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

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

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-2856B
Plant ID No.:	033-00011
Applicant:	Dominion Transmission, Inc.
Facility Name:	Wilsonburg Station
Location:	Clarksburg, Harrison County
NAICS Code:	486210
Application Type:	Modification
Received Date:	September 8, 2014
Engineer Assigned:	Laura Jennings
Fee Amount:	$3,500
Date Received:	September 11, 2014
Complete Date:	November 20, 2014
Due Date:	February 18, 2015
Applicant Ad Date:	November 6, 2014
Newspaper:	*The Exponent-Telegram*
UTM's:	Easting: 549.9 km Northing: 4348.7 km Zone: 17
Description:	Dominion Transmission is proposing to construct one (1) new enclosed flare to replace the existing flare utilized as a control device on the existing glycol dehydration system.

DESCRIPTION OF PROCESS

Introduction:
Dominion Transmission, Inc. (Dominion) specializes in gas transmission and storage services. The Wilsonburg Compressor Station (WCS) is a compressor facility that transports production gas to the Hastings Extraction Plant. The facility's purpose is to recompress natural gas flowing through a pipeline for transportation. The WCS utilizes one (1) glycol dehydration unit to remove water from wet natural gas. Dominion is proposing to replace the existing flare at the WCS. The flare serves as a control device for the glycol dehydration unit.

Existing Wilsonburg Compressor Station (WCS):
The WCS is located off Paleo Road in Harrison County, WV. The WCS is classified as an area source of HAP because its PTE total and individual HAP is less than 25 and 10 tons,

respectively. The WCS has PTEs over 100 tpy of nitrogen oxides (NOx) and 100 tpy of volatile organic compounds (VOC). Therefore, the WCS is classified as major source for Title V purposes. The WCS currently operates under Title V operating permit R30-03300011-2011, issued on October 21, 2011, with an expriation date of October 21, 2016.

Project Overview:
Dominion proposes to remove the existing flare [F2] that serves as a control device to the glycol dehydration unit [DEHY02], and replace it with a new enclosed flare, which will serve as an air pollution control device for the existing glycol dehydration unit.

Process Description and Proposed Changes:
WCS is a natural gas compressor station used to compress gas for Dominion's pipeline system in WV. The purpose of the WCS is to recompress production natural gas for pipeline transport to the Hastings Extraction Plant. As part of operations at the WCS, Dominion utilizes a glycol dehydration unit [DEHY02]. The purpose of the glycol dehydration unit is to remove moisture and impurities from the inlet natural gas stream. Water is removed from the rich natural gas stream via physical absorption while it flows countercurrent to circulating triethylene glycol (TEG) in a contactor. The rich TEG is directed to a flash tank to reduce volatile hydrocarbons. Hydrocarbon vapors from the flash tank are primarily vented back to station suction and reclaimed. If the station suction pressure is too high, the vapors from the flash tank can be directly vented to the flare, used as fuel in the reboiler [RBR02], or vented to a waste tank if they are unable to be completely consumed as fuel gas. Vapors from the reboiler pass through a still column that is controlled by the flare referenced as [F2].

Dominion proposes to replace to existing flare for the existing dehydration unit with a new enclosed flare [F3]. As part of the control device replacement, a blow-case will be installed between the still column and enclosed combustion device. The installation of the blow-case is considered part of the control device installation, as it serves to enhance the efficiency of the enclosed flare. The installation of the blow-case is not considered a modification of the glycol dehydration unit. The glycol dehydration unit will not be debottlenecked as a result of the proposed project.

Additionally, Dominion requests DAQ remove all references to the existing 350 hp Clark HMA-8 reciprocating engine/integral compressor referenced in the Title V permit as Emission Unit ID/Emission Pt ID 001-01/EN01. This engine was removed from service in 2010. The removal of this engine from the permit will not affect the applicability of any existing air quality requirements.

The existing flare [F2] at the WCS is proposed to be replaced by a new Questor Technologies Q100 enclosed flare [F3]. It should be noted that the flare was designed in accordance with 40 CFR § 60.18 and the manufacturer states a combustion efficiency of 99.999%; however, the application states that the new Questor Q100 enclosed flare will operate with the standard 95% control efficiency allowed for enclosed combustion devices.

The emissions unit table for the changes associated with this modification is shown below.

Emissions Unit Table:

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type of Change	Control Device
F2	F2	Cameron Flare	2011	10 MMBtu/hr (166.7 scfm)	Remove	N/A
F3	F3	Dehydration Unit Enclosed Flare, Questor Q100	2014	71.2 scfm 95% control efficiency	New	N/A
DEHY02	F3	Cameron TEG Dehydration Unit	2011	13.5 mmscfd	Replaced control device	F3
001-01	EN01	Reciprocating Engine/ Integral Compressors; Clark HMA-8	1974	350 hp	Remove	N/A

SITE INSPECTION

This is an existing facility that is well known by DAQ. The last full on site inspection was conducted by LouAnn Lee of the Compliance and Enforcement Section on April 10, 2013. At the time of the inspection, the facility was found to be in compliance.

Directions to the facility: Take Interstate 79 North to the Clarksburg exit. Turn left off the exit ramp, then go through Clarksburg on Route 50. Drive west on Route 50 and turn right onto old Davission Run Road. Travel for 0.5 mile. The facility will be on the right.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Potential emissions of PM include PTE from the pilot flames' natural gas combustion, calculated using AP-42, Chapter 1.4 emission factors, and PTE from the enclosed flare's combustion of emissions from the dehydration still vent, calculated based on AP-42, Chapter 13.5 and the May 2011 Emission Estimation Protocol for Petroleum Refineries. PM is conservatively assumed to be equivalent PM_{10} and $PM_{2.5}$, both filterable and condensable fractions.

Potential emissions of VOC and HAP include PTE from the pilot flame's natural gas combustion, calculated using AP-42, Chapter 1.4, and PTE from the enclosed flare's combustion of emissions from the dehydration still vent, calculated using GRI-GLYCAL Version 4.0 and an updated gas analysis. The dehydration still vent VOC and HAP emissions represent the sum of controlled regenerator emissions and flash tank off gas emissions generated using GRI-GLYCalc 4.0 with the incorporation of a 20% contingency factor.

Potential emissions of NOX, CO, and SO2 are based on vendor specifications.

The emissions calculations and supporting documents have been reviewed by the writer.

Potential Emissions Table (Dehydration Unit and Flare):

Regulated Pollutant	Controlled Potential Emissions [F3]		Existing Permitted Emissions [F2]	Change in PTE
	lb/hr	tpy	tpy	tpy
Particulate Matter	0.12	0.53	n/a	n/a
Nitrogen Oxides	0.20	0.87	0.88	-0.01
Carbon Monoxide	0.01	0.05	1.75	-1.70
Volatile Organic Compounds	5.00	21.89	18.69	3.20
Benzene	0.06	0.26	0.26	0
Ethylbenzene	0.04	0.17	0.16	0.01
Hexane	0.11	0.50	0.28	0.22
Toluene	0.14	0.47	0.66	-0.19
Xylene	0.34	1.44	1.42	0.02
Total HAPs	0.65	2.85	2.78	0.07
CO_2e	65.42	286.53	n/a	n/a

REGULATORY APPLICABILITY

Only regulations relating to the modification described in this engineering evaluation have been reviewed.

The following state regulations are applicable for the changes described in this modification application:

45CSR6 TO PREVENT AND CONTROL AIR POLLUTION FROM THE COMBUSTION OF REFUSE

The provisions of this rule prohibit open burning, establish emission standards for particulate matter, and establish opacity requirements. The existing flare [F2] for the glycol dehydration unit is subject to this rule and the new Questor Q100 dehydration unit enclosed flare [F3] will also be subject to this rule.

The monitoring, testing, recordkeeping, and reporting requirements will not change as an effect of the new flare.

The allowable particulate matter (PM) emissions for the flare calculated based on the design capacity of the flare is 1.38 lb/hr. The potential PM emissions is below this threshold and therefore, demonstrates compliance with the limit. The applicant will demonstrate compliance with the other requirements by demonstrating compliance with the requirements of the permit.

45CSR13 PERMITS FOR CONSTRUCTION, MODIFICATION, RELOCATION AND OPERATION OF STATIONARY SOURCES OF AIR POLLUTANTS, NOTIFICATION REQUIREMENTS, ADMINISTRATIVE UPDATES, TEMPORARY PERMITS, GENERAL PERMITS, PERMISSION TO COMMENCE CONSTRUCTION, AND PROCEDURES FOR EVALUATION

The applicant is subject to this rule because they meet the definition of a stationary source; and therefore are subject to the modification requirements.

They have demonstrated compliance with 45CSR13 by submitting a complete permit application, placing **a** legal advertisement in *The Exponent Telegram* on November 6, 2014.

45CSR22 AIR QUALITY MANAGEMENT FEE PROGRAM

The applicant paid the $1,000 modification fee and the $2,500 NESHAP fee required by this rule, thus demonstrating compliance with the applicable requirements.

45CSR30 REQUIREMENTS FOR OPERATING PERMITS

The facility is currently a Title V source and is operating under permit R30-03300011-2011. This application also includes the information for a minor modification to the Title V permit. The facility is required to submit their Certified Emissions Statement annually.

The following federal regulations are applicable for the changes described in this modification application:

40 CFR 63, Subpart HH NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS FROM OIL AND NATURAL GAS PRODUCTION FACILITIES

Subpart HH establishes national emission limitations and operating limitations of HAPs emitted from oil and natural gas production facilities located at major and area sources of HAP emissions. For area source applicability, the affected source includes each triethylene glycol (TEG) dehydration unit located at a facility that meets the criteria specified in §63.760(a).

The WV Division of Air Quality took delegation of the Generally Achievable Control Technology (GACT) area source requirements of 40 CFR63, Subpart HH since the last permit revision was issued. Although there was no modification to the dehydration unit, there was a modification to the pollution control device for the glycol dehydration unit and

thus the emissions from the glycol dehydration unit. This subpart is therefore being reviewed for applicability as part of this permit modification.

The glycol dehydration unit [DEHY02] is a TEG dehydration unit at an area source of HAPs that is located at a facility that processes and distributes natural gas prior to delivery to a final end user; thus is subject to this subpart. The facility is located within an urbanized area plus offset (UA plus offset) and urban cluster (UC) boundary.

The WCS actual average benzene emissions are less than 0.90 Mg/yr (1 tpy), as determined in accordance with § 63.772(b)(2)(i) and therefore, meets the exemption criteria as specified by § 63.764(e)(ii). The potential benzene emissions from DEHY02 that will be controlled by the proposed Questor Q100 enclosed flare [F3] are 0.20 tpy. The DEHY02 unit is only subject to the recordkeeping requirements that demonstrate exemption from the control requirements of this rule.

Based on the PTE emissions, the applicant will be in compliance with the benzene exception from § 63.764(d) and further compliance will be demonstrated by demonstrating compliance with the recordkeeping requirements provided in the permit.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There are no new hazardous air pollutants as a result of this modification application.

AIR QUALITY IMPACT ANALYSIS

Modeling was not required for this source due to the fact that the facility is not considered a "major modification" according to 45CSR 14 or 45CSR19.

MONITORING OF OPERATIONS

- The current monitoring requirements for the Cameron flare [F2] will continue to exist for the Questor Q100 flare [F3].
- The area source recordkeeping requirements for TEG dehydration units meeting the benzene exception to § 63.764(d) will be added.

CHANGES TO PERMIT R13-2856A

The following changes were made as a result of this modification application:

- General changes related to the current permit revision
- The delegation note for area sources on page 1 of the modification was revised to remove 40 CFR 63, Subpart HH as discussed in the regulatory section of the evaluation.

- The correspondence address for EPA was updated in § 3.5.3.
- 5.1.2 - updated emission limits as discussed in the emission section of this evaluation
- 5.1.3 - Revised the area source determination requirement to match latest amendment of § 63.760 and corrected the reference from 4.1.2 to 4.1.1.
- 5.1.6 - Added Subpart HH 1 tpy benzene exemption to §63.764(d).
- 5.2.2. - Removed the reference to a general permit registration.
- 5.3.3 - Revised to meet Subpart HH method for determining exemption.
- 5.4.6 - Revised to meet 63.774(d)(1)(ii).
- 5.4.7 - Removed the reference to a general permit registration
- 5.5.1 - Deleted because no longer applies to the revised 5.3.3 requirement.

RECOMMENDATION TO DIRECTOR

It is recommended that permit modification R13-2856B be granted to Dominion Transmission, Inc.; Wilsonburg Compressor Station located in Wilsonburg, Harrison County, WV. Based on the information provided in the application, including all supplemental information received, the applicant should be in compliance with all applicable state and federal air regulations.

Laura M. Jennings
Permit Engineer

3/24/15
Date