

**DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: On-site Inspection**

B721967147

<b>FACILITY:</b> ANR Pipeline Co. South Chester Compressor Station		<b>SRN / ID:</b> B7219
<b>LOCATION:</b> 6327 Old State Rd., JOHANNESBURG		<b>DISTRICT:</b> Gaylord
<b>CITY:</b> JOHANNESBURG		<b>COUNTY:</b> OTSEGO
<b>CONTACT:</b> Chris McFarlane ,		<b>ACTIVITY DATE:</b> 02/08/2023
<b>STAFF:</b> Sharon LeBlanc	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> Onsite inspection and records review for 2023 FCE. sgl		
<b>RESOLVED COMPLAINTS:</b>		

## INTRODUCTION

On February 8, 2023, AQD District Staff arrived onsite to conduct a scheduled site inspection at the ANR Pipeline Company South Chester Compressor Station, State Registration Number (SRN) B7219. The referenced Facility is located at 6327 Old State Road, Johannesburg, Michigan. The Facility is owned and operated by ANR Pipeline Company (ANR). The parent company of ANR is TC Energy (formerly TransCanada).

The referenced facility operates under Renewable Operating Permit (ROP) MI-ROP-N7219-2020, issued on October 12, 2020.

The most recent site inspections for the Facility were conducted on November 19, 2018, and April 28, 2021. The Facility at that time was reported to be in compliance at the time of the inspection.

ANR Pipeline Company Staff onsite at the time of the site inspection included:

- Mike Coy, Area Manager – Gaylord Area
- Lisa Fishbeck, Environmental Analyst, US Environment Services
- Keith Mossman, Director – Great Lakes Region

Site conditions at the time of the inspection included clear sunny skies, little to no wind, and temperatures in the low 30's. Both engines and the dehy were not operating.

## FACILITY

The South Chester Compressor Station is a manned Facility located in the NW ¼ of Section 15, T29 N – R 2W, Otsego County, South Chester Township, Johannesburg, Michigan. The address of record is 6327 Old State Road, Johannesburg, Michigan. The entrance to the Facility is near the intersection of Old State and Lovells Roads. The Facility is fenced and gated, with an intercom system to provide access to the Facility.

The Facility operates as both Natural Gas (NG) storage and transmission facility. The Facility functions to maintain pressure in pipelines transporting NG to and from the South Chester 15 storage field. From there the Facility connects to 3 recipients/delivery points. The Facility injects into and withdraws NG out of an underground storage reservoir consisting of a natural, porous rock formation. During the spring and summer seasons, the compressor engines are typically 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 (AKA withdrawal) season, NG is withdrawn from the underground reservoir. This normally occurs between mid-October to mid-April, though the actual schedule is dependent on marked demand, weather, etc. During withdrawal, NG free flows out of the reservoir. If reservoir pressure is not sufficient for the gas to free flow, the compressor engines are brought online to compress the gas and continue flow into the pipeline. The compressor engines are used only as needed during withdrawal season and are typically not operated.

During withdrawal, the field gases are conditioned by cooling the gas (through JT valve, 2-phase and 3-phase separators and an ethylene glycol glycol dehydration unit) to meet pipeline quality standards. NG withdrawal heaters are used to heat the gas as necessary.

Changes at the facility since the last inspection include:

- Personnel changes resulting from retirements and career changes,
- Replacement of the dehy BTEX tank, the heat exchanger (hair-pin style) and associated piping and
- Rule 215(3) Off Permit Change for the replacement of EUSCBOILER002 with two 3.0 MMBtu/hr boilers (EUSCBOILER003 and EUSCBOILER004).

The two new boilers (EUSCBOILER003 and EUSCBOILER004) are ethylene glycol boilers, which operate at a lower pressure than an equivalent steam boiler.

Changes to the glycol dehydration system are reported to not reflect process changes, but solely like-for-like component replacements. Facility representatives report that the stacks were not changed, and a Method 21 LDAR audit/inspection was conducted when the system was started up again for the season.

The Otsego County Property Records identified the following Oil & Gas properties are located north of the Facility across Old State Road:

- DTE Michigan Holdings, Inc. (operated by DCP Antrim Gas LLC, part of Phillips 66)
- CORE Midstream LLC and
- DCP Antrim Gas, LLC South Chester Antrim Carbon Dioxide (CO2) Removal Facility

The Facility and an Enervest Gathering Station (aka VCP), which is located north side of the fence adjacent to the Facility are located on undeveloped State lands. To the east and south of the Facility adjacent properties are listed in the Otsego County records as being held by the Government of Johannesburg, Michigan.

### PERMITTING

As previously indicated, the referenced facility operates under Renewable Operating Permit (ROP) MI-ROP-N7219-2020. All previously issued Permits to Install (PTIs) have been rolled into the ROP. AQD PTIs rolled into the ROP include the following:

EMISSION UNIT	PTI NO.
---------------	---------

<b>EUSCGD006</b>	<b>75-97, 10-95 and 8-81A</b>
<b>EUSCENG002 and EUSCENG003</b>	<b>147-80 and 60-01A</b>

Of note is that in addition to PTIs issued by AQD, US EPA permit No. EPA-5-A-79-15 was issued on June 7, 1979. The US EPA permit identified NOx emissions of over 600 tons/year. Michigan obtained delegation in September 1979, and subsequently issued PTI 147-80. Discussions resulting from the recent “discovery” of the EPA PSD permit in the Gaylord District Files has resulted in the conditions of the US EPA permit being incorporated into the ROP (MI-ROP-B7219-2020) as part of the most recent renewal process. The document was discussed during the onsite inspection and a copy of the referenced permit was provided to Facility representatives upon returning to the office that day.

**REGULATORY**

- Classifications based on Potential to Emit (PTE) and other significant comments:
  - **Applicable Federal Requirements:**

<b>EMISSION UNIT</b>	<b>40 CFR SUBPART</b>	<b>TITLE</b>
<b>Source</b>	<b>Part 70</b>	<b>State Operating Permit Program</b>
<b>EUSCDG006</b>	<b>40 CFR Part 63, Subpart HHH</b>	<b>Natural Gas Transmission and Storage Facilities (Major source of HAPs)</b>
<b>EUSCHTR001 – EUSCHTR004</b>  <b>EUSCBOILER003 EUSCBOILER004**</b>  <b>EUSCDG006 (reboiler only)</b>	<b>40 CFR Part 63, Subpart DDDDD</b>	<b>Industrial, Commercial and Institutional Boilers and Process Heaters (BOILER MACT)</b>
<b>EUSCGEN001*</b>	<b>40 CFR Part 63, Subpart A and ZZZZ</b>	<b>National Emission Standards for HAPs for Stationary Reciprocating Internal Combustion Engines (RICE) (RICE MACT)</b>
<b>EUSCENG002 – EUSCENG003*</b>	<b>None</b>	<b>NA</b>

---

\* 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.

\*\*EUSCBOILER002 was replaced in Summer 2022 with two glycol boilers (EUSCBOILER003 & EUSCBOILER004) which are subject to the conditions of FGDDDDDD<10.

### EQUIPMENT

The Facility is operated and monitored through a control room in the main building. The computer and associated controls are linked with the TC Energy U.S. corporate offices in Houston, Texas. Emission units (EUs) associated with the Facility include the following:

- **Ethylene Glycol Dehydrator** with condenser control (EUSCGD006)

Installed in 1981, the company reports that the referenced unit is considered a small, existing, dehydrating unit as defined in 40 CFR 63.1271 and is subject to 40 CFR Part 63 Subpart HHH. Which is an unit at a major source with an actual annual average NG flowrate of less than 283K scm/day or an actual annual average benzene emissions of less than 0.90 Mg/yr determined according to 63.1282(a). The facility reports uses the 0.90 Mg/yr threshold to meet the definition of a small dehy unit.

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. It's primary purpose is reported to not be removal of water from the gas, but to aid in hydrocarbon separation. 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.

The Facility reports using an ethylene glycol/water mixture, the concentration of which varies but is typically 70%-30%.

The Facility reports that the system is operated primarily in the winter when NG is extracted from storage underground, but that it is held on an operational standby during the remaining calendar year. Potential emissions generated during operation of the dehy system are controlled by the condenser. During normal operations and standby periods potential emissions from the reboiler are vented out the reboiler exhaust stack.

It should be noted that in addition to the condenser, the Facility pipes gases from the 2-phase and 3-phase separators to the reboiler, prior to the condenser. Though possible the Facility does not presently use off-gas from the separators to feed the reboiler burner due to poor gas quantity and degradation issue with the burner. The condenser addresses exhaust from the reboiler still vent.

Historically compliance for the facilities EUSCDGS006 was met thru:

- Initial Leak detection and repair (LDAR) inspection of the system (submitted to MDEQ on 4/22/2015),
- Determination of a maximum operating temperature for the condenser exhaust gas required to achieve 95 % BTEX destruction (used as equipment setpoint) as well as a continuous

monitoring plan incorporating the condenser performance curve temperature, (December 15, 2015, Site Monitoring Plan and revisions)

- Use of GLY-CALC to develop a performance curve to achieve compliance with BTEX emission limits under Subpart HHH (most recent dated January 24, 2022) based on the most recent 5-year gas sampling.

**Plans submitted for EUSCGDS006 include:**

<b>Date</b>	<b>Document</b>	<b>Purpose</b>
<b>December 8, 2015</b>	<b>Leak Detection and Repair Plan for Glycol Dehydration Unit's Closed Vent System</b>	<b>LDAR requirement/schedule</b>
<b>December 15, 2015</b>	<b>Site Monitoring Plan (note most recent revision is December 2022)</b>	<b>Requirements and operation of CPMS</b>

**Recent submittals of record include the following:**

<b>Date</b>	<b>Document</b>	<b>Most Recent LDAR Method 21</b>	<b>Most Recent Annual Visual &amp; Olfactory Inspection</b>	<b>Total Hours Operated for period</b>	<b>Last CPMS Cert/Audit</b>
<b>2/1/2021</b>	<b>2020 2<sup>nd</sup> Semi-annual HHH</b>	<b>11/19/2020</b>	<b>2/2/2020</b>	<b>680.2</b>	<b>11/9/2020</b>
<b>8/20/2021</b>	<b>2021 1<sup>st</sup> Semi-annual HHH</b>	<b>11/19/2020</b>	<b>2/26/2021</b>	<b>996.8</b>	<b>11/9/2020</b>
<b>3/1/2022</b>	<b>2021 2<sup>nd</sup> Semi-annual HHH</b>	<b>3/8/2021</b>	<b>3/3/2022</b>	<b>873.6</b>	<b>10/14/2021</b>
<b>9/13/2022</b>	<b>2022 1<sup>st</sup> Semi-annual HHH</b>	<b>11/19/2020</b>	<b>3/3/2022</b>	<b>1201.58</b>	<b>10/14/2021</b>

3/10/2023	2022 2nd Semi- annual HHH	12/1/2022	3/3/2022	222.6	11/2/2022
-----------	---------------------------------	-----------	----------	-------	-----------

The dehy reboiler process heater has been determined to be subject to the BOILER MACT. This process heater is rated at 750 MBTU/hr.

- 2 **NG Compressors** equipped with Reciprocating Internal Combustion Engines (RICE) **EUSCENG002 and EUSCENG003** (AKA Compressor Engine 1 and Compressor Engine 2) (FGSCENG)

RICE associated with the NG-fired compressors consist of Cooper Bessemer Model 12Q145LM 3600 HP, 29.47 MMBTU/hr heat input, 2 cycle, lean-burn units. The referenced units are used to inject NG into the storage field.

The following summarizes the compressor engine IDs:

ROP ID	MAERS ID	FACILITY ID
EUSCENG002	EUSC002	Unit 1, Compressor Engine A S/N 48587
EUSCENG003	EUSC003	Unit 2, Compressor Engine B S/N 48588

At the time of the February 8, 2023, site inspection, neither engine was in operation. Maintenance activities are reported to be conducted during the seasonal downtime. Maintenance plans for the EUs consist of a hybrid of manufacturer recommendations, internal policies and industry best practices. Each engine in FGSCENG has a performance analyst evaluation just prior to the end of the season, with any recommendations as well as normal off-season maintenance activities conducted during the off-season.

The two NG compressors are not subject to the RICE MACT (Subpart ZZZZ) based on 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.

With respect to the NSPS requirements of subpart JJJ (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. (EUSCGEN001)

This EU consists of one Waukesha Model F2859GU 526 HP, 4.21 MMTU/hr heat input, 4 cycle, rich-burn NG-fired RICE used for emergency backup power. Note: that the emergency generator was exempt from Rule 201 permitting when installed in 1981, as Rule 285 (vi)(c) exempted internal combustion engines of less than 10,000,000 BTU/hr heat input. Under the recently revised PTI exemptions (2016) the emergency generator would be exempt under Rule 285 (2)(g) "Internal combustion engines that have <10,000,000 BTU/hour maximum heat input".

The EU is included in the ROP based on applicability of the RICE MACT to this emergency generators. MI-ROP-B7219-2012A contained only a high-level citation to RICE MACT (SC IX.1). MI-ROP-B7219-2020 contains AQD ROP-templated conditions added as part of the most recent (2020) renewal activities.

- 4 NG-fired **withdrawal gas heaters** (EUSCHTR001 - 004)

The referenced process heaters (10 million BTU/Hr Sivallis heaters) were added to the renewed ROP (2020) 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 input capacity of less than/equal to 50 million BTU/Hr used in oil and gas production. For purposes of the Boiler MACT each heater is rated at 10 MMBTU/hr. Previous reference to these units clumped them all under the same EU (EUSCHTR001). They were broken into 4 EUs as part of the 2020 ROP renewal process.

- **Boilers** (EUSCBOILER002, EUSCBOILER003 and EUSCBOILER004)

EUSCBOILER002 a Cleaver Brooks NG-fired 1.35 MMBTU/hr hot water heater (used for service water heating) was replaced in Summer 2022, with two 3.0 MMBTU/Hr glycol boilers (EUSCBOILER003 and EUSCBOILER004). The previous unit as well as the two new units were 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/equal to 50 million BTU/Hr.

A Rule 215(3) off-permit change for the replacement of EUSCBOILER002 was submitted on May 24, 2022. Initial Boiler MACT Notification was submitted for EUSCBOILER003 and EUSCBOILER004 and received on January 31, 2023.

EUSCBOILER003 and EUBOILER004 are process heaters and meet the definition by indirectly transferring heat to a process material or heat transfer materials (e.g. glycol and water mixture). The two new units will be added to the EU Summary Table and EUSCBOILER002 will be removed in the future ROP renewal. The two newly installed Cleaver Brooks would be subject to requirements of FGSCDDDD which includes the 4 process heaters.

Note: EUSCBOILER001, was reported to no longer exist onsite, and was requested to be removed from the recently renewed ROP (2020). EUSCBOILER002 will be removed and EUSCBOILER003 and EUSCBOILER004 added during the next ROP renewal.

### **Equipment Not in the ROP**

- 28 NG-fired Furnaces/**Space Heaters** (EUSCSPHTR002)

The referenced space heaters are reported to have a rated capacity of 200,000 BTU/hr each and are reported Rule 201 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 (Boiler MACT) 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. Previously they were identified under the ID EUSCHTR002.

- NG-fired Water Heater (EUSCWHTR003)

The EU is used for service water heating reported, rated a 53,000 BTU/hr water heater (note WH in EU designation) and is reported to be exempt under 40 CFR Part 63, Subpart DDDDD (Boiler MACT). The unit is also 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. This EU is not included in the ROP.

- Tanks

The following table summarizes tanks associated with the facility. Note that some were included in the most recent ROP application, others were identified in MAERS. Some are not included in either source. None are included in the ROP.

ROP ID	MAERS ID	Tank IDs	Content	Total Capacity (gallons)	Exemption Claimed
EUSCTNK001	ESC008	T8	Hydrocarbon	16,800	Rule 284 (2)(e)
EUSCTNK001	ESC008	T9	Condensate	5,000	Rule 284 (2)(e)
EUSCTNK001	ESC008	T10	Condensate	30,000	Rule 284 (2)(e)
NA	Not In MAERS	T1	Ambitrol (Engine glycol)	4,900	Rule 284 (2)(c)
NA	EUSCTANKS(GLY)	T2 and T17	Glycol	8,400 *	Rule 284 (2)(i)
NA	EUSCTANKS(GLY)	T4	Ethylene Glycol	2,632 *	Rule 284 (2)(i)

NA	EUSCTANKS(WW)	T15	Waste Water	4,475	Rule 284 (2)(i)
NA	EUSCTANKS(GLY)	T27	Glycol	300	Rule 284 (2)(i)
EUSCTNK005	EUSCTANKS (OIL)	T5	Lubricating Oil (New)	10,000	Rule 284 (2)(c)
EUSCTNK006	EUSCTANKS (OIL)	T6	Lubricating Oil (Maintenance)	1,660	Rule 284 (2)(c)
EUSCTNK007	EUSCTANKS (OIL)	T7	Used Oil	1,900	Rule 284 (2)(d)
EUSCTNK016	Not In MAERS	T16	Condensate	1000	Rule 284 (2)(e)
NA	Not In MAERS	T26 (Green Tank)	Waste Water	1000	Rule 284 (2)(i)
NA	Not In MAERS	Corrosion Inhibitor	Corrosion Inhibitor	55	
NA	Not In MAERS	T28	2-Phase Overflow	300	
NA	Not In MAERS	Paraffin Inhibitor	Paraffin Inhibitor	165	
NA	Not In MAERS	Paraffin Inhibitor – Well Field	Paraffin Inhibitor	165	
NA	Not in MAERS	Outlet Separator Holding Tank	Condensate/Glycol	6850	Rule 284 (2)(e)

Note that MAERS reported that the following sources were installed/added to MAERS in 2011:

- EUSCTANKS (OIL) 11,900 gallon total capacity
- EUSCTANKS(WW) 4,475 gallon total capacity
- ESC008, three condensate tanks, 51,800 gallon total capacity
- EUSCTANKS(GLY) 14,575 gallon total capacity
- EUSCTANKS (#2 distillate)

### COMPLIANCE

The most recent site inspection for the Facility was conducted on April 28, 2021. 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 last site inspection on April 28, 2021. Compliance will be determined based on conditions of MI-ROP-N7219-2020.

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 EUSCGD006, EUSCGEN001, FGSCENG, FGSCDDDD>10 and FGSCDDDD<10. 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.

### SOURCEWIDE -

MI-ROP-B7219-2020 identifies source wide restrictions with reference to venting of NG in quantities greater than 1,000,000 scf for routine maintenance or relocation of transmission distribution systems (SC III.1) or gathering pipelines (SC III.2). This includes notifications to AQD (SC VII.4 and VII.6) and other state and federal agencies (SC VII.5, VII.7 and VII.8).

No notifications are of record for venting activities associated with the Facility. Discussions with Facility staff indicated that in order for the facility to experience a venting occurrence with quantities greater than 1,000,000 scf they would have to have a valve failure or some other very rare type of occurrence. They do not have that size venting occurrence for routine maintenance and no valve failure or similar event had occurred.

### EUDCGD006 – 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 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, EUDCGD006 was not in operation; only the recirculation pumps were operating to maintain the system in a stand-by status.

OPERATION LIMITS - EUSCGD006 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 control device(s) must be designed and operated to meet BTEX limits of SC I.4 (as calculated per Appendix 7 of ROP). (SC III.2)
  - The condenser shall be equipped with a maintained exhaust gas temperature monitor. (SC IV.1, SC IV.5)
  - The thermocouples of the gas temperature monitor (CPMS) shall measure condenser temp +/- 2 % of temperature monitored or +/- 2.5% whichever is greater and locate the monitor in exhaust vent stream away from condenser. (SC IV.5)
- Exhaust gas temperatures of 140 degrees Fahrenheit or less. (SC III.4)
- The condenser shall be equipped with a maintained alarm that activates when the exhaust gas temperature exceeds 140 degrees Fahrenheit (SV IV.2)
- Each CPMS shall measure data values at minimum of once per hour, and record each measured data values, should more than one data value be taken per hour, a one block average will be recorded. (SC IV.4)

**At the time of the site inspection, the dehy system included a condenser with a temperature monitor (thermocouple) and alarm. A review of records appears to indicate that the system and its exhaust gas monitors are operating properly. Facility staff report that maintenance activities are conducted via a hybridized maintenance plan incorporating manufacturer recommendations, industry best practices and site-specific determined maintenance activities. Maintenance activities are tracked via work order.**

**Thermocouples are tested annually for calibration, the most recent being November 23, 2022. Thermocouple accuracy was verified as part of a previous site inspection. The Facility staff indicated that no change in meters had occurred. In addition, the past three semi-annual HHH reports indicated that no monitor downtime has occurred.**

**The ROP limits the maximum operating temperature of the condenser to less than 140 degrees Fahrenheit (SC III.4). Historically the Facility reported an equipment setpoint of 120 degrees as determined by the 2015 performance curve, to guarantee compliance with permit conditions. The Facility has since 2015 further evaluated the condenser and revised the monitoring plan to reflect the updated condenser performance curve and the 95% BTEX destruction. The facility reports that the performance curve for the dehy condenser has most recently been updated as of January 24, 2022, using GLYCalc and new gas sample analytics and the monitoring plan revised accordingly.**

<b>Date of Performance Curve</b>	<b>Maximum Operating Temp for Condenser (Degrees Fahrenheit)</b>	<b>Equipment Set Point (Degrees Fahrenheit)</b>
<b>December 21, 2015</b>	<b>140</b>	<b>120</b>
<b>February 23, 2017</b>	<b>125</b>	<b>104</b>

January 24, 2022	104	94
------------------	-----	----

The highest condenser stack temperature for the period of January 2021 to December 2022 was reported on November 10, 2021, at 45.9 degrees Fahrenheit.

Thermocouple records reviewed were found to be consistent with the requirements of SC VI.1.

Material requirements required for the dehy includes the following:

- NG used as fuel for the glycol dehydrator contains no more than 20 grains of total sulfur per 100 cubic feet. (SC III.5)
- The permittee shall not emit to the atmosphere NG with more than 1 grain of H<sub>2</sub>S or 10 grains of total sulfur per 100 cubic feet without destruction of H<sub>2</sub>S or mercaptans in properly engineered flare, incinerator or other combustion device that (SC III.6):
  - For NG in which the volume and concentrations of hydrogen sulfide are < 28 lb/day, the flare or other control device will be equipped with an auto ignition system or a pilot flame which burns continuously. (SC III.6.a)
  - For NG in which volumes and concentration of hydrogen sulfide of 28 lb/day or greater shall be equipped with a continuously burning pilot flame and an auto shut-off should the pilot flame fail. (SC III.6.b)

The Facility reports that they are limited to no greater than 20 grains of total sulfur per 100 scf by the ANR Pipeline Company FERC Gas Tariff agreement. In addition, the Facility is required under SC V.1 to sample and analyze the wet gas stream every 5 years for constituent components. The most recent analysis are summarized below:

DATE	H <sub>2</sub> S Concentration
February 24, 2017	0.45 ppm (<0.5 grains)
January 24, 2022	1.4 ppm (<1 grains)

No flare, incinerator or other combustion system preventing the emission of NG is associated with the Facility, consistent with the requirements of SC III.6. Exhaust vents for the dehy system EUSCGD006 vent to the reboiler burner or the condenser meeting the requirements of SC III.6.

In compliance with SC III.3, gaseous emissions from both separators are piped to the burner of the glycol regenerator/reboiler for destruction. The closed vent system is designed and operated such that all closed vent system shall route all gases-vapors and fumes from the materials in and from the EU to the condenser.

With respect to the glycol recirculation pumps, the Facility reports that only one pump is operated at a time, and at a fixed rate of 3 gpm/pump. (SC III.7 & IV.3). The system logic controlling the pumps is for operation of two pumps (SC III.8), 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.

In compliance with SC III.9, no stripping gas is reported to be used in the glycol regenerator still.

The dehydrator was not operating at the time of the site visit. Annual visual and olfactory verification activities for detectable emissions are conducted by onsite staff. Third parties are reported to conduct the onsite Method 21 verification activities. EUSCGD006 is reported to be operated with no detectable emissions except from it’s designed process vents (SC III.10).

**MATERIAL LIMITS** - EUSCGD006 is limited to 225 million scf/day, as determined by the end of the calendar month (SC II.1). Facility staff report that the gas flow is monitored using a flow meter and that TC Energy/ANR Pipeline Company Gas Control has established a setpoint limit of 225 million scf/day limiting the actual volume through the plant to below the limit. Valves are in place to manually control/set the flowrate. In addition, it was indicated in previous discussions with now retired staff that the field was incapable of producing that much flow.

A review of records provided by the Facility for the period of January 2021 through January 2023 indicated the highest daily throughput (as recorded by condenser throughput) during the period was 182.07 million scf/day reported for February 2021.

Annual Daily Averages are summarized below:

Year	Annual MMscf	Total Hours/Yr	# days/Yr	Annual Daily Average (MMscf/day)
2019	12604.1	2337.20	97.38	129.43
2020	6393.00	1119.80	46.66	137.02
2021	10929.60	1870.40	77.93	140.24
2022	8390.60	1424.20	59.34	141.39
Limit	NA	NA	NA	225 (SC II.1)

**EMISSION LIMITS** - EUSCGD006 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 2021 and 2022 are summarized below:

Calendar Year	Total VOC (tons/year)	Benzene (lb/year)

<b>2021</b>	<b>0.553</b>	<b>60.988 lb/yr (0.030 ton/yr)</b>
<b>2022</b>	<b>0.425</b>	<b>46.819 lbs/yr (0.022 ton/yr)</b>
<b>Limits</b>	<b>6 tons/year (SC I.3)</b>	<b>0.992 tons/year (SC I.1)</b>

12-month Daily VOC emissions are limited to 33 lbs/day (SC I.2) A review of records for the period of January 2021 through December 2022 indicated that the following:

<b>Period</b>	<b>Highest Daily VOC Emissions (lb/day)</b>	<b>Date</b>
<b>January – June 2021</b>	<b>22.0</b>	<b>Feb. 15, 2021</b>
<b>July – December 2021</b>	<b>19.4</b>	<b>Dec. 7, 2021</b>
<b>January – June 2022</b>	<b>20.1</b>	<b>Jan. 25, 2022</b>
<b>July – December 2022</b>	<b>21.7</b>	<b>Dec. 20, 2022</b>

Records were also noted to be consistent with understood operation of the system, which was reported to be limited to winter months.

**TESTING ACTIVITIES** – As previously indicated, EUSCGD006 is required by permit to sample and analyze the wet gas stream every five years for constituent components (SC V.1). As previously indicated, the most recent wet gas analysis (January 24, 2022) showed compliance with permit conditions. Wet gas analysis provided by the Facility to show compliance has consisted of:

<b>Wet Gas Analysis Date</b>	<b>Due Date for Next Sample Collection/Analysis</b>
<b>February 24, 2017</b>	<b>February 2022</b>
<b>January 24, 2022</b>	<b>January 2027</b>

In addition, the Facility is required to test the regenerator still condenser for capture efficiency once every 60 months. (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.

Date of Capture Efficiency Testing	Test Type	Due Date for Next Test
April 22, 2015	GRI-GLYCalc	April 2020
March 5, 2018 *	GRI-GLYCalc	March 2023
January 24, 2022*	GRI-GLYCalc	January 2027

\*used wet gas analysis.

Testing requirements under EUSCGD006 also includes the following:

- Verification testing of BTEX concentration using an approved EPA Method and at the owner’s expense if requested by AQD Supervisor. (SC V.3)

No documentation exists on file to indicate that verification testing has been requested. Therefore, SC V.3 and notification requirements contained in SC V.4 are not applicable at this time.

- Determination of actual flow rate of NG by installation of a flow meter to directly measure flow with a +/- 2% accuracy or better. The annual average flow will be determined by taking the actual annual flow and dividing it by the total number of days of operation of EUSCGD006 or other method acceptable to AQD. (SC V.5)

Flowrate is measured using an 8-path ultrasonic meter. Facility staff report that it is an extremely accurate flowmeter. Facility staff reported that the present flow meter installed in apx. 2018 replaced a 4-path ultrasonic meter. The meter is reported to be the same as that used during the April 28, 2021, site inspection. Annual calibration checks are reported to be conducted.

The ROP contains no “limit” with respect to the actual annual average flow of NG to EUSCGD006. However, the value is pertinent in that it determines whether the dehy is considered a small, dehydrating unit as defined in 40 CFR is an unit at a major source with an actual annual average NG flowrate of less than 283K scm/day(9.9 MMscf/day) or actual annual average benzene emissions of less than 0.90 Mg/yr (or 1 ton/yr) determined according to 63.1282(a). The Facility uses the 0.90 Mg/yr option to meet the definition. The actual annual average NG flow rate for EUSCGD006 is summarized below:

Calendar Year	Actual NG Flow for Calendar Year (mmscf)
---------------	--

		<b>Days of Operation for Calendar Year (hours - year)</b>
<b>2022</b>	<b>8390.7</b>	<b>1424.2</b>
<b>2021</b>	<b>10929.7</b>	<b>1870.4</b>
<b>Monitoring Condition</b>	<b>(SC VI.9)</b>	<b>(SC VI.2)</b>

- Determination of the actual average BTEX concentration shall be made using GRI-GlyCalc version 3.0 or higher and using inputs into model representative of actual operating conditions for the unit. (SC V.6)
- No detectable emissions testing for closed vent systems using Method 21 and procedures per 40 CFR 63.1282(b) (SC V.7)

**No detectable emissions testing for the closed vent systems shows compliance with SC III.10 and SC V.7.**

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

- Total amount of NG processed through EUSCGD006 per calendar day. (SC VI.3)
- Maximum annual NG throughput, and records of it's calculation. (SC VI.8 & 9)
- 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. Total hours of operation on a daily, monthly and yearly basis were also provided for the years 2021 and 2022 as requested. Records provided by the Facility shows compliance with recordkeeping requirements for EUSCGD006.**

**The Permittee is required to monitor/ calculate and record the following emissions:**

- VOCs on a daily (SC VI.4), monthly and 12-month rolling basis. (SC VI.5)
- Benzene on a 12-month rolling time period (SC VI.5)
- BTEX on a monthly and 12-month rolling time period (SC VI.7)

**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.**

Calendar Year	Daily VOC range (lb/day)	Monthly VOC Range (tons)	12-month Rolling VOC (tons)
2021	0.9 – 22.0	0.002 – 0.202	0.553
2022	0.3 – 21.7	0.025 – 0.189	0.425
Condition	SC VI.4	SC VI.5	SC VI.5

Calendar Year	BTEX Monthly (Mg)	BTEX 12-month Rolling (Mg)	Benzene 12-Month Rolling (tons)
2021	0.16 – 0.19	0.5 – 0.69	0.030
2022	0.04 – 0.24	0.53 – 0.76	0.022
Condition	SC VI.7	SC VI.7	SC VI.5

**Startup-Shutdown and Malfunctions** –Under the ROP, the Facility is required to monitor and record the occurrence and duration of any startup, shutdown which results in an exceedance of any applicable emission limit (SC VI.19), any malfunction in the operation of the dehy or it’s condenser and actions taken to correct the situation (SC VI.19 and VI.25) and any maintenance activities for EUSCGD006 and it’s control device (SC VI.19). The required data was reviewed for 2021 and 2022 and indicated that no major maintenance activities other than those previously discussed were required for the system.

**Control Device(s)-** In addition to general operations monitoring/recordkeeping requirements, the Facility is required to equip the condenser associated with EUSCGD006 with a continuous monitor to record the exhaust gas temperature for the condenser, as well as calculate the daily average temperature for each operating day (SC VI.10) Alarm conditions occur whenever the condenser exhaust gas temperatures exceed 140 degrees F (maximum condenser temperature established in compliance with SC VI.16). In addition, should alarm conditions occur, the day and time as well as actions taken are required to be recorded. (SC VI.1)

Records for 2021 and 2022 indicated the following:

DATE	EXHAUST GAS TEMP. (aka condenser outlet temp) (Degrees F)	ALARM Period	ACTIONS
------	--	--------------	---------

<b>2021</b>	<b>3.9 – 45.9</b>	<b>NA</b>	<b>NA</b>
<b>2022</b>	<b>-2.5 – 35.8</b>	<b>NA</b>	<b>NA</b>

**When using a condenser as a control device, SC VI.11 allows the permittee to show compliance with the BTEX emission limit by:**

- Establishing a site-specific performance curve (per SC VI.17);
- Calculate the daily average condenser outlet temperature (SC VI.15);
- Determine the condenser efficiency for the current operating day using the daily average condenser outlet temperature and condenser performance curve;
- At the end of each operating day calculate the 30-day average BTEX emission reductions from the condenser efficiencies of the preceeding 30 operating days:

**Compliance is achieved if the average BTEX reduction is equal to or greater than the minimum percent reduction established in SC VI.16. A deviation per SC VI.18 is defined as one of the following:**

- Daily average operating parameters greater than the determined maximum operating parameter limit.
- 30-day average condenser efficiency is less than identified 30-day required percent reduction.
- A monitoring data not available for 75% or more operating hours in a one-day period.

**The Facility reports that compliance with BTEX emission limits is determined by an automated system, and that no deviations or periods of missing monitoring data were reported for the calendar years 2021 or 2022. Condenser performance curves of record include :**

- December 21, 2015, and
- January 24, 2022

**Condenser daily efficiencies and 30-day average emission reductions are summarized below:**

<b>Period</b>	<b>Daily BTEX Control Efficiencies</b>	<b>30-day average BTEX Control Efficiencies</b>
<b>2021</b>	<b>97.82</b>	<b>97.82 – 98.58</b>
<b>2022</b>	<b>97.82</b>	<b>97.82</b>

**Inspection of closed vent systems (aka LDAR) is conducted by a third party for Method 21 and by the Facility Staff for visual and bypass devices. Monitoring and recordkeeping requirements for inspection of closed vent systems, and bypass devices with respect to “No Detectable Emissions” included in:**

- SC VI.12 (closed vent seams or other connections permanently or semi-permanently sealed or bypass devices),
- SC VI.13 and VI.21 (locations unsafe to inspect),
- SC VI.14 and VI.22 (locations difficult to inspect).

Records are required to be maintained for each inspection during which a leak or defect is detected as well as for those events in which no leaks or defects are identified. (SC VI.23 and VI.24) These records require documentation of the inspector, locations inspected, status determined, date of repair attempt, date of repair confirmation and information regarding repair attempts, shutdown periods to make attempts, etc. In addition to the 5-year LDAR events, the Facility also reports doing annual olfactory and visual inspections of safely accessible points.

DATE	Inspection Type	Locations Inspected	# of leak or defect detected	Repair Date(s)
February 25, 2015	Initial LDAR	50	0	NA
March 5, 2020	Annual LDAR (year 5)	50	0	NA
December 1, 2022	Maintenance Ad-Hoc	61	0	NA

The March 5, 2020, report represents a 5-year inspection report and included all difficult or unsafe locations in compliance with SC VI.12 – 14 and VI.21 and 22. The most recent conducted on December 1, 2022 was conducted as the result of the component replacement activities reported earlier in this document. Based on reporting history, it appears that the initial leak detection inspection occurred on February 25, 2015. Subsequent inspection activities were documented below:

DATE	Document	Period	Hours of Operation	CMS Audit	LDAR Assessment
November 19, 2020	Subpart HHH Semiannual	1/1/2020 – 6/30/2020	439.6	11/11/2019	3/5/2020
Feb 17, 2021	Subpart HHH Semiannual	7/1/2020 – 12/31/2020	680.2	11/9/2020	11/19/2020
Sept. 7, 2021	Subpart HHH Semiannual	1/1/2021 – 6/30/2021	996.8	11/9/2020	11/19/2020

March 7, 2022	Subpart HHH Semiannual	7/1/2021 – 12/31/2021	873.6	10/14/2021	3/8/2021
Sept. 9, 2022	Subpart HHH Semiannual	1/1/2022 – 6/30/2022	1210.4	11/30/2021	11/19/2020
March 13, 2023	Subpart HHH Semiannual	7/1/2021 – 12/31/2021	222.6	11/23/2022	12/1/2022

Reports reviewed by District Staff appear to be complete with respect to content outlined in SC VI.23. At present the Facility has no reported leaks or defects to be repaired.

**REPORTING -** In addition to prompt reporting of deviations under GC 20 and 21(SC VII.1), the Facility is required to submit annual (SC VII.3) and semi-annual (SC VII.2) compliance reports. The referenced documents are submitted on time and with the appropriate responsible official certification forms. The Facility is also required to submit:

- 40 CFR Part 63, Subpart HHH semi-annual compliance reporting for EUSCGD006 (SC VII.5).

Semiannual Subpart HHH compliance reports are received in a timely manner. These periodic reports also provide notice of the completion of LDAR and other testing methods.

- If methods GPA 2286 or ASTM-D-5504 were not used during wet stream gas sampling, then the permittee is required to submit a sample analysis protocol for approval by AQD TPU Staff 30-days prior to the sampling event (SC VII.4)
- Reports of process change or any information on the Notification of Compliance Status are to be submitted within 180 days, or on the next periodic report. (SC VII.8)

Wet stream analysis by GPA 2286 was confirmed in the February 1, 2022, laboratory analytical report. Neither of the two above documents are applicable at this time. Other periodic reports are required to include when applicable (SC VII.7):

- Deviation reports, or if appropriate a statement indicating no deviations occurred.
- LDAR Results per SC VI.24, VI.23
- Change in compliance methods
- Results of any periodic testing

To date the Facility has not conducted stack or performance testing, thus notification and reporting requirements under SC VII.5, VII.6, VII.9 are not applicable at this time. No deviations have been reported as part of compliance or periodic reporting. LDAR testing is reported as part of the semi-annual compliance reporting.

**STACK/VENT RESTRICTIONS -** The ROP identifies two stacks. Stack restrictions are limited to the following:

Stack	Maximum Diameter (inches)	Minimum Height (feet above land surface)
-------	------------------------------	---

SVSC006 Regenerator Still Column  (vents thru condenser)  (VIII.1)	2-inch	24-feet
SVSC007  Reboiler  (VIII.2)	NA	22-feet

Based on information provided previously from Facility staff, the stacks are in compliance with permit conditions. Stack heights will be verified in a future visit using a Nikon Range Finder.

**OTHER REQUIREMENTS-** Include a high level citation of 40 CFR Subpart A and HHH as they apply to EUSCGDS006 (SC IX.1) as well as the requirement to develop a site specific monitoring plan (SC IX.2). The referenced monitoring plan addresses the continuous parameter monitoring system, its design, data collection and AQ/QC elements, and each CPMS must be installed, calibrated, operated and maintained in accordance with the procedures in the approved plan. The referenced document was submitted on December 21, 2015.

General Compliance with HHH is shown by compliance with permit conditions.

#### **EUSCGEN001- Emergency Generator Engine**

The referenced EU as already indicated consists of a Waukesha 526 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-B7219-2020 contains no emission limits, material limits, testing requirements or stack restrictions.

**OPERATION LIMITS** - The permittee is required to operate EUSCGEN001 in a manner consistent with safety and good air pollution control practices for minimizing emissions (SC III.1). Based on available information it appears that the Facility is in compliance with this condition.

Operation of EUSCGEN001 is limited to the following restrictions:

- Operation as necessary during emergencies (SC III.2)
- 100 hours of 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.3)
- Operation of engine for up to 50 hours (of the 100 hours allowed) per year for non-emergency situations or periods where there is a deviation of voltage or frequency of 5% or greater below standards. (SC III.3)

EUSCGEN001 is equipped with a non-resettable hour meter in compliance with SC IV.1. The Facility reports that the EU is run monthly for maintenance purposes. Records provided by the Facility were in general compliance with SC VI.1 and indicated the following:

DATE	Emergency Hours Operated	Non-Emergency Hours Operated
2020 calendar year	8.4	7.6
2021 calendar year	1.9	6.5
2022 calendar year	11.3	6.76

**MONITORING/RECORDKEEPING** – Requirements for EUSCGEN001, are limited to recording of the date, the hours of operation and the reason operated. (SC VI.1) As indicated above, the referenced records were provided by the Facility upon request and confirm that appropriate levels of documentation are being kept, and report the total hours of non-emergency operation for the following calendar years:

**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 EUSCGEN001. 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 in addition to required information per MI-ROP-B7219-2020 the Facility provided a summary of engine maintenance, oil sample collection as well as any additional maintenance related testing.

**FGSCENG – Compressor Engines**

This flexible group consists of two Cooper Bessemer model 12Q145LM, 3600 HP, NG-fired RICE. No controls are associated with the EUs. No material limits or equipment design conditions are provided for the EU.

Emission Unit	Serial No.
EUSCENG002 (AKA Unit 1)	48587
EUSCENG003 (AKA Unit 2)	48588

**OPERATION LIMITS** – EUSCENG002 and EUSCENG003 (FGSCENG) are limited to the following operational limits.

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

The Facility reports that they are limited to no greater than 20 grains of total sulfur per 100 scf by the ANR Pipeline Company FERC Gas Tariff agreement. However, the Facility is required under SC V.6 to sample and analyze the wet gas stream every 5 years for constituent components. Based on the 2022 analysis date, the next sampling is required in 2027.

DATE	H2S Concentration
February 24, 2017	0.45 ppm (<0.5 grains)
January 24, 2022	1.4 ppm (<1 grains)

- The engines shall be operated and maintained per the manufacturer emission related written instructions. (SC III.2)

The Facility reports that the two engines (FGSCENG) are maintained per a hybridized maintenance plan which incorporates the manufacturer instructions, industry best practices and maintenance activities identified by onsite activities. In addition, the Facility reports that at the end of each operational season, the engines are inspected by a performance analyst and his/her recommendations are completed in addition to routine maintenance. Maintenance records were provided as part of the records review for the February 8, 2023, site inspection. Documents provided appear to meet general compliance with permit requirements.

**EMISSION LIMITS** – NOx limits in lb/hour (SC I.1) and grams per Hp (SC I.2), are included in the ROP and are summarized in the ROP Table. As part of the most recent ROP renewal activity emission limits for NOx, CO and non-methane hydrocarbons associated with EPA PSD permit No. 5-A-79-15 have been added (SC I.3,4 & 5). This more recent requirement is anticipated to be incorporated into the next verification testing activities. This was discussed with Facility staff during the site inspection, and a copy of the referenced EPA Permit was scanned from District Files and provided to Facility Staff.

Testing to date has verified that engine emissions are below permit limits for NOx.

The Facility uses test data to determine annual emissions. NOx emissions for the last three years are summarized below.

Emission Unit	NOx Emissions 2020 (tons/yr)	NOx Emissions 2021 (tons/yr)	NOx Emissions 2022 (tons/yr)
EUSCENG002	20.781	23.069	14.327

EUSCENG003	31.162	21.057	34.978
------------	--------	--------	--------

Compliance with emission limits is shown thru verification testing once every 5 years (SC V.1 through V.5). Compliance with emission limits associated with the USEPA PSD permit are met using (SC VI.4) manufacturer's emission-related written instructions, and records demonstrating that the engines have been maintained according to those instructions.

**TESTING ACTIVITIES** –Testing conditions for FGSCENG were modified during the most recent ROP renewal to reflect PTI testing requirements and EPA every 5-year testing requirements. PTI requirements for the engines under FGSCENG required NOx verification testing for one of the two engines every 5 years (SC V.1). SC V.5 requires testing for NOx, non-methane hydrocarbons and CO for both engines a minimum of 5 years from the date of the last test. Testing is required to be conducted using approved methods (SC V.2) with submittal of test protocols 30 days prior to testing, 7-day notification of testing and submittal of test results 60 days after the final test date are required under V.3 & V.4.

As previously mentioned, based on testing requirements of SC V.5, the Facility will be required to add non-methane hydrocarbons and CO to NOx testing activities with the 2023 testing.

A review of District Files appears to indicate that timely submittal of test protocols, 7-day notifications and test reports by the company prior to testing. Historical test results in District Files are summarized in the table below:

TEST DATE	EUSCENG002 (AKA Unit 1)	EUSCENG003 (AKA Unit 2)	LIMIT
May 2, 2019	—	15.62 lb/Hr 2.59 g/Bhp/Hr	72.9 lb/Hr (SC I.1) 9.2 g/bhp/Hr (SC I.2)
Nov. 19, 2018	12.66 lb/Hr 1.91 g/Bhp/Hr	--	72.9 lb/Hr (SC I.1) 9.2 g/bhp/Hr (SC I.2)
June 17, 2014	27.62 lb/Hr 3.99 g/Bhp/Hr	13.08 lb/Hr 1.81 g/Bhp/Hr	72.9 lb/Hr (SC I.1) 9.2 g/bhp/Hr (SC I.2)
July 22, 2009	32.45 lb/Hr 4.22 g/Bhp/Hr	--*	72.9 lb/Hr (SC I.1) 9.2 g/bhp/Hr (SC I.2)
August 5, 2004	31.91 lb/Hr 4.00 g/Bhp/Hr	--*	72.9 lb/Hr (SC I.1) 9.2 g/bhp/Hr (SC I.2)

April 18, 2000	20.2 lb/Hr	--*	72.9 lb/Hr (SC I.1)
	2.62 g/Bhp/Hr		9.2 g/bhp/Hr (SC I.2)

\*Note a review of District Files indicates that only one Engine was tested for pre- 2014 test activities. In each case it appears that Unit 1 or A (AKA EUSCENG002) was the unit tested.

**MONITORING/RECORDKEEPING** – Under MI-ROP-B7219-2020, 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. As both engines were not in operation at the time of the inspection, operational parameters could not be documented. The records provided were complete with respect to permit requirements and appear to be accurate.

EUSCENG002 data provided is summarized below:

Calendar Year	Total Fuel Consumption (mmscf)	Hours of Operation	NOx emissions (lb/hr)
2020	70.780	3290.360	20.781
2021	77.796	3562.090	13.4
2022	48.315	2107.020	13.8

EUSCENG003 data provided is summarized below:

Calendar Year	Total Fuel Consumption (mmscf)	Hours of Operation	NOx emissions (lb/hr)
2020	77.497	3579.630	31.162
2021	52.366	2435.170	18.4
2022	86.986	4331.830	17.6

Tables provided summarizing monthly NOx emission calculations were provided and indicated that emission factors were based on the most recent testing results and provided the conversion from g/BHp/Hr to lb/MMscf. SC VI.4 requires the permittee to recalculate the emission factor each time a stack test (acceptable to the AQD) is performed. The company has at the time of the information request used the information from the most recent test as required.

In addition, recordkeeping conditions associated with FGSCENG includes keeping copies of the manufacturer emission-related written instructions and records demonstrating that the engines have been maintained per those instructions. (SC VI.4) Documentation provided by the Facility indicated that the engines were on regular maintenance schedules. Discussions with Facility staff indicated that the maintenance schedule is a hybridized schedule consisting of not only manufacturer and company recommended activities, but activities that the facility itself has identified and conducts for their units. In addition to the regular maintenance schedules, that the engines are inspected by a third party at/near the end of each season, and that recommendations are made regarding supplemental maintenance activities that may be required.

**REPORTING** – In addition to reporting of deviations (GC 21 and 22), the Facility is required to submit semi-annual (SC VII.2) and annual (SC VII.3) compliance reporting. Records indicate that the required reporting is received in a timely manner and contains a copy of the required cert form signed by the responsible official. The most recent submittals were received on March 13, 2023.

**STACK/VENT RESTRICTIONS** - Stacks for EUSCENG002 and EUSCENG003 are both required not to exceed a maximum of 24-inches in diameter, and meet a minimum height requirement of 49 feet above land surface. The stacks are reported to meet the permit requirements. Stack heights will be verified in a future visit using a Nikon Range Finder.

#### **FGSCDDDD>10 – Boiler MACT Requirements**

This FG consists of process boilers and heaters fueled under the Gas 1 category, and with a heat input of 10 MMBTU/hr and greater. This group consists of four Sivalls natural gas-fired withdrawal gas heaters (EUSCHTR001 through EUSCHTR004) each with a maximum heat capacity of 10.0 MMBTU/hr at a major source of HAPs.

The FG does not include emission limits, testing, sampling or stack requirements.

**OPERATIONAL RESTRICTIONS** – The permittee is required to operate and maintain each EU in the FG in a manner consistent with safety and good air pollution control practices for minimizing pollution (SC III.3). Toward this purpose, the permittee is required to conduct an annual tune up of each process heater or boiler in the FG. (SC III.1) The annual tune-up must be conducted no more than 13 months after the previous tune-up and will consist of at minimum:

- Inspection of the flame pattern,
- Inspection of the Air to Fuel Ratio (AFR) and the system controlling it,
- Optimize total CO emissions consistent with the manufacturer’s instructions, and
- Measure concentration of CO (ppm) and oxygen (volume %) before and after adjustments

Should an EU in the FG not be operating at the time of the required annual tune-up, it shall be completed within 30 days of the EU startup (SC III.2) A review of Tune-up report(s)/Checklist(s) provided by the Facility indicated that the required inspection activities had been conducted in compliance with tune-up requirements. A copy of the most recent boiler tune-up (required annually) was provided as part of the February 28, 2023, site inspection. The following dates reflect the most recent tune ups for the four Sivalls heaters that make up FGSCDDDD>10:

EU	Tune Up Date*
EUSCHTR001	12/15/2022
EUSCHTR002-004	12/19/2022

\*Note initial tune-up dates for the Sivalls heaters are reported to be 11/24/2020.

**MONITORING/RECORDKEEPING** – Under MI-ROP-B7219-2020, the permittee is required to keep records of each occurrence, maintenance activity, corrective action, measurement notification, or report for a period of 5 years (SC VI.3, VI.4 and VI.5), two of which the records will be accessible onsite for review (SC VI.6). Records are maintained by the facility in compliance with the requirements.

SC VI.2 requires the permittee to keep copies of the use of fuel other than Gas #1 fuels. The records if applicable shall include the total hours operating with each fuel type as well as the total hours per year of operation under gas curtailment or gas supply emergencies. (SC VI.2) The Facility reports that no fuel other than Gas#1 are used by the Facility therefore this requirement is not applicable.

The Facility shall also maintain onsite a copy of the annual tune-up report (SC VI.3) which will include the following and are to be measured at high fire or typical operating load both before and after tune-up:

- Concentration of CO in effluent stream (ppm by volume)
- Concentration of Oxygen in effluent stream (volume %)

The annual tune-up report should also include a description of any corrective actions taken as part of the tune-up and the type and amount of fuel used 12-months prior to the tune-up. The annual tune-up report reviewed appears to be in compliance with permit conditions.

**REPORTING** – In addition to prompt reporting of deviations under GC 20 and 21(SC VII.1), the Facility is required to submit annual (SC VII.3) and semi-annual (SC VII.2) compliance reports.

The permittee is required if intending to use a fuel other than NG, refinery gas, or gaseous fuel subject to another subpart to submit a notification of alternative fuel use within 48 hours. (SC VII.4) If the permittee has switched fuels or made a physical change to the boiler or process heater and the fuel switch or physical change resulted in the applicability of a different subcategory, they must provide notice within 30-days of the date upon which the fuel switch or

physical change was made. (SC VII.5) The Facility reports no change in fuel or intent of fuel change therefore SC VII.4 and VII.5 are not applicable.

The Facility is also required to submit the boiler and process heater tune-up compliance reports to both the appropriate AQD District Office as well as to USEPA via the Compliance and Emissions Data Reporting Interface (CEDRI) (SC VII .6). Each compliance report must meet the requirements of SC VII.7. District Staff confirmed submittal of appropriate documents via CEDRI. Hardcopies were also received by the District Office.

Boiler MACT Compliance reporting required under the Boiler MACT Table 9, is required to be submitted via CEDRI (SC VII.8). CEDRI submittals were verified by AQD District staff for the previous two calendar years.

**OTHER REQUIREMENTS** – The ROP includes a high-level citation requiring the permittee to comply with all applicable provisions of 40 CFR Part 63, Subparts DDDDD (Boiler MACT). As applicable requirements under the subpart were added to the ROP during the most recent renewal, compliance with the ROP is believed to reflect compliance with the subpart.

**FGSCDDDDDD<10 -Boiler MACT Requirements**

This FG consists of process boilers and heaters with under the Gas 1 category, with a heat input of less than 10 MMBTU/hr. This group includes:

EU	Maximum Heat Input	Fuel
Cleaver Brooks Boiler (EUSCBOILER002)*	1.35 MMBTU/Hr	NG
Cleaver Brooks Glycol Boiler (EUSCBOILER003)	3.0 MMBTU/Hr	NG
Cleaver Brooks Glycol Boiler (EUSCBOILER004)	3.0 MMBTU/HR	NG
Glycol dehy reboiler	750 MBTU/Hr	NG

\*Cleaver Brooks Boiler (EUSC BOILER002) was removed from site Summer 2022 and replaced by two glycol boilers (EUSCBOILER003 & EUSCBOILER004). The two glycol boilers are process heaters indirectly heat to a transfer material. The Initial notification for the subpart for the two new glycol boilers was dated on January 23, 2023, and received at the District office on January 31, 2023.

This FG does not include any material or emission limits, testing requirements or stack restrictions.

**OPERATIONAL RESTRICTION(S)** – Under MI-ROP-B7219-2020, all boilers or process heaters with heat input capacity of 5 MMBTU or less must conduct a 5-year tune-up according to 40 CFR 63.7540(a)(12) and must be conducted no more than 61 months (but may be delayed until the next schedule or unscheduled unit shutdown to at least once every 72 months) after the previous tune-up (SC III.1). If the EU is not operated on the required tune-up date, the tune-up activity must be conducted within 30 calendar days of startup. (SC III.3)

Inspection/tune up dates for records for the FG ( as well as since the 2018 compliance notification include:

Submittal Date	Document	EU	Tune-up Date
Jan. 23, 2019	2018 Boiler MACT	4 Sirvalls Heater	12/26/2018
March 17, 2020	2019 Boiler MACT	4 Sirvalls Heater	12/26/2019
Jan. 6, 2020	Initial Compliance Determination	Reboiler for EUSCGD006	11/24/2020
Feb. 16, 2021	2020 Boiler MACT	4 Sirvalls Heater	11/23/2020
		EUSCBOILER002	12/15/2020
		Reboiler for EUSCGD006	11/23/2020
March 7, 2022	2021 Boiler MACT	4 Sirvalls Heater	12/24/2021
		EUSCBOILER002	12/15/2020
		Reboiler for EUSCGD006	11/23/2020
March 13, 2023	2022 Boiler MACT	4 Sirvalls Heater	12/21/2022
		EUSCBOILER002 (replaced)	12/15/2020
		Reboiler for EUSCGD006	11/23/2020

		EUSCBOILER003	10/13/2022
		EUSCBOILER004	10/13/2022

**Each tune-up is required to include a burner inspection and will consist of at minimum:**

- Inspection of the flame pattern,
- Inspection of the Air to Fuel Ratio (AFR) and the system controlling it,
- Optimize total CO emissions consistent with the manufacturer’s instructions, and
- Measure concentration of CO (ppm) and oxygen (volume %) before and after adjustments.

**As part of the February 8, 2023, site inspection, the Facility provided a copy of the most recent “Blueworx” tune up reports for the EUs. The referenced document(s) included the boiler appear to be consistent with the above referenced tune-up requirements.**

**The permittee is required to operate and maintain each EU in the FG in a manner consistent with safety and good air pollution control practices for minimizing pollution (SC III.4). Available records and the lack of visible emissions appears to indicate that the requirement is being met.**

**MONITORING/RECORDKEEPING – Under MI-ROP-B7219-2020, the permittee is required to keep records of each notification and report submitted under 40 CFR Part 63, Subpart DDDDD, including all documentation supporting any:**

- initial notification,
- notification of compliance status,
- 2 or 5 year compliance report and
- one-time energy assessment.

**The above referenced documents have been reviewed as part of previous FCE inspections, as well as review of incoming reports by District Staff. Submittals have been made in general compliance with permit conditions.**

**In addition, the permittee is required to keep any records for 5 years of each occurrence, measurement, maintenance, corrective action, report or record. (SC VI.1 and 3) The records shall be kept in a suitable form and readily available for expeditious review (SC VI.2) and actually onsite for at least 2 years after the date, and offsite for the remaining 3 of the 5 years (SC VI.4) The records for the Facility are now completely electronic and accessible by the Facility. Print copies of the required documents are kept on file onsite.**

**REPORTING – In addition to prompt reporting of deviations under GC 20 and 21(SC VII.1), the Facility is required to submit annual (SC VII.3) and semi-annual (SC VII.2) compliance reports. Compliance reporting is required to be submitted via the Compliance and Emissions Data Reporting Interface (CEDRI) (SC VII.8).**

**The Facility is also required to submit the boiler and process heater tune-up compliance reports to both the appropriate AQD District Office as well as to USEPA via CEDRI (SC VII .6). Each**

compliance report must meet the requirements of SC VII.7. A review of submittals indicates that the Facility is in general compliance with reporting requirements.

**OTHER REQUIREMENTS** – A high-level citation requiring the permittee to comply with all applicable provisions of 40 CFR Part 63, Subparts DDDDD (Boiler MACT). Compliance with FG conditions show general compliance with the Subpart.

## **SUMMARY**

### **INTRODUCTION**

On February 8, 2023, AQD District Staff arrived onsite to conduct a scheduled site inspection at the ANR Pipeline Company South Chester Compressor Station, State Registration Number (SRN) B7219. The referenced Facility is located at 6327 Old State Road, Johannesburg, Michigan. The Facility is owned and operated by ANR Pipeline Company (ANR). The parent company of ANR is TC Energy (formerly TransCanada).

The referenced facility operates under Renewable Operating Permit (ROP) MI-ROP-N7219-2020, issued on October 12, 2020.

The most recent site inspections for the Facility were conducted on November 19, 2018, and April 28, 2021. The Facility at that time was reported to be in compliance at the time of the inspection.

**ANR Pipeline Company Staff onsite at the time of the site inspection included:**

- Mike Coy, Area Manager – Gaylord Area
- Lisa Fishbeck, Environmental Analyst, US Environment Services
- Keith Mossman, Director – Great Lakes Region

Site conditions at the time of the inspection included clear sunny skies, little to no wind, and temperatures in the low 30's. Both engines and the dehy were not operating.

### **FACILITY**

The South Chester Compressor Station is a manned Facility located in the NW ¼ of Section 15, T29 N – R 2W, Otsego County, South Chester Township, Johannesburg, Michigan. The address of record is 6327 Old State Road, Johannesburg, Michigan. The entrance to the Facility is near the intersection of Old State and Lovells Roads. The Facility is fenced and gated, with an intercom system to provide access to the Facility.

The Facility operates as both Natural Gas (NG) storage and transmission facility. The Facility functions to maintain pressure in pipelines transporting NG to and from the South Chester 15 storage field. From there the Facility connects to 3 recipients/delivery points. The Facility injects into and withdraws NG out of an underground storage reservoir consisting of a natural, porous rock formation. During the spring and summer seasons, the compressor engines are typically 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 (AKA withdrawl) season, NG is withdrawn from the underground reservoir. This normally occurs between mid-October to mid-April, though the actual schedule is dependent on marked demand, weather, etc. During withdrawal, NG free flows out of the reservoir. If reservoir pressure is not sufficient for the gas to free flow, the compressor engines are brought online to compress the gas and continue flow into the pipeline. The compressor engines are used only as needed during withdrawl season and are typically not operated.

During withdrawal, the field gases are conditioned by cooling the gas (through JT valve, 2-phase and 3-phase separators and an ethylene glycol glycol dehydration unit) to meet pipeline quality standards. NG withdrawl heaters are used to heat the gas as necessary.

Changes at the facility since the last inspection include:

- Personnel changes resulting from retirements and career changes,
- Replacement of the dehy BTEX tank, the heat exchanger (hair-pin style) and associated piping and
- Rule 215(3) Off Permit Change for the replacement of EUSCBOILER002 with two 3.0 MMBtu/hr boilers (EUSCBOILER003 and EUSCBOILER004).

The two new boilers (EUSCBOILER003 and EUSCBOILER004) are ethylene glycol boilers, which operate at a lower pressure than an equivalent steam boiler.

Changes to the glycol dehydration system are reported to not reflect process changes, but solely like-for-like component replacements. Facility representatives report that the stacks were not changed, and a Method 21 LDAR audit/inspection was conducted when the system was started up again for the season.

A review of information obtained at the time of the inspection, as well as supplemental records obtained for the Facility indicates that the Facility is operating in general compliance with MI-ROP -N7219-2020.

NAME

DATE 4-25-23

SUPERVISOR

