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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3179
Plant ID No.: 051-00199
Applicant: Williams Ohio Valley Midstream LLC (Williams)
Facility Name: Pinecone Compressor Station
Location: Moundsville, Marshall County
SIC Code: 1389
NAICS Code: 213112
Application Type: Construction
Received Date: March 14, 2014
Engineer Assigned: Jerry Williams, P.E.
Fee Amount: \$4,500
Date Received: March 14, 2014
Complete Date: May 15, 2014
Due Date: August 13, 2014
Applicant Ad Date: March 17, 2014
Newspaper: *Moundsville Daily Echo*
UTM's: Easting: 519.41 km Northing: 4,411.266 km Zone: 17
Description: Installation and operation of a new natural gas compressor station.

PROJECT OVERVIEW

Williams is proposing to construct and operate the Pinecone Compressor Station which is located in Marshall County. The facility will receive natural gas from local production wells that compress and dehydrate the gas for delivery to a gathering pipeline. The following equipment will be present at the facility:

- Five (5) 1,380 hp Caterpillar G3516B compressor engines, each with Oxidation Catalysts (OxCat) (CE-01 - CE05)
- Two (2) 3,550 hp Caterpillar G3612LE compressor engines, each with OxCat (CE-06, CE-07)
- Five (5) 200 kW Capstone C200 microturbines (CT-01 – CT-05)
- One (1) 2.3 million British Thermal Units per hour (MMBTU/hr) fuel gas heater (HTR-1)
- Two (2) 60.0 million standard cubic feet per day (mmscfd) triethylene glycol (TEG) dehydrators (RSV-1, RSV-2)
- Two (1) 1.5 MMBTU/hr natural gas fired reboilers (RBV-1, RBV-2)
- One (1) 5.3 MMBTU/hr Thermal Oxidizer (COMB-1)
- One (1) 3.2 MMBTU/hr Flare (COMB-2)
- Fugitive emissions (FUG) from process piping and equipment
- Startup/Shutdown/Maintenance (SSM) emissions
- Miscellaneous Equipment Leaks (FUG2)

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-3179:

Compressor Engine

Five (5) natural gas fired Caterpillar G3516B compressor engines (CE-01 - CE-05) and two (2) natural gas fired Caterpillar G3612LE compressor engines (CE-06, CE-07) will be utilized at the facility. Each lean burn engine will utilize an OxCat to control pollutant emissions.

Capstone Turbines

Five (5) Capstone C200 natural gas fired microturbines (CT-01 – CT-05) will be used at the facility to generate electricity for on-site needs.

Fuel Gas Heater

A fuel conditioning skid will be used at the site to reduce the heating value of the incoming natural gas stream and this lean gas stream will be used as fuel for the various equipment at the site. Associated with the fuel conditioning skid will be one (1) 2.3 MMBTU/hr heater (HTR-1)

Dehydrator

Two (2) TEG dehydrators (RSV-1, RSV-2) and associated reboilers (RBV-1, RBV-2) will be utilized at the facility. The dehydrators are used to remove water vapor from the inlet wet gas stream to meet pipeline specifications. In the dehydration process, the wet inlet gas stream flows through a contactor tower where the gas is contacted with lean glycol. The lean glycol absorbs the water in the gas stream and becomes rich glycol laden with water and trace amounts of hydrocarbons. The rich glycol is then routed to a flash tank where the glycol pressure is reduced

to liberate the lighter end hydrocarbons. The rich glycol is then sent from the flash tank to the regenerator where the glycol is heated to drive off the water vapor and any remaining hydrocarbons. Once boiled, the glycol is returned to a lean state and used again in the process. The dehydrator's flash tank offgas and still vent vapors will be normally sent to a thermal oxidizer for destruction. There will be times, however, when the flash tank offgas will be used as fuel gas for various equipment at the site.

Thermal Oxidizer

One (1) 5.3 MMBTU/hr thermal oxidizer (COMB-1) with 99% VOC/HAPs destruction efficiency will be used to control the dehydrator's flash gas and still vent vapor streams.

Flare

One (1) 3.2 MMBTU/hr thermal oxidizer (COMB-2) with 98% VOC/HAPs destruction efficiency will be used to control compressor blowdown emissions.

Startup, Shutdown and Maintenance (SSM)

During routine operation of the facility, the compressor engine will undergo periods of startup and shutdown. Often when the engine is shutdown, the natural gas contained within the compressor and associated piping is vented to the atmosphere. Additionally, there will be other infrequent emissions from various maintenance activities at the facility that are not necessarily associated with compressor blowdowns. These emissions are associated with SSM.

Fugitive Emissions

During routine operation of the facility there are occasional leaks from process piping components such as valves, flanges, connectors, etc. Leaks from the process piping components results in VOC and HAP emissions to the atmosphere.

Miscellaneous Equipment Leaks

Miscellaneous equipment leaks include leaks from the sealed surfaces, such as packing and gaskets, resulting from the wear of mechanical joints, seals and rotating surfaces over time. These also include reciprocating compressor crankcase leaks.

SITE INSPECTION

A site inspection was conducted on March 27, 2104 by Michael Wade of the DAQ Enforcement Section. According to Mr. Wade, the site location is appropriate for the proposed facility.

Latitude: 39.85119
Longitude: -80.77310



ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this construction application consist of the combustion emissions from seven (7) natural gas fired compressor engines (1E-7E), five (5) microturbines (8E-12E), one (1) fuel gas heater (13E), two (2) TEG dehydrator reboilers (14E, 17E), two (2) TEG dehydrator still vents (15E, 18E), two (2) dehydrator flash tanks (16E, 19E), one (1) thermal oxidizer (20E), one (1) flare (21E), SSM emissions (22E), fugitive piping emissions (23E), and miscellaneous equipment leaks (24E). Fugitive emissions for the facility are based on calculation methodologies presented in EPA Protocol for Equipment Leak Emission Estimates. The following table indicates which methodology was used in the emissions determination:

Emission Point ID#	Process Equipment	Calculation Methodology
1E – 5E	1,380 hp Caterpillar G3516B Reciprocating Internal Combustion Engine (RICE) w/ OxCat	Manufacturer’s Data, EPA AP-42 Emission Factors
6E, 7E	3,550 hp Caterpillar G3612LE Reciprocating Internal Combustion Engine (RICE) w/ OxCat	Manufacturer’s Data, EPA AP-42 Emission Factors
8E-12E	200 ekW Capstone C200 Microturbine	Manufacturer’s Data, EPA AP-42 Emission Factors
13E	2.3 MMBTU/hr Fuel Gas Heater	EPA AP-42 Emission Factors
14E, 17E	1.5 MMBtu/hr TEG Dehydrator Reboiler	EPA AP-42 Emission Factors
15E, 18E	60 mmscfd TEG Dehydrator Still Vent controlled by Thermal Oxidizer	GRI-GlyCalc 4.0
16E, 19E	60 mmscfd TEG Flash Tank Vent controlled by Thermal Oxidizer	GRI-GlyCalc 4.0
20E	5.3 MMBTU/hr Thermal Oxidizer	EPA AP-42 Emission Factors
21E	3.2 MMBTU/hr Flare	EPA AP-42 Emission Factors
22E	SSM Emissions	Engineering Estimate
23E	Process Piping Fugitive Emissions	EPA AP-42 Emission Factors
24E	Miscellaneous Equipment Leaks	Engineering Estimate

The following table indicates the control device efficiencies that are required for this facility:

Emission Unit	Pollutant	Control Device	Control Efficiency
1,380 hp Caterpillar G3516B RICE (1E - 5E)	Carbon Monoxide	OxCat	97.2 %
	Volatile Organic Compounds		91.1 %
	Formaldehyde		80 %
3,550 hp Caterpillar G3612LE RICE (6E, 7E)	Carbon Monoxide	OxCat	94.2 %
	Volatile Organic Compounds		82.9 %
	Formaldehyde		80 %
60 mmscfd TEG Dehydrator Still Vents (15E, 16E, 18E, 19E)	Volatile Organic Compounds	Thermal Oxidizer	99 %
	Hazardous Air Pollutants		
Blowdown Emissions	Volatile Organic Compounds	Flare	98 %
	Hazardous Air Pollutants		98 %

The total facility PTE for the Pinecone Compressor Station, including fugitive emissions is shown in the following table:

Pollutant	Facility Wide PTE (tons/year)
Nitrogen Oxides	76.19
Carbon Monoxide	41.80
Volatile Organic Compounds	69.20
Particulate Matter-10	5.68
Sulfur Dioxide	0.46
Formaldehyde	9.81
Total HAPs	12.77
Carbon Dioxide Equivalent	92,919

Maximum detailed controlled point source emissions were calculated by Williams and checked for accuracy by the writer and are summarized in the table on the next page.

Williams Ohio Valley Midstream, LLC – Pinecone Compressor Station (R13-3179)

Emission Point ID#	Source	NO _x		CO		VOC		PM10/2.5		SO ₂		Formaldehyde		Total HAPs		CO ₂ e
		lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	ton/year
1E	CAT G3516B RICE w/OxCat	1.52	6.66	0.24	1.07	0.41	1.81	0.11	0.50	0.01	0.03	0.26	1.15	0.28	1.23	7642
2E	CAT G3516B RICE w/OxCat	1.52	6.66	0.24	1.07	0.41	1.81	0.11	0.50	0.01	0.03	0.26	1.15	0.28	1.23	7642
3E	CAT G3516B RICE w/OxCat	1.52	6.66	0.24	1.07	0.41	1.81	0.11	0.50	0.01	0.03	0.26	1.15	0.28	1.23	7642
4E	CAT G3516B RICE w/OxCat	1.52	6.66	0.24	1.07	0.41	1.81	0.11	0.50	0.01	0.03	0.26	1.15	0.28	1.23	7642
5E	CAT G3516B RICE w/OxCat	1.52	6.66	0.24	1.07	0.41	1.81	0.11	0.50	0.01	0.03	0.26	1.15	0.28	1.23	7642
6E	CAT 3612LE RICE w/OxCat	3.91	17.41	1.25	5.48	1.42	6.24	0.27	1.17	0.02	0.07	0.41	1.78	0.50	2.17	19007
7E	CAT 3612LE RICE w/OxCat	3.91	17.41	1.25	5.48	1.42	6.24	0.27	1.17	0.02	0.07	0.41	1.78	0.50	2.17	19007
8E	Capstone C200 Microturbine	0.16	0.70	0.44	1.93	0.02	0.09	0.02	0.07	0.01	0.03	<0.01	<0.01	<0.01	0.01	1101
9E	Capstone C200 Microturbine	0.16	0.70	0.44	1.93	0.02	0.09	0.02	0.07	0.01	0.03	<0.01	<0.01	<0.01	0.01	1101
10E	Capstone C200 Microturbine	0.16	0.70	0.44	1.93	0.02	0.09	0.02	0.07	0.01	0.03	<0.01	<0.01	<0.01	0.01	1101
11E	Capstone C200 Microturbine	0.16	0.70	0.44	1.93	0.02	0.09	0.02	0.07	0.01	0.03	<0.01	<0.01	<0.01	0.01	1101
12E	Capstone C200 Microturbine	0.16	0.70	0.44	1.93	0.02	0.09	0.02	0.07	0.01	0.03	<0.01	<0.01	<0.01	0.01	1101
13E	Fuel Gas Heater	0.25	1.10	0.21	0.92	0.02	0.06	0.02	0.09	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	1311
14E	Dehydrator Reboiler	0.16	0.72	0.14	0.60	<0.01	0.04	0.02	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	855
15E, 16E	Dehydrator Still Vent/Flash Tank	-	-	-	-	0.62	2.73	-	-	-	-	-	-	0.07	0.33	24
17E	Dehydrator Reboiler	0.16	0.72	0.14	0.60	<0.01	0.04	0.02	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	855
18E, 19E	Dehydrator Still Vent/Flash Tank	-	-	-	-	0.62	2.73	-	-	-	-	-	-	0.07	0.33	24
20E	Thermal Oxidizer (Combustion only)	0.34	1.47	1.78	7.78	0.03	0.12	0.04	0.16	<0.01	0.01	<0.01	<0.01	0.02	0.08	2462
21E	Flare	NA	1.09	NA	5.94	NA	0.09	NA	0.12	NA	0.01	NA	<0.01	NA	0.06	1881
22E	Startup, Shutdown, Maintenance	-	-	-	-	-	2.50	-	-	-	-	-	-	-	0.03	191
23E	Process Piping Fugitives	-	-	-	-	1.95	8.55	-	-	-	-	-	-	0.10	0.43	678
24E	Miscellaneous Equipment Leaks	-	-	-	-	6.93	30.36	-	-	-	-	0.12	0.50	0.21	0.93	2909
Total	Total Facility PTE	17.15	76.19	8.17	41.80	15.16	69.20	1.29	5.68	0.14	0.46	2.24	9.81	2.87	12.77	92919

REGULATORY APPLICABILITY

The following rules apply to the facility:

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

The purpose of 45CSR2 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 inputs of the proposed reboilers (RBV-1, RBV-2) and fuel gas heater (HTR-1) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR2.

Williams 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)

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. No odors have been deemed objectionable.

45CSR6 (To Prevent and Control Air Pollution from the Combustion of Refuse)

The purpose of this rule is to prevent and control air pollution from combustion of refuse.

Williams has proposed to have one (1) thermal oxidizer and one (1) flare at the facility. These units are subject to section 4, emission standards for incinerators. The thermal oxidizer has an allowable emission rate of 233.2 pounds of particulate matter per hour (assuming a natural gas density of 0.044 lb/ft³). The thermal oxidizer has negligible hourly particulate matter emissions. The flare has an allowable emission rate of 98.8 pounds of particulate matter per hour (assuming a natural gas density of 0.044 lb/ft³). The flare has a calculated PM emission rate of 14.7 lb/hr. Therefore, these units should demonstrate compliance with this section. The facility will demonstrate compliance by maintaining records of the amount of natural gas consumed by the thermal oxidizer and flare and the hours of operation. The facility will also monitor the flame of these units and record any malfunctions that may cause no flame to be present during operation.

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

The purpose of 45CSR10 is to establish emission limitations for sulfur dioxide which are discharged from fuel burning units. 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 inputs of the proposed reboilers (RBV-1, RBV-2) and fuel gas heater (HTR-1) 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)

45CSR13 applies to this source due to the fact that Williams exceeds the regulatory emission threshold for criteria pollutants of 6 lb/hr and 10 ton/year, and they are also subject to a substantive requirement of an emission control rule promulgated by the Secretary (40CFR60 Subparts JJJJ and OOOO, 40CFR63 Subparts HH and ZZZZ).

Williams paid the appropriate application fee and published the required legal advertisement for a construction permit application.

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of 40CFR60, Subparts JJJJ and OOOO. These requirements are discussed under that rule below.

45CSR22 (Air Quality Management Fee Program)

Williams is not subject to 45CSR30. The Pinecone Compressor Station is subject to 40CFR60 Subparts JJJJ and OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

Williams is required to pay the appropriate annual fees and keep their Certificate to Operate current.

40CFR60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE))

40CFR60 Subpart JJJJ establishes emission standards for applicable SI ICE.

The 1,380 hp Caterpillar G3516B RICE (1E - 5E) and 3,550 hp Caterpillar G3612LE RICE (6E, 7E) were manufactured after July 1, 2010 and are subject to emission standards, operating standards, performance testing, and notification and recordkeeping. The following emission standards must be met:

Pollutant	Emission Standard
Nitrogen Oxides	1 grams per HP-hour
Carbon Monoxide	2 grams per HP-hour
Volatile Organic Compounds	0.7 grams per HP-hour

According to the manufacturer's data, the engines will meet these standards.

Because these engines will not be certified by the manufacturer, Williams will be required to perform an initial performance test within 180 days from startup, and subsequent testing every 8,760 hours of operation or 3 years, whichever comes first for these units.

40CFR60 Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution)

EPA published in the Federal Register new source performance standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. 40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities that commence construction, modification or reconstruction after August 23, 2011. The following affected sources which commence construction, modification or reconstruction after August 23, 2011 are subject to the applicable provisions of this subpart:

- a. Each gas well affected facility, which is a single natural gas well.

There are no gas wells at this facility. Therefore, all requirements regarding gas well affected facilities under 40 CFR 60 Subpart OOOO would not apply.

- b. Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your centrifugal compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

There are no centrifugal compressors at the Pinecone Compressor Station. Therefore, all requirements regarding centrifugal compressors under 40 CFR 60 Subpart OOOO would not apply.

- c. Each reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your reciprocating compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

There are reciprocating internal combustion engines located at the Pinecone Compressor Station that were constructed after August 23, 2011. Therefore, the requirements regarding reciprocating compressors under 40 CFR 60 Subpart OOOO will apply. Williams would be required to perform the following:

- Replace the reciprocating compressor rod packing at least every 26,000 hours of operation or 36 months.
- Demonstrate initial compliance by continuously monitoring the number of hours of operation or track the number of months since the last rod packing replacement.
- Submit the appropriate start up notifications.
- Submit the initial annual report for the reciprocating compressors.
- Maintain records of hours of operation since last rod packing replacement, records of the date and time of each rod packing replacement, and records of deviations in cases where the reciprocating compressor was not operated in compliance.

d. Pneumatic Controllers

- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh which commenced construction after August 23, 2011, and is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not located at a natural gas processing plant.
- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller which commenced construction after August 23, 2011, and is located at a natural gas processing plant.

There are no applicable pneumatic controllers with natural gas bleed rates greater than 6 scfh which commenced construction after August 23, 2011. Therefore, all requirements regarding applicable pneumatic controllers under 40 CFR 60 Subpart OOOO would not apply.

- e. Each storage vessel affected facility, which is a single storage vessel, located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment.

40CFR60 Subpart OOOO defines a storage vessel as a unit that is constructed primarily of nonearthen materials (such as wood, concrete, steel, fiberglass, or plastic) which provides structural support and is designed to contain an accumulation of liquids or other materials. The following are not considered storage vessels:

- Vessels that are skid-mounted or permanently attached to something that is mobile (such as trucks, railcars, barges or ships), and are intended to be located at a site for less than 180 consecutive days. If the source does not keep or are not able to produce records, as required by §60.5420(c)(5)(iv), showing that the vessel has been located at a site for less than 180 consecutive days, the vessel described herein is considered to be a storage vessel since the original vessel was first located at the site.
- Process vessels such as surge control vessels, bottoms receivers or knockout vessels.
- Pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere.

This rule requires that the permittee determine the VOC emission rate for each storage vessel affected facility utilizing a generally accepted model or calculation methodology within 30 days of startup, and minimize emissions to the extent practicable during the 30 day period using good engineering practices. For each storage vessel affected facility that emits more than 6 tpy of VOC, the permittee must reduce VOC emissions by 95% or greater within 60 days of startup. The compliance date for applicable storage vessels is October 15, 2013.

According to Williams there will be no storage vessels located at the Pinecone Compressor Station.

- f. The group of all equipment, except compressors, within a process unit is an affected facility.
- Addition or replacement of equipment for the purpose of process improvement that is accomplished without a capital expenditure shall not by itself be considered a modification under this subpart.

- Equipment associated with a compressor station, dehydration unit, sweetening unit, underground storage vessel, field gas gathering system, or liquefied natural gas unit is covered by §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart if it is located at an onshore natural gas processing plant. Equipment not located at the onshore natural gas processing plant site is exempt from the provisions of §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart.
- The equipment within a process unit of an affected facility located at onshore natural gas processing plants and described in paragraph (f) of this section are exempt from this subpart if they are subject to and controlled according to subparts VVa, GGG or GGGa of this part.

The Pinecone Compressor Station is not a natural gas processing plant. Therefore, Leak Detection and Repair (LDAR) requirements for onshore natural gas processing plants would not apply.

- g. Sweetening units located at onshore natural gas processing plants that process natural gas produced from either onshore or offshore wells.
- Each sweetening unit that processes natural gas is an affected facility; and
 - Each sweetening unit that processes natural gas followed by a sulfur recovery unit is an affected facility.
 - Facilities that have a design capacity less than 2 long tons per day (LT/D) of hydrogen sulfide (H₂S) in the acid gas (expressed as sulfur) are required to comply with recordkeeping and reporting requirements specified in §60.5423(c) but are not required to comply with §§60.5405 through 60.5407 and paragraphs 60.5410(g) and 60.5415(g) of this subpart.
 - Sweetening facilities producing acid gas that is completely reinjected into oil-or-gas-bearing geologic strata or that is otherwise not released to the atmosphere are not subject to §§60.5405 through 60.5407, 60.5410(g), 60.5415(g), and 60.5423 of this subpart.

There are no sweetening units at the Pinecone Compressor Station. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOO would not apply.

40CFR63 Subpart HH (National Emission Standards for Hazardous Air Pollutants for Oil and Natural Gas Production Facilities)

Subpart HH establishes national emission limitations and operating limitations for HAPs emitted from oil and natural gas production facilities located at major and area sources of HAP emissions. The glycol dehydration units at the Pinecone Compressor Station are subject to the area source requirements for glycol dehydration units. However, because the facility is an area source of HAP emissions and the actual average benzene emissions from the glycol dehydration unit is below 0.90 megagram per year (1.0 tons/year) it is exempt from all requirements of Subpart HH except to maintain records of actual average flowrate of natural gas to demonstrate a continuous exemption status.

40CFR63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines)

Subpart ZZZZ establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. The engine (1E) at the Pinecone Compressor Station is subject to the area source requirements for non-emergency spark ignition engines.

The applicability requirements for new stationary RICE located at an area source of HAPs, is the requirement to meet the standards of 40CFR60 Subpart JJJJ. These requirements were outlined above. The proposed engine meets these standards.

Because these engines will not be certified by the manufacturer, Williams will be required to perform an initial performance test within 180 days from startup, and subsequent testing every 8,760 hours of operation or 3 years, whichever comes first.

The following rules do not apply to the facility:

45CSR30 (Requirements for Operating Permits)

Williams is not subject to 45CSR30. The Pinecone Compressor Station is subject to 40CFR60 Subparts JJJJ and OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

40CFR60 Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units)

This rule applies to steam generating units with a heat input capacity of 100 MMBTU/hr or less, but greater than or equal to 10 MMBTU/hr for which construction commenced after June 9, 1989. Williams does not have an applicable unit, therefore, Williams would not be subject to this rule.

40CFR60 Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels)

40CFR60 Subpart Kb does not apply to storage vessels with a capacity less than 75 cubic meters. Williams is not installing any storage tanks with this permitting action.

40CFR60 Subpart KKK (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants)

40CFR60 Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984, and on or before August 23, 2011. The Pinecone Compressor Station is not a natural gas processing facility, therefore, Williams is not subject to this rule.

40CFR60 Subpart KKKK (Standards of Performance for Stationary Combustion Turbines)

40CFR60 Subpart KKKK does not apply because there is no stationary combustion turbines at the facility with a heat input at peak load equal to or greater than 10 MMBTU/hr, based on the higher heating value of the fuel (§60.4305).

45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

On September 30, 2013, EPA approved a redesignation request and State Implementation Plan (SIP) revision submitted by the State of West Virginia. The West Virginia Department of Environmental Protection (WVDEP) requested that the West Virginia portion of the Wheeling, WV–OH fine particulate matter (PM_{2.5}) nonattainment area (“Wheeling Area” or “Area”) be redesignated as attainment for the 1997 annual PM_{2.5} national ambient air quality standard (NAAQS).

The Pinecone Compressor Station is located in Marshall County, which is located in this metropolitan statistical area and is an attainment county for all pollutants. Therefore the Pinecone Compressor Station is not subject to 45CSR19.

As shown in the following table, Williams is not subject to 45CSR14 or 45CSR19 review. According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, the fugitive emissions are not included in the PTE below.

Pollutant	PSD (45CSR14) Threshold (tpy)	NANSR (45CSR19) Threshold (tpy)	Pinecone PTE (tpy)	45CSR14 or 45CSR19 Review Required?
Carbon Monoxide	250	NA	41.80	No
Nitrogen Oxides	250	NA	76.19	No
Sulfur Dioxide	250	NA	0.46	No
Particulate Matter 10	250	NA	5.68	No
Ozone (VOC)	250	NA	30.29	No
Greenhouse Gas	100,000	NA	89,322	No

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. Williams included the following HAPs as emitted in substantive amounts in their emissions estimate: Benzene, Ethylbenzene, Formaldehyde, Toluene, and Xylene. The following table lists each HAP’s carcinogenic risk (as based on analysis provided in the Integrated Risk Information System [IRIS]):

HAPs	Type	Known/Suspected Carcinogen	Classification
Formaldehyde	VOC	Yes	Category B1 - Probable Human Carcinogen
Benzene	VOC	Yes	Category A - Known Human Carcinogen
Ethylbenzene	VOC	No	Inadequate Data
Toluene	VOC	No	Inadequate Data
Xylenes	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*. 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 required 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) or 45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment) as seen in the table listed in the Regulatory Discussion section under 45CSR14/45CSR19.

SOURCE AGGREGATION DETERMINATION

“Building, structure, facility, or installation” is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

- The Pinecone Compressor Station will operate under SIC code 1389 (Oil and Gas Field Services, Not Classified Elsewhere). The upstream gas production wells will operate under SIC code 1311 (Crude Petroleum and Natural Gas). Therefore, both share the same two-digit major SIC code of 13. Therefore, the two (2) entities do belong to the same industrial grouping.
- Williams operates under their parent company, The Williams Companies, Inc. and is the sole operator of the Pinecone Compressor Station. The production wells that send natural gas to the Pinecone Compressor Station are not owned or operated by Williams. Williams has no ownership stake in any production well that may send natural gas to the Pinecone Compressor Station. Williams has no operational control over any equipment

owned or operated by any natural gas producer upstream of the Pinecone Compressor Station. All employees at the Pinecone Compressor Station are under the exclusive direction of Williams and have no reporting authority to any other entity. In addition, no work forces are shared between the Pinecone Compressor Station and the production wells. Contracts are in place for the Pinecone Compressor Station to handle gas from the aforementioned wells. Futuristically, Williams will not have ownership or control of future wellhead activities. The producers are and will be responsible for any decisions to produce or shut-in wellhead facilities and no control over the equipment installed, owned, and operated by Williams. Therefore, these facilities are not under common control.

- There are no other Williams facilities located within 0.5 miles of the Pinecone Compressor Station. The closest Williams facility is the Conner Compressor Station which is approximately 2.4 miles from the Pinecone Compressor Station. The land between these sites is not owned or managed by Williams. Operations separated by these distances do not meet the common sense notion of a plant. Therefore, the properties in question are not considered to be on contiguous or adjacent property.

The Pinecone Compressor Station and production wells share the same industrial grouping. However, the two (2) facilities are not under common control and the facilities are not contiguous or adjacent. Therefore, the emissions from these two (2) facilities should not be aggregated in determining major source or PSD status.

MONITORING OF OPERATIONS

Williams will be required to perform the following monitoring:

- Monitor and record quantity of natural gas consumed for all engines and combustion sources.
- Monitor all applicable requirements of 40CFR60 Subparts JJJJ and OOOO.
- Monitor the presence of the flare and thermal oxidizer pilot flame with a thermocouple or equivalent.
- Monitor and record quantity of natural gas treated in the glycol dehydration units.

Williams will be required to perform the following recordkeeping:

- Maintain records of the amount of natural gas consumed and hours of operation for all engines and combustion sources.
- Maintain records of the amount of natural gas treated in the glycol dehydration units.
- Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location
- Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
- Maintain records of the visible emission opacity tests conducted per the permit.
- Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engines and ancillary equipment.
- Maintain records of all applicable requirements of 40CFR60 Subparts JJJJ and OOOO.
- Maintain records of the flare design evaluation.

- The records shall be maintained on site or in a readily available off-site location maintained by Williams for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that Williams meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Pinecone Compressor Station should be granted a 45CSR13 construction permit for their facility.

Jerry Williams, P.E.
Engineer

Date