

**DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Self Initiated Inspection**

N815139876

<b>FACILITY:</b> VECTOR PIPELINE L.P., Athens Compressor Station		<b>SRN / ID:</b> N8151
<b>LOCATION:</b> 4981 2 Mile Rd, ATHENS		<b>DISTRICT:</b> Kalamazoo
<b>CITY:</b> ATHENS		<b>COUNTY:</b> CALHOUN
<b>CONTACT:</b> Joe Richardson , Area Supervisor		<b>ACTIVITY DATE:</b> 05/17/2017
<b>STAFF:</b> Rex Lane	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> Inspection		
<b>RESOLVED COMPLAINTS:</b>		

On May 17, 2017, Air Quality Division (AQD) staff (Rex Lane) arrived at Vector Pipeline Systems' Athens Compressor Station (ACS) located at 4981 2 Mile Road, Athens, Michigan at 9:45 a.m. to conduct an unannounced air quality inspection. Staff made contact with Mr. Mike Betzold, ACS mechanical technician and Mr. Joe Richardson, ACS Manager. Staff stated that they would like to conduct an unannounced air quality inspection of the facility. Staff exchanged business cards with ACS staff.

Vector Pipeline is a joint venture between Enbridge, Inc. and DTE Energy which operates a 350 mile 42-inch pipeline that transports approximately 1.3 billion ft<sup>3</sup>/day of un-odorized natural gas from Joliet, Illinois to Ontario, Canada. Vector Pipeline has five natural gas compressor stations along the pipeline to supply and transport natural gas to various parties through multiple interconnects. Enbridge, Inc. recently acquired another energy infrastructure company, Spectra Energy, and the merger was completed in February 2017.

Staff asked about the 800 mile long Rover Pipeline that is currently under construction and runs through the following states: West Virginia, Pennsylvania, Ohio and Michigan (Lenawee, Washtenaw and Livingston Counties). The pipeline will be used to transport natural gas produced in the Marcellus and Utica Shale formations in the first three listed states. According to Rover Pipeline's web site, the last compressor station on their line will be located in Defiance, Ohio. Per Mr. Richardson, the Rover Pipeline will be connected to Vector's Pipeline somewhere in Livingston County.

Staff watched a brief Vector Pipeline video on possible hazards, emergency evacuation plans and required PPE at their gas compressor stations. Staff was provided with a contractor safety orientation sticker following the video that is valid for one year.

During the pre-inspection meeting, staff asked if they have been any changes made to the facility since the last AQD inspection (8/20/15). Mr. Betzold stated that the only change was to replace the mechanical governor controls on their emergency generator set (EUSPU) with electronic controls. AQD staff does not consider this change to be a modification of the emission unit under state air quality rules. We briefly discussed the March 2014 gas turbine engine and auxiliary gear box replacement on EUTURBINE1 and facility documentation that demonstrated why the project did not trigger a reconstruction and was exempt from air use permitting under Rule 285(2)(a)(vi). The recommended change out period for the gas turbine engine is every 30,000 hours of operation. We also discussed the 3/9/16 NOx emission test that was conducted on EUTURBINE1. Pursuant to 40 CFR Part 60, Subpart KKKK (60.4340(b), the March 2016 stack test results for NOx (8.0 ppm) were well below 75% of the applicable NOx limit (25 ppm @ 15% oxygen), therefore, staff informed ACS staff that the turbine retest deadline may be extended out to 26 months or not later than 5/9/18.

The facility currently operates under Renewable Operating Permit (ROP) MI-ROP-N8151-2016. The facility is considered to be a major source for carbon monoxide and an area source for HAPs.

The facility utilizes a 15,000 HP (120 MMBtu/hr.) natural gas fired combustion turbine (EUTURBINE1) to compress natural gas in the pipeline. The turbine is equipped with a dry lean pre-mixed combustion technology (Solonox) to reduce NOx emissions. The Solonox operating mode activates at a natural gas producer speed of 93%. The facility also has a 365 HP natural gas fired engine (EUSPU) and generator set for emergency backup power.

Required PPE is fire resistant (FR) clothing (ACS provided FR coveralls to staff), safety glasses, hard hat and hearing protection in the turbine building. There are combustible gas monitors around the facility that will trigger flashing blue lights and an audible alarm in the event the monitors detect concentrations at or above 20% of lower explosive limit (LEL). Staff was given a tour of the generator and turbine buildings. EUSPU was not in operation during the inspection. During the inspection, EUTURBINE1 was in operation and no visible emissions were observed from its exhaust stack. The following operating conditions were recorded from the turbine's PLC monitor:

Operating Speed: 103.3%  
Natural Gas Producer Speed: 92.1%  
Solonox: On (Enabled)  
Natural Gas Flow Rate: 1101 MMscf/day  
Natural Gas High Heating Value: 1,037.42 Btu/scft  
Turbine HP: 13,883 HP  
Pipeline Gas Pressure: Turbine Inlet – 678 psig; Turbine Outlet –859 psig  
Total Operating Hours: 20,409 (reset following March 2014 replacement)

The facility has eleven catalytic natural gas fired wall heaters in the turbine building each having a heat input capacity of less than 60,000 Btu/hour. The facility also has a natural gas fired in-line heater to pre-heat gas that is routed to the turbine that has a heat input capacity of 100,000 Btu/hour. These heaters are exempt from air use permitting requirements per Rule 282(2)(b)(i). The facility does not have any cold cleaners.

During the post-inspection review, staff requested EUSPU monthly and twelve month rolling average operation hours and fuel usage records for May 2016 through April 2017. EUSPU is limited to not more than 100 hours per 12-month rolling time period for maintenance checks and readiness testing. EUSPU undergoes readiness testing once per week for approximately 30 minutes in duration. This would equate to approximately 26 hours per 12-month rolling time period for maintenance checks and readiness testing. The current total operating hours for EUSPU is 452 hours. The highest reported 12-month rolling operating time period during the requested time period was 108.2 hours in June 2016. The highest fuel usage 12-month rolling time period during the period of record was 86.4 MCF in June 2016.

EUTURBINE1 generally runs on a continuous basis except during the winter months when some Vector Pipeline customers withdraw natural gas that has been stored in depleted oil and gas formations. ACS staff has indicated that EUTURBINE1 typically operates at 100% load. The turbine operates solely on sweet pipeline grade natural gas and the total sulfur content of the natural gas cannot exceed 0.06 lb SO<sub>2</sub>/MMBtu heat input (equivalent to 20 grains/100 ft<sup>3</sup> (CCF)). The facility is exempt from monitoring the total sulfur content of the natural gas per 40 CFR 60.4365(a) based on a FERC gas transportation tariff which specifies that the maximum total sulfur content must not exceed 20 grains/CCF. Vector Pipeline also monitors total sulfur content of natural gas in the pipeline at their Belle River station which is downstream of ACS. On 05/17/17, the total sulfur (TS) analysis at Belle River station was determined to be 0.076 grains/CCF (see attached). Gas Control (GC) in Houston also monitors hydrogen sulfide (H<sub>2</sub>S) and TS content in the pipeline. GC will issue a high sulfur alarm if TS exceeds 15.0 grains/CCF or H<sub>2</sub>S exceeds 0.2 grains/CCF. GC will shut in the pipeline in the event of a high-high alarm which would be triggered at a TS or H<sub>2</sub>S gas content of 20.0 grains/CCF or 0.25 grains/CCF, respectively. The turbine is equipped with an exhaust silencer and the stack appears to meet the dimension and minimum height requirements of Condition VIII.

At the time of the inspection and based on a records review and additional information obtained following the inspection, it appears that the facility is in compliance with the requirements of ROP MI-ROP-N8151-2016. -RIL

NAME RIL

DATE 5/19/17

SUPERVISOR MIA 5/23/2017