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.:	R13-3263
Plant ID No.:	051-00220
Applicant:	Williams Ohio Valley Midstream LLC
Facility Name:	Witzgal Station
Location:	Near Moundsville, Marshall County, West Virginia
NAICS Code:	213112
Application Type:	Construction
Received Date:	August 6, 2016
Engineer Assigned:	David Keatley
Fee Amount:	$3,500
Date Fees Received:	August 10, 2015
Complete Date:	August 26, 2016
Due Date:	November 24, 2016
Applicant Ad Date:	August 6, 2015
Newspaper:	*Moundsville Dailey Echo*
UTM's:	Easting: 526.81 km Northing: 4,419.70 km Zone: 17S
Description:	Installation and operation of one (1) 5-mmscfd triethylene glycol (TEG) dehydration unit with associated 0.22 mmBtu/hr reboiler.

DESCRIPTION OF PROCESS

This facility is dehydration station. Natural gas will enter the facility via pipeline. A TEG dehydration unit will be used to reduce the water content of the natural gas. Natural gas at a maximum rate of 5 mmscfd flows countercurrent to TEG in a contactor. The dehydrated natural gas exits the facility via pipeline. The rich TEG from the contractor goes to a regenerator. The regenerator is heated by one (1) 0.22-mmBtu/hr reboiler (2E). The vapors from the regenerator will exit through an uncontrolled still vent (1E).

SITE INSPECTION

Greigory Paetzold from DAQ's Compliance and Enforcement Section performed a site visit on September 15, 2016. The dehydration unit was in operation at the time of the visit. The closest residence is approximately 700' west-southwest of the facility.

Directions from Wheeling Avenue in Moundsville. Travel south on Jefferson Avenue for approximately 0.7 miles. Turn left onto 1st Street and travel approximately 0.8 miles. Turn left onto Waynesburg Pike (US-250) and travel for approximately 2.4 miles. Turn right onto Beams Lane and travel on 0.5 miles. Turn left onto unmarked road and travel for approximately 0.4 miles. Turn left onto the access road and the facility is approximately 0.3 miles.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions for the reboiler (2E) were estimated will AP-42 emission factors with the exception of CO_2e being estimated by 40CFR98 emission factors. All emissions for the TEG dehydration units still vent emissions (1E) were estimated by GRI-GLYCalc with a 20% increase to account for gas variation.

Table 1: Estimated Maximum Controlled Point Source PTE

Emission Point ID	Emission Unit ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
1E	DSV-01	TEG Dehydrator - Still Vent 5 mmscfd	Volatile Organic Compounds	16.64	72.89
			Benzene	0.17	0.76
			Toluene	0.51	2.23
			Xylenes	1.73	7.56
			n-Hexane	0.40	1.74
			CO_2e	721	3,159
2E	RBV-1	TEG Dehydrator - Reboiler 0.22 mmBtu/hr	Nitrogen Oxides	0.02	0.1
			Carbon Monoxide	0.02	0.08
			Volatile Organic Compounds	<0.01	0.01
			PM_{10}	<0.01	0.01
			CO_2e	26	114

Table 2: Proposed Estimated Maximum Controlled Facility Wide PTE

Pollutant	Facility Wide PTE (tons/year)
Nitrogen Oxides	0.10
Carbon Monoxide	0.08
Volatile Organic Compounds	76.34
Particulate Matter-10	0.01
n-Hexane	1.81
Benzene	0.77
Toluene	2.23
Ethylbenzene	0.33
Xylenes	7.56
Total HAPs	12.71
Carbon Dioxide Equivalent	3,659

REGULATORY APPLICABILITY

The following rules and regulations apply to the 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 facility would be 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 Air Pollution Control Commission (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 units (RBV-01) are 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)

The VOC PTE exceed the thresholds of 6 lb/hr and 10 tons/year and therefore this facility requires a 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 has is a 9M source and is required to pay a $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. This facility is an area source of HAPs refer to the previous facility wide emissions table.

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 above in Table 1, the maximum PTE of benzene emissions from the GDU process vents is 0.76 TPY. Therefore, the GDU is exempt from the Subpart HH requirements given under §63.764(d).

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. Antero included the following HAPs as emitted in substantive amounts (0.01 tons/year) in their emissions estimate: Benzene, n-Hexane, Toluene, and Xylenes. The following table lists each HAP's carcinogenic risk (as based on analysis provided in the Integrated Risk Information System (IRIS)):

Table 3: Potential HAPs - Carcinogenic Risk

HAPs	Type	Known/Suspected Carcinogen	Classification
Benzene	TAP/HAP/VOC	Yes	Category A - Known Human Carcinogen
Formaldehyde	TAP/HAP/VOC	Yes	Category B1 - Probable Human Carcinogen
n-Hexane	HAP/VOC	No	Inadequate Data
Ethylene	HAP/VOC	No	Category D - Not classifiable as to human carcinogenicity
Toluene	HAP/VOC	No	Inadequate Data
Xylenes	HAP/VOC	No	Inadequate Data

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*. This facility is a minor source of HAPs as can be seen in Table 2. For a complete discussion of the known health effects of each compound refer to the IRIS database located at *www.epa.gov/iris*.

AIR QUALITY IMPACT ANALYSIS

Modeling was not performed for 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 will be achieved. It is recommended that Williams should be granted a 45CSR13 Construction permit for their Witzgal.

David Keatley
Permit Writer – NSR Permitting

September 21, 2016

Date