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

B833752531

FACILITY: ANR Pipeline Co.-Muttonville Compressor Station		**SRN / ID:** B8337
LOCATION: 36555 29 MILE RD., MUTTONVILLE		**DISTRICT:** Southeast Michigan
CITY: MUTTONVILLE		**COUNTY:** MACOMB
CONTACT: Mark Ogden , Operations Technician		**ACTIVITY DATE:** 02/06/2020
STAFF: Kerry Kelly	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Determine compliance with the Federal Clean Air Act; Part 55, Air Pollution Control of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; Renewable Operating Permit (ROP) No. MI-ROP-B8337-2015; 40 CFR Part 63, Subparts HHH, ZZZZ, and DDDDD.		
RESOLVED COMPLAINTS:		

On February 6, 2020, I (Kerry Kelly, EGLE-AQD) conducted a targeted inspection at ANR Pipeline Company-Muttonville Compressor Station located at 36555 29 Mile Rd. in Lenox Twp., Michigan. ANR Pipeline Company's Muttonville Compressor Station is owned by TC Energy. The purpose of the inspection was to determine the facility's compliance with: the Federal Clean Air Act; Part 55, Air Pollution Control of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; Renewable Operating Permit (ROP) No. MI-ROP-B8337-2015; 40 CFR 63, Subpart HHH, 40 CFR Part 63, Subpart ZZZZ and 40 CFR Part 63, Subpart DDDDD.

I arrived at the site at about 10:00 AM. At the facility I met Mr. Mark Ogden, Operations Technician, Mr. Bruce Bendes, Senior Environmental Specialist – Great Lakes Region, TC Energy, and Mr. Larry Benson, TC Energy. I stated the purpose of the inspection to Mr. Ogden, Mr. Bendes, and Mr. Benson. Mr. Ogden, Mr. Bendes, and Mr. Benson answered questions and escorted me during the facility walk through. Mr. Chris Waltman, Senior Environmental Specialist with TC Energy provided records following the inspection but was not present at the facility during the inspection.

FACILITY OVERVIEW

The Muttonville Compressor Station is a natural gas storage and transmission facility located in eastern Macomb County Michigan. The area surrounding Muttonville Compressor Station is rural and the nearest residence is located approximately a half of a mile south of the station. The facility has two 3,200 HP, 2 stroke lean burn natural gas-fired reciprocating internal combustion engines which drive compressors to pump natural gas into and out of the underground rock formations. Normally natural gas is pumped into the storage field during the summer months and is typically ready for withdraw starting November 1st each year. Natural gas will free flow early in the withdrawal season when the storage field pressure is greater than the pipeline pressure. The gas needs to be pumped out, using compressors powered by two natural gas-fired internal combustion engines, later in the season as the pressure decreases within the storage field.

During the storage period, the natural gas absorbs hydrocarbons and moisture from the storage field. Muttonville compressor station has a glycol dehydration system with two dehydration contact towers to remove moisture and hydrocarbons from the gas before sending it to the pipeline system.

In the glycol dehydration process, water and hydrocarbons are removed from the natural gas and glycol is regenerated. The process starts when natural gas is pumped into one of two contact towers where it crosses a series of glycol trays. The glycol in these trays absorbs the moisture and hydrocarbons in the natural gas and the dry gas is then sent to a pipeline for distribution to customers. The rich glycol, containing moisture and hydrocarbons, accumulates at the bottom of each contact tower and is sent to a 3-Phase separator (aka flash tank) which separates liquid hydrocarbons and gases from the glycol. Gases from the flash tank can be routed to the reboiler burner for fuel or to the thermal oxidizer. According to Mr. Ogden, flash tank gases are no longer sent to the reboiler for fuel because the gas was causing problems with the reboiler burner. Liquid hydrocarbons from the flash tank are sent to the condensate tank, also called the BTEX tank, for storage.

Glycol from the flash tank is sent through a particulate filter, a charcoal filter, and another particulate filter before being sent to a reboiler unit. The reboiler drives off moisture from the glycol at 375 to 385 degrees Fahrenheit to regenerate it for reuse. The resulting lean glycol is recirculated back to a surge tank and then to the contact towers. The steam from the reboiler goes through the still column. From the still, vapors go through a series of tubes, condense, and are collected in the BTEX tank. The system is designed so that all vapors from the reboiler still column pass through the condenser.

Condensate is pumped out of the BTEX tank and into one of two brine tanks when necessary. Vapors from the condensate tank are sent to the thermal oxidizer. In the event of a thermal oxidizer malfunction, the condensate

tank vapors are released from the “condenser stack”. The “condenser stack” is a two inch diameter stack located on the top of the condensate tank. The ROP for the facility requires the installation and proper operation of a thermal oxidizer to control emissions from the dehydration unit process vents. Either the thermal oxidizer or the condenser is required to be in operation when the glycol dehydration system is processing natural gas. Both the thermal oxidizer and condenser are equipped with temperature monitors as required by the ROP.

REGULATORY ANALYSIS

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70 because the potential to emit of carbon monoxide and nitrogen oxides exceeds 100 tons per year and the potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act, is equal to or more than 10 tons per year and/or the potential to emit of all HAPs combined is equal to or more than 25 tons per year.

The two identical 3200 HP, 2 stroke lean burn reciprocating internal combustion engines (EUCOMPENGINE1 and EUCOMPENGINE2) at the site are subject to 40 CFR 63, Subpart ZZZZ for Reciprocating Internal Combustion Engines (RICE) promulgated on February 24, 2004, by the EPA and revised on April 12, 2010. The final rule in 40 CFR 63.6590(b)(3)(i) states existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements. For 40 CFR 63, Subpart ZZZZ, a stationary RICE is “existing” if construction or reconstruction of that RICE commenced prior to December 19, 2002. The two RICEs at Muttonville Compressor Station were installed in 1975 and 1976 according to documentation provided in the ROP renewal application received October 11, 2019 and signed by the source’s authorized representative (Attachment 1). I inspected the nameplate of one of the engines which read Clark 1975 TLAD-8. Based on this information, pursuant to 40 CFR 63.6590(b)(3), these engines are not required to comply with any of the requirements of 40 CFR 63, Subpart ZZZZ or Subpart A including initial notification requirements. In 1975 and 1976, when these engines were installed, all internal combustion engines were exempt from the requirements to obtain an approved Air Use Permit to Install under Rule 36(c). Therefore, these engines appear to be exempt from the permit to install requirement in Rule 201.

An emergency engine (EUMVGENERATOR) was added to MI-ROP-B8337-2015 with a stated HP rating of 700. MI-ROP-B8337-2015 includes requirements for EUMVGENERATOR from 40 CFR Part 63, Subpart ZZZZ for existing emergency engines greater than 500 HP located at a major source of HAPs. According to documentation provided in the ROP renewal application received October 11, 2019 and signed by the source’s authorized representative (Attachment 2), EUMVGENERATOR is actually rated at 467 HP. The horsepower rating of EUMVGENERATOR based on the kilowatt rating listed on the generator nameplate (300kW) would be 402. Since the EUMVGENERATOR has a horsepower rating less than 500, it subject to work practice standards and other requirements in 40 CFR Part 63, Subpart ZZZZ that were not included in MI-ROP-B8337-2015. 40 CFR Part 63, Subpart ZZZZ requirements for emergency engines less than 500 located at a major source of HAPs are being added to the ROP during the ROP renewal application currently being processed.

The glycol dehydration system is subject to 40 CFR 63, Subpart HHH for Natural Gas Transmission and Storage Facilities. The system was previously operating under 40 CFR 63.1274(d)(2) which exempted affected sources emitting less than 0.9 megagrams of benzene per year from the requirements in 40 CFR 63.1274(c). 40 CFR 63.1274(c) requires pollution control devices to be installed on a glycol dehydration system’s process vents and establishes other monitoring, recordkeeping, and reporting requirements. In 2012, 40 CFR 63.1274(d)(2) was rescinded and appeared to be moved to 40 CFR 63.1275 (b)(1)(ii). The language in 40 CFR 63.(b)(1)(ii) reads “the owner or operator of a large glycol dehydration unit shall connect the process vent to a control device or a combination of control devices through a closed-vent system and the outlet benzene emissions from the control device(s) shall be less than 0.90 megagrams per year. The closed-vent system shall be designed and operated in accordance with the requirements of §63.1281(c). The control device(s) shall be designed and operated in accordance with the requirements of §63.1281(d), except that the performance requirements specified in 40 CFR 63.1281(d)(1)(i) and (ii) do not apply. The definition of large glycol dehydration unit includes “a glycol dehydration unit complying with the 0.9 Mg/yr control option under 63.1275(b)(1)(ii)”. An issue with using 40 CFR 63.1275 (b)(1)(ii) is 40 CFR 63.1275(b)(1) does not give the option to use 40 CFR 63.1275(b)(1)(ii). 40 CFR 63.1275(b)(1) states “for each glycol dehydration unit process vent, the owner or operator shall control air emissions by either paragraph (b)(1)(i) or (iii) of this section. This appears to be a typo and was brought to the attention of the USEPA by the AQD. The EPA responded that they were aware of the issue in the regulatory text and are working on addressing it. In addition, the Federal Register for the final rule states “Our proposed amendment to remove the 0.9 Mg/yr compliance option does not affect the risk driver, which is fugitive emissions. As a result, we are retaining the 0.9 Mg/yr compliance option in the final rule. During the ROP renewal in 2015 and 2019, TC Energy/ANR chose to comply with the BTEX (benzene, toluene, xylene, and ethylbenzene) limit in 40 CFR 63.1275(b)(1)(iii) and also keep the 0.9 benzene limit previously established to

comply with 40 CFR 63.1274(d)(2).

The facility has several storage tanks, a boiler, three natural gas-fired heaters, and a process heater that appear to be exempt from permit-to-install requirements:

The storage tanks associated with the RICEs include a 1,000 gallon waste oil tank, an 11,300 gallon lubricating oil tank, a 1,000 gallon maintenance oil tank, and a 4,700 gallon coolant tank. These tanks appear to be exempt from the requirement to permitted as stated in Rule 201 pursuant to Rule 284(2)(c).

The storage tanks associated with the glycol dehydrator include a 9,000 gallon triethylene glycol storage tank, a 3,700 gallon glycol maintenance storage tank, and a 1,100 gallon condensate storage tank. The facility also has two 8,820 gallon brine storage tanks which are used to store excess condensate from the glycol dehydration condensate tank. These glycol storage tanks appear to be exempt from the requirement to be permitted as stated in Rule 201 pursuant to Rule 284(2)(c).The brine and condensate tanks appear to be exempt from the requirement to permitted as stated in Rule 201 pursuant to Rule 284(2)(e).

All of the tanks containing petroleum liquids are less than 40,000 gallons in volume, and, therefore, not subject to NSPS Subpart K for Petroleum Liquid Storage Tanks.

The 4.2 MMBtu/hour boiler at the facility is used for space heating and is subject to 40 CFR 63, Subpart DDDDD. This boiler appears to be exempt from the requirement to permitted as stated in Rule 201 pursuant to Rule 282(2)(b)(i).

The three 6.5 MMBtu/hour natural gas-fired heaters are used to prevent the moisture in the gas from freezing during the withdrawal season and are subject to 40 CFR 63, Subpart DDDDD. These heaters appear to be exempt from the requirement to be permitted as stated in Rule 201 pursuant to Rule 282(2)(b)(i).

The 1.5 MMBtu/hour process heater (EUMVREBOILER) used to heat the glycol in the reboiler is subject to 40 CFR 63, Subpart DDDDD. EUMVREBOILER appears to be exempt from the requirement to be permitted as stated in Rule 201 per Rule 282(2)(b)(i).

COMPLIANCE DETERMINATION
The inspection indicated the following with respect to the facility's compliance with ROP Number MI-ROP-B8337-2015, 40 CFR 63, Subparts HHH, ZZZZ, and DDDDD.

SOURCE-WIDE
MI-ROP-B8337-2015 requires notification when venting natural gas, for routine maintenance or relocation of transmission and distribution systems, or for venting of field gas, for routine maintenance or relocation of gathering pipelines, each in amounts greater than 1,000,000 standard cubic feet or an emergency venting of natural gas or field gas in amounts greater than 1,000,000 standard cubic feet per event. According to Mr. Ogden, there has been no venting of natural gas for maintenance or emergency situations at Muttonville Compressor Station in the past two years.

EUGLYCDEHYDE
The following emission limits are set forth in MI-ROP-B8337-2015:

- VOC emission limit of 65 pounds per day
- 12-month rolling VOC emission limit of 12 tons per year
- 12-month rolling benzene emission limit of 0.9 Mega grams (1 ton) per year
- BTEX emissions to the value calculated using equation in Appendix 7 of the ROP

Mr. Waltman provided daily, monthly, and 12-month rolling VOC and benzene emission records for January 2018 through December 2019 (Attachment 3) as required in SC VI.8 and 9. The emission records also include the total hours of operation of the glycol dehydration system, thermal oxidizer (TO), and condenser on a daily basis and the natural gas throughput on a daily and annual basis as required in the ROP. Mr. Waltman also submitted monitoring data from January 26, 2019, January 31, 2019, and February 21, 2019 (Attachment 4). Emission calculations are based on the amount of natural gas processed through EUGLYCDEHYDE. Based on the records, the highest daily VOC emissions between January 2018 and December 2019 were 59.3 lbs reported on February 18, 2019 which is less than the daily limit of 65 lbs. The highest 12-month rolling VOC and benzene emissions between January 2018 and December 2019 were 0.162 tons and 0.020 tons respectively which are less than the limits in the ROP.

The ROP requires the glycol dehydration unit be equipped with a properly operating flash tank which volatilizes organic compounds out of the rich glycol stream and routes them to the glycol dehydration reboiler and that the regenerator still be equipped with a properly installed and operating TO. The flash tank and TO must be

operating at all times when the glycol dehydration unit is processing natural gas. Operation of the glycol dehydration unit is permitted when the TO is not operating properly if a condenser is installed and operating properly.

40 CFR 63, Subpart HHH requires the glycol dehydration system not be used unless each process vent is connected to either: an enclosed combustion device (e.g., thermal vapor incinerator, catalytic vapor incinerator, boiler, or process heater) or a condenser that is designed and operated to reduce the mass content of BTEX in the gases vented to the device to the levels stated in 40 CFR 63.1275(b)(1)(iii). If the process vent gases are injected into the flame zone of a boiler or process heater, the facility does not have to meet the closed vent system requirements in 40 CFR 63.1281(c) or the control device requirements in 63.1281(f)(1)(i)(A)-(B) (small dehys) for the boiler or process heater.

I inspected the glycol dehydration system at Muttonville Compressor Station and saw that the system contains a flash tank which separates heavy hydrocarbons from the glycol. Gases from the flash tank vent are routed to either the thermal oxidizer or to the reboiler burner for fuel. From the flash tank I saw pipes routing the glycol to the reboiler. On the reboiler I observed that the still column had piping on the top routing steam to the condenser then to the condensate tank which has a 2 inch diameter stack. Emissions from the condensate tank are routed to the TO. According to Mr. Bendes, emissions are only released from the condenser stack if the condenser exhaust gas temperature is less than 140°F and the TO is malfunctioning.

A properly operating thermal oxidizer or condenser is considered Best Achievable Control Technology (BACT) for the control of VOC emissions from the glycol dehydration unit according to the ROP. Proper operation of the TO includes maintaining a minimum temperature of 1400°F with a minimum residence time of 0.5 seconds and with a VOC destruction efficiency of 95%. Proper operation of the condenser includes maintaining the condenser exhaust temperature less than 140°F. The residence time and destruction efficiency requirements for the thermal oxidizer are met per manufacturer's specifications acquired during New Source Review permitting. Mr. Waltman provided records of the daily TO and condenser temperature (Attachment 3) as required in SC VI. 11. Mr. Waltman also submitted monitoring data from January 31, 2019 (Attachment 4). The temperature records indicate that the TO temperature was greater than 1400°F while the dehydration unit was operating and the condenser temperature was less than 140°F for all days between January 2018 and December 2019. According to the temperature records for January 31, 2019, the condenser was operated for 12 minutes and the average daily temperature was 119.7°F. The monitoring data, recorded every two minutes, shows that the condenser was operating for 6 minutes on January 31, 2019. The condenser exhaust temperature monitor readings on January 31, 2019 were 105.2°F, 159.3°F, 154.7°F, and 132.3°F. The reading of 159.3°F was taken at the same time the TO temperature was less than 1400°F (8:53 AM on 2/1/19). The site-specific monitoring plan for the temperature monitors states that if a system starts midway through an hour, record 15-minute data points but begin averaging only if there are at least two data points for the first clock based 60 minute period. Each of the two data points should represent a 15-minute period. In the case of January 31, 2019, there weren't two 15-minute data points so the recorded data shouldn't have been averaged. Assuming VOC emissions from the dehy unit were uncontrolled while the emissions were released from the condenser on January 31, 2019, the daily VOC emissions would be still be much less than the 65 lb/day limit. The daily VOC emissions calculated based on the reported condenser throughput on January 31, 2019 (0.1 MMscf) and no control while the condenser was being operated at 159.3°F would be 3.74 lbs as opposed to 3.7 lbs with a condenser exhaust temperature of 140°F .

Per 40 CFR 63, Subpart HHH, TC Energy is required to establish a minimum or maximum operating parameter for the TO and condenser, monitor each parameter continuously, and calculate the parameter daily average to determine compliance with the BTEX limit in 40 CFR 63.1275(b)(1)(iii) (EUGLYCDEHYDE SC I.4).

On March 4, 2015, TC Energy conducted a stack test on the TO to verify compliance with the BTEX limit in 40 CFR 63.1275(b)(1)(iii) (EUGLYCDEHYDE SC I.4) and to establish a minimum operating parameter for the TO. The TO stack test results report indicates the BTEX emissions from the thermal oxidizer are less than the limit in SC I.4. The calculated BTEX emission limit included in the stack test report is 9.41 Mg/year. Though the BTEX limit is an annual limit, the stack testing requirements in 40 CFR 63, Subpart HHH require the mass rate of BTEX, in kilograms per hour, on a dry basis, at the outlet of the control device be calculated to demonstrate compliance with the annual BTEX limit. The rule does not specify how to calculate the annual emissions using the hourly emission rate determined through the stack test. The BTEX emission rate reported in the stack test report was less than 0.0029 lbs/hour (0.00000132 Mg/hour). Calculating the annual BTEX emissions using the stack test results and the maximum hours in a year (8,760), the annual emissions would be 0.012 Mg/year, which is less than the calculated emission limit of 9.41 Mg/year. The stack testing conducted in March 2015 indicates the average TO temperature recorded during testing, which showed compliance with the BTEX limit in 40 CFR 63.1275(b)(1)(iii), was 1487.8°F. Therefore, the minimum operating parameter for the TO is 1487.8°

F. The calculated uncontrolled annual BTEX emissions from the glycol dehydration unit in 2018 and 2019 are less than the emission limit calculated in accordance with SC III.1 indicating the condenser must have a minimum BTEX removal efficiency of zero percent for 2018 and 2019.

Mr. Waltman provided daily temperature records for the TO (Attachment 3), the performance curve for the condenser (Attachment 5), and the daily and 30-day rolling average BTEX removal efficiency for the condenser (Attachment 6). These records indicate the daily TO temperature was above 1487.8 degrees Fahrenheit for all but one day (January 28, 2019) between January 2018 through December 2019. The daily average TO temperature was 1478.7°F on January 28, 2019 according to the temperature records. Due to the very wide margin of compliance with the annual BTEX limit demonstrated during stack testing (the BTEX limit was 784 times higher the potential to emit calculated based on TO stack test results), it is unlikely one daily average TO temperature of 1478.7 degrees Fahrenheit will indicate non-compliance with the annual BTEX limit. The lowest reported BTEX removal efficiency for the condenser between January 2018 and December 2019 was 97.15 percent reported in March 13, 2018.

TC Energy is required to install, calibrate, operate, and maintain a temperature monitoring device, equipped with a continuous recorder, on the thermal oxidizer and condenser. TC Energy is required to prepare a site-specific monitoring plan that addresses the monitoring system design, data collection, and QA/QC elements. Mr. Walman provided a copy of the site-specific monitoring plan (Attachment 7)The monitoring device shall have a minimum accuracy of ±2 percent of the temperature being monitored in °C, or ±2.5 °C, whichever value is greater. For the thermal oxidizer, the temperature sensor is required to be installed at a location representative of the combustion zone temperature and for the condenser, the temperature sensor shall be installed at a location in the exhaust vent stream from the condenser. Mr. Waltman provided records of the TO and condenser accuracy checks conducted in 2018 and 2019 (Attachment 8). These records suggest the temperature sensor for the TO and condenser meet the minimum accuracy requirements. I observed a temperature sensor on both the TO and condenser stack during the inspection. The temperature sensor on the TO appeared to be approximately 2 feet from the top of the stack. The temperature sensor on the condenser is about 2 feet from the base of the stack.

MI-ROP-B8337-2015 requires records specified in 40 CFR 63.10(b)(2) be kept. Recordkeeping addressed in 40 CFR 63.10 pertains to maintenance, startup, shutdown, and malfunctions with regards to air pollution control and monitoring equipment. Mr. Waltman provided the accuracy audits performed in 2018 and 2019 on the CPMS (Attachment 8). According to the MACT HHH semi-annual reports received between January 1, 2018 through December 31, 2019, there were no deviations and there were no periods when the CPMS was inoperative, out of control, repaired, or adjusted.

According to 40 CFR 63, Subpart HHH, a closed-vent system means a system that is not open to the atmosphere and is composed of piping, ductwork, connections and, if necessary, flow inducing devices that transport gas or vapor from an emission point to one or more control devices. If gas or vapor from regulated equipment is routed to a process (e.g., to a fuel gas system), the conveyance system shall not be considered a closed-vent system and is not subject to closed-vent system standards. 40 CFR 63, Subpart HHH and MI-ROP-B8337-2015 require the following with respect to leak detection and the closed vent system:

- The closed-vent system shall route all gases, vapors, and fumes emitted from the material in an emission unit to a control device that meets the requirements specified in condition III.4 of MI-ROP-B8337-2015.
- The closed-vent system must be designed and operated with no detectable emissions.
- Any bypass devices in the closed-vent system that could divert emissions from entering the control device shall be equipped with a flow indicator at the inlet to the bypass device that takes readings every 15 minutes, and that sounds an alarm when the bypass device is open; or the bypass device valve at the inlet to the bypass device shall be secured using a car-seal or lock and key.
- Each closed-vent system and each bypass device shall be inspected, except for parts of the closed-vent system that are designated unsafe to inspect (inspecting personnel would be exposed to an imminent or potential danger as a consequence of inspecting) or difficult to inspect (equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface). A written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times needs to be in place for areas designated as unsafe to inspect and/or difficult to inspect.

I inspected the glycol dehydration system at Muttonville Compressor Station. Other than an approximately two-foot-long, 2 inch diameter pipe on the top of the flash tank that is capable of venting directly to the atmosphere, all gases, vapors, and fumes emitted from the material in EUGLYCDEHYDE were routed to a control device. According to Mr. Bendes, the pipe on the flash tank is a safety device and nothing would escape through this valve unless the pressure relief pressure was exceeded causing the valve to open. Per 40 CFR 63.1281(c)(3)(ii)

safety devices are not subject to the requirements to have a flow indicator on the bypass or to be locked in the non-diverting position.

The piping, ductwork, connections and, possible flow inducing devices that transport the gas or vapor from the flash tank vent to the reboiler burner, per 40 CFR 63, Subpart HHH, is not part of the closed vent system and not subject to the closed vent system standards.

An initial “no detectable emissions” test was done on EUGLYCDEHYDE on March 4, 2015. This initial leak detection and repair test (LDAR) report is on file at the AQD Southeast Michigan District office. According to the report, 30 locations were inspected and no leaks were detected. Of the 30 locations inspected, 26 were tagged as difficult to inspect. A description of why the areas are difficult to inspect (components require inspecting personnel being elevated more than two meters above a support surface) was included. Per 40 CFR 63, Subpart HHH and the ROP, accessible joints, seams, or other connections that are permanently or semi-permanently sealed (e.g., a welded joint between two sections of hard piping or a bolted or gasketed ducting flange) must be visually inspected annually. Annually, accessible components other than accessible joints, seams, or other connections that are permanently or semi-permanently sealed, must be visually inspected and inspected to insure they operate with no detectable emissions. TC Energy is required to have a written plan for inspecting difficult to inspect areas that requires inspection of these areas at least every five years. Mr. Waltman submitted the plan for inspecting difficult to inspect areas which includes using scaffolding and inspecting every five years (Attachment 9). According to LDAR inspection reports for inspections conducted at Muttonville on December 1, 2017 and January 15, 2019, no detectable emissions inspections were conducted on 30 components, including difficult to inspect components, using a probe (Attachment 10).

Other EUGLYCDEHYDE Requirements
ANR is required to determine the chemical composition of the natural gas processed by the glycol dehydration system at least once every five years and the actual flow rate of natural gas to EUGLYCDEHYDE. TC Energy had a wet gas analysis conducted in February 2015 and January 2020. The chemical analytical results for gas sampled in January 2020 and the actual annual average natural gas flowrate through EUGLYCDEHY were provided by Mr. Waltman (Attachments 11 and 12). During the inspection, I observed the that the natural gas flow rate is being monitored in the office at the facility. The gas flow is measured after the glycol dehydration unit’s contact towers. The natural gas sample collected in January 2020 contained 5 ppm BTEX (0.0029% by weight). The combined methane and ethane concentration of the gas sample was 983,612 ppm (96.4% by weight).

Semi-annual and annual deviation reports were received by AQD on time. No deviations were reported for FGGLYCDEHYDE in the semi-annual and annual deviation reports submitted between September 5, 2017 and March 9, 2020. The loss of data that occurred when TC Energy switched to a new reporting system in 2019 should have been reported as a deviation, however, they did not discover the deviation until after the semi-annual and annual report was already submitted for the reporting period.

FGCOMPENGINES
I inspected the two engines at Muttonville Compressor Station and verified they are both 3,200 HP, Clark TLAD-8 reciprocating internal combustion engines.

Neither engine was operating during the inspection. EUCOMPENGINE1 was being overhauled. Mr. Waltman stated the actual cost of the overhaul of EUCOMPENGINE1 was $941,872 and the cost to replace the unit is approximately $8 million (Attachment 13). As such, the overhaul would not be considered a reconstruction because the fixed capital cost of the new components does not exceed 50 percent of the fixed capital cost that would be required to construct a comparable new source. Based on my observation during the inspection, the RICE stacks comply with stack requirements in the ROP.

To demonstrate compliance with recordkeeping requirements in MI-ROP-B8337-2015, records of the size and installation date of the reciprocating internal combustion engines were included in the ROP application submitted October 11, 2019 (Attachment 1) and Mr. Waltman provided the natural gas usage from January 2018 through December 2019 (Attachment 14). These records indicate the engines are natural gas-fired Clark model TLAD8 engines rated at 3,200 hp and installed in 1975 and 1976 and had a fuel throughput of 30.32 MMscf in 2019 and 47.741 MMscf in 2018.

Semi-annual and annual deviation reports, required in Conditions VII. 2. and 3, were received by AQD on time. No deviations were reported for FGCOMPENGINES in the semi-annual and annual deviation reports submitted between September 5, 2017 and March 9, 2020.

EUMVGENERATOR

40 CFR Part 63, Subpart ZZZZ is a 402 HP, natural gas-fired, Waukesha L1616GSIU engine used for emergency backup power in the event of purchased power failure. The nameplate on the EUMVGENERATOR indicates it is natural gas-fired Waukesha Model L1616GSIU engine, but does not state the rated HP. The kW rating on the attached generator is 300. TC Energy provided records indicating that they have been operating EUMVGENERATOR in compliance with the requirements in 40 CFR Part 63, Subpart ZZZZ for existing emergency engines less than 500 horsepower located at major sources of HAPs even though the conditions were not included in MI-ROP-B8337-2015.

EUMVGENERATOR's hoses and belts must be inspected and it's oil and filter must be changed every 500 hours of operation or annually, whichever comes first, except as allowed in 40 CFR 63.6625(j) per 40 CFR 63 Subpart ZZZZ. 40 CFR 63.6625(j) allows for the use of an oil analysis program in order to extend the oil change requirement. The oil analysis must be performed at the same frequency as the oil changes are required. 40 CFR Part 63, Subpart ZZZZ also requires the spark plugs be inspected every 1,000 hours of operation or annually, whichever comes first, and replaced as necessary. Records of the oil analysis, hose and belt inspections, and spark plug inspections are attached (Attachment 15). These records indicate the oil in EUMVGENERATOR has been analyzed every September between 2015 and 2019. The oil analysis results from the samples taken 9/7/2018 and 9/9/2019 indicate an oil change was not required and "all tests performed were within RICE MACT specification." The maintenance and inspection records for 2018 and 2019 indicate the hoses, belts, and spark plugs were inspected annually.

40 CFR Part 63, Subpart ZZZZ requires EUMVGENERATOR be equipped with a non-resettable hour meter. During the inspection I observed a non-resettable hours meter on EUMVGENERATOR.

There is no limit on the number of hours TC Energy operates EUMVGENERATROR in emergency situations according to 40 CFR 63, Subpart ZZZZ. TC Energy may not operate EUMVGENERATOR for more than 100 hours per calendar year for the purpose of necessary maintenance checks and readiness testing. The tests must be recommended by Federal, State, or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine.

Mr. Waltman provided records of the total hours of operation per calendar year, recorded through the non-resettable hours meter including; the number of hours spent for emergency operation including what classified the operation as emergency and the number of hours spent for non-emergency operation (Attachment 16). These records indicate EUMVGENERATOR operated for 12 hours in 2018 and 12.2 hours in 2019 for the purposes of necessary maintenance checks and readiness testing.

Semi-annual and annual deviation reports were received by AQD on time in 2018 and 2019 for EUMVGENERATOR. No deviations were reported for EUMVGENERATOR in the semi-annual and annual deviation reports submitted between February 2018 and September 2019.

FGMACTDDDDD

The emission units in FGMACTDDDDD include EUMVBOILER1 and EUMVHEATERS. I inspected EUMVBOILER1 and verified it is a Kewanee, 4.2 MMBtu/hr natural gas-fired boiler. During the inspection I observed the nameplate on each heater in EUMVHEATERS and noted each has 2 Natco, 3.25 MMBtu/hr (total 6.5 MMBtu/hr) natural gas-fired burners.

The 1.5 MMBtu/hour process heater (EUMVREBOILER) used to heat the glycol in the reboiler is not included in MI-ROP-B8337-2015 but it is subject to 40 CFR 63, Subpart DDDDD.

An initial performance tune-up is required no later than January 31, 2016 for the boilers/process heaters at Muttonville according to 40 CFR 63.7540(a)(11). Subsequent biennial tune-ups must be conducted on EUMVHEATERS no more than 25 months after the previous tune-up. Subsequent 5-year tune-ups must be conducted on EUMVBOILER1 and EUMVREBOILER no more than 61 months after the previous tune-up.

A one-time energy assessment is required no later than January 31, 2016 for all emission units in FGMACTDDDDD. According to 40 CFR 63.7575, an energy assessment for facilities with affected boilers and process heaters with a combined heat input capacity of less than 0.3 trillion Btu (TBtu) per year will be 8 on-site technical labor hours in length maximum, but may be longer at the discretion of the owner or operator of the affected source. The boiler system(s), process heater(s), and any on-site energy use system(s) accounting for at least 50 percent of the affected boiler(s) energy (e.g., steam, hot water, process heat, or electricity) production, as applicable, will be evaluated to identify energy savings opportunities, within the limit of performing an 8-hour

on-site energy assessment. According to records provided by Mr. Waltman, a one-time energy assessment was performed at Muttonville Compressor Station on April 27, 2015. This assessment, according to the report, included a total of 8 hours on-site and a physical evaluation of potential energy savings for FGMVHEATERS and EUMVBOILER1. FGMVHEATERS and EUMVBOILER1 account for 94 percent of the affected boilers/process heaters production.

An initial performance tune-up was conducted on each burner in EUMVHEATERS on March 19, 2015 and on EUMVBOILER1 on November 12, 2015. An initial tune-up was not conducted on EUMVREBOILER. Prior to 2018, the reboiler process heaters at ANR and other natural gas transmission and storage facilities throughout Michigan were considered to not be subject to 40 CFR 63, Subpart DDDDD per 40 CFR 63.7491(h). 40 CFR 63.7491(h) states that any boiler or process heater that is part of the affected source subject to another subpart of this part, such as boilers and process heaters used as control devices to comply with subparts JJJ, OOO, PPP, and U of this part are not subject to 40 CFR 63, Subpart DDDDD. In 2018, AQD determined, based on an applicability determination from EPA regarding a facility in another state (Attachment 17), that the reboiler process heaters were subject to 40 CFR 63, Subpart DDDDD.

Subsequent tune-ups were due by May 27, 2017 and February 12, 2019 for EUMVHEATERS. Mr. Waltman provided records indicating a tune-up was conducted on EUMVHEATERS January 12, 2017 (Attachment 18) and February 26, 2019 (Attachment 19).

A copy of each notification and report submitted to comply with 40 CFR, Part 63, Subpart DDDDD including all documentation supporting any Initial Notification or Notification of Compliance Status or Semiannual Compliance report that was submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv) and any records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in 40 CFR 63.10(b)(2)(viii) must be maintained according to MI-ROP-B8337-2015. ANR keeps these records in an electronic database.

Semi-annual and annual deviation reports were received by AQD on time in 2018 and 2019. No deviations were reported for FGMACTDDDDD in the semi-annual and annual deviation reports submitted between February 2018 and September 2019.

A compliance report with the annual certification of compliance is required to be submitted along with the annual certification. The annual certification of compliance shall include the company and facility name and address, process unit information, emission limitations, and operating parameter limitations, date of report and beginning and ending dated of the reporting period, total operating time during the reporting period, and most recent tune-up for the boilers and process heaters. The compliance report for EUMVHEATERS is due every two years starting in 2018. The compliance reports for EUMVBOILER1 and EUMVREBOIER are due every five years. On May 15, 2015 and January 12, 2016, AQD received an Initial Notification of Compliance Status from ANR for the process heaters and the boiler, including statements that an initial tune-up and a one-time energy assessment were conducted, as required by 40 CFR 63, Subpart DDDDD.

A Notification of Compliance Status (NOCS) following the initial compliance demonstration is required per MI-ROP-B8337-2015. On May 15, 2015 and January 12, 2016, AQD received an Initial Notification of Compliance Status from ANR for the process heaters and the boiler, including statements that an initial tune-up and a one-time energy assessment were conducted, as required by 40 CFR 63, Subpart DDDDD. Subsequent reports were received on time in February 2017 and March 2019 for EUMVHEATERS.

MICHIGAN AIR EMISSIONS REPORTING SYSTEM (MAERS) REPORTING

TC Energy submitted the 2019 criteria pollutant emissions from Muttonville Compressor Station to MAERS on time. The emissions reported to MAERS appear to be consistent with emission records collected during this inspection.

CONCLUSION

Based on the field inspection and the records provided, ANR Pipeline - Muttonville Compressor Station appears to be in compliance with the conditions of their ROP and all other applicable air regulations evaluated.

NAME K. Kelly DATE 4/29/2020 SUPERVISOR Joyce K