

FILE INDEX

Applicant : Williams Ohio Valley Midstream
Facility : Moundsville Fractionation Plant

Plant ID No.: 051-00141
R13-2892D

Chronological Order - Add Index Pages As Necessary

Date	To	From	Subject	# of pages
4/17/15	WVDEP	OVM	Permit Application & Submission Letter	
4/22/15	OVM	Jennifer Rice	48-Hour Letter	
5/08/15	Joe Kessler	OVM	Affidavit of Publication	
5/14/15	OVM	Joe Kessler	Completeness Determination	
7/01/15	Joe Kessler	OVM	Zeeco Flare DRE guarantee Letter (via e-mail)	
8/27/15	File	Joe Kessler	Flare TCEQ Emission Factors & DRE Information	
9/03/15	File	Joe Kessler	Draft Permit R13-2892D, Evaluation/Fact Sheet, Tracking Manifest	
	File	Joe Kessler	Public Notice Documents	

JRK
 9/03/2015

AIR QUALITY PERMIT NOTICE

Notice of Intent to Approve

On April 17, 2015, Williams Ohio Valley Midstream, LLC applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a permit to modify the Moundsville Fractionation Plant located at 200 Caiman Drive, Moundsville, Marshall County, WV at latitude 39.9129 and longitude -80.7970. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed facility. The DAQ is providing notice to the public of its preliminary determination to issue the permit as R13-2892D.

The following increase in potential emissions will be authorized by this permit action: Particulate Matter less than 2.5 microns, 0.25 tons per year (TPY); Particulate Matter less than 10 microns, 0.25 TPY; Particulate Matter, 0.25 TPY; Sulfur Dioxide, 0.05 TPY; Oxides of Nitrogen, 24.82 TPY; Carbon Monoxide, 49.70 TPY; Volatile Organic Compounds, 97.64 TPY; Hazardous Air Pollutants, 4.12 TPY.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on **XXXXXX**. A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed modification will meet all State and Federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

Joe Kessler, PE
Engineer
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Telephone: 304/926-0499, ext. 1219
FAX: 304/926-0478

NON-CONFIDENTIAL

Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above. The draft permit and engineering evaluation can be downloaded at:

www.dep.wv.gov/daq/Pages/NSRPermitsforReview.aspx

Kessler, Joseph R

From: Adkins, Sandra K
Sent: Friday, September 04, 2015 12:58 PM
To: Wheeler, Cathy L
Cc: Kessler, Joseph R
Subject: DAQ Public Notice

Please see below the Public Notice for Draft Permit R13-2892D for Williams Ohio Valley Midstream LLC's Moundsville Fractionation Plant located in Marshall County.

The notice will be published in the *Moundsville Daily Echo* on Tuesday, September 8, 2015, and the thirty day public comment period will end on Thursday, October 8, 2015.

AIR QUALITY PERMIT NOTICE

Notice of Intent to Approve

On April 17, 2015, Williams Ohio Valley Midstream, LLC applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a permit to modify the Moundsville Fractionation Plant located at 200 Caiman Drive, Moundsville, Marshall County, WV at latitude 39.9129 and longitude -80.7970. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed facility. The DAQ is providing notice to the public of its preliminary determination to issue the permit as R13-2892D.

The following increase in potential emissions will be authorized by this permit action: Particulate Matter less than 2.5 microns, 0.25 tons per year (TPY); Particulate Matter less than 10 microns, 0.25 TPY; Particulate Matter, 0.25 TPY; Sulfur Dioxide, 0.05 TPY; Oxides of Nitrogen, 24.82 TPY; Carbon Monoxide, 49.70 TPY; Volatile Organic Compounds, 97.64 TPY; Hazardous Air Pollutants, 4.12 TPY.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on Thursday, October 8, 2015. A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed modification will meet all State and Federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

Joe Kessler, PE

Engineer

WV Department of Environmental Protection

Division of Air Quality

601 57th Street, SE

Charleston, WV 25304

Telephone: 304/926-0499, ext. 1219

FAX: 304/926-0478

Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above.

The draft permit and engineering evaluation can be downloaded at:

www.dep.wv.gov/daq/Pages/NSRPermitsforReview.aspx

Kessler, Joseph R

From: Adkins, Sandra K
Sent: Thursday, September 03, 2015 4:04 PM
To: mdsvecho@gmail.com
Cc: Kessler, Joseph R
Subject: Publication of Class I Legal Ad for the WV Division of Air Quality

Please publish the information below as a Class I legal advertisement (one time only) in the Tuesday September 8, 2015, issue of the *Moundsville Daily Echo*. Please let me know that this has been received and will be published as requested. Thank you.

Send the invoice for payment and affidavit of publication to:

Sandra Adkins

**WV Department of Environmental Protection
DIVISION OF AIR QUALITY**

601- 57th Street

Charleston, WV 25304

AIR QUALITY PERMIT NOTICE

Notice of Intent to Approve

On April 17, 2015, Williams Ohio Valley Midstream, LLC applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a permit to modify the Moundsville Fractionation Plant located at 200 Caiman Drive, Moundsville, Marshall County, WV at latitude 39.9129 and longitude -80.7970. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed facility. The DAQ is providing notice to the public of its preliminary determination to issue the permit as R13-2892D.

The following increase in potential emissions will be authorized by this permit action: Particulate Matter less than 2.5 microns, 0.25 tons per year (TPY); Particulate Matter less than 10 microns, 0.25 TPY; Particulate Matter, 0.25 TPY; Sulfur Dioxide, 0.05 TPY; Oxides of Nitrogen, 24.82 TPY; Carbon Monoxide, 49.70 TPY; Volatile Organic Compounds, 97.64 TPY; Hazardous Air Pollutants, 4.12 TPY.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on Thursday, October 8, 2015. A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed modification will meet all State and Federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

Joe Kessler, PE

Engineer

WV Department of Environmental Protection

Division of Air Quality

601 57th Street, SE

Charleston, WV 25304

Telephone: 304/926-0499, ext. 1219

FAX: 304/926-0478

Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above.

The draft permit and engineering evaluation can be downloaded at:

www.dep.wv.gov/daq/Pages/NSRPermitsforReview.aspx



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.: R13-2892D
Plant ID No.: 051-00141
Applicant: Williams Ohio Valley Midstream, LLC
Facility Name: Moundsville Fractionation Plant
Location: Marshall County
SIC/NAICS Code: 1321/211112
Application Type: Modification
Received Date: April 17, 2015
Engineer Assigned: Joe Kessler
Fee Amount: \$2,000
Date Received: May 11, 2015
Complete Date: May 14, 2015
Due Date: August 12, 2015
Applicant Ad Date: April 20, 2015
Newspaper: *Moundsville Daily Echo*
UTM's: Easting: 517.347 km Northing: 4,418.11 km Zone: 17
Latitude/Longitude: 39.9129/-80.7970
Description: Modification to make various changes at the facility including (1) increasing capacity of natural gasoline tanks and (2) increasing amount of waste gases sent to the flare.

Entire Document
NON-CONFIDENTIAL

On December 28, 2011, Permit Number R13-2892 was issued to Caiman Eastern Midstream, LLC (CEM) for the construction and operation of the Ohio River Fractionation Plant. The plant was constructed to fractionate natural gas liquids (NGL) into three (3) products: propane, butane, and natural gasoline. On May 15, 2012, CEM changed its name to Williams Ohio Valley Midstream (OVM) and the facility is now referred to as the Moundsville Fractionation Plant. Since that time, the facility has been subject to the following new source review (NSR) permitting actions:

- On February 7, 2013, OVM was issued a Class II Administrative Update (A/U) as R13-2892A to increase the maximum design heat input (MDHI) of the Hot Oil Heater and increase the number of piping components that contribute to fugitive VOC losses;
- On March 5, 2013, OVM was issued Permit Number R13-2892B primarily to expand the capabilities of the facility through the addition of a stabilizer and associated heater that removes residue methane/ethane in the incoming NGLs to allow the sale of stabilized NGL;

- On May 28, 2013, OVM was issued Permit Number R13-2892C to install a new fractionation train and replace the existing flare; and
- On March 31, 2015, OVM was issued General Permit Registration Number G60-C069 for the installation of a propane-fired emergency generator.

DESCRIPTION OF PROCESS/MODIFICATIONS

Existing Facility

OVM's existing Moundsville Fractionation Plant processes up to a maximum of 42,500 barrels per day (BPD) of natural gas liquids (NGL) and therefrom produces three (3) products: propane, butane, and natural gasoline.

The facility receives raw NGL from area wells and places it in a series of twelve (12) pressure vessels (3S) ranging from 61,400 to 90,000 gallons in capacity. The primary purpose of these tanks is to act as a buffer for variations in the rate of NGL receipt to ensure a steady flow rate through the process, and providing plant storage. As these tanks are under pressure, there is no escape of vapors from these units. The NGL is then processed through two (2) fractionation trains (1S): each train is a series of distillation processes (de-propanizer and de-butanizer towers) to generate the desired products. The distillation process first removes the propane and then the mixed butanes from the NGL. The remaining liquid is classified as "natural gasoline." The three products are accumulated in a series of nineteen (17) pressurized tanks and two (2) non-pressurized tanks ranging from 60,000 to 454,000 gallons in capacity.

The facility uses one (1) 45.54 mmBtu/hr and two (2) 89.85 mmBtu/hr natural gas-fired Hot Oil Heaters (HTR-1, HTR-2) to precisely control the temperature within certain process equipment. In addition, the facility is capable of loading out products into both trucks and rail cars (2S). Truck and rail loading of the products (and potentially un-processed NGL) is controlled by the flare.

The facility includes a flare that is used to combust NGL or products in the event of an emergency that requires rapid removal of NGL and/or product from one or more portions of the facility. The flare is also used to combust NGL and/or one or more of the products when an area of the plant must be de-pressurized for maintenance/repairs. Additionally, the flare is used to control process gases during normal operation. The flare has a permitted destruction and removal efficiency (DRE) of 99.0% (as originally determined and permitted under R13-2892C).

Proposed Modifications

OVM is now proposing to modify the existing facility by:

- Increasing the capacity of two (2) of the Natural Gasoline Storage Tanks (3S) from to 420,000 to 454,000 gallons;

- Adding three (3) pressurized 90,000 gallons Stabilized Condensate Tanks (3S) to allow the storage and sale of pre-fractionated NGL;
- Increasing the amount of annual permitted waste gases sent to the flare (5S) from 95 mmscf/yr to 192.66 mmscf/yr;
- Increasing the capacity of the product loadout terminal from 42,500 to 52,500 BPD; and
- Making various revisions to the calculation of facility-wide fugitive emissions based on an increase in the component counts for process and piping fugitives, the addition of electric delivery pumps, and the addition of new (non-emitting) equipment that is in contact with organic vapors.

SITE INSPECTION

Due to the nature of the source and the proposed changes, the writer deemed a site inspection as not necessary. The facility was last “Full On Site” inspected by DAQ Compliance/ Enforcement (C/E) Inspector Steven Sobutka on September 17, 2013. Based on that inspection, the facility was determined to be “Status 30 - In Compliance.”

AIR EMISSIONS AND CALCULATION METHODOLOGIES

The following will only discuss the air emissions and calculation methodologies of the emission sources being modified as part of this permitting action.

Flare Products of Combustion

Two sources of air emissions occur at the Flare (5E): VOC/HAP emissions that pass-through the flare uncombusted and the products of combusting the organic vapors sent to the flare for destruction. This section details the products of combustion generated at the flare. Emissions (CO and NO_x) from the products of combustion are primarily based on emission factors as given in Texas Commission on Environmental Quality’s (TCEQ) “Flares and Vapor Oxidizers” Report (RG-109: pp. 19). These emission factors are generally accepted for estimating products of combustion from flares at oil and gas processing facilities when combusting high BTU gas streams. Additional emissions (particulate matter, SO₂, formaldehyde, and total HAPs) were based on emission factors given under AP-42 Section 1.4. (AP-42 is a database of emission factors maintained by USEPA). While Section 1.4 of AP-42 is used for estimating emissions from boilers combusting natural gas, in the absence of other factors, it is used to conservatively estimate the nominal amounts of expected emissions from various pollutants from flare combustion.

Hourly emissions from the flare were based on the maximum capacity of the flare of 620.00 mmBtu/hr. Annual emissions were based on the calculated maximum annual HHV of the gases sent to the flare: 613,133 mmBtu/yr. Each calculated heat rate sent to the flare is based on the expected gas volume and heat content of the various waste gas streams sent to the flare for control. An average heat content of the waste gases of 3,183 Btu/scf was used in the calculations.

The following table details the emissions factors and revised post-modification potential-to-emit (PTE) of the products of combustion from the flare:

Table 1: Flaring Combustion Exhaust PTE

Pollutant	Emission Factor	Source	Hourly (lb/hr)	Annual (ton/yr)
CO	0.2755 lb/MMBtu ⁽¹⁾	TCEQ RG-109 (High Btu)	170.81	84.46
NO _x	0.1380 lb/MMBtu ⁽¹⁾	TCEQ RG-109 (High Btu)	85.56	42.31
PM _{2.5} ⁽²⁾	7.6 lb/10 ⁶ lb/scf	AP-42, Table 1.4-2	1.48	0.73
PM ₁₀ ⁽²⁾	7.6 lb/10 ⁶ lb/scf	AP-42, Table 1.4-2	1.48	0.73
PM ⁽²⁾	7.6 lb/10 ⁶ lb/scf	AP-42, Table 1.4-2	1.48	0.73
SO ₂	0.60 lb/10 ⁶ lb/scf	AP-42, Table 1.4-2	0.12	0.06
CH ₂ O	7.5 lb/10 ⁻² lb/scf	AP-42, Table 1.4-3	0.01	0.01

- (1) Emission factors from TCEQ RG-109 (pp. 19) for combustion of high BTU gas streams at non-steam assist flares. OVM flare is an air-assisted flare and combusting waste gas stream with average heat content of 3,183 Btu.
- (2) Includes condensables. However, as a smokeless flare, any particulate matter emissions under normal operations should be nominal.

Pass-Through Emissions at the Flare

Organic vapors are captured from various equipment and processes (and during various short-term scenarios) and sent to the flare for control during non-emergency operation. This includes both continuous streams and intermittent streams. OVM included in their emissions calculations an estimate of the maximum amount and characteristics of the streams sent to the flare from each piece of equipment, process, or event (it was from this data the values used to calculate the combustion exhaust emissions above was determined). From this data (supplied in Attachment H of the permit application), OVM calculated the total annual uncontrolled VOCs and speciated HAPs sent to the flare for destruction (192.66 mmscf/yr) and the average amount of each pollutant per mmscf. The hourly amount of waste gases sent to the flare was based on the very conservative maximum capacity of the flare of 28,000 lbs-waste gases/hr.

Controlled emissions were then based on the flare achieving a DRE of 99.0%. A DRE of 99.0% was reviewed and permitted for the original flare permitted under R13-2892 and for the replacement flare under R13-2892C. During the review of this permitting action, OVM supplied a letter from Zeeco - the manufacturer of the flare - that they guarantee a DRE of 99% from the OVM flare when operated within the guidelines given in the Zeeco Operating Manual.

The following table details the post-modification pass-through organic emissions at the flare generated by a various continuous and intermittent waste gas streams:

Table 2: Flaring Organics Pass-Through PTE

Pollutant	Weight % ⁽¹⁾	lb/mm scf ⁽¹⁾	Uncontrolled		Controlled @ 99%	
			lb/hr ⁽²⁾	ton/yr ⁽³⁾	lb/hr	ton/yr
VOCs	100.00	145,500	28,000.00	14,016.02	280.00	140.16
<i>Benzene</i>	0.07	100	19.60	9.63	0.20	0.10
<i>Ethylbenzene</i>	0.03	50	8.40	4.82	0.08	0.05
<i>n-Hexane</i>	4.01	6,050	1,122.80	582.80	11.23	5.83
<i>Toluene</i>	0.19	280	53.20	26.97	0.53	0.27
<i>2,2,4-TMP</i>	0.14	210	39.20	20.23	0.39	0.20
<i>Xylenes</i>	0.66	1,000	184.80	96.33	1.85	0.96
Total HAPs	5.10	7,690	1,428.00	740.78	14.28	7.41

- (1) These values based on actual stream data taken from the Moundsville Plant and summarized in Attachment H of the permit application.
- (2) Based on the maximum capacity of the flare of 28,000 lbs/hour.
- (3) Based on the estimated maximum annual amount of waste gases sent to the flare: 192.66 scf/yr.

Fugitive Emissions

Process and Piping Components

OVM based their uncontrolled fugitive process and piping components leak calculations (1S) on emission factors taken from the document EPA-453/R-95-017 - "Protocol for Equipment Leak Emission Estimates." Emission factors were taken from Table 2-4 and controlled emissions were based on the Table 5-2 and the use of a Leak Detection and Repair (LDAR) protocol that meets the minimum requirement of a 10,000 ppm_v leak definition and monthly monitoring. VOC emissions were conservatively based on all light liquid and gas streams having 100% VOC contents. HAP emissions were based on the actual speciated weight percentages of the HAPs in the applicable streams. Component counts were based on actual counts and design estimates.

Other Equipment Leaks

OVM estimated fugitive leaks of natural gas/propane from other potential sources such as packing and gaskets, resulting from the wear of mechanical joints, seals, and rotating surfaces over time. This estimate was based on a loss of 34.50 scf/hr of natural gas for 2,000 hours/year. VOC losses were based on the weight percentage of VOC in propane.

Emissions Summary

Based on the above estimation methodology, which is determined to be appropriate, the revised post-modification PTE of the Moundsville Fractionation Plant is given in Attachment A. The change in annual facility-wide PTE as a result of the modifications evaluated herein is given in the following table:

Table 3: Change in Facility-Wide Annual PTE (in tons/year)

Pollutant	Pre-Modification ⁽¹⁾	Post-Modification	Change
CO	96.68	146.38	49.70
NO _x	54.35	79.17	24.82
PM _{2.5} /PM ₁₀ /PM	5.49	5.74	0.25
SO ₂	0.41	0.46	0.05
VOCs	118.94	216.58	97.64
Total HAPs	7.50	11.62	4.12

(1) Emissions taken from R13-2892C and G60-C069 Engineering Evaluation/Fact Sheet.

REGULATORY APPLICABILITY

This section will address the potential regulatory applicability/non-applicability of substantive state and federal air quality rules relevant to the emission units/sources modified at the Moundsville Fractionation Plant.

45CSR6: To Prevent and Control Particulate Air Pollution from Combustion of Refuse

OVM's flare is defined as an "incinerator" under 45CSR6 and is, therefore, subject to the requirements therein. The substantive requirements applicable to the units are discussed below.

45CSR6 Emission Standards for Incinerators - Section 4.1

Section 4.1 limits PM emissions from incinerators to a value determined by the following formula:

$$\text{Emissions (lb/hr)} = F \times \text{Incinerator Capacity (tons/hr)}$$

Where, the factor, F, is as indicated in Table I below:

Table I: Factor, F, for Determining Maximum Allowable Particulate Emissions

<u>Incinerator Capacity</u>	<u>Factor F</u>
A. Less than 15,000 lbs/hr	5.43
B. 15,000 lbs/hr or greater	2.72

Based on information included in the application, the capacity of the flare is 28,000 lb/hr (14 tons/hour). Pursuant to the above equation, the particulate matter limit of the flare is 38.08 lbs/hr. When properly operated, particulate matter emissions from the flare are expected to be negligible and in compliance with the limit calculated under Section 4.1. However, OVM did include a particulate matter emission estimate for the flare based on the use of an AP-42 emission factor for natural gas combustion. This emission factor produced a particulate matter emission rate of 1.48 lb/hr which is far below the 45CSR6 limit.

45CSR6 Opacity Limits for - Section 4.3, 4.4

Pursuant to Section 4.3, and subject to the exemptions under 4.4, the flare has a 20% limit on opacity during operation. Proper design and operation of the "smokeless" flare should prevent any opacity from the flare.

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 proposed changes to the Moundsville Fractionation Plant have the potential to increase the PTE of the facility in excess of six (6) lbs/hour and ten (10) TPY of a regulated pollutant (see Table 3 above) and, therefore, pursuant to §45-13-2.17, the changes are defined as a "modification" under 45CSR13. Pursuant to §45-13-5.1, "[n]o person shall cause, suffer, allow or permit the construction, modification, relocation and operation of any stationary source to be commenced without . . . obtaining a permit to construct." Therefore, OVM is required to obtain a permit under 45CSR13 for the modification of the facility.

As required under §45-13-8.3 ("Notice Level A"), OVM placed a Class I legal advertisement in a "newspaper of *general circulation* in the area where the source is . . . located." The ad ran on April 20, 2015 in *Moundsville Daily Echo* and the affidavit of publication for this legal advertisement was submitted on May 8, 2015.

45CSR14: Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration - (NON APPLICABILITY)

The Moundsville Fractionation Plant is located in Marshall County, WV. Marshall County is classified as "in attainment" with all National Ambient Air Quality Standards (NAAQS) except for, in certain tax districts, SO₂. The Clay Tax District, where the Moundsville facility is located, is classified as "non-attainment" for SO₂. Therefore, applicability to major New Source Review (NSR) for all pollutants except for SO₂ is determined under 45CSR14.

As the facility is not a "listed source" under §45-14-2.43, the individual major source applicability threshold for all criteria pollutants (with the exception of SO₂) is 250 TPY. As given above in Attachment A, the facility-wide post-modification PTE of the Moundsville Extraction and Fractionation Plant is less than 250 TPY for all criteria pollutants. Therefore, the facility is not defined as a "major stationary source" under 45CSR14.

45CSR19: Requirements fo Pre-Construction Review, Determination of Emission Offsets for Proposed New or Modified Stationary Sources of Air Pollutants and Emission Trading for Intrasource Pollutants - (NON APPLICABILITY)

Pursuant to §45-19-3.1, 45CSR19 "applies to all major stationary sources and major modifications to major stationary sources proposing to construct anywhere in an area which is designated non-attainment." As noted above, the Moundsville Fractionation Plant is located in

Marshall County, WV which is classified as in attainment with all NAAQS; with the exception for SO₂ in the areas defined as the Clay (where the source is located), Washington, and Franklin Tax Districts. Pursuant to §45-14-2.35, the individual major source applicability threshold for all non-attainment pollutants is 100 TPY. As given in Attachment A, the facility-wide post-modification SO₂ PTE of the Moundsville Fractionation Plant is less than 100 TPY. Therefore, the facility is not defined as a "major stationary source" under 45CSR19.

45CSR30: Requirements for Operating Permits

45CSR30 provides for the establishment of a comprehensive air quality permitting system consistent with the requirements of Title V of the Clean Air Act. As a result of the changes made under Permit Number R13-2892C, the Moundsville Fractionation Plant was thereafter defined as a major source under Title V and was required to submit a Title V (45CSR30) application within twelve (12) months after the commencement date of any operation authorized by R13-2892C. This Title V permit application (R30-05100141-2015) was submitted on November 13, 2014. Changes authorized by this permit must also be incorporated into the facility's Title V operating permit (or permit application, if the permit is not yet issued). Commencement date of any operation authorized by this permit shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

40 CFR60, Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984

Subpart Kb of 40 CFR 60 is the NSPS for storage tanks containing Volatile Organic Liquids (VOLs) which construction commenced after July 23, 1984. The Subpart applies to storage vessels used to store volatile organic liquids with a capacity greater than or equal to 75 m³ (19,813 gallons). However, storage tanks with a capacity greater than or equal to 151 m³ (39,890 gallons) 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 are exempt from Subpart Kb. Additionally, pursuant §60.110b(b)(2), “[p]ressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere” are exempt from Subpart Kb.

Therefore, based on the above, the three (3) new pressurized 90,000 gallons Stabilized Condensate Tanks are exempt from Subpart Kb. The two (2) modified 454,000 gallons natural gasoline storage tanks are, however, subject to the applicable provisions therein (natural gasoline has a vapor pressure ~ 85 kPa). Pursuant to §60.112b(b)(1) the natural gasoline storage tanks are required to be equipped with a “closed vent system and control device as specified in §60.112b(a)(3).” The use of a closed vent system to capture and vent the vapors to the flare meets the requirements of §60.112b(a)(3). Additionally, OVM will be required to meet all applicable monitoring, recordkeeping, and reporting requirements in Subpart Kb.

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

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 Moundsville Fractionation Plant was constructed after August 23, 2011. OVM is required to meet all applicable LDAR requirements of Subpart OOOO for natural gas processing facilities (see below).

40 CFR 60, Subpart OOOO: Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution

On April 27, 2012, the USEPA issued a final rule (with amendments finalized on August 16, 2012) that consists of federal air standards for natural gas wells that are hydraulically fractured, along with requirements for several other sources of pollution in the oil and gas industry that currently were previously not regulated at the federal level. Each section of Subpart OOOO potentially applicable to a new or modified source is discussed below.

Storage Tanks (NON-APPLICABILITY)

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 is potentially applicable to the storage tank requirements of Subpart OOOO. Subpart OOOO defines a storage vessel as a unit that is constructed primarily of non-earthen 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 tons/year of VOCs, the permittee must reduce VOC emissions by 95% or greater within 60 days of startup.

Based on a letter from USEPA to the American Petroleum Instituted dated September 28, 2012, the applicability of storage vessels to this reduction requirement of Subpart OOOO is based on each individual tank's PTE (which includes federally enforceable control devices) as compared to the 6 tons/year.

Therefore, based on the above, the three (3) new pressurized 90,000 gallons Stabilized Condensate Tanks are exempt from Subpart OOOO as these tanks are designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere. The two (2) modified 454,000 gallons natural gasoline storage tanks have VOC emissions, after control by the flare, of less than 6 tons/year of VOCs. Therefore, Williams is not required by Subpart OOOO to reduce VOC emissions by 95%.

Leak Detection and Repair Requirements (LDAR)

The substantive requirement for affected facilities at a natural gas processing plant is to meet the applicable LDAR conditions under Subpart VVa. The Moundsville Fractionation Plant is a natural gas processing plant that was modified after August 23, 2011. Therefore, LDAR requirements for onshore natural gas processing plants will continue to apply to the facility.

TOXICITY ANALYSIS OF NON-CRITERIA REGULATED POLLUTANTS

This section provides an analysis for those regulated pollutants that may be emitted from the Moundsville Fractionation Plant and that are not classified as "criteria pollutants." Criteria pollutants are defined as Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NO_x), Ozone, Particulate Matter (PM₁₀, and PM_{2.5}), and Sulfur Dioxide (SO₂). These pollutants have National Ambient Air Quality Standards (NAAQS) set for each that are designed to protect the public health and welfare. Other pollutants of concern, although designated as non-criteria and without national concentration standards, are regulated through various federal programs designed to limit their emissions and public exposure. These programs include federal source-specific Hazardous Air Pollutants (HAPs) standards promulgated under 40 CFR 61 (NESHAPS) and 40 CFR 63 (MACT). Any potential applicability to these programs were discussed above under REGULATORY APPLICABILITY.

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. The Moundsville Fractionation Plant has the potential to emit the following HAPs as in substantive amounts: Formaldehyde, n-Hexane, Benzene, Toluene, Ethylbenzene, and Xylenes. The following table lists each HAP's carcinogenic risk (as based on analysis provided in the Integrated Risk Information System (IRIS)):

Table 4: Potential HAPs - Carcinogenic Risk

HAPs	Type	Known/Suspected Carcinogen	Classification
n-Hexane	VOC	No	Inadequate Data
Formaldehyde	VOC	Yes	B1 - Probable Human Carcinogen
Benzene	VOC	Yes	Category A - Known Human Carcinogen
Toluene	VOC	No	Inadequate Data
Ethyl-benzene	VOC	No	Category D - Not Classifiable
Xylenes	VOC	No	Inadequate Data
2,2,4-Trimethylpentane	VOC	No	Inadequate Data

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health affects 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

The proposed modification does not meet the definition of a “major modification” pursuant to 45CSR14 and, therefore, an air quality impact (computer modeling) analysis was not required. Additionally, based on the nature of the proposed modification, modeling was not required under 45CSR13, Section 7.

MONITORING, COMPLIANCE DEMONSTRATIONS, RECORD-KEEPING, AND REPORTING REQUIREMENTS

The following changes to substantive monitoring, compliance demonstration, and record-keeping requirements shall be required relevant to the emission units/sources modified at the Moundsville Fractionation Plant:

- In order to determine compliance with 6.1.4. of the draft permit, OVM shall be required to monitor and record the monthly and rolling twelve (12) month total aggregate waste gases sent to the flare (in mmscf) from the sources identified under 6.1.1. of the draft permit; and

- In order to determine compliance with the emission limitations under 6.1.2. and 6.1.3. of the draft permit, OVM shall be required to, by the end of each calendar month, calculate and record the actual monthly and rolling twelve (12) month total of the emissions (in tons) at the flare (both combustion exhaust and pass-through) of the previous 12 full months. This calculation shall be based on the same methodology used to calculate emissions in Attachment N of permit application R13-2892D and based on the most recent determination of the average hourly and annual heat value (in Btu/scf) and (2) the per-pollutant concentrations (lb-pollutant/mmscf) of the gas streams identified under 6.1.1. of the draft permit.

PERFORMANCE TESTING OF OPERATIONS

The following changes to substantive performance testing requirements shall be required relevant to the emission units/sources modified at the Moundsville Fractionation Plant:

- At a minimum of once every twelve (12) months, OVM shall be required to determine the (1) average hourly and annual heat value (in Btu/scf) and (2) the per-pollutant concentrations (lb-pollutant/mmscf) of the gas streams identified under 6.1.1. of the draft permit. These values will be generated by appropriate waste gas stream sampling and estimating the hourly and annual flow rates to flare as based on projecting operations and throughputs.

CHANGES TO R13-2892C

The following substantive changes were made to Permit Number R13-2892C:

- The Emissions Units Table 1.0 was revised to reflect the changes evaluated herein;
- The Control Devices Table 1.1 was revised to list the updated emission units and sources sent to the flare for control;
- Requirement 6.1.1. was revised to list the updated emission units and sources sent to the flare for control;
- Table 6.1.2. was revised by removing the CO₂e emission limits and the VOC pass-through emission limits. Additionally, the combustion exhaust emissions of the flare were revised to reflect the new emission calculations;
- Table 6.1.3. was added with the revised VOC pass-through emissions and the speciated HAP pass-through emissions;
- Requirement 6.1.4. was added to limit the maximum annual waste-gas flow rate to the flare;
- Requirement 6.1.5. was revised to include more specific model and operating data of the flare;

- Requirement 6.2.2. was revised to require OVM to monitor and record the aggregate waste-gas flow rate to the flare specifically to show compliance with the limit under 6.1.4.;
- Requirement 6.2.3. was added to require OVM to calculate actual emissions from the flare on a rolling twelve month basis based on the most recent gas sampling data;
- Requirement 6.3.3. was added to require OVM to, at a minimum of once every twelve (12) months, conduct gas sampling on which to base the calculations required under 6.2.3. of the draft permit; and
- The throughput limits and emission limit under requirement 7.1.1. and 7.1.3, respectively, were revised in accordance with the changes.

RECOMMENDATION TO DIRECTOR

The information provided in permit application R13-2892D indicates that compliance with all applicable federal and state air quality regulations will be achieved. Therefore, I recommend to the Director the issuance of a Permit Number R13-2892D to Williams Ohio Valley Midstream, LLC for the modifications discussed herein at the Moundsville Fractionation Plant located in Moundsville, Marshall County, WV.

Joe Kessler, PE
Engineer

Date

Fact Sheet R13-2892D
Williams Ohio Valley Midstream, LLC
Moundsville Fractionation Plant

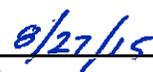
- Requirement 6.2.2. was revised to require OVM to monitor and record the aggregate waste-gas flow rate to the flare specifically to show compliance with the limit under 6.1.4.;
- Requirement 6.2.3. was added to require OVM to calculate actual emissions from the flare on a rolling twelve month basis based on the most recent gas sampling data;
- Requirement 6.3.3. was added to require OVM to, at a minimum of once every twelve (12) months, conduct gas sampling on which to base the calculations required under 6.2.3. of the draft permit; and
- The throughput limits and emission limit under requirement 7.1.1. and 7.1.3, respectively, were revised in accordance with the changes.

RECOMMENDATION TO DIRECTOR

The information provided in permit application R13-2892D indicates that compliance with all applicable federal and state air quality regulations will be achieved. Therefore, I recommend to the Director the issuance of a Permit Number R13-2892D to Williams Ohio Valley Midstream, LLC for the modifications discussed herein at the Moundsville Fractionation Plant located in Moundsville, Marshall County, WV.



Joe Kessler, PE
Engineer



Date

Attachment A: Facility-Wide PTE
Williams Ohio Valley Midstream, LLC: Moundsville Fractionation Plant
Permit Number R13-2892D: Facility ID 051-00141

Emission Unit	EP ID	CO		NO _x		PM ⁽¹⁾		SO _x		VOC		n-Hexane		Total HAPs	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Hot Oil Heater 1	1E	3.75	16.43	4.46	19.56	0.34	1.49	0.03	0.12	0.25	1.08	0.08	0.35	0.08	0.37
Hot Oil Heater 2A	2E	6.65	35.00	3.23	17.03	0.67	3.52	0.05	0.28	0.36	1.89	0.16	0.83	0.17	0.88
Hot Oil Heater 2B		6.65		3.23		0.67		0.05		0.36		0.16		0.17	
Flare Combustion Exhaust	5E	170.81	84.46	85.56	42.31	1.48	0.73	0.12	0.06	0.00	0.00	0.00	0.00	0.00	0.00
Flare Pass-Through Emissions		0.00		0.00		0.00		0.00		0.00		0.00		0.00	
Non-Pressurized Storage Tanks	TKS2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.40	0.02	0.09	0.02	0.10
Emergency Generator	6E	41.98	10.49	1.08	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fractionation Plant Fugitives	n/a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.76	69.03	0.52	2.29	0.65	2.86
Misc. Equipment Leaks	n/a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.02	4.02	0.00	0.00	0.00	0.00
Facility-Wide Total →		229.84	146.38	97.56	79.17	3.16	5.74	0.25	0.46	301.62	216.58	12.17	9.39	15.37	11.62
Facility-Wide PTE⁽³⁾ →		229.84	146.38	97.56	79.17	3.16	5.74	0.25	0.46	281.84	143.53	11.65	7.10	14.72	8.76

(1) All particulate matter emissions are assumed to be 2.5 microns or less.

(2) PTE does not include fugitive emissions. No individual HAP has a PTE over 10 TPY (n-Hexane is the largest contributor). As the PTE of all individual HAPs are less than 10 TPY the PTE of total HAPs is less than 25 TPY, and the PTE of each criteria pollutant is less than 100 TPY, the Moundsville Fractionation Plant is defined as a minor (area) source for purposes of 40 CFR 61, 40CFR63, and Title V.

(3) PTE of each criteria pollutant is less than 100 TPY, the Moundsville Fractionation Plant is defined as a minor (area) source for purposes of 40 CFR 61, 40CFR63, and Title V.

West Virginia Department of Environmental Protection
Earl Ray Tomblin
Governor

Division of Air Quality

Randy C. Huffman
Cabinet Secretary

Permit to Modify



Entire Document
NON-CONFIDENTIAL

R13- 2892D

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§22-5-1 et seq.) and 45 C.S.R. 13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the above-referenced facility is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:

Williams Ohio Valley Midstream, LLC
Moundsville Fractionation Plant
051-00141

DRAFT

William F. Durham
Director

Issued: DRAFT

 ***This permit will supercede and replace R13-2892C issued on May 28, 2013.***

Facility Location: Moundsville, Marshall County, West Virginia
Mailing Address: Park Place 2, 2000 Commerce Drive, Pittsburgh, PA 15275
Facility Description: Natural Gas Extraction/Fractionation Facility
SIC Codes: 1321
NAICS Codes: 211112
UTM Coordinates: 517.347 km Easting • 4418.11 km Northing • Zone 17
Latitude/Longitude: 39.91290/-80.79700
Permit Type: Modification
Description of Change: Request to: (1) modify fugitive emissions based on various changes to components in gas and liquid service, (2) modify the capacity of natural gasoline tanks, and (3) increase waste gas volume sent to the flare.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

The source is subject to 45CSR30. Changes authorized by this permit must also be incorporated into the facility's Title V operating permit or application as applicable. Commencement date of any operation authorized by this permit shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

Table of Contents

1.0.	Emission Units	5
1.1.	Control Devices	6
2.0.	General Conditions	7
2.1.	Definitions	7
2.2.	Acronyms	7
2.3.	Authority	8
2.4.	Term and Renewal.....	8
2.5.	Duty to Comply	8
2.6.	Duty to Provide Information.....	8
2.7.	Duty to Supplement and Correct Information	8
2.8.	Administrative Update.....	9
2.9.	Permit Modification.....	9
2.10.	Major Permit Modification.....	9
2.11.	Inspection and Entry	9
2.12.	Emergency.....	9
2.13.	Need to Halt or Reduce Activity Not a Defense.....	10
2.14.	Suspension of Activities	10
2.15.	Property Rights	10
2.16.	Severability.....	10
2.17.	Transferability	11
2.18.	Notification Requirements.....	11
2.19.	Credible Evidence	11
3.0.	Facility-Wide Requirements	12
3.1.	Limitations and Standards	12
3.2.	Monitoring Requirements.....	12
3.3.	Testing Requirements	12
3.4.	Recordkeeping Requirements.....	14
3.5.	Reporting Requirements	14
4.0.	Source-Specific Requirements	16
4.1.	Limitations and Standards	16
5.0.	Source-Specific Requirements (Hot Oil Heaters 1-HTR, 2-HTR)	16
5.1.	Limitations and Standards	17
5.2.	Monitoring Requirements.....	18
5.3.	Testing Requirements	18
5.4.	Recordkeeping Requirements.....	18
5.5.	Reporting Requirements	19
6.0.	Source-Specific Requirements (Flare Control Device, 5S)	20
6.1.	Limitations and Standards	20
6.2.	Monitoring Requirements.....	22
6.3.	Testing Requirements	22
6.4.	Recordkeeping Requirements.....	22
6.5.	Reporting Requirements	23
7.0.	Source-Specific Requirements (40CFR60 Subpart OOOO Requirements, Gas Processing Plants)	24
7.1.	Limitations and Standards	24

7.2.	Initial Compliance Demonstration.....	26
7.3.	Continuous Compliance Demonstration.....	27
7.4.	Notification, Recordkeeping and Reporting Requirements	28
7.5.	Recordkeeping Requirements.....	30
8.0.	Source-Specific Requirements (Flare Control Device, 5S)	20
8.1.	Limitations and Standards	20
8.2.	Monitoring Requirements	22
8.3.	Testing Requirements	22
8.4.	Recordkeeping Requirements.....	22
8.5.	Reporting Requirements	33
	CERTIFICATION OF DATA ACCURACY.....	35

1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
1S	n/a	Fractionation Plant 1 (Fugitives Only)	2011	12,500 BPD	None
		Fractionation Plant 2 (Fugitives Only)	2013	30,000 BPD	
2S	TLO	Product Loading/Unloading	2011	58,200 BPD	FL-02
3S	n/a	Stabilized Condensate Tanks	TBD	3 tanks @ 90,000 gallons	Pressure Vessels
		NGL Accumulation Tanks	2011	6 tanks @ 61,400 gallons	Pressure Vessels
			2013	6 tanks @ 90,000 gallons	
		Propane Accumulation Tanks	2011	2 tanks @ 114,000 gallons	Pressure Vessels
				4 tanks @ 90,000 gallons	
			2013	2 tanks @ 420,000 gallons	
				1 tank @ 90,000 gallons	
		Butane Accumulation Tanks	2011	2 tanks @ 140,000 gallons	Pressure Vessels
			2013	3 tanks @ 210,000 gallons	
		Natural Gasoline Accumulation Tanks	2011	2 tanks @ 60,000 gallons	Pressure Vessels
				1 tank @ 90,000 gallons	
			2013	2 tanks @ 454,000 gallons	FL-02
1-HTR	1E	Hot Oil Heater	2011	45.54 MMBTU/hr	None
2-HTR	2E	Hot Oil Heaters (2)	2013	89.85 MMBTU/hr (each)	None
5S	5E	Flare Pilot Light	2013	0.24 MBTU/hr	None
		Flare Waste Gas Combustion		28,000 lb.hr	
7S	n/a	Miscellaneous Equipment Leaks	2011	n/a	n/a

1.1. Control Devices

Emission Units/Sources	Pollutant	Control Device	Control Efficiency
Stabilized Condensate Hose Blowdown; Product Loading/Hose Blowdown; Natural Gasoline Tanks w/Butane Blankets; NGL Pig Receiver Blowdowns (250 Events/year); Hot Oil Expansion Tanks (Fuel/Purge Gas); Rail Car Degassing (50% C3/C4 + 50% Natural Gasoline); Off-Spec Product Flaring (Inlet NGL); Continuous Flare Purge (Fuel/Purge Gas); and Continuous Flare Pilot (Fuel/Purge Gas).	VOCs	Flare (FL-02)	99.0 %
	Total HAPS		99.0 %

2.0. General Conditions

2.1. Definitions

- 2.1.1. All references to the “West Virginia Air Pollution Control Act” or the “Air Pollution Control Act” mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.
- 2.1.2. The “Clean Air Act” means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.
- 2.1.3. “Secretary” means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary’s designated representative for the purposes of this permit.

2.2. Acronyms

CAAA	Clean Air Act Amendments	NO_x	Nitrogen Oxides
CBI	Confidential Business Information	NSPS	New Source Performance Standards
CEM	Continuous Emission Monitor	PM	Particulate Matter
CES	Certified Emission Statement	PM_{2.5}	Particulate Matter less than 2.5 μm in diameter
C.F.R. or CFR	Code of Federal Regulations	PM₁₀	Particulate Matter less than 10μm in diameter
CO	Carbon Monoxide	Ppb	Pounds per Batch
C.S.R. or CSR	Codes of State Rules	Pph	Pounds per Hour
DAQ	Division of Air Quality	Ppm	Parts per Million
DEP	Department of Environmental Protection	Ppm_v or ppm_v	Parts per Million by Volume
dscm	Dry Standard Cubic Meter	PSD	Prevention of Significant Deterioration
FOIA	Freedom of Information Act	Psi	Pounds per Square Inch
HAP	Hazardous Air Pollutant	SIC	Standard Industrial Classification
HON	Hazardous Organic NESHAP	SIP	State Implementation Plan
HP	Horsepower	SO₂	Sulfur Dioxide
lbs/hr	Pounds per Hour	TAP	Toxic Air Pollutant
LDAR	Leak Detection and Repair	TPY	Tons per Year
M	Thousand	TRS	Total Reduced Sulfur
MACT	Maximum Achievable Control Technology	TSP	Total Suspended Particulate
MDHI	Maximum Design Heat Input	USEPA	United States Environmental Protection Agency
MM	Million	UTM	Universal Transverse Mercator
MMBtu/hr or mmbtu/hr	Million British Thermal Units per Hour	VEE	Visual Emissions Evaluation
MMCF/hr or mmcf/hr	Million Cubic Feet per Hour	VOC	Volatile Organic Compounds
NA	Not Applicable	VOL	Volatile Organic Liquids
NAAQS	National Ambient Air Quality Standards		
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		

2.3. Authority

This permit is issued in accordance with West Virginia air pollution control law W.Va. Code §§ 22-5-1. et seq. and the following Legislative Rules promulgated thereunder:

- 2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation;*

2.4. Term and Renewal

- 2.4.1. This permit supersedes and replaces previously issued Permit R13-2892C. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

2.5. Duty to Comply

- 2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R13-2892 through R13-2892D and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to; [45CSR§§13-5.11 and -10.3.]
- 2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;
- 2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;
- 2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-4.]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-5.4.]

2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.

[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

- a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
- d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.

- 2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
- a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
 - b. The permitted facility was at the time being properly operated;
 - c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
 - d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.
- 2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
- 2.12.5 The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. [45CSR§13-10.1.]

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

- 3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]
- 3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]
- 3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management, and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]
- 3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1] *[State Enforceable Only]*
- 3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]
- 3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

[Reserved]

3.3. Testing Requirements

- 3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power

for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

- a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.
- d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:
 1. The permit or rule evaluated, with the citation number and language;
 2. The result of the test for each permit or rule condition; and,
 3. A statement of compliance or noncompliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

- 3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.
- 3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§4. *State Enforceable Only.*]

3.5. Reporting Requirements

- 3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- 3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.
- 3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

If to the DAQ:
Director
WVDEP
Division of Air Quality
601 57th Street
Charleston, WV 25304-2345

If to the US EPA:
Associate Director
Office of Air Enforcement and Compliance
Assistance
(3AP20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

3.5.4. Operating Fee

- 3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be maintained on the premises for which the receipt has been issued, and shall be made

immediately available for inspection by the Secretary or his/her duly authorized representative.

- 3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Source-Specific Requirements

4.1. Limitations and Standards

- 4.1.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:
- a. The date, place as defined in this permit, and time of sampling or measurements;
 - b. The date(s) analyses were performed;
 - c. The company or entity that performed the analyses;
 - d. The analytical techniques or methods used;
 - e. The results of the analyses; and
 - f. The operating conditions existing at the time of sampling or measurement.
- 4.1.2. **Minor Source of Hazardous Air Pollutants (HAP).** HAP emissions from the facility shall not exceed 10 tons/year of any single HAP and 25 tons/year of any combination of HAPs. Compliance with this Section shall ensure that the facility is a minor HAP source.
- 4.1.3. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11.]
- 4.1.4. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:
- a. The equipment involved.
 - b. Steps taken to minimize emissions during the event.
 - c. The duration of the event.
 - d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

- e. The cause of the malfunction.
- f. Steps taken to correct the malfunction.
- g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

5.0. Source-Specific Requirements (Hot Oil Heater (1E), Hot Oil Heaters (2E))

5.1. Limitations and Standards

- 5.1.1. Maximum Design Heat Input. The maximum design heat input for the Hot Oil Heater (1E) shall not exceed 45.54 MMBTU/hr.
- 5.1.2. Maximum emissions from the 45.54 MMBTU/hr Hot Oil Heater (1E) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	4.51	19.76
Carbon Monoxide	3.79	16.60
VOCs	0.25	1.09

- 5.1.3. The hourly quantity of natural gas that shall be consumed in the 45.54 MMBTU/hr Hot Oil Heater (1E) shall not exceed 45,098 standard cubic feet per hour.
- 5.1.4. The annual quantity of natural gas that shall be consumed in the 45.54 MMBTU/hr Hot Oil Heater (1E) shall not exceed 395.06×10^6 standard cubic feet per year.
- 5.1.5. Maximum Design Heat Input. The maximum design heat input for each of the two (2) Hot Oil Heaters (2E) shall not exceed 89.85 MMBTU/hr.
- 5.1.6. Maximum emissions from the two (2) 89.85 MMBTU/hr Hot Oil Heaters (2E) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr) EACH UNIT	Maximum Annual Emissions (ton/year) BOTH UNITS COMBINED
Nitrogen Oxides	3.23	17.03
Carbon Monoxide	6.65	35.00
VOCs	0.36	1.89

- 5.1.7. The hourly quantity of natural gas that shall be consumed in each of the two (2) 89.85 MMBTU/hr Hot Oil Heaters (2E) shall not exceed 90,392 standard cubic feet per hour.
- 5.1.8. The annual quantity of natural gas that shall be consumed in both of the two (2) 89.85 MMBTU/hr Hot Oil Heaters (2E) shall not exceed 952×10^6 standard cubic feet per year.
- 5.1.9. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any fuel burning unit which is greater than ten (10) percent opacity based on a six minute block average.
[45CSR§2-3.1.]

- 5.1.10. The permitted facility shall comply with all applicable provisions of 40CFR60 Subpart Dc, provided that compliance with any more stringent limitation set forth under this permit shall also be demonstrated. Recordkeeping and reporting requirements shall be conducted in accordance with §60.48c. These reports shall be submitted in accordance with the time lines and in the order set forth in §60.48c and submitted to the addresses listed in Section 3.5.3.

5.2. Monitoring Requirements

- 5.2.1. At such reasonable times as the Secretary may designate, the permittee shall conduct Method 9 emission observations for the purpose of demonstrating compliance with Section 5.1.9. Method 9 shall be conducted in accordance with 40 CFR 60 Appendix A.

5.3. Testing Requirements

- 5.3.1. Compliance with the visible emission requirements of section 5.1.9 shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9 or by using measurements from continuous opacity monitoring systems approved by the Director. The Director may require the installation, calibration, maintenance and operation of continuous opacity monitoring systems and may establish policies for the evaluation of continuous opacity monitoring results and the determination of compliance with the visible emission requirements of section 5.1.9. Continuous opacity monitors shall not be required on fuel burning units which employ wet scrubbing systems for emission control.
[45CSR§2-3.2.]

5.4. Recordkeeping Requirements

- 5.4.1. To demonstrate compliance with sections 5.1.1-5.1.8, the permittee shall maintain a monthly record of the amount of natural gas consumed in the 45.54 MMBTU/hr Hot Oil Heater (1E) and the two (2) 89.85 MMBTU/hr Hot Oil Heaters (2E). Compliance with the maximum throughput limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the monthly throughput at any given time during the previous twelve consecutive calendar months. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.
- 5.4.2. Except as provided under paragraphs (g)(2) and (g)(3) of this section, the owner or operator of each affected facility shall record and maintain records of the amount of each fuel combusted during each operating day.
[40CFR§60.48(c)(g)(1)]
- 5.4.3. As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in §60.48c(f) to demonstrate compliance with the SO₂ standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.
[40CFR§60.48 (c)(g)(2)]
- 5.4.4. As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility or multiple affected facilities located on a contiguous property unit where the only fuels combusted in any steam generating unit (including steam generating units not subject to this subpart) at that property are natural gas, wood, distillate oil meeting the most current requirements in §60.42C to use fuel certification to demonstrate compliance with the SO₂ standard, and/or fuels, excluding coal and residual oil, not subject to an emissions standard

(excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.
[40CFR§60.48(c)(g)(3)]

5.5. Reporting Requirements

5.5.1. The owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and actual startup, as provided by §60.7 of this part. This notification shall include:

1. The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.
2. If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under §60.42c, or §60.43c.
3. The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.
4. Notification if an emerging technology will be used for controlling SO₂ emissions. The Administrator will examine the description of the control device and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of §60.42c(a) or (b)(1), unless and until this determination is made by the Administrator.

[40CFR§60.48c(a)]

5.5.2. The reporting period for the reports required under this subpart is each six-month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.

[40CFR§60.48c(j)]

6.0. Source-Specific Requirements (Flare Control Device (FL-02), 5S)

6.1. Limitations and Standards

6.1.1. In accordance with information in permit application R13-2892D, the permittee shall install and operate a Flare (5S) designed to achieve, at a minimum, a 99.0% destruction and removal efficiency (DRE) of VOCs and organic HAPS from the following sources:

- Stabilized Condensate Hose Blowdown;
- Product Loading/Hose Blowdown;
- Natural Gasoline Tanks w/Butane Blankets;
- NGL Pig Receiver Blowdowns (250 Events/year);
- Hot Oil Expansion Tanks (Fuel/Purge Gas);
- Rail Car Degassing (50% C3/C4 + 50% Natural Gasoline);
- Off-Spec Product Flaring (Inlet NGL);
- Continuous Flare Purge (Fuel/Purge Gas); and
- Continuous Flare Pilot (Fuel/Purge Gas).

6.1.2. The maximum aggregate emissions generated at the Flare (5S) from the combustion of waste gases and the pilot light shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	85.56	42.31
Carbon Monoxide	170.81	84.46

6.1.3. The maximum emissions of VOCs and HAPs at the flare (representing un-combusted pass-through organic vapors that are generated at one of the sources identified under 6.1.1.) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
VOCs	280.00	140.06
<i>Benzene</i>	<i>0.19</i>	<i>0.10</i>
<i>Ethylbenzene</i>	<i>0.05</i>	<i>0.02</i>
<i>n-Hexane</i>	<i>11.23</i>	<i>5.83</i>
<i>Toluene</i>	<i>0.52</i>	<i>0.27</i>
<i>2,2,4-TMP</i>	<i>0.39</i>	<i>0.20</i>
<i>Xylenes</i>	<i>1.86</i>	<i>0.96</i>
Total HAPs	14.32	7.43

6.1.4. The maximum aggregate amount of waste gases sent to the Flare (5S) from the sources identified under 6.1.1. shall not exceed 192.66 mmscf/yr.

6.1.5. The installed Flare (5S) shall be a Zeeco Model Number AFTA-24/56, shall have a maximum waste-gas capacity of 28,000 lb/hr, shall have an MDHI of 620 mmBtu/hr, and shall be designed and operated in accordance with the following:

- a. Flare shall be air-assisted.
- b. Flare shall be designed for and operated with no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
- c. Flare shall be operated, with a flame present at all times whenever emissions may be vented to them, except during SSM (Startup, Shutdown, Malfunctions) events.
- d. A flare shall be used only where the net heating value of the gas being combusted is 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or where the net heating value of the gas being combusted is 7.45 MJ/scm (200 Btu/scf) or greater if the flares is non-assisted. The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K \sum_{i=1}^n C_i H_i$$

Where:

H_T =Net heating value of the sample, MJ/scm; where the net enthalpy per mole of off gas is based on combustion at 25 °C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 °C.

K=Constant=

$$1.740 \times 10^{-7} \left(\frac{1}{ppmv} \right) \left(\frac{g\text{-mole}}{scm} \right) \left(\frac{MJ}{kcal} \right)$$

where the standard temperature for (g-mole/scm) is 20 °C.

C_i =Concentration of sample component i in ppmv on a wet basis, which may be measured for organics by Test Method 18, but is not required to be measured using Method 18 (unless designated by the Director).

H_i =Net heat of combustion of sample component i, kcal/g-mole at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382-76 or 88 or D4809-95 if published values are not available or cannot be calculated.

n=Number of sample components.

- e. Air-assisted flares shall be designed and operated with an exit velocity less than the velocity V_{max} . The maximum permitted velocity, V_{max} , for air-assisted flares shall be determined by the following equation:

$$V_{max} = 8.71 + 0.708(H_T)$$

Where:

V_{max} =Maximum permitted velocity, m/sec.

8.71=Constant.

0.708=Constant.

H_T =The net heating value as determined in 6.1.3.d.

- f. The flare shall be operated within the guidelines given in the Zeeco Operating Manual and a copy of which shall be kept permanently on-site and shall be made available upon request to the Director or his/her representative.
- 6.1.6. The permittee is not required to conduct a flare compliance assessment for concentration of sample (i.e. Method 18) and tip velocity (i.e. Method 2) until such time as the Director requests a flare compliance assessment to be conducted in accordance with section 6.3.2, but the permittee is required to conduct a flare design evaluation in accordance with section 6.4.2. Alternatively, the

permittee may elect to demonstrate compliance with the flare design criteria requirements of section 6.1.5 by complying with the compliance assessment testing requirements of section 6.3.2.

6.2. Monitoring and Compliance Demonstration Requirements

- 6.2.1. In order to demonstrate compliance with the requirements of 6.1.5.c, the permittee shall monitor the presence or absence of a flare pilot flame using a thermocouple or any other equivalent device, except during SSM events.
- 6.2.2. In order to determine compliance with the 6.1.4., the permittee shall monitor and record the monthly and rolling twelve (12) month total aggregate waste gases sent to the flare (in mmscf) from the sources identified under 6.1.1.
- 6.2.3. In order to determine compliance with the emission limitations under 6.1.2. and 6.1.3., the permittee shall, by the end of each calendar month, calculate and record the actual monthly and rolling twelve (12) month total of the emissions (in tons) at the flare (both combustion exhaust and pass-through) of the previous 12 full months. This calculation shall be based on the same methodology used to calculate emissions in Attachment N of permit application R13-2892D and based on the most recent determination of the average hourly and annual heat value (in Btu/scf) and (2) the per-pollutant concentrations (lb-pollutant/mmscf) of the gas streams identified under 6.1.1.

6.3. Testing Requirements

- 6.3.1. In order to demonstrate compliance with the flare opacity requirements of 6.1.5.b the permittee shall conduct a Method 22 opacity test for at least two hours. This test shall demonstrate no visible emissions are observed for more than a total of 5 minutes during any 2 consecutive hour period using 40CFR60 Appendix A Method 22. The permittee shall conduct this test within one (1) year of permit issuance or initial startup whichever is later. The visible emission checks shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40 CFR part 60, appendix A, Method 22 or from the lecture portion of 40 CFR part 60, appendix A, Method 9 certification course.
- 6.3.2. The Director may require the permittee to conduct a flare compliance assessment to demonstrate compliance with section 6.1.5. This compliance assessment testing shall be conducted in accordance with Test Method 18 for organics and Test Method 2, 2A, 2C, or 2D in appendix A to 40 CFR part 60, as appropriate, or other equivalent testing approved in writing by the Director. Also, Test Method 18 may require the permittee to conduct Test Method 4 in conjunction with Test Method 18.
- 6.3.3. At a minimum of once every twelve (12) months, the permittee shall determine the (1) average hourly and annual heat value (in Btu/scf) and (2) the per-pollutant concentrations (lb-pollutant/mmscf) of the gas streams identified under 6.1.1. These values will be generated by appropriate waste gas stream sampling and estimating the hourly and annual flow rates to flare as based on projecting operations and throughputs.

6.4. Recordkeeping Requirements

- 6.4.1. For the purpose of demonstrating compliance with section 6.1.5.c and 6.2.1, the permittee shall maintain records of the times and duration of all periods which the pilot flame was absent.
- 6.4.2. For the purpose of demonstrating compliance with section 6.1.5 and 6.3.2, the permittee shall maintain a record of the flare design evaluation. The flare design evaluation shall include, net heat

value calculations, exit (tip) velocity calculations, and all supporting concentration calculations and other related information requested by the Director.

- 6.4.3 For the purpose of demonstrating compliance with the requirements set forth in sections 6.1.5, the permittee shall maintain records of testing conducted in accordance with 6.3.2.
- 6.4.4 The permittee shall document and maintain the corresponding records specified by the on-going monitoring requirements of 6.2 and testing requirements of 6.3.
- 6.4.5 For the purpose of demonstrating compliance with section 6.1.5.b, the permittee shall maintain records of the visible emission opacity tests conducted per Section 6.3.1.
- 6.4.6 All records required under Section 6.3 and 6.4 shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

6.5. Reporting Requirements

- 6.5.1 If permittee is required by the Director to demonstrate compliance with section 6.3.2, then the permittee shall submit a testing protocol at least thirty (30) days prior to testing and shall submit a notification of the testing date at least fifteen (15) days prior to testing. The permittee shall submit the testing results within sixty (60) days of testing and provide all supporting calculations and testing data.
- 6.5.2 Any deviation(s) from the allowable visible emission requirement for any emission source discovered during observations using 40CFR Part 60, Appendix A, Method 9 or 22 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of the occurrence and shall include at least the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
- 6.5.3 Any deviation(s) from the flare design and operation criteria in Section 6.1.5 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of discovery of such deviation.

7.0. Source-Specific Requirements (40CFR60 Subpart OOOO Requirements, Product Loading Area, Gas Processing Plants Fugitives)

7.1. Limitations and Standards

- 7.1.1. Maximum Throughput Limitation. The maximum NGL processed through the Fractionation Plant 1 (1S) shall not exceed 525,000 gallons per day and 191,625,000 gallons per year. The maximum NGL processed through the Fractionation Plant 2 (1S) shall not exceed 1,260,000 gallons per day and 459,900,000 gallons per year.
- 7.1.2. The Product Loading Area (2S) at the Fractionating Processing Plant shall be operated in accordance with the plans and specifications filed in Permit Application R13-2892D. The rail and truck loading area will route are vapors to the flare for combustion.
- 7.1.3. Fugitive emissions of VOCs from equipment leaks at the facility, as calculated from emissions factors taken from Table 2-4 of EPA-453/R-95-017 - "Protocol for Equipment Leak Emission Estimates," shall not exceed 69.03 TPY. Continuing compliance with this limit shall be determined by the following: The permittee shall not exceed the number and type of components (valves, pump seals, connectors, etc.) in gas/vapor or light liquid (as applicable) listed in Attachment N of Permit Application R13-2892D.
- 7.1.4. What equipment leak standards apply to affected facilities at an onshore natural gas processing plant?

This section applies to the group of all equipment, except compressors, within a process unit.

- a. You must comply with the requirements of §§ 60.482-1a(a), (b), and (d), 60.482-2a, and 60.482-4a through 60.482-11a, except as provided in § 60.5401.
- b. You may elect to comply with the requirements of §§ 60.483-1a and 60.483-2a, as an alternative.
- c. You may apply to the Administrator for permission to use an alternative means of emission limitation that achieves a reduction in emissions of VOC at least equivalent to that achieved by the controls required in this subpart according to the requirements of § 60.5402 of this subpart.
- d. You must comply with the provisions of § 60.485a of this part except as provided in paragraph (f) of this section.
- e. You must comply with the provisions of §§ 60.486a and 60.487a of this part except as provided in §§ 60.5401, 60.5421, and 60.5422 of this part.
- f. You must use the following provision instead of § 60.485a(d)(1): Each piece of equipment is presumed to be in VOC service or in wet gas service unless an owner or operator demonstrates that the piece of equipment is not in VOC service or in wet gas service. For a piece of equipment to be considered not in VOC service, it must be determined that the VOC content can be reasonably expected never to exceed 10.0 percent by weight. For a piece of equipment to be considered in wet gas service, it must be determined that it contains or contacts the field gas before the extraction step in the process. For purposes of determining the percent VOC content of the process fluid that is contained in or contacts a piece of equipment, procedures that conform to the methods described in ASTM E169-93, E168-92, or E260-96 (incorporated by reference as specified in § 60.17) must be used.

[40CFR§60.5400, Onshore Natural Gas Processing Plant]

- 7.1.5. What are the exceptions to the equipment leak standards for affected facilities at onshore natural gas processing plants?
- a. You may comply with the following exceptions to the provisions of § 60.5400(a) and (b).
 - b.
 1. Each pressure relief device in gas/vapor service may be monitored quarterly and within 5 days after each pressure release to detect leaks by the methods specified in § 60.485a(b) except as provided in § 60.5400(c) and in paragraph (b)(4) of this section, and § 60.482-4a(a) through (c) of subpart VVa.
 2. If an instrument reading of 500 ppm or greater is measured, a leak is detected.
 3.
 - i. When a leak is detected, it must be repaired as soon as practicable, but no later than 15 calendar days after it is detected, except as provided in § 60.482-9a.
 - ii. A first attempt at repair must be made no later than 5 calendar days after each leak is detected.
 4.
 - i. Any pressure relief device that is located in a nonfractionating plant that is monitored only by non-plant personnel may be monitored after a pressure release the next time the monitoring personnel are on-site, instead of within 5 days as specified in paragraph (b)(1) of this section and § 60.482-4a(b)(1) of subpart VVa.
 - ii. No pressure relief device described in paragraph (b)(4)(i) of this section must be allowed to operate for more than 30 days after a pressure release without monitoring.
 - c. Sampling connection systems are exempt from the requirements of § 60.482-5a.
 - d. Pumps in light liquid service, valves in gas/vapor and light liquid service, and pressure relief devices in gas/vapor service that are located at a nonfractionating plant that does not have the design capacity to process 283,200 standard cubic meters per day (scmd) (10 million standard cubic feet per day) or more of field gas are exempt from the routine monitoring requirements of §§ 60.482-2a(a)(1) and 60.482-7a(a), and paragraph (b)(1) of this section.
 - e. Pumps in light liquid service, valves in gas/vapor and light liquid service, and pressure relief devices in gas/vapor service within a process unit that is located in the Alaskan North Slope are exempt from the routine monitoring requirements of §§ 60.482-2a(a)(1), 60.482-7a(a), and paragraph (b)(1) of this section.
 - f. An owner or operator may use the following provisions instead of § 60.485a(e):
 1. Equipment is in heavy liquid service if the weight percent evaporated is 10 percent or less at 150 °C (302 °F) as determined by ASTM Method D86-96 (incorporated by reference as specified in § 60.17).
 2. Equipment is in light liquid service if the weight percent evaporated is greater than 10 percent at 150 °C (302 °F) as determined by ASTM Method D86-96 (incorporated by reference as specified in § 60.17).
 - g. An owner or operator may use the following provisions instead of § 60.485a(b)(2): A calibration drift assessment shall be performed, at a minimum, at the end of each monitoring day. Check the instrument using the same calibration gas(es) that were used to calibrate the instrument before use. Follow the procedures specified in Method 21 of appendix A-7 of this part, Section 7.1, except do not adjust the meter readout to correspond to the calibration gas value. Record the instrument reading for each scale used as specified in § 60.486a(e)(8). Divide these readings by the initial calibration values for each scale and multiply by 100 to

express the calibration drift as a percentage. If any calibration drift assessment shows a negative drift of more than 10 percent from the initial calibration value, then all equipment monitored since the last calibration with instrument readings below the appropriate leak definition and above the leak definition multiplied by (100 minus the percent of negative drift/divided by 100) must be re-monitored. If any calibration drift assessment shows a positive drift of more than 10 percent from the initial calibration value, then, at the owner/operator's discretion, all equipment since the last calibration with instrument readings above the appropriate leak definition and below the leak definition multiplied by (100 plus the percent of positive drift/divided by 100) may be re-monitored.

[40CFR§60.5401, Onshore Natural Gas Processing Plant]

- 7.1.6. What are the alternative emission limitations for equipment leaks from onshore natural gas processing plants?
- a. If, in the Administrator's judgment, an alternative means of emission limitation will achieve a reduction in VOC emissions at least equivalent to the reduction in VOC emissions achieved under any design, equipment, work practice or operational standard, the Administrator will publish, in the Federal Register, a notice permitting the use of that alternative means for the purpose of compliance with that standard. The notice may condition permission on requirements related to the operation and maintenance of the alternative means.
 - b. Any notice under paragraph (a) of this section must be published only after notice and an opportunity for a public hearing.
 - c. The Administrator will consider applications under this section from either owners or operators of affected facilities, or manufacturers of control equipment.
 - d. The Administrator will treat applications under this section according to the following criteria, except in cases where the Administrator concludes that other criteria are appropriate:
 1. The applicant must collect, verify and submit test data, covering a period of at least 12 months, necessary to support the finding in paragraph (a) of this section.
 2. If the applicant is an owner or operator of an affected facility, the applicant must commit in writing to operate and maintain the alternative means so as to achieve a reduction in VOC emissions at least equivalent to the reduction in VOC emissions achieved under the design, equipment, work practice or operational standard.

[40CFR§60.5402, Onshore Natural Gas Processing Plant]

7.2. Initial Compliance Demonstration

- 7.2.1. You must determine initial compliance with the standards for each affected facility using the requirements in paragraph (f) of this section. The initial compliance period begins on October 15, 2012 or upon initial startup, whichever is later, and ends no later than one year after the initial startup date for your affected facility or no later than one year after October 15, 2012. The initial compliance period may be less than one full year.

- f. For affected facilities at onshore natural gas processing plants, initial compliance with the VOC requirements is demonstrated if you are in compliance with the requirements of § 60.5400.

[40CFR§60.5410]

7.3. Continuous Compliance Demonstration

7.3.1. For affected facilities at onshore natural gas processing plants, continuous compliance with VOC requirements is demonstrated if you are in compliance with the requirements of § 60.5400.

7.3.2. Affirmative defense for violations of emission standards during malfunction. In response to an action to enforce the standards set forth in §§ 60.5375, you may assert an affirmative defense to a claim for civil penalties for violations of such standards that are caused by malfunction, as defined at § 60.2. Appropriate penalties may be assessed, however, if you fail to meet your burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(1) To establish the affirmative defense in any action to enforce such a standard, you must timely meet the reporting requirements in § 60.5420(a), and must prove by a preponderance of evidence that:

(i) The violation:

(A) Was caused by a sudden, infrequent, and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner; and

(B) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and

(C) Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and

(D) Was not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(ii) Repairs were made as expeditiously as possible when a violation occurred. Off-shift and overtime labor were used, to the extent practicable to make these repairs; and

(iii) The frequency, amount and duration of the violation (including any bypass) were minimized to the maximum extent practicable; and

(iv) If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

(v) All possible steps were taken to minimize the impact of the violation on ambient air quality, the environment and human health; and

(vi) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices; and

(vii) All of the actions in response to the violation were documented by properly signed, contemporaneous operating logs; and

(viii) At all times, the affected source was operated in a manner consistent with good practices for minimizing emissions; and

(ix) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the violation resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of any emissions that were the result of the malfunction.

(2) Report. The owner or operator seeking to assert an affirmative defense shall submit a written report to the Administrator with all necessary supporting documentation, that it has met the requirements set forth in paragraph (h)(1) of this section. This affirmative defense report shall be included in the first periodic compliance, deviation report or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If such compliance, deviation report or excess emission report is due less than 45 days after the initial occurrence of the violation, the affirmative defense report may be included in the second compliance, deviation report or excess emission report due after the initial occurrence of the violation of the relevant standard.
[40CFR§60.5415]

7.4. Notification, Recordkeeping and Reporting Requirements

7.4.1. You must submit the notifications required in § 60.7(a)(1) and (4), and according to the paragraph below, if you own or operate one or more of the affected facilities specified in § 60.5365 that was constructed, modified, or reconstructed during the reporting period.

(1) (i) If you own or operate a gas well affected facility, you must submit a notification to the Administrator no later than 2 days prior to the commencement of each well completion operation listing the anticipated date of the well completion operation. The notification shall include contact information for the owner or operator; the API well number, the latitude and longitude coordinates for each well in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983; and the planned date of the beginning of flowback. You may submit the notification in writing or in electronic format.

(ii) If you are subject to state regulations that require advance notification of well completions and you have met those notification requirements, then you are considered to have met the advance notification requirements of paragraph (a)(2)(i) of this section.

7.4.2. Reporting requirements. You must submit annual reports containing the information specified in paragraph (b)(1) of this section to the Administrator and performance test reports as specified in paragraph (b)(7) of this section. The initial annual report is due 30 days after the end of the initial compliance period as determined according to § 60.5410. Subsequent annual reports are due on the same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all of the information required as specified in paragraphs (b)(1) through (6) of this section. Annual reports may coincide with title V reports as long as all the required elements of the annual report are included. You may arrange with the Administrator a common schedule on which reports required by this part may be submitted as long as the schedule does not extend the reporting period.

(1) The general information specified in paragraphs (b)(1)(i) through (iv) of this section.

(i) The company name and address of the affected facility.

(ii) An identification of each affected facility being included in the annual report.

(iii) Beginning and ending dates of the reporting period.

(iv) A certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

7.4.3. What are my additional recordkeeping requirements for my affected facility subject to VOC requirements for onshore natural gas processing plants?

- a. You must comply with the requirements of paragraph (b) of this section in addition to the requirements of § 60.486a.
- b. The following recordkeeping requirements apply to pressure relief devices subject to the requirements of § 60.5401(b)(1) of this subpart.
 1. When each leak is detected as specified in § 60.5401(b)(2), a weatherproof and readily visible identification, marked with the equipment identification number, must be attached to the leaking equipment. The identification on the pressure relief device may be removed after it has been repaired.
 2. When each leak is detected as specified in § 60.5401(b)(2), the following information must be recorded in a log and shall be kept for 2 years in a readily accessible location:
 - i. The instrument and operator identification numbers and the equipment identification number.
 - ii. The date the leak was detected and the dates of each attempt to repair the leak.
 - iii. Repair methods applied in each attempt to repair the leak.
 - iv. "Above 500 ppm" if the maximum instrument reading measured by the methods specified in paragraph (a) of this section after each repair attempt is 500 ppm or greater.
 - v. "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
 - vi. The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.
 - vii. The expected date of successful repair of the leak if a leak is not repaired within 15 days.
 - viii. Dates of process unit shutdowns that occur while the equipment is unrepaired.
 - ix. The date of successful repair of the leak.
 - x. A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of § 60.482-4a(a). The designation of equipment subject to the provisions of § 60.482-4a(a) must be signed by the owner or operator.

[40CFR§60.5421, Onshore Natural Gas Processing Plant]

- 7.4.5. What are my additional reporting requirements for my affected facility subject to VOC requirements for onshore natural gas processing plants?
- a. You must comply with the requirements of paragraphs (b) and (c) of this section in addition to the requirements of § 60.487a(a), (b), (c)(2)(i) through (iv), and (c)(2)(vii) through (viii).
 - b. An owner or operator must include the following information in the initial semiannual report in addition to the information required in § 60.487a(b)(1) through (4): Number of pressure relief devices subject to the requirements of § 60.5401(b) except for those pressure relief devices designated for no detectable emissions under the provisions of § 60.482-4a(a) and those pressure relief devices complying with § 60.482-4a(c).
 - c. An owner or operator must include the following information in all semiannual reports in addition to the information required in § 60.487a(c)(2)(i) through (vi):

1. Number of pressure relief devices for which leaks were detected as required in § 60.5401(b)(2); and
 2. Number of pressure relief devices for which leaks were not repaired as required in § 60.5401(b)(3).
- [40CFR§60.5422, Onshore Natural Gas Processing Plant]**

7.5. Recordkeeping Requirements

- 7.5.1. To demonstrate compliance with section 7.1.1 the permittee shall maintain records of the amount of liquids processed in the Product Loading Area (2S) at the Fractionation Processing Plant. Said records required shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

8.0. Source-Specific Requirements (40CFR60 Subpart Kb, Natural Gasoline Storage Tanks, 3S)

8.1. Applicability and Designation of Affected Facility

- 8.1.1. Except as provided in paragraph (b) of this section, the affected facility to which this subpart applies is each storage vessel with a capacity greater than or equal to 75 cubic meters (m^3) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. [§60.110b(a)]
- 8.1.2. This subpart does not apply to storage vessels with a capacity greater than or equal to 151 m^3 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 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa. [§60.110b(b)]
- 8.1.3. This subpart does not apply to the following: Pressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere. [§60.110b(d)(2)]

8.2. Standard for Volatile Organic Compounds (VOC)

- 8.2.1. A closed vent system and control device meeting the following specifications:
 - (i) The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in part 60, subpart VV, § 60.485(b).
 - (ii) The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater. If a flare is used as the control device, it shall meet the specifications described in the general control device requirements (§ 60.18) of the General Provisions. [§60.112b(a)(3)(i)(ii)]

8.3. Testing and Procedures

- 8.3.1. The owner or operator of each storage vessel as specified in § 60.112b(a) shall meet the requirements of paragraph (a), (b), or (c) of this section. The applicable paragraph for a particular storage vessel depends on the control equipment installed to meet the requirements of § 60.112b.
 - (a) *Reserved;*
 - (b) *Reserved;*
 - (c) The owner or operator of each source that is equipped with a closed vent system and control device as required in § 60.112b (a)(3) or (b)(2) (other than a flare) is exempt from § 60.8 of the General Provisions and shall meet the following requirements.
 - (1) Submit for approval by the Administrator as an attachment to the notification required by § 60.7(a)(1) or, if the facility is exempt from § 60.7(a)(1), as an attachment to the notification required by § 60.7(a)(2), an operating plan containing the information listed below.
 - (i) Documentation demonstrating that the control device will achieve the required control efficiency during maximum loading conditions. This documentation is to include a description of the gas stream which enters the control device, including flow and VOC content under varying liquid level conditions (dynamic

and static) and manufacturer's design specifications for the control device. If the control device or the closed vent capture system receives vapors, gases, or liquids other than fuels from sources that are not designated sources under this subpart, the efficiency demonstration is to include consideration of all vapors, gases, and liquids received by the closed vent capture system and control device. If an enclosed combustion device with a minimum residence time of 0.75 seconds and a minimum temperature of 816 °C is used to meet the 95 percent requirement, documentation that those conditions will exist is sufficient to meet the requirements of this paragraph.

(ii) A description of the parameter or parameters to be monitored to ensure that the control device will be operated in conformance with its design and an explanation of the criteria used for selection of that parameter (or parameters).

(2) Operate the closed vent system and control device and monitor the parameters of the closed vent system and control device in accordance with the operating plan submitted to the Administrator in accordance with paragraph (c)(1) of this section, unless the plan was modified by the Administrator during the review process. In this case, the modified plan applies.

[40CFR§60.113b]

8.4. Reporting and Recordkeeping requirements

8.4.1. The owner or operator of each storage vessel as specified in § 60.112b(a) shall keep records and furnish reports as required by paragraphs (a), (b), or (c) of this section depending upon the control equipment installed to meet the requirements of § 60.112b. The owner or operator shall keep copies of all reports and records required by this section, except for the record required by (c)(1), for at least 2 years. The record required by (c)(1) will be kept for the life of the control equipment. [§60.115b]

8.4.2. After installing control equipment in accordance with § 60.112b (a)(3) or (b)(1) (closed vent system and control device other than a flare), the owner or operator shall keep the following records.

(1) A copy of the operating plan.

(2) A record of the measured values of the parameters monitored in accordance with § 60.113b(c)(2). [§60.115b (c)]

8.4.3. The owner or operator of each source that is equipped with a closed vent system and control device as required in §60.112b (a)(3) or (b)(2) (other than a flare) is exempt from §60.8 of the General Provisions and shall meet the following requirements.

(1) Submit for approval by the Administrator as an attachment to the notification required by §60.7(a)(1) or, if the facility is exempt from §60.7(a)(1), as an attachment to the notification required by §60.7(a)(2), an operating plan containing the information listed below.

(i) Documentation demonstrating that the control device will achieve the required control efficiency during maximum loading conditions. This documentation is to include a description of the gas stream which enters the control device, including flow and VOC content under varying liquid level conditions (dynamic and static) and manufacturer's design specifications for the control device. If the control device or the closed vent capture system receives vapors, gases, or liquids other than fuels from sources that are not designated sources under this subpart, the efficiency demonstration is to include consideration of all vapors, gases, and liquids received by the closed vent capture system and control device. If an enclosed combustion device with a minimum residence time of 0.75 seconds and a minimum temperature of 816 °C is used to meet the 95 percent

requirement, documentation that those conditions will exist is sufficient to meet the requirements of this paragraph.

- (ii) A description of the parameter or parameters to be monitored to ensure that the control device will be operated in conformance with its design and an explanation of the criteria used for selection of that parameter (or parameters).
- (2) Operate the closed vent system and control device and monitor the parameters of the closed vent system and control device in accordance with the operating plan submitted to the Administrator in accordance with paragraph (c)(1) of this section, unless the plan was modified by the Administrator during the review process. In this case, the modified plan applies. [§60.113b (c)]

8.5. Monitoring of Operations

- 8.5.1. The owner or operator shall keep copies of all records required by this section, except for the record required by paragraph (b) of this section, for at least 2 years. The record required by paragraph (b) of this section will be kept for the life of the source. [§60.116b(a)]
- 8.5.2. The owner or operator of each storage vessel as specified in § 60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel. [§60.116b(b)]
- 8.5.3. Except as provided in paragraphs (f) and (g) of this section, the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m³ storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kPa or with a design capacity greater than or equal to 75 m³ but less than 151 m³ storing a liquid with a maximum true vapor pressure greater than or equal to 15.0 kPa shall maintain a record of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period. [§60.116b(c)]
- 8.5.4. Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below. [§60.116b(e)]
 - (1) For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service. [§60.116b(e)(1)]
 - (2) For crude oil or refined petroleum products the vapor pressure may be obtained by the following:
 - (i) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517 (incorporated by reference—see § 60.17), unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s).
 - (ii) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa. [§60.116b(e)(2)]
 - (3) For other liquids, the vapor pressure:

- (i) May be obtained from standard reference texts, or
 - (ii) Determined by ASTM D2879-83, 96, or 97 (incorporated by reference—see § 60.17); or
 - (iii) Measured by an appropriate method approved by the Administrator; or
 - (iv) Calculated by an appropriate method approved by the Administrator.
- [§60.116b(e)(3)]

8.5.5. The owner or operator of each vessel storing a waste mixture of indeterminate or variable composition shall be subject to the following requirements.

- (1) Prior to the initial filling of the vessel, the highest maximum true vapor pressure for the range of anticipated liquid compositions to be stored will be determined using the methods described in paragraph (e) of this section.
 - (2) For vessels in which the vapor pressure of the anticipated liquid composition is above the cutoff for monitoring but below the cutoff for controls as defined in § 60.112b(a), an initial physical test of the vapor pressure is required; and a physical test at least once every 6 months thereafter is required as determined by the following methods:
 - (i) ASTM D2879-83, 96, or 97 (incorporated by reference—see § 60.17); or
 - (ii) ASTM D323-82 or 94 (incorporated by reference—see § 60.17); or
 - (iii) As measured by an appropriate method as approved by the Administrator.
- [§60.116b(f)]

8.5.6. The owner or operator of each vessel equipped with a closed vent system and control device meeting the specification of § 60.112b or with emissions reductions equipment as specified in 40 CFR 65.42(b)(4), (b)(5), (b)(6), or (c) is exempt from the requirements of paragraphs (c) and (d) of this section. [§60.116b(g)]

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature¹

(please use blue ink)

Responsible Official or Authorized Representative

Date

Name & Title

(please print or type)

Name

Title

Telephone No. _____

Fax No. _____

This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

- a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:
 - (i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), or
 - (ii) the delegation of authority to such representative is approved in advance by the Director;
- b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;
- c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of U.S. EPA); or
- d. The designated representative delegated with such authority and approved in advance by the Director.

INTERNAL PERMITTING DOCUMENT TRACKING MANIFEST

Company Name WILLIAMS OHIO VALLEY MIDSTREAM LLC

Permitting Action Number R13-2892A Total Days 132 DAQ Days 105

Permitting Action:

- | | | |
|---|------------------------------------|---|
| <input type="radio"/> Permit Determination | <input type="radio"/> Temporary | <input checked="" type="radio"/> Modification |
| <input type="radio"/> General Permit | <input type="radio"/> Relocation | <input type="radio"/> PSD (Rule 14) |
| <input type="radio"/> Administrative Update | <input type="radio"/> Construction | <input type="radio"/> NNSR (Rule 19) |

Documents Attached:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Engineering Evaluation/Memo | <input checked="" type="checkbox"/> Completed Database Sheet |
| <input checked="" type="checkbox"/> Draft Permit | <input type="checkbox"/> Withdrawal |
| <input checked="" type="checkbox"/> Notice | <input type="checkbox"/> Letter |
| <input type="checkbox"/> Denial | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Final Permit/General Permit Registration | _____ |

Date	From	To	Action Requested
8/27/15	Joe Kessler	Bev McKeone	NOTICE APPROVAL
9/3	Bw	Joe	Correct Types. Costs Notice

NOTE: Retain a copy of this manifest for your records when transmitting your document(s).

**Texas Commission on Environmental Quality
Air Permits Division**

New Source Review (NSR) Emission Calculations

This information is maintained by the Chemical NSR Section and is subject to change. Last update was made **October 2006**. These emission calculations represent current NSR guidelines and are provided for informational purposes only. The emission calculations are subject to change based on TCEQ case by case evaluation. Please contact the appropriate Chemical NSR Section management if there are questions related to the emission calculations.

Sample Calculations for Flares

The flare destruction efficiencies and emission factors are used in the sample calculations that follow. Assuming an ideal gas mixture, use the ideal gas law to convert the volumetric flow rates from Attachment B and Table 6 into mass flow rates. The values are shown in Table 7.

$$m = \frac{60(MW)PV}{RT}$$

Where: m = mass flow rate in lb. per hour,
 MW = molecular weight in lb. per lbmole,
 P = standard pressure = 14.7 psia,
 V = flow rate in scfm,
 R = gas constant = $10.73 \frac{\text{psia} \cdot \text{ft}^3}{\text{lbmol} \cdot ^\circ\text{R}}$
 T = standard temperature = 528 $^\circ\text{R}$

I.D. No. 051-00191 Reg. 2892D
Company WILLIAMS OVM
Facility MOUMSVILLE Region _____
Initials AM

Entire Document
NON-CONFIDENTIAL

Table 6. Waste Stream Constituents in Mole Percent

Constituent	Average Case		Maximum Case	
	scfm	mole %	scfm	mole %
Butane	10.16	5.08	12.70	5.08
Propylene	5.94	2.97	7.43	2.97
Propane	5.08	2.54	6.35	2.54
Ethylene	84.74	42.37	105.93	42.37
Ethane	37.28	18.64	46.60	18.64
Hydrogen	22.04	11.02	27.55	11.02
Ammonia	4.24	2.12	5.30	2.12
Inerts	30.50	15.26	38.13	15.26
Totals	200.00	100.00	250.00	100.00

Table 7. Estimation of Average Mass Flow Rates

Constituent	scfm	MW	lb/hr
Butane	10.16	58.12	91.91
Propylene	5.94	42.08	38.91
Propane	5.08	44.09	34.86
Ethylene	84.74	28.05	369.95
Ethane	37.28	30.07	174.47
Hydrogen	22.04	2.02	6.92
Ammonia	4.24	17.03	11.24

Waste Stream DRE. Applying 98 percent destruction efficiency for butane+ and hydrogen, and 99 percent destruction efficiency for propylene, propane, ethylene, and ammonia, the hourly maximum and annual emission rates may then be estimated (Table 8). The hourly emissions are calculated using the maximum case flow rate, which is 25 percent greater than the average case. Note that the ethane and hydrogen emission rates need not be shown on the NSR Table 1(a) submitted with the permit application, since these emissions are not regulated as pollutants.

Table 8. Emission Rates

Constituent	lb/hr	TPY
Butane	2.30	8.0
Propylene	0.49	1.7
Propane	0.44	1.5
Ethylene	4.63	16.3
Ethane	2.11	7.6
Hydrogen	0.18	0.6
Ammonia	0.14	0.5

NO_x and CO Emissions. The mole percent of each constituent in the waste stream may be calculated for both the average and maximum scenarios by dividing the individual flow rates by the total flow rates and multiplying by 100 percent (Table 6). In this case, the calculations are simplified since the average and maximum case waste streams have the same compositions. If they were of different composition, the heating value calculations would be required for both cases. Note that the maximum case shows the maximum vent stream to the flare under normal operating conditions for calculating emissions from the flare (upset and maintenance conditions are not considered). Emergency and maintenance emissions are not directed to the example flare.

Next, estimate the net, or lower, heating value of the waste stream by assuming a basis of 1 scf. Heats of combustion for most compounds may be found in any common engineering reference book. The net heat release will be used in determining which NO_x and CO factors to use as well as verifying that the flare will meet the minimum heating value requirements of 40 CFR § 60.18. Based on the overall net heat release (see Table 9), it is now evident that the NO_x and CO factors for high-Btu, air-assisted flares should be used. Using these factors:

$$\left(\frac{0.138 \text{ lb NO}_x}{\text{MMBtu}} \right) \left(\frac{1228 \text{ Btu}}{\text{scf}} \right) \left(\frac{1 \text{ MMBtu}}{10^6 \text{ Btu}} \right) \left(\frac{250 \text{ scf}}{\text{min}} \right) \left(\frac{60 \text{ min}}{\text{hr}} \right) = 2.54 \text{ lb NO}_x/\text{hr}$$

$$\left(\frac{0.138 \text{ lb NO}_x}{\text{MMBtu}} \right) \left(\frac{1228 \text{ Btu}}{\text{scf}} \right) \left(\frac{1 \text{ MMBtu}}{10^6 \text{ Btu}} \right) \left(\frac{200 \text{ scf}}{\text{min}} \right) \left(\frac{\text{ton}}{2000 \text{ lb}} \right) \left(\frac{60 \text{ min}}{\text{hr}} \right) \left(\frac{8760 \text{ hr}}{\text{yr}} \right) = 8.91 \text{ tons NO}_x/\text{yr}$$

$$\left(\frac{0.2755 \text{ lb CO}}{\text{MMBtu}} \right) \left(\frac{1228 \text{ Btu}}{\text{scf}} \right) \left(\frac{1 \text{ MMBtu}}{10^6 \text{ Btu}} \right) \left(\frac{250 \text{ scf}}{\text{min}} \right) \left(\frac{60 \text{ min}}{\text{hr}} \right) = 5.07 \text{ lb CO/hr}$$

$$\left(\frac{0.2755 \text{ lb CO}}{\text{MMBtu}} \right) \left(\frac{1228 \text{ Btu}}{\text{scf}} \right) \left(\frac{1 \text{ MMBtu}}{10^6 \text{ Btu}} \right) \left(\frac{200 \text{ scf}}{\text{min}} \right) \left(\frac{\text{ton}}{2000 \text{ lb}} \right) \left(\frac{60 \text{ min}}{\text{hr}} \right) \left(\frac{8760 \text{ hr}}{\text{yr}} \right) = 17.78 \text{ tons CO/yr}$$

Table 9. Estimation of Net Heat Releases

Constituents	scf	Net Heating Value Btu/scf	Net Heat Release Btu/scf
Butane	0.0508	2956	150
Propylene	0.0297	2142	64
Propane	0.0254	2272	58
Ethylene	0.4237	1471	623
Ethane	0.1864	1587	296
Hydrogen	0.1102	269	30
Ammonia	0.0212	352	7
Inerts	0.1526	0	0
Totals	1.0000		1228

The NO_x emissions also need to be corrected for the fuel NO_x from ammonia. In this case, 11.2 lb. ammonia/hr(0.005)(250/200) = **0.08 lb/hr NO_x**. This results in total NO_x emissions of 2.62 lb/hr and 9.15 tons per year.

Particulate Emissions. Particulate emissions should be negligible and should therefore not be estimated, since smoking flares are excluded from permitting as defined in 30 TAC Section 111.111. There may be cases where there are noncombustible elements (such as metals) associated with the VOC being combusted. If this is the case, these emissions should be estimated based on sampling results from the waste stream. The AP-42 landfill flare particulate matter factor may be used if the flare controls landfill gas.

The following sample calculation demonstrates how to handle waste streams with hydrogen sulfide.

H₂S Emissions. For instances where a waste stream to a flare contains H₂S, assume that 100 percent by weight of H₂S is converted to SO₂ (the H₂S allowable DRE is 98 percent but actual flare operation could combust almost 100 percent of the waste stream). Referring to Attachment C, convert the design maximum H₂S volumetric waste flow rate into a molar flow rate using the ideal gas law:

$$\frac{(4.5 \text{ ft}^3/\text{min})(14.7 \text{ psia})(60 \text{ min/hr})}{(10.73 \text{ psia} \cdot \text{ft}^3/\text{lbmol} \cdot \text{R})(528 \text{ }^\circ\text{R})} = 0.701 \text{ lbmol H}_2\text{S/hr}$$

One mole of H₂S will form one mole of SO₂:

$$\frac{(0.701 \text{ lbmol H}_2\text{S/hr})(1 \text{ lbmol SO}_2/\text{lbmol H}_2\text{S})}{(1 \text{ lbmol SO}_2/64 \text{ lb SO}_2)} = 44.9 \text{ lb SO}_2/\text{hr}$$

and as much as 2 percent of the H₂S will remain:

$$(0.02) \left(\frac{0.701 \text{ lbmol H}_2\text{S}}{\text{hr}} \right) \left(\frac{34 \text{ lb H}_2\text{S}}{\text{lbmol H}_2\text{S}} \right) = 0.48 \text{ lb H}_2\text{S/hr}$$

Calculations for annual emissions should be performed in a similar manner using the average H₂S flow rate of 3.5 scfm, resulting in 0.55 lbmol H₂S/hr, and 34.9 lb SO₂/hr. The annual SO₂ emissions should then be estimated on a TPY basis:

$$\left(\frac{34.9 \text{ lb}}{\text{hr}} \right) \left(\frac{1 \text{ ton}}{2000 \text{ lb}} \right) \left(\frac{24 \text{ hr}}{\text{day}} \right) \left(\frac{365 \text{ day}}{\text{yr}} \right) = 152.7 \text{ TPY SO}_2$$

and, likewise, 2 percent of the H₂S will remain:

$$(0.02)(0.545)(34)(24)(365)/2,000 = 1.62 \text{ TPY H}_2\text{S}$$

40 CFR § 60.18 BACT Check

Calculations should also be performed to ensure the proposed flare meets BACT requirements of 40 CFR § 60.18. It was noted that H_T = 1,228 Btu/scf (Table 9) is greater than the minimum heating value of 300 Btu/scf required for air-assisted flares according to 40 CFR § 60.18(c)(3); therefore, this flare would be in compliance. In accordance with 60.18(5), air-assisted flares designed for and operated with an exit velocity less than the value V_{max} as calculated below, and less than 122 m/s (400 ft/s) are allowed. For this flare:

$$V_{\text{max}} = 8.706 + 0.7084H_T = 8.706 + 0.7084(43.3) = 39.4 \text{ m/s}$$

The actual flare tip velocity may then be calculated for comparison using the design maximum flow rate and the flare tip area based on the flare tip diameter:

$$V_{\text{actual}} = Q/A$$

where Q = volumetric flow rate, ft³/min, and
A = flare tip area, ft²

$$V_{\text{actual}} = \left(\frac{250 \text{ ft}^3}{\text{min}} \right) \left(\frac{4}{\pi \cdot (1 \text{ ft})^2} \right) \left(\frac{1 \text{ min}}{60 \text{ sec}} \right) \left(\frac{0.3048 \text{ m}}{\text{ft}} \right) = 1.62 \text{ m/s}$$

So, the sample flare meets the flare tip velocity restrictions of 40 CFR § 60.18.

40 CFR § 60.18 BACT Check for Hydrogen Flares

Similar to the previous example, calculations should also be performed to ensure a proposed hydrogen flare meets the BACT requirements of 40 CFR § 60.18. The heating value is calculated in the same manner as the above example. The flare diameter must be greater than 3 inches, the

hydrogen content must be greater than 8.0 percent by volume and the exit velocity, V_{\max} , less than 37.2 m/s (122 ft/s) as calculated below. For example, a stream with a 11.0 percent hydrogen volume on a wet basis the maximum velocity would be:

$$V_{\max} = (X_{H_2} - K_1) \cdot K_2 = (11.0 - 6.0) \cdot 3.9 = 19.5 \text{ m/s (64.0 ft/s)}$$

So, the sample hydrogen flare would meet the flare tip velocity requirements of 40 CFR § 60.18.

Modeling Calculations

The net heating value of the waste gas stream to the flare and the flare height is sufficient information for the reviewing engineer to perform initial screen modeling using the EPA Screen 3 model with the built-in flare source algorithm; however, additional calculations must be provided to the reviewing engineer if refined modeling using the EPA ISC series of models and the point source algorithm is required. It should be noted that refined modeling is the applicant's responsibility and may be requested as determined to be appropriate by the reviewing engineer.

Flares are considered a special type of elevated source that may be modeled as a point source. In a flare, the velocity of the waste stream and the flare temperature are not used to determine the plume rise; rather, the TCEQ suggests use of the parameters and formula explained below to calculate the effective stack diameter based upon the net heat release and the average molecular weight of the compounds being burned.

If a flare is to be treated as a point source, accurate determination of all stack parameters is not possible. Since combustion occurs at or beyond the flare tip in the atmosphere, appropriate values for stack exit temperature and exit velocity cannot be accurately determined. The diameter of the pipe leading to the flare tip is not a factor in determining plume rise. The point source algorithm can be used with arbitrary values assigned for stack exit velocity (20 m/s or 66 fps) and temperature (1,273K or 1,831_F) to predict dispersion for flare type sources.

A stack height equal to the height of the flare tip is recommended for flares. The effective flare tip diameter is determined using the following equation:

$$D = \sqrt{(10^{-6})q(1 - 0.048\sqrt{MW})}$$

where D = effective flare tip diameter, meters,
 q = net or lower heat release, cal/sec, and
 MW = volume average molecular weight, g/g-mole.

First, estimate the net heat release based upon the overall net heating value from Table 9 and maximum waste gas stream flow rate from Table 6:

$$q = \left(\frac{1228 \text{ Btu}}{\text{scf}} \right) \left(\frac{250 \text{ scf}}{\text{min}} \right) \left(\frac{1 \text{ min}}{60 \text{ sec}} \right) \left(\frac{252 \text{ cal}}{\text{Btu}} \right) = 1,289,400 \text{ cal/sec}$$

Next, estimate the volume average molecular weight based upon the maximum volumetric flow rate (Table 6) and the molecular weights of the individual constituents (Table 10). Finally, estimate the effective flare tip diameter based on the net heat release and average molecular weight:

$$D = \sqrt{(10^{-6}) \left(1,289,400 \frac{\text{cal}}{\text{sec}} \right) (1 - 0.048 \sqrt{27.61})} = 3.22 \text{ ft}$$

Enclosed vapor combustion units should not be modeled with the above parameters, but instead with stack parameters that reflect the physical characteristics of the process unit.

Table 10: Estimation of Volume Average Molecular Weight

Constituent	scfm	Mole fraction	MW	MFxMW
Butane	10.16	0.060	58.12	3.49
Propylene	5.94	0.035	42.08	1.47
Propane	5.08	0.030	44.09	1.32
Ethylene	84.74	0.500	28.05	14.02
Ethane	37.28	0.220	30.07	6.62
Hydrogen	22.04	0.130	2.016	0.26
Ammonia	4.24	0.025	17.03	0.43
Totals		1.0000		27.61

**Attachment B—Typical Refinery Flare Data
(from NSR Table 8, Flare Systems)**

TABLE 8. FLARE SYSTEMS

Number from Flow Diagram 1 (Refinery Flare)		Manufacturer & Model No. (If available) N/A			
CHARACTERISTICS OF INPUT					
Waste Gas Stream	Material	Min. Value Expected (scfm [68°F, 14.7 psia])	Ave. Value Expected (scfm [68°F, 14.7 psia])	Design Max. (scfm [68°F, 14.7 psia])	
	1. Butane+		10.16	12.70	
	2. Propylene		5.94	7.43	
	3. Propane		5.08	6.35	
	4. Ethylene		84.74	105.93	
	5. Ethane		37.28	46.60	
	6. H ₂		22.04	27.55	
	7. NH ₃		4.24	5.30	
	8. Inerts		30.50	38.13	
% of time this condition occurs		5	80	15	
	Flow Rate (scfm [68°F, 14.7 psia])		Temp. °F	Pressure (psig)	
	Minimum Expected	Design Maximum			
Waste Gas Stream	200	250	130	0	
Fuel Added to Gas Stream		0.5	110	0	
	Number of Pilots		Type Fuel	Fuel Flow Rate (scfm [68°F & 14.7 psia]) per pilot	
	1		Natural Gas	0.5	
For Steam Injection	Stream Pressure (psig)		Total Stream Flow	Temp. °F	Velocity (ft/sec)
	Min. Expected	Design Max.	Rate (lb/hr)		
	Number of Jet Streams		Diameter of Steam Jets (inches)	Design basis for steam injected (lb steam/lb hydrocarbon)	
For Water Injection	Water Pressure (psig) Min. Expected Design Max.		Total Water Flow Rate (gpm) Min. Expected Design Max.	No. of Water Jets	Diameter of Water Jets (inches)
Flare Height (ft) 60			Flare tip inside diameter (ft) 1		
Capital Installed Cost \$20,000			Annual Operating Cost \$15,000		

Supply an assembly drawing, dimensioned and to scale, to show clearly the operation of the flare system. Show interior dimensions and features of the equipment necessary to calculate its performance. Also describe the type of ignition system and its method of operation. Provide an explanation of the control system for steam flow rate and other operating variables.

Table 4. Flare Factors

Waste Stream	Destruction/Removal Efficiency (DRE)												
VOC	98 percent (generic) 99 percent for compounds containing no more than 3 carbons that contain no elements other than carbon and hydrogen in addition to the following compounds: methanol, ethanol, propanol, ethylene oxide and propylene oxide												
H ₂ S	98 percent												
NH ₃	case by case												
CO	case by case												
Air Contaminants	Emission Factors												
thermal NO _x	<table border="0"> <tr> <td>steam-assist:</td> <td>high Btu</td> <td>0.0485 lb/MMBtu</td> </tr> <tr> <td></td> <td>low Btu</td> <td>0.068 lb/MMBtu</td> </tr> <tr> <td>other:</td> <td>high Btu</td> <td>0.138 lb/MMBtu</td> </tr> <tr> <td></td> <td>low Btu</td> <td>0.0641 lb/MMBtu</td> </tr> </table>	steam-assist:	high Btu	0.0485 lb/MMBtu		low Btu	0.068 lb/MMBtu	other:	high Btu	0.138 lb/MMBtu		low Btu	0.0641 lb/MMBtu
steam-assist:	high Btu	0.0485 lb/MMBtu											
	low Btu	0.068 lb/MMBtu											
other:	high Btu	0.138 lb/MMBtu											
	low Btu	0.0641 lb/MMBtu											
fuel NO _x	NO _x is 0.5 wt percent of inlet NH ₃ , other fuels case by case												
CO	<table border="0"> <tr> <td>steam-assist:</td> <td>high Btu</td> <td>0.3503 lb/MMBtu</td> </tr> <tr> <td></td> <td>low Btu</td> <td>0.3465 lb/MMBtu</td> </tr> <tr> <td>other:</td> <td>high Btu</td> <td>0.2755 lb/MMBtu</td> </tr> <tr> <td></td> <td>low Btu</td> <td>0.5496 lb/MMBtu</td> </tr> </table>	steam-assist:	high Btu	0.3503 lb/MMBtu		low Btu	0.3465 lb/MMBtu	other:	high Btu	0.2755 lb/MMBtu		low Btu	0.5496 lb/MMBtu
steam-assist:	high Btu	0.3503 lb/MMBtu											
	low Btu	0.3465 lb/MMBtu											
other:	high Btu	0.2755 lb/MMBtu											
	low Btu	0.5496 lb/MMBtu											
PM	none, required to be smokeless												
SO ₂	100 percent S in fuel to SO ₂												

*The only exception of this is if inorganics might be emitted from the flare. In the case of landfills, the AP-42 PM factor may be used. In other cases, the emissions should be based on the composition of the waste stream routed to the flare.

Kessler, Joseph R

From: Zawaski, Danell <Danell.Zawaski@williams.com>
Sent: Wednesday, July 01, 2015 4:41 PM
To: McKeone, Beverly D; Kessler, Joseph R
Subject: Oak Grove and Moundsville DRE letters
Attachments: 21986 Williams Oakgrove DRE Letter - 30-Jun-2015.pdf; 22296 Williams Moundsville DRE Letter - 30-Jun-2015.pdf

Attached are the Vendor DRE letters that were requested. Please let me know if you have any questions.

Regards,
Danell

R. Danell Zawaski, PE
Environmental Specialist
NEGP Environmental Services
304-843-3133 Moundsville
412/787-4259 Pittsburgh
505/787-7926 cell
412/787-6002 fax
Danell.zawaski@williams.com

Entire Document
NON-CONFIDENTIAL

I.D. No. 051-0041 Reg. 28920
Company WILLIAMS OVM
Facility Moundsville Region _____
Initials *DZ*



- *Burners*
- *Flares*
- *Incinerators*
- *Combustion Systems*

22151 East 91st Street
Broken Arrow, OK 74014 USA
Phone: 918-258-8551
Fax: 918-251-5519

www.zeeco.com
doug_allen@zeeco.com

June 30, 2015

Williams Ohio Valley Midstream LLC
Park Place Corporate Center 2
2000 Commerce Drive
Pittsburg, PA 15275
USA

Subject: Destruction Efficiency of Air Assisted Flares

Reference: Air Assisted Flare – Moundsville WV
Zeeco S.O. Numbers 22262

Attn: Ms. R. Danell Zawaski P.E.

Zeeco would like to confirm that we guarantee a Destruction Removal Efficiency (DRE) of 99% from the Air Assisted Flare on this project when operated within the guidelines given in the Zeeco Operating Manual. If there are any questions or if more information is needed please let us know.

Thank you and Best Regards,

Doug Allen

Doug Allen
Chief Engineer, Zeeco Inc.



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

May 14, 2015

Ms. Danell Zawaski, PE
Williams Ohio Valley Midstream LLC
2000 Commerce Drive
Pittsburgh, PA 15275

Entire Document
NON-CONFIDENTIAL

RE: **Application Complete**
Williams OVM
Moundsville Fractionation Plant
Permit No. R13-2892D
Plant ID No. 051-00141

Dear Ms. Zawaski:

Your application for a modification permit was received by the Division of Air Quality (DAQ) on April 17, 2015 and assigned to the writer for review. Upon an initial review of the information submitted, (and with the later submission of the required Class I Legal Advertisement affidavit of publication and application fee), the application has been deemed complete as of the date of this letter. The ninety (90) day statutory time frame began on that day.

This determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit determination.

Should you have any questions, please contact me at (304) 926-0499 ext. 1219.

Sincerely,

Joe Kessler, PE
Engineer

Kessler, Joseph R

From: Adkins, Sandra K
Sent: Monday, May 11, 2015 10:53 AM
To: Kessler, Joseph R
Subject: Williams OVM (Ohio River Plant)/Permit Application Fee

Follow Up Flag: Follow up
Flag Status: Flagged

This is the receipt for payment received from:

Williams Field Services Group Inc, check number 4000105234, dated April 13, 2015, \$2,000.00
Williams OVM Ohio River Plant R13-2892D id no 051-00141

OASIS Deposit No CR 1500124599 May 11, 2015

UC Defaulted Accounts Search Results

Sorry, no records matching your criteria were found.

FEIN:

Business name: WILLIAMS OHIO VALLEY MIDSTREAM LLC

Doing business

as/Trading as:

Please use your browsers back button to try again.

WorkforceWV	Unemployment Compensation	Offices of the Insurance Commissioner
-----------------------------	---	---

UC Defaulted Accounts Search Results

Sorry, no records matching your criteria were found.

FEIN: 270856707

Business name:

Doing business

as/Trading as:

Please use your browsers back button to try again.

WorkforceWV	Unemployment Compensation	Offices of the Insurance Commissioner
-----------------------------	---	---



Williams Ohio Valley Midstream LLC
Park Place Corporate Center 2
2000 Commerce Drive
Pittsburgh, PA 15275
(412) 787-7300
(412) 787-6006 fax

May 4, 2015

Joe Kessler
WVDEP – Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

Entire Document
NON-CONFIDENTIAL

Fedex Tracking number 7735 2041 1465

Subject: Legal Notice for Moundsville Fractionation Plant

Dear DEP:

Attached is the original legal affidavit for Moundsville Fractionation Plant that Williams ran the Moundsville Daily Echo newspaper on April 20, 2015. Please contact me with any questions at (505)787-7926 or at Danell.Zawaski@williams.com.

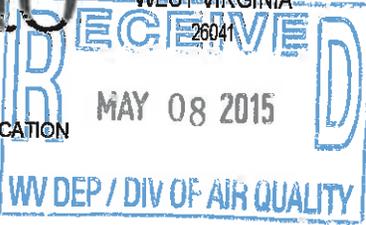
Sincerely,

Danell Zawaski
Environmental Specialist

I.D. No. 051-00141 **Reg.** 2892D
Company WILLIAMS OVM
Facility MOUNDSVILLE **Region** _____
Initials DZ



(304) 845-2660
P.O. BOX 369
MOUNDSVILLE
WEST VIRGINIA
26041



AFFIDAVIT OF PUBLICATION

STATE OF WEST VIRGINIA,
COUNTY OF MARSHALL, to wit

I, Melanie S. Murdock being first duly sworn upon my oath, do depose and say:

- that I am Legal Advertising Manager of the MOUNDSVILLE DAILY ECHO, a Republican newspaper;
- that I have been duly authorized to execute this affidavit;
- that such newspaper has been published for over 119 years, is regularly published afternoons daily except Saturdays and Sundays, for at least fifty weeks during the calendar year, in the municipality of Moundsville, Marshall County, West Virginia.
- that such newspaper is a newspaper of "general circulation" as defined in Art. 3, Chap. 59 of the Code of West Virginia 1931 as amended, within Moundsville and Marshall County;
- that such newspaper averages in length four or more pages, exclusive of any cover, per issue;
- that such newspaper is circulated to the general public at a definite price or consideration;
- that such newspaper is a newspaper to which the general public resorts for passing events of a political, religious, commercial and social nature and for current happenings, announcements, miscellaneous reading matters, advertisements and other notices;
- and that the annexed notice described as follows:

Legal Advertisement

PARTY(ies)

Air Quality Permit/Moundsville Fractionation Plant

NATURE (and agency if heard before one)

CERTIF-BILL TO

Williams Ohio Valley Midstream, LLC
Park Place Corporate Center 2
2000 Commerce Drive
Pittsburg, PA 15276

WAS PUBLISHED IN-SAID NEWSPAPER AS FOLLOWS

Times	Dates
1	April 20, 2015
BY WORDS	PUBLICATION CHARGES
492	\$56.58

(signed)

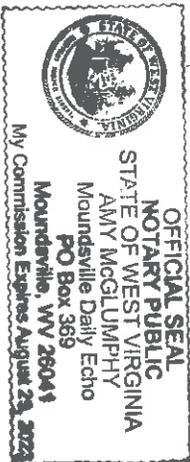
Melanie S. Murdock

NOTARIZATION

Taken, sworn and subscribed before me this 20th day of April 2015

Notary Public

Amy McGlumphy



LEGAL ADVERTISEMENT

Williams Ohio Valley Midstream LLC

MOUNDSVILLE FRACTIONATION PLANT

Application for 45CSR13 NSR Modification Permit

LEGAL ADVERTISEMENT

AIR QUALITY PERMIT NOTICE

Notice of Application

Notice is given that Williams Ohio Valley Midstream LLC (OVM) has applied to the West Virginia Department of Environmental Protection, Division of Air Quality (WV-DAQ), for a 45CSR13 New Source Review (NSR) Modification Permit for the existing Moundsville Fractionation Plant. The application requests authorization to increase truck/rail load-out capacity, install three additional pressure vessels, and increase waste gas volumes and heat content to the flare.

The plant is located at 200 Caiman Drive, west of WV 2/Lafayette Ave. approximately 2.8 miles W-SW of Moundsville, in Marshall County, West Virginia.

The latitude and longitude coordinates are 39.9129° North x -80.7970° West, respectively.

The applicant estimates the increase in potential to discharge regulated air pollutants will be:

24.81 tons of nitrogen oxides (NOX) per year

49.70 tons of carbon monoxide (CO) per year

97.53 tons of volatile organic compounds (VOC) per year

0.04 tons of sulfur dioxide (SO2) per year

0.62 tons of particulate matter (PM10/2.5) per year

0.08 tons of benzene per year

After giving up six runs in 1-3 in-

to hold off the Twins.

ly-season struggles. It just wasn't enough

made strides toward rectifying his ear-

MINNNEAPOLIS (AP) — TJ House

Associated Press

MARK REMME

Lose To Twins

Again As Indians

House Struggles

..He wasn't as overpowering, his curveball wasn't as hard, his velocity wasn't as high, but he managed the strike

Kessler, Joseph R

From: Rice, Jennifer L
Sent: Wednesday, April 22, 2015 9:58 AM
To: don.wicburg@williams.com; danell.zawaski@williams.com
Cc: Kessler, Joseph R; McKeone, Beverly D
Subject: WV DAQ Permit Application Status for Williams Ohio Valley Midstream; Moundsville

**RE: Application Status
Williams Ohio Valley Midstream
Moundsville Fractionation Plant
Plant ID No. 051-00141
Application No. R13-2892D**

Mr. Wicburg,

Your application for a modification permit for the Moundsville Fractionation Plant was received by this Division on April 17, 2015, and was assigned to Joe Kessler. The following items were not included in the initial application submittal:

Original affidavit for Class I legal advertisement not submitted.

Application fee AND/OR additional application fees not included:

***\$1,000 Construction, Modification, Relocation or Temporary Permit**

***\$1,000 NSPS**

These items are necessary for the assigned permit writer to continue the 30-day completeness review.

Within 30 days, you should receive a letter from Joe Kessler stating the status of the permit application and, if complete, given an estimated time frame for the agency's final action on the permit.

Any determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit decision.

Should you have any questions, please contact the assigned engineer, Joe Kessler, at 304-926-0499, extension 1219.