

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

N557468249

FACILITY: ANR Pipeline Company - Hamilton Compressor Station		SRN / ID: N5574
LOCATION: 4193 134th Ave, HAMILTON		DISTRICT: Kalamazoo
CITY: HAMILTON		COUNTY: ALLEGAN
CONTACT: Chris McFarlane , Environmental Services		ACTIVITY DATE: 06/27/2023
STAFF: Cody Yazzie	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled Onsite Inspection		
RESOLVED COMPLAINTS:		

On June 27, 2022 Air Quality Division (AQD) staff (Cody Yazzie) arrived at 4193 134th Avenue, Hamilton Michigan at 10:30 AM for a scheduled stack test and conduct an unannounced air quality inspection of ANR Pipeline Company – Hamilton Compressor Station (hereafter ANR Pipeline) SRN (N5574). Staff made signed in at the office and made contact with Jake Schultz, ANR Pipeline, Area Manager and stated the purpose of the visit. Once stack testing conditions were up and running Staff conducted the onsite inspection. Chris McFarlane, ANR Pipeline, Environmental Services is the contact for the records associated with the Hamilton site. Mr. McFarlane assisted staff with additional questions and providing requested records.

ANR is a compressor station that is utilized to maintain pressure in pipelines that are transporting natural gas from the facilities southwest main lines to storage facilities in Michigan or to local distribution companies. The facility recently went through some decommissioning of equipment and installed new equipment that was permitted under PTI No. 98-20. Current equipment includes two Solar Titan 130 Turbines with dry-low-NOx (SoLoNOx) control that are rated as 22,546 HP. One emergency engine 872 kW, four emission units that are comprised natural gas-fueled space heating units(EUFUELGASHEATER, EUUTILITYHEATER, EUWAREHOUSEHEAT, EUSPACEHEATER), and two storage tanks (EUTANK18 and EUTANK19).

ANR Pipeline was last inspected by the AQD on March 31, 2021 and appeared to be in Compliance at that time with MI-ROP-N5574-2018. Staff asked, and Mr. Schultz stated that the facility does not have any boilers or cold cleaners.

Mr. Schultz gave staff a tour of the facility. Required personal protective equipment are a hard hat, steel toe boots, safety glasses, high visibility vest, and hearing protection. Staff observations and review of records provided during and following the inspection are summarized below:

MI-ROP-N5574-2018:

This permit is the current ROP for the facility. This permit includes previously installed emission units EUHM001-EUHM013. These units have been decommissioned and no records were requested regarding the MI-ROP-N5574-2018 permit because they have been permanently removed from the facility.

PTI No. 98-20:

EUHM017:

The emission unit was permitted for a 2,664-kW natural gas fired emergency engine manufactured after 2009. During the inspection Staff noted that the engine was a Waukesha

Model P486L with a nameplate rating of 872 kW. The engine is noted as being manufactured after 2009 and being subject to NSPS JJJJ.

The facility is operating the engine as a non-certified engine. This makes the engine subject to testing requirements along with needing to maintain records of a maintenance plan and maintenance activities.

Special Condition V.1 outlines that initial testing needs to be completed within 1 year after operating in a non-certified manner. ANR Pipeline submitted a notification of startup date being May 18, 2022. The facility scheduled the initial testing to be conducted on May 18, 2023. However, during testing the facility experienced issues with operating the engine due to it being diagnosed with having a major catastrophic failure. In a letter that was submitted to the AQD Kalamazoo District Office it was noted that the engine had damaged pistons, sleeves, and other associated components. The testing was eventually scheduled to June 28, 2023. While the facility did not get the testing completed in time as stated in Special Condition V.1, the facility did appear to get the unit fixed and operating as soon as possible so that the testing could be conducted. Staff does not think that a violation notice for this issue is warranted at this time since during the inspection the testing was being conducted and completed. The facility will be required to test every three years after this June 28, 2023, testing date.

The facility is required to maintain records of monthly and 12-month rolling operating hours. These records should include a description of why the unit was operated. The facility provided these records. The records showed that in February 2023 the largest amount of operating hours occurred with 21.9 hours. The facility is maintaining records of hours of operation and reason for operation. The facility is categorizing these records to include total operation hours, emergency hours, maintenance hours, and other hours.

The largest 12-month rolling emergency hours occurred in June 2023 where the engine operated for 23.9 hours for emergency situations. The largest 12-month rolling total operation hours for the engine occurred in April 2023. The facility recorded 41.9 total operation hours. This is well below the allowed 500 total engine hours. This is also below the 50 hours for non-emergency situations allowed and 100 hours for maintenance and readiness testing. If the facility gets over a 12-month rolling hours of operation greater than the 50 hours then records should be categorized out show compliance with each individual limit.

Special Condition VI.2.b requires that the facility keep records of a maintenance plan for the engine. During the records request Mr. McFarlane indicated that the maintenance plans are kept online and as a controlled document. Mr. McFarlane mentioned that the controlled documents typically include non-regulatory based information regarding compression technology and associated work practices. Staff mentioned that the Air Quality Division does have criteria for confidential information and being kept and filed in a secure way at the district office. Staff mentioned that they would like a copy of the maintenance plan for the file and would recommend the facility go through the confidentiality process if needed for the plan. For the purpose of this inspection Staff went through the maintenance plan with Mr. McFarlane via a teams meeting. Staff was able to see the schedules for maintenance and activities that are included for maintenance. Staff was also able to view a record of the maintenance logs. The maintenance logs are kept in the facility's SAP system. These logs will show when the activity was

completed and the ability to look at the work order associated with the log. No records were requested from this as Staff was able to view them during the teams meeting.

The facility does have stack requirements that clarify that the stack's exhaust have to be discharged unobstructed vertically upwards. During the inspection Staff did note that exhaust stack was curved horizontally so that it was not being discharged vertically. This is a violation of Special Condition VIII.1. Staff plans to send a Violation Notice for this.

Special Condition VIII.1 also indicates that the stack must have a minimum height of 20.6 feet and maximum exhaust diameter of 12 inches. These were not verified during the inspection. Once the stack is fixed to discharge unobstructed vertically upwards Staff can verify minimum height is met with a rangefinder during next inspection.

FGTURBINES:

This flexible group is for two natural gas turbines with a combined heat input capacity of 362.42 MMBTU/hr. Both Turbines are SoLar Titan 130 turbines. During the inspection Staff noted the serial numbers as 1168L and 1167L for the turbines and each had nameplate HP of 23,465 HP. Both EUHM015 and EUHM016 reported initial start up as May 12, 2022.

Special Condition III.1 requires that within 180 days of initial startup that the facility submit, implement, and maintain a malfunction abatement plan (MAP). The MAP includes startup, shut down, operational, and post start procedures; summary of operation variables that will be monitored; designation of individuals responsible for maintenance, and description of procedures that will take place in the event of a malfunction. In Special Condition III.1 it is clear that if the MAP every inadequately addresses an event that meets the characteristics of a malfunction, then the facility is required to amend the MAP within 45 days. At the time of the inspection the MAP appears to meet the requirements of Rule 911(2).

Special condition III.2 requires that within 180 days of startup the facility is required to submit, implement, and maintain a plan that describes how emissions will be minimized during startup and shutdown. These were submitted with the MAP on March 21, 2022. The facility appears to be meeting this requirement as well.

Special Condition IV.1 requires that the facility not exceed heat input value of 181.2MMBTU/hr (HHV). The specifications for the Titan 130 compressor set showed that the heat rate was 6800 BTU/hp-hr. Using the nameplate hp of 23,465 HP for each turbine would give each turbine heat rate be approximately 159.56 MMBTU/hr. This appears to meet the requirements of Special Condition IV.1

Special Condition I.1,2,&4 are emission limits that can only be verified by stack testing. The hourly NOx and CO emission rates were required to be performed 180 days after initial startup and once every five years after. The Special Condition I.1 emission limit is required to be conducted either annually or every two years. The facility can test once every two years (but not more than 26 calendar months) if the previous performance test was less than or equal to 75 percent of the NOx emission limit specified in Special Condition I.1. The test report showed that the test conducted on July 6, 2022 had NOx emissions rates of 5.1161 ppmvd and 4.5048 ppmvd for EUHM015 and EUHM016 respectively. These are below 75% of the 25 ppmvd NOx emission

limit specified in Special Condition I.1. This would make testing for the Special Condition I.1 emission limit due September 6, 2024.

During the July 6, 2022 testing the facility also tested the hourly NOx and CO emission limits specified in Special conditions I.2&4. The averaged pph NOx and CO emissions that were measured during the test for EUHM015 were 2.8474 and 2.8472 pph respectively. The averaged pph NOx and CO emissions that were measured during the test for EUHM016 were 2.5386 and 2.8000 pph respectively. These are well below the limits specified in Special Condition I.2&4 (9.8 pph NOx limit, 10.0 pph CO limit). Special Conditions I.2&4 would be due for testing in July 6, 2027.

ANR Pipeline being a natural gas supplier is required FERC under their sulfur tariff to only transmit pipeline quality natural gas which has low sulfur content. To do this ANR monitors the sulfur content of the gas directly at several different points. ANR Pipeline provided measurement points that is representative of the gas compressed and transmitted by the Hamilton Compressor Station. The data provided was measured daily. The average sulfur content in the pipeline gas was 0.0028 grains/100 SCF in 2022 and 0.0029 grains/100 SCF in 2023. This is well below the limit of 0.25 grains/100 SCF in the permit.

Special condition III.3 limits the total number of startup and shutdown events to a total of 200 per 12-month rolling time period individually. Records of these are maintained on the provided "SoLoNOx Turbines – 12 Month Rolling Emissions Report". These records show both monthly and 12-month rolling time period events. Records for EUHM015 showed that the largest number of startup and shutdown events in the 12-month rolling time period occurred in April 2023 with 31 events. Records for EUHM016 showed that the largest number of startup and shutdown events in the 12-month rolling time period occurred in June 2023 with 38 events. Both these are well below the 200-event limit. Records were reviewed and requested for the time period of January 2022 through July 2023.

Special Condition III.4 limits to the number of hours the facility can operate each turbine during low load operation with low load operation being defined as anytime when the turbine is operating at 50% or less of full load excluding startups and shutdowns. These records were provided on the "SoLoNOx Turbines – 12 Month Rolling Emissions Report". Records for EUHM015 showed the facility has not operated HM015 at low load during the time period of January 2022 through July 2023. Records for EUHM016 showed that the largest number of hours that the unit operated at low load during a 12-month time period was 0.53 hours. Both these records show that the facility is well below the 14 hours of low load operation limit.

The facility is maintaining records of low temperature operation in monthly and 12-month rolling formats. For each turbine ANR Pipeline's records show that the facility has not operated either turbine at low temperature.

FGTURBINES has CO and NOx emission limits that are total combined limits. FGTURBINES are limited to 113.0 TPY of NOx emissions and 127.0 TPY of CO emissions per 12-month rolling time period. The facility calculates emissions for CO and NOx using different emission factors for low temperature operation, full load operation, low load operation, and startup and shutdown periods. The full load operation use the emission factors established in the July 2022 testing. Emission factors for the low temperature, low load, and startup operations come from a

manufacture guarantee spec sheet for these operation conditions. These emission factors are given in units of pounds per hour (pph). The facility then uses the recorded hours operation for each of the different categories to calculate emissions. These appear to be appropriate emission factors to calculated emissions. Most of the emissions come from the full load operation.

The records for emissions of CO and NOx were reported separately for each individual turbine. The limit does apply to both turbines combined and not individually. The largest combined 12-month rolling CO emissions occurred in April 2023 with 6.89 Tons of CO emissions in the 12-month rolling time period. The largest combined 12-month rolling NOx emissions occurred in May 2023 with 5.14 Tons of NOx emissions in the 12-month rolling time period. The facility is well below the permitted limits for records reviewed for the time period of January 2022 through July 2023.

FGHEATERS:

This flexible group is for the following emissions units: EUFUELGASHEATER, EUUTILITYHEATER, EUWAREHOUSE, and EUSPACEHEATER.

This flexible group is limited to all the equipment having a maximum heat input of 3.6 MMBTU/hr. During the inspection and from records submitted after showed that the emissions unit had maximum heat input capacities: EUFUELGASHEATER one unit 1.3 MMBTU/hr, EUUTILITYHEATER one unit 0.0864 MMBTU/hr, EUWAREHOUSEHEAT two units 0.13 MMBTU/hr, and EUSPACEHEATER is comprised of 2 units that are 0.036 MMBTU/hr and 8 units that are 0.06 MMBTU/hr for a combined 0.55 MMBTU/hr in EUSPACEHEATER. The total maximum heat input capacity in FGHEATERS is 2.2 MMBTU/hr. This is below the permit limit.

The facility is only required to maintain record of the maximum heat input capacity of all the equipment in FGHEATERS. The facility appears to be meeting this requirement.

FGTANKS:

This flexible group is for two storage tanks (EUTANK18 and EUTANK19). The tanks do have storage capacity limits which are 4,100 gallons for EUTANK18 and 1,500 gallons for EUTANK19. The only record keeping requirement for the tanks is that the facility maintain records of the storage capacity.

Both Tanks were labeled with a nameplate that displayed the storage capacity. During the inspection Staff noted that EUTANK18 had a storage capacity of 4,100 gallons. Staff was told that this tank was used to store pipeline condensate. EUTANK19 was noted to have a storage capacity of 1,500 gallons. Staff was told this tank was used to store process water.

FGTRANSITION:

This flexible group for the operation of EUHM015, EUHM016, EUHM017, EUFUELGASHEATER, EUUTILITYHEATER, EUWAREHOUSEHEAT, EUSPACEHEATER, EUTANK18, and EUTANK19 for the period of time that PTI no. 98-20 was issued and the permanent removal of EUHM001 – EUHM010 which are emission units part of MI-ROP-N5574-2018. Staff has this time period being February 4, 2021 through May 24, 2022. Staff requested records of emissions and hours of operation records for the appropriate emission units during this entire time period. Since the

commissioning period is over and none of the limits or special conditions apply any longer this flexible group can be taken out of the ROP renewal.

Special Condition III.1 limits the amount of hours that each turbine in FGTURBINES can be operated to less than 3,000 hours. Both turbines were installed in May 2023 so the only month with operation hours is May 2023. The recorded hours of operation for each turbine were 305.03 hours for EUHM015 and 261.53 hours for EUHM016. These are well below the permitted limits.

Special Condition III.2 limits the amount of hours for the other emission units included in FGTRANSITION excluding the EUHM015 and EUHM016 to less than 6,000 hour of operation per 12 -month rolling time period. The only emission units that appear to have operated during the commissioning period are EUFUELGASHEATER, EUUTILITYHEATER, EUSPACEHEATERS, and EUWAREHOUSEHEATER. Based on facility records these emission units only operated during the commissioning period in 2022. The largest 12-month rolling hours of operation are 3,424.00, 2,520.00, 3,624.00, 2,520.00 for EUFUELGASHEATER, EUSPACEHEATER, EUUTILITYHEATER, and EUWAREHOUSEHEAT respectively. These are all well below the permitted limit.

Special condition IV.1 limits the total number of startup and shutdown events to a total of 100 per 12-month rolling time period individually. As previously mentioned in FGTURBINES these records are maintained in the "SoLoNOx Turbines – 12 Month Rolling Emissions Report" documents. Since the only time the during the commissioning period that the turbines operated were in May 2023 the only records needed were for May 2023. Records for EUHM015 showed that in May 2023 the number of startup and shutdown events were recorded as 3. Records for EUHM016 showed that number of startup and shutdown events were 5. Both these are well below the 100-event limit.

Special Condition IV.2 limits to the number of hours the facility can operate each turbine during low load operation with low load operation being defined as anytime when the turbine is operating at 50% or less of full load excluding startups and shutdowns. These records were provided on the "SoLoNOx Turbines – 12 Month Rolling Emissions Report". Records for EUHM015 showed that during May 2023 the facility did not operate HM015 at low load. Records for EUHM016 showed that the facility operated the turbine at low load for 0.43 hours. Both these records show that the facility is well below the 14 hours of low load operation limit.

The facility calculated emissions for the turbines in the manner discussed in the FGTURBINES sections. Since May 2023 was the only month that the facility operated the turbines during the commissioning period the emissions CO and NOx emissions from the turbines were calculated to be 1.16 and 0.78 tons respectively. Staff was provided with emission calculations for the EUFUELGASHEATER, EUSPACEHEATER, EUUTILITYHEATER, and EUWAREHOUSEHEAT that appear to use the appropriate AP-42 emission factors for the combustion units. The total emissions from these units were 0.46 and 0.55 tons of CO and NOx emissions respectively. The total emissions for CO and NOx from all the emission units in FGTRANSITION were calculated to be 1.62 and 1.33 tons of CO and NOx emissions during the commissioning period. This is well below the permitted limits.

FGFACILITY:

This flexible group is for all source-wide process equipment including equipment that are covered by other permits, grand-fathered equipment, and exempt equipment.

The facility is currently tracking 30 different HAP emissions that appear to all be emitted through the natural gas burning equipment. The facility has both an individual HAP emission limit and an Aggregate HAPs emission limit.

Staff did ask to see example calculations of the HAP emissions calculations. The facility appears to be using the appropriate emission factors from the AP-42 documents. The calculations also appear to include all appropriate permitted and non-permitted equipment as part of the calculation.

Based on the provided records the largest emitted HAP is Formaldehyde. The largest 12-month rolling emissions of formaldehyde occurred October 2022 which reported 653.543 lbs or 0.33 tons of Formaldehyde emitted. This is well below the permitted limit 8.9 tons per year limit in the permit. The largest 12-month rolling total Aggregate HAP emissions occurred in October 2023, which emitted 0.468 tons of Aggregate HAP emissions.

At the time of the inspection and based on a review of records obtained during or following the inspection, the facility appears to be in non-compliance with special condition VIII.1 of EUHM017 in PTI No. 98-20. Staff stated to Mr. McFarlane that a violation notice for the identified compliance issue and a report of the inspection would be sent to the facility for their records. Staff concluded the onsite portion of the inspection at 3:00 PM.-CJY.

NAME Cody Yegor

DATE 8/30/23

SUPERVISOR Winnie W.