requiring a permit to install, except the potential to emit for Nitrogen Oxide (NOx) exceeds the threshold level of 100 tons per year, triggering Title V applicability. The facility had to accept NOx limits to opt out of Title V based upon this permit. There was one engine on site located outside of the process building that was not operational. Each engine has individual NOx and CO emission limits on a 12 month rolling time period. The records received on March 7, 2014 show that the emissions are well below the permitted limits. This information is also required to be reported to MAERS. An initial audit of MAERS was completed finding errors in reporting the throughputs for the two engines and the third engine was not included. The database was returned to the company to revise the data.

The permit requires the submission of a preventative maintenance/malfunction abatement plan (PM/MAP) for FGENGINES no later than 60 days after issuance of this permit. The MAP dated February 6, 2012 was received in the Cadillac AQD District office on February 8, 2012 and in the Jackson AQD District office on February 13, 2012. The permit was issued on December 20, 2011. The MAP was submitted in compliance with the time period requirement.

Upon request by the AQD District Supervisor, the permittee shall verify NOx and CO emission factors used to calculate emissions from one or more engine(s) in FGENGINES, by testing at owner's expense, in accordance with Department requirements. No requests have been made to conduct testing to date.

The required record keeping received on March 7, 2014 needs improvement. The Savoy Goetz Fuel Gas records identifying Compressor Fuel (Cummings) and Generator Fuel (398) was not clear to me until reviewing the maintenance records. The records lack specific identification of emissions and throughputs and hours of operation for each individual engine. Records of maintenance was provided covering the period of August 25, 2011 through December 12, 2013 for the EUENGINE1 (CAT 398) and EUENGINE3 (Cummings GTA). The engines have a 200 hour limit to operate without the control device. The catalytic converter control device is physically apart of the exhaust system like in a vehicle. The company would have to specify times of operation without the control device to evaluate

compliance with this requirement. According to Mr. Rokos, they intend to operate the engines until Consumers can run electricity to the site.

There is a provision in the permit that states, except as provided in R 336.1285, if any engine included in FGENGINES is replaced with an equivalent-emitting or lower-emitting engine, the permittee shall notify the AQD District Supervisor of such change-out and submit acceptable emissions data to show that the alternative engine is equivalent-emitting or lower-emitting. The data shall be submitted within 30 days of the engine change out. To date our office has not been notified of any engine replacements. The plant began operation on October 15, 2011.

The permittee shall comply with all provisions of the NESHAP as specified in 40 CFR Part 63 Subparts A and ZZZZ, as they apply to FGENGINES. Subpart A is referenced in Subpart ZZZZ and the State of Michigan has not been delegated authority to determine compliance with Subpart ZZZZ.

Photos were taken of the following: the well closest to the processing area, the flare, the gas flow meter in Ruesink 7-8HD2 Treater, meters to capture flow in the same Treater, the compressor, the dehydrator with the condenser, the condenser, the catalytic oxidizer on the two engines operating at the time of the inspection, the continuous monitoring of gas processed, the daily record of converted gas flow in MCF, and the a couple of the treater stacks

There is constant monitoring of the process flow with secondary fault detection for malfunctions with auto call to personnel when an alarm occurs.

On April 1, 2014, I sent an e-mail to Savoy Goetz contacts for follow-up information about conditions in the permit that were not addressed during the inspection. Below is the list of questions and references to the item in their April 21, 2014 response which is attached. The response was in PDF format; otherwise I would have pasted the responses in this document.

P0260 Inspection/MAERS follow-up

FGENGINES
Process/Operational Restrictions:
The permittee shall not operate any engine equipped with an add-on control device for more than 200 hours per engine per year without that control device consistent with the PM/MAP.

1) **How is the plant tracking this? I did not see this information the records received.**

April 21, 2014 Response No. 1

Design/Equipment Parameters:
The permitee shall not operate any engine that contains an add-on control device unless that device is installed, maintained, and operated in a satisfactory manner.

2) **This is physically apart of the exhaust system. Can the engines operate without it being installed?**

April 21, 2014 Response No. 2

The permitee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor the natural gas usage for each engine included in FGENGINES on a continuous basis.

3) **I did not see engine specific information in the records received.**

April 21, 2014 Response No. 3

The permitee shall keep, in a satisfactory manner, for any engine equipped with an add-on control device, monthly and 12-month rolling time period records of the hours that the engine is operated without the control device.

4) **I did not see hours tracked monthly and 12 month rolling for each engine in the records received.**

April 21, 2014 Response No. 4

The permittee shall comply with all provisions of the NESHAP as specified in 40 CFR Part 63 Subparts A and ZZZZ, as they apply to FGENGINES.

5) Is the plant doing this?
April 21, 2014 Response No. 5

EUDEHY:
Material Limits: The permittee shall not use stripping gas in EUDEHY.

6) What is stripping gas and how is it prevented from being used in EUDEHY?
April 21, 2014 Response No. 6

The glycol recirculation rate for EUDEHY shall not exceed a maximum of 0.67 gallons per minute.

7) What is the equation or relationship for strokes per minute to gallons per minute? Is there a chart that show the number of strokes and the gallons per minute processed? Is there an alarm if the throughput exceeds or nears the limit?
April 21, 2014 Response No. 7

Testing/Sampling:
At least once each calendar year the permittee shall obtain, by sampling, an analysis of the wet gas stream. The permittee shall analyze the sample for nitrogen, carbon dioxide, hydrogen sulfide, C1 through C6 series hydrocarbons, benzene, toluene, xylene, ethylbenzene, and heptanes.

8) Need proof that the sampling has been completed for the each calendar year in operation.
April 21, 2014 Response No. 8 – Provided on May 29, 2014

Monitoring/Recordkeeping:
The permitee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.

9) I do not see any other records for EUDEHY except for the stroke per minute.
April 21, 2014 Response No. 9

The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor the glycol recirculation rate of EUDEHY on a continuous basis.

10) How is this being accomplished?
April 21, 2014 Response No. 10

This requirement relates to the method of determining if the EUDEHY meets exemption criteria according to NESHAP. Based upon the last inspection, the plant is using the GRI-GLYCalc method.

11) Where are the records to support this method?
April 21, 2014 Response No. 11

The permitee shall calculate the benzene emission rates from EUDEHY for each calendar month and 12-month rolling time period, using a method acceptable to the AQD District Supevisor. The inputs to the model for GRI-GLYCalc shall include the most recent gas analysis data.

The permitee shall keep, in a satisfactory manner, records of the wet gas composition as determined through analysis of wet gas samples of EUDEHY.

If EUDEHY complies with the exemption criteria tracking the actual annual average flow rate of natural gas less than 85,000 cubic meters per day, the permittee shall keep records of the actual annual average natural gas throughput (in term of natural gas flow rate to the glycol dehydration unit per day).

12) I do not see records to demonstrate compliance with this requirement.
April 21, 2014 Response No. 12 and No. 9 The Goetz Total MCF's spread sheet columns Gas Plant Monthly Total and Yearly Cumulative show the throughput is less than 85,000 cubic meters per day.

As an alternative to above condition 7, if EUDEHY complies with the exemption criteria for glycol dehydrators with actual average benzene emissions of less than 0.90 megagrams per year, the permittee shall keep records of the actual average benzene emissions (in terms of benzene emissions per year). 1 Megagram = 1.10231131092 ton

13) I do not see records to demonstrate compliance with this requirement.
April 21, 2014 Response No. 12 and No. 9

FGFACILITY

Pollutant	Limit	Time Period	Equipment	**Reported?**
NOx	65 tpy	12 month rolling	FGFACILITY	
Benzene	250 lb/year	12 month rolling	FGFACILITY	

Material Limits:
The permitee shall not burn any sour gas in FGFACILITY.
14) I am assuming that this is verified by the wet gas analysis.
April 21, 2014 Response No. 15

Process/Operational Restrictions:
The permitee shall comply with all provisions, including recordkeeping and reporting, of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR 60 Subparts A and KKK, as they apply to FGFACILITY.
15) Is the plant doing this?
April 21, 2014 Response No. 14 and No. 16

The permittee shall comply with all provisions of the NESHAP, 40 CFR Part 63, Subpart HH, as they apply to FGFACILITY.
16) Is the plant doing this?
April 21, 2014 Response No. 16

Monitoring/Recordkeeping:
The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month.
17) I do not see records addressing FGFACILITY.
April 21, 2014 Response No. 17

The permitee shall keep, in a satisfactory manner, monthly and 12-month rolling time period NOx and benzene emission calculation records for FGFACILITY.
18) I do not see records addressing FGFACILITY.
April 21, 2014 Response No.18

Based upon the information in the follow-up and the updated records, the facility is complying with the requirements of the applicable regulations.

Attachments: Information about Savoy, schematics of process flow, photos taken, records reviewed, the April 21, 2104 response letter with attached records and gas analysis for 2013.

On May 29, 2014, I spoke with Wayne Cockrum to follow up on some clarifications and he said that I would need to speak to Barb about spreadsheet questions. He told me that Savoy has taken steps to comply with Quad O by tagging and labeling everything. He said that they happened to be there the day EPA showed up. They are working on implementing a monthly LDAR monitoring program at the locations where Quad O is applicable. I did follow up with Barb and corrections and/or explanations were received to address my questions.

NAME Arsena M. White DATE 5-30-2014 SUPERVISOR