west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3063B
Plant ID No.:	103-00060
Applicant:	Williams Ohio Valley Midstream LLC
Facility Name:	Yoho Station
Location:	Near New Martinsville, Wetzel County, West Virginia
NAICS Code:	213112
Application Type:	Modification
Received Date:	May 29, 2015
Engineer Assigned:	David Keatley
Fee Amount:	$3,500
Date Received:	June 5, 2015 and September 9, 2015
Complete Date:	October 6, 2016
Due Date:	January 4, 2017
Applicant Ad Date:	June 10, 2015
Newspaper:	Wetzel Chronicle
UTM's:	Easting: 514.862 Northing: 4,383.333 Zone: 17
Description:	Modifying TEG dehydration unit's emissions and fugitive emissions.

DESCRIPTION OF PROCESS

Natural gas enters the facility via pipeline. Natural gas passes through inlet filters where the liquids go to one (1) 210-bbl pipeline liquids tank. After the filters the gas is compressed to a higher pressure. The compressor is powered by one (1) 203-bhp Caterpillar G3306 TA natural gas fired compressor engine. The compressed natural gas at a maximum rate of 2 mmscfd will then go to a triethylene glycol (TEG) dehydration unit to reduce the water content of the natural gas stream. The compressed natural gas flows countercurrent to TEG in a contactor. The compressed dehydrated natural gas stream exits the facility via pipeline. The rich TEG from the contactor first goes to a flash tank to reduce the volatile hydrocarbons. The vapors from the flash tank (RSV-1) will be used as fuel (50% product recovery) in the reboiler (RBV-1). The liquid from the flash tank goes to a regenerator. The regenerator is heated by one (1) 0.14-mmBtu/hr reboiler (RBV-1).

The vapors from the regenerator leave the still vent (RSV-1).

SITE INSPECTION

On February 3, 2016 Douglas Hammell performed a site visit the compressor at the facility was not operating and the facility was deemed in compliance.

Traveling from New Martinsville. Travel on WV-2/WV-7/3rd St. toward Friendship Ridge Rd./North St./CR 3 turn onto WV 7 and travel for approximately 3 miles. Turn right onto WV 20 and travel for approximately 1.5 miles and turn right onto access road to Yoho Station.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

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 Modified Maximum Controlled Point Source PTE

Emission Point ID	Emission Unit ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
1E	RSV-1	TEG Dehydrator Still Vent 2 mmscfd	Volatile Organic Compounds	2.32	10.15
			Benzene	0.09	0.42
			Toluene	0.18	0.80
			Xylenes	0.06	0.26
			n-Hexane	0.06	0.26
			CO_2e	2	11
9E	RSV-1	TEG Dehydrator Flash Tank 2 mmscfd	Volatile Organic Compounds	2.82	12.40
			Benzene	<0.01	0.02
			Toluene	0.01	0.02
			n-Hexane	0.08	0.36
			CO_2e	157	689

REGULATORY APPLICABILITY

The following rules and regulations apply to the modification of this facility:

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)

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 0.44 TPY (flash tank and still vent). 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.

CHANGES TO PERMIT R13-3063

Emissions limits for TEG dehydration unit. Separation of still vent and flash tank because these are two separate emission points. Section 5, natural gas throughput limitation removed on engine CE-01 because emissions were estimated at 8,760 hrs/year. Section 5, Maximum design capacity limit for engine CE-01 included. Section 7, natural gas throughput limitation removed on reboiler CE-01 because emissions were estimated at 8,760 hrs/year. Section 7, Monitoring, Testing, Recordkeeping, and Reporting were changed to updated language to be more consistent with more recent permitting actions. Section 8, was changed to updated language to be more consistent with more recent permitting actions.

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 Modification permit for their Yoho Station.

David Keatley
Permit Writer - NSR Permitting

October 7, 2016

Date