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

B739055941

FACILITY: ANR Pipeline - Central Charlton Compressor Station		SRN / ID: B7390
LOCATION: 14490 Beckett Road, JOHANNESBURG		DISTRICT: Gaylord
CITY: JOHANNESBURG		COUNTY: OTSEGO
CONTACT: Chris Waltman , Senior Environmental Specialist		ACTIVITY DATE: 10/08/2020
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Site inspection and records review for FY 2021 scheduled inspection of Major Source. sgl		
RESOLVED COMPLAINTS:		

INTRODUCTION

On October 8, 2020, AQD District was onsite conduct a scheduled site inspection at the ANR Pipeline – Central Charlton Compressor Station located at 14490 Beckett Road, Johannesburg, Michigan. (B7390) The referenced Facility is operated by TCEnergy (formerly TransCanada).

The referenced facility operates under Renewable Operating Permit (ROP) MI-ROP-N7390-2012a. On December 28, 2016, Transcanada/ANR Pipeline Company submitted a ROP Renewal for their Central Charlton Compressor Station. The application shield for the Facility was issued on January 5, 2017. The existing ROP (MI-ROP-B7390-2012a) expired on July 10, 2017.

The most recent site inspections for the Facility was conducted on November 10, 2016. And March 14, 2019. The Facility at that time(s) were reported to be in compliance at the time of the inspection.

Weather conditions at the time of the inspection included sunny but partly cloudy skies, and temperatures in the mid-50s. No Visible Emissions (VEs) were noted. TCEnergy Staff onsite at the time of the site inspection included:

- **Tom Weingartz, onsite operational staff**

FACILITY

The referenced facility is located at 14490 Beckett Road, Johannesburg, Charlton Township, Otsego County. More specifically, the facility is located north of Vienna Corners (intersection of Meridian Line Road and M-32). From M-32 turn north on Meridian Line Road and travel about 3.5 miles, turn left/west on Beckett Road and travel approximately ¼ mile. The facility will be located on the north side of the road.

The facility is a manned, fenced facility, with access obtainable at the main gate on Beckett Road. Visitors are required to listen to an onsite safety training, and sign-in and out. In addition, due to COVID 19 restrictions, visitors are required to complete a health assessment survey prior to visiting the site. Masks and standard PPE were worn by District Staff. Safe distancing was practiced.

Permitted in 1980 and constructed in 1981, the Facility operates as both Natural Gas (NG) storage and transmission facility. The Facility functions to maintain pressure in pipelines transporting NG to other ANR facilities and end users. The Facility injects into and withdraws NG from an underground storage reservoir consisting of a natural, porous rock formation. During the spring and summer seasons, the compressor engines are used to compress and inject the NG into the underground reservoir. Past descriptions of the facility included compression of NG, however despite having the word compressor in the Facility name, it is felt by more experienced staff that storage

and transmission more accurately reflects the Facility activities.

During the winter season, NG is withdrawn from the underground reservoir. During withdrawal, NG free flows out of the reservoirs. If reservoir pressure is not sufficient for the gas to free flow, one or more compressor engine is brought online to compress the gas and continue flow to the pipeline. During withdrawal, the field gases are conditioned by cooling and glycol dehydration to meet pipeline quality. NG heaters are used to heat the gas as necessary.

No changes at the facility in the way of new processes or process changes since the last inspection. Some personnel changes have occurred as a result of retirements and career changes. However, these are previously documented. No equipment changes are of record for the Facility.

At the time of the inspection, onsite staff reported that neither Unit No. 1 compressor engine (EUCOMPENG001) nor the glycol dehydrator (EUCTGDS001) were in operation. The compressor engine was down for overhaul, and was reported that the EU was tentatively anticipated to be available for operation as soon as January 2021, and operating as of February 2021. EUCTGDS001 had recently been inspected and a part needing to be replaced had been ordered and the unit was anticipated to operational before November.

PERMITTING

The Facility is a major source, with a potential to emit NOx and HAPS (formaldehyde) of 232 tpy (based on the 53 pph limit) and >10 tpy, respectively. The existing ROP (MI-ROP-B7390-2012a) is presently under renewal. The application shield was issued on January 5, 2017.

As previously indicated, the referenced facility operates under Renewable Operating Permit (ROP) MI-ROP-B7390-2012a. On December 28, 2016, TransCanada submitted a ROP Renewal for their South Chester Compressor Station. The application shield for the Facility was issued on January 5, 2017. The existing ROP (MI-ROP-B7390-2012a) expired on July 10, 2017. All previously issued Permits to Install (PTIs) have been rolled into the ROP.

MDEQ AQD Permits rolled into the ROP include the following:

PTI NO.	ISSUED	VOIDED	EMISSION UNITS
9-05	March 1, 2005	November 13, 2006	EUCTGDS001
5-01A	March 26, 2012	July 10, 2012	EUCTGDS001, FGTREC
5-01	February 1, 2001	March 1, 2005	EUCTGDS001
321-00	March 5, 2001	November 13, 2006	EUCTCOMPENG001 EUCTCOMPENG002, FGTREC
576-96	October 24, 1997	October 20, 1999	EUCTGDS001
660-80	November 18, 1980	October 20, 1999	EUCTCOMPENG001 EUCTCOMPENG002, FGTREC

Note: Permit 660-80 was issued to the Michigan-Wisconsin Pipeline Company and was identified as a Major Source of NOx and a PSD source at the time of permitting.

The 2012 version of the staff report indicated that the facility was a synthetic minor with respect to PSD and had accepted permit limits to the PTE of NOx to less than 250 tons per year. A review of Permit 660-80 indicated that NOx emissions for the two engines were determined to be over 600 tons per year.

REGULATORY

- **classifications based on Potential to Emit (PTE) and other significant comments:**

PARAMETER	CLASSIFICATION	COMMENT
NOx	Major	PSD review for 660-80
SO2	Minor	
CO	Major	
Pb	Minor	
PM	Minor	
VOC	Major	
HAPs	Major	Formaldehyde > 10 tpy

Source Wide Emissions reported by the Facility as part of the Michigan Annual Emissions Reporting for the 2019 calendar year included:

CONTAMINANT	EMISSIONS (TPY)
CO	38.51
NOx	37.1
SO2	0.04
VOC	9.84

- **Applicable Federal Requirements:**

EMISSION UNIT	40 CFR SUBPART	TITLE
Source	Part 70	State Operating Permit Program
EUCTGDS001	40 CFR Part 63, Subpart HHH	Natural Gas Transmission and Storage Facilities (Major source of HAPs)
EUCTHTR001 – EUCTHTR004 EUCTBOILER001 EUCTGDS001 (reboiler only)**	40 CFR Part 63, Subpart DDDDD	Industrial, Commercial and Institutional Boilers and Process Heaters (BOILER MACT)
EUCTGEN001*	40 CFR Part 63,	National Emission Standards for

	Subpart A and ZZZZ	HAPs for Stationary Reciprocating Internal Combustion Engines (RICE)

*** Note - the facility has two compressor engines (EUSCENG002 and EUSCENG003) with SI RICE that meet exemption requirements under 40 CFR 63.6590(b)(3)(i). which exempts existing spark ignition 2-stroke lean burn RICE with ratings of more than 500 HP located at a major source of HAPs emissions.**

**** EPA Applicability determinations by US EPA Region 6 dated February 4, 2015 and February 10, 2016, were reviewed during ROP Renewal working draft preparation. The referenced documents indicated that the reboiler for the glycol dehydration unit is also subject to Subpart DDDDD (Boiler MACT). It is the company's belief that clear language exists which would indicate that the reboiler would not be subject to the Boiler MACT and references EPA's 2011 responses to Public Comments.**

The Facility reports two tanks for Volatile Organic Liquid storage that are above 40 cubic meters (10,567 gallons). These tanks include a condensate storage tank (T7) and a lube oil tank (T4). The referenced storage tanks were installed prior to July 23, 1984 and have not been reconstructed or modified since that time. Based on the installation date, the referenced tanks are not subject to 40 CFR, Part 60, Subpart KB.

For a similar reason, none of the RICE on site are subject to 40 CFR Part 60, Subpart JJJJ. Spark Ignition RICE onsite were installed prior to the applicability dates.

No EUs are subject to the Federal Compliance Assurance Monitoring rule under 40 CFR, Part 64 because all emission units either do not have a control device or those with a control device do not have potential pre-control emissions over major source thresholds.

EQUIPMENT

The Facility is operated and monitored through a control room in the main building. The computer and associated controls are linked with the corporate offices in Houston, Texas. No Malfunction Abatement Plans (MAPs) are required by permit for any Emission units (EUs) associated with the Facility. These EUs include the following:

- Ethylene Glycol Dehydrator with condenser control **(EUCTGDS001) (MAERS ID EUCT010)**

Installed in 1981, the company reported that the referenced unit is considered a small, existing (pre-August 23, 2011), dehydrating unit as defined in 40 CFR 63.1271 and is subject to 40 CFR Part 63 Subpart HHH. Which is a unit at a major source with an actual annual average NG flowrate of less than 283K scm/day (reports 225 MMSCF/day) or actual annual average benzene emissions of less than 0.90 Mg/yr determined according to 63.1282(a).

The glycol dehydration system consists of both a two-phase and three-phase separator and glycol reboiler (AKA regenerator) with a natural gas-fired heater. The exhaust vents associated with the system includes one that transfers gases to the regenerator reboiler burner vent, and the other that transfers gases from the regenerator still column to the condenser. Information from the permit 5-01 file indicates that glycol regenerator emissions are controlled by a condenser and the flash tank emissions are burned in the reboiler burner. The system is a closed vent system with a continuous parameter

monitoring system.

At the time of the inspection the glycol dehydration system was down, as gas was being put into storage by the compressor engine in operation. During this downtime, Facility staff reported that the system reboiler was "tore apart" for inspection/maintenance, but was anticipated to be completed by November 2020.

Discussions with onsite operations staff during the March 14, 2019, site inspection clarified a couple points regarding the dehydration process onsite (and the south chester facility which operates the same way). Rather than a glycol tower, the facility injects glycol into the lines just after to the precoolers.

Field-→ 400 barrel Slug Catcher -→ Field Separator → 4 NG Fired Heaters → Precoolers → Glycol Boot (glycol injection point) → Main Gas Separator (separates hydrocarbons and glycol) → 2 Phase Separator → 3 Phase Separator (acts as more of a holding/overflow tank for the larger 2 phase separator) → Glycol Regenerator → Condenser or to the glycol boot.

To meet Leak Detection and Repair (LDAR) requirements, LDAR testing was conducted by the Facility on February 24, 2015. A review of the documentation indicated that no leaks were detected for the 21 components evaluated as part of the test. The LDAR report identifies the system as a small, closed vent system, with condenser as a primary control device. The referenced test was for a total of 31 points, seven of the points were tagged yellow and required annual checks. The remaining 24 were tagged red, indicating that they are difficult to access, and are required to be tested initially and then every 5 years. A copy of the document may be found in District Files. With respect to LDAR checks required for the present year, Facility Staff indicated that the checks are scheduled to be completed shortly after firing up the glycol, which is tentatively in November 2020, as the Dehy was down at the time of inspection.

The most recent capture efficiency testing of the regenerator still condenser was conducted by the Facility using GlyCalc and was last updated on March 5, 2018 using a wet gas sample from February 23, 2017.

Federally enforceable benzene emission limit of 1 ton/year to exempt the glycol regeneration system from Part 63. Subpart HHH (Transport and Storage MACT) Standards was incorporated into PTI 5-01 (February 1, 2001).

The Facility reports that the system is operated primarily in the winter when gases are extracted from storage underground, but that it is held on an operational standby during the calendar year. Potential emissions generated during operation of the system are controlled by venting into the burner of the glycol regenerator. During standby periods potential emissions are controlled by the condenser.

With respect to the HHH MACT submittal, the document addresses MACT compliance issues for the onsite glycol dehydration unit. The glycol dehydration unit is described by the preparer as a small system consisting of a phase separator and glycol reboiler with natural gas-fired heater. No flares are associated with the facility. The Facility monitors fugitive emissions for the closed vent system, through LDAR activities. In addition, temperature is monitored for the onsite condenser by a continuous parametric monitoring system. The Facility further reports that no parameter monitoring system (CMS) downtime occurred for the 2019- to date. The latest CMS certification or audit date was Nov. 11, 2020. No excess emissions were reported for the period.

It should be noted that in addition to the condenser, the Facility pipes gases from the separator to the reboiler, prior to the condenser. The condenser addresses exhaust from the reboiler still vent.

- **2 NG Compressors equipped with Reciprocating Internal Combustion Engines (RICE) EUCTCOMPENG001 and EUCTCOMPENG002 (MAERS IDs EUCT001 and EUCT002) (FGCTREC)**

RICE associated with the NG-fired compressors consist of Cooper Bessemer Model

12Q145H2 4000 HP, 32.74 MMBTU/hr heat input, 2 cycle, lean-burn units. The referenced units are used to inject NG into the storage field. It should also be commented that based on the age of the engines, they are operated at a slightly lower than they are rated for. It should be noted that the December 14, 2016, site inspection report incorrectly identified the engines on site as Cooper Bessemer Model 12Q145LM, 3600 HP engines. As previously mentioned, EUCTCOMPENG002 is down for an overhaul, and is anticipated to be running again in February 2021.

The following summarizes the compressor engine IDs:

ROP ID	MAERS ID	FACILITY ID
EUCTCOMPENG001	EUCT001	Unit 1
EUCTCOMPENG002	EUCT002	Unit 2

Operational parameters for EUCTCOMPENG002 at the time of the October 8, 2020, site inspection was:

Emission Unit	EUCTCOMPENG002
HP	3496-3517
RPMs	452
Torque Act.	92.5%
Turbo Inlet Temperature	688.3 degrees
Turbo Outlet Temperature	583 degrees

Under PTI 321-00, the Facility was approved to install pre-combustion chambers on the two engines onsite. The changes were anticipated to reduce NOx emission. The changes were proposed in anticipation of Michigan's NOx Reasonably Available Control Technology (NOx RACT) regulations. The modifications were reported to be completed in 2001,

These two NG compressors are not subject to the RICE MACT (Subpart ZZZZ) based on 63.6590 (b)(3)(i). With respect to the NSPS requirements of subpart JJJJ (Spark Ignition RICE), EUSCENG002 and EUSCENG003 were reported exempt from the referenced subpart based on the installation date. More specifically, the referenced units as >500 HP, lean burn engines they were ordered, manufactured, modified or reconstructed before June 12, 2006. The existing units were identified as having been installed in 1981.

- Emergency Generator used for emergency backup power. **(EUCTGEN001) (MAERS ID EUCTGEN001)**

This EU consists of one Waukesha Model F2859GSIU 694 HP, 4.21 MMTU/hr heat input, 4 cycle, rich-burn NG-fired RICE. Note: that the emergency generator was exempt from Rule 201 permitting in 1981, as Rule 285 (vi)(c) exempted internal combustion engines of less than 10,000,000 BTU/hr heat input. (effective 1/18/1980) Under the recently re-vised exemptions, the referenced emergency generator would be exempt under Rule 285 (2)(g). The EU is included in the ROP based on applicability of the RICE MACT to emergency generators. MI-ROP-B7219-2012A contains only a high-level

citation to the RICE MACT. (SC IX.1)

Rule 201 Exempt EUs-

- 4 NG-fired **withdrawal gas heaters** (**EUCTHTR001 - 004**)

The referenced process heaters (also referred to by Facility Staff as "water bath heaters")(10 million BTU/Hr C.E. Natco heaters) will be added to the renewed ROP as they have been identified as being subject to the boiler MACT (subpart DDDDD). These processes were reported to be exempt from Rule 201 permitting based on Rule 282 (2)(b)(i) for sweet NG-fired equipment with a rated heat capacity of less than 50 million BTU/Hr used in oil and gas production. Staff indicated that the units onsite are the same units installed in the 1980s.

Previous reference to these units clumped them all under the same EU (EUSCHTR001). Discussions with onsite staff indicate that the units have undergone the required inspections and tune-ups to meet the referenced MACT standards for at least the past two calendar years. Discussions also confirmed that each heater is a separate unit, though the logic is such that they tend to act as in unison and that any one of the heaters could be replaced.

- **Boiler** (**EUCTBOILER001**)

EUCTBOILER001 is a Kewanee, NG-fired, 3.72 MMBTU/hr maximum firing rate, (2.875 MMBTU/hr normal rate) glycol heater. The unit was reported in previous site inspection reports to be exempt from permitting under Rule 282 (2)(b)(i) for sweet NG-fired equipment with a rated heat capacity of less than 50 million BTU/Hr used for service water heating. Inspectors at that time were unaware that rather than water the EU was heating glycol rather than water as a heat source.

Under the Boiler MACT, hot water heaters are defined as a tankless unit which provides hot water on demand; a closed vessel with a capacity of less than or equal to 120 US gallons in which water is heated and withdrawn for use external of the vessel; or hot water boilers with a heat input of less than 1.6 million BTU/hr. Previously the Facility reported that the EU was insignificant, and not subject to the boiler MACT, more recently the Facility has indicated that EUSCBOILER001 has a capacity estimated by onsite staff of 300 gallons or greater and is not exempt from the Boiler MACT (Subpart DDDDD). The EU will be added to the renewed ROP. Facility staff report that annual inspections for the unit have been implemented and have been completed for 2020.

Readily available records of Boiler MACT reporting for the Facility included the following documents:

Date	Report Type	Reported Compliance
3/9/2020	Annual Compliance Report - 2019	Y
1/23/2019	Annual Compliance Report -2018	Y
1/25/2018	Annual Compliance Report	Y

	- 2017	
1/27/2017	Annual Compliance report - 2016	Y
1/21/2016	Notification of Compliance Statue	Y
6/5/2013	Notice of Applicability	NA

With respect to the Boiler MACT 2019 annual report, the Facility reported that the annual compliance report is required for the 4 Natco withdrawal gas heaters in use at the Facility. The document indicated that all four heaters were tuned up on December 27, 2019, and that no deviations from work practice standards occurred. Note that consistent with the Facilities previous statements, they did not include any documentation with reference to the glycol dehydrator reboiler as a process subject to the Boiler MACT.

- 13 **Space Heaters (EUCTHTR002)**

The referenced NG-fired furnaces/ space heaters are reported to have a rated capacity of <100,000 BTU/hr each and are reported exempt under Rule 282 (2)(b)(i) for sweet NG-fired equipment with a rated heat capacity of less than 50 million BTU/Hr used for space heating. The referenced units are reported to be exempt under 40 CFR Part 63 Subpart A and DDDDD because they are used for space heat and do not meet the definition of process heater as defined in the subpart. They are not included in the ROP.

- NG-fired **Water Heater (EUCTHTR003)**

The EU is reported to be rated a 75,000 BTU/hr, 50-gallon, water heater and is reported by the company to be exempt under Subpart DDDDD. The unit is reported to be exempt from permitting under Rule 282 (2)(b)(i) for sweet NG-fired equipment with a rated heat capacity of less than 50 million BTU/Hr used for service water heating. This EU is not included in the ROP.

- **Tanks**

The following table summarizes tanks associated with the facility. None are included in the ROP.

ROP ID	Tank IDs	Content	Total Capacity (gallons)	Exemption Claimed
EUCTTNK001	T7	Condensate	16,800 gal	Rule 284 (2)(e)
	T8	Condensate	5,140 gal	Rule 284 (2)(e)
EUCTTNK002	T1	Ambitrol	4,888 gal	Rule 284 (2)(i)

	T2	Ethylene Glycol	2,490 gal	Rule 284 (2)(i)
	T10	Wastewater	5,000 gal	Rule 284 (2)(i)
	T21	Glycol Overfill	300 gal	Rule 284 (2)(i)
EUCTTNK003	T4	Lubricating Oil (New)	10,700 gal	Rule 284 (2)(c)
	T5	Lubricating Oil Maintenance	1,833 gal	Rule 284 (2)(c)
	T6	Lubricating Oil (used)	1,833 gal	Rule 284 (2)(c)
EUCTTNK019	T19	Condensate	660 gal	Rule 284 (2)(e)
EUCTTNK020	T20	Condensate Slop Tank	300 gal	Rule 284 (2)(e)
NR	NR	Condensate Tank (Outlet Separator Safety Tank)	150 gal	Rule 284 (2)(e)

COMPLIANCE

District Files contain a copy of final consent order No. 11-1998. The referenced document was terminated effective March 15, 2000. No other compliance or enforcement issue is of record since the March 14, 2019, scheduled site inspection.

The most recent scheduled site inspection for the Facility was conducted on March 14, 2019. The Facility at that time was reported to be in compliance with permit requirements. No complaints, Violation Notices, Consent Orders or other compliance issues are of record for the Facility since the March 14, 2020, site inspection. Compliance will be determined based on conditions of MI-ROP-N7219-2012A.

It should be noted that per the ROP, the Facility is required to promptly report deviations pursuant to General Conditions 21 and 22 of Part A of the ROP. The Facility is also required to report semiannual and annual deviations (SC VII.1, 2 & 3) for EUCTGDS001, EUCTGEN001 and FCTREC. A review of records indicate that the Facility has submitted the required semiannual and annual reports in a timely manner and in compliance with permit requirements.

EUCTGDS001 – Glycol Dehydrator

The glycol dehydration system consists of both a two-phase and three-phase separator and glycol reboiler (AKA regenerator) with a natural gas-fired heater. The exhaust vents associated with the system includes one that transfers gases from the flash tank to the regenerator reboiler burner vent, and the other that transfers gases from the regenerator still column to the condenser.

At the time of the site visit, EUCTGDS001 was not operating. The unit was reported to be undergoing an inspection and required maintenance before starting the withdrawl season as soon as November.

The most recent Subpart HHH compliance report was submitted on September 3, 2020. With respect to the HHH MACT submittal, the document addresses MACT compliance issues for the onsite glycol dehydration unit. The glycol dehydration unit is described by the preparer as a small system consisting of a phase separator and glycol reboiler with natural gas-fired heater. No flares are associated with the

facility. The Facility monitors fugitive emissions for the closed vent system, through LDAR activities. In addition, temperature is monitored for the onsite condenser by a continuous parametric monitoring system. The Facility further reports that no parameter monitoring system (CMS) downtime occurred for the period. The latest CMS certification or audit date was Nov. 11, 2019. No excess emissions were reported for the period.

OPERATION LIMITS - EUCTGDS001 is limited to operation under the following conditions for the system condenser:

- The glycol regenerator still is equipped with a condenser and the condenser including any associated monitoring equipment, is installed and operating properly. (SC III.1)
- The condenser shall be equipped with a maintained exhaust gas temperature monitor (SC IV.1)
- exhaust gas temperatures of 140 degrees Fahrenheit or less. (SC III.2)
- The condenser shall be equipped with a maintained alarm that activates when the exhaust gas temperature exceeds 140 degrees Fahrenheit (SV IV.2)

At the time of the site inspection, the dehy system included a condenser with a temperature monitor and alarm. The Facility reports that the system and it's monitors have been operating properly and that maintenance activities are tracked via work order. Thermo couples are tested annually for calibration and were tested as part of the ongoing inspection and maintenance activities. These activities were ongoing at the time of the site inspection.

The ROP limits the maximum operating temperature of the condenser to less than 140 degrees Fahrenheit. But the Facility uses an equipment high setpoint 130 degrees and a high-high setpoint of 135 degrees which triggers shut down of flow to the condenser. This prevents violation of the maximum operational temperature limit.

The Facility reported that no temperature alarms were reported to be long enough in duration to cause an exceedance of the condenser temperature limit (AKA alarm events). Discussions with Facility staff indicated that the alarms are often the result of getting some slugs of water in the system. Records reviewed were found to be consistent with the requirements of SC VI.1.

- NG used as fuel for the glycol dehydrator contains no more than 20 grains of total sulfur per 100 cubic feet. (SC III.3)

During discussions during the November 19, 2018, site inspection at the ANR South Chester Facility (B7219). It was indicated that the Facility is limited to no greater than 20 grains of total sulfur per 100 scf by the ANR Pipeline Company FERC Gas Tariff agreement. The Facility provided a copy of sample analysis for a gas sample collected for analysis on February 21, 2017. The referenced laboratory analytical report indicated hydrogen sulfide concentrations of 0.26 ppm (<1/10th grain), and in compliance with the permit condition. No new data was presented as part of this compliance evaluations.

- Emissions from the 2-phase and 3-phase separators will be incinerated in the burner of the glycol regenerator reboiler. (SC III.3)

Facility staff confirmed that the gaseous emissions from both separators are piped to the burner of the glycol regenerator/reboiler for destruction in compliance with the permit conditions. They also report that this incineration represents the primary

pollution control for the system, as the greater volume of emissions is generated from the separators and the dehy itself.

- The glycol circulation rate shall not exceed 6.0 gpm. Compliance ensured by only two of three recirculation pumps being in operation at any time. (SC III.4)
- Fixed circulation rate of 3 gpm for each recirculation pump. (SC IV.3)

With respect to the glycol recirculation pumps, the Facilty reports that only one pump is operated at a time, and at a fixed rate of 3 gpm. The system logic controlling the pumps is for operation of two pumps, with the second pump reported to operate only on rare occasions. The third pump being a redundant pump, only used should one of the other two fail.

- The Permittee shall not use stripping gas in the glycol regenerator still (SC III.5)

No stripping gas is reported to be used in the glycol regenerator still.

- EUCTGDS001 shall be operated with no detectable emissions except from it's designed process vents (SC III.6)

The dehydrator was not operating at the time of the site visit, so verification of visible emissions was not possible at that time. Facility staff report that process vents are hard-piped and should show no detectable emissions.

MATERIAL LIMITS - EUCTGDS001 is limited to a limit of 225 million scf/day, as determined by the end of the calendar month (SC II.1). Use of the EU is limited to periods of withdrawal. TCEnergy staff report that the gas flow is monitored using a flow meter and that TCEnergy Gas Control has established a setpoint limit of 225 million scf/day limiting the actual volume through the plant to below the limit.

A review of records provided by the Facility for the period of January 2019 through September 2020 indicated the highest daily during the period was 217.4 million scf/day (condenser throughput) reported on January 21st, 2019. The highest volume reported for 2020 also occurred in the month of January and was reported to be 192.4 million scf/day. Records indicate that EUCTGDS001 was not in operation for the periods of March 19 through September 30, 2019 as well as March 3 thru October 7, 2020, and was not anticipated to be operated through the end of October.

EMISSION LIMITS - EUCTGDS001 is limited to daily emissions of VOCs and 12-month rolling total VOC and benzene emissions. VOC emissions are reported annually and in a timely manner as part of the MAERS Program. MAERS emissions for 2019 are summarized below:

Calendar Year	Total VOC (tons/year)	Benzene (tons/year)
2019	0.54	0.04
Limits	6 tons/year (SC I.2)	0.992 tons/year (SC I.3)

12-month Daily VOC emissions are limited to 33 lbs/day (SC I.1) A review of records for the period of January 2019 through September 2020 indicated that the highest VOC emissions for the period was 21.7 lb/day reported on January 21, 2019. Records were

also noted to be consistent with understood operation of the system, which was reported to be limited to winter months (October through April).

End of 12-Month Rolling Period	Total VOC (tons/year)*	Benzene (tons/year)*
December 2019	0.56	0.068
September 2020	0.296	0.036
Limits	**6 tons/year (SC I.2)**	**0.992 tons/year (SC I.3)**

*totals based on the following emission factors; 0.0062 lb benzene/MMscf and 0.0951 lb VOC/MMscf.

Records reviewed indicated that the highest VOC 12-month rolling total was 0.574 tons for the period of December 2018 thru October 2020. The highest 12-month rolling total of benzene emissions was 0.68 tons. Both well below permit limits.

TESTING ACTIVITIES – EUCTGDS001 is required by permit to sample and analyze the wet gas stream every five years for constituent components (SC V.1). The SPL analytical report provided by the company as a result of the initial request failed to address all parameters required by permit specifically sulfur component(s). Supplemental information was provided on February 21, 2017, showing compliance the 20 grain/100scf sulfur limit.

In addition, the Facility by contract is required to meet NG composition requirements that restrict the total sulfur content to below permit limits. Note that under PTI 321-00 the Facility was still required to burn only sweet natural gas. This was revised in the 2012 ROP Renewal (PTI 5-01A) at the request of the company to reflect 20 grains of total sulfur per 100 cubic feet, which is the company's restriction based on client requirements.

In addition, the Facility is required to test the regenerator still condenser for capture efficiency once every five years. (SC V.2) This condition was met by the facility completing an efficiency calculation using procedures documented in "Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions" as inputs for the model GRI-GLYCalc version 3.0 or higher. The required document was submitted as part of the April 22, 2015, LDAR Assessment Report for the Facility. An updated capture efficiency was reported to be completed on March 5, 2018 (using 2017 sample analysis) and reported a control efficiency of 61.46% for VOCs. The next test for capture efficiency would be due in 2023.

MONITORING/RECORDKEEPING –Per the ROP the permittee is required to monitor and record the following parameters:

- **Total amount of NG processed through EUCTGDS001 per calendar day. (SC VI.3)**
- **Maximum annual NG throughput, and records of it's calculation. (SC VI.6 & 7)**
- **Total hours of operation of dehy system on a monthly and 12-month-rolling time period. (SC VI.2)**

As previously reported the Facility monitors and records NG-flow using a meter to determine the volume processed per day, month and year in compliance with the above referenced permit conditions. Records provided for the year 2019 and 2020 thru September 2020 were sufficient to verify that the required records are maintained by the Facility. Data below reflects highs and lows for highest and lowest months of operation for 2019 and 2020 to date:

Date	January (2019 High)	March (2019 low)	January (2020 High)	March (2020 low)
NG Processed per Calendar Day	6.9 – 217.4 MMscf/day	2.1 – 125.3 MMscf/day	33.5 – 192.4 MMscf/day	3.3 MMscf/day
NG processed per Calendar Month*	4803.9 MMscf/day	591.8 MMscf/day	1784.4 MMscf/day	3.3 MMscf/day
Hours of Operation per Day *	1.5 – 24 Hrs	0.9 – 24 Hrs	7 – 24 Hrs	0.8 Hrs
Hours of Operation per Calendar Month	619.2 Hrs	121.6 Hrs	336.9 Hrs	0.8 Hrs
Hours of Operation on 12 month rolling time period	1535.7 Hrs	1080.5 Hrs	2091 Hrs	1389.4 Hrs

The Permittee is required to monitor/ calculate and record the following on a daily, monthly and 12-month rolling basis:

- **VOC emissions (SC VI.4)**
- **Benzene emissions (SC VI.5)**

VOC and Benzene emissions are based on EFs determined using GRI-GLYCalc Version 3.0 or higher and the volume of NG being processed. Records provided indicated that calculations were conducted in compliance with permit conditions. Records provided by the Facility indicated that the required records are maintained, and that the required calculations are completed in compliance with the permit. Select emissions data was previously presented. Select Dates from records provided are presented below:

Date	VOC Emissions per Day (lbs)	VOC Emissions per Month (lbs)	VOC Emissions 12-Month Rolling Total (lbs)
January 2019	0.6 – 21.7	480.388	1102
March 2019	0.2 – 12.5	59.181	1120
January 2020	3.3 – 19.2	178.438	832
March 2020	0.3	0.335	592

Date	Benzene Emissions per Day (lbs)	Benzene Emissions per Month (lbs)	Benzene Emissions 12-Month Rolling Total (lbs)
January 2019	0.1 – 2.6	57.647	1102
March 2019	0.1 – 1.5	7.102	1120
January 2020	0.4 – 2.3	24.413	100
March 2020	0	0.040	72

REPORTING - The Facility is required by permit to report any stack tests conducted to satisfy the requirements of Subpart HHH. (SC VII.4), and to submit a report of all test results within 60-days of the last day of testing. (SC VII.4 & 5) District Files do not contain copies of any stack testing for the dehydrator. The September 3, 2020 semiannual Subpart HHH MACT semi-annual report indicated no testing conducted prior to June 30, 2020.

STACK/VENT RESTRICTIONS - Per Permit, Stack restrictions are limited to the regenerator still column which vents through the condenser. SC VIII.1 restricts the referenced stack to a maximum diameter of 2-inches and minimum height of 25 ft above land surface. Based on information provided the stack is in compliance with permit conditions.

OTHER REQUIREMENTS- Include a high level citation of 40 CFR Subpart A and HHH as they apply to EUCTGDS001 (SC IX.1). Per the February 14, 2019, Notice of Compliance Status for the referenced subpart, the Facility reports being in compliance with all applicable requirements. Submittals in District Files for the referenced subpart since the March 14, 2019, inspection include:

Date Received	Report Type	Reported Compliance
9/9/2020	Semiannual MACT, HHH Periodic Compliance Report	Y
3/9/2020	Semiannual MACT, HHH Periodic Compliance Report	Y

EUCTGEN001- Emergency Generator Engine

The referenced EU as already indicated consists of a Waukesha 694 Hp, 4-cycle rich burn, NG-fired engine which powers the emergency electricity generator. No pollution control device is associated with the EU. MI-ROP-B7390-2012A contains no emission limits, material limits, testing requirements or stack restrictions.

OPERATION LIMITS - EUCTGEN001 is limited to the following operational restrictions:

- Operation as necessary during emergencies (SC III.1)
- Operation of the engine for the purpose of maintenance checks and readiness testing recommended by Federal, State or local Government, engine manufacturer, vendor or insurance company associated with the engine (SC III.2)
- Operation of engine for up to 50 hours per year for non-emergency situations (SC III.3)

EUCTGEN001 is equipped with a non-resettable hour meter in compliance with SC IV.1. Records provided by the Facility indicated that for the 2019 calendar year, as well as January through August 2020 that no emergency operation occurred, and that maintenance activities were less than 10 hours for 2019 and 2020 (thru August).

MONITORING/RECORDKEEPING – Requirements for EUCTGEN001, are limited to recording of the hours of operation for the EU per calendar year. (SC VI.1) The referenced records were provided by the Facility upon request and confirm that appropriate levels of documentation for the hours of operation and reason for

operation is documented.

OTHER REQUIREMENTS- The ROP contains a high-level citation requiring compliance with 40 CFR Part 63, Subpart A and ZZZZ (RICE MACT) as they apply to EUCTGEN001. Requirements for emergency generators have been previously added to the ROP, therefore compliance with permit conditions would indicate general compliance with the subpart.

It should be noted that for emergency generators >500 Hp at a major source, there are no work practice standards, however the Facility is required to install a non-resettable hour meter and track hours of operation which the facility has done.

FGCTREC – Compressor Engines

This flexible group consists of two Cooper Bessemer model 12Q145H2, 4000 HP, NG-fired RICE (EUCTCOMPENG001 and EUCTCOMPENG002). No controls are associated with the EUs. No material limits or equipment design conditions are provided for the EU.

OPERATION LIMITS – EUCTCOMPENG001 and EUCTCOMPENG002 (FGCTREC) are limited to the following operational limits.

- **NG used as fuel for EUSCENG002 and EUSCENG003 contains no more than 20 grains of total sulfur per 100 cubic feet. (SC III.1)**

As previously indicated, the Facility is limited to no greater than 20 grains of total sulfur per 100 scf by the ANR Pipeline Company FERC Gas Tariff agreement. Verification of the total sulfur content was provided in SPL analytical reports for samples collected on February 21, 2017.

EMISSION LIMITS – NOx limits in lb/hour (SC I.1) and grams per Hp (SC I.2), are required by permit. Verification is required by permit and is discussed below. Testing to date has verified that engine emissions are below permit limits for NOx.

The ROP does not contain a ton per year NOx limit. NOx emissions for FGSCENG for 2019 and 2020 (to date) are summarized below.

Emission Unit	2019 NOx Emissions (TPY)	2020 (to date) NOx Emissions (TPY)
EUCTCOMPENG001	28.177	9.974*
EUCTCOMPENG002	7.43	4.740**

***Unit 1 reported to have operated from April thru July 2020, presently down for overhaul.**

****Unit 2 reported to have operated from March to present. Emissions reflect 2020 thru month of September.**

TESTING ACTIVITIES –FGSCENG is required to be tested every 5 years for the nitrogen oxide emissions (SC V.1). A review of District Files appears to indicate that timely submittal of test protocols (SC VII.4), 7-day notifications and test reports (SC VII.5) were being conducted in a timely manner.

At the time of October 8, 2020, site inspection, EUCTCOMPENG001 was not operational, overhaul activities being ongoing. EUCTCOMPENG002 was in operation.

Engine Testing Data for the compressor engines onsite is summarized below:

TEST DATE	NOx EMISSIONS (g/bhp/hr)	NOx EMISSIONS (lb/hr)	ENGINE TESTED
October 12, 2017	0.57	4.37	EUCTCOMPENG002
July 12, 2016	2.618	20.88	EUCTCOMPENG001
September 9, 2011	1.690	13.16	EUCTCOMPENG002
June 15, 2006	4.64	40.43	EUCTCOMPENG001
June 15, 2006	4.45	39.47	EUCTCOMPENG002
August 3, 2004	6.06*	54.89*	EUCTCOMPENG002
April 19, 2000	8.49*	70.7*	EUCTCOMPENG001
April 18, 2000	2.62**	20.2**	EUCTCOMPENG002
NOx LIMIT	6	53	NA

* NOx permit limit reported to be 108.4 lb/hr and 12.3 g/hp-hr (at rated capacity).
** NOx permit limit reported to be 72.9 lb/hr and 9.2 g/bhp-hr (at rated capacity).

Stack test data is used by the Facility to recalculate the emission factor to be used to determine emissions in compliance with permit conditions. (SC VI.4). The Facility reports using the highest emissions testing data of the three runs conducted to determine their emission factors.

MONITORING/RECORDKEEPING – Under MI-ROP-B7390-2012A, the permittee is required to complete the following for each engine on a calendar month basis:

- Record fuel consumption (SC VI.1)
- Record hours of operation (SC VI.2), and
- Calculate the nitrogen oxide emissions in lb/hr. (SC VI.3)

The Facility reports metered fuel usage, and hours of operation. The records provided were complete with respect to permit requirements and appear to be accurate. Data ranges for periods of operation for EUCOMPENG001 are summarized below:

Period of Operation	Monthly Fuel Consumption (mmscf)	Total Fuel Consumption for Period (mmscf)	Hours of Operation per month	Total Hours for Period	NOx Emissions (lb/hr)
May-October 2019	3.9988 – 16.7007	64.981	171.2170-688.830	2579.68	20.4 – 21.8
April – July 2020	2.9315 – 9.6176	23.002	123.333 – 394.58	943.33	20.3 – 22.6

Data ranges for periods of operation for EUCOMPENG002 are summarized below:

Calendar Month	Monthly Fuel Consumption (mmscf)	Total Fuel Consumption for Period (mmscf)	Hours of Operation per month	Total Hours of Operation	NOx Emissions (lb/hr)
March - October 2019	1.3606 – 13.6733	79.023	61.1333 – 598.000	61.333	4.1 – 4.3
March - September 2020	1.8938 – 13.1840	2174.7513	84-553	50.414	4.1 – 4.8

REPORTING – In addition to semi-annual and annual compliance reporting, the Facility is required to submit a copy of a complete test protocol 30-days prior to testing (SC VII.4) and submit a report of all test results within 60-days following the last day of testing (SC VII.5). A review of the AQD database indicates that the test protocol, 7-day notification and test report for the October 12, 2017 test activities were received in a timely manner.

STACK/VENT RESTRICTIONS - No stack restrictions exist for the engines of FGCTREC.

SUMMARY

On October 8, 2020, AQD District was onsite conduct a scheduled site inspection at the ANR Pipeline – Central Charlton Compressor Station located at 14490 Beckett Road, Johannesburg, Michigan. (B7390) The referenced Facility is operated by TCEnergy (formerly TransCanada).

The referenced facility operates under Renewable Operating Permit (ROP) MI-ROP-N7390-2012a. On December 28, 2016, Transcanada/ANR Pipeline Company submitted a ROP Renewal for their Central Charlton Compressor Station. The application shield for the Facility was issued on January 5, 2017. The existing ROP (MI-ROP-B7390-2012a) expired on July 10, 2017.

The most recent site inspections for the Facility was conducted on November 10, 2016. And March 14, 2019. The Facility at those time(s) were reported to be in compliance at the time of the inspection.

Weather conditions at the time of the inspection included sunny but partly cloudy skies, and temperatures in the mid-50s. No Visible Emissions (VEs) were noted. TCEnergy Staff onsite at the time of the site inspection included:

- **Tom Weingartz, onsite operational staff**

The facility is a manned, fenced facility, with access obtainable at the main gate on Beckett Road. Visitors are required to listen to an onsite safety training, and sign-in and out. In addition, due to COVID 19 restrictions, visitors are required to complete a health assessment survey prior to visiting the site. Masks and standard PPE were worn by District Staff. Safe distancing was practiced.

Permitted in 1980 and constructed in 1981, the Facility operates as both Natural Gas (NG) storage and transmission facility. The Facility functions to maintain pressure in pipelines transporting NG to other ANR facilities and end users. The Facility injects into and withdraws NG from an underground storage reservoir consisting of a natural,

porous rock formation. During the spring and summer seasons, the compressor engines are used to compress and inject the NG into the underground reservoir. Past descriptions of the facility included compression of NG, however despite having the word compressor in the Facility name, it is felt by more experienced staff that storage and transmission more accurately reflects the Facility activities.

During the winter season, NG is withdrawn from the underground reservoir. During withdrawal, NG free flows out of the reservoirs. If reservoir pressure is not sufficient for the gas to free flow, one or more compressor engine is brought online to compress the gas and continue flow to the pipeline. During withdrawal, the field gases are conditioned by cooling and glycol dehydration to meet pipeline quality. NG heaters are used to heat the gas as necessary.

No changes at the facility in the way of new processes or process changes since the last inspection. Some personnel changes have occurred as a result of retirements and career changes. However, these are previously documented. No equipment changes are of record for the Facility.

At the time of the inspection, onsite staff reported that neither Unit No. 1 compressor engine (EUCOMPENG001) nor the glycol dehydrator (EUCTGDS001) were in operation. The compressor engine was down for overhaul, and was reported that the EU was tentatively anticipated to be available for operation as soon as January 2021, and operating as of February 2021. EUCTGDS001 had recently been inspected and a part needing to be replaced had been ordered and the unit was anticipated to operational before November.

Based on information obtained onsite, as well as supplemental records obtained in response to a written request, the Facility appears to be operating in general compliance with the ROP and with Subpart requirements as noted in this document.

Sharon LeBlanc

Digitally signed by: Sharon LeBlanc
DN: CN = Sharon LeBlanc email = leblancs@michigan.gov C = US O = EGLE OU = AQD
Date: 2020.12.02 13:54:58 -05'00'

NAME _____ DATE _____

Shane Nixon

Digitally signed by: Shane Nixon
DN: CN = Shane Nixon email = nixons@michigan.gov C = US O = EGLE OU = Air Quality Division
Date: 2020.12.02 13:55:37 -05'00'

SUPERVISOR _____