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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3070
Plant ID No.: 051-00157
Applicant: Williams Ohio Valley Midstream LLC (Williams)
Facility Name: Oak Grove Gas Plant
Location: Moundsville, Marshall County
SIC Code: 1321
NAICS Code: 211112
Application Type: Construction
Received Date: April 15, 2013
Engineer Assigned: Jerry Williams, P.E.
Fee Amount: \$2,000.00
Date Received: April 15, 2013
Complete Date: May 13, 2013
Due Date: August 11, 2013
Applicant Ad Date: April 17, 2013
Newspaper: *Moundsville Daily Echo*
UTM's: Easting: 526.006 km Northing: 4414.010 km Zone: 17
Description: Williams is proposing to construct and operate a natural gas processing facility.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-3070:

The natural gas processing facility will be designed to process 600 million standard cubic feet per day (mmscfd) of incoming natural gas. The facility will receive natural gas from upstream production wells and send it to one (1) of three (3) cryogenic process trains (TXP-1, TXP-2, and TXP-3) where ethane (C2), propane (C3), and natural gas liquids (NGLs) are removed leaving residue gas. The residue gas is sent to a natural gas transmission pipeline or can be used as fuel gas on site.

The ethane, propane, and NGLs are sent to the deethanizer where ethane is removed. The ethane and NGLs are sent off site by pipeline. The ethane is sent to the amine process for removal of carbon dioxide and then the ethane is transported off site by pipeline.

Cryogenic Process

The cryogenic process drops the temperature of the inlet gas to approximately -120° F. Then an expansion turbine is used to rapidly expand the chilled gases, causing the temperature to drop even further. This rapid temperature drop condenses much of the ethane and most of the other hydrocarbons (primarily propane and butane) with small amounts of hexane, benzene, toluene, ethylbenzene, xylenes, while maintaining methane in gaseous form. As this is a totally closed system, the only emissions are fugitives from piping and equipment. These emissions are controlled by implementation of a leak detection and repair (LDAR) program for applicable components (valves, pumps, etc.) that are in 10% or greater VOC service.

Compressors and Pumps

Residue gas compression, refrigeration compression, regeneration gas compression, and the NGL and ethane pumps will utilize electric motors.

Heaters

Seven (7) natural gas fueled heaters will be used at the facility. The regeneration heaters (H-02, H-03, H-04) are used to regenerate the mol-sieves necessary to further dry the inlet gas. The hot oil heaters (H-05, H-06) are used for the deethanizers and condensate stabilizer. The heat medium heater (H-01) will be used on the TXP1 NGL demethanizer. Heater (H-07) will be used to regenerate the deethanizer's mol-sieves.

The regeneration heaters (H-02, H-03, H-04, H-07) only operate during the regeneration cycle of the mol-sieve beds. H-02 will operate a maximum of 3,000 hours per year, H-03 and H-04 will operate a maximum of 2,500 hours per year, and H-07 will operate a maximum of 4,015 hours per year. Heater H01 will operate at its full rating.

To remain below major source thresholds for carbon dioxide equivalents (CO_{2e}), H-05 and H-06 will be operated below 551,880 million British Thermal Units (MMBTU) per year of fuel usage. Fuel usage for the heaters is summarized in the following table:

Emission Unit ID	Name	MMBTU/hr Rating	Proposed MMBTU/yr Rating
H-01	TXP1 Hot Oil Heater	17.4	152,424
H-02	TXP1 Regeneration Gas Heater	5.605	16,815
H-03	TXP2 Regeneration Gas Heater	12.42	31,050
H-04	TXP3 Regeneration Gas Heater	12.42	31,050
H-05	Deethanizer Hot Oil Heater	63	551,880
H-06	Deethanizer Hot Oil Heater	63	551,880
H-07	Deethanizer Regeneration Gas Heater	10.193	40,925

Process Flare

The flare serves to safely combust natural gas and NGL during routine depressurization of portions of the plant for maintenance purposes. It is estimated that up to 85.5 mmscf/year will be combusted for non-emergency events. The amount of gas routed to the flare during a given event will vary widely, depending upon what areas of the facility will need to be depressurized for a given maintenance activity. The flare's destruction efficiency is rated at 99%.

Process Vents

There is one (1) process vent, the deethanizer amine process vent (V-1). The amine process vent will emit carbon dioxide (CO₂) that the process removes from the ethane.

Tanks

There are two (2) closed drain tanks (TK-1, TK-2) for wastewater from the process and two (2) slop oil tanks (TK-3, TK-4). All four (4) tanks vent to the atmosphere.

Truck Loading

There will be truck loading (TL-1) of wastewater and slop oil. Emissions from the truck loading will vent to the atmosphere.

Standby Generator

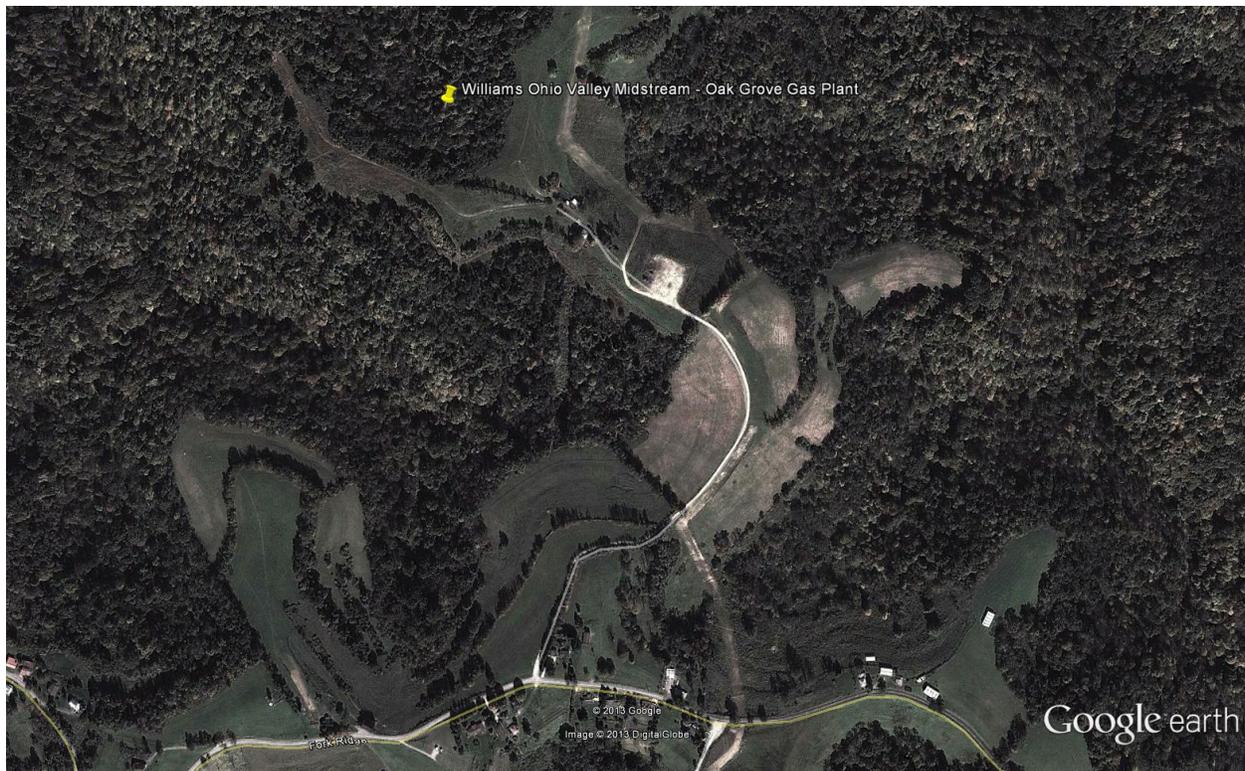
The facility will have a natural gas powered generator for emergency power. Use would be limited to a maximum of 500 hours per year. Operating hours would include emergency events when electric power to the station was lost, and maintenance and routine exercising of the generator.

SITE INSPECTION

A site inspection was conducted by Michael Wade of the Northern Panhandle Regional Office on May 21, 2013. Mr. Wade stated that the site is located in a somewhat remote area. The closest residence is approximately 600 yards from the site.

Directions as given in the permit application are as follows:

From Moundsville, travel approximately 4 miles southeast on County Highway 17 (Fork Ridge Road). Then travel north on unnamed road. The facility is located approximately 0.6 miles on unnamed road.



Latitude: 39.875742
Longitude: -80.695886

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this construction application consist of the emissions from the heaters, flare, emergency generator, tanks, truck loadout, amine process vent, and process piping fugitives. 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 Unit ID#	Emission Point ID#	Process Equipment	Calculation Methodology
H-01	1E	17.4 MMBTU/hr TXP1 Hot Oil Heater	EPA AP-42 Emission Factors
H-02	2E	5.605 MMBTU/hr TXP1 Regeneration Gas Heater	EPA AP-42 Emission Factors
H-03	3E	12.42 MMBTU/hr TXP2 Regeneration Gas Heater	EPA AP-42 Emission Factors
H-04	4E	12.42 MMBTU/hr TXP3 Regeneration Gas Heater	EPA AP-42 Emission Factors
H-05	5E	63 MMBTU/hr Deethanizer Hot Oil Heater	EPA AP-42 Emission Factors
H-06	6E	63 MMBTU/hr Deethanizer Hot Oil Heater	EPA AP-42 Emission Factors
H-07	7E	10.844 MMBTU/hr Deethanizer Regeneration Gas Heater	EPA AP-42 Emission Factors
FL-1	8E	85.5 mmscf/year Process Flare	EPA AP-42 Emission Factors
GEN-1	9E	243 hp Standby Generator	Manufacturer's Data, EPA AP-42 Emission Factors
TK-1	10E	400 bbl Closed Drain Water Tank	EPA Tanks 4.09
TK-2	11E	400 bbl Closed Drain Water Tank	EPA Tanks 4.09
TK-3	12E	400 bbl Slop Oil Tank – Condensate	EPA Tanks 4.09
TK-4	13E	400 bbl Slop Oil Tank – Condensate	EPA Tanks 4.09
TL-1	14E	Truck Loadout	EPA AP-42 Emission Factors
FUG	15E	Process Piping Fugitives	EPA AP-42 Emission Factors
V-01	16E	Amine Process Vent	ProTreat Gas Treating Process Simulator

The total facility PTE for the Oak Grove Gas Plant is shown in the following table:

Pollutant	Facility Wide PTE (tons/year)
Nitrogen Oxides	41.64
Carbon Monoxide	72.27
Volatile Organic Compounds	71.04
Particulate Matter-10	5.58
Sulfur Dioxide	0.46
Total HAPs	15.65
Carbon Dioxide Equivalent	98,732

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 – Oak Grove Gas Plant (R13-3070)

Emission Point ID#	Source	NO _x		CO		VOC		PM		SO ₂		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
1E	TXP1 Heat Medium Heater	0.85	3.73	1.43	6.25	0.09	0.41	0.13	0.57	0.01	0.05	0.03	0.15	2,038	8,925
2E	TXP1 Regeneration Gas Heater	0.27	0.41	0.46	0.69	0.03	0.05	0.04	0.06	<0.01	0.01	0.01	0.02	656	984
3E	TXP2 Regeneration Gas Heater	0.61	0.76	1.02	1.27	0.07	0.08	0.09	0.12	0.01	0.01	0.02	0.03	1,454	1,818
4E	TXP3 Regeneration Gas Heater	0.61	0.76	1.02	1.27	0.07	0.08	0.09	0.12	0.01	0.01	0.02	0.03	1,454	1,818
5E	Deethanizer Hot Oil Heater	3.35	13.52	5.60	22.63	0.37	1.49	0.47	2.07	0.04	0.17	0.13	0.55	7,378	32,314
6E	Deethanizer Hot Oil Heater	3.35	13.52	5.60	22.63	0.37	1.49	0.47	2.07	0.04	0.17	0.13	0.55	7,378	32,314
7E	Deethanizer Regen Gas Heater	0.50	1.00	0.84	1.68	0.06	0.11	0.08	0.15	0.01	0.01	0.02	0.04	1,193	2,396
8E	Flare	1.75	7.67	3.50	15.31	0.07	0.30	0.10	0.42	0.01	0.03	0.03	0.11	1,486	6508.05
9E	Standby Generator	1.07	0.27	2.14	0.54	0.54	0.13	<0.01	<0.01	<0.01	<0.01	0.16	0.04	253	63.2
10E-13E	Condensate/Water Tanks	0.00	0.00	0.00	0.00	0.26	1.13	0.00	0.00	0.00	0.00	0.06	0.28	0	0
14E	Truck Loadout	0.00	0.00	0.00	0.00	NA	15.98	0.00	0.00	0.00	0.00	NA	4.00	0	0
15E	Process Piping Fugitives	0.00	0.00	0.00	0.00	11.25	49.26	0.00	0.00	0.00	0.00	2.25	9.85	709	3103.59
16E	Amine Vent	0.00	0.00	0.00	0.00	0.12	0.53	0.00	0.00	0.00	0.00	0.00	0.00	1938	8488.22
Total	Total Facility PTE	12.36	41.64	21.61	72.27	13.30	71.04	1.55	5.58	0.13	0.46	2.88	15.65	25937	98,732

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 (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 classifies the TXP1 Hot Oil Heater (1E), TXP2 Regen Gas Heater (3E), TXP3 Regen Gas Heater (4E), DeC2 Hot Oil Heater (5E), DeC2 Hot Oil Heater (6E), and DeC2 Regen Gas Heater (7E) as 'type b' units. The allowable PM emission rate for these units would be the product of 0.09 and the total design heat input of the heater.

Emission Unit	Total Design Heat Input (MMBTU/hr)	45CSR2 Multiplier	Allowable PM Emission Rate (lb/hr)	Proposed PM Emission Rate (lb/hr)
1E	17.4	0.09	1.57	0.13
3E	12.42	0.09	1.12	0.09
4E	12.42	0.09	1.12	0.09
5E	63	0.09	5.67	0.51
6E	63	0.09	5.67	0.61
7E	10.844	0.09	0.98	0.08

As shown in the table above, Williams would meet this rule.

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 TXP1 Regen Gas Heater (2E) is below 10 MMBTU/hr. Therefore, this unit is exempt from the aforementioned sections of 45CSR2.

Williams also 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 a flare at the facility. The facility will demonstrate compliance by maintaining the amount of natural gas consumed by the flare and the hours of operation. The facility will also monitor the flame of the flare and record any malfunctions that may cause no flame to be present during operation. In addition, the facility will also monitor visible emissions from the flare on a monthly basis.

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

The purpose of this rule is to establish standards for emissions of sulfur oxides from fuel burning units, manufacturing operations and gas streams.

45CSR10 classifies the TXP1 Hot Oil Heater (1E), TXP2 Regen Gas Heater (3E), TXP3 Regen Gas Heater (4E), DeC2 Hot Oil Heater (5E), DeC2 Hot Oil Heater (6E), and DeC2 Regen Gas Heater (7E) as 'type b' units. The allowable SO₂ emission rate for these units would be the product of 3.1 and the total design heat input of the heater.

Emission Unit	Total Design Heat Input (MMBTU/hr)	45CSR10 Multiplier	Allowable SO ₂ Emission Rate (lb/hr)	Proposed SO ₂ Emission Rate (lb/hr)
1E	17.4	3.1	53.94	0.01
3E	12.42	3.1	38.51	0.01
4E	12.42	3.1	38.51	0.01
5E	63	3.1	195.3	0.04
6E	63	3.1	195.3	0.04
7E	10.844	3.1	33.62	0.01

As shown in the table above, Williams would meet this rule.

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 TXP1 Regen Gas Heater (2E) is below 10 MMBTU/hr. Therefore, this unit is exempt from the aforementioned sections of 45CSR10.

Furthermore, 45CSR10A exempts fuel burning units that combust natural gas from testing and monitoring requirements.

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 Dc, JJJJ, and OOOO). In addition, because a limitation was placed on H-05 and H-06 to remain below major source thresholds for CO₂e, Williams is subject to Notice Level C (45CSR13 Section 8.5) and will be required to publish a commercial display ad (45CSR13 Section 8.4.a) and post a visible sign at their facility (45CSR13 Section 8.5.a).

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

45CSR16 applies to this source by reference of 40CFR60, Subparts A, Dc, JJJJ, and OOOO. Williams is subject to the recordkeeping, monitoring, and testing required by 40CFR60 Subparts A, Dc, JJJJ, and OOOO.

45CSR22 (Air Quality Management Fee Program)

This facility is a minor source and not subject to 45CSR30. Williams is required to keep their Certificate to Operate current.

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. The following emission units that Williams proposes to install will be subject to this rule.

Emission Unit ID#	Emission Unit Description	Total Design Heat Input (MMBTU/hr)
1E	TXP1 Hot Oil Heater	17.4
3E	TXP2 Regen Gas Heater	12.42
4E	TXP3 Regen Gas Heater	12.42
5E	DeC2 Hot Oil Heater	63
6E	DeC2 Hot Oil Heater	63
7E	DeC2 Regen Gas Heater	10.844

Williams is subject to all applicable notifications, recordkeeping, and reporting requirements present in 40CFR60 Subpart Dc. In accordance with 40CFR60 Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, the applicant shall conduct compliance testing of these units within 180 days after initial startup.

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 Oak Grove Gas Plant. 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 is one (1) reciprocating internal combustion engine located at the Oak Grove Gas Plant (GEN-1) that was constructed after August 23, 2011. Therefore, the requirements regarding reciprocating compressors under 40 CFR 60 Subpart OOOO would 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 which commenced construction after August 23, 2011, and is located at a natural gas processing plant.

There are no gas-driven pneumatic controllers at the Oak Grove Gas Plant. Therefore, there are no applicable requirements regarding pneumatic controllers under 40 CFR 60 Subpart OOOO that would 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.

The storage vessels located at the Oak Grove Gas Plant emit less than 6 tpy of VOC. Therefore, Williams is not required by this section to reduce VOC emissions by 95%.

- 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 Oak Grove Gas Plant is a natural gas processing plant that was modified after August 23, 2011. Therefore, Leak Detection and Repair (LDAR) requirements for onshore natural gas processing plants would apply to the Oak Grove Gas Plant.

- 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 Oak Grove Gas Plant. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOO would not apply.

The following rules do not apply to the facility:

45CSR30 (Requirements for Operating Permits)

Williams is not subject to 45CSR30. The Oak Grove Gas Plant is subject to 40CFR60 Subparts Dc, 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 Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels)

The affected facility to which this subpart applies is each storage vessel with a capacity greater than or equal to 75 cubic meters (m³) (19,813 gallons) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. This subpart does not apply to storage vessels with a capacity greater than or equal to 151 m³ storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m³ but less than 151 m³ storing a liquid with a maximum true vapor pressure less than 15.0 kPa. This subpart also does not apply to pressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere.

40CFR60 Subpart Kb does not apply to storage vessels with a capacity less than 75 cubic meters. The largest tanks that Williams has proposed to install are 63.60 cubic meters each. Therefore, Williams would not be subject to this rule.

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. This modification to the Oak Grove Gas Plant occurred after August 23, 2011. Williams will be required to meet the LDAR requirements of Subpart OOOO for natural gas processing facilities. Therefore, Williams will not be subject to 40CFR60 Subpart KKK and will be subject to 40CFR60 Subpart OOOO.

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)

The Oak Grove Gas Plant is located in Marshall County, which is a non-attainment county for PM_{2.5} (surrogate for NO_x and SO₂), therefore the Oak Grove Gas Plant is possibly subject to 45CSR19.

As shown in the table below, Williams is not subject to 45CSR14 or 45CSR19 review.

Pollutant	PSD (45CSR14) Threshold (tpy)	NANSR (45CSR19) Threshold (tpy)	Oak Grove PTE (tpy)	45CSR14 or 45CSR19 Review Required?
Carbon Monoxide	250	NA	72.27	No
Nitrogen Oxides	250	100	41.64	No
Sulfur Dioxide	250	100	0.46	No
Particulate Matter 10	250	100	5.58	No
Ozone (VOC)	250	NA	71.04	No
Greenhouse Gas	100,000	NA	98,732	No

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There will be small amounts of various non-criteria regulated pollutants emitted from the combustion of natural gas. However, due to the concentrations emitted, detailed toxicological information is not included in this evaluation.

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 Oak Grove Gas Plant will extract NGLs from natural gas from upstream production wells. The NGLs will go to the Moundsville Fractionation Facility for further processing. The residual natural gas is sent to the natural gas transmission systems.

1. The Oak Grove Gas Plant and Moundsville Fractionation Facility both will operate under SIC code 13 (Natural Gas Liquid Extraction). Therefore, the two (2) facilities do belong to the same industrial grouping.
2. Both the Oak Grove Gas Plant and Moundsville Fractionation Facility are owned and operated by Williams. Therefore, they are under common control.
3. The Oak Grove Gas Plant will be located approximately 6 miles from the Moundsville Fractionation Facility. This is not considered to be on contiguous or adjacent property as Williams does not own the land in between the facilities. Additionally, the operations at the Oak Grove Gas Plant and the Moundsville Fractionation Facility are not mutually dependent upon one another. The Oak Grove Gas Plant and the Moundsville Fractionation Facility have entirely separate processes and products, and each facility can operate without the other.

The Oak Grove Gas Plant removes ethane, and NGLs consisting of propane, butane, and other higher molecular weight hydrocarbons from natural gas by cryogenic processes. All three (3) products are sent to different destinations and have independent market value. The residue natural gas, representing approximately 80-85% of the incoming stream, is sent to a natural gas transmission system. Ethane is also sent separately to market via pipeline. The NGLs from the Oak Grove Gas Plant are sent via pipeline to the Moundsville Fractionation Facility where they are separated by fractionation into individual components such as propane, butane, and natural gasoline. These products are then shipped to market. The Moundsville Fractionation Facility also receives NGLs from Williams' Fort Beeler Facility and can receive NGLs from other sources in the future. The NGLs have inherent market value and therefore can go to other facilities with similar or different processes. Conversely, NGLS could be purchased from other sources that the Oak Grove Gas Plant for processing at the Moundsville Fractionation Facility.

The purpose of the Oak Grove Gas Plant is to remove natural gas liquids (NGL) including ethane, propane, butane and other higher molecular weight organics from the raw natural gas stream produced from nearby wells. This brings the quality of the natural gas to within contractual standards making it suitable for sale to and distribution by interstate pipelines. The NGLs will go to the Moundsville Fractionation Facility for further processing. The residual natural gas is sent to the natural gas transmission system.

The Moundsville Fractionation Facility and Oak Grove Gas Plant do have the same industrial grouping and are owned by the same company and are under common control. However, the two (2) facilities are not considered “contiguous or adjacent”. The facilities are separated by 6 miles and Williams does not own the land in between the two (2) facilities. Furthermore, the facilities are not mutually dependent. In addition, the Oak Grove Gas Plant also has the capability of operating without the Moundsville Fractionation Facility. Williams will market the ability to use both facilities.

Because of the reasons listed above, 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:

1. Monitor and record quantity of natural gas consumed for all combustion sources.
2. Monitor and record quantity of natural gas routed through the process flare.
3. Monitor the presence of the flare pilot flame with a thermocouple or equivalent.
4. Establish a Leak Detection and Repair (LDAR) program for all equipment in VOC or wet gas service according to 40CFR60 Subpart OOOO.
5. Monitor and record quantity of natural gas treated in the deethanizer amine unit.
6. Monitor and record run time on the standby generator.
7. Monitor and record quantity of condensate transferred from the storage tanks.

Williams will be required to perform the following recordkeeping:

1. Maintain records of the amount of natural gas consumed and hours of operation for each heater.
2. Maintain records of the amount of natural gas treated in the deethanizer amine unit.
3. Maintain records of the amount of condensate transferred from the storage tanks.
4. Maintain records of the flare design evaluation.
5. 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
6. Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
7. Maintain records of the visible emission opacity tests conducted per the permit.
8. 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.
9. 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 Oak Grove Gas Plant should be granted a 45CSR13 construction permit for their facility.

Jerry Williams, P.E.
Engineer

Date