

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

N815131034

FACILITY: VECTOR PIPELINE L.P., Athens Compressor Station		SRN / ID: N8151
LOCATION: 4981 2 Mile Rd, ATHENS		DISTRICT: Kalamazoo
CITY: ATHENS		COUNTY: CALHOUN
CONTACT: Michael Betzold , Mechanical Technician		ACTIVITY DATE: 08/20/2015
STAFF: Rex Lane	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Self Initiated Inspection		
RESOLVED COMPLAINTS:		

On August 20, 2015, Air Quality Division (AQD) staff, Rex Lane and Monica Brothers (hereafter "staff") arrived at Vector Pipeline Systems' Athens Compressor Station (ACS) located at 4981 2 Mile Road, Athens, Michigan at 2:50 p.m. to conduct an unannounced air quality inspection. Staff made contact with Mr. Mike Betzold, ACS mechanical technician and Mr. Joe Hubbard, ACS instrument and operations technician. Staff stated that they would like to conduct an unannounced air quality inspection of the facility. Staff presented Messrs. Betzold and Hubbard with their inspector credentials and provided them with a business card and a copy of MDEQ's Environmental Inspections brochure.

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 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.

During the pre-inspection meeting, staff asked and Mr. Betzold indicated that there have not been any operational changes to the facility since the last AQD inspection (9/4/2013). We briefly discussed the gas turbine engine and auxiliary gear box replacement that occurred in March 2014 and facility file documentation that demonstrated why the project did not trigger a reconstruction and was exempt from air use permitting under Rule 285(a)(vi). We also discussed the 3/26/14 NOx emission test that was conducted on EUTURBINE1. Pursuant to 40 CFR Part 60, Subpart KKKK (60.4340(b), the initial stack test results for NOx (7.5 ppm) were well below 75% of the applicable NOx limit (25 ppm @ 15% oxygen), therefore, staff informed Mr. Betzold that the annual turbine retest deadline may be extended out to 26 months or by 5/26/16.

The facility currently operates under Renewable Operating Permit (ROP) MI-ROP-N8151-2011. The ROP renewal application was received on 08/5/15 and has been determined to be administratively complete. Based on the ROP renewal application, potential to emit for greenhouse gases is approximately 61,500 tons CO<sub>2</sub>e/year. The facility is a major source for carbon monoxide and is considered to be 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. EUSPU is identified in the current ROP as being subject to 40 CFR Part 60 (NSPS), Subpart JJJJ. However, information provided in the ROP renewal application indicates that the engine was ordered in April 2008 and manufactured in December 2008 and is not subject to NSPS, Subpart JJJJ by definition (i.e. 40 CFR 60.4230(a)(4)(iv)) because it applies only to emergency engines greater than 25 HP that are manufactured on or after January 1, 2009.

Required PPE is fire resistant clothing (coveralls provided by ACS), safety glasses, hard hat and hearing protection in the turbine building. Mr. Betzold indicated that there are combustible gas monitors around the facility that will trigger flashing blue lights and audible alarm in the event the monitors detect concentrations at or above 20% of lower explosive limit (LEL). Mr. Betzold directed staff to proceed to the muster area outside and east of the facility's fence line in the unlikely event that the monitor alarms. A blowdown vent is located in the northwest corner of the facility. Staff was then given a tour of the generator and turbine buildings. EUSPU was not in operation during the inspection. Staff took a picture

of the engine manufacturer plate to substantiate the manufacture date of the engine (attached). EUSPU undergoes readiness testing once per week for approximately 30 minutes in duration. The current total operating hours for EUSPU is 341 hours. During the inspection, EUTURBINE1 was in operation and no visible emissions were observed from its exhaust stack and the following operating conditions were taken from the turbine's PLC monitor:

Operating Speed: 103%  
 Natural Gas Producer Speed: 103%  
 Solonox: On  
 Natural Gas Flow Rate: 2.5 MMscf/day  
 Natural Gas High Heating Value: 1,066 Btu/scft  
 Turbine HP: 13,304 HP  
 Pipeline Gas Pressure: Turbine Inlet – 804 psig; Turbine Outlet –977 psig  
 Total Operating Hours: 10,875 (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 for gas routed to the turbine that has a heat input capacity of 100,000 Btu/hour. These heaters are exempt from new source review (NSR) requirements per Rule 282(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, fuel usage records and a copy of the 2015 monthly preventative maintenance records for the unit. EUSPU is limited to not more than 100 hours per 12-month rolling time period for maintenance checks and readiness testing. The highest reported 12-month rolling time period during the previous year was 96.8 hours in October 2014.

EUTURBINE1 generally runs on a continuous basis except during the winter months when some Vector Pipeline customers withdraw natural gas that has been transported to and 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 (~ 20 grains/100 ft<sup>3</sup>). 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 (attached) which specifies that the maximum total sulfur content must not exceed 20 grains per 100 ft<sup>3</sup>. Vector Pipeline also monitors total sulfur content of natural gas in the pipeline at their Belle River station which is downstream of ACS. On 8/20/15, the total sulfur content at Belle River station was determined to be 0.076 grains per 100 ft<sup>3</sup>. EUTURBINE1, Conditions VI.3, VII.4 and VII.5 are not applicable at this time. 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-N8151-2011. -RIL

NAME RIL DATE 9/8/15 SUPERVISOR MA 9/8/2015