



west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Ear Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: G70-A142A
Plant ID No.: 017-00055
Applicant: EQT Production Company
Facility Name: SMI-28
Location: New Milton, Doddridge County
NAICS Code: 211111
Application Type: Modification
Received Date: December 31, 2015
Engineer Assigned: Roy F. Kees, P.E.
Fee Amount: \$500.00
Date Received: January 11, 2016
Complete Date: February 24, 2016
Due Date: April 7, 2015
Applicant Ad Date: January 12, 2015
Newspaper: *The Herald Record*
UTM's: Easting: 522.6 km Northing: 4,346.0 km Zone: 17
Description: Installation of two additional vapor combustors.

PROCESS DESCRIPTION

This project involves the construction and operation of two (2) enclosed combustors for the control of emissions from produced fluid storage tanks and liquid loading at an existing natural gas production wellpad (SMI-28). The SMI-28 wellpad consists of thirteen (13) wells, each with the same basic operation.

The incoming gas/liquid stream from the underground well will pass through a sand separator, where sand, water, and residual solids are displaced and transferred to the sand separator tank. The gas stream will then pass through a line heater to raise/maintain temperature of the stream and prevent hydrate formation. The stream will then pass through a high pressure separator, which will separate gas (natural gas from the separator is sent to the sales line) from liquids (condensate and produced water). The liquids are then transferred to the produced fluids tanks.

Emissions from the storage vessels are controlled by enclosed combustors. Once the tanks are filled, the contents are loaded into trucks for transport. EQT utilizes vapor balancing in the truck loading operations, which means the vapors displaced by the filling of tanker trucks are routed back into the battery of tanks and ultimately to the combustor. Facility electricity is provided by thermoelectric generators.

AIR EMISSIONS AND CALCULATION METHODOLOGIES

EQT included in Attachment N of the permit application air emissions calculations for the equipment and processes at the SMI-28 natural gas production facility. The following will summarize the calculation methodologies used by EQT to calculate the potential-to-emit (PTE) of the proposed change.

Enclosed Combustors (C003-C004)

Emission factors from AP-42 Ch. 1.4 for natural gas combustion were used as they were determined to be most representative of the process. Ch. 5.3 (Natural Gas Processing) was consulted, however, factors contained there are appropriate for amine gas sweetening processes, which is not the case at the SMI-28 Pad. Also, Ch. 13.5 (Industrial Flares) was consulted, but since the control device in this case is an enclosed combustor vs. an elevated flare, these factors were also determined to be inappropriate.

Emissions Summary

Based on the above estimation methodology, which is determined to be appropriate, the PTE of the SMI-28 natural gas production facility is given in the following tables:

Table 1: Annual Potential Increase in Facility-Wide Emissions

Pollutant	Existing Emissions G70-A142 (tpy)	Proposed Facility-Wide Emissions (tpy)	Net Change in Emissions (tpy)
CO	15.29	29.08	13.79
NOx	18.21	34.62	16.41
PM	1.38	2.63	1.25
SO2	0.11	0.21	0.10
VOCs	89.91	75.08	-14.83
HAPs	1.59	4.58	2.99
CO2e	24,594	43,031.87	18,437.87

Table 2: Facility-Wide Aggregate Annual (ton/yr) Criteria Pollutants & GHG PTE Summary.

Pollutant	ton/yr
NOx	34.62
CO	29.08
PM Total	2.63
PM10 Total	2.63
PM2.5 Total	2.63
SO2	0.21
VOCs	75.08
CO2e	43031.87

Table 3: Facility-Wide Aggregate Annual (ton/yr) Speciated HAP PTE Summary.

Pollutant	ton/yr
Benzene	0.07
n-Hexane	2.45
Toluene	0.21
Ethylbenzene	0.03
Xylene	0.32
Total HAPs ⁽¹⁾	4.58

⁽¹⁾Total HAPs include the sum of all HAPs listed in application.

REGULATORY APPLICABILITY (Changes Only)

45CSR6: To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

45 CSR 6 applies to activities involving incineration of refuse, defined as the destruction of combustible refuse by burning in a furnace designed for that purpose. For the purposes of this rule, the destruction of any combustible liquid or gaseous material by burning in a flare or flare stack, thermal oxidizer or thermal catalytic oxidizer stack shall be considered incineration. The enclosed combustors are incinerators and therefore must comply with this regulation. Per 45 CSR 6-4.3, opacity of emissions from this unit shall not exceed 20 percent, except as provided by 4.4. PM emissions from this unit will not exceed the levels calculated in accordance with 6-4.1.

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

The proposed change by EQT is to install (2) enclosed combustors.

The facility is proposing a change in emissions (from point source emissions) that is less than the modification thresholds defined in section 45CSR13-2.17 (six (6) pounds per hour and ten (10) tons per year or more, or more than 144 pounds per calendar day of any regulated air pollutant or two (2) pounds per hour or five (5) tons per year of hazardous air pollutants considered on an aggregate basis or results in an increase in emission of any air pollutant listed in Table 45-13A that would in turn result in total emission of the pollutant

at the stationary source equal to or greater than the amounts in Table 45-13A).

However, the facility's proposed change meets the definition of a Modification because it triggers 45CSR6, a substantive requirement.

As required under §45-13-8.3 ("Notice Level A"), EQT placed a Class I legal advertisement in a "newspaper of general circulation in the area where the source is . . . located." The ad ran on January 12, 2016 in the *Herald Record* and the affidavit of publication for this legal advertisement was submitted on February 1, 2016.

CHANGES TO PERMIT G70-A142

- Added Equipment Source C003-C004, Enclosed Combustors.

RECOMMENDATION TO DIRECTOR

The information provided in permit registration application G70-A142A indicates that compliance with all applicable regulations will be achieved. Therefore, I recommend to the Director the issuance of General Permit Registration G70-A142A to EQT Production Company for the Modification and operation of the SMI-28 natural gas production facility located near New Milton, Doddridge County, WV.



Roy F. Kees, P.E.
Engineer - NSR Permitting

3/3/16

Date

G70-A142A
EQT Production Company
SMI-28