



west virginia department of environmental protection

Division of Air Quality  
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Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
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**ENGINEERING EVALUATION / FACT SHEET**

BACKGROUND INFORMATION

Application No.: R13-3109B  
Plant ID No.: 051-00156  
Applicant: Williams Ohio Valley Midstream LLC (Williams)  
Facility Name: Taylor Station  
Location: Near Moundsville, Marshall County  
NAICS Code: 213112  
Application Type: Modification  
Received Date: February 23, 2015  
Engineer Assigned: David Keatley  
Fee Amount: \$1,000  
Date Received: February 26, 2015  
Complete Date: April 2, 2015  
Due Date: July 1, 2015  
Applicant Ad Date: February 20, 2015  
Newspaper: *Moundsville Daily Echo*  
UTM's: Easting: 526.594 km Northing: 4,412.077 km Zone: 17  
Description: Modifying emissions from triethylene glycol (TEG) dehydration still vent RSV-1 & reboiler RBV-1 and installation of an already permitted 210 bbl produced water tank.

DESCRIPTION OF PROCESS

Natural gas will enter the facility via pipeline. The natural gas will be raised to a higher pressure by a compressor. The compressor is powered by a 203 bhp four-stroke rich-burn Caterpillar G3306TA natural gas fired compressor engine equipped with NSCR. After compression the natural gas will be dehydrated to reduce the amount of water vapor in the natural gas stream. The 5 mmscf/day natural gas stream will flow countercurrent to circulating TEG in the contactor. The compressed dehydrated natural gas will exit the facility via pipeline. The rich TEG will be sent to a flash tank, so the volatile organics are flashed from the liquid. The flash tank vapors will be used as fuel in the reboiler when the reboiler is running. The liquids from the flash tank will flow to the regenerator. The regenerator is heated by a 0.22 mmBtu/hr natural gas fired reboiler (RBV-1). The water

vapor and additional emissions from the regenerator will be emitted through the still vent (RSV-1).

**SITE INSPECTION**

James Jarrett of DAQ's Compliance and Enforcement section performed a site visit on October 8, 2014. The facility was deemed in compliance.

From the intersection of WV 2 and CR 17 (12th street, Fork Ridge Road). Turn onto CR 17 and travel for approximately 5.6 miles. Turn right onto a gravel road and travel for approximately 1.0 miles until you reach the site.

**ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER**

Emissions from the still vent (RSV-1) were estimated using GRI-GLYCalc 4.0. Emissions for the reboiler (RBV-1) were estimated using AP-42 emission factors.

Table 1: New/Modified Maximum Controlled Estimated Air Emissions

Source ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
RSV-1	TEG Dehydrator Still Vent 7 MMscf/day	Volatile Organic Compounds	12.40	54.29
		Benzene	0.21	0.91
		n-Hexane	0.46	2.00
		Toluene	0.44	1.92
		Xylenes	0.30	1.32
		CO <sub>2e</sub>	342	1,498
RBV-1	Reboiler 0.22 MMBTU/hr	Nitrogen Oxides	0.02	0.10
		Carbon Monoxide	0.02	0.08
		Volatile Organic Compounds	<0.01	0.01
		CO <sub>2e</sub>	26	115
T02	Tank Emissions	Volatile Organic Compounds	0.02	0.19

Table 2: Facility Wide Title V PTE

Pollutant	Maximum Annual Facility Wide Emissions (tons/year)
Nitrogen Oxides	3.99
Carbon Monoxide	7.88
Volatile Organic Compounds	64.60
Particulate Matter	0.16
PM <sub>10</sub>	0.16
Sulfur Dioxide	0.01
Formaldehyde	0.49
Benzene	0.97
n-Hexane	2.16
Toluene	1.97
Xylenes	1.36
Total HAPs	7.57
Carbon Dioxide Equivalent	3,172

## REGULATORY APPLICABILITY

The following rules and regulations apply to the modifications to this facility:

### **45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)**

The purpose of 45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers) is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units.

45CSR2 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of all of the proposed fuel burning units (RBV-1) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR2. However, this facilities reboiler is subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

**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 Division of Air Quality, based upon their investigations and complaints, such odor is objectionable.

**45CSR10 (To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides)**

45CSR10 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 3 (weight emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of all of the proposed fuel burning unit (RBV-1) is below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR10.

**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)**

With this modification Williams proposes modifying the TEG dehydration unit which is subject to 40CFR60 subpart HH which has substantive requirements and was required to obtain a Modification permit.

**45CSR16 (*Standards of Performance for New Stationary Sources Pursuant to 40CFR60*)**

45CSR16 incorporates by reference the standards of performance for new stationary sources (40CFR60). This facility is subject to 40CFR60 Subpart HH and therefore this facility is subject to 45CSR16.

**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 this facility is exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71. This facility has maximum horsepower capacity less than 1,000 hp and is a 9M source and is required to pay the \$200 annual fee. Williams is required to keep their Certificate to Operate current.

**40 CFR 63 Subpart HH** (*National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities*)

On June 1, 2013 the DAQ took delegation of the area source provisions of 40 CFR 63, Subpart HH. This facility is a natural gas production facility that processes, upgrades, or stores natural gas prior to transmission.

Pursuant to §63.760(b)(2), each glycol dehydration unit (GDU) located at an area source that meets the requirements under §63.760(a)(3) is defined as an affected facility under Subpart HH. The requirements for affected sources at area sources are given under §63.764(d). However, for a GDU, exemptions to these requirements are given under §63.764(e)(2) “actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere are less than 0.90 megagram [1 TPY] per year.”

As can be seen in Table 1 the maximum PTE of benzene emissions from each GDU process vent is 0.91 TPY. Therefore, the GDU is exempt from the Subpart HH requirements given under §63.764(d).

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 tank (T02) that Williams has proposed to install is 33.4 cubic meters. Therefore this facility is not subject to this regulation.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There will be small amounts of various regulated hazardous air pollutants emitted from the operation of this facility as seen in Table 1. The facility is a minor source of HAPs as can be seen in Table 2. If you want to obtain additional information about certain hazardous air pollutants feel free to visit [<http://www.epa.gov/ttn/atw/hlthef/hapindex.html>].

AIR QUALITY IMPACT ANALYSIS

Modeling was not performed of this source due to the fact that the facility is not subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) as can be seen in Table 2.

RECOMMENDATION TO DIRECTOR

The information provided in this facility's permit application indicates that compliance with all state and federal air quality requirements should be achieved . It is recommended that Williams should be granted a 45CSR13 Modification permit for the Taylor Station.



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David Keatley  
Permit Writer - NSR Permitting

April 17, 2015

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Date

Fact Sheet R13-3109B  
Williams Ohio Valley Midstream LLC  
Taylor Station