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

B739037839

FACILITY: ANR Pipeline - Central Charlton Compressor Station		**SRN / ID:** B7390
LOCATION: 14490 Beckett Road, JOHANNESBURG		**DISTRICT:** Gaylord
CITY: JOHANNESBURG		**COUNTY:** OTSEGO
CONTACT: Larry Bowman , Pipeline Technician		**ACTIVITY DATE:** 12/14/2016
STAFF: Gloria Torello	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: 2017 FCE.		
RESOLVED COMPLAINTS:		

SRN: B7390. Name: ANR Pipeline Company, Central Charlton.

Directions: The facility is located in Otsego County, Charlton Township. From M-32 turn north on Meridian Line Road and travel about 3.5 miles, turn left/west on Beckett Road and travel about ¼ mile. The facility is on the north side of the road.

Application/Permit: This facility operates as both natural gas storage (compression) and transmission. The facility functions to maintain pressure in pipelines to transport natural gas to other ANR facilities and end users. The facility injects to and withdraws natural gas from an underground storage reservoir. During the spring and summer seasons, the compressor engines are used to compress and inject the natural gas into the underground reservoir. During the winter season, natural gas is withdrawn from the underground reservoir. During withdrawal, natural gas free flows out of the reservoirs. During withdrawal, cooling and glycol dehydration are used to condition the field gas going into the pipeline for quality. Natural gas heaters are used to heat the gas as necessary. The withdrawal gas heaters are listed as exempt equipment.

The ROP includes:

- **a glycol dehydrator,**
- **two Cooper Bessemer model 12Q145LM 3600 HP two cycle natural gas fired reciprocating compressor engines used to inject natural gas into the storage field, and**
- **a Waukesha model F2859GU 526 HP four cycle rich burn natural gas fired reciprocating engine used for emergency backup power.**

On July 10, 2012 the AQD issued MI-ROP-B7390-2012. On September 11, 2012, the ROP was revised to correct a typographical error. The MI-ROP-B7390-2012a expires on July 10, 2017. An administratively complete ROP renewal application is due to AQD by January 10, 2017. On January 11, 2016 a ROP renewal reminder letter was sent to the permittee. On May 11, 2016 TransCanada staff sent Gloria Torello, AQD, an email including ANR/TransCanada does not wish to schedule an ROP pre-application meeting. During the November 14, 2016 site inspection, Torello reminded Wes March and Dave Cookingham of ANR staff of the ROP application deadline. On December 16, 2016 Torello called ANR's Mr. Bruce Bendes and reminded him of the due date for submittal of an ROP renewal application. On December 28, 2016 the permittee submitted the ROP renewal application. On January 5, 2017 the AQD signed the application shield letter.

Malfunction Abatement Plan (MAP): The ROP does not require a MAP.

MAERS: FGCTREC, the compressor engines, have a NOx limit of 53 pounds per hour (232 tpy). The 2015 MAERS reported source wide NOx emissions of 30.5 tons. The ROP does not have source wide limits.

CAM: The ROP does not include CAM conditions.

MACTS:
The facility's HAP PTE is equal to or more then 10/25 tpy for individual/total HAPs making the facility major for HAP and making the facility subject to the MACTs listed below. See this link for USEPA Delegations to the State of Michigan, Air Quality Division:
http://inside.michigan.gov/deq/officesdivisions/aqd/Documents/LAWS/Delegation%20of%20Authority%20History%20Table.pdf.

The EPA has delegated this Subpart to MI AQD and the Subpart was reviewed.

- 40 CFR, Part 63, Subpart HHH, National Emission Standards for Hazardous Air Pollutants for Natural Gas Transmission and Storage Facilities

The EPA has not delegated this Subpart to MI AQD.

- 40 CFR, Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

MACES:

- Facility Information was reviewed.
  - o No change was made.

Regulatory Info was reviewed. CMS is checked as this an ROP facility. The following changes were made:

- o To *HAPs, Major* was added.
- o *Subject To* was updated to include 40 CFR Part 63 Subpart HHH.
- o To *Comments* was added: EPA has delegated Subpart HHH to MI AQD. EPA has not delegated Subpart ZZZZ to MI AQD.

Compliance: A review of AQD files and MACES report generator shows one violation from 2008 and it was resolved.

Records:
The AQD requested, and the permittee provided, records documenting compliance with the permit recordkeeping requirements. The records included Glycol Dehydrator, Emergency Generator, and Compressor Engine monitoring and recordkeeping, and process/operational restrictions. Specifics on the records are incorporated into the Permit Conditions below.

Inspection: On November 14, 2016 Gloria Torello, and joined by Becky Radulski, of AQD staff met with Wes Marsh, Dave Cookingham and Larry Bowman of ANR at the facility for an unannounced inspection. The facility was not operating. Typically, April 1st is the start of gas compression for storage in the reservoir; by October the reservoir is full. As of the inspection date, withdrawal for the season had not yet started. Torello received copies of Weekly Injection Sheet from 10/1/2016 and a Station Log dated 10/17/ 2016.

Wes gave a walking tour of the facility. The emission units were observed.

There are two compressor engines. The #2 compressor engine is in the process of a 30-year maintenance overhaul by contractors; the engine block and crank shaft are in place. The balance of the engine parts are being cleaned/polished/sized or replaced. The goal is to have the engine running in February 2017. AQD was not notified of the overhaul. The facility does not have an engine maintenance plan.

There was internal AQD discussion about major engine overhauls. At this time, unless new or different information becomes available, AQD is not requesting notification of major overhauls; AQD is not requiring a PTI application for major engine overhauls.

The #1 compressor engine was not operating. It will be overhauled in the future. The #1 compressor engine has these identifications: serial # 48767, 12Q145H2 model.

The EUCTGEN001 Emergency Generator Engine had these identifications: serial number of 365198, Waukesha Model # F 3521GSIU. The hours counter on the emergency generator read 1818.6. The emergency generator muffler is horizontal and the stack does not extend above the building roof and the end of the stack faces downward. The ROP, EUCTGEN001 Emergency Generator Engine, VIII. Stack/Vent Restrictions includes, "The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted..." There are not stack listed in the table so no follow up will be made on AQD's part to address the muffler facing downward.

Based on a visual assessment, the stack on the glycol dehydrator appeared to meet the 2 inch diameter max and 25 feet minimum height. Wes pointed out the temperature probe on the stack.

The site was tidy. Conversations with ANR's Ms. Tiffany Grady and Mr. Bruce Bendes were part of this FCE review.

Permit Conditions:

EUCTGD001-Glycol Dehydrator

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operation Scenario	Equipment	Compliance Comments
VOC	33 pounds per day	As determined at the end of each calendar month	EUCTGDS001	Compliance demonstrated See VI.4
VOC	6 tons	12-month rolling time period as determined at the end of each calendar month	EUCTGDS001	Compliance demonstrated See VI.4
Benzene	Less than 0.90 megagrams (0.992 tons) per year	12-month rolling time period as determined at the end of each calendar month	EUCTGDS001	Compliance demonstrated. See VI. 5

II. MATERIAL LIMIT(S)

Pollutant	Limit	Time Period/ Operation Scenario	Equipment	Compliance Comments
Natural Gas Processed	225 million cubic feet per day	As determined at the end of each calendar month	EUCTGDS001	Compliance demonstrated See VI.3

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. **EUCTGDS001 shall not be operated unless the glycol regenerator still is equipped with a condenser and the condenser, including any associated monitoring equipment, is installed and operating properly.**
   - **There is a condenser in place. See VI. 1.**

2. **EUCTGDS001 shall not be operated unless the condenser exhaust gas temperature is 140° F or less.**
   - **See VI. 1.**

3. **Natural gas containing no more than 20 grains of total sulfur per 100 cubic feet shall be the only fuel supplied to and fired in the glycol dehydrator. However, the permittee shall also incinerate emissions from the 2-phase and 3-phase separator in the glycol regenerator reboiler burner.**
   - **See the FERC Gas Tariff report which includes 6.13 Quality, 1.c, "shall not contain more than 20 grains total sulfur..."**

4. **The glycol circulation rate shall not exceed 6.0 gpm. Compliance with this rate shall be ensured by never operating EUCTGDS001 while running more than two of the three glycol recirculation pumps.**
   - **Per conversation with Ms. Tiffany Grady, this is part of the standard operating procedures. Each pump is rated at 3 gpm and only two operate at a time.**

5. **The permittee shall not use stripping gas in the glycol regenerator still.**
   - **Per conversation with Ms. Grady, no stripping gas is used.**

6. **EUCTGDS001 shall be operated with no detectable emissions except from its designed process vents.**
   - **Per conversation with Tiffany, by design this restriction is met. See VIII. Stack/Vent Restrictions.**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. **The condenser shall be equipped and maintained with an exhaust gas temperature monitor.**
   - **The temperature transmitter is on top of the stack of the glycol dehydrator building.**
   - **The alarm is on the computer in the operating room.**

2. **The condenser shall be equipped and maintained with an alarm which will be activated when exhaust gas temperature exceeds 140° F.**
   - **Per the records received, no alarm events occurred from August 2015 to August 2016.**
   - **The alarm is on the computer in the operating room.**

3. **Each glycol circulation pump shall have a fixed rate of circulation of 3 gallons per minute.**
   - **The equipment is designed to operate this way.**

V. TESTING/SAMPLING

1. **At least once every five years the permittee shall obtain, by sampling, an analysis of the wet gas stream. The sample shall be analyzed for nitrogen, carbon dioxide, hydrogen sulfide, C1 through C6 series hydrocarbons, benzene, toluene, xylene, ethylbenzene, and heptanes plus. Any request for a change in the sampling frequency must be submitted in writing to the AQD District Supervisor for review and written approval.**
   - On January 9, 2017 Tiffany sent Torello a copy of the December 2012 Certificate of Analysis of the wet gas.

1. **At least once every five years, the permittee shall test the regenerator still condenser for capture efficiency using one of the following methods:**
   a. **A performance test conducted to demonstrate that the condenser meets the requirements of 40 CFR 63.1281(d)(1).**
   b. **An efficiency calculation using procedures documented in the Gas Research Institute report entitled "Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions" as inputs for the model GRI-GLYCalc™ Version 3.0 or higher.**
   - **Per a January 9, 2017 email, Tiffany communicated: "...we utilize the second method to demonstrate compliance with the condition. Following the gas sample taken every five years, we update GlyCalc with the new gas sample results."**

VI. MONITORING/RECORDKEEPING

1. **While continuously monitoring the condenser exhaust gas temperature, the permittee shall monitor the alarm events (alarm activated because exhaust temperature exceeds 140° F) from the condenser. The day and time of the alarm event shall be recorded in a log in addition to the corrective action taken that resulted from the alarm event. If the condenser alarm system is not operating properly, then the permittee shall monitor and record the exhaust gas temperature from the control device once per day for all days the EUCTGDS001U glycol dehydration unit is operating.**
   - **Per the records received, no alarm events occurred from August 2015 to August 2016.**
   - There is a typo, **EUCTGDS001U** should be **EUCTGDS001**.

2. **The permittee shall record hours of operation of the EUCTGDS001 for each calendar month and each 12 month rolling time period.**
   - **The record Dehydration System Rolling Total Monitoring Report includes the EUCTGDS001 monthly hours of operation. In January 2016 the dehydrator operated 484.9 hours. There is not a III. PROCESS/OPERATIONAL RESTRICTION(S) on hours of operation.**

3. **The permittee shall record the amount of natural gas processed through EUCTGDS001 for each calendar day.**

- The record Monthly Dehydration System Monitoring Report, Condenser Thru put mmscf day includes the amount of natural gas processed through EUCTGDS001 for each calendar day. On January 10, 2016, 98.8 mmscf of natural gas was processed. II. MATERIAL LIMIT(S) restrict natural gas processed to 225 million cubic feet per day.

4. The permittee shall calculate and record the VOC emissions from EUCTGDS001 for each calendar day. The calculated VOC emissions for each day of the calendar month shall be added together to obtain VOC emissions per calendar month; the monthly values for the most recent 12 calendar months shall be added together to obtain VOC emissions per 12-month rolling time period.
   - The record Monthly Dehydration System Monitoring Report, VOC Emissions lbs/day includes VOC emissions from EUCTGDS001 for each calendar day. On January 10, 2016 15.7 lbs VOC were emitted. In I. EMISSION LIMIT(S), VOC is limited to 33 lbs per day.
   - The record Dehydration System Rolling Total Monitoring Report includes VOC emissions per 12-month rolling time period. In August 2016 the VOC 12-month rolling emissions were 0.189 tons. In I. EMISSION LIMIT(S), VOC limit is limited to 6 tpy.

5. The permittee shall calculate the benzene emissions from EUCTGDS001 for each calendar day. The calculated benzene emissions for each day of the calendar month shall be added together to obtain benzene emissions per calendar month; the monthly values for the most recent 12 calendar months shall be added together to obtain benzene emissions per 12-month rolling time period. Benzene emissions per 12 month rolling time period shall be available to the AQD upon request no later than the 15th of the next calendar month.
   - The record Monthly Dehydration System Monitoring Report, Benzene Emissions lbs/day includes Benzene emissions from EUCTGDS001 for each calendar day. On January 10, 2016 1.2 lbs of Benzene were emitted. I. EMISSION LIMIT(S) does not have a daily Benzene limit.
   - The record Dehydration System Rolling Total Monitoring Report includes Benzene emissions per 12-month rolling time period. In August 2016 the Benzene 12-month rolling emissions were 0.023 ton. In I. EMISSION LIMIT(S), limits Benzene to 0.992 tpy.

6. The permittee shall calculate maximum annual natural gas throughput and shall maintain a record of this calculation.
   - See the report Dehydration System Rolling Total Monitoring, it includes monthly and 12-month rolling thru put. Between September 2015 and August 2016 throughput was 3,774.6 mscf.
   - In II. MATERIAL LIMIT(S), there is not an annual limit.

7. The permittee shall maintain records of the annual facility natural gas throughput for each calendar year and shall submit these records to the AQD upon request.
   - See the report Dehydration System Rolling Total Monitoring, it includes monthly and 12-month rolling thru put. Between September 2015 and August 2016 throughput was 3,774.6 mscf.
   - In II. MATERIAL LIMIT(S), there is not an annual limit.

VII. REPORTING

1-3. Unless otherwise noted, the permittee submits deviation reports, semiannual reports, annual certifications, within the timeframes identified in the ROP.

4. For any stack tests performed to satisfy the requirements of National Emissions Standards for Hazardous Air Pollutants, Subpart HHH, a minimum of 60 days prior to testing, a complete test protocol shall be submitted to the AQD for review and written approval.
   - A review of AQD's test files shows in January 2015 there was Subpart HHH test plan submitted.

5. The permittee shall submit a report of all test results to the District Supervisor, Air Quality Division, within 60 days following the last date of the test.
   - A review of AQD's test files show in April 2015 there were Subpart HHH testing results submitted.
   - Per a tx with Tiffany, the permittee does not interpret this condition to mean the results from the analysis of the wet gas stream needs to be sent to AQD. It is suggested when the ROP is

renewed AQD include in VII. Reporting a requirement to submit analysis of the wet gas stream results.

VIII. STACK/VENT RESTRICTION(S)

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Compliance Comments
SVCT010 (regenerator still column venting through the condenser)	2	24	Based on visual assessment, the stack meets the inches and feet limits
SVCT012 (reboiler)	NA	NA	

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Pat 63, Subparts A and HHH, as they apply to EUCTGDS001.
   - With the renewal ROP, the Subparts A and HHH will be updated.

EUCTGEN001 1-Emergency Generator Engine

I. EMISSION LIMIT(S)
NA

II. MATERIAL LIMIT(S)
NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee may operate EUCTGEN001 as necessary during emergencies.
   - See the report Title: RICE MACT Emergency Engine Log. In 2015 the Emergency Generator operated Emergency Generator operated 16.8 hours for Emergency.

2. The permittee may operate the engines for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the engine manufacturer or vendor, or the insurance company associated with the engine.
   - This data is captured by Station employees on a monthly basis in the "RICE MACT Emergency Engine Log".
   - In 2015 the Emergency Generator operated 13.1 hrs. for Maintenance.

3. The permittee may operate EUCTGEN001 for up to 50 hours per year in non-emergency situations. The 50 hours cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.
   - This data is captured by Station employees on a monthly basis in the "RICE MACT Emergency Engine Log".
   - In 2015 the Emergency Generator operated 0.5 hr. for Other.

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip EUCTGEN001 with a non-resettable hour meter.
   - See the "RICE MACT Emergency Engine Log." The log provides the Hr Meter Reading @ Start and Hr Meter Reading @ Stop for the month.

V. TESTING/SAMPLING
NA

VI. MONITORING/RECORDKEEPING

1. The permittee shall record the hours of operation of EUCTGEN001 per calendar year.

- This data is captured by Station employees on a monthly basis in the "RICE MACT Emergency Engine Log." The 2015 and 2016 logs were provided, see the Hr Meter Reading @ Start and Hr Meter Reading @ Stop. The III. PROCESS/OPERATIONAL RESTRICTIONS were met.

VII. REPORTING
- 1-3. Unless otherwise noted, the permittee submits deviation reports, semiannual reports, annual certifications, test protocols, and test results within the timeframes identified in the ROP.

VIII. STACK/VENT RESTRICTION(S)
NA

IX. OTHER REQUIREMENT(S)
1. The permittee shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Pat 63, Subparts A and ZZZZ, as they apply to EUCTGEN001 .

FGCTREC-Compressor Engines

I. EMISSION LIMIT(S)

Pollutant	Limit	Equipment	Monitoring/Testing Method	Compliance Comments
NOX	53 pounds per hour	EUCTCOMPENG001 EUCTCOMPENG002	Conditions V.1, VI.3 & VI.4	See V and VI
NOX	6 grams per horsepower-hour	EUCTCOMPENG001 EUCTCOMPENG002	Condition V.1	See V and VI

II. MATERIAL LIMIT(S)
NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall use only natural gas containing no more than 20 grains of total sulfur per 100 cubic feet as fuel for the compressor engines.
   - See the FERC Gas Tariff report which includes 6.13 Quality, 1.c, "shall not contain more than 20 grains of total sulfur..."

IV. DESIGN/EQUIPMENT PARAMETER(S)
NA

V. TESTING/SAMPLING
1. The permittee shall test the engines for nitrogen oxides emissions at least once every five years. All testing, sampling, analytical and calibration procedures used for this test program shall be performed in accordance with 40 CFR, Part 60, and Appendix A, Methods 2, 3A, and 7E, or other acceptable reference methods approved in writing by the AQD prior to testing.
   - July 12, 2016 was the date of the last NOx testing of EUCTCOMPENG001. The test results summary includes NOx Emissions g/bhp/hr Average 2.618 (6 g/bhp/hr permitted), and 20.88 lb/hr (53 lb/hr permitted).
   - June 17, 2021 is the due date for the next test of EUCTCOMPENG001,.
   - Engine EUCTCOMPENG002 is due for testing after the engine goes back on line after the overhaul.

VI. MONITORING/RECORDKEEPING
1. The permittee shall record the fuel consumption for each engine for each calendar month.
   - The report "Engine Emissions for January 1 – December 31, 2016 includes monthly Fuel Usage in mmscf. In September 2016, EGCT001 used 9.5521 mmscf of fuel. There is not a II. MATERIAL LIMIT.

2. The permittee shall record the engine hours of operation for each engine for each calendar month.

- The report "Engine Emissions for January 1 – December 31, 2016 includes monthly engine hours of operation. In Sept 2016, EGCT001operated 409.9170 hours. There is no III. PROCESS/OPERATIONAL RESTRICTION on hours of engine operation.

3. Once per calendar month the permittee shall calculate the nitrogen oxides emissions in pounds per hour from each compressor engine by using an emission factor based on stack tests of the engines.
   - The report "Engine Emissions for January 1 – December 31, 2016 includes monthly calculations of the nitrogen oxides emissions in pounds per hour from each compressor engine.
   - In January 2016 the Emission Factor was 1549.69. Testing was in July 2016. In August the Emission Factor was updated to 867.25.
   - In August 2016, EUCTCOMPENG001 NOx emissions were 27.7 lbs/hr. The permit limits NOx to 72.9 lb/hr.
   - The report includes a NOx emission factor in lb/mmscf as stated above. See Engine Emissions for January 1- December 31, 2016 bottom of page, there is a conversion factor for g/bhp-hr to lb/mmscf.

4. The permittee shall recalculate the emission factor authorized in item VI. 3 above each time a stack test, which is acceptable to the AQD, is performed on one of the engines. The recalculated emission factor shall be based upon stack test data from the newest test.
   - See VI. 3 above.

VII. REPORTING
Unless otherwise noted, the permittee submits deviation reports, semiannual reports, annual certifications, test protocols, and test results within the timeframes identified in the ROP.

VIII. STACK/VENT RESTRICTION(S)
NA

IX. OTHER REQUIREMENT(S)
NA

Conclusions:

EUCTGD001-Glycol Dehydrator
VI.1.
- There is a typo, EUCTGDS001U should be EUCTGDS001.
- Clean this up in the renewal ROP.

VII.5.
- The permittee does not interpret this condition to mean the results from the analysis of the wet gas stream needs to be sent to AQD. It is suggested when the ROP is renewed AQD include in VII. Reporting a requirement to submit analysis of the wet gas stream results.

Via onsite inspection, review of records, and discussion with permittee staff, the permittee demonstrates compliance with the conditions of MI-ROP-B7390-2012a.

NAME Gloria Delle DATE 3-7-17 SUPERVISOR