



west virginia department of environmental protection

Division of Air Quality
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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: G70-A127B
Plant ID No.: 017-00122
Applicant: Antero Resources Corporation (Antero)
Facility Name: Wagner Wellpad
Location: Near New Milton, Doddridge County
NAICS Code: 211111
Application Type: Modification
Received Date: August 21, 2015
Engineer Assigned: David Keatley
Fee Amount: \$1,500
Date Fees Received: August 24, 2015
Complete Date: January 27, 2016
Due Date: March 12, 2016
Applicant Ad Date: August 24, 2015
Newspaper: *The Herald Record*
UTM's: Easting: 534.187 km Northing: 4,340.225 km Zone: 17
Description: Removal of one (1) 18.4-mmBtu/hr Cimarron enclosed combustor and reduction of maximum condensate throughput.

DESCRIPTION OF PROCESS

Operation of natural gas and condensate production facility. Raw natural gas (natural gas, condensate, and produced water) from twelve (12) natural gas wells go to twelve (12) natural gas well heads. The natural gas from the well heads goes to twelve (12) 1.0-mmBTU/hr gas producing units (GPU) heaters (H001 through H012). Natural gas from the GPUs exits the facility via the sales gas pipeline. Condensate from the GPU is sent to six (6) 400-bbl condensate tanks at a maximum rate of 367,920 gallons/year. Produced water from the GPUs is sent to two (2) produced water tanks at a maximum rate of 4,415,040 gallons/year. Condensate and produced water will be trucked off site.

SITE INSPECTION

James Robertson of DEP DAQ Compliance and Enforcement Section performed a site visit on January 28, 2015. It appears that there are no residences within 300' and the site was deemed suitable for the G70-A.

From US 50 take CR 18 south until CR 25 (Meathouse Fork). Travel on CR 25 through New Milton. On CR 25 travel approximately 3.5 miles until you reach CR 25/7 (Snake Run). Turn left onto CR 25/7 and travel for approximately 0.2 miles. Take a slight right onto Snake Run (CR 25-7) and travel approximately 1.9 miles until you reach CR 46 (Standing Stone Road). Merge onto CR 46 and travel for approximately 0.5 miles. Keep right and travel approximately 0.6 miles to the facility.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

A representative gas sample and representative liquid sample were taken from Erwin Hilltop Pad and both were used in ProMax 3.2 to estimate the emissions from the condensate tanks and produced water tanks. Fugitive emissions were estimated using the EPA's *Protocol for Equipment Leak Emission Estimates*. Condensate and produced water loading emissions were estimated with equation 5.2-4 from AP-42 using submerged loading with dedicated service.

Table 1: Estimated Maximum Controlled Modified PTE

Emission Point ID	Emission Unit ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
EP-TANK COND 001 - 006	TANKCOND 001 - 006	Condensate Tanks (emissions per tank)	Volatile Organic Compounds	1.16	5.07
			n-Hexane	0.02	0.08
			CO ₂ e	2	9
EP-TANK PW 001 - 002	TANKPW 001 - 002	Condensate Tanks (emissions per tank)	Volatile Organic Compounds	0.08	0.37
			CO ₂ e	10	41

EP-L001 and EP-L002	EU-L001 and EU-L002	Condensate and Produced Water Truck Loading	Volatile Organic Compounds	30.45	0.56
			n-Hexane	0.06	<0.01
			CO ₂ e	21	1
EP-FUG	EU-FUG	Fugitive Emissions	Volatile Organic Compounds	4.31	18.88
			Benzene	<0.01	0.01
			Ethylbenzene	0.05	0.20
			n-Hexane	0.20	0.85
			Toluene	0.02	0.11
			Xylenes	0.11	0.49
			CO ₂ e	105	459

Table 2: Summarized Estimated Maximum Controlled Facility Wide Air Emissions

Pollutant	Maximum Annual Facility Wide Emissions (tons/year)
Nitrogen Oxides	4.38
Carbon Monoxide	3.68
Volatile Organic Compounds	51.19
Total Particulate Matter	0.48
PM ₁₀	0.48
Sulfur Dioxide	0.03
Benzene	0.03
Ethylbenzene	0.22
Toluene	0.15
Xylenes	0.55
n-Hexane	1.52
Total HAP Emissions	2.45
CO ₂ e	5,911

REGULATORY APPLICABILITY

The following rules and regulations apply to this facilities modification:

45CSR4 (To Prevent and Control the Discharge of Air Pollutants into the Open Air which Causes or Contributes to an Objectionable Odor or Odors)

This facility shall not cause the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public. 45CSR4 states that an objectionable odor is an odor that is deemed objectionable when in the opinion of a duly authorized representative of the Air Pollution Control Commission (Division of Air Quality), based upon their investigations and complaints, such odor is objectionable.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

This facility is subject to 40CFR60 Subpart OOOO which is substantive requirement and requires a modification permit.

45CSR22 (Air Quality Management Fee Program)

This facility is a minor source as can be seen in Table 2 and not subject to 45CSR30 since the regulations this facility is subject to are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71. This facility is not a natural gas compressor station is a 9M source and is required to pay a \$200 annual fee. Antero is required to keep their Certificate to Operate current.

40CFR60 Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution)

EPA published in the Federal Register new source performance standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. 40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities that commence construction, modification or reconstruction after August 23, 2011. The following affected sources which commence construction, modification or reconstruction after August 23, 2011 are subject to the applicable provisions of this subpart:

- a. Each gas well affected facility, which is a single natural gas well.

The twelve (12) gas wells were drilled principally for the production of natural gas and condensate and were done so after August 23, 2011. Therefore, these

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wells would be considered affected facilities under this subpart. The compliance date for these hydraulically fractured wells is October 15, 2012. Antero is required under §60.5410 to submit an initial notification, initial annual report, maintain a log of records for each well completion, and maintain records of location and method of compliance. §60.5420 requires Antero demonstrate continuous compliance by submitting reports and maintaining records for each completion operation.

- b. Each storage vessel affected facility, which is a single storage vessel, located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment.

40CFR60 Subpart OOOO defines a storage vessel as a unit that is constructed primarily of nonearthen materials (such as wood, concrete, steel, fiberglass, or plastic) which provides structural support and is designed to contain an accumulation of liquids or other materials. The following are not considered storage vessels:

- Vessels that are skid-mounted or permanently attached to something that is mobile (such as trucks, railcars, barges or ships), and are intended to be located at a site for less than 180 consecutive days. If the source does not keep or are not able to produce records, as required by §60.5420(c)(5)(iv), showing that the vessel has been located at a site for less than 180 consecutive days, the vessel described herein is considered to be a storage vessel since the original vessel was first located at the site.
- Process vessels such as surge control vessels, bottoms receivers or knockout vessels.
- Pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere.

This rule requires that the permittee determine the VOC emission rate for each storage vessel affected facility utilizing a generally accepted model or calculation methodology within 30 days of startup, and minimize emissions to the extent practicable during the 30 day period using good engineering practices. For each storage vessel affected facility that emits more than 6 tpy of VOC, the permittee must reduce VOC emissions by 95% or greater within 60 days of startup. The compliance date for applicable storage vessels is October 15, 2013.

All storage vessels (TANKCOND and TANKPW) located at this facility are estimated to emit less than 6 tpy of VOC per tank uncontrolled (5.07 tpy each and 0.37 tpy respectively). Therefore Antero is not subject to this section of this regulation.

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The following regulations do not apply to the facility:

40CFR60 Subpart Kb (Standards of Performance for VOC Liquid Storage Vessels)

40CFR60 Subpart Kb does not apply to storage vessels with a capacity less than 75 cubic meters. The tanks that Antero has proposed to install are 63.60 cubic meters each. Therefore, Antero would not be subject to this regulation.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. HAPs are those pollutants that are specifically identified in section 112(b) of the Clean Air Act. To be listed as a HAP, EPA must find that the chemical in question may present a threat to human health and cause adverse environmental effects. If the facility has the potential to emit 10 tons per year of any pollutant on the HAP list, or any combination of pollutants on that list for a total of 25 tons per year, the facility is considered a major source of HAPs. Otherwise, it is considered an area source.

The following table lists each HAP's carcinogenic risk (as based on analysis provided in the Integrated Risk Information System (IRIS)):

HAPs	Type	Known/Suspected Carcinogen	Classification
n-Hexane	VOC	No	Inadequate Data
Benzene	VOC	Yes	Category A - Known Human Carcinogen
Toluene	VOC	No	Inadequate Data
Xylene	VOC	No	Inadequate Data
Ethylbenzene	VOC	No	Category D - Not classifiable as to human carcinogenicity

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health effects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle. As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals*. For a complete discussion of the known health effects of each compound refer to the IRIS database located at www.epa.gov/iris.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates compliance with all state and federal air quality requirements will be satisfied and this facility is expected to meet the requirements of General Permit G70-A. Therefore Antero Resources Corporation's request to modify and operate its Wagner Wellpad natural gas production facility is recommended to the Director of Air Quality.



David Keatley
Permit Writer - NSR Permitting

January 28, 2015

Date