

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

N609138740

FACILITY: Merit Energy Company - Chester 18 CPF		SRN / ID: N6091
LOCATION: Ranger Lake, GAYLORD		DISTRICT: Gaylord
CITY: GAYLORD		COUNTY: OTSEGO
CONTACT:		ACTIVITY DATE: 02/24/2017
STAFF: Gloria Torello	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: 2017 Scheduled Inspection.		
RESOLVED COMPLAINTS:		

SRN: N6091 Name: Merit Energy Company, Chester 18 CPF

Directions:

The facility is located in Otsego County, Chester Township. From M-32 turn south onto Big Lake Road and drive beyond McCoy Road. Look for the facility to the west; see the map in the blue permit file.

Application:

This is a Niagaran sour gas facility.

The application included a modification to the facility including:

- Remove of a Waukesha 5790G 550 hp compressor engine, and
- Install a 1000 Waukesha 5790 GL lean burn compressor engine,
- Install a 930 hp Caterpillar G399TA with catalytic converter engine (to be used temporarily during installation of the Waukesha engine),

The site already included:

- Inline heaters,
- Separators,
- Iron sponge,
- Glycol dehydrator,
- Tank battery with VRU.

The application included potential to emit calculations including:

- Cat 399 TA w/cat. conv.,
- Wauk 5790 lean burn,
- Inline heaters,
- Inline treaters,
- Reboiler-Glycol,
- Tanks (standing loss, working loss),
- Trucking,
- Dehydrators.

Permit:

The SRN N6091 was identified as an active minor facility in MACES Report Generator:

- Report Name: Facility Staff Assignments,
- Staff: Torellog,
- EPA Class: Minor,
- View Report.

On September 10, 2010 the AQD issued permit 145-10. The permit includes:

- One 1000 hp natural gas fired reciprocating engine (Waukesha 5790GL lean burn engine),
- One 930 hp natural gas fired reciprocating engine (Caterpillar G399TA with catalytic converter),
- A glycol dehydration system processing gas from the Niagaran zone.

Because permit 145-10, EUENGINE1, condition VII.1 allows the engine to be replaced with an equivalent-emitting or lower-emitting engine, this is an opt-out permit.

Malfunction Abatement Plan (MAP):

On February 23, 2011 the AQD approved the MAP. The MAP includes:

- One Waukesha 5790GL naturally aspirated Lean Burn 1000 hp compressor engine with no control.

MAERS:

A review of MAERS history shows the 2013 MAERS is the latest submittal. This facility has been identified as a minor; therefore the SRN was not automatically put on the MAERS submittal list.

Because permit 145-10, EUENGINE1, condition VII.1 allows the engine to be replaced with an equivalent-emitting or lower-emitting engine, this is an opt-out permit. In MACES, Regulatory Information EPA Class was changed from minor to "Synthetic Minor" and "CMS" was checked. With CMS checked, this opt-out facility will be inspected on a specific frequency and the results will be reported to EPA. Gloria Torello worked with Dennis McGeen of AQD to change the SRN's MAERS flag to Yes and the SRN will appear on next year's Master List for annual reporting.

MACTS:

The application included potential to emit calculations including HAPs emissions. The application shows source wide HAPs PTE emissions equaling 4.3 tpy and making the facility a true minor for HAPs. This is called an "area source." An area source is subject to 40 CFR Part 63, Subpart HH. The engine is subject 40 CFR Part 63, Subpart ZZZZ. The EPA has not delegated Subparts HH and ZZZZ to AQD and Subpart HH was not reviewed beyond the conditions in EUDEHY.

MACES:

Facility Information was reviewed and the following changes were made:

- Operating Status was changed from "Permanently Closed" to "Operating."

Regulatory Info was reviewed and the following changes were made:

- EPA Class was changed from minor to "Synthetic Minor," and "CMS" was checked. Because permit 145-10, EUENGINE1, condition VII.1 allows the engine to be replaced with an equivalent-emitting or lower-emitting engine, this is an opt-out permit. With CMS checked, this opt-out facility will be inspected on a specific frequency and the results will be reported to EPA. MAERS will be requested.

Compliance:

A review of AQD files shows consent order AQD No. 5-2007 terminated in March 2012. This consent order involved multiple SRNs.

A review of MACES Report Generator, Violation Notice Log, for the time period 1/1/1990 to 4/6/2017 for SRN N6091, shows "There is no data for given criteria."

Records:

On January 5, 2017 Vicki Kniss from Merit sent AQD requested records. Specifics on the records are incorporated into the Permit Conditions below. As a general statement, the permittee has very organized records and is very timely when submitting records to AQD upon request.

Other:

On 2/24/17, AQD staff signed Activity Report N609138740. This Activity Report inadvertently included information associated with SRN N6111. Activity Report N609138740 was revised in to include information associated with SRN N6091 only.

Inspection:

On 2/24/17 Gloria Torello, AQD, joined by Chris Bowen of DEQ, visited this facility. The compressor engine and glycol dehydrator are in separate buildings. The engine operated during the site visit. The engine skid ID was not found. No visible emissions were noted from the engine stack. No catalytic converter was observed on the engine. Near the engine was a clipboard with written records for February 22, 23, 24 and including Eng Vac Press, Eng Speed RPM, and Eng Water Temp. The clipboard

did not include any records under Oxygen Sensor, Cat Inlet Temp, Cat Outlet Temp, Cat Insp if Eng Malfunctions.

In the glycol building are various parts that are rusted and appear to be out of use. In general, onsite the buildings and equipment-tanks for example, have rust and are in various states of repair. Based on a visual assessment, the glycol dehydrator stack appeared to meet the restrictions of 4 inches in diameter and 19 feet above the ground.

The iron sponge was observed, as well as the heaters.

No oil spill was observed on the soil or other issue was noted that would cause AQD staff to alert other DEQ division staff.

There were distinct and definite process related odors smelled in and near the separator building.

Per conversation with Janet Smigelski of DEQ's OGMD, in the near future additional wells may be served by this facility. Some of the tanks are not in use.

Permit Conditions:

The following conditions apply to: EUDEHY

DESCRIPTION: Glycol dehydration system processing gas from the Niagaran zone.

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Demonstration of Compliance See the Dehydrator Emissions record
1. VOC	4.0 tpy	12-month rolling time period as determined at the end of each calendar month.	EUDEHY	<i>The 2016 record shows VOC 12-month rolling emissions below 1.0 tpy.</i>
2. Benzene	0.10 lb per hour	According to Method	EUDEHY	<i>The permittee keeps records of the actual average benzene emissions in "per year." See VI. 8.</i>
3. Benzene	0.44 tpy	12-month rolling time period as determined at the end of each calendar month.	EUDEHY	<i>The 2016 record shows Benzene 12-month rolling emissions below 0.1 tpy.</i>

II. MATERIAL LIMITS

1. The permittee shall not use stripping gas in EUDEHY.
 - *Per communication with the permittee, stripping gas is not used in EUDEHY.*

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants, 40 CFR Part 63, Subpart HH, as they apply to EUDEHY.
 - *The EPA has not delegated Subpart HH. AQD reviewed Subpart HH in the context of EUDEHY.*
2. The glycol recirculation rate for EUDEHY shall not exceed a maximum of 0.50 gallons per minute.
 - *See the Dehydrator Emissions record. The 2016 record shows the glycol recirculation rate was 0.23 gpm each month in 2016.*

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate / process natural gas in EUDEHY unless the flash tank is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes routing the flash tank exhaust gas to the engine for destruction or recompression.
 - *Emissions from the flash tank are routed to the suction side of the compressor.*

V. TESTING/SAMPLING

1. 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 plus. The permittee must submit any request for a change in the sampling frequency to the AQD District Supervisor for review and approval.
 - *See the Analytical Data report. The Analytical Data report includes analysis for nitrogen, carbon dioxide, hydrogen sulfide, C1 through C6 series hydrocarbons, benzene, toluene, xylene, ethylbenzene, and heptanes plus.*
 - *Only benzene has a permit emission limit. The Analytical Data is not a direct demonstration of benzene compliance because the Analytical Data reports pollutants in Mol.% and Wt.% and the benzene emission limit is in pounds per hour.*

VI. MONITORING/RECORDKEEPING

1. The permittee 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.
 - *The permittee was timely in submitting requested records.*
2. The permittee shall monitor, in a satisfactory manner, the glycol recirculation rate of EUDEHY on a per calendar month basis.
 - *See the Dehydrator Emissions record. The record includes the glycol recirculation rate.*
3. If EUDEHY meets the exemption criteria in 40 CFR 63.764(e)(1)(i) for glycol dehydrators with actual annual average flow rate of natural gas less than 85,000 cubic meters per day, the actual flow rate of natural gas shall be determined using either of the procedures below:
 - a) The permittee shall install and operate a monitoring instrument that directly measures natural gas flow rate to the glycol dehydration unit with an accuracy of plus or minus 2 percent or better. The permittee shall convert annual natural gas flow rate to a daily average by dividing the annual flow rate by the number of days per year the glycol dehydration unit processed natural gas.
 - b) The permittee shall document, to the AQD District Supervisor's satisfaction, that the actual annual average natural gas flow rate to the glycol dehydration unit is less than 85,000 cubic meters per day.

As an alternative, if EUDEHY meets the exemption criteria in 40 CFR 63.764(e)(1)(ii) for glycol dehydrators with actual average benzene emissions less than 0.90 megagram per year, the emissions shall be determined either uncontrolled, or with federally enforceable controls in place and using either of the procedures below:

- c) The permittee shall determine actual average benzene emissions using the model GRI-GLYCalc™, Version 3.0 or higher, and the procedures presented in the associated GRI-GLYCalc™ Technical Reference Manual. Inputs to the model shall be representative of actual operating conditions of the glycol dehydration unit and may be determined using the procedures documented in the Gas Research Institute (GRI) report entitled "Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions" (GRI-95/0368.1).
- d) The permittee shall determine an average mass rate of benzene emissions in kilograms per hour through direct measurement using the methods in 40 CFR 63.772(a)(1)(i) or (ii), or an alternative method according to 40 CFR 63.7(f). Annual emissions in kilograms per year shall be determined by multiplying the mass rate by the number of hours the unit is operated per year. This result shall be converted to megagrams per year.
 - *See the Dehydrator Emissions record. Per communication with the permittee, the average annual gas production for the facility is under 3 MMCF/day - 85,000 cubic meters (it is 0.706 MMCF/day), therefore the exemption criteria above is met. The gas volumes are from individual*

meters at each well. Since the permittee receives revenue from this gas production, the permittee make sure that these meters are accurate.

4. The permittee shall calculate the VOC and benzene emission rates from EUDEHY for each calendar month and 12-month rolling time period, using a method acceptable to the AQD District Supervisor. If GRI-GLYCalc (Version 3.0 or higher) is used to calculate the emission rates, the inputs to the model shall be representative of actual operating conditions of EUDEHY and shall include the most recent gas analysis data. The permittee must submit any request for a change in the calculation frequency to the AQD District Supervisor for review and approval. The permittee shall keep records of VOC and benzene emission rates on file at a location approved by the AQD District Supervisor and make them available to the Department upon request.
 - *See the Dehydrator Emissions record. The record includes VOC and benzene emission rates from EUDEHY for each calendar month and 12-month rolling time period. Gri-Glycalc was used.*
5. The permittee shall keep, in a satisfactory manner, monthly records of the glycol recirculation rate for EUDEHY, as required by SC III.2 and SC VI.2. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request.
 - *See the Dehydrator Emissions record. The record includes the glycol recirculation rate for EUDEHY.*
6. The permittee shall keep, in a satisfactory manner, records of the wet gas composition as determined through analysis of wet gas samples for EUDEHY, as required by SC V.1. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request.
 - *See the Analytical Data report.*
7. If EUDEHY complies with the exemption criteria in 40 CFR 63.764(e)(1)(i) for glycol dehydrators with 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 terms of natural gas flow rate to the glycol dehydration unit per day) as determined in accordance with SC VI.3. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request.
 - *This alternative is used by the permittee. See 3 above.*
8. As an alternative to SC VI.7, if EUDEHY complies with the exemption criteria in 40 CFR 63.764(e)(1)(ii) for glycol dehydrators with actual average benzene emissions less than 0.90 megagram per year, the permittee shall keep records of the actual average benzene emissions (in terms of benzene emissions per year) as determined in accordance with SC VI.5. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request.
 - *This alternative is not used by the permittee.*

VII. REPORTING

1. The permittee shall submit all applicable notifications and reports required by 40 CFR 63.775 by the dates specified in 40 CFR 63.775.
 - The EPA has not delegated Subpart HH to AQD and this condition of Subpart HH was not reviewed.

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/ Dimensions (inches)	Minimum Height Above Ground (feet)	Demonstration of Compliance
-----------------	---	------------------------------------	-----------------------------

Stack & Vent ID	Maximum Exhaust Diameter/ Dimensions (inches)	Minimum Height Above Ground (feet)	Demonstration of Compliance
1. SVDEHY	4	19	<i>Based on a visual assessment during the site inspection, the glycol dehydrator stack appeared to meet the restrictions of 4 inches in diameter and 19 feet above the ground.</i>

The following conditions apply to: EUENGINE1

DESCRIPTION: 1000 horsepower natural gas fired reciprocating engine (Waukesha 5790GL lean burn engine).

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Demonstration of Compliance
1. NO _x	17 tpy	12-month rolling time period as determined at the end of each calendar month.	EUENGINE1	<i>See the Monthly Emissions Summary reports. A review of the records shows the NO_x and CO 12-month rolling emissions are below the permitted limits.</i>
2. CO	30 tpy	12-month rolling time period as determined at the end of each calendar month.	EUENGINE1	

II. MATERIAL LIMITS

- The permittee shall not burn any sour natural gas in EUENGINE1. Sour gas is defined as any gas containing more than 1 grain of hydrogen sulfide or more than 10 grains of total sulfur per 100 standard cubic feet.
 - See the Analytical Data report. Hydrogen Sulfide is ND, non-detect.*

III. PROCESS/OPERATIONAL RESTRICTIONS

- No later than 120 days after issuance of this permit, the permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance / malfunction abatement plan (PM / MAP) for EUENGINE1.
 - On February 23, 2011 the AQD approved the MAP. The MAP includes: One Waukesha 5790GL naturally aspirated Lean Burn 550 hp compressor engine with no control.*
- 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 (pursuant to SC III.1). The 200 hours shall include times after an engine change-out occurs and general maintenance performed as allowed by the PM / MAP. The hours per year limit is based on a 12-month rolling time period as determined at the end of each calendar month.
 - Not applicable. The engine on site does not have add-on control.*

IV. DESIGN/EQUIPMENT PARAMETERS

- The permittee shall not operate any engine that contains an add-on control device unless that device is installed, maintained, and operated in a satisfactory manner, except as specified in SC III.2. Satisfactory operation includes performing the manufacturer's recommended maintenance on the control device and operating in conjunction with the PM / MAP specified in SC III.1.
 - Not applicable. The engine on site does not have add-on control.*

2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor the natural gas usage for EUENGINE1 on a continuous basis.
 - *See the Monthly Emissions Summary report; it includes monthly and 12-month rolling fuel usage and documents monitoring and recordkeeping of natural gas usage.*

V. TESTING/SAMPLING

1. Upon request by the AQD District Supervisor, the permittee shall verify NO_x and CO emission factors used to calculate emissions from EUENGINE1, by testing at owner's expense, in accordance with Department requirements. If a test has been conducted, any resulting increase in an emission factor shall be implemented to calculate NO_x and CO.
 - *AQD has not requested testing.*
2. Verification of H₂S and/or sulfur content of the natural gas burned in EUENGINE1 may be required upon request by the AQD District Supervisor. This condition is necessary to ensure compliance with SC II.1.
 - *AQD has not requested testing. See the Analytical Data report for Hydrogen Sulfide which is ND, non-detect.*

VI. MONITORING/RECORDKEEPING

1. 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, unless otherwise specified in any monitoring/recordkeeping special condition.
 - *The permittee was timely and complete in submitting requested records.*
2. The permittee shall monitor, in a satisfactory manner, the natural gas usage for EUENGINE1 on a continuous basis.
 - *See the Monthly Emissions Summary report; it includes monthly and 12-month rolling fuel usage and documents monitoring and recordkeeping of natural gas usage. There is not a natural gas usage limit in II. Material Limit.*
3. The permittee shall maintain a log of all maintenance activities conducted according to the PM / MAP (pursuant to SC III.1). The permittee shall keep this log on file at a location approved by the AQD District Supervisor and make it available to the Department upon request.
 - *See the Maintenance Log. The log details Equipment and Maintenance Performed.*
4. The permittee 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. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request.
 - *Not applicable. The engine on site does not have add-on control.*
5. The permittee shall keep, in a satisfactory manner, monthly fuel use records for EUENGINE1, as required by SC VI.2. The permittee shall keep all records on file at the facility and make them available to the Department upon request.
 - *See the Monthly Emissions Summary report; it includes monthly and 12-month rolling fuel usage and documents monitoring and recordkeeping of natural gas usage. There is not a natural gas limit in II. Material Limit.*
6. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period NO_x emission calculation records for EUENGINE1, as required by SC I.1 and Appendix A. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request.
 - *The NO_x emission calculations are made. See SC. 1.1 for details.*
7. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period CO emission calculation records for EUENGINE1, as required by SC I.2 and Appendix A. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request.
 - *The CO emission calculations are made. See SC. 1.2 for details.*

VII. REPORTING

1. Except as provided in R 336.1285, if the engine 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 alternate engine is equivalent-emitting or lower-emitting. The data shall be submitted within 30-days of the engine change out.
 - *No notification was found in AQD's files of an engine change-out.*

VIII. STACK/VENT RESTRICTIONS

Stack & Vent ID	Maximum Exhaust Diameter/ Dimensions (inches)	Minimum Height Above Ground (feet)	Demonstration of Compliance
1. SVENGINE1	8	31.5	<i>Based on a visual assessment, the glycol dehydrator stack appeared to meet the restrictions of 4 inches in diameter and 19 feet above the ground.</i>

The following conditions apply to: EUENGINE2

DESCRIPTION: 930 horsepower natural gas fired reciprocating engine (Caterpillar G399TA with catalytic converter).

- *EUENGINE 2 was removed.*

MAP:

- *See the Daily Gas Compressor Operating Reports for a demonstration of ongoing recordkeeping required by the MAP.*
- *See the Maintenance Log. The log details Equipment and Maintenance Performed.*

Conclusions:

Permit 145-10 will be placed on AQD's opt-out vs minor list.

Via onsite inspection, review of records, and communication with permittee staff, the permittee demonstrate compliance with the conditions of permit 145-10 and the MAP.

NAME *Gloria Jello*

DATE *5-31-17*

SUPERVISOR *SN*