



**Williams Ohio Valley Midstream LLC**  
 Park Place Corporate Center 2  
 2000 Commerce Drive  
 Pittsburgh, PA 15275  
 (412) 787-7300  
 (412) 787-6002 fax

November 1, 2017  
 (Sent Via Federal Express)

Beverly McKeone  
 New Source Review Program Manager  
 Division of Air Quality  
 West Virginia Department of Environmental Protection  
 601 57th Street SE  
 Charleston, WV 25304

**Subject: Application for Class II Administrative Update (R13-3070A)**  
**Williams Ohio Valley Midstream LLC**  
**OAK GROVE GAS PLANT (Facility ID 051-00157)**  
**Marshall County, West Virginia**

Dear Ms. McKeone:

Williams Ohio Valley Midstream LLC (OVM) is submitting one (1) original paper copy and two (2) CD-ROMs of an Application for 45CSR13 New Source Review (NSR) Class II Administrative Update for the existing Oak Grove Gas Plant, located at 5258 Fork Ridge Rd in Moundsville, Marshall County, West Virginia.

This application has been prepared and submitted to request the following updates to the facility's current air quality permit (R13-3070A, issued 01/05/16):

- Decrease the estimated Volatile Organic Compound (VOC) and Hazardous Air Pollutant (HAP) emissions resulting from improvements to LDAR control efficiency estimates; significantly offset by a more accurate count of the Piping and Equipment Fugitive components, plus a 15% contingency (FUG/15E). (Also, n-Hexane in fugitives was speciated from BTEX.)
- Decrease the estimated Methane (CH4) (and, consequentially, CO2 Equivalent (CO2e)) emissions resulting from correction to the emission factor previously used (H-01/1E, H-02/2E, H-04/4E, H-05/5E, H-06/6E, H-07/7E, and GEN-01).

**EMISSIONS SUMMARY SHEET**

Facility-Wide Emissions Summary [Tons per Year]			
Criteria Pollutants	Potential Emissions (Including Fugitives)		
	Current Permit	Change*	New Permit
Nitrogen Oxides (NOX)	121.26	---	121.26
Carbon Monoxide (CO)	192.66	---	192.66
Volatile Organic Compounds (VOC)	112.00	(11.29)	100.71
Sulfur Dioxide (SO2)	0.76	---	0.76
Particulate Matter (PM10/2.5)	10.68	---	10.68

Beverly McKeone  
 WVDEP – Division of Air Quality  
 November 1, 2017  
 Page 02 of 02

Hazardous Air Pollutants (HAP)	Potential Emissions (Including Fugitives)		
	Current Permit	Change*	New Permit
Benzene	1.86	(0.08)	1.78
Ethylbenzene	2.04	(0.08)	1.96
Formaldehyde (HCHO)	0.12	---	0.12
n-Hexane	3.70	0.28	3.98
Toluene	1.96	(0.09)	1.87
2,2,4-Trimethylpentane (TMP)	2.10	(0.09)	2.01
Xylenes	2.05	(0.09)	1.96
Other HAP (Methanol (MeOH), etc.)	0.01	---	0.01
Total HAP	13.83	(0.15)	13.68
Greenhouse Gases (GHG)	Potential Emissions (Including Fugitives)		
	Current Permit	Change**	New Permit
Carbon Dioxide (CO2)	218,331	---	218,331
Methane (CH4)	374	(199)	175
Nitrous Oxide (N2O)	1	---	1
CO2 Equivalent (CO2e)	227,955	(4,972)	222,983

The facility continues to qualify as a Major Source under Title V operating Permits and a Minor Source under Non-Attainment New Source Review (NNSR) and Prevention of Significant Deterioration (PSD) Permits. The facility also remains an Area Source for Hazardous Air Pollutants (HAP) under the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations.

If you have any questions concerning this submittal or need additional information, please contact me at (412) 787-4259 or danell.zawaski@williams.com.

Sincerely,

R. Danell Zawaski, P.E.  
 Environmental Specialist

Enclosures:

- Application for Class II Administrative Update
- Attachments A through S
- Check for Application Fee

**APPLICATION FOR  
CLASS II ADMINISTRATIVE UPDATE  
(R13-3070A)**

*For the:*

Williams Ohio Valley Midstream LLC  
**OAK GROVE NATURAL GAS PROCESSING PLANT**  
Marshall County, West Virginia

*Submitted to:*



**WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF AIR QUALITY**

*Submitted by:*



**Williams Ohio Valley Midstream LLC**  
100 Teletech Drive  
Moundsville, WV 26041

*Prepared by:*



**EcoLogic Environmental Consultants, LLC**  
864 Windsor Court  
Santa Barbara, CA 93111

**November 2017**

**APPLICATION FOR  
CLASS II ADMINISTRATIVE UPDATE  
(R13-3070A)**

Williams Ohio Valley Midstream LLC  
**OAK GROVE NATURAL GAS PROCESSING PLANT**  
Marshall County, West Virginia

**TABLE OF CONTENTS**

**COVER LETTER**

**APPLICATION FOR NSR MODIFICATION PERMIT**

**ATTACHMENTS TO APPLICATION**

- ATTACHMENT A Business Certificate
- ATTACHMENT B Location/Topographic Map
- ATTACHMENT C Installation and Start-Up Schedule
- ATTACHMENT D Regulatory Discussion
- ATTACHMENT E Plot Plan
- ATTACHMENT F Detailed Process Flow Diagram (PFD)
- ATTACHMENT G Process Description
- ATTACHMENT H Safety Data Sheets (SDS)  
(And Representative Extended Gas Analysis)
- ATTACHMENT I Emission Units Table
- ATTACHMENT J Emission Points Data Summary Sheet(s)
- ATTACHMENT K Fugitive Emissions Data Summary Sheet(s)
- ATTACHMENT L Emissions Unit Data Sheet(s)
- ATTACHMENT M Air Pollution Control Device Sheet(s)
- ATTACHMENT N Supporting Emissions Calculations
- ATTACHMENT O Monitoring/Recordkeeping/Reporting/Testing Plans
- ATTACHMENT P Public Notice (Class I Legal Advertisement)
- ATTACHMENT Q Business Confidential Claims (NOT APPLICABLE)
- ATTACHMENT R Authority Forms (NOT APPLICABLE)
- ATTACHMENT S Title V Permit Revision Information

**APPLICATION FEE**

**APPLICATION FOR  
CLASS II ADMINISTRATIVE UPDATE  
(R13-3070A)**

---

**GENERAL INSTRUCTIONS** - Application forms are to be completed for any facility which emits the following regulated pollutants: Carbon Monoxide (CO), Lead, Nitrogen Oxides (NOx), Particulate Matter (PM), Particulate Matter less than 10 microns (PM10), Sulfur Dioxide (SO2), and Volatile Organic Compounds (VOCs) not listed as Hazardous Air Pollutants (HAPs) or Toxic Air Pollutants (TAPs) in accordance with Section '112 of the Clean Air Act or Rule 45CSR27.

---

- **Section I. General**
  - **Section II. Additional Attachments and Supporting Documents**
  - **Section III. Certification of Information**
-



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**DIVISION OF AIR QUALITY**  
 601 57<sup>th</sup> Street, SE  
 Charleston, WV 25304  
 (304) 926-0475  
[www.dep.wv.gov/daq](http://www.dep.wv.gov/daq)

**APPLICATION FOR NSR PERMIT  
 AND  
 TITLE V PERMIT REVISION  
 (OPTIONAL)**

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

- CONSTRUCTION     MODIFICATION     RELOCATION  
 CLASS I ADMINISTRATIVE UPDATE     TEMPORARY  
 CLASS II ADMINISTRATIVE UPDATE     AFTER-THE-FACT

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

- ADMINISTRATIVE AMENDMENT     MINOR MODIFICATION  
 SIGNIFICANT MODIFICATION     NOT APPLICABLE

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

**FOR TITLE V FACILITIES ONLY:** Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

**Section I. General**

1. Name of applicant (as registered with the WV Secretary of State's Office): <b>WILLIAMS OHIO VALLEY MIDSTREAM LLC</b>		2. Federal Employer ID No. (FEIN): <b>27-0856707</b>	
3. Name of facility (if different from above): <b>OAK GROVE GAS PLANT (OGGP)</b>		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: <b>100 TELETECH DRIVE, SUITE 2 MOUNDSVILLE, WV 26041</b>		5B. Facility's present physical address: <b>5258 FORK RIDGE ROAD MOUNDSVILLE, WV 26041</b>	
6. <b>West Virginia Business Registration.</b> Is the applicant a resident of the State of West Virginia? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO – If YES, provide a copy of the <b>Certificate of Incorporation/Organization/Limited Partnership</b> (one page) including any name change amendments or other Business Registration Certificate as <b>Attachment A</b> . – If NO, provide a copy of the <b>Certificate of Authority/Authority of L.L.C./Registration</b> (one page) including any name change amendments or other Business Certificate as <b>Attachment A</b> .			
7. If applicant is a subsidiary corporation, please provide the name of parent corporation: <b>THE WILLIAMS COMPANIES, INC.</b>			
8. Does the applicant own, lease, have an option to buy, or otherwise have control of the <i>proposed site</i> ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If YES, please explain: <b>APPLICANT OWNS THE PROPERTY</b> – If NO, you are not eligible for a permit for this source.			
9. Type of plant or facility (stationary source) to be <b>constructed, modified, relocated, administratively updated</b> or <b>temporarily permitted</b> (e.g., coal preparation plant, primary crusher, etc.): <b>NATURAL GAS PROCESSING FACILITY</b>		10. North American Industry Classification System (NAICS) code for the facility: <b>21112 – NATURAL GAS LIQUID EXTRACTION</b>	
11A. DAQ Plant ID No. (existing facilities): <b>051-00157</b>		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (existing facilities): <b>R13-3070A (OAK GROVE) - 01/05/16 R30-05100157(MM02) (OAK GROVE) - 05/02/17 R13-3289A (FRANCIS CS) - 01/25/17 PD15-057 (INDEPENDENCE CS) – 08/12/15</b>	
12A. Directions to the facility: – For <b>Modifications, Administrative Updates</b> or <b>Temporary permits</b> at an existing facility, please provide directions to the <i>present location</i> of the facility from the nearest state road; – For <b>Construction</b> or <b>Relocation permits</b> , please provide directions to the <i>proposed new site location</i> from the nearest state road. Include a <b>MAP</b> as <b>Attachment B</b> .  <b>FROM LAFAYETTE AVE IN MOUNDSVILLE:</b> <b>A. HEAD EAST ONTO 12TH ST ~1.1 MI;</b> <b>B. CONTINUE ONTO FORK RIDGE RD ~5.4 MI;</b> <b>C. ENTRANCE TO SITE IS ON THE LEFT.</b>			
All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.			

12.B. New site address (if applicable): <b>NA</b>	12C. Nearest city or town: <b>MOUNDSVILLE</b>	12D. County: <b>MARSHALL</b>
12.E. UTM Northing (KM): <b>4,414.1 KM NORTHING</b>	12F. UTM Easting (KM): <b>525.9 KM EASTING</b>	12G. UTM Zone: <b>17S</b>
13. Briefly describe the proposed change(s) at the facility: <b>THIS APPLICATION IS PREPARED AND SUBMITTED TO:</b> <ul style="list-style-type: none"> <li>• <b>DECREASE THE ESTIMATED VOLATILE ORGANIC COMPOUND (VOC) AND HAZARDOUS AIR POLLUTANT (HAP) EMISSIONS RESULTING FROM IMPROVEMENTS TO LDAR CONTROL EFFICIENCY ESTIMATES; SIGNIFICANTLY OFFSET BY A MORE ACCURATE COUNT OF THE PIPING AND EQUIPMENT FUGITIVE COMPONENTS, PLUS A 15% CONTINGENCY (FUG/15E). (ALSO, N-HEXANE IN FUGITIVES WAS SPECIATED FROM BTEX.)</b></li> <li>• <b>DECREASE THE ESTIMATED METHANE (CH<sub>4</sub>) (AND, CONSEQUENTIALLY, CO<sub>2</sub> EQUIVALENT (CO<sub>2</sub>E)) EMISSIONS RESULTING FROM CORRECTION OF THE EMISSION FACTOR PREVIOUSLY USED (H-01/1E, H-02/2E, H-04/4E, H-05/5E, H-06/6E, H-07/7E, AND GEN-01).</b></li> </ul>		
14A. Provide the date of anticipated installation or change: If this is an <b>After-The-Fact</b> permit application, provide the date upon which the proposed change did happen: <b>NA</b>		14B. Date of anticipated Start-Up if a permit is granted: <b>NA</b>
14C. Provide a <b>Schedule</b> of the planned <b>Installation of/Change</b> to and <b>Start-Up</b> of each of the units proposed in this permit application as <b>Attachment C</b> (if more than one unit is involved).		
15. Provide maximum projected <b>Operating Schedule</b> of activity/activities outlined in this application: Hours Per Day: <b>24</b> Days Per Week: <b>7</b> Weeks Per Year: <b>52</b>		
16. Is demolition or physical renovation at an existing facility involved? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
17. <b>Risk Management Plans.</b> If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see <a href="http://www.epa.gov/ceppo">www.epa.gov/ceppo</a> ), submit your <b>Risk Management Plan (RMP)</b> to U.S. EPA Region III.		
18. <b>Regulatory Discussion.</b> List all Federal and State air pollution control regulations that you believe are applicable to the proposed process ( <i>if known</i> ). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance ( <i>if known</i> ). Provide this information as <b>Attachment D</b> .		

### **Section II. Additional attachments and supporting documents.**

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate <b>application fee</b> (per 45CSR22 and 45CSR13).
20. Include a <b>Table of Contents</b> as the first page of your application package.
21. Provide a <b>Plot Plan</b> , e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as <b>Attachment E</b> (Refer to <b>Plot Plan Guidance</b> ). – Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).
22. Provide a <b>Detailed Process Flow Diagram(s)</b> showing each proposed or modified emissions unit, emission point and control device as <b>Attachment F</b> .
23. Provide a <b>Process Description</b> as <b>Attachment G</b> . – Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).
24. Provide <b>Material Safety Data Sheets (MSDS)</b> for all materials processed, used or produced as <b>Attachment H</b> . – For chemical processes, provide a MSDS for each compound emitted to the air.
25. Fill out the <b>Emission Units Table</b> and provide it as <b>Attachment I</b> .
26. Fill out the <b>Emission Points Data Summary Sheet (Table 1 and Table 2)</b> and provide it as <b>Attachment J</b> .
27. Fill out the <b>Fugitive Emissions Data Summary Sheet</b> and provide it as <b>Attachment K</b> .
<i>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</i>

**28. Check all applicable Emissions Unit Data Sheets listed below:**

<input checked="" type="checkbox"/> <b>Bulk Liquid Transfer Operations (TL-1)</b>	<input type="checkbox"/> Haul Road Emissions	<input type="checkbox"/> Quarry
<input type="checkbox"/> Chemical Processes	<input type="checkbox"/> Hot Mix Asphalt Plant	<input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities
<input type="checkbox"/> Concrete Batch Plant	<input type="checkbox"/> Incinerator	<input checked="" type="checkbox"/> <b>Storage Tanks</b>
<input type="checkbox"/> Grey Iron and Steel Foundry	<input type="checkbox"/> Indirect Heat Exchanger	

**General Emission Unit, specify:**

- **NATURAL GAS FIRED HEATER (H-01 (1E) THRU TK-07 (7E))**
- **STANDBY GENERATOR (GEN-1 (9E))**

Fill out and provide the Emissions Unit Data Sheet(s) as Attachment L.

**29. Check all applicable Air Pollution Control Device Sheets listed below:**

<input type="checkbox"/> Absorption Systems	<input type="checkbox"/> Baghouse	<input checked="" type="checkbox"/> <b>Flare (FLR-1)</b>
<input type="checkbox"/> Adsorption Systems	<input type="checkbox"/> Condenser	<input type="checkbox"/> Mechanical Collector
<input type="checkbox"/> Afterburner	<input type="checkbox"/> Electrostatic Precipitator	<input type="checkbox"/> Wet Collecting System
<input type="checkbox"/> Other Collectors, specify: <b>NA</b>		

Fill out and provide the Air Pollution Control Device Sheet(s) as Attachment M.

**30. Provide all Supporting Emissions Calculations** as Attachment N, or attach the calculations directly to the forms listed in Items 28 through 31.

**31. Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as Attachment O.

➤ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

**32. Public Notice.** At the time that the application is submitted, place a Class I Legal Advertisement in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and *Example Legal Advertisement* for details). Please submit the Affidavit of Publication as Attachment P immediately upon receipt.

**33. Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

**YES**       **NO**

➤ **If YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's "Precautionary Notice – Claims of Confidentiality" guidance found in the *General Instructions* as Attachment Q.

### **Section III. Certification of Information**

**34. Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable Authority Form below:      **NA**

<input type="checkbox"/> Authority of Corporation or Other Business Entity	<input type="checkbox"/> Authority of Partnership
<input type="checkbox"/> Authority of Governmental Agency	<input type="checkbox"/> Authority of Limited Partnership

**Submit completed and signed Authority Form as Attachment R.**

*All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.*



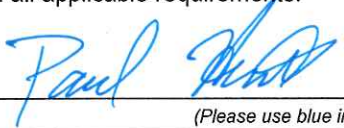
**35A. Certification of Information.** To certify this permit application, a Responsible Official (45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

**Certification of Truth, Accuracy, and Completeness**

I, the undersigned  **Responsible Official** /  **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

**Compliance Certification**

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE:   
(Please use blue ink)

DATE: 10/31/2017  
(Please use blue ink)

<b>35B.</b> Printed name of signee: <b>PAUL HUNTER</b>	<b>35C.</b> Title: <b>VICE PRESIDENT</b>	
<b>35D.</b> E-mail: <b>PAULV.HUNTER@WILLIAMS.COM</b>	<b>35E.</b> Phone: <b>(412) 787-5561</b>	<b>35F.</b> FAX: <b>(412) 787-6002</b>
<b>36A.</b> Printed name of contact person: <b>R. DANELL ZAWASKI, P.E.</b> <b>JOE MARECIC</b>	<b>36B.</b> Title: <b>ENVIRONMENTAL SPECIALIST</b> <b>SUPERVISOR, EH&amp;S</b>	
<b>36C.</b> E-mail: <a href="mailto:DANELL.ZAWASKI@WILLIAMS.COM">DANELL.ZAWASKI@WILLIAMS.COM</a> <a href="mailto:JOE.MARECIC@WILLIAMS.COM">JOE.MARECIC@WILLIAMS.COM</a>	<b>36D.</b> Phone: <b>(412) 787-4259</b> <b>(304) 843-3188</b>	<b>36E.</b> FAX: <b>(412) 787-6002</b> <b>(304) 843-3196</b>

**PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:**

<input checked="" type="checkbox"/> Attachment A: Business Certificate	<input checked="" type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet
<input checked="" type="checkbox"/> Attachment B: Map(s)	<input checked="" type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s)
<input checked="" type="checkbox"/> Attachment C: Installation and Start Up Schedule	<input checked="" type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s)
<input checked="" type="checkbox"/> Attachment D: Regulatory Discussion	<input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations
<input checked="" type="checkbox"/> Attachment E: Plot Plan	<input checked="" type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans
<input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s)	<input checked="" type="checkbox"/> Attachment P: Public Notice
<input checked="" type="checkbox"/> Attachment G: Process Description	<input type="checkbox"/> Attachment Q: Business Confidential Claims) (NA)
<input checked="" type="checkbox"/> Attachment H: Safety Data Sheets (SDS)	<input type="checkbox"/> Attachment R: Authority Forms) (NA)
<input checked="" type="checkbox"/> Attachment I: Emission Units Table	<input checked="" type="checkbox"/> Attachment S: Title V Permit Revision Information)
<input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet	<input checked="" type="checkbox"/> Application Fee

*Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.*

**FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:**

Forward 1 copy of the application to the Title V Permitting Group and

For Title V Administrative Amendments:

NSR permit writer should notify Title V permit writer of draft permit

For Title V Minor Modifications:

Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,

NSR permit writer should notify Title V permit writer of draft permit.

For Title V Significant Modifications processed in parallel with NSR Permit revision:

NSR permit writer should notify a Title V permit writer of draft permit,

Public notice should reference both 45CSR13 and Title V permits,

EPA has 45-day review period of a draft permit.

*All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.*

## **ATTACHMENT A**

### **Business Certificate**

---

“6. **West Virginia Business Registration.** Provide a copy of the Certificate of Authority/Authority of L.L.C./Registration (one page) including any name change amendments or other Business Certificate as Attachment A.”

---

- **Certificate of Amendment to the Certificate of Authority**
    - From: CAIMAN EASTERN MIDSTREAM, LLC
    - To: WILLIAMS OHIO VALLEY MIDSTREAM LLC
    - Date: May 15, 2012
  
  - **Certificate of Authority of a Foreign Limited Liability Company**
    - To: CAIMAN EASTERN MIDSTREAM, LLC
    - Date: September 11, 2009
-

# State of West Virginia



## Certificate

*I, Natalie E. Tennant, Secretary of State of the  
State of West Virginia, hereby certify that*

the attached true and exact copy of the Articles of Amendment to the Articles of Organization of

**CAIMAN EASTERN MIDSTREAM, LLC**

are filed in my office, signed and verified, as required by the provisions of West Virginia Code §31B-2-204 and conform to law. Therefore, I issue this

### **CERTIFICATE OF AMENDMENT TO THE CERTIFICATE OF AUTHORITY**

changing the name of the limited liability company to

**WILLIAMS OHIO VALLEY MIDSTREAM LLC**

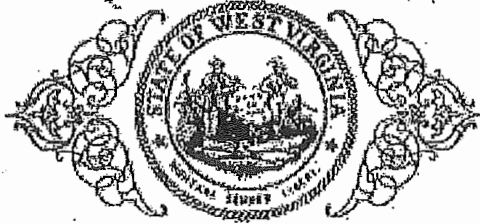


*Given under my hand and the  
Great Seal of the State of  
West Virginia on this day of  
May 15, 2012*

*Natalie E. Tennant*

*Secretary of State*

# State of West Virginia



## Certificate

*I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that*

**CAIMAN EASTERN MIDSTREAM, LLC**

Control Number: 99GIS

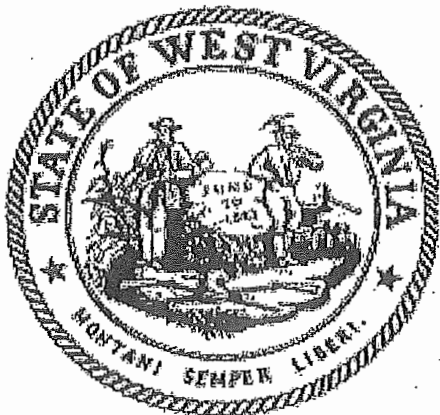
a limited liability company, organized under the laws of the State of Texas has filed its "Application for Certificate of Authority" in my office according to the provisions of West Virginia Code §31B-10-1002. I hereby declare the organization to be registered as a foreign limited liability company from its effective date of September 11, 2009, until a certificate of cancellation is filed with our office.

Therefore, I hereby issue this

### **CERTIFICATE OF AUTHORITY OF A FOREIGN LIMITED LIABILITY COMPANY**

to the limited liability company authorizing it to transact business in West Virginia

*Given under my hand and the  
Great Seal of the State of  
West Virginia on this day of  
September 11, 2009*



*Natalie E. Tennant*

Secretary of State

## ATTACHMENT B

### Location/Topographic Map

---

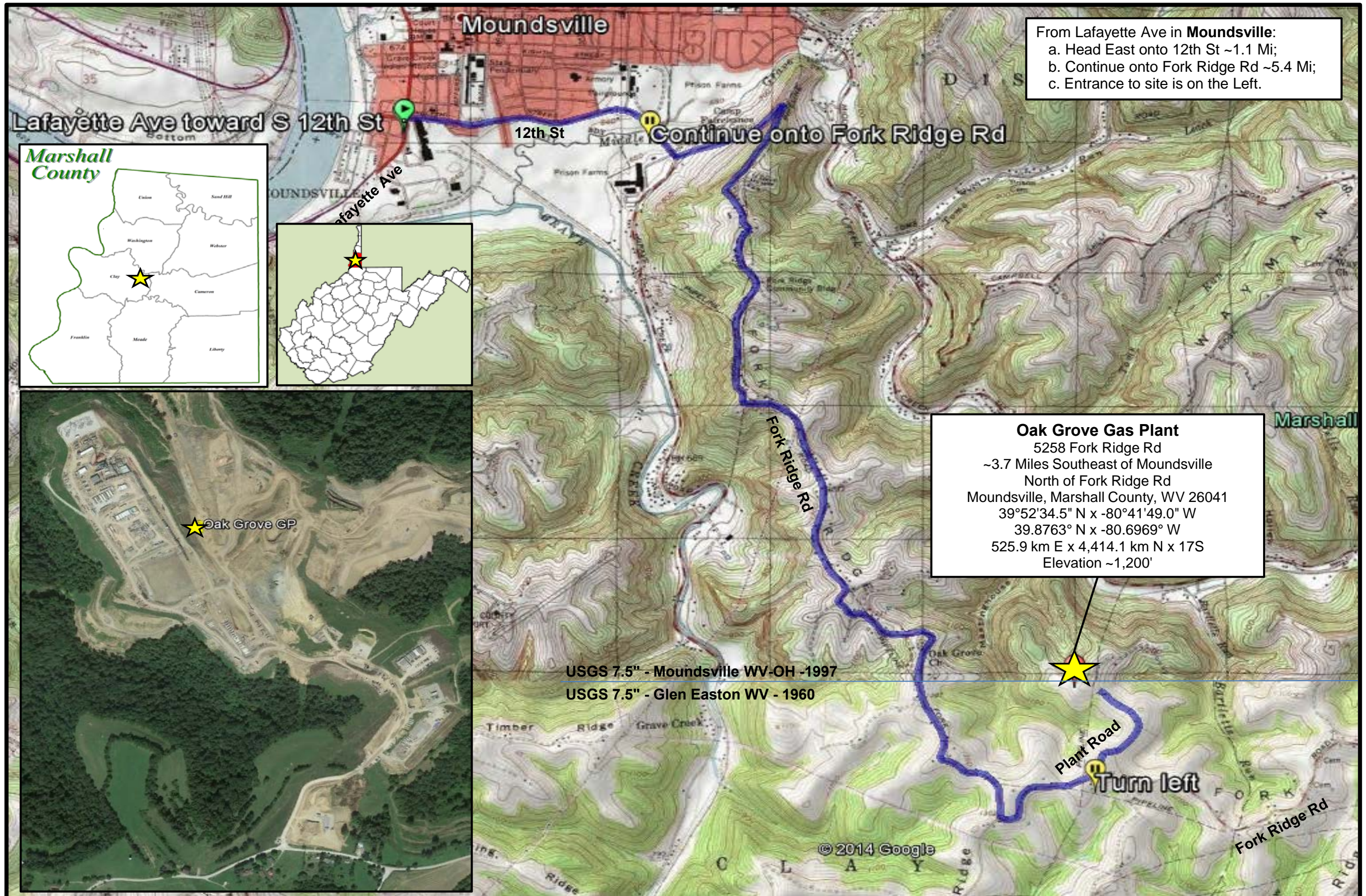
“12A. For **Modifications, Administrative Updates** or **Temporary** permits at an existing facility, please provide directions to the present location of the facility from the nearest state road. Include a MAP as Attachment B.”

---

- **Address:**
    - 5258 Fork Ridge Rd
    - ~3.7 Miles Southeast of Moundsville
    - North side of Fork Ridge Rd
    - Moundsville, Marshall County, WV 26041
  
  - **Latitude and Longitude:**
    - 39°52'37.0" North x -80°41'56.5" West
    - (39.8769° North x -80.6990° West)
  
  - **UTM:**
    - 525.74 km Easting x 4,414.14 km Northing x Zone 17S
  
  - **Directions:**
    - From Lafayette Ave/WV-2 in Moundsville:
      - a. Head east onto 12th St ~1.1 Mile;
      - b. Continue onto Fork Ridge Rd ~5.4 Mile;
      - c. Entrance to site is on the left.
  
  - **USGS:**
    - 7.5" Topographic - Moundsville WV-OH – 1997
    - 7.5" Topographic – Glen Easton WV – 1960
  
  - **Elevation:**
    - ~1,200'
-

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
Application for Class II Administrative Update (R13-3070A)  
**Attachment B**

**LOCATION (TOPO) MAP**



## ATTACHMENT C

### Installation and Start-Up Schedule

---

“14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as Attachment C.”

---

The OVM Oak Grove Gas Plant is an existing operation (w/ ongoing, permitted, construction and production). This application is prepared and submitted to:

- Decrease the estimated Volatile Organic Compound (VOC) and Hazardous Air Pollutant (HAP) emissions due to a more accurate count of the Piping and Equipment Fugitive components (FUG/15E), improvements to LDAR control efficiency estimates, plus a 15% contingency. (Also, n-Hexane in fugitives was speciated from BTEX.)
- Decrease the estimated Methane (CH<sub>4</sub>) (and, consequentially, CO<sub>2</sub> Equivalent (CO<sub>2</sub>e)) emissions due to correction of the emission factor previously used (H-01/1E, H-02/2E, H-04/4E, H-05/5E, H-06/6E, H-07/7E, and GEN-01).

There are no proposed additional installations or changes to the subject facility.

---

## **ATTACHMENT D**

### **Regulatory Discussion**

---

“18. **Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (if known). Discuss applicability and proposed demonstration(s) of compliance (if known). Provide this information as Attachment D.”

---

- **Regulatory Discussion**
    - A. Applicability of New Source Review (NSR) Regulations
    - B. Applicability of Federal Regulations
    - C. Applicability of Source Aggregation
    - D. Applicability of State Regulations
-



Williams Ohio Valley Midstream LLC  
**OAK GROVE NATURAL GAS PROCESSING FACILITY**  
Application for Class II Administrative Update (R13-3070A)

**Attachment D**  
**REGULATORY DISCUSSION**

A. Applicability of New Source Review (NSR) Regulations

The following New Source Review (NSR) regulations are potentially applicable to natural gas processing facilities (aka: gas plants). Applicability to the subject facility has been determined as follows:

**1. Prevention of Significant Deterioration (PSD)** [Not Applicable]

This rule does not apply. The facility is a “PSD Minor Source” for each regulated pollutant, as follows:

- NOx: PSD Natural Minor Source with Pre-Controlled PTE < 250 tpy
- CO: PSD Natural Minor Source with Pre-Controlled PTE < 250 tpy
- VOC: PSD Synthetic Minor Source with Controlled PTE < 250 tpy
- SO<sub>2</sub>: PSD Natural Minor Source with Pre-Controlled PTE < 250 tpy
- PM<sub>10/2.5</sub>: PSD Natural Minor Source with Pre-Controlled PTE < 250 tpy

**2. Non-Attainment New Source Review (NNSR)** [Not Applicable]

This rule does not apply. The facility location is designated as either “Maintenance” or “Attainment/Unclassified” for all criteria pollutants.

**3. Major Source of Hazardous Air Pollutants (HAPs)** [Not Applicable]

This rule does not apply. The facility qualifies as a “HAP Area Source” for each regulated pollutant, as follows:

- Each HAP: HAP Area Source with Controlled Individual HAP PTE < 10 tpy
- Total HAPs: HAP Area Source with Controlled Total of All HAPs PTE < 25 tpy

**4. Title V Operating Permit (TVOP)** [Applicable]

This rule does apply. The facility qualifies as a “Major Source” as follows:

- NOx: TVOP Major Source with Controlled PTE > 100 tpy
- CO: TVOP Major Source with Controlled PTE > 100 tpy
- VOC: TVOP Synthetic Minor Source with Controlled PTE < 100 tpy
- SO<sub>2</sub>: TVOP Natural Minor Source with Pre-Controlled PTE < 100 tpy
- PM<sub>10/2.5</sub>: TVOP Natural Minor Source with Pre-Controlled PTE < 100 tpy
- Each HAP: TVOP Synthetic Area Source with Controlled PTE < 10 tpy
- Total HAPs: TVOP Synthetic Area Source with Controlled PTE < 25 tpy

(Note: WVDEP requires that fugitive emissions be included in major source determinations at gas plants.)

## B. Applicability of Federal Regulations

The following federal regulations are potentially applicable to gas plants. Applicability to the facility has been determined as follows:

### 1. **NSPS A, General Provisions**

40CFR§60.1-§60.19

[Applicable]

This rule does apply to all sources subject to an NSPS (unless a specific provision is excluded within the source NSPS). Requirements may include:

- a. Notification (§60.7)
- b. Recordkeeping and Reporting (§60.7)
- c. Source Testing (§60.8, §60.11)
- d. Control Device Requirements (§60.18)

### 2. **NSPS Dc, Steam Generating Units**

40CFR§60.40c-§60.48c

[Applicable]

This rule does apply to the TXP1 Heat Medium Heater (H-01 (1E)), TXP2 & TXP3 Regen Gas Heaters (H-03 (3E) and H-04 (4E)), De-Ethanizer Hot Oil Heaters (H-05 (5E) and H-06 (6E)), and Amine Process Regen Gas Heater (H-07 (7E)) because each has a maximum design heat input (MDHI) capacity  $\geq 10$  MMBtu/hr and  $\leq 100$  MMBtu/hr (§60.40c(a)).

Requirements include recording and maintaining records of the amount of natural gas fuel combusted during each calendar month (§60.48c(g)(2)).

This rule does not apply to the TXP1 Regen Gas Heater (H-02 (2E)) because it has a MDHI capacity  $< 10$  MMBtu/hr (§60.40c(a)).

### 3. **NSPS Kb, Volatile Organic Liquid Storage Vessels**

40CFR§60.110b-§60.117b

[Not Applicable]

This rule does not apply because there is no tank with capacity  $\geq 75$  m<sup>3</sup> (471.7 bbl or 19,813 gal) that is used to store volatile organic liquids (VOL) at the facility (§60.110b(a)).

### 4. **NSPS GG, Stationary Gas Turbines**

40CFR§60.330-§60.335

[Not Applicable]

This rule does not apply because there is no stationary gas turbine at the facility (§60.330).

### 5. **NSPS KKK, Leaks from Natural Gas Processing Plants**

40CFR§60.630-§60.636

[Not Applicable]

This rule does not apply because plant construction commenced after 08/23/11 (§60.630). (However, see Section 10. - NSPS OOOO, below.)

### 6. **NSPS LLL, Onshore Natural Gas Processing: SO<sub>2</sub> Emissions**

40CFR§60.640-§60.648

[Not Applicable]

This rule does not apply because there is no gas sweetening operation at the facility (§60.640(a)).

**7. NSPS IIII, Compression Ignition Reciprocating Internal Combustion Engines**

40CFR§60.4200-§60.4219

[Not Applicable]

This rule does not apply because there is no stationary compression ignition engine at the facility (§60.4200(a)).

**8. NSPS JJJJ, Stationary Spark Ignition (SI) Internal Combustion Engines (ICE)**

40CFR§60.4230-§60.4248

[Applicable]

This rule does apply to the Standby Generator Engine (GEN-1 (8E)) because it was constructed (ordered), modified, or reconstructed after 06/12/06, is an emergency engine manufactured on or after 01/01/09, and has a maximum engine power > 19 KW (25 HP (§60.4230(a)(4)(iii))).

The Standby Emergency Generator Engine is EPA Certified and will be operated and maintained according to the manufacturer's emission related written instructions. As such, no emission testing is required (§60.4243(a)(1)).

**9. NSPS KKKK, Stationary Combustion Turbines**

40CFR§60.4300-§60.4420

[Not Applicable]

This rule does not apply because there is no stationary combustion turbine at the facility (§60.4300).

**10. NSPS OOOO, Crude Oil and Natural Gas Production**

40CFR§60.5360-§60.5430

[Applicable]

This rule does apply because the facility is a natural gas processing plant constructed, reconstructed, or modified after August 23, 2011.

Affected facilities include reciprocating compressors and equipment leaks.

Requirements include replacement of the reciprocating compressor rod packing before the compressor has operated 26,000 hours or prior to 36 months from the date of the most recent rod packing replacement. Additional requirements include monitoring and expeditious repair of valves, flanges, connectors, pumps, pressure relief devices and open-ended valves or lines. The equipment leak standards are specified in §60.5400. Also notification, recordkeeping, and reporting as specified in §60.5420.

**11. NESHAP A, General Provisions**

40CFR§63.1§63.16

[Not Applicable]

This rule does not apply because the facility is not subject to any Subpart under 40CFR§63 National Emission Standards for Hazardous Air Pollutant for Source Categories.

(Note: The Standby Emergency Generator Engine (GEN-1 (8E)) complies with NESHAP ZZZZ by compliance with NSPS JJJJ (§63.6590(a)(2)(iii)), no other requirements apply.)

**12. NESHAP HH, Oil and Natural Gas Production Facilities**

40CFR§63.760-§63.779

[Not Applicable]

This rule does not apply because the facility is an area source of HAPs and does not operate a triethylene glycol dehydration unit (§63.760(b)(2)).

**13. NESHAP HHH, Natural Gas Transmission and Storage Facilities**

40CFR§63.1270-§63.1289

[Not Applicable]

This rule does not apply because the facility is NOT a natural gas transmission or storage facility transporting or storing natural gas prior to local distribution (§63.1270(a)).

**14. NESHAP YYYY, Stationary Combustion Turbines**

40CFR§63.6080-§63.6175

[Not Applicable]

This rule does not apply because there is no stationary gas turbine at the facility (§63.6080).

**15. NESHAP ZZZZ, Stationary Reciprocating Internal Combustion Engines (RICE)**

40CFR§63.6580-§63.6675

[Applicable]

This rule does apply to the Standby Generator Engine (GEN-1 (9E)). However, because the engine is “new” or “reconstructed”; i.e., commenced construction or reconstruction on or after 06/12/06, the only requirement is compliance with 40CFR§60.4230-§60.4248 (NSPS JJJJ) for Spark Ignition Internal Combustion Engines (§63.6590(a)(2)(iii)).

**16. NESHAP DDDDD, Industrial, Commercial, and Institutional Boilers and Process Heaters – Major Sources**

40CFR§63.7480 – §63.7575

[Not Applicable]

This rule does not apply because the facility is NOT a major source of HAP (§63.7485).

**17. NESHAP JJJJJJ, Industrial, Commercial, and Institutional Boilers and Process Heaters – Area Sources**

40CFR§63.11193 – §63.11237

[Not Applicable]

This rule does not apply because gas-fired boilers are not subject to the requirements of this subpart (§63.11195(e)). Specifically, “boiler” is defined as an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam and/or hot water.

**18. Chemical Accident Prevention Provisions (RMP)**

40CFR§68.1-§68.220

[Applicable]

This rule does apply because the facility stores more than a threshold quantity of regulated substance in a process (§68.115).

## 19. Compliance Assurance Monitoring (CAM)

40CFR§64.1-§64.10

[Not Applicable]

This rule does not apply. Although there are pollutant specific emission units subject to an emissions limitation and a control device is used to achieve compliance, the potential pre-control emissions do not exceed 100 tpy.

## 20. Mandatory Greenhouse Gases (GHG) Reporting

40CFR§98.1-§98.9

[Potentially Applicable]

This rule potentially applies. The facility is not subject to a listed source category; however, the aggregate maximum heat input capacity of the stationary fuel combustion units is  $\geq 30$  MMBtu/hr and the facility has the potential to emit  $\geq 25,000$  metric ton/yr (27,558 tpy) of CO<sub>2</sub>e/yr from all stationary fuel combustion sources combined (§98.2(a)).

Records must be kept of actual CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions to determine the actual CO<sub>2</sub>e emissions. If such emissions exceed the 25,000 metric ton/yr threshold then an annual report must be submitted no later than March 31st of each calendar year thereafter.

### C. Applicability of Source Aggregation

For New Source Review (NSR) and Title V permitting, the three-part regulatory analysis used to determine whether emissions from two or more facilities should be aggregated and treated as a single source is whether the activities:

- i) Belong to the same major industrial grouping; and
- ii) Are located on one or more contiguous or adjacent properties; and
- iii) Are under common control.

#### **i) Same Industrial Grouping**

The subject facility will operate under SIC code 1321 (Natural Gas Liquids Extraction). The upstream gas production wells will operate under SIC code 1311 (Crude Petroleum and Natural Gas). Therefore, the subject facility shares the same two-digit major SIC code of 13 as the upstream gas production wells and additionally any other Williams facility in West Virginia.

#### **ii) Contiguous or Adjacent**

The determination of whether two or more facilities are “contiguous” or “adjacent” is made on a case-by-case basis. This determination is proximity based and, according to the courts, should meet the common sense meaning of the terms “contiguous” and “adjacent.” It is important to focus on this criteria and whether two contiguous or adjacent facilities, considered as a single source, meet the common sense notion of a plant. The functional interrelationship of the two or more facilities is not a relevant inquiry in determining whether the facilities are “contiguous” or “adjacent” according to the preamble of the Clean Air Act and recent court decisions.

Neither West Virginia nor federal regulations define the terms “contiguous” or “adjacent” It is clear, however, that the determination of whether two or more facilities are ‘contiguous” or “adjacent” is based on the plain meaning of the terms “adjacent” and “contiguous”, which consider the physical distance between the facilities. The term contiguous is defined in the dictionary as being in actual contact; touching along a boundary or at a point. The term “adjacent” is defined in the dictionary as not distant, nearby, having a common endpoint or border.

The closest Williams-owned facility to the Oak Grove Processing Plant is the Taylor Compression Station, which is over ½ mile away as the crow flies. Taylor Compressor Station does not meet the common sense definition for being “contiguous” with or “adjacent” to the Oak Grove Processing Plant.

The Oak Grove Processing Plant processes gas produced from multiple upstream production wells located in northern West Virginia and Eastern Ohio. The subject facility is located on a parcel that is directly adjacent to a pre-existing upstream production wellpad operated by Chevron (the “Francis Wellpad”) and is located less than half a mile from that wellpad. Other upstream production wells from which gas is processed at the Oak Grove Processing Plant are located further from the facility.

The location of the subject facility was chosen because of suitable characteristics for construction and operation, such as the availability of a reasonably flat grade and accessibility for large trucks and equipment. Williams’ business model is to construct scalable capacity that contemplates additional production from multiple operators. The subject facility does not need to be located in the immediate vicinity of the Francis Wellpad in order to operate properly nor does it need to be located by Taylor. Indeed, the Chevron Wellpad has not produced any of the gas processed at the Oak Grove Processing Plant and the subject facility is located further from other upstream production wells even though those wells provide a larger volume of the gas that is processed at the facility. Had suitable land been available elsewhere, the subject facility could have been located further from the Francis Wellpad and could theoretically be moved further from this wellpad without affecting operations. Therefore, despite the fact that the subject facility is located in close proximity to one of many upstream production sources, aggregation of the Oak Grove Processing Plant does not meet the common sense notion of a plant.

### **iii) Common Control**

Williams OVM operates under its parent company The Williams Companies, Inc. (Williams) and is the sole operator of the subject facility. The closest Williams-operated facility to the subject facility is the Taylor compressor station, which is located approximately 1.5 miles away. This facility is the closest to Oak Grove to have common ownership but it is not “contiguous” with or “adjacent” to the Oak Grove facility.

The production wells, including the Chevron Wellpad, that can send natural gas to the subject facility are owned and operated by other companies, which are unaffiliated with Williams. Williams has no ownership stake in the Chevron wellpad or in any other production well or company in West Virginia. It is Williams' understanding that the well produced before the Oak Grove Plant was built but has not produced during or after the plant was built and that decision of Chevron's to produce Francis or not was unrelated to Williams' building of the plant. It is the current understanding of Williams that the production of Francis will not require Oak Grove to operate but this is better understood by Chevron.

Furthermore, neither Williams OVM, nor Williams, exercise operational control over any equipment owned or operated by any natural gas producer upstream of the subject facility. All employees at the plant are under the exclusive direction of Williams and are not under the control of any other entity. Similarly, Williams has no authority over employees of the production wells. These companies operate wholly independent of one another. No employees are expected to shuttle back and forth between the subject facility and any production well.

At this time, contracts are in place for the subject facility to process natural gas produced from multiple upstream production wells located throughout the region. Williams will not have ownership or control of any future wellhead facilities. The producers are, and will be responsible for, any decisions to produce or shut-in wellhead facilities and have no control over the equipment installed, owned, and operated by Williams. Similarly, Williams cannot control the installation or operation of any equipment located at a well site that may be considered an air contamination source. For the reasons above it is clear that Williams does not have common control of any production wells including Francis.

### **Summary**

The subject facility, Taylor, and the upstream production wells should not be aggregated and treated as a single source of emissions because the subject facility is not under common control with any of the upstream wells and is not "contiguous" or "adjacent" to Taylor. Additionally, the subject facility and the upstream production wells, considered together, do not meet the common sense notion of a plant because the subject facility is expected to service multiple production wells and because the location of the facility was selected for reasons unrelated to the location of the production wells. Accordingly, the subject facility should not be aggregated with the upstream wells in determining major source or PSD status.

#### D. Applicability of State Regulations

The following State regulations are potentially applicable to gas plants. Applicability to the facility has been determined as follows:

##### 1. **Particulate Air Pollution from Combustion of Fuel**

45CSR2

[Applicable]

This rule does apply to the natural gas fired heaters (H-01 thru H-07); limiting opacity to 10% based on a six minute block average.

Because the heat input  $\geq 10$  MMBtu/hr, these units (except H-02) are also subject to Sections 4 (emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions).

##### 2. **Prevent and Control of Objectionable Odors**

45CSR4

[Applicable]

This rule does apply and states that an objectionable odor is an odor that is deemed objectionable when in the opinion of a duly authorized representative of the Air Pollution Control Commission (Division of Air Quality), based upon their investigations and complaints, such odor is objectionable. No odors have been deemed objectionable.

##### 3. **Control of Air Pollution from Combustion of Refuse**

45CSR6

[Applicable]

This rule does apply to the Process Flare (FL-1 (8E)). The flare is required to be smokeless except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. The particulate matter emissions should be negligible and the flare will comply with the applicable emission standard. The facility will demonstrate compliance by maintaining records of the amount of waste gas consumed by the flare and the hours of operation. The facility will also monitor the flare pilot flame and record any malfunctions that may cause no flame to be present during facility operation.

##### 4. **Prevent and Control Air Pollution – Sulfur Oxides**

45CSR10

[Applicable]

This rule does apply to the gas-fueled heaters w/ a Maximum Design Heat Input (MDHI) rating  $> 10$  MMBtu/hr (H-01, and H-03 thru H-07) (§45-10-10.1). Requirements are specified in 45CSR10 Sections 3 (emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting).

##### 5. **Permits for Construction, Modification, Relocation and Operation**

45CSR13

[Applicable]

This rule does apply. Williams OVM has received a 45CSR13 Permit for the subject facility.



- 6. Permits for Construction and Modification of Major Stationary Sources for the Prevention of Significant Deterioration**  
45CSR14 [Not Applicable]  
The rule does not apply because the facility is neither a new PSD major source of pollutants nor is the proposed modification a modification to an existing PSD major source.
- 7. Standards of Performance for New Stationary Sources (40 CFR Part 60)**  
45CSR16 [Applicable]  
This rule does apply to this source by reference of §40CFR60 Subparts Dc and OOOO. Williams is subject to the recordkeeping, monitoring, and testing required of these Subparts.
- 8. Permits for Construction and Modification (Non-Attainment)**  
45CSR19 [Not Applicable]  
This rule does not apply because the facility is in an area designated as attainment for all regulated air pollutants.
- 9. Regulation of Volatile Organic Compounds (VOC)**  
45CSR21 [Not Applicable]  
This rule does not apply because the facility is not located in Putnam County, Kanawha County, Cabell County, Wayne County, or Wood County
- 10. Air Quality Management Fees Program**  
45CSR22 [Applicable]  
This rule does apply. It establishes a program to collect fees for certificates to operate and for permits to construct, modify or relocate sources of air pollution.
- 11. Prevent and Control Emissions of Toxic Air Pollutants**  
45CSR27 [Not Applicable]  
This rule does not apply because equipment is used in the production and distribution of petroleum products is exempt, provided that the product contains no more than 5% benzene by weight (§45-22-2.4).
- 12. Air Pollution Emissions Banking and Trading**  
45CSR28 [Not Applicable]  
This rule does not apply. The facility does not choose to participate in the voluntarily statewide air pollutant emissions trading program.

**13. Emission Statements for VOC and NOX**

45CSR29

[Not Applicable]

This rule does not apply because facility is not located in Putnam, Kanawha, Cabell, Wayne, Wood, or Greenbrier Counties (§45-29-1).

**14. Requirements for Operating Permits**

45CSR30

[Applicable]

This rule does apply. The facility qualifies as a “Major Source” as follows:

- NOx: TVOP Major Source with Controlled PTE > 100 tpy
- CO: TVOP Major Source with Controlled PTE > 100 tpy
- VOC: TVOP Synthetic Minor Source with Controlled PTE < 100 tpy
- SO<sub>2</sub>: TVOP Natural Minor Source with Pre-Controlled PTE < 100 tpy
- PM<sub>10/2.5</sub>: TVOP Natural Minor Source with Pre-Controlled PTE < 100 tpy
- Each HAP: TVOP Synthetic Area Source with Controlled PTE < 10 tpy
- Total HAPs: TVOP Synthetic Area Source with Controlled PTE < 25 tpy

(Note: WVDEP requires that fugitive emissions be included in major source determinations at gas plants.)

**15. Emission Standards for Hazardous Air Pollutants (HAP)**

45CSR34

[Not Applicable]

This rule does not apply because the facility is not subject to any Subpart under 40CFR§61 (MACT) or 40CFR§63 (NESHAP)

(Note: The Standby Emergency Generator Engine (GEN-1 (8E)) complies with NESHAP ZZZZ by compliance with NSPS JJJJ (§63.6590(a)(2)(iii)), no other requirements apply.)

## **ATTACHMENT E**

### **Plot Plan**

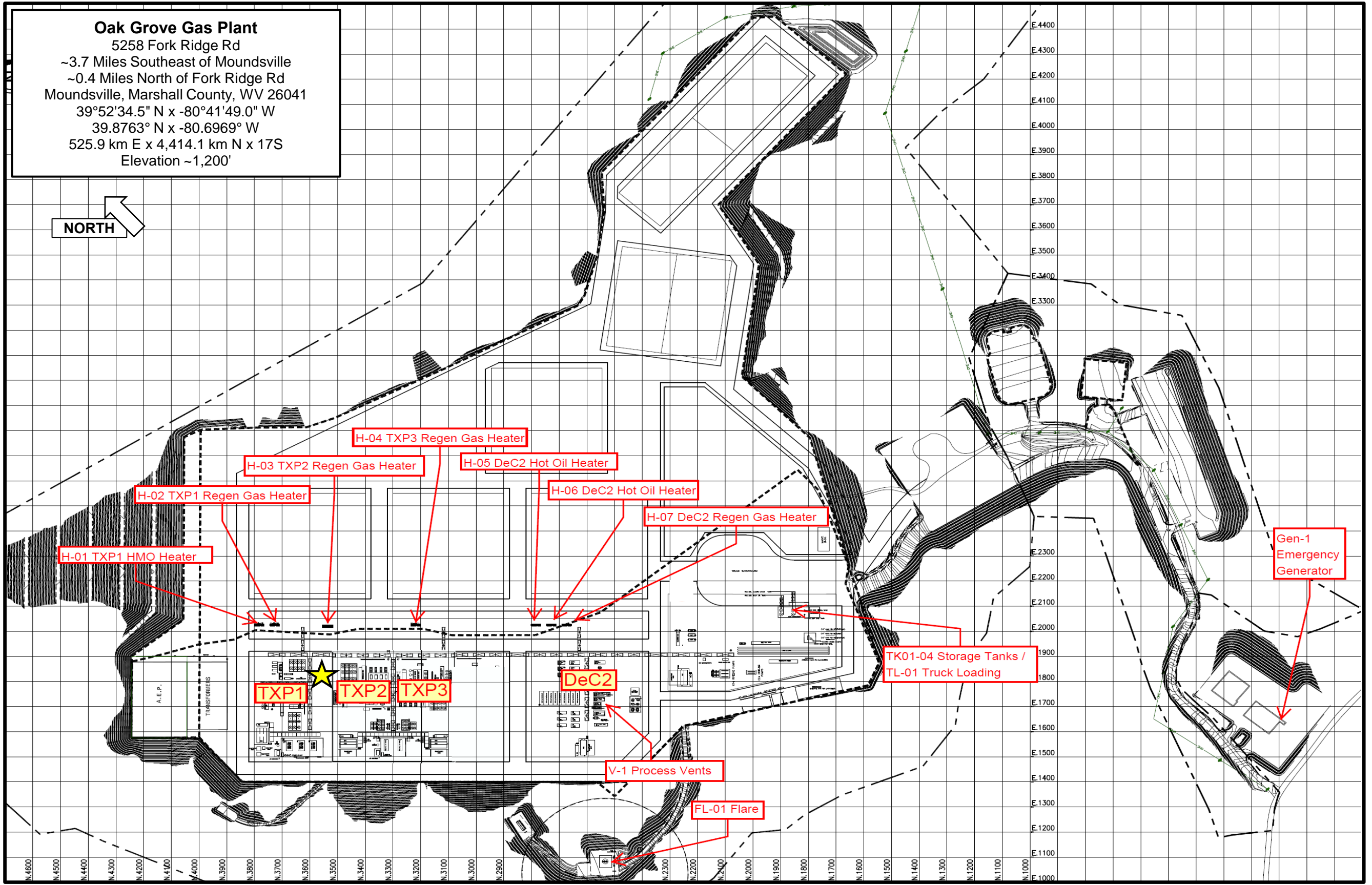
---

“21. Provide a **Plot Plan**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as Attachment E.”

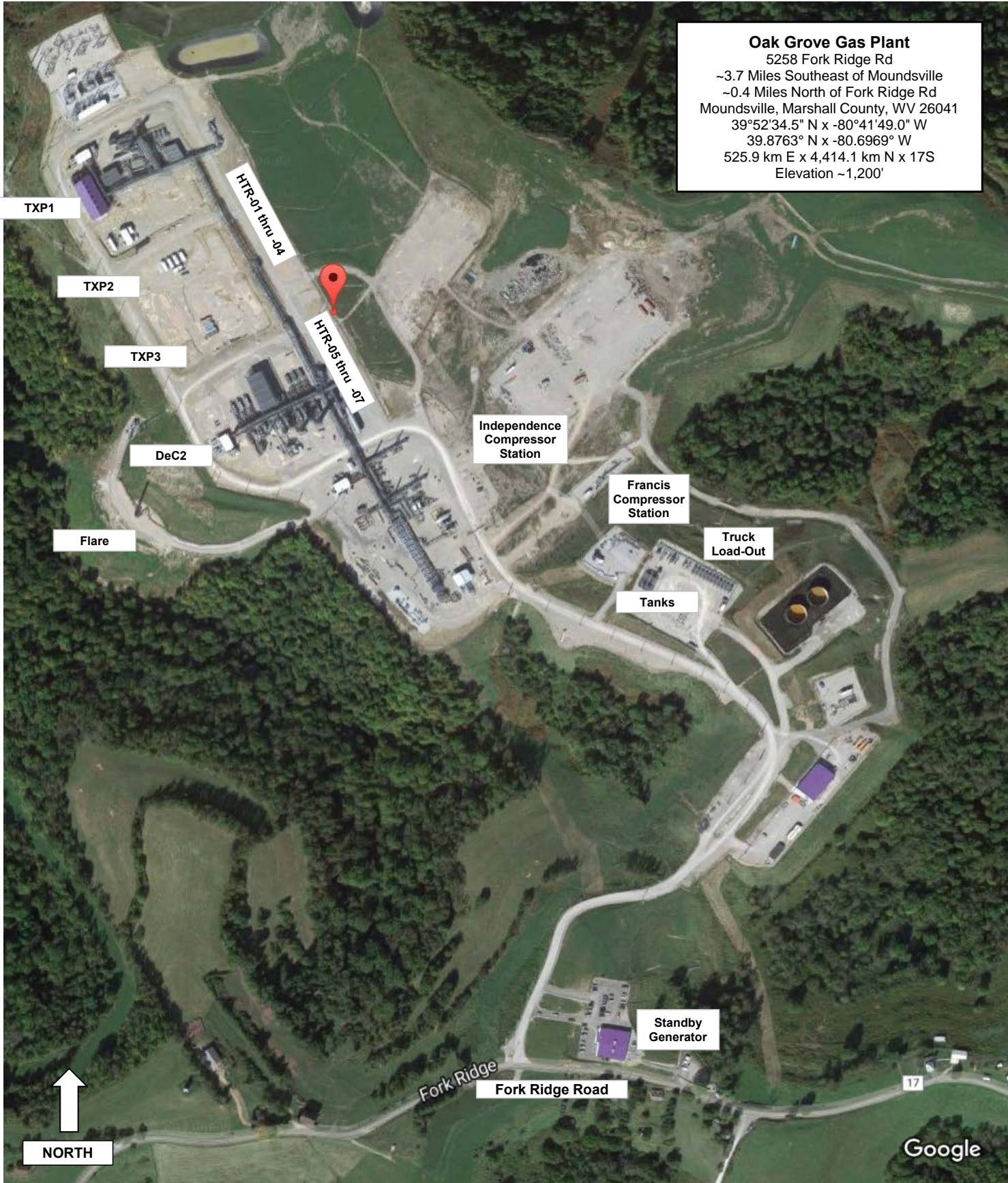
---

- **Plot Plan – Williams OVM Oak Grove Gas Plant**
  - **Aerial View – Williams OVM Oak Grove Gas Plant**
-

Williams Ohio Valley Midstream LLC  
**OAK GROVE NATURAL GAS PROCESSING PLANT**  
 Class II Administrative Update  
**Attachment E**  
**PLOT PLAN**



Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
Application for Class II Administrative Update (R13-3070A)  
**Attachment E'**  
**AERIAL VIEW**



**Oak Grove Gas Plant**  
5258 Fork Ridge Rd  
~3.7 Miles Southeast of Moundsville  
~0.4 Miles North of Fork Ridge Rd  
Moundsville, Marshall County, WV 26041  
39°52'34.5" N x -80°41'49.0" W  
39.8763° N x -80.6969° W  
525.9 km E x 4,414.1 km N x 17S  
Elevation ~1,200'

**ATTACHMENT F**  
**Detailed Process Flow Diagram**

---

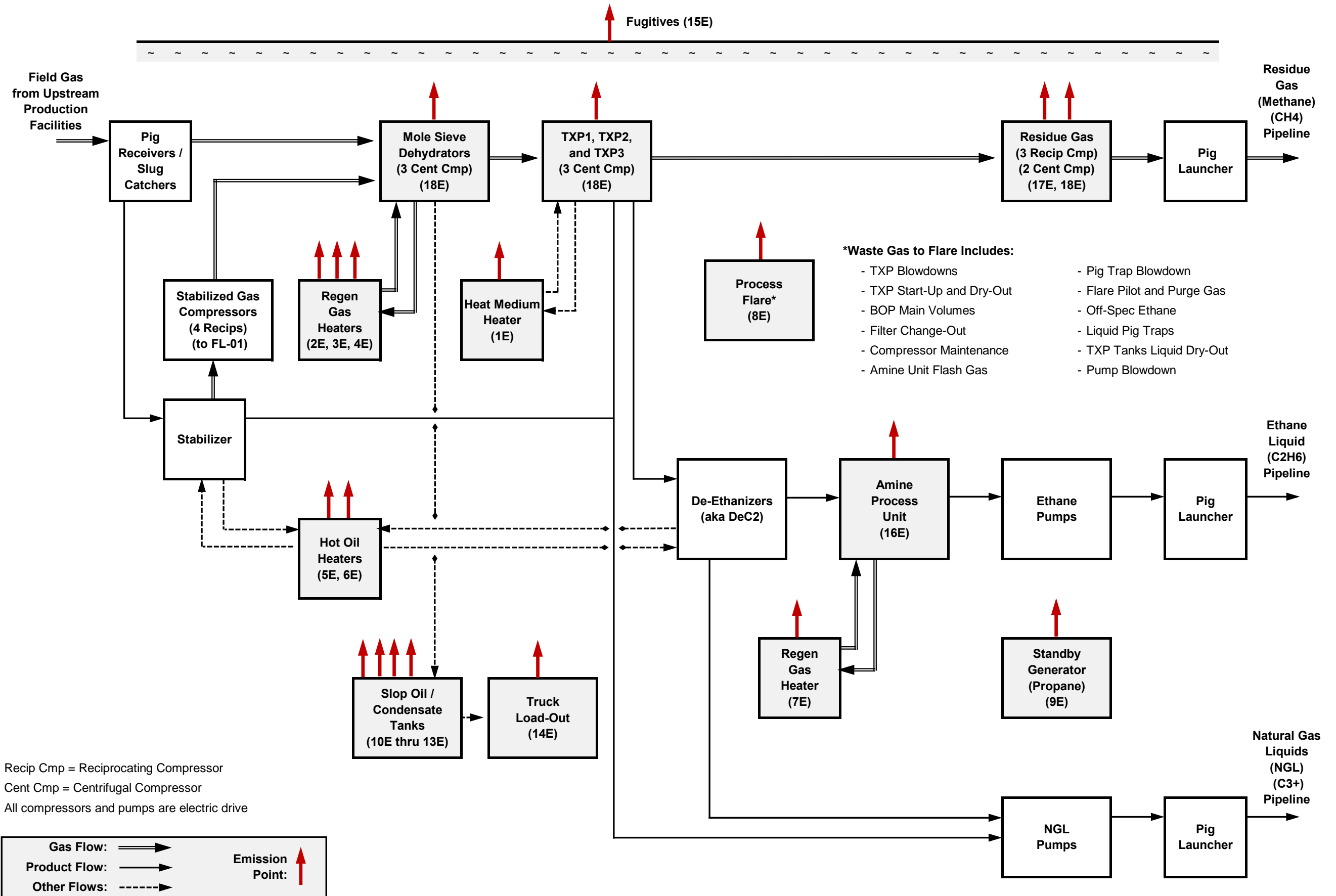
“22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as Attachment F.”

---

- **Process Flow Diagram (PFD) – Williams OVM Oak Grove Gas Plant**
-

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)  
**Attachment F**

**PROCESS FLOW DIAGRAM (PFD)**



## **ATTACHMENT G**

### **Process Description**

---

“23. Provide a **Process Description** as Attachment G. Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable). “

---

- **Process Description**

- A. Project Overview
  - B. Stabilizer
  - C. Molecular Sieve Dehydration Unit
  - D. Cryogenic Turboexpansion (TXP) Process
  - E. Heaters
  - F. Process Flare
  - G. Standby Generator Engine
  - H. Storage Tanks
  - I. Truck Load-Out
  - J. Amine Treatment Unit
  - K. Compressor Rod Packing and Dry Gas Seal Leaks
-



Williams Ohio Valley Midstream LLC  
**OAK GROVE NATURAL GAS PROCESSING FACILITY**  
Application for Class II Administrative Update (R13-3070A)

**Attachment G**  
**PROCESS DESCRIPTION**

A. Project Overview

Williams Ohio Valley Midstream LLC owns and operates the Oak Grove Gas Plant in Marshall County (See Appendix B – Site Location Map). The facility is designed to process 600 MMscfd of natural gas received via pipeline. Three product streams are generated:

1. Residue Gas (i. e., dry, “clean”, methane (CH<sub>4</sub>)) is compressed for off-site shipment via natural gas transmission pipeline.
2. Ethane (C<sub>2</sub>H<sub>6</sub>) Liquid (amine treated to remove CO<sub>2</sub>) is pumped for off-site shipment via liquid pipeline.
3. Natural Gas Liquids (NGL (C<sub>3</sub>+), including stabilized condensate) are also pumped for off-site shipment via liquid pipeline.

B. Stabilizer

The facility operations commence with a slug catcher to remove free liquids from the inlet natural gas. The raw condensate stream enters the stabilizer unit where it is heated to remove the lighter end hydrocarbons (methane, ethane and propane). These lighter end hydrocarbons are compressed and commingled with raw inlet gas for further processing. The stabilized condensate liquids are commingled with other natural gas liquid (NGL) product for off-site shipment.

The stabilizer is a totally enclosed system, so the only emissions are fugitives from piping and equipment. These emissions are controlled by implementation of a leak detection and repair (LDAR) program.

C. Molecular Sieve Dehydration Unit

Mole sieves are used to remove water from the inlet gas stream as requisite for the following cryogenic processes. The operation starts with the wet gas entering the adsorption tower at the top which contains the molecular sieve desiccant. The gas exits the bottom of the vessel dry. While one tower is adsorbing, the other tower is regenerating. For regeneration, gas is heated up to 550 °F and is sent to the tower in regeneration to extract the water from the molecular sieves. As the saturated gas leaves the top of the vessel, it is cooled in a condenser and then the condensed water is separated. The two towers switch between adsorbing and regenerating on a fixed cycle.

The mole sieves are totally enclosed systems, so the only emissions are fugitives from piping and equipment. These emissions are controlled by implementation of a leak detection and repair (LDAR) program.

#### D. Cryogenic Turboexpansion (TXP) Process

The cryogenic process utilizes an expansion turbine to drop the temperature of the Inlet Gas to approximately minus 120 degrees Fahrenheit. This rapid temperature drop condenses much of the ethane (C<sub>2</sub>H<sub>6</sub>) and most of the other hydrocarbons (primarily propane (C<sub>3</sub>H<sub>8</sub>) and butane (C<sub>4</sub>H<sub>10</sub>), with de-minimis hexane, benzene, toluene, ethyl-benzene, xylene, etc. (together C<sub>5</sub>+)), while maintaining methane (CH<sub>4</sub>) in gaseous form.

The TXPs are totally enclosed systems, so the only emissions are fugitives from piping and equipment. These emissions are controlled by implementation of a leak detection and repair (LDAR) program.

#### E. Heaters

Natural gas-fueled heaters are used at the facility in the various gas processing segments. Emissions are generated by combustion of natural gas.

#### F. Process Flare

The process flare is used to safely combust waste gas streams generated during routine operations, general maintenance activities, and in the event of an upset. The amount of gas routed to the flare during a given event will vary widely. Emissions are of two types:

- 1) Combustion byproducts estimated as per EPA AP-42 emission factors, plus
- 2) Incomplete combustion of waste gas estimated at 99% control efficiency.

#### G. Standby Generator Engine

A standby generator is used to provide electrical power for various activities at the site in the event of loss of purchase power.

#### H. Storage Tanks

There are numerous tanks at the facility used to store various materials such as slop oil/condensate, produced water, lube oil, heat medium (oil), amine, diesel fuel, and motor gasoline. The slop oil/condensate tanks are the only tanks with significant emissions to the atmosphere. All other storage tanks at the site have de-minimis emissions.

#### I. Truck Load-Out

There are emissions from loading of slop oil/condensate into tanker trucks.

#### J. Amine Process Unit

The ethane product stream is further processed in an amine treatment unit to remove carbon dioxide (CO<sub>2</sub>) prior to off-site shipment via pipeline.

#### K. Compressor Rod Packing and Dry Gas Seal Leaks

Emissions result from reciprocating and centrifugal compressors that are utilized throughout the plant. The compressors generate emissions from the wear of mechanical joints, seals, and rotating surfaces over time.

**ATTACHMENT H**  
**Safety Data Sheets (SDS)**  
**(And Representative Gas Analysis)**

---

“24. Provide **Safety Data Sheets (SDS)** for all materials processed, used or produced as Attachment H. For chemical processes, provide a MSDS for each compound emitted to the air.”

---

- **INLET GAS ANALYSIS SUMMARY**
  - **INLET GAS CERTIFICATE OF ANALYSIS**
  - **RESIDUAL GAS ANALYSIS SUMMARY**
  - **ETHANE GAS ANALYSIS SUMMARY**
  - **NATURAL GAS LIQUIDS (NGL) ANALYSIS SUMMARY**
  - **WASTE GAS ANALYSIS SUMMARY**
  - **WASTE GAS BTU ANALYSIS**
  - **SAFETY DATA SHEETS (SDS):** **(SDS’s are available upon request)**
    - Inlet Natural Gas
    - Residue Natural Gas
    - Ethane
    - Natural Gas Liquids
-

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**ATTACHMENT H - Inlet Gas Summary**

**Inlet Gas - Design Basis - (Ft Beeler Gas Plant)**

Component	CAS	Formula	Molecular Weight	Mole % (Vol %)	Mole Fraction	Weighted Sum	Weight %	lb/MMscf
Nitrogen	7727-37-9	N2	32.00	0.4955	0.004955	0.1586	0.738	417.82
Hydrogen Sulfide	2148-87-8	H2S	34.08	---	---	---	---	---
Carbon Dioxide	124-38-9	CO2	44.01	0.1887	0.001887	0.0830	0.386	218.84
Methane*	75-82-8	CH4	16.04	73.4443	0.734453	11.7824	54.831	31,048.71
Ethane*	74-84-0	C2H6	30.07	17.2512	0.172514	5.1873	24.140	13,669.52
Propane**	74-98-6	C3H8	44.10	6.0946	0.060947	2.6875	12.507	7,081.99
i-Butane**	75-28-5	C4H10	58.12	0.5849	0.005849	0.3400	1.582	895.86
n-Butane**	106-97-8	C4H10	58.12	1.3036	0.013036	0.7577	3.526	1,996.65
Cyclopentane**	287-92-3	C5H10	70.13	---	---	---	---	---
i-Pentane**	78-78-4	C5H12	72.15	0.2148	0.002148	0.1550	0.721	408.39
n-Pentane**	109-66-0	C5H12	72.15	0.2357	0.002357	0.1701	0.791	448.13
Cyclohexane**	110-82-7	C6H12	84.16	0.0112	0.000112	0.0094	0.044	24.84
Other Hexanes**	varies	C6H14	86.18	0.0750	0.000750	0.0646	0.301	170.32
Methylcyclohexane**	varies	C7H14	98.19	0.0062	0.000062	0.0061	0.028	16.04
Heptanes**	varies	C7H16	100.20	0.0287	0.000287	0.0288	0.134	75.78
C8+ Heavies**	varies	C8H18	114.5 est	0.0087	0.000087	0.0100	0.046	26.25
Benzene***	71-43-2	C6H6	78.11	0.0008	0.000008	0.0006	0.003	1.65
Ethylbenzene***	100-41-4	C8H10	106.17	0.0001	0.000001	0.0001	0.000	0.14
n-Hexane***	110-54-3	C6H14	86.18	0.0518	0.000518	0.0446	0.208	117.63
Toluene***	108-88-3	C7H8	92.14	0.0013	0.000013	0.0012	0.006	3.16
2,2,4-TMP***	540-84-1	C8H18	114.23	0.0001	0.000001	0.0001	0.000	0.15
Xylenes***	1330-20-7	C8H10	106.17	0.0016	0.000016	0.0017	0.008	4.48

<b>Totals:</b>	<b>100.00</b>	<b>1.00</b>	<b>21.49</b>	<b>100.00</b>	<b>56,626</b>
<b>Total THC:</b>	<b>99.31</b>	<b>0.99</b>	<b>21.25</b>	<b>98.88</b>	<b>55,990</b>
<b>Total VOC:</b>	<b>8.62</b>	<b>0.09</b>	<b>4.28</b>	<b>19.90</b>	<b>11,271</b>
<b>Total HAP:</b>	<b>0.06</b>	<b>0.001</b>	<b>0.05</b>	<b>0.22</b>	<b>127</b>

\* = Hydrocarbon (HC)                      \*\* = also Volatile Organic Compound (VOC)                      \*\*\* = also Hazardous Air Pollutant (HAP)

#UGC (Universal Gas Constant) = 379.482 scf/lb-mol @ 60 °F and 14.696 psia.    Pound "X"/scf = M% of "X" \* MW of "X" / UGC

To be conservative, and to account for potential future changes in the gas quality, the following "worst-case" values were assumed:

Component	CAS	Formula	Representative Gas Analysis			Worst-Case (120% Min)		
			Mole %	Wgt %	lb/MMscf	Mole %	Wgt %	lb/MMscf
Carbon Dioxide	124-38-9	CO2	0.189	0.386	219	0.259	0.530	300
Methane	75-82-8	CH4	73.444	54.831	31,049	88.231	65.870	37,300
Ethane	74-84-0	C2H6	17.251	24.140	13,670	20.823	29.138	16,500
VOC	Various	C3+	8.619	19.905	11,271	10.400	24.017	13,600
Benzene	71-43-2	C6H6	0.001	0.003	2	0.005	0.018	10
Ethylbenzene	110-54-3	C8H10	0.000	0.000	0	0.004	0.018	10
n-Hexane	100-41-4	C6H14	0.052	0.208	118	0.066	0.265	150
Toluene	108-88-3	C7H8	0.001	0.006	3	0.004	0.018	10
2,2,4-TMP	540-84-1	C8H18	0.000	0.000	0	0.003	0.018	10
Xylenes	1330-20-7	C8H10	0.002	0.008	4	0.004	0.018	10
Total HAP	Various	C6+	0.056	0.225	127	0.087	0.353	200

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**ATTACHMENT H - Inlet Gas Composition - Design Basis**

**Legacy Measurement Solutions**

Good

Shreveport, LA  
 318-226-7237

<b>Customer</b>	: 2259 - WILLIAMS	<b>Date Sampled</b>	: 11/01/2013
<b>Station ID</b>	: 5001	<b>Date Analyzed</b>	: 11/11/2013
<b>Cylinder ID</b>	: 5203	<b>Effective Date</b>	: 12/01/2013
<b>Producer</b>	:	<b>Cyl Pressure</b>	: 900
<b>Lease</b>	: FORT BEELER 12 INCH	<b>Temp</b>	: 60
<b>Area</b>	: 500 - OHIO VALLEY MID	<b>Cylinder Type</b>	: Spot
<b>State</b>	: WV	<b>Sample By</b>	: JM

<u>COMPONENT</u>	<u>MOL%</u>	<u>GPM@14.73(PSIA)</u>
Oxygen	0.0030	0.000
Nitrogen	0.4955	0.000
Methane	73.4443	0.000
Carbon-Dioxide	0.1887	0.000
Ethane	17.2512	4.630
Propane	6.0946	1.685
Iso-Butane	0.5849	0.192
Normal-Butane	1.3036	0.412
Iso-Pentane	0.2148	0.079
Normal-Pentane	0.2357	0.086
2,2-Dimethylbutane	0.0045	0.002
2,3-Dimethylbutane/CycloC5	0.0087	0.003
2-methylpentane	0.0393	0.016
3-methylpentane	0.0225	0.009
Normal-Hexane	0.0518	0.021
2,2-Dimethylpentane	0.0004	0.000
Methylcyclopentane	0.0062	0.002
BENZENE	0.0008	0.000
3,3-Dimethylpentane	0.0006	0.000
CYCLOHEXANE	0.0050	0.002
2-Methylhexane	0.0075	0.003
2,3-Dimethylpentane	0.0019	0.001
3-Methylhexane	0.0075	0.003
1,t2-DMCYC5 / 2,2,4-TMC5	0.0001	0.000
1,t3-Dimethylcyclopentane	0.0002	0.000
N-Heptane	0.0108	0.005
METHYLCYCLOHEXANE	0.0059	0.003
2,5-Dimethylhexane	0.0005	0.000
2,3-Dimethylhexane	0.0007	0.000
TOLUENE	0.0013	0.000
2-Methylheptane	0.0017	0.001
4-Methylheptane	0.0007	0.000
3-Methylheptane	0.0014	0.001
1,t4-Dimethylcyclohexane	0.0007	0.000
N-OCTANE / 1,T2-DMCYC6	0.0022	0.001
1,t3-DMCYC6/1,C4-DMCYC6/1,C2,C3-TMCYC5	0.0000	0.000
2,4,4 TMC6	0.0000	0.000

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**ATTACHMENT H - Residue Gas Summary**

**Residue Gas Composition**

Component	CAS	Formula	Molecular Weight	Mole % (Vol %)	Mole Fraction	Weighted Sum	Weight %	lb/MMscf
Nitrogen	7727-37-9	N2	32.00	---	---	---	---	---
Hydrogen Sulfide	2148-87-8	H2S	34.08	---	---	---	---	---
Carbon Dioxide	124-38-9	CO2	44.01	---	---	---	---	---
Methane*	75-82-8	CH4	16.04	95.3860	0.953822	15.3016	91.571	40,322.46
Ethane*	74-84-0	C2H6	30.07	4.4760	0.044758	1.3458	8.054	3,546.51
Propane**	74-98-6	C3H8	44.10	0.1420	0.001420	0.0626	0.375	165.00
i-Butane**	75-28-5	C4H10	58.12	---	---	---	---	---
n-Butane**	106-97-8	C4H10	58.12	---	---	---	---	---
Cyclopentane**	287-92-3	C5H10	70.13	---	---	---	---	---
i-Pentane**	78-78-4	C5H12	72.15	---	---	---	---	---
n-Pentane**	109-66-0	C5H12	72.15	---	---	---	---	---
Cyclohexane**	110-82-7	C6H12	84.16	---	---	---	---	---
Other Hexanes**	varies	C6H14	86.18	---	---	---	---	---
Methylcyclohexane**	varies	C7H14	98.19	---	---	---	---	---
Heptanes**	varies	C7H16	100.20	---	---	---	---	---
C8+ Heavies**	varies	C8H18	114.5 est	---	---	---	---	---
Benzene***	71-43-2	C6H6	78.11	---	---	---	---	---
Ethylbenzene***	100-41-4	C8H10	106.17	---	---	---	---	---
n-Hexane***	110-54-3	C6H14	86.18	---	---	---	---	---
Toluene***	108-88-3	C7H8	92.14	---	---	---	---	---
2,2,4-TMP***	540-84-1	C8H18	114.23	---	---	---	---	---
Xylenes***	1330-20-7	C8H10	106.17	---	---	---	---	---

<b>Totals:</b>	<b>100.00</b>	<b>1.00</b>	<b>16.71</b>	<b>100.00</b>	<b>44,034</b>
<b>Total THC:</b>	<b>100.00</b>	<b>1.00</b>	<b>16.71</b>	<b>100.00</b>	<b>44,034</b>
<b>Total VOC:</b>	<b>0.14</b>	<b>0.00</b>	<b>0.06</b>	<b>0.37</b>	<b>165</b>
<b>Total HAP:</b>	<b>0.00</b>	<b>0.000</b>	<b>0.00</b>	<b>0.00</b>	<b>0</b>

\* = Hydrocarbon (HC)                      \*\* = also Volatile Organic Compound (VOC)                      \*\*\* = also Hazardous Air Pollutant (HAP)  
 #UGC (Universal Gas Constant) = 379.482 scf/lb-mol @ 60 °F and 14.696 psia.    Pound "X"/scf = M% of "X" \* MW of "X" / UGC

To be conservative, and to account for potential future changes in the gas quality, the following "worst-case" values were assumed:

Component	CAS	Formula	Representative Gas Analysis			Worst-Case (120% Min)		
			Mole %	Wgt %	lb/MMscf	Mole %	Wgt %	lb/MMscf
Carbon Dioxide	124-38-9	CO2	---	---	---	--	--	---
Methane	75-82-8	CH4	95.386	91.571	40,322	100.005	96.005	42,275
Ethane	74-84-0	C2H6	4.476	8.054	3,547	5.427	9.765	4,300
VOC	Various	C3+	0.142	0.375	165	0.172	0.454	200
Benzene	71-43-2	C6H6	---	---	---	--	--	---
Ethylbenzene	110-54-3	C8H10	---	---	---	--	--	---
n-Hexane	100-41-4	C6H14	---	---	---	--	--	---
Toluene	108-88-3	C7H8	---	---	---	--	--	---
2,2,4-TMP	540-84-1	C8H18	---	---	---	--	--	---
Xylenes	1330-20-7	C8H10	---	---	---	--	--	---
Total HAP	Various	C6+	---	---	---	--	--	---

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**ATTACHMENT H - Ethane Product Summary**

**Ethane Product**

Component	CAS	Formula	Molecular Weight	Mole % (Vol %)	Mole Fraction	Weighted Sum	Weight %	lb/MMscf
Nitrogen	7727-37-9	N2	32.00	---	---	---	---	---
Hydrogen Sulfide	2148-87-8	H2S	34.08	---	---	---	---	---
Carbon Dioxide	124-38-9	CO2	44.01	0.0697	0.000697	0.0307	0.100	80.84
Methane*	75-82-8	CH4	16.04	3.0000	0.030001	0.4813	1.565	1,268.28
Ethane*	74-84-0	C2H6	30.07	93.3274	0.933301	28.0635	91.228	73,952.04
Propane**	74-98-6	C3H8	44.10	1.0000	0.010000	0.4410	1.433	1,162.03
i-Butane**	75-28-5	C4H10	58.12	1.0000	0.010000	0.5812	1.889	1,531.66
n-Butane**	106-97-8	C4H10	58.12	1.0000	0.010000	0.5812	1.889	1,531.66
Cyclopentane**	287-92-3	C5H10	70.13	---	---	---	---	---
i-Pentane**	78-78-4	C5H12	72.15	---	---	---	---	---
n-Pentane**	109-66-0	C5H12	72.15	---	---	---	---	---
Cyclohexane**	110-82-7	C6H12	84.16	---	---	---	---	---
Other Hexanes**	varies	C6H14	86.18	---	---	---	---	---
Methylcyclohexane**	varies	C7H14	98.19	---	---	---	---	---
Heptanes**	varies	C7H16	100.20	---	---	---	---	---
C8+ Heavies**	varies	C8H18	114.5 est	---	---	---	---	---
Benzene***	71-43-2	C6H6	78.11	0.1000	0.001000	0.0781	0.254	205.84
Ethylbenzene***	100-41-4	C8H10	106.17	0.1000	0.001000	0.1062	0.345	279.77
n-Hexane***	110-54-3	C6H14	86.18	0.1000	0.001000	0.0862	0.280	227.09
Toluene***	108-88-3	C7H8	92.14	0.1000	0.001000	0.0921	0.300	242.81
2,2,4-TMP***	540-84-1	C8H18	114.23	0.1000	0.001000	0.1142	0.371	301.02
Xylenes***	1330-20-7	C8H10	106.17	0.1000	0.001000	0.1062	0.345	279.77

<b>Totals:</b>	<b>100.00</b>	<b>1.00</b>	<b>30.76</b>	<b>100.00</b>	<b>81,063</b>
<b>Total THC:</b>	<b>99.93</b>	<b>1.00</b>	<b>30.73</b>	<b>99.90</b>	<b>80,982</b>
<b>Total VOC:</b>	<b>3.60</b>	<b>0.04</b>	<b>2.19</b>	<b>7.11</b>	<b>5,762</b>
<b>Total HAP:</b>	<b>0.60</b>	<b>0.006</b>	<b>0.58</b>	<b>1.90</b>	<b>1,536</b>

\* = Hydrocarbon (HC)                      \*\* = also Volatile Organic Compound (VOC)                      \*\*\* = also Hazardous Air Pollutant (HAP)

#UGC (Universal Gas Constant) = 379.482 scf/lb-mol @ 60 °F and 14.696 psia.    Pound "X"/scf = M% of "X" \* MW of "X" / UGC

To be conservative, and to account for potential future changes in the gas quality, the following "worst-case" values were assumed:

Component	CAS	Formula	Representative Gas Analysis			Worst-Case (120% Min)		
			Mole %	Wgt %	lb/MMscf	Mole %	Wgt %	lb/MMscf
Carbon Dioxide	124-38-9	CO2	0.070	0.100	81	0.086	0.123	100
Methane	75-82-8	CH4	3.000	1.565	1,268	3.785	1.974	1,600
Ethane	74-84-0	C2H6	93.327	91.228	73,952	100.001	97.751	79,240
VOC	Various	C3+	---	---	---	--	--	---
Benzene	71-43-2	C6H6	0.100	0.254	206	0.121	0.308	250
Ethylbenzene	110-54-3	C8H10	0.100	0.345	280	0.122	0.419	340
n-Hexane	100-41-4	C6H14	0.100	0.280	227	0.123	0.345	280
Toluene	108-88-3	C7H8	0.100	0.300	243	0.124	0.370	300
2,2,4-TMP	540-84-1	C8H18	0.100	0.371	301	0.123	0.456	370
Xylenes	1330-20-7	C8H10	0.100	0.345	280	0.122	0.419	340
Total HAP	Various	C6+	0.600	1.895	1,536	0.734	2.319	1,880

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**ATTACHMENT H - Natural Gas Liquids (NGL) Summary**

**Natural Gas Liquids (NGL) Composition (Inlet Gas w/CH4 and C2H6 Removed)**

Component	CAS	Formula	Molecular Weight	Mole % (Vol %)	Mole Fraction	Weighted Sum	Weight %	lb/MMscf
Nitrogen	7727-37-9	N2	32.00	---	---	---	---	---
Hydrogen Sulfide	2148-87-8	H2S	34.08	---	---	---	---	---
Carbon Dioxide	124-38-9	CO2	44.01	---	---	---	---	---
Methane*	75-82-8	CH4	16.04	---	---	---	---	---
Ethane*	74-84-0	C2H6	30.07	--	---	---	---	---
Propane**	74-98-6	C3H8	44.10	70.7112	0.707112	31.1806	62.831	82,166.09
i-Butane**	75-28-5	C4H10	58.12	6.7862	0.067862	3.9443	7.948	10,393.83
n-Butane**	106-97-8	C4H10	58.12	15.1247	0.151247	8.7908	17.714	23,165.32
Cyclopentane**	287-92-3	C5H10	70.13	---	---	---	---	---
i-Pentane**	78-78-4	C5H12	72.15	2.4922	0.024922	1.7981	3.623	4,738.22
n-Pentane**	109-66-0	C5H12	72.15	2.7347	0.027347	1.9730	3.976	5,199.25
Cyclohexane**	110-82-7	C6H12	84.16	0.1299	0.001299	0.1094	0.220	288.19
Other Hexanes**	varies	C6H14	86.18	0.8702	0.008702	0.7499	1.511	1,976.04
Methylcyclohexane**	varies	C7H14	98.19	0.0719	0.000719	0.0706	0.142	186.12
Heptanes**	varies	C7H16	100.20	0.3330	0.003330	0.3337	0.672	879.25
C8+ Heavies**	varies	C8H18	114.5 est	0.1009	0.001009	0.1156	0.233	304.56
Benzene***	71-43-2	C6H6	78.11	0.0093	0.000093	0.0073	0.015	19.11
Ethylbenzene***	100-41-4	C8H10	106.17	0.0006	0.000006	0.0006	0.001	1.62
n-Hexane***	110-54-3	C6H14	86.18	0.6010	0.006010	0.5179	1.044	1,364.79
Toluene***	108-88-3	C7H8	92.14	0.0151	0.000151	0.0139	0.028	36.62
2,2,4-TMP***	540-84-1	C8H18	114.23	0.0006	0.000006	0.0007	0.001	1.75
Xylenes***	1330-20-7	C8H10	106.17	0.0186	0.000186	0.0197	0.040	51.93

<b>Totals:</b>	<b>100.00</b>	<b>1.00</b>	<b>49.63</b>	<b>100.00</b>	<b>130,773</b>
<b>Total THC:</b>	<b>100.00</b>	<b>1.00</b>	<b>49.63</b>	<b>100.00</b>	<b>130,773</b>
<b>Total VOC:</b>	<b>100.00</b>	<b>1.00</b>	<b>49.63</b>	<b>100.00</b>	<b>130,773</b>
<b>Total HAP:</b>	<b>0.65</b>	<b>0.006</b>	<b>0.56</b>	<b>1.13</b>	<b>1,476</b>

\* = Hydrocarbon (HC)      \*\* = also Volatile Organic Compound (VOC)      \*\*\* = also Hazardous Air Pollutant (HAP)

#UGC (Universal Gas Constant) = 379.482 scf/lb-mol @ 60 °F and 14.696 psia.    Pound "X"/scf = M% of "X" \* MW of "X" / UGC

To be conservative, and to account for potential future changes in the gas quality, the following "worst-case" values were assumed:

Component	CAS	Formula	Representative Gas Analysis			Worst-Case (120% Min)		
			Mole %	Wgt %	lb/MMscf	Mole %	Wgt %	lb/MMscf
Carbon Dioxide	124-38-9	CO2	---	---	---	--	--	---
Methane	75-82-8	CH4	---	---	---	--	--	---
Ethane	74-84-0	C2H6	--	---	---	--	--	---
VOC	Various	C3+	100.000	100.000	130,773	100.000	100.000	130,800
Benzene	71-43-2	C6H6	0.009	0.015	19	0.015	0.023	30
Ethylbenzene	110-54-3	C8H10	0.001	0.001	2	0.004	0.008	10
n-Hexane	100-41-4	C6H14	0.601	1.044	1,365	0.722	1.254	1,640
Toluene	108-88-3	C7H8	0.015	0.028	37	0.021	0.038	50
2,2,4-TMP	540-84-1	C8H18	0.001	0.001	2	0.003	0.008	10
Xylenes	1330-20-7	C8H10	0.019	0.040	52	0.025	0.054	70
Total HAP	Various	C6+	0.645	1.129	1,476	0.791	1.384	1,810



Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**ATTACHMENT H - Waste Gas Summary**

**Waste Gas (Blended Streams to Flare (FLR-1 (8E)))**

Component	CAS	Formula	Molecular Weight	Mole % (Vol %)	Mole Fraction	Weighted Sum	Weight %	lb/MMscf
Nitrogen	7727-37-9	N2	32.00	0.0724	0.000724	0.0232	0.081	61.04
Hydrogen Sulfide	2148-87-8	H2S	34.08	---	---	---	---	---
Carbon Dioxide	124-38-9	CO2	44.01	0.0829	0.000829	0.0365	0.127	96.10
Methane*	75-82-8	CH4	16.04	18.7110	0.187114	3.0018	10.490	7,910.18
Ethane*	74-84-0	C2H6	30.07	76.8294	0.768312	23.1024	80.734	60,878.77
Propane**	74-98-6	C3H8	44.10	1.8182	0.018182	0.8018	2.802	2,112.78
i-Butane**	75-28-5	C4H10	58.12	0.8910	0.008910	0.5179	1.810	1,364.63
n-Butane**	106-97-8	C4H10	58.12	1.0108	0.010108	0.5875	2.053	1,548.22
Cyclopentane**	287-92-3	C5H10	70.13	---	---	---	---	---
i-Pentane**	78-78-4	C5H12	72.15	0.0358	0.000358	0.0258	0.090	68.11
n-Pentane**	109-66-0	C5H12	72.15	0.0393	0.000393	0.0284	0.099	74.74
Cyclohexane**	110-82-7	C6H12	84.16	0.0019	0.000019	0.0016	0.005	4.14
Other Hexanes**	varies	C6H14	86.18	0.0125	0.000125	0.0108	0.038	28.41
Methylcyclohexane**	varies	C7H14	98.19	0.0010	0.000010	0.0010	0.004	2.68
Heptanes**	varies	C7H16	100.20	0.0048	0.000048	0.0048	0.017	12.64
C8+ Heavies**	varies	C8H18	114.5 est	0.0015	0.000015	0.0017	0.006	4.38
Benzene***	71-43-2	C6H6	78.11	0.0795	0.000795	0.0621	0.217	163.59
Ethylbenzene***	100-41-4	C8H10	106.17	0.0793	0.000794	0.0842	0.294	221.99
n-Hexane***	110-54-3	C6H14	86.18	0.0880	0.000880	0.0758	0.265	199.79
Toluene***	108-88-3	C7H8	92.14	0.0796	0.000796	0.0733	0.256	193.17
2,2,4-TMP***	540-84-1	C8H18	114.23	0.0793	0.000794	0.0906	0.317	238.85
Xylenes***	1330-20-7	C8H10	106.17	0.0796	0.000796	0.0845	0.295	222.72

<b>Totals:</b>	<b>100.00</b>	<b>1.00</b>	<b>28.62</b>	<b>100.00</b>	<b>75,407</b>
<b>Total THC:</b>	<b>99.84</b>	<b>1.00</b>	<b>28.56</b>	<b>99.79</b>	<b>75,250</b>
<b>Total VOC:</b>	<b>4.30</b>	<b>0.04</b>	<b>2.45</b>	<b>8.57</b>	<b>6,461</b>
<b>Total HAP:</b>	<b>0.49</b>	<b>0.005</b>	<b>0.47</b>	<b>1.64</b>	<b>1,240</b>

\* = Hydrocarbon (HC)                      \*\* = also Volatile Organic Compound (VOC)                      \*\*\* = also Hazardous Air Pollutant (HAP)

#UGC (Universal Gas Constant) = 379.482 scf/lb-mol @ 60 °F and 14.696 psia.    Pound "X"/scf = M% of "X" \* MW of "X" / UGC

To be conservative, and to account for potential future changes in the gas quality, the following "worst-case" values were assumed:

Component	CAS	Formula	Representative Gas Analysis			Worst-Case (120% Min)		
			Mole %	Wgt %	lb/MMscf	Mole %	Wgt %	lb/MMscf
Carbon Dioxide	124-38-9	CO2	0.083	0.127	96	0.129	0.199	150
Methane	75-82-8	CH4	18.711	10.490	7,910	22.472	12.598	9,500
Ethane	74-84-0	C2H6	76.829	80.734	60,879	92.253	96.941	73,100
VOC	Various	C3+	4.302	8.568	6,461	5.194	10.344	7,800
Benzene	71-43-2	C6H6	0.079	0.217	164	0.097	0.265	200
Ethylbenzene	110-54-3	C8H10	0.079	0.294	222	0.097	0.358	270
n-Hexane	100-41-4	C6H14	0.088	0.265	200	0.106	0.318	240
Toluene	108-88-3	C7H8	0.080	0.256	193	0.099	0.318	240
2,2,4-TMP	540-84-1	C8H18	0.079	0.317	239	0.096	0.385	290
Xylenes	1330-20-7	C8H10	0.080	0.295	223	0.097	0.358	270
Total HAP	Various	C6+	0.485	1.645	1,240	0.591	2.002	1,510

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**ATTACHMENT H - Waste Gas Btu Analysis**

Based on Streams Disposed in Flare (FLR-1 (8E))

Component	Formula	Molecular Weight (MW)	Component Btu/scf		Inlet Gas		Residue Gas		Ethane Product		NGLs		Waste Gas	
					Flow: 92.1 MMscf/yr		Flow: 37.0 MMscf/yr		#####		Flow: 1.1 MMscf/yr		#####	
					Flow: 10,509 scf/hr		Flow: 4,225 scf/hr		Flow: 57,078 scf/hr		Flow: 128 scf/hr		Flow: 71,940 scf/hr	
					14.6%		5.9%		79.3%		0.2%		100.0%	
LHV	HHV	Mole %	Btu/scf	Mole %	Btu/scf	Mole %	Btu/scf	Mole %	Btu/scf	Mole %	Btu/scf	Mole %	Btu/scf	
Nitrogen	N2	28.013	---	---	0.4955	---	---	---	---	---	---	---	0.072	---
Hydrogen Sulfide	H2S	34.086	586.8	637.1	---	---	---	---	---	---	---	---	---	---
Carbon Dioxide	CO2	44.010	---	---	0.1887	---	---	---	0.070	---	---	---	0.083	---
Methane*	CH4	16.042	909.4	1,010.0	73.4443	667.902	95.3860	867.4	3.000	27.3	---	---	18.711	170.2
Ethane*	C2H6	30.069	1,618.7	1,769.7	17.2512	279.245	4.4760	72.5	93.327	1510.7	--	---	76.829	1243.6
Propane**	C3H8	44.096	2,314.9	2,516.2	6.0946	141.084	0.1420	3.3	1.000	23.1	70.711	1636.9	1.818	42.1
i-Butane**	C4H10	58.122	3,000.4	3,252.0	0.5849	17.549	---	---	1.000	30.0	6.786	203.6	0.891	26.7
n-Butane**	C4H10	58.122	3,010.8	3,262.4	1.3036	39.249	---	---	1.000	30.1	15.125	455.4	1.011	30.4
Cyclopentane**	C5H10	70.100	3,512.0	3,763.6	---	---	---	---	---	---	---	---	---	---
i-Pentane**	C5H12	72.149	3,699.0	4,000.9	0.2148	7.945	---	---	---	---	2.492	92.2	0.036	1.3
n-Pentane**	C5H12	72.149	3,706.9	4,008.7	0.2357	8.737	---	---	---	---	2.735	101.4	0.039	1.5
Cyclohexane**	C6H12	84.159	4,179.7	4,481.6	0.0112	0.468	---	---	---	---	0.130	5.4	0.002	0.1
Other Hexanes**	C6H14	86.175	4,394.8	4,746.9	0.0750	3.296	---	---	---	---	0.870	38.2	0.013	0.5
Methylcyclohexane**	C7H14	98.186	4,863.7	5,215.9	0.0062	0.302	---	---	---	---	0.072	3.5	0.001	0.1
Heptanes**	C7H16	100.202	5,100.0	5,502.5	0.0287	1.464	---	---	---	---	0.333	17.0	0.005	0.2
C8+ Heavies**	C8+	114.5 est	5,815 est	6,255 est	0.0087	0.506	---	---	---	---	0.101	5.9	0.001	0.1
Benzene***	C6H6	78.112	3,590.9	3,741.9	0.0008	0.029	---	---	0.100	3.6	0.009	0.3	0.079	2.85
Ethylbenzene***	C8H10	106.165	4,970.4	5,222.0	0.0001	0.002	---	---	0.100	5.0	0.001	0.0	0.079	3.9
n-Hexane***	C6H14	86.175	4,403.8	4,756.0	0.0518	2.281	---	---	0.100	4.4	0.601	26.5	0.088	3.9
Toluene***	C7H8	92.138	4,273.7	4,474.9	0.0013	0.056	---	---	0.100	4.3	0.015	0.6	0.080	3.40
2,2,4-TMP***	C8H18	114.229	5,778.8	6,231.6	0.0001	0.003	---	---	0.100	5.8	0.001	0.0	0.079	4.6
Xylenes***	C8H10	106.165	4,957.2	5,208.9	0.0016	0.079	---	---	0.100	5.0	0.019	0.9	0.080	3.9

	100.00	100.00	100.00	100.00	100.00
Btu/scf (LHV):	<b>1,170</b>	<b>943</b>	<b>1,649</b>	<b>2,588</b>	<b>1,539</b>
LHV/HHV:	<b>91.0%</b>	<b>90.1%</b>	<b>91.5%</b>	<b>90.7%</b>	<b>91.4%</b>
Btu/scf (HHV):	<b>1,286</b>	<b>1,047</b>	<b>1,802</b>	<b>2,852</b>	<b>1,685</b>
MMBtu/hr (LHV):	<b>12.30</b>	<b>3.98</b>	<b>94.13</b>	<b>0.33</b>	<b>110.75</b>
MMBtu/hr (HHV):	<b>13.52</b>	<b>4.42</b>	<b>102.84</b>	<b>0.37</b>	<b>121.22</b>

**ATTACHMENT I**  
**Emission Units Table**

---

“25. Fill out the **Emission Units Table** and provide it as Attachment I.”

---

- **Emissions Unit Table**
-

**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**

Application for Class II Administrative Update (R13-3070A)

**Attachment I****EMISSION UNITS TABLE**

(Include all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status.)

Emission Unit ID <sup>1</sup>	Emission Point <sup>2</sup>	Emission Unit Description	Year Installed/Modified	Design Capacity	Type <sup>3</sup> and Date of Change	Control Device <sup>4</sup>
<b>Point Sources</b>						
H-01	01E	TXP1 Heat Medium Heater	2013/2016	26.26 MMBtu/hr	Existing	na
H-02	02E	TXP1 Regeneration Gas Heater	2013/2016	9.40 MMBtu/hr	Existing	na
H-03	03E	TXP2 Regeneration Gas Heater	2014/2016	20.30 MMBtu/hr	Existing	na
H-04	04E	TXP3 Regeneration Gas Heater	2015/2016	20.30 MMBtu/hr	Existing	na
H-05	05E	DeC2 Hot Oil Heater	2013/2016	68.33 MMBtu/hr	Existing	na
H-06	06E	DeC2 Hot Oil Heater	2013/2016	68.33 MMBtu/hr	Existing	na
H-07	07E	DeC2 Regeneration Gas Heater	2013/2016	10.44 MMBtu/hr	Existing	na
FLR-1	08E	Process Flare	2013/2016	630.19 MMscf/yr	Existing	na
GEN-1	09E	Standby Generator	2013/2016	224 bhp	Existing	na
TK-1	10E	Slop Oil/Condensate Tank	2013/2016	400 bbl	Existing	na
TK-2	11E	Slop Oil/Condensate Tank	2013/2016	400 bbl	Existing	na
TK-3	12E	Slop Oil/Condensate Tank	2013/2016	400 bbl	Existing	na
TK-4	13E	Slop Oil/Condensate Tank	2013/2016	400 bbl	Existing	na
TLO-1	14E	Truck Load-Out - Slop Oil/Condensate	2013/2016	4,000,000 gal/yr	Existing	na
V-01	16E	Amine Process Unit Vent	2013/2016	44,000 bbl/day	Existing	FLR-1
RPC-1	17E	Rod Packing - Reciprocating Compressors	2013/2016	3 Recips	Existing	na
DGS	18E	Dry Gas Seals - Centrifugal Compressors	2013/2016	8 Centrifugal	Existing	na
<b>Fugitive Sources</b>						
<b>FUG-G</b>	<b>15E</b>	<b>Piping and Equipment Fugitives - Gas</b>	<b>2013/2017</b>	<b>---</b>	<b>Modified</b>	<b>LDAR</b>
<b>FUG-L</b>	<b>15E</b>	<b>Piping and Equipment Fugitives - Light Liquid</b>	<b>2013/2017</b>	<b>---</b>	<b>Modified</b>	<b>LDAR</b>
<b>FUG-M</b>	<b>15E</b>	<b>Piping and Equipment Fugitives - Mix Gas/Liq</b>	<b>2013/2017</b>	<b>---</b>	<b>Modified</b>	<b>LDAR</b>

<sup>1</sup> For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S, ... or other appropriate designation.<sup>2</sup> For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.<sup>3</sup> New, modification, removal, etc.<sup>4</sup> For Control Devices use the following numbering system: 1C, 2C, 3C, ... or other appropriate designation.

**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**

Application for Class II Administrative Update (R13-3070A)

**Attachment I****EMISSION UNITS TABLE - Continued**

(Include all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status.)

Emission Unit ID <sup>1</sup>	Emission Point <sup>2</sup>	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type <sup>3</sup> and Date of Change	Control Device <sup>4</sup>
<b>Insignificant Sources (Miscellaneous Tanks)</b>						
---	---	00-V-823 Common Closed Drain Vessel	2014	2,200 gal	Existing	na
---	---	00-V-817 Flare Knockout Vessel	2014	25,000 gal	Existing	na
---	---	21-ST-810 Lube Oil Day Tank	2014	300 gal	Existing	na
---	---	21-V-809 Closed Drain Vessel	2014	4,500 gal	Existing	na
---	---	21-V-701 Hot Oil Surge Tank	2014	2,300 gal	Existing	na
---	---	21-V-828 De-Ethimizer Surge Tank	2014	70,000 gal	Existing	na
---	---	21-ST-801 De-Ionized Water Storage Tank	2014	16,800 gal	Existing	na
---	---	21-ST-802 Amine Storage Tank	2014	4,200 gal	Existing	na
---	---	21-ST-803 Raw Regen Water Storage Tank	2014	16,800 gal	Existing	na
---	---	21-ST-806 Used Amine Storage Tank	2014	25,000 gal	Existing	na
---	---	21-HTR-703 Hot Oil Heater	2014	2,662 gal	Existing	na
---	---	21-HTR-704 Hot Oil Heater	2014	2,662 gal	Existing	na
---	---	31-ST-980 Lube Oil Day Tank	2014	300 gal	Existing	na
---	---	32-ST-980 Lube Oil Day Tank	2014	300 gal	Existing	na
---	---	31-V-801 Feed Separator	2014	1,700 gal	Existing	na
---	---	32-V-801 Feed Separator	2014	1,700 gal	Existing	na
---	---	01-ST-863 Residue Compressor Lube Oil	2014	335 gal	Existing	na
---	---	01-ST-884 Turbo Expander Bullet Tank	2014	60 gal	Existing	na
---	---	01-V-868 Closed Drain Vessel	2014	370 gal	Existing	na
---	---	01-V-403 Cold Drain Tank	2014	3,500 gal	Existing	na
---	---	01-V-860 Inlet Gas Separator	2014	380 gal	Existing	na
---	---	01-V-402 Cold Separator	2014	7,500 gal	Existing	na
---	---	Diesel tank	2014	500 gal	Existing	na
---	---	Gasoline tank	2014	500 gal	Existing	na

<sup>1</sup> For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S, ... or other appropriate designation.<sup>2</sup> For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.<sup>3</sup> New, modification, removal, etc.<sup>4</sup> For Control Devices use the following numbering system: 1C, 2C, 3C, ... or other appropriate designation.

# ATTACHMENT J

## Emission Points Data Summary Sheet

---

“26. Fill out the **Emission Points Data Summary Sheet** (Table 1 and Table 2) and provide it as Attachment J.”

---

- **Table 1 – Emissions Data**

- **TXP1 Heat Medium Heater (H-01 (1E)) (MODIFIED CO2)**
- **TXP1 Regeneration Gas Heater (H-02 (2E)) (MODIFIED CO2)**
- TXP2 Regeneration Gas Heater (H-03 (3E))
- TXP3 Regeneration Gas Heater (H-04 (4E))
- **De-Ethanizer Hot Oil Heater (H-05 (5E)) (MODIFIED CO2)**
- **De-Ethanizer Hot Oil Heater (H-06 (6E)) (MODIFIED CO2)**
- **Amine Process Regeneration Gas Heater (H-07 (7E)) (MODIFIED CO2)**
- Process Flare (FL-1 (8E))
- **Standby Generator Engine (Gen-1 (9E)) (MODIFIED CO2)**
- Slop Oil/Condensate Storage Tanks (T-01 (10E) thru T-04 (13E))
- Truck Load-Out (TL-1 (14E))
- Amine Process Vent (V-01 (16E))
- Rod Packing/Crankcase Leaks (RPC (17E))
- Dry Gas Seal Leaks (DGS (18E))
- **FUG-G (15E) - Gas (MODIFIED VOC and HAP)**
- **FUG-L (15E) - Liquid (MODIFIED VOC and HAP)**
- **FUG-M (15E) - Mixed (MODIFIED VOC and HAP)**
- **FUG-TOT (15E) - Total (MODIFIED VOC and HAP)**
- Total Plant-Wide (Including Fugitives)

- **Table 2 – Release Parameter Data**

---

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (Chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (ppmv or mg/m <sup>3</sup> )	
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr				
H-01 (1E)	Upward Vertical Stack	<b>TXP1 Heat Medium Heater (H-01 (1E))</b>				na	na	C	8,760	NOX	2.57	11.28	2.57	11.28	Gas	AP-42
		CO	2.16	9.47	2.16					9.47	Gas	AP-42				
		VOC	0.15	0.64	0.15					0.64	Gas	AP-42				
		SO2	0.02	0.07	0.02					0.07	Gas	AP-42				
		PM10/2.5	0.20	0.86	0.20					0.86	Solid/Gas	AP-42				
		Benzene	5.4E-05	2.4E-04	5.4E-05					2.4E-04	Gas	AP-42				
		Ethylbenzene	---	---	---					---	Gas	AP-42				
		HCHO	1.9E-03	0.01	1.9E-03					0.01	Gas	AP-42				
		n-Hexane	0.05	0.20	0.05					0.20	Gas	AP-42				
		Toluene	8.8E-05	3.8E-04	8.8E-05					3.8E-04	Gas	AP-42				
		2,2,4-TMP	---	---	---					---	Gas	AP-42				
		Xylenes	---	---	---					---	Gas	AP-42				
		Other HAP	4.9E-05	2.1E-04	4.9E-05					2.1E-04	Gas	AP-42				
		Total HAP	0.05	0.21	0.05					0.21	Gas	AP-42				
		CO2e	3,075	13,470	3,075					13,470	Gas	EPA				
H-02 (2E)	Upward Vertical Stack	<b>TXP1 Regen Gas Heater (H-02 (2E))</b>				na	na	C	8,760	NOX	0.92	4.04	0.92	4.04	Gas	AP-42
		CO	0.77	3.39	0.77					3.39	Gas	AP-42				
		VOC	0.05	0.23	0.05					0.23	Gas	AP-42				
		SO2	0.01	0.02	0.01					0.02	Gas	AP-42				
		PM10/2.5	0.07	0.31	0.07					0.31	Solid/Gas	AP-42				
		Benzene	1.9E-05	8.5E-05	1.9E-05					8.5E-05	Gas	AP-42				
		Ethylbenzene	---	---	---					---	Gas	AP-42				
		HCHO	6.9E-04	3.0E-03	6.9E-04					3.0E-03	Gas	AP-42				
		n-Hexane	0.02	0.07	0.02					0.07	Gas	AP-42				
		Toluene	3.1E-05	1.4E-04	3.1E-05					1.4E-04	Gas	AP-42				
		2,2,4-TMP	---	---	---					---	Gas	AP-42				
		Xylenes	---	---	---					---	Gas	AP-42				
		Other HAP	1.7E-05	7.7E-05	1.7E-05					7.7E-05	Gas	AP-42				
		Total HAP	0.02	0.08	0.02					0.08	Gas	AP-42				
		CO2e	1,101	4,821	1,101					4,821	Gas	EPA				

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (Chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (ppmv or mg/m <sup>3</sup> )		
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr					
H-03 (3E)	Upward Vertical Stack	<b>TXP2 Regen Gas Heater (H-03 (3E))</b>				na	na	C	8,760	NOX	0.73	3.20	0.73	3.20	Gas	Vendor	30
		CO	0.81	3.56	0.81					3.56	Gas	Vendor	50				
		VOC	0.39	1.69	0.39					1.69	Gas	Vendor	15				
		SO2	0.01	0.05	0.01					0.05	Gas	AP-42					
		PM10/2.5	0.26	1.16	0.26					1.16	Solid/Gas	Vendor	15				
		Benzene	4.2E-05	1.8E-04	4.2E-05					1.8E-04	Gas	AP-42					
		Ethylbenzene	---	---	---					---	Gas	AP-42					
		HCHO	1.5E-03	0.01	1.5E-03					0.01	Gas	AP-42					
		n-Hexane	0.04	0.16	0.04					0.16	Gas	AP-42					
		Toluene	6.8E-05	3.0E-04	6.8E-05					3.0E-04	Gas	AP-42					
		2,2,4-TMP	---	---	---					---	Gas	AP-42					
		Xylenes	---	---	---					---	Gas	AP-42					
		Other HAP	3.8E-05	1.7E-04	3.8E-05					1.7E-04	Gas	AP-42					
		Total HAP	0.04	0.16	0.04					0.16	Gas	AP-42					
		CO2e	2,380	10,422	2,380					10,422	Gas	EPA					
H-04 (4E)	Upward Vertical Stack	<b>TXP3 Regen Gas Heater (H-04 (4E))</b>				na	na	C	8,760	NOX	0.73	3.20	0.73	3.20	Gas	Vendor	30
		CO	0.81	3.56	0.81					3.56	Gas	Vendor	50				
		VOC	0.39	1.69	0.39					1.69	Gas	Vendor	15				
		SO2	0.01	0.05	0.01					0.05	Gas	AP-42					
		PM10/2.5	0.26	1.16	0.26					1.16	Solid/Gas	Vendor	15				
		Benzene	4.2E-05	1.8E-04	4.2E-05					1.8E-04	Gas	AP-42					
		Ethylbenzene	---	---	---					---	Gas	AP-42					
		HCHO	1.5E-03	0.01	1.5E-03					0.01	Gas	AP-42					
		n-Hexane	0.04	0.16	0.04					0.16	Gas	AP-42					
		Toluene	6.8E-05	3.0E-04	6.8E-05					3.0E-04	Gas	AP-42					
		2,2,4-TMP	---	---	---					---	Gas	AP-42					
		Xylenes	---	---	---					---	Gas	AP-42					
		Other HAP	3.8E-05	1.7E-04	3.8E-05					1.7E-04	Gas	AP-42					
		Total HAP	0.04	0.16	0.04					0.16	Gas	AP-42					
		CO2e	2,380	10,422	2,380					10,422	Gas	EPA					



Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (Chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (ppmv or mg/m <sup>3</sup> )								
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr											
H-05 (5E)	Upward Vertical Stack	H-05 (5E)	H-05 (5E)	na	na	C	8,760	<b>De-Ethanizer Hot Oil Heater (H-05 (5E))</b>								NOX	2.46	10.77	2.46	10.77	Gas	Vendor	30
								CO	2.53	11.07	2.53	11.07	Gas	Vendor	50								
								VOC	0.38	1.67	0.38	1.67	Gas	AP-42									
								SO2	0.04	0.18	0.04	0.18	Gas	AP-42									
								PM10/2.5	0.51	2.23	0.51	2.23	Solid/Gas	AP-42									
								Benzene	1.4E-04	6.2E-04	1.4E-04	6.2E-04	Gas	AP-42									
								Ethylbenzene	---	---	---	---	Gas	AP-42									
								HCHO	0.01	0.02	0.01	0.02	Gas	AP-42									
								n-Hexane	0.12	0.53	0.12	0.53	Gas	AP-42									
								Toluene	2.3E-04	1.0E-03	2.3E-04	1.0E-03	Gas	AP-42									
								2,2,4-TMP	---	---	---	---	Gas	AP-42									
								Xylenes	---	---	---	---	Gas	AP-42									
								Other HAP	1.3E-04	5.6E-04	1.3E-04	5.6E-04	Gas	AP-42									
								Total HAP	0.13	0.55	0.13	0.55	Gas	AP-42									
								CO2e	8,001	35,044	8,001	35,044	Gas	EPA									
H-06 (6E)	Upward Vertical Stack	H-06 (6E)	H-06 (6E)	na	na	C	8,760	<b>De-Ethanizer Hot Oil Heater (H-06 (6E))</b>								NOX	2.46	10.77	2.46	10.77	Gas	Vendor	30
								CO	2.53	11.07	2.53	11.07	Gas	Vendor	50								
								VOC	0.38	1.67	0.38	1.67	Gas	AP-42									
								SO2	0.04	0.18	0.04	0.18	Gas	AP-42									
								PM10/2.5	0.51	2.23	0.51	2.23	Solid/Gas	AP-42									
								Benzene	1.4E-04	6.2E-04	1.4E-04	6.2E-04	Gas	AP-42									
								Ethylbenzene	---	---	---	---	Gas	AP-42									
								HCHO	0.01	0.02	0.01	0.02	Gas	AP-42									
								n-Hexane	0.12	0.53	0.12	0.53	Gas	AP-42									
								Toluene	2.3E-04	1.0E-03	2.3E-04	1.0E-03	Gas	AP-42									
								2,2,4-TMP	---	---	---	---	Gas	AP-42									
								Xylenes	---	---	---	---	Gas	AP-42									
								Other HAP	1.3E-04	5.6E-04	1.3E-04	5.6E-04	Gas	AP-42									
								Total HAP	0.13	0.55	0.13	0.55	Gas	AP-42									
								CO2e	8,001	35,044	8,001	35,044	Gas	EPA									

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (Chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (ppmv or mg/m <sup>3</sup> )	
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr				
H-07 (7E)	Upward Vertical Stack	<b>Amine Process Regen Gas Heater (H-07 (7E))</b>				na	na	C	8,760	NOX	1.02	4.48	1.02	4.48	Gas	AP-42
		CO	0.86	3.77	0.86					3.77	Gas	AP-42				
		VOC	0.06	0.25	0.06					0.25	Gas	AP-42				
		SO2	0.01	0.03	0.01					0.03	Gas	AP-42				
		PM10/2.5	0.08	0.34	0.08					0.34	Solid/Gas	AP-42				
		Benzene	2.1E-05	9.4E-05	2.1E-05					9.4E-05	Gas	AP-42				
		Ethylbenzene	---	---	---					---	Gas	AP-42				
		HCHO	7.7E-04	3.4E-03	7.7E-04					3.4E-03	Gas	AP-42				
		n-Hexane	0.02	0.08	0.02					0.08	Gas	AP-42				
		Toluene	3.5E-05	1.5E-04	3.5E-05					1.5E-04	Gas	AP-42				
		2,2,4-TMP	---	---	---					---	Gas	AP-42				
		Xylenes	---	---	---					---	Gas	AP-42				
		Other HAP	1.9E-05	8.5E-05	1.9E-05					8.5E-05	Gas	AP-42				
		Total HAP	0.02	0.08	0.02					0.08	Gas	AP-42				
		CO2e	1,223	5,356	1,223					5,356	Gas	EPA				
FLR-1 (8E)	Upward Vertical Stack	<b>Process Flare (FLR-1 (8E))</b>				na	na	C	8,760	NOX	---	---	638	73.27	Gas	AP-42
		CO	---	---	1,274					146.28	Gas	AP-42				
		VOC	17,730	2,036	177.30					20.36	Gas	AP-42				
		SO2	---	---	1.54					0.19	Gas	AP-42				
		PM10/2.5	---	---	19.50					2.39	Solid/Gas	AP-42				
		Benzene	448.93	51.55	4.49					0.52	Gas	AP-42				
		Ethylbenzene	609.20	69.95	6.09					0.70	Gas	AP-42				
		HCHO	---	---	0.34					0.04	Gas	AP-42				
		n-Hexane	548.28	62.95	5.48					0.63	Gas	AP-42				
		Toluene	530.10	60.87	5.30					0.61	Gas	AP-42				
		2,2,4-TMP	655.47	75.26	6.55					0.75	Gas	AP-42				
		Xylenes	611.18	70.18	6.11					0.70	Gas	AP-42				
		Other HAP	---	---	0.01					9.9E-04	Gas	AP-42				
		Total HAP	3,403	391	34.38					3.95	Gas	AP-42				
		CO2e	542,681	62,312	730,635					83,893	Gas	EPA				

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET**

Table 1: Emissions Data																
Emission Point ID No. <i>(Must match Emission Units Table &amp; Plot Plan)</i>	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point <i>(Must match Emission Units Table &amp; Plot Plan)</i>		Air Pollution Control Device <i>(Must match Emission Units Table &amp; Plot Plan)</i>		Vent Time for Emission Unit <i>(Chemical processes only)</i>		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> <i>(Speciate VOCs &amp; HAPS)</i>	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase <i>(At exit conditions, Solid, Liquid or Gas/Vapor)</i>	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> <i>(ppmv or mg/m<sup>3</sup>)</i>	
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr				
Gen-1 (9E)	Upward Vertical Stack	<b>Standby Generator Engine (Gen-1 (9E))</b>				na	na	Intermittent Venting (As Needed)	500	NOX	0.99	4.33	0.99	0.25	Gas	AP-42
		CO	1.98	8.66	1.98					0.49	Gas	AP-42				
		VOC	0.54	2.36	0.54					0.13	Gas	AP-42				
		SO2	0.00	0.01	0.00					0.00	Gas	AP-42				
		PM10/2.5	0.04	0.19	0.04					0.01	Solid/Gas	AP-42				
		Benzene	3.5E-03	0.02	3.5E-03					8.7E-04	Gas	AP-42				
		Ethylbenzene	5.4E-05	2.4E-04	5.4E-05					1.4E-05	Gas	AP-42				
		HCHO	0.04	0.20	0.04					0.01	Gas	AP-42				
		n-Hexane	---	---	---					---	Gas	AP-42				
		Toluene	1.2E-03	0.01	1.2E-03					3.1E-04	Gas	AP-42				
		2,2,4-TMP	---	---	---					---	Gas	AP-42				
		Xylenes	4.3E-04	1.9E-03	4.3E-04					1.1E-04	Gas	AP-42				
		Other HAP	0.02	0.09	0.02					0.01	Gas	AP-42				
		Total HAP	0.07	0.31	0.07					0.02	Gas	AP-42				
		CO2e	305	1,337	305					76	Gas	EPA				
T-01 (10E) thru T-04 (13E)	Upward Vertical Stack	<b>Slop Oil/Condensate Storage Tanks (T-01 (10E) thru T-04 (13E))</b>				na	na	C	8,760	NOX	---	---	---	---	---	---
		CO	---	---	---					---	---	---				
		VOC	4.33	18.96	4.33					18.96	Gas	AP-42				
		SO2	---	---	---					---	---	---				
		PM10/2.5	---	---	---					---	---	---				
		Benzene	0.14	0.63	0.14					0.63	Gas	AP-42				
		Ethylbenzene	0.14	0.63	0.14					0.63	Gas	AP-42				
		HCHO	---	---	---					---	---	---				
		n-Hexane	0.14	0.63	0.14					0.63	Gas	AP-42				
		Toluene	0.14	0.63	0.14					0.63	Gas	AP-42				
		2,2,4-TMP	0.14	0.63	0.14					0.63	Gas	AP-42				
		Xylenes	0.14	0.63	0.14					0.63	Gas	AP-42				
		Other HAP	---	---	---					---	---	---				
		Total HAP	0.87	3.79	0.87					3.79	Gas	AP-42				
		CO2e	---	---	---					---	---	---				

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Attachment J**

**EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (Chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (ppmv or mg/m <sup>3</sup> )		
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr					
TLO-1 (14E)	Upward Vertical Stack	<b>Truck Load-Out (TLO-1 (14E))</b>						---	NOX	---	---	---	---	---	---		
									CO	---	---	---	---	---	---	---	
									VOC	---	18.09	---	18.09	Gas	AP-42		
									SO2	---	---	---	---	---	---		
									PM10/2.5	---	---	---	---	---	---		
									Benzene	---	0.60	---	0.60	Gas	AP-42		
									Ethylbenzene	---	0.60	---	0.60	Gas	AP-42		
									HCHO	---	---	---	---	---	---		
									n-Hexane	---	0.60	---	0.60	Gas	AP-42		
									Toluene	---	0.60	---	0.60	Gas	AP-42		
									2,2,4-TMP	---	0.60	---	0.60	Gas	AP-42		
									Xylenes	---	0.60	---	0.60	Gas	AP-42		
									Other HAP	---	---	---	---	---	---		
									Total HAP	---	3.62	---	3.62	Gas	AP-42		
									CO2e	---	---	---	---	---	---		
V-01 (16E)	Upward Vertical Stack							<b>Amine Process Vent (V-01 (16E))</b>						8,760	NOX	---	---
								CO	---	---	---	---	---		---	---	
								VOC	0.11	0.49	0.11	0.49	Gas		EE		
								SO2	---	---	---	---	---		---		
								PM10/2.5	---	---	---	---	---		---		
								Benzene	---	---	---	---	---		---		
								Ethylbenzene	---	---	---	---	---		---		
								HCHO	---	---	---	---	---		---		
								n-Hexane	---	---	---	---	---		---		
								Toluene	---	---	---	---	---		---		
								2,2,4-TMP	---	---	---	---	---		---		
								Xylenes	---	---	---	---	---		---		
								Other HAP	---	---	---	---	---		---		
								Total HAP	---	---	---	---	---		---		
								CO2e	4,738	20,751	4,738	20,751	Gas		EPA		

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Attachment J**

**EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (Chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (ppmv or mg/m <sup>3</sup> )	
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr				
RPC (17E)	na	<b>Rod Packing/Crankcase Leaks (RPC (17E))</b>				na	na	C	8,760	NOX	---	---	---	---	EE	
		CO	---	---	---					---	Gas					
		VOC	0.17	0.30	0.17					0.30						
		SO2	---	---	---					---						
		PM10/2.5	---	---	---					---						
		Benzene	2.4E-03	6.1E-04	2.4E-03					6.1E-04						
		Ethylbenzene	2.4E-03	6.1E-04	2.4E-03					6.1E-04						
		HCHO	---	---	---					---						
		n-Hexane	2.4E-03	6.1E-04	2.4E-03					6.1E-04						
		Toluene	2.4E-03	6.1E-04	2.4E-03					6.1E-04						
		2,2,4-TMP	2.4E-03	6.1E-04	2.4E-03					6.1E-04						
		Xylenes	2.4E-03	6.1E-04	2.4E-03					6.1E-04						
		Other HAP	---	---	---					---						
		Total HAP	0.01	3.7E-03	0.01					3.7E-03						
		CO2e	391	1,453	391					1,453						
DGS (18E)	na	<b>Dry Gas Seal Leaks (DGS (18E))</b>				na	na	C	8,760	NOX		---	---	---	---	EE
		CO	---	---	---					---	Gas					
		VOC	0.76	3.33	0.76					3.33						
		SO2	---	---	---					---						
		PM10/2.5	---	---	---					---						
		Benzene	1.9E-03	8.2E-03	1.9E-03					8.2E-03						
		Ethylbenzene	1.9E-03	0.01	1.9E-03					0.01						
		HCHO	---	---	---					---						
		n-Hexane	1.9E-03	0.01	1.9E-03					0.01						
		Toluene	1.9E-03	8.2E-03	1.9E-03					8.2E-03						
		2,2,4-TMP	1.9E-03	0.01	1.9E-03					0.01						
		Xylenes	1.9E-03	0.01	1.9E-03					0.01						
		Other HAP	---	---	---					---						
		Total HAP	0.47	2.08	0.01					0.05						
		CO2e	347	1,522	347					1,522						

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Attachment J**  
**FUGITIVE EMISSIONS DATA SUMMARY SHEET**

Table 1: Emissions Data																
Emission Point ID No. <i>(Must match Emission Units Table &amp; Plot Plan)</i>	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point <i>(Must match Emission Units Table &amp; Plot Plan)</i>		Air Pollution Control Device <i>(Must match Emission Units Table &amp; Plot Plan)</i>		Vent Time for Emission Unit <i>(Chemical processes only)</i>		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> <i>(Speciate VOCs &amp; HAPS)</i>	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase <i>(At exit conditions, Solid, Liquid or Gas/Vapor)</i>	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> <i>(ppmv or mg/m<sup>3</sup>)</i>	
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr				
15E	FUG-G	<b>FUG-G (15E) - Gas (MODIFIED)</b>				LDAR	LDAR	---	8,760	NOX	---	---	---	---	---	---
		CO	---	---	---					---	Gas	AP-42				
		VOC	19.25	84.34	2.35					10.31						
		SO2	---	---	---					---						
		PM10/2.5	---	---	---					---						
		Benzene	0.01	0.06	1.7E-03					7.6E-03						
		Ethylbenzene	0.01	0.06	1.7E-03					7.6E-03						
		HCHO	---	---	---					---						
		n-Hexane	0.21	0.93	0.03					0.11						
		Toluene	0.01	0.06	1.7E-03					7.6E-03						
		2,2,4-TMP	0.01	0.06	1.7E-03					7.6E-03						
		Xylenes	0.01	0.06	1.7E-03					7.6E-03						
		Other HAP	---	---	---					---						
		Total HAP	0.28	1.24	0.03					0.15						
CO2e	1,321	5,784	161	707	Gas	EPA										
15E	FUG-L	<b>FUG-L (15E) - Light Liquid (MODIFIED)</b>				LDAR	LDAR	---	8,760	NOX	---	---	---	---	---	---
		CO	---	---	---					---	Gas	AP-42				
		VOC	34.24	149.95	4.75					20.82						
		SO2	---	---	---					---						
		PM10/2.5	---	---	---					---						
		Benzene	0.01	0.04	1.2E-03					5.4E-03						
		Ethylbenzene	0.01	0.04	1.2E-03					5.4E-03						
		HCHO	---	---	---					---						
		n-Hexane	0.43	1.88	0.06					0.26						
		Toluene	0.01	0.04	1.2E-03					5.4E-03						
		2,2,4-TMP	0.01	0.04	1.2E-03					5.4E-03						
		Xylenes	0.01	0.04	1.2E-03					5.4E-03						
		Other HAP	---	---	---					---						
		Total HAP	0.47	2.08	0.07					0.29						
CO2e	---	---	---	---	---	---										

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Attachment J**

**FUGITIVE EMISSIONS DATA SUMMARY SHEET**

Table 1: Emissions Data																
Emission Point ID No. <i>(Must match Emission Units Table &amp; Plot Plan)</i>	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point <i>(Must match Emission Units Table &amp; Plot Plan)</i>		Air Pollution Control Device <i>(Must match Emission Units Table &amp; Plot Plan)</i>		Vent Time for Emission Unit <i>(Chemical processes only)</i>		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> <i>(Speciate VOCs &amp; HAPS)</i>	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase <i>(At exit conditions, Solid, Liquid or Gas/Vapor)</i>	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> <i>(ppmv or mg/m<sup>3</sup>)</i>	
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr				
15E	FUG-M	<b>FUG-M (15E) - Mixed (MODIFIED)</b>				LDAR	LDAR	---	8,760	NOX	---	---	---	---	---	
		CO	---	---	---					---	---					
		VOC	0.15	0.64	0.02					0.07	Gas	AP-42				
		SO2	---	---	---					---	---	---				
		PM10/2.5	---	---	---					---	---	---				
		Benzene	3.8E-05	2E-04	4.3E-06					1.9E-05	Gas	AP-42				
		Ethylbenzene	3.8E-05	2E-04	4.3E-06					1.9E-05	Gas	AP-42				
		HCHO	---	---	---					---	---	---				
		n-Hexane	1.8E-03	0.01	2.1E-04					9.2E-04	Gas	AP-42				
		Toluene	3.8E-05	1.7E-04	4.3E-06					1.9E-05	Gas	AP-42				
		2,2,4-TMP	3.8E-05	1.7E-04	4.3E-06					1.9E-05	Gas	AP-42				
		Xylenes	3.8E-05	1.7E-04	4.3E-06					1.9E-05	Gas	AP-42				
		Other HAP	---	---	---					---	---	---				
		Total HAP	2.0E-03	0.01	2.3E-04					1.0E-03	Gas	AP-42				
CO2e	2	11	0.3	1	Gas	EPA										
15E	FUG-TOT	<b>FUG-TOTAL (15E) - Total (MODIFIED)</b>				LDAR	LDAR	---	8,760	NOX	---	---	---	---	---	
		CO	---	---	---					---	---	---				
		VOC	53.64	234.93	7.12					31.21	Gas	AP-42				
		SO2	---	---	---					---	---	---				
		PM10/2.5	---	---	---					---	---	---				
		Benzene	0.02	0.10	3E-03					0.01	Gas	AP-42				
		Ethylbenzene	0.02	0.10	3E-03					0.01	Gas	AP-42				
		HCHO	---	---	---					---	---	---				
		n-Hexane	0.64	2.82	0.09					0.38	Gas	AP-42				
		Toluene	0.02	0.10	3.0E-03					0.01	Gas	AP-42				
		2,2,4-TMP	0.02	0.10	3.0E-03					0.01	Gas	AP-42				
		Xylenes	0.02	0.10	3.0E-03					0.01	Gas	AP-42				
		Other HAP	---	---	---					---	---	---				
		Total HAP	0.76	3.32	0.10					0.44	Gas	AP-42				
CO2e	1,323	5,795	162	708	Gas	EPA										

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET - Continued**

Table 1: Emissions Data - Continued															
Emission Point ID No. <i>(Must match Emission Units Table &amp; Plot Plan)</i>	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point <i>(Must match Emission Units Table &amp; Plot Plan)</i>		Air Pollution Control Device <i>(Must match Emission Units Table &amp; Plot Plan)</i>		Vent Time for Emission Unit <i>(Chemical processes only)</i>		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> <i>(Speciate VOCs &amp; HAPS)</i>	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase <i>(At exit conditions, Solid, Liquid or Gas/Vapor)</i>	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> <i>(ppmv or mg/m<sup>3</sup>)</i>
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	NOX	11.89	52.08	650.01	121.26	Gas	Varies	
								CO	12.45	54.55	1,286.38	192.66	Gas	Varies	
								VOC	17,791	2,322.10	192.13	100.71	Gas	Varies	
								SO2	0.13	0.58	1.67	0.76	Gas	Varies	
								PM10/2.5	1.93	8.46	21.43	10.68	Solid/Gas	Varies	
								Benzene	449.11	52.91	4.64	1.78	Gas	Varies	
								Ethylbenzene	609.37	71.29	6.24	1.96	Gas	Varies	
								HCHO	0.06	0.27	0.40	0.12	Gas	Varies	
								n-Hexane	549	69	6.11	3.98	Gas	Varies	
								Toluene	530.27	62.22	5.45	1.87	Gas	Varies	
								2,2,4-TMP	655.64	76.61	6.71	2.01	Gas	Varies	
								Xylenes	611.36	71.52	6.26	1.96	Gas	Varies	
								Other HAP	0.02	0.09	0.03	0.01	Gas	Varies	
								Total HAP	3,406	406	35.86	13.68	Gas	Varies	
CO2e	575,946	207,750	762,738	222,983	Gas	Varies									

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

- 1 Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
- 2 Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).
- 3 List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS2, VOCs, H2S, Inorganics, Lead, Organics, O3, NO, NO2, SO2, SO3, all applicable Greenhouse Gases (including CO2 and methane), etc. DO NOT LIST H2, H2O, N2, O2, and Noble Gases.
- 4 Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- 5 Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- 6 Indicate method used to determine emission rate as follows:  
 MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).
- 7 Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO2, use units of ppmv (See 45CSR10).



Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET - Continued**

**Table 2: Release Parameter Data**

Emission Point ID No. <i>(Must match Emission Units Table)</i>	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (oF)	Volumetric Flow <sup>1</sup> (acfm) <i>(At operating conditions)</i>	Velocity (fps)	Ground Level <i>(Height above mean sea level)</i>	Stack Height <sup>2</sup> <i>(Release height of emissions above ground level)</i>	Northing	Easting
01E	3.5	750	14,098	24.4	~1,150	19	4,414.07	525.79
02E	2.5	830	5,737	19.5	~1,150	16.5	4,414.07	525.79
03E	2.5	520	7,208	24.5	~1,150	26.3	4,414.07	525.79
04E	2.5	520	7,208	24.5	~1,150	26.3	4,414.07	525.79
05E	4.0	476	22,893	31.0	~1,150	24.8	4,414.07	525.79
06E	4.0	476	22,893	31.0	~1,150	24.8	4,414.07	525.79
07E	2.5	714	3,916	13.3	~1,150	16.5	4,414.07	525.79
08E	2.0	1,000	70	1	~1,150	170	4,414.07	525.79
09E	0.5	1,550	1,507 (scfm)	na	~1,150	10	4,414.07	525.79
10E	---	---	---	---	~1,150	---	4,414.07	525.79
11E	---	---	---	---	~1,150	---	4,414.07	525.79
12E	---	---	---	---	~1,150	---	4,414.07	525.79
13E	---	---	---	---	~1,150	---	4,414.07	525.79
14E	---	---	---	---	~1,150	---	4,414.07	525.79
16E	---	---	---	---	~1,150	---	4,414.07	525.79
17E	---	---	---	---	~1,150	---	4,414.07	525.79
18E	---	---	---	---	~1,150	---	4,414.07	525.79

<sup>1</sup> Give at operating conditions. Include inerts.  
<sup>2</sup> Release height of emissions above ground level.

**ATTACHMENT K**  
**Fugitive Emissions Data Summary Sheet**

---

“27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as Attachment K.”

---

- **Application Forms Checklist**
  - **Fugitive Emissions Summary**
  - **Leak Source Data Sheet**
-

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**

Application for Class II Administrative Update (R13-3070A)

**Attachment K**

**FUGITIVE EMISSIONS DATA SUMMARY SHEET**

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

**APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS**

1.) Will there be haul road activities?

Yes  No

If Yes, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.

2.) Will there be Storage Piles?

Yes  No

If Yes, then complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.

3.) Will there be Liquid Loading/Unloading Operations?

Yes  No (( Note: Truck Load-Out (TLO-1 (14E)) is included in the Point Source Emissions ))

If Yes, then complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.

4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation?

Yes  No

If Yes, then complete the GENERAL EMISSIONS UNIT DATA SHEET.

5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)?

Yes  No

If Yes, then complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS DATA SHEET.

6.) Will there be General Clean-up VOC Operations?

Yes  No

If Yes, then complete the GENERAL EMISSIONS UNIT DATA SHEET.

7.) Will there be any other activities that generate fugitive emissions?

Yes  No

If Yes, then complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.

If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary."

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)  
**Attachment K**

**FUGITIVE EMISSIONS DATA SUMMARY SHEET - Continued**

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions.

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants Chemical Name/CAS <sup>1</sup>	Maximum Potential Pre-Controlled Emissions <sup>2</sup>		Maximum Potential Controlled Emissions <sup>3</sup>		Est. Method Used <sup>4</sup>
		lb/hr	ton/yr	lb/hr	ton/yr	
Paved Haul Roads	na	---	---	---	---	---
Unpaved Haul Roads	na	---	---	---	---	---
Storage Pile Emissions	na	---	---	---	---	---
Loading/Unloading Operations	(( Note: Truck Load-Out (TLO-1 (14E)) is included in the Point Source Emissions ))					
Wastewater Treatment	na	---	---	---	---	---
<b>MODIFIED</b> Process and Piping Fugitives (FUG-G (15E), FUG-L (15E), and FUG-M (15E)) (Total Combined)	<b>VOC</b>	<b>53.64</b>	<b>234.93</b>	<b>7.12</b>	<b>31.21</b>	<b>O - AP-42</b>
	Benzene	0.02	0.10	0.00	0.01	O - AP-42
	Ethylbenzene	0.02	0.10	0.00	0.01	O - AP-42
	Formaldehyde					
	n-Hexane	0.64	2.82	0.09	0.38	O - AP-42
	Toluene	0.02	0.10	0.00	0.01	O - AP-42
	2,2,4-TMP	0.02	0.10	0.00	0.01	O - AP-42
	Xylenes	0.02	0.10	0.00	0.01	O - AP-42
	Other HAP	---	---	---	---	---
	Total HAP	0.76	3.32	0.10	0.44	O - AP-42
	CO2					
	CH4					
N2O						
CO2e	1,323	5,795	162	708	O - GWP	
General Clean-up VOC Emissions	na	---	---	---	---	---
Other	na	---	---	---	---	---

<sup>1</sup> List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, all applicable Greenhouse Gases, etc. DO NOT LIST H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.

<sup>2</sup> Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in min (e.g. 5 lb VOC/20 min batch).

<sup>3</sup> Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in min (e.g. 5 lb VOC/20 min batch).

<sup>4</sup> Indicate method used to determine emission rate as follows:

MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)  
**Attachment K**

**FUGITIVE EMISSIONS DATA SUMMARY SHEET - Continued**

**LEAK SOURCE DATA SHEET**

Source Category	Pollutant	Number of Source Components <sup>1</sup>	Number of Components Monitored by Frequency <sup>2</sup>	Average Time to Repair (Days) <sup>3</sup>	Estimated Annual Emission Rate (lb/yr) <sup>4</sup>			
<b>Pumps<sup>5</sup></b>	Light Liquid VOC <sup>6,7</sup>							
	Heavy Liquid VOC <sup>8</sup>							
	Non-VOC <sup>9</sup>							
<b>Valves<sup>10</sup></b>	Gas VOC							
	Light Liquid VOC							
	Heavy Liquid VOC							
	Non-VOC							
<b>Safety Relief Valves<sup>11</sup></b>	Gas VOC		<b>FUG (15E)</b>  <b>Please Reference:</b> <b>Attachment J - Process Piping Fugitive Emissions</b> <b>Attachment K - Fugitive Emissions Summary Data Sheet</b> <b>and</b> <b>Attachment N - Process Piping Fugitive Emissions</b>					
	Light Liquid VOC							
	Non-VOC							
<b>Open Ended Lines<sup>12</sup></b>	Gas VOC							
	Light Liquid VOC							
	Non-VOC							
<b>Sampling Connections<sup>13</sup></b>	Gas VOC							
	Light Liquid VOC							
	Non-VOC							
<b>Compressors</b>	Gas VOC							
	Non-VOC							
<b>Flanges</b>	Gas VOC							
	Light Liquid VOC							
	Non-VOC							
<b>Other (Connectors)</b>	Gas VOC							
	Light Liquid VOC							
	Non-VOC							
				<b>TOTAL (lb/yr)</b>	<b>7.12</b>			
				<b>TOTAL (tpy)</b>	<b>31.21</b>			

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
Application for Class II Administrative Update (R13-3070A)

**Attachment K**  
**FUGITIVE EMISSIONS DATA SUMMARY SHEET - Continued**

**Notes for Leak Source Data Sheet**

1. For VOC sources include components on streams and equipment that contain greater than 10% VOC, including feed streams, reaction/separation facilities, and product/by-product delivery lines. Do not include certain leakless equipment as defined below by category.
2. By monitoring frequency, give the number of sources routinely monitored for leaks, using a portable detection device that measures concentration in visual or soap-bubble leak detection ppm. Do not include monitoring by methods. "M/Q(M)/Q/SA/A/0" means the time period between inspections as follows:  
Monthly/Quarterly, with Monthly follow-up of repaired leakers/Quarterly/Semi-annual/Annually/other (specify time period)  
  
If source category is not monitored, a single zero in the space will suffice. For example, if 50 gas-service valves are monitored quarterly, with monthly follow-up of those repaired, 75 are monitored semi-annually, and 50 are checked bimonthly (alternate months), with non checked at any other frequency, you would put in the category valves, gas service: 0/50/0/75/0/50 (bimonthly).
3. Give the average number of days, after a leak is discovered, that an attempt will be made to repair the leak.
4. Note the method used: MB - material balance; EE - engineering estimate; EPA - emission factors established by EPA (cite document used); 0 - other method, such as in-house emission factor (specify).
5. Do not include in the equipment count seal-less pumps (canned motor or diaphragm) or those with enclosed venting to a control device. (Emissions from vented equipment should be included in the estimates given in the Emission Points Data Sheet.)
6. Volatile organic compounds (VOC) means the term as defined in 40 CFR. 51.100 (s).
7. A light liquid is defined as a fluid with vapor pressure equal to or greater than 0.04 psi (0.3 Kpa) at 20°C. For mixtures, if 20% w/w or more of the stream is composed of fluids with vapor pressures greater than 0.04 psi (0.3 Kpa) at 20°C, then the fluid is defined as a light liquid.
8. A heavy liquid is defined as a fluid with a vapor pressure less than 0.04 psi (0.3 Kpa) at 20°C. For mixtures, if less than 20% w/w of the stream is composed of fluids with vapor pressures greater than 0.04 psi (0.3 Kpa) at 20°C. then the fluid is defined as a heavy liquid.
9. LIST CO, H<sub>2</sub>S, mineral acids, NO, NO<sub>2</sub>, SO<sub>2</sub>, etc. DO NOT LIST CO, H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.
10. Include all process valves whether in-line or on an open-ended line such as sample, drain and purge valves. Do not include safety-relief valves, or leakless valves such as check, diaphragm, and bellows seal valves.
11. Do not include a safety-relief valve if there is a rupture disk in place upstream of the valve, or if the valve vents to a control device.
12. Open-ended lines include purge, drain and vent lines. Do not include sampling connections, or lines sealed by plugs, caps, blinds or second valves.
13. Do not include closed-purge sampling connections.

## **ATTACHMENT L**

### **Emissions Unit Data Sheet(s)**

---

“28. Fill out the **Emissions Unit Data Sheet(s)** as Attachment L.”

---

- **HEATER DATA SHEET**
    - TXP1 Heat Medium Heater (H-01 (1E))
    - TXP1 Regeneration Gas Heater (H-02 (2E))
    - TXP2 and TXP3 Regeneration Gas Heaters (H-03 (3E) and H-04 (4E))
    - De-Ethimizer Hot Oil Heaters (H-05 (5E) and H-06 (6E))
    - Amine Process Regeneration Gas Heater (H-07 (7E))
  - **EMERGENCY GENERATOR ENGINE DATA SHEET (GEN-1 (9E))**
  - **STORAGE TANK DATA SHEET (TK-01 (10E) thru TK-04 (13E))**
  - **BULK LIQUID TRANSFER OPERATIONS (TL-1)**
-

**Attachment L**  
**EMISSIONS UNIT DATA SHEET**  
**GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*):

**H-01 (1E)**

1. Name or type and model of proposed affected source:  <b>TXP1 HEAT MEDIUM HEATER (H-01 (1E))</b>
2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.
3. Name(s) and maximum amount of proposed process material(s) charged per hour:  <b>26.26 MMBTU/HR NATURAL GAS-FIRED HEAT MEDIUM HEATER</b>
4. Name(s) and maximum amount of proposed material(s) produced per hour:  <b>26.26 MMBTU/HR NATURAL GAS-FIRED HEAT MEDIUM HEATER</b>
5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:  <b>NA</b>

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.



6. Combustion Data (if applicable):			
(a) Type and amount in appropriate units of fuel(s) to be burned:			
<b>26.26 MMBTU/HR NATURAL GAS-FIRED HEAT MEDIUM HEATER</b>			
(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:			
<b>COMMERCIAL NATURAL GAS W/ NEGLIGIBLE SULFUR AND ASH</b>			
(c) Theoretical combustion air requirement (ACF/unit of fuel):			
@	°F and	psia.	
(d) Percent excess air: <b>5%</b>			
(e) Type and BTU/hr of burners and all other firing equipment planned to be used:			
<b>26.26 MMBTU/HR NATURAL GAS-FIRED HEAT MEDIUM HEATER</b>			
(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:			
<b>NA</b>			
(g) Proposed maximum design heat input:		<b>26.26</b>	× 10 <sup>6</sup> BTU/hr.
7. Projected operating schedule:			
Hours/Day	<b>24</b>	Days/Week	<b>7</b>
		Weeks/Year	<b>52</b>

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:				
a.	NO <sub>x</sub>	<b>2.57</b>	lb/hr	--- grains/ACF
b.	SO <sub>2</sub>	<b>0.02</b>	lb/hr	--- grains/ACF
c.	CO	<b>2.16</b>	lb/hr	--- grains/ACF
d.	PM <sub>10</sub>	<b>0.20</b>	lb/hr	--- grains/ACF
e.	Hydrocarbons	<b>0.25</b>	lb/hr	--- grains/ACF
f.	VOCs	<b>0.15</b>	lb/hr	--- grains/ACF
g.	Pb	<b>NA</b>	lb/hr	--- grains/ACF
h.	Specify other(s)			
	N-HEXANE	<b>0.05</b>	lb/hr	--- grains/ACF
	TOTAL HAP	<b>0.05</b>	lb/hr	--- grains/ACF
	CO <sub>2</sub> E	<b>3,225</b>	lb/hr	--- grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

<p>MONITORING</p> <p><b>FUEL CONSUMPTION</b></p>	<p>RECORDKEEPING</p> <p><b>FUEL CONSUMPTION</b></p>
--	---

<p>REPORTING</p> <p>NA</p>	<p>TESTING</p> <p>NA</p>
----------------------------	--------------------------

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

NA

**Attachment L  
EMISSIONS UNIT DATA SHEET  
GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*):

**H-02 (2E)**

1. Name or type and model of proposed affected source:  <b>TXP1 REGENERATION GAS HEATER (H-02 (2E))</b>
2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.
3. Name(s) and maximum amount of proposed process material(s) charged per hour:  <b>9.40 MMBTU/HR NATURAL GAS-FIRED REGENERATION GAS HEATER</b>
4. Name(s) and maximum amount of proposed material(s) produced per hour:  <b>9.40 MMBTU/HR NATURAL GAS-FIRED REGENERATION GAS HEATER</b>
5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:  <b>NA</b>

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):			
(a) Type and amount in appropriate units of fuel(s) to be burned:			
<b>9.40 MMBTU/HR NATURAL GAS-FIRED REGENERATION GAS HEATER</b>			
(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:			
<b>COMMERCIAL NATURAL GAS W/ NEGLIGIBLE SULFUR AND ASH</b>			
(c) Theoretical combustion air requirement (ACF/unit of fuel):			
@	°F and	psia.	
(d) Percent excess air: <b>5%</b>			
(e) Type and BTU/hr of burners and all other firing equipment planned to be used:			
<b>9.40 MMBTU/HR NATURAL GAS-FIRED REGENERATION GAS HEATER</b>			
(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:			
<b>NA</b>			
(g) Proposed maximum design heat input:		<b>9.40</b>	× 10 <sup>6</sup> BTU/hr.
7. Projected operating schedule:			
Hours/Day	<b>24</b>	Days/Week	<b>7</b>
		Weeks/Year	<b>52</b>

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:				
a.	NO <sub>x</sub>	<b>0.92</b>	lb/hr	--- grains/ACF
b.	SO <sub>2</sub>	<b>0.01</b>	lb/hr	--- grains/ACF
c.	CO	<b>0.77</b>	lb/hr	--- grains/ACF
d.	PM <sub>10</sub>	<b>0.07</b>	lb/hr	--- grains/ACF
e.	Hydrocarbons	<b>0.08</b>	lb/hr	--- grains/ACF
f.	VOCs	<b>0.05</b>	lb/hr	--- grains/ACF
g.	Pb	<b>NA</b>	lb/hr	--- grains/ACF
h.	Specify other(s)			
	N-HEXANE	<b>0.02</b>	lb/hr	--- grains/ACF
	TOTAL HAP	<b>0.02</b>	lb/hr	--- grains/ACF
	CO <sub>2</sub> E	<b>1,154</b>	lb/hr	--- grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

<p>MONITORING</p> <p><b>FUEL CONSUMPTION</b></p>	<p>RECORDKEEPING</p> <p><b>FUEL CONSUMPTION</b></p>
--	---

<p>REPORTING</p> <p>NA</p>	<p>TESTING</p> <p>NA</p>
----------------------------	--------------------------

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

NA

**Attachment L  
EMISSIONS UNIT DATA SHEET  
GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): **H-03 (3E) AND H-04 (4E)**

<p>1. Name or type and model of proposed affected source:</p> <p style="text-align: center;"><b>TXP2 AND TXP3 REGEN GAS HEATER (H-03 (3E) AND H-04 (4E))</b></p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p style="text-align: center;"><b>20.30 MMBTU/HR NATURAL GAS-FIRED REGEN GAS HEATERS (EACH)</b></p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p style="text-align: center;"><b>20.30 MMBTU/HR NATURAL GAS-FIRED REGEN GAS HEATER (EACH)</b></p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p style="text-align: center;"><b>NA</b></p>

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.



6. Combustion Data (if applicable):			
(a) Type and amount in appropriate units of fuel(s) to be burned:			
<b>20.30 MMBTU/HR NATURAL GAS-FIRED REGEN GAS HEATER (EACH)</b>			
(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:			
<b>COMMERCIAL NATURAL GAS W/ NEGLIGIBLE SULFUR AND ASH</b>			
(c) Theoretical combustion air requirement (ACF/unit of fuel):			
@	°F and	psia.	
(d) Percent excess air: <b>5%</b>			
(e) Type and BTU/hr of burners and all other firing equipment planned to be used:			
<b>20.30 MMBTU/HR NATURAL GAS-FIRED REGEN GAS HEATER (EACH)</b>			
(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:			
<b>NA</b>			
(g) Proposed maximum design heat input:		<b>20.30</b>	× 10 <sup>6</sup> BTU/hr.
7. Projected operating schedule:			
Hours/Day	<b>24</b>	Days/Week	<b>7</b>
		Weeks/Year	<b>52</b>

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:				
a.	NO <sub>x</sub>	<b>0.73</b>	lb/hr	--- grains/ACF
b.	SO <sub>2</sub>	<b>0.01</b>	lb/hr	--- grains/ACF
c.	CO	<b>0.81</b>	lb/hr	--- grains/ACF
d.	PM <sub>10</sub>	<b>0.26</b>	lb/hr	--- grains/ACF
e.	Hydrocarbons	<b>0.50</b>	lb/hr	--- grains/ACF
f.	VOCs	<b>0.39</b>	lb/hr	--- grains/ACF
g.	Pb	<b>NA</b>	lb/hr	--- grains/ACF
h.	Specify other(s)			
	N-HEXANE	<b>0.04</b>	lb/hr	--- grains/ACF
	TOTAL HAP	<b>0.04</b>	lb/hr	--- grains/ACF
	CO <sub>2</sub> E	<b>2,380</b>	lb/hr	--- grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.  
 (2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

<p>MONITORING</p> <p><b>FUEL CONSUMPTION</b></p>	<p>RECORDKEEPING</p> <p><b>FUEL CONSUMPTION</b></p>
--	---

<p>REPORTING</p> <p>NA</p>	<p>TESTING</p> <p>NA</p>
----------------------------	--------------------------

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

NA

**Attachment L  
EMISSIONS UNIT DATA SHEET  
GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): **H-05 (5E) AND H-06 (6E)**

1. Name or type and model of proposed affected source:  <b>DE-ETHANIZER HOT OIL HEATERS (H-05 (5E) AND H-06 (6E))</b>
2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.
3. Name(s) and maximum amount of proposed process material(s) charged per hour:  <b>68.33 MMBTU/HR NATURAL GAS-FIRED HOT OIL HEATERS (EACH)</b>
4. Name(s) and maximum amount of proposed material(s) produced per hour:  <b>68.33 MMBTU/HR NATURAL GAS-FIRED HOT OIL HEATERS (EACH)</b>
5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:  <b>NA</b>

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):			
(a) Type and amount in appropriate units of fuel(s) to be burned:			
<b>68.33 MMBTU/HR NATURAL GAS-FIRED HOT OIL HEATERS (EACH)</b>			
(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:			
<b>COMMERCIAL NATURAL GAS W/ NEGLIGIBLE SULFUR AND ASH</b>			
(c) Theoretical combustion air requirement (ACF/unit of fuel):			
@	°F and	psia.	
(d) Percent excess air: <b>5%</b>			
(e) Type and BTU/hr of burners and all other firing equipment planned to be used:			
<b>68.33 MMBTU/HR NATURAL GAS-FIRED HOT OIL HEATERS (EACH)</b>			
(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:			
<b>NA</b>			
(g) Proposed maximum design heat input:		<b>68.33</b>	× 10 <sup>6</sup> BTU/hr.
7. Projected operating schedule:			
Hours/Day	<b>24</b>	Days/Week	<b>7</b>
		Weeks/Year	<b>52</b>

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:				
a.	NO <sub>x</sub>	<b>2.46</b>	lb/hr	--- grains/ACF
b.	SO <sub>2</sub>	<b>0.04</b>	lb/hr	--- grains/ACF
c.	CO	<b>2.53</b>	lb/hr	--- grains/ACF
d.	PM <sub>10</sub>	<b>0.51</b>	lb/hr	--- grains/ACF
e.	Hydrocarbons	<b>0.50</b>	lb/hr	--- grains/ACF
f.	VOCs	<b>0.38</b>	lb/hr	--- grains/ACF
g.	Pb	<b>NA</b>	lb/hr	--- grains/ACF
h.	Specify other(s)			
	N-HEXANE	<b>0.12</b>	lb/hr	--- grains/ACF
	TOTAL HAP	<b>0.13</b>	lb/hr	--- grains/ACF
	CO <sub>2</sub> E	<b>8,390</b>	lb/hr	--- grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.  
 (2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

<p>MONITORING</p> <p><b>FUEL CONSUMPTION</b></p>	<p>RECORDKEEPING</p> <p><b>FUEL CONSUMPTION</b></p>
--	---

<p>REPORTING</p> <p>NA</p>	<p>TESTING</p> <p>NA</p>
----------------------------	--------------------------

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

NA

**Attachment L**  
**EMISSIONS UNIT DATA SHEET**  
**GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*):

**H-07 (7E)**

1. Name or type and model of proposed affected source:  <b>AMINE PROCESS REGENERATION GAS HEATER</b>
2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.
3. Name(s) and maximum amount of proposed process material(s) charged per hour:  <b>10.44 MMBTU/HR NATURAL GAS-FIRED REGERATION GAS HEATER</b>
4. Name(s) and maximum amount of proposed material(s) produced per hour:  <b>10.44 MMBTU/HR NATURAL GAS-FIRED REGERATION GAS HEATER</b>
5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:  <b>NA</b>

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.



6. Combustion Data (if applicable):			
(a) Type and amount in appropriate units of fuel(s) to be burned:			
<b>10.44 MMBTU/HR NATURAL GAS-FIRED REGERATION GAS HEATER</b>			
(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:			
<b>COMMERCIAL NATURAL GAS W/ NEGLIGIBLE SULFUR AND ASH</b>			
(c) Theoretical combustion air requirement (ACF/unit of fuel):			
@	°F and	psia.	
(d) Percent excess air: <b>5%</b>			
(e) Type and BTU/hr of burners and all other firing equipment planned to be used:			
<b>10.44 MMBTU/HR NATURAL GAS-FIRED REGERATION GAS HEATER</b>			
(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:			
<b>NA</b>			
(g) Proposed maximum design heat input:		<b>10.44</b>	× 10 <sup>6</sup> BTU/hr.
7. Projected operating schedule:			
Hours/Day	<b>24</b>	Days/Week	<b>7</b>
		Weeks/Year	<b>52</b>

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:				
a.	NO <sub>x</sub>	<b>1.02</b>	lb/hr	--- grains/ACF
b.	SO <sub>2</sub>	<b>0.03</b>	lb/hr	--- grains/ACF
c.	CO	<b>0.86</b>	lb/hr	--- grains/ACF
d.	PM <sub>10</sub>	<b>0.08</b>	lb/hr	--- grains/ACF
e.	Hydrocarbons	<b>0.10</b>	lb/hr	--- grains/ACF
f.	VOCs	<b>0.06</b>	lb/hr	--- grains/ACF
g.	Pb	<b>NA</b>	lb/hr	--- grains/ACF
h.	Specify other(s)			
	N-HEXANE	<b>0.02</b>	lb/hr	--- grains/ACF
	TOTAL HAP	<b>0.02</b>	lb/hr	--- grains/ACF
	CO <sub>2</sub> E	<b>1,282</b>	lb/hr	--- grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

<p>MONITORING</p> <p><b>FUEL CONSUMPTION</b></p>	<p>RECORDKEEPING</p> <p><b>FUEL CONSUMPTION</b></p>
--	---

<p>REPORTING</p> <p>NA</p>	<p>TESTING</p> <p>NA</p>
----------------------------	--------------------------

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

NA

**OAK GROVE GAS PLANT**

45CSR13 NSR – Modification Permit

**Attachment L****EMERGENCY GENERATOR ENGINE DATA SHEET**

Source Identification Number <sup>1</sup>		<b>GEN-1 (9E)</b>					
Engine Manufacturer and Model		<b>Olympian G150LG2</b>					
Manufacturer's Rated bhp/rpm		<b>224 / 1,800</b>					
Source Status <sup>2</sup>		<b>ES</b>					
Date Installed/Modified/Removed <sup>3</sup>		<b>2016</b>					
Manufactured/Reconstruction Date <sup>4</sup>		<b>&gt; 07/01/10</b>					
Certified Engine? (40CFR60 NSPS IIII) <sup>5</sup>		<b>na</b>					
Certified Engine? (40CFR60 NSPS JJJJ) <sup>6</sup>		<b>Yes</b>					
Engine, Fuel and Combustion Data	Engine Type <sup>7</sup>	<b>RB4S</b>					
	APCD Type <sup>8</sup>	<b>---</b>					
	Fuel Type <sup>9</sup>	<b>Propane</b>					
	H <sub>2</sub> S (gr/100 scf)	<b>≤ 0.25</b>					
	Operating bhp/rpm	<b>224 / 1,800</b>					
	BSFC (Btu/bhp-hr)	<b>9,794</b>					
	Fuel (ft <sup>3</sup> /hr)	<b>878</b>					
	Fuel (MMft <sup>3</sup> /yr)	<b>0.44</b>					
Operation (hrs/yr)	<b>500</b>						
Reference <sup>10</sup>	PTE <sup>11</sup>	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
<b>NSPS</b>	NOX	<b>0.99</b>	<b>0.25</b>				
<b>NSPS</b>	CO	<b>1.98</b>	<b>0.49</b>				
<b>AP</b>	VOC	<b>0.54</b>	<b>0.13</b>				
<b>AP</b>	SO <sub>2</sub>	<b>1.3E-03</b>	<b>3.2E-04</b>				
<b>AP</b>	PM <sub>10/2.5</sub>	<b>0.04</b>	<b>0.01</b>				
<b>AP</b>	Benzene	<b>3.5E-03</b>	<b>8.7E-04</b>				
<b>AP</b>	Ethylbenzene	<b>5.4E-05</b>	<b>1.4E-05</b>				
<b>AP</b>	Formaldehyde	<b>0.04</b>	<b>0.01</b>				
<b>AP</b>	n-Hexane	<b>---</b>	<b>---</b>				
<b>AP</b>	Toluene	<b>1.2E-03</b>	<b>3.1E-04</b>				
<b>AP</b>	2,2,4-TMP	<b>---</b>	<b>---</b>				
<b>AP</b>	Xylenes	<b>4.3E-04</b>	<b>1.1E-04</b>				
<b>AP</b>	Other HAPs	<b>0.02</b>	<b>0.01</b>				
<b>AP</b>	Tot HAP	<b>0.07</b>	<b>0.02</b>				
<b>AP/40CFR98</b>	CO <sub>2</sub> e	<b>305</b>	<b>76</b>				

**OAK GROVE GAS PLANT**

45CSR13 NSR – Modification Permit

**Attachment L**

**EMERGENCY GENERATOR ENGINE DATA SHEET**

Notes to ATTACHMENT L - EMERGENCY GENERATOR ENGINE DATA SHEET

1. Enter the appropriate Source Identification Number for each natural gas-fueled reciprocating internal combustion compressor/ generator engine located at the compressor station. Multiple compressor engines should be designated CE-1, CE-2, CE-3 etc. Generator engines should be designated GE-1, GE-2, GE-3 etc. If more than three (3) engines exist, please use additional sheets.
2. Enter the Source Status using the following codes:  
NS = Construction of New Source (installation)      ES = Existing Source  
MS = Modification of Existing Source                      RS = Removal of Source
3. Enter the date (or anticipated date) of the engine's installation (construction of source), modification or removal.
4. Enter the date that the engine was manufactured, modified or reconstructed.
5. Is the engine a certified stationary compression ignition internal combustion engine according to 40CFR60 Subpart IIII. If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance according to 40CFR§60.4210 as appropriate.
6. Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart JJJJ. If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance according to 40CFR§60.4243a(2)(i) through (iii), as appropriate.

Provide a manufacturer's data sheet for all engines being registered.

7. Enter the Engine Type designation(s) using the following codes:  
LB2S = Lean Burn Two Stroke      LB4S = Lean Burn Four Stroke      RB4S = Rich Burn Four Stroke
8. Enter the Air Pollution Control Device (APCD) type designation(s) using the following codes:  
A/F = Air/Fuel Ratio                      IR = Ignition Retard  
HEIS = High Energy Ignition System      SIPC = Screw-in Pre-combustion Chambers  
PSC = Pre-stratified Charge              LEC = Low Emission Combustion  
NSCR = Non-Selective Catalytic Reduction      SCR = Lean Burn & Selective Catalytic Reduction
9. Enter the Fuel Type using the following codes:  
PQ = Pipeline Quality Natural Gas      RG = Raw Natural Gas
10. Enter the Potential Emissions Data Reference designation using the following codes. Attach all referenced data to this Compressor/Generator Data Sheet(s).  
MD = Manufacturer's Data              AP = AP-42  
GR = GRI-HAPCalcTM                      OT = Other (please list) \_\_\_\_\_
11. Enter each engine's Potential to Emit (PTE) for the listed regulated pollutants in pounds per hour and tons per year. PTE shall be calculated at manufacturer's rated brake horsepower and may reflect reduction efficiencies of listed Air Pollution Control Devices. Emergency generator engines may use 500 hours of operation when calculating PTE. PTE data from this data sheet shall be incorporated in the Emissions Summary Sheet.

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**ATTACHMENT L - STORAGE TANK DATA SHEET**

Source ID	Status	Contents	Volume (gal)	Diam (ft)	Thru-Put (gal/yr)	Orientation	Ave Liq Hght (ft)
TK-1	Exist	Slop Oil/Condensate	16,800	12.0	1,000,000	Vert	8.0
TK-2	Exist	Slop Oil/Condensate	16,800	12.0	1,000,000	Vert	8.0
TK-3	Exist	Slop Oil/Condensate	16,800	12.0	1,000,000	Vert	8.0
TK-4	Exist	Slop Oil/Condensate	16,800	12.0	1,000,000	Vert	8.0
<b>Also the following insignificant Storage Tanks:</b>							
---	Exist	Produced Water/Oil	2,200	---	26,400	---	---
---	Exist	Produced Water/Oil	25,000	---	300,000	---	---
---	Exist	Lube Oil	300	---	3,600	---	---
---	Exist	Produced Water/Oil	4,500	---	54,000	---	---
---	Exist	Heat Medium (Oil)	2,300	---	27,600	---	---
---	Exist	21-V-828 De-Ethimizer Surge Tank	70,000	---	840,000	---	---
---	Exist	De-Ionized Water	16,800	---	201,600	---	---
---	Exist	Amine	4,200	---	50,400	---	---
---	Exist	Raw Regen Water	16,800	---	403,200	---	---
---	Exist	Used Amine	25,000	---	300,000	---	---
---	Exist	Hot Oil	2,662	---	31,944	---	---
---	Exist	Hot Oil	2,662	---	31,944	---	---
---	Exist	Lube Oil	300	---	3,600	---	---
---	Exist	Lube Oil	300	---	3,600	---	---
---	Exist	31-V-801 Feed Separator	1,700	---	20,400	---	---
---	Exist	32-V-801 Feed Separator	1,700	---	20,400	---	---
---	Exist	Lube Oil	335	---	4,020	---	---
---	Exist	01-ST-884 Turbo Expander Bullet	60	---	720	---	---
---	Exist	Produced Water/Oil	370	---	4,440	---	---
---	Exist	01-V-403 Cold Drain Tank	3,500	---	42,000	---	---
---	Exist	01-V-860 Inlet Gas Separator	380	---	4,560	---	---
---	Exist	01-V-402 Cold Separator	7,500	---	90,000	---	---
---	Exist	Diesel	500	---	6,000	---	---
---	Exist	Gasoline	500	---	6,000	---	---

**Notes to STORAGE TANK DATA SHEET**

1. Enter the appropriate Source Identification Numbers (Source ID #) for each storage tank located at the compressor station. Tanks should be designated T01, T02, T03, etc.
2. Enter storage tank Status using the following:  
 EXIST Existing Equipment  
 NEW Installation of New Equipment  
 REM Equipment Removed
3. Enter storage tank content such as condensate, pipeline liquids, glycol (DEG or TEG), lube oil, etc.
4. Enter storage tank volume in gallons.
5. Enter storage tank diameter in feet.
6. Enter storage tank throughput in gallons per year.
7. Enter storage tank orientation using the following:  
 VERT Vertical Tank  
 HORZ Horizontal Tank
8. Enter storage tank average liquid height in feet.

**Attachment L**  
**EMISSIONS UNIT DATA SHEET**  
**BULK LIQUID TRANSFER OPERATIONS**

Furnish the following information for each new or modified bulk liquid transfer area or loading rack, as shown on the *Equipment List Form* and other parts of this application. This form is to be used for bulk liquid transfer operations such as to and from drums, marine vessels, rail tank cars, and tank trucks.

Identification Number (as assigned on <i>Equipment List Form</i> ): <b>TL-1</b>				
1. Loading Area Name: <b>OAK GROVE GAS PLANT</b>				
2. Type of <b>cargo vessels</b> accommodated at this rack or transfer point (check as many as apply): <input type="checkbox"/> Drums <input type="checkbox"/> Marine Vessels <input type="checkbox"/> Rail Tank Cars <input checked="" type="checkbox"/> Tank Trucks				
3. Loading Rack or Transfer Point Data:				
Number of pumps	1			
Number of liquids loaded	1			
Maximum number of marine vessels, tank trucks, tank cars, and/or drums loading at one time	1			
4. Does ballasting of <b>marine vessels</b> occur at this loading area? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <b><u>Does not apply</u></b>				
5. Describe cleaning location, compounds and procedure for cargo vessels using this transfer point: <b>NA</b>				
6. Are cargo vessels <b>pressure tested</b> for leaks at this or any other location? <b>NA</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <b><u>Does not apply</u></b> If YES, describe: <b>NA</b>				
7. <b>Projected Maximum Operating Schedule</b> (for rack or transfer point as a whole):				
Maximum	Jan. - Mar.	Apr. - June	July - Sept.	Oct. - Dec.
hours/day	24	24	24	24
days/week	7	7	7	7
weeks/quarter	13	13	13	13

8. Bulk Liquid Data (add pages as necessary):						
Pump ID No.	1					
Liquid Name	Slop Oil/Cond.					
Max. daily throughput (1000 gal/day)	10.96					
Max. annual throughput (1000 gal/yr)	40,000					
Loading Method <sup>1</sup>	SP					
Max. Fill Rate (gal/min)	200					
Average Fill Time (min/loading)	60					
Max. Bulk Liquid Temperature (°F)	60					
True Vapor Pressure <sup>2</sup>	5.0					
Cargo Vessel Condition <sup>3</sup>	U					
Control Equipment or Method <sup>4</sup>	None					
Minimum control efficiency (%)	---					
Maximum Emission Rate (VOC)	Loading (lb/hr)	27.13				
	Annual (lb/yr)	36,180				
Estimation Method <sup>5</sup>	EPA					
<sup>1</sup> BF = Bottom Fill    SP = Splash Fill    SUB = Submerged Fill						
<sup>2</sup> At maximum bulk liquid temperature						
<sup>3</sup> B = Ballasted Vessel, C = Cleaned, U = Uncleaned (dedicated service), O = other (describe)						
<sup>4</sup> List as many as apply (complete and submit <i>Air Pollution Control Device Sheets</i> ): CA = Carbon Adsorption, LOA = Lean Oil Adsorption, CO = Condensation, SC = Scrubber (Absorption), CRA = Compressor-Refrigeration-Absorption, TO = Thermal Oxidation or Incineration, CRC = Compression-Refrigeration-Condensation, VB = Dedicated Vapor Balance (closed system), O = other (describe)						
<sup>5</sup> EPA = EPA Emission Factor as stated in AP-42 MB = Material Balance TM = Test Measurement based upon test data submittal O = other (describe)						



**9. Proposed Monitoring, Recordkeeping, Reporting, and Testing**

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

**MONITORING**

Monitor volume of liquids loaded

**RECORDKEEPING**

Maintain records of volume of liquids loaded

**REPORTING**

na

**TESTING**

na

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

**10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.**

**NA**

**ATTACHMENT M**  
**Air Pollution Control Device Sheet(s)**

---

“29. Fill out the **Air Pollution Control Device Sheet(s)** as Attachment M.”

---

- **PROCESS FLARE DATA SHEET (FL-1 (8E))**
-

**Attachment M**  
**Air Pollution Control Device Sheet**  
 (FLARE SYSTEM)

Control Device ID No. (must match Emission Units Table):

**PROCESS FLARE (FL-1 (8E))**

**Equipment Information**

1. Manufacturer: <b>ZEECO</b>  Model No.	2. Method: <input checked="" type="checkbox"/> <b>Elevated flare</b> <input type="checkbox"/> Ground flare <input type="checkbox"/> Other Describe
3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.	
4. Method of system used: <input type="checkbox"/> Steam-assisted <input checked="" type="checkbox"/> <b>Air-assisted</b> <input type="checkbox"/> Pressure-assisted <input type="checkbox"/> Non-assisted	
5. Maximum capacity of flare:  <p align="center"><b>208,000 LB/HR</b>  <b>4,645 MMBTU/HR</b></p>	6. Dimensions of stack:  <p align="right">Diameter      <b>2.0 FT</b>          Height      <b>170 FT</b></p>
7. Estimated combustion efficiency: (Waste gas destruction efficiency)  <p align="right"><b>Estimated:      99%</b>  <b>Minimum guaranteed:      99%</b></p>	8. Fuel used in burners: <input checked="" type="checkbox"/> <b>Natural Gas</b> <input type="checkbox"/> Fuel Oil, Number <input type="checkbox"/> Other, Specify:
9. Number of burners: <b>1</b>  Rating: <b>4,645 MMBTU/HR</b>	11. Describe method of controlling flame: <b>FLAME SENSING SYSTEM (THERMOCOUPLES) WILL MONITOR THE PILOT FLAME AND AUTOMATICALLY INITIATE A RE-LIGHT PROCEDURE IN THE EVENT OF A PILOT FLAME OUTAGE</b>
10. Will preheat be used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
12. Flare height: <b>170 FT</b>	14. Natural gas flow rate to flare pilot flame per pilot:  <p align="right"><b>1.25 SCF/MIN</b>  <b>75.00 SCF/HR</b></p>
13. Flare tip inside diameter: <b>2.0 FT</b>	
15. Number of pilot lights: <b>3</b>  Total <b>0.24 MMBTU/HR</b>	16. Will automatic re-ignition be used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
17. If automatic re-ignition will be used, describe the method: <b>PRESENCE OF FLAME MONITORED BY THERMOCOUPLE. IN THE EVENT OF A FLAME FAILURE, THE PILOT WILL AUTOMATICALLY BE RE-LIT.</b>	
18. Is pilot flame equipped with a monitor? <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> No If yes, what type? <input checked="" type="checkbox"/> <b>Thermocouple</b> <input type="checkbox"/> Infra-Red <input type="checkbox"/> Ultra Violet <input type="checkbox"/> Camera with monitoring control room <input type="checkbox"/> Other, Describe:	
19. Hours of unit operation per year: <b>8,760</b>	

**PROCESS FLARE (FL-02 (5S))**

**Steam Injection**

20. Will steam injection be used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> <b>No</b>	21. Steam pressure Minimum Expected: Design Maximum:	PSIG
22. Total Steam flow rate: LB/hr	23. Temperature:	°F
24. Velocity ft/sec	25. Number of jet streams	
26. Diameter of steam jets: in	27. Design basis for steam injected: LB steam/LB hydrocarbon	
28. How will steam flow be controlled if steam injection is used?		

**Characteristics of the Waste Gas Stream to be Burned**

29.	Name	Quantity Grains of H <sub>2</sub> S/100 ft <sup>3</sup>	Quantity (LB/hr, ft <sup>3</sup> /hr, etc)	Source of Material
	<b>NATURAL GAS</b>	<b>NEGLIGIBLE</b>	<b>10,509 SCFH - AVE</b>	<b>BLOWDOWN</b>
	<b>ETHANE</b>	<b>NEGLIGIBLE</b>	<b>57,078 SCFH - AVE</b>	<b>ETHANE</b>
	<b>NGL</b>	<b>NEGLIGIBLE</b>	<b>128 SCFH - AVE</b>	<b>BLOWDOWN</b>
	<b>RESIDUE GAS</b>	<b>NEGLIGIBLE</b>	<b>4,225 SCFH - AVE</b>	<b>PURGE/PILOT</b>
	<b>TOTAL</b>	<b>NEGLIGIBLE</b>	<b>71,940 SCFH - AVE</b>	
30. Estimate total combustible to flare: <b>5,425 LB/HR (AVE)</b> (Maximum mass flow rate of waste gas) <b>208,000 LB/HR (MAX)</b>				
31. Estimated total flow rate to flare including materials to be burned, carrier gases, auxiliary fuel, etc.: <b>71,940 SCF/HR (AVE)      2,624,950 SCF/HR (MAX)      630.19 MMSCF/YR</b>				
32. Give composition of carrier gases: <b>NA</b>				
33. Temperature of emission stream: °F Heating value of emission stream: <b>1,685 BTU/SCF (AVE)</b> Mean molecular weight of emission stream: MW = <b>~28.6 LB/LB-MOLE</b>			34. Identify and describe all auxiliary fuels to be burned. <b>NA</b> BTU/scf BTU/scf BTU/scf BTU/scf	
35. Temperature of flare gas: <b>VARIABLE °F</b>			36. Flare gas flow rate: <b>1,199 SCFM (AVE)</b>	
37. Flare gas heat content: <b>1,685 BTU/SCF (AVE)</b>			38. Flare gas exit velocity: <b>0.60 FT/SEC</b>	
39. Maximum rate during emergency for one major piece of equipment or process unit:			<b>2,624,950 SCFH</b>	
40. Maximum rate during emergency for one major piece of equipment or process unit:			<b>4,645 MMBTU/HR</b>	
41. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification): <b>NA</b>				
42. Describe the collection material disposal system: <b>NA</b>				
43. Have you included <b>Flare Control Device</b> in the Emissions Points Data Summary Sheet? <b>YES</b>				

**PROCESS FLARE (FL-02 (5S))**

<p><b>44. Proposed Monitoring, Recordkeeping, Reporting, and Testing</b> Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters.</p>	
<p><b>MONITORING:</b> <b>MONITOR PRESENCE OF A PILOT FLAME</b></p>	<p><b>RECORDKEEPING:</b> <b>MAINTAIN RECORDS OF DATE AND DURATION OF PILOT FLAME OUTAGES</b></p>
<p><b>REPORTING:</b> <b>NA</b></p>	<p><b>TESTING:</b> <b>OPERATE FLARE IN ACCORDANCE WITH REQUIREMENTS OF 40 CFR 60.18 (GENERAL CONTROL DEVICE REQUIREMENTS)</b></p>
<p><b>MONITORING:</b> Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.</p> <p><b>RECORDKEEPING:</b> Please describe the proposed recordkeeping that will accompany the monitoring.</p> <p><b>REPORTING:</b> Please describe any proposed emissions testing for this process equipment on air pollution control device.</p> <p><b>TESTING:</b> Please describe any proposed emissions testing for this process equipment on air pollution control device.</p>	
<p><b>45. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.</b> <b>NA – ASSUME 100%</b></p>	
<p><b>46. Manufacturer's Guaranteed Control Efficiency for each air pollutant.</b> <b>99% VOC AND HAP</b></p>	
<p><b>47. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.</b> <b>NA</b></p>	

# ATTACHMENT J

## Emission Points Data Summary Sheet

---

“26. Fill out the **Emission Points Data Summary Sheet** (Table 1 and Table 2) and provide it as Attachment J.”

---

- **Table 1 – Emissions Data**

- **TXP1 Heat Medium Heater (H-01 (1E)) (MODIFIED CO2e)**
- **TXP1 Regeneration Gas Heater (H-02 (2E)) (MODIFIED CO2e)**
- TXP2 Regeneration Gas Heater (H-03 (3E))
- TXP3 Regeneration Gas Heater (H-04 (4E))
- **De-Ethanizer Hot Oil Heater (H-05 (5E)) (MODIFIED CO2e)**
- **De-Ethanizer Hot Oil Heater (H-06 (6E)) (MODIFIED CO2e)**
- **Amine Process Regeneration Gas Heater (H-07 (7E)) (MODIFIED CO2e)**
- Process Flare (FL-1 (8E))
- **Standby Generator Engine (Gen-1 (9E)) (MODIFIED CO2e)**
- Slop Oil/Condensate Storage Tanks (T-01 (10E) thru T-04 (13E))
- Truck Load-Out (TL-1 (14E))
- Amine Process Vent (V-01 (16E))
- Rod Packing/Crankcase Leaks (RPC (17E))
- Dry Gas Seal Leaks (DGS (18E))
- **FUG-G (15E) - Gas (MODIFIED VOC and HAP)**
- **FUG-L (15E) - Liquid (MODIFIED VOC and HAP)**
- **FUG-M (15E) - Mixed (MODIFIED VOC and HAP)**
- **FUG-TOT (15E) - Total (MODIFIED VOC and HAP)**
- Total Plant-Wide (Including Fugitives)

- **Table 2 – Release Parameter Data**

---

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)  
**Attachment N**

**Potential to Emit (PTE) – CRITERIA – CONTROLLED**

Unit ID	Point ID	Description	Site Rating	NOX		CO		VOC		SO2		PM10/2.5	
				lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
H-01	01E	TXP1 Heat Medium Heater	26.26 MMBtu/hr	2.57	11.28	2.16	9.47	0.15	0.64	0.02	0.07	0.20	0.86
H-02	02E	TXP1 Regeneration Gas Heater	9.40 MMBtu/hr	0.92	4.04	0.77	3.39	0.05	0.23	0.01	0.02	0.07	0.31
H-03	03E	TXP2 Regeneration Gas Heater	20.30 MMBtu/hr	0.73	3.20	0.81	3.56	0.39	1.69	0.01	0.05	0.26	1.16
H-04	04E	TXP3 Regeneration Gas Heater	20.30 MMBtu/hr	0.73	3.20	0.81	3.56	0.39	1.69	0.01	0.05	0.26	1.16
H-05	05E	DeC2 Hot Oil Heater	68.33 MMBtu/hr	2.46	10.77	2.53	11.07	0.38	1.67	0.04	0.18	0.51	2.23
H-06	06E	DeC2 Hot Oil Heater	68.33 MMBtu/hr	2.46	10.77	2.53	11.07	0.38	1.67	0.04	0.18	0.51	2.23
H-07	07E	DeC2 Regeneration Gas Heater	10.44 MMBtu/hr	1.02	4.48	0.86	3.77	0.06	0.25	0.01	0.03	0.08	0.34
FLR-1	08E	Process Flare	630.19 MMscf/yr	638.12	73.27	1,273.93	146.28	177.30	20.36	1.54	0.19	19.50	2.39
GEN-1	09E	Standby Generator	224 bhp	0.99	0.25	1.98	0.49	0.54	0.13	1.3E-03	3.2E-04	0.04	0.01
TK-1	10E	Slop Oil/Condensate Tank	400 bbl	---	---	---	---	1.08	4.74	---	---	---	---
TK-2	11E	Slop Oil/Condensate Tank	400 bbl	---	---	---	---	1.08	4.74	---	---	---	---
TK-3	12E	Slop Oil/Condensate Tank	400 bbl	---	---	---	---	1.08	4.74	---	---	---	---
TK-4	13E	Slop Oil/Condensate Tank	400 bbl	---	---	---	---	1.08	4.74	---	---	---	---
TLO-1	14E	Truck Load-Out - Slop Oil/Condensate	4,000,000 gal/yr	---	---	---	---	27.13	18.09	---	---	---	---
V-01	16E	Amine Process Unit Vent	44,000 bbl/day	---	---	---	---	0.11	0.49	---	---	---	---
RPC-1	17E	Rod Packing - Reciprocating Compressors	3 Recips	---	---	---	---	0.17	0.30	---	---	---	---
DGS	18E	Dry Gas Seals - Centrifugal Compressors	8 Centrifugal	---	---	---	---	0.76	3.33	---	---	---	---
<b>TOTAL POINT SOURCE EMISSIONS:</b>				<b>650.01</b>	<b>121.26</b>	<b>1,286.38</b>	<b>192.66</b>	<b>212.13</b>	<b>69.50</b>	<b>1.67</b>	<b>0.76</b>	<b>21.43</b>	<b>10.68</b>
FUG-G	15E	Piping and Equipment Fugitives - Gas	---	---	---	---	---	<b>2.35</b>	<b>10.31</b>	---	---	---	---
FUG-L	15E	Piping and Equipment Fugitives - Light Liquid	---	---	---	---	---	<b>4.75</b>	<b>20.82</b>	---	---	---	---
FUG-M	15E	Piping and Equipment Fugitives - Mix Gas/Liq	---	---	---	---	---	<b>0.02</b>	<b>0.07</b>	---	---	---	---
<b>TOTAL FUGITIVE EMISSIONS:</b>				---	---	---	---	<b>7.12</b>	<b>31.21</b>	---	---	---	---
<b>TOTAL FACILITY-WIDE EMISSIONS:</b>				<b>650.01</b>	<b>121.26</b>	<b>1,286.38</b>	<b>192.66</b>	<b>219.26</b>	<b>100.71</b>	<b>1.67</b>	<b>0.76</b>	<b>21.43</b>	<b>10.68</b>
<b>WV NSR THRESHOLD:</b>				6 lb/hr <u>AND</u> 10 tpy		6 lb/hr <u>AND</u> 10 tpy		6 lb/hr <u>AND</u> 10 tpy		6 lb/hr <u>AND</u> 10 tpy		6 lb/hr <u>AND</u> 10 tpy	
<b>TVOP THRESHOLD:</b>				100 tpy		100 tpy		100 tpy		100 tpy		100 tpy	

- Notes: 1 - Emissions are based on operation at 100% of rated load for 8,760 hr/yr.  
 2 - VOC is volatile organic compounds, as defined by EPA, and includes HCHO (formaldehyde).  
 3 - PM10/2.5 is filterable and condensable particulate matter; including PM10 and PM2.5.  
 4 - HCHO is formaldehyde; Total HAP includes HCHO, n-hexane, BTEX (benzene, toluene, ethylbenzene, xylene), 2,2,4-TMP (i-octane), acetaldehyde, acrolein, and methanol.

	NOX		CO		VOC		SO2		PM10/2.5	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
<b>CURRENT TOTAL FACILITY-WIDE EMISSIONS:</b>	<b>650.01</b>	<b>121.26</b>	<b>1,286.38</b>	<b>192.66</b>	<b>225.56</b>	<b>112.00</b>	<b>1.67</b>	<b>0.76</b>	<b>21.43</b>	<b>10.68</b>
<b>CHANGE TO TOTAL FACILITY-WIDE EMISSIONS:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>-6.30</b>	<b>-11.30</b>	---	---	---	---
<b>PROPOSED TOTAL FACILITY-WIDE EMISSIONS:</b>	<b>650.01</b>	<b>121.26</b>	<b>1,286.38</b>	<b>192.66</b>	<b>219.26</b>	<b>100.71</b>	<b>1.67</b>	<b>0.76</b>	<b>21.43</b>	<b>10.68</b>
	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>-3%</b>	<b>-11%</b>	---	---	---	---

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)  
**Attachment N**

**Potential to Emit (PTE) – HAZARDOUS AIR POLLUTANTS – CONTROLLED**

Unit ID	Point ID	Benzene CAS: 71-43-2 MW: 78.11 lb/lb-mol		Ethylbenzene CAS: 121-69-16 MW: 106.17 lb/lb-mol		Formaldehyde CAS: 121-69-26 MW: 30.03 lb/lb-mol		n-Hexane CAS: 121-69-34 MW: 86.18 lb/lb-mol		Toluene CAS: 121-69-87 MW: 92.14 lb/lb-mol		2,2,4-TMP CAS: 121-69-94 MW: 114.23 lb/lb-mol		Xylenes CAS: 121-69-99 MW: 106.17 lb/lb-mol		Other HAP		Total HAP	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
H-01	01E	5.4E-05	2.4E-04	---	---	1.9E-03	0.01	0.05	0.20	8.8E-05	3.8E-04	---	---	---	---	4.9E-05	2.1E-04	0.05	0.21
H-02	02E	1.9E-05	8.5E-05	---	---	6.9E-04	3.0E-03	0.02	0.07	3.1E-05	1.4E-04	---	---	---	---	1.7E-05	7.7E-05	0.02	0.08
H-03	03E	4.2E-05	1.8E-04	---	---	1.5E-03	0.01	0.04	0.16	6.8E-05	3.0E-04	---	---	---	---	3.8E-05	1.7E-04	0.04	0.16
H-04	04E	4.2E-05	1.8E-04	---	---	1.5E-03	0.01	0.04	0.16	6.8E-05	3.0E-04	---	---	---	---	3.8E-05	1.7E-04	0.04	0.16
H-05	05E	1.4E-04	6.2E-04	---	---	0.01	0.02	0.12	0.53	2.3E-04	1.0E-03	---	---	---	---	1.3E-04	5.6E-04	0.13	0.55
H-06	06E	1.4E-04	6.2E-04	---	---	0.01	0.02	0.12	0.53	2.3E-04	1.0E-03	---	---	---	---	1.3E-04	5.6E-04	0.13	0.55
H-07	07E	2.1E-05	9.4E-05	---	---	7.7E-04	3.4E-03	0.02	0.08	3.5E-05	1.5E-04	---	---	---	---	1.9E-05	8.5E-05	0.02	0.08
FLR-1	08E	4.49	0.52	6.09	0.70	0.34	0.04	5.48	0.63	5.30	0.61	6.55	0.75	6.11	0.70	8.6E-03	9.9E-04	34.38	3.95
GEN-1	09E	3.5E-03	8.7E-04	5.4E-05	1.4E-05	0.04	0.01	---	---	1.2E-03	3.1E-04	---	---	4.3E-04	1.1E-04	0.02	0.01	0.07	0.02
TK-1	10E	0.04	0.16	0.04	0.16	---	---	0.04	0.16	0.04	0.16	0.04	0.16	0.04	0.16	---	---	0.22	0.95
TK-2	11E	0.04	0.16	0.04	0.16	---	---	0.04	0.16	0.04	0.16	0.04	0.16	0.04	0.16	---	---	0.22	0.95
TK-3	12E	0.04	0.16	0.04	0.16	---	---	0.04	0.16	0.04	0.16	0.04	0.16	0.04	0.16	---	---	0.22	0.95
TK-4	13E	0.04	0.16	0.04	0.16	---	---	0.04	0.16	0.04	0.16	0.04	0.16	0.04	0.16	---	---	0.22	0.95
TLO-1	14E	0.90	0.60	0.90	0.60	---	---	0.90	0.60	0.90	0.60	0.90	0.60	0.90	0.60	---	---	5.43	3.62
V-01	16E	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
RPC-1	17E	2.4E-03	6.1E-04	2.4E-03	6.1E-04	---	---	2.4E-03	6.1E-04	2.4E-03	6.1E-04	2.4E-03	6.1E-04	2.4E-03	6.1E-04	---	---	0.01	3.7E-03
DGS	18E	1.9E-03	0.01	1.9E-03	0.01	---	---	1.9E-03	0.01	1.9E-03	0.01	1.9E-03	0.01	1.9E-03	0.01	---	---	0.01	0.05
<b>TOTAL POINT:</b>		<b>5.55</b>	<b>1.76</b>	<b>7.14</b>	<b>1.94</b>	<b>0.40</b>	<b>0.12</b>	<b>6.93</b>	<b>3.60</b>	<b>6.36</b>	<b>1.86</b>	<b>7.61</b>	<b>2.00</b>	<b>7.17</b>	<b>1.95</b>	<b>0.03</b>	<b>0.01</b>	<b>41.18</b>	<b>13.23</b>
FUG-G	15E	1.7E-03	0.01	1.7E-03	0.01	---	---	0.03	0.11	1.7E-03	0.01	1.7E-03	0.01	1.7E-03	0.01	---	---	0.03	0.15
FUG-L	15E	1.2E-03	0.01	1.2E-03	0.01	---	---	0.06	0.26	1.2E-03	0.01	1.2E-03	0.01	1.2E-03	0.01	---	---	0.07	0.29
FUG-M	15E	4.3E-06	1.9E-05	4.3E-06	1.9E-05	---	---	2.1E-04	9.2E-04	4.3E-06	1.9E-05	4.3E-06	1.9E-05	4.3E-06	1.9E-05	---	---	2.3E-04	1.0E-03
<b>TOTAL FUGITIVES:</b>		<b>3.0E-03</b>	<b>0.01</b>	<b>3.0E-03</b>	<b>0.01</b>	---	---	<b>0.09</b>	<b>0.38</b>	<b>3.0E-03</b>	<b>0.01</b>	<b>3.0E-03</b>	<b>0.01</b>	<b>3.0E-03</b>	<b>0.01</b>	---	---	<b>0.10</b>	<b>0.44</b>
<b>TOTAL FACILITY:</b>		<b>5.55</b>	<b>1.78</b>	<b>7.15</b>	<b>1.96</b>	<b>0.40</b>	<b>0.12</b>	<b>7.02</b>	<b>3.98</b>	<b>6.36</b>	<b>1.87</b>	<b>7.61</b>	<b>2.01</b>	<b>7.17</b>	<b>1.96</b>	<b>0.03</b>	<b>0.01</b>	<b>41.28</b>	<b>13.68</b>
<b>NSR THRESHOLD:</b>		<b>2 lb/hr</b>	<b>OR</b>	<b>0.5 tpy</b>	<b>2 lb/hr</b>	<b>OR</b>	<b>5 tpy</b>	<b>2 lb/hr</b>	<b>OR</b>	<b>5 tpy</b>	<b>2 lb/hr</b>	<b>OR</b>	<b>5 tpy</b>	<b>2 lb/hr</b>	<b>OR</b>	<b>5 tpy</b>	<b>2 lb/hr</b>	<b>OR</b>	<b>5 tpy</b>
<b>TVOP THRESHOLD:</b>		<b>10 tpy</b>		<b>10 tpy</b>		<b>10 tpy</b>		<b>10 tpy</b>		<b>10 tpy</b>		<b>10 tpy</b>		<b>10 tpy</b>		<b>10 tpy</b>		<b>25 tpy</b>	

- Notes:
- Emissions are based on operation at 100% of rated load for 8,760 hrs/yr.
  - VOC is volatile organic compounds, as defined by EPA, and includes HCHO (formaldehyde).
  - PM10/2.5 is filterable and condensable particulate matter; including PM10 and PM2.5.
  - HCHO is formaldehyde; Total HAP includes HCHO, n-hexane, BTEX (benzene, toluene, ethylbenzene, xylene), 2,2,4-TMP (i-octane), acetaldehyde, acrolein, and methanol.

	Benzene		Ethylbenzene		Formaldehyde		n-Hexane		Toluene		2,2,4-TMP		Xylenes		Other HAP		Total HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
CURRENT PTE:	5.57	1.86	7.17	2.04	0.40	0.12	6.95	3.70	6.38	1.96	7.63	2.1	7.19	2.05	0.03	0.01	41.3	13.83
CHANGE TO PTE:	(0.02)	(0.08)	(0.02)	(0.08)	1.4E-03	2.2E-03	0.07	0.28	(0.02)	(0.09)	(0.02)	(0.09)	(0.02)	(0.09)	(3.1E-04)	(2.0E-03)	(0.02)	(0.15)
PROPOSED PTE:	5.55	1.78	7.15	1.96	0.40	0.12	7.02	3.98	6.36	1.87	7.61	2.01	7.17	1.96	0.03	0.01	41.28	13.68
	0%	-5%	0%	-4%	0%	2%	1%	7%	0%	-5%	0%	-5%	0%	-5%	-1%	-25%	0%	-1%



Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Attachment N**

**Potential to Emit (PTE) – GREENHOUSE GASES (GHG) – CONTROLLED**

Unit ID	Point ID	Description	Heat Input MMBtu/hr (HHV)	Hours of Operation hr/yr	kg/MMBtu:		kg/MMBtu:		kg/MMBtu:		TOTAL CO2e tpy
					53.06 GWP: 1	CO2 tpy	1.00E-03 GWP: 25	CH4 tpy	1.00E-04 GWP: 298	N2O tpy	
H-01	01E	TXP1 Heat Medium Heater	26.26	8,760	13,456	13,456	0.25	6	0.03	8	13,470
H-02	02E	TXP1 Regeneration Gas Heater	9.40	8,760	4,816	4,816	0.09	2	0.01	3	4,821
H-03	03E	TXP2 Regeneration Gas Heater	20.30	8,760	10,401	10,401	0.62	16	0.02	6	10,422
H-04	04E	TXP3 Regeneration Gas Heater	20.30	8,760	10,401	10,401	0.62	16	0.02	6	10,422
H-05	05E	DeC2 Hot Oil Heater	68.33	8,760	35,008	35,008	0.66	16	0.07	20	35,044
H-06	06E	DeC2 Hot Oil Heater	68.33	8,760	35,008	35,008	0.66	16	0.07	20	35,044
H-07	07E	DeC2 Regeneration Gas Heater	10.44	8,760	5,350	5,350	0.10	3	0.01	3	5,356
FLR-1	08E	Process Flare	121.22	8,760	83,066	83,066	25	623	0.68	204	83,893
GEN-1	09E	Standby Generator	2.19	500	76	76	3.6E-03	0.09	7.3E-04	0.22	76
TK-1	10E	Slop Oil/Condensate Tank	---	8,760	---	---	---	---	---	---	---
TK-2	11E	Slop Oil/Condensate Tank	---	8,760	---	---	---	---	---	---	---
TK-3	12E	Slop Oil/Condensate Tank	---	8,760	---	---	---	---	---	---	---
TK-4	13E	Slop Oil/Condensate Tank	---	8,760	---	---	---	---	---	---	---
TLO-1	14E	Truck Load-Out - Slop Oil/Condensate	---	---	---	---	---	---	---	---	---
V-01	16E	Amine Process Unit Vent	---	8,760	20,732	20,732	0.74	19	---	---	20,751
RPC-1	17E	Rod Packing - Reciprocating Compressors	---	8,760	16	16	57	1,437	---	---	1,453
DGS	18E	Dry Gas Seals - Centrifugal Compressors	---	8,760	0.07	0.07	61	1,522	---	---	1,522
<b>TOTAL POINT SOURCE EMISSIONS:</b>					<b>218,331</b>	<b>218,331</b>	<b>147</b>	<b>3,676</b>	<b>0.90</b>	<b>268</b>	<b>222,275</b>
FUG-G	15E	Piping and Equipment Fugitives - Gas	---	8,760	0.23	0.23	28	707	---	---	707
FUG-L	15E	Piping and Equipment Fugitives - Light Liquid	---	8,760	---	---	---	---	---	---	---
<b>FUG-M</b>	<b>15E</b>	<b>Piping and Equipment Fugitives - Mix Gas/Liq</b>	---	8,760	<b>3.9E-04</b>	<b>3.9E-04</b>	<b>0.05</b>	<b>1.20</b>	---	---	<b>1.20</b>
<b>TOTAL FUGITIVE EMISSIONS:</b>					<b>0.23</b>	<b>0.23</b>	<b>28</b>	<b>708</b>	---	---	<b>708</b>

<b>TOTAL FACILITY-WIDE PTE (w/o FUG):</b>	<b>218,331</b>		<b>175</b>		<b>0.90</b>		<b>222,983</b>
<b>PSD Threshold:</b>	<b>na</b>	- OR -	<b>na</b>	- OR -	<b>na</b>	) - AND -	<b>na</b>
<b>Title V Major Source Threshold:</b>							<b>na</b>

- Notes:
- 1 - Emissions are based on operation at 100% of rated load.
  - 2 - Engine CO2 and CH4 emissions are based on vendor specifications.
  - 3 - Fugitive CH4 emissions are based on EPA Fugitive Emission Factors for Oil and Gas Production Operations.

- 4 - All other GHG emissions are based on default values in 40CFR98, Subpart C, Table C-1.
- 5 - High Heat Value (HHV) = Low Heat Value (LHV) / 0.90.
- 6 - PSD Thresholds and Title V Major Source Thresholds are only applicable if other regulated air pollutants exceed the corresponding Thresholds.

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**

Application for Class II Administrative Update (R13-3070A)

**Attachment N**

**Potential to Emit (PTE) – PRE-CONTROLLED**

Unit ID	Point ID	Description	NOX		CO		VOC		n-Hexane		TOTAL HAP		CO2E	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
H-01	01E	TXP1 Heat Medium Heater	2.57	11.28	2.16	9.47	0.15	0.64	0.05	0.20	0.05	0.21	3,075	13,470
H-02	02E	TXP1 Regeneration Gas Heater	0.92	4.04	0.77	0.77	0.05	0.23	0.02	0.07	0.02	0.08	1,101	4,821
H-03	03E	TXP2 Regeneration Gas Heater	0.73	3.20	0.81	3.56	0.39	1.69	0.04	0.16	0.04	0.16	2,380	10,422
H-04	04E	TXP3 Regeneration Gas Heater	0.73	3.20	0.81	3.56	0.39	1.69	0.04	0.16	0.04	0.16	2,380	10,422
H-05	05E	DeC2 Hot Oil Heater	2.46	10.77	2.53	11.07	0.38	1.67	0.12	0.53	0.13	0.55	8,001	35,044
H-06	06E	DeC2 Hot Oil Heater	2.46	10.77	2.53	11.07	0.38	1.67	0.12	0.53	0.13	0.55	8,001	35,044
H-07	07E	DeC2 Regeneration Gas Heater	1.02	4.48	0.86	3.77	0.06	0.25	0.02	0.08	0.02	0.08	1,223	5,356
FLR-1	08E	Process Flare	638	73	1,274	146	17,730	2,036	548	63	3,403	391	542,681	62,312
GEN-1	09E	Standby Generator	0.99	4.33	1.98	8.66	0.54	2.36	---	---	0.07	0.31	305	1,337
TK-1	10E	Slop Oil/Condensate Tank	---	---	---	---	1.08	4.74	0.04	0.16	0.22	0.95	---	---
TK-2	11E	Slop Oil/Condensate Tank	---	---	---	---	1.08	4.74	0.04	0.16	0.22	0.95	---	---
TK-3	12E	Slop Oil/Condensate Tank	---	---	---	---	1.08	4.74	0.04	0.16	0.22	0.95	---	---
TK-4	13E	Slop Oil/Condensate Tank	---	---	---	---	1.08	4.74	0.04	0.16	0.22	0.95	---	---
TLO-1	14E	Truck Load-Out - Slop Oil/Condensate	---	---	---	---	---	18.09	---	0.60	---	3.62	---	---
V-01	16E	Amine Process Unit Vent	---	---	---	---	0.11	0.49	---	---	---	---	4,738	20,751
RPC-1	17E	Rod Packing - Reciprocating Compressors	---	---	---	---	0.17	0.30	2.4E-03	6.1E-04	0.01	3.7E-03	391	1,453
DGS	18E	Dry Gas Seals - Centrifugal Compressors	---	---	---	---	0.76	3.33	1.9E-03	0.01	0.01	0.05	347	1,522
<b>TOTAL PRE-CONTROLLED POINT SOURCE EMISSIONS:</b>			<b>650</b>	<b>125</b>	<b>1,286</b>	<b>198</b>	<b>17,738</b>	<b>2,087</b>	<b>548.82</b>	<b>66</b>	<b>3,405</b>	<b>400</b>	<b>574,623</b>	<b>201,955</b>
FUG-G	15E	Piping and Equipment Fugitives - Gas	---	---	---	---	19.25	84.34	0.21	0.93	0.28	1.24	1,321	5,784
FUG-L	15E	Piping and Equipment Fugitives - Light Liquid	---	---	---	---	34.24	149.95	0.43	1.88	0.47	2.08	---	---
FUG-M	15E	Piping and Equipment Fugitives - Mix Gas/Liq	---	---	---	---	0.15	0.64	1.8E-03	0.01	2.0E-03	0.01	2.41	10.57
<b>TOTAL PRE-CONTROLLED FUGITIVE EMISSIONS:</b>			<b>---</b>	<b>---</b>	<b>---</b>	<b>---</b>	<b>53.64</b>	<b>234.93</b>	<b>0.64</b>	<b>2.82</b>	<b>0.76</b>	<b>3.32</b>	<b>1,323</b>	<b>5,795</b>
<b>TOTAL PRE-CONTROLLED EMISSIONS:</b>			<b>650</b>	<b>125</b>	<b>1,286</b>	<b>198</b>	<b>17,791</b>	<b>2,322</b>	<b>549</b>	<b>69</b>	<b>3,405</b>	<b>404</b>	<b>575,946</b>	<b>207,750</b>
<b>WV NSR THRESHOLD:</b>			6 lb/hr <u>AND</u> 10 tpy		6 lb/hr <u>AND</u> 10 tpy		6 lb/hr <u>AND</u> 10 tpy		2 lb/hr <u>OR</u> 5 tpy		2 lb/hr <u>OR</u> 5 tpy		---	
<b>TVOP THRESHOLD:</b>			100 tpy		100 tpy		100 tpy		10 tpy		25 tpy		---	

- Notes:
- 1 - Emissions are based on operation at 100% of rated load for 8,760 hr/yr.
  - 2 - VOC is volatile organic compounds, as defined by EPA, and includes HCHO (formaldehyde).
  - 3 - PM10/2.5 is filterable and condensable particulate matter; including PM10 and PM2.5.
  - 4 - HCHO is formaldehyde; Total HAP includes HCHO, n-hexane, BTEX (benzene, toluene, ethylbenzene, xylene), 2,2,4-TMP (i-octane), acetaldehyde, acrolein, and methanol.

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**TXP1 Heat Medium Heater Emissions**

Unit ID	Description	Reference	Pollutant	Emission Factor		Pre-Controlled Emissions		Control Efficiency	Controlled Emissions		
				lb/MMscf	lb/MMBtu	lb/hr	tpy		%	lb/hr	tpy
H-01 (1E)	TXP1 Heat Medium Heater  23.69 MMBtu/hr (LHV) <b>26.26 MMBtu/hr (HHV)</b>  8,760 hr/yr  920 Btu/scf (LHV) 1,020 Btu/scf (HHV)  207,509 MMBtu/yr (LHV) 230,064 MMBtu/yr (HHV)  25,748 scf/hr 225.55 MMscf/yr	EPA AP-42 Table 1.4-1	NOX	100.00	0.10	2.57	11.28	---	2.57	11.28	
		EPA AP-42 Table 1.4-1	CO	84.00	0.0824	2.16	9.47	---	2.16	9.47	
		EPA AP-42 Table 1.4-2	VOC	5.68	5.6E-03	0.15	0.64	---	0.15	0.64	
		EPA AP-42 Table 1.4-2	SO2	0.60	5.9E-04	0.02	0.07	---	0.02	0.07	
		EPA AP-42 Table 1.4-2	PM10/2.5	7.60	0.01	0.20	0.86	---	0.20	0.86	
		EPA AP-42 Table 1.4-3	Benzene	2.10E-03	2.06E-06	5.4E-05	2.4E-04	---	5.4E-05	2.4E-04	
		EPA AP-42 Table 1.4-3	Ethylbenzene	---	---	---	---	---	---	---	
		EPA AP-42 Table 1.4-3	HCHO	7.50E-02	7.35E-05	1.9E-03	0.01	---	1.9E-03	0.01	
		EPA AP-42 Table 1.4-3	n-Hexane	1.80E+00	1.76E-03	0.05	0.20	---	0.05	0.20	
		EPA AP-42 Table 1.4-3	Toluene	3.40E-03	3.33E-06	8.8E-05	3.8E-04	---	8.8E-05	3.8E-04	
		EPA AP-42 Table 1.4-3	2,2,4-TMP	---	---	---	---	---	---	---	
		EPA AP-42 Table 1.4-3	Xylenes	---	---	---	---	---	---	---	
		EPA AP-42 Table 1.4-3	Other HAP	1.90E-03	1.86E-06	4.9E-05	2.1E-04	---	4.9E-05	2.1E-04	
			SUM	Tot HAP	1.88E+00	1.85E-03	0.05	0.21	---	0.05	0.21
			40CFR98 - Table C-1	CO2	119,317	1.17E+02	3,072	13,456	---	3,072	13,456
			<b>40CFR98 - Table C-2</b>	<b>CH4</b>	<b>2.25</b>	<b>2.20E-03</b>	<b>0.06</b>	<b>0.25</b>	---	<b>0.06</b>	<b>0.25</b>
	40CFR98 - Table C-2	N2O	2.25E-01	2.20E-04	5.8E-03	0.03	---	5.8E-03	0.03		
	<b>40CFR98 - Table A-1</b>	<b>CO2e</b>	<b>119,440</b>	<b>117.10</b>	<b>3,075</b>	<b>13,470</b>	---	<b>3,075</b>	<b>13,470</b>		

- Notes:
- 1 - The fuel heating value will vary, 920 Btu/scf (LHV) is at the low end of the range and results in a high (conservative) fuel consumption estimate.
  - 2 - PM10/2.5 is filterable and condensable particulate matter; including PM10 and PM2.5.
  - 3 - HCHO is formaldehyde; Total HAP includes, but not limited to, HCHO, n-hexane, BTEX (benzene, toluene, ethylbenzene, xylenes), 2,2,4-TMP (iso-octane), acetaldehyde, acrolein, and methanol (MeOH).
  - 4 - Emission factors in AP-42 are NOT EPA-recommended emission limits. Because emission factors essentially represent an average of a range of emission rates, a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance.

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**TXP1 Regen Gas Heater Emissions**

Unit ID	Description	Reference	Pollutant	Emission Factor		Pre-Controlled Emissions		Control Efficiency	Controlled Emissions		
				lb/MMscf	lb/MMBtu	lb/hr	tpy		%	lb/hr	tpy
H-02 (2E)	TXP1 Regen Gas Heater  8.48 MMBtu/hr (LHV) 9.40 MMBtu/hr (HHV)  8,760 hr/yr  920 Btu/scf (LHV) 1,020 Btu/scf (HHV)  74,271 MMBtu/yr (LHV) 82,344 MMBtu/yr (HHV)  9,216 scf/hr 80.73 MMscf/yr	EPA AP-42 Table 1.4-1	NOX	100.00	0.10	0.92	4.04	---	0.92	4.04	
		EPA AP-42 Table 1.4-1	CO	84.00	0.08	0.77	3.39	---	0.77	3.39	
		EPA AP-42 Table 1.4-2	VOC	5.68	5.6E-03	0.05	0.23	---	0.05	0.23	
		EPA AP-42 Table 1.4-2	SO2	0.60	5.9E-04	0.01	0.02	---	0.01	0.02	
		EPA AP-42 Table 1.4-2	PM10/2.5	7.60	0.01	0.07	0.31	---	0.07	0.31	
		EPA AP-42 Table 1.4-3	Benzene	2.10E-03	2.06E-06	1.9E-05	8.5E-05	---	1.9E-05	8.5E-05	
		EPA AP-42 Table 1.4-3	Ethylbenzene	---	---	---	---	---	---	---	
		EPA AP-42 Table 1.4-3	HCHO	7.50E-02	7.35E-05	6.9E-04	0.00	---	6.9E-04	3.0E-03	
		EPA AP-42 Table 1.4-3	n-Hexane	1.80E+00	1.76E-03	0.02	0.07	---	0.02	0.07	
		EPA AP-42 Table 1.4-3	Toluene	3.40E-03	3.33E-06	3.1E-05	1.4E-04	---	3.1E-05	1.4E-04	
		EPA AP-42 Table 1.4-3	2,2,4-TMP	---	---	---	---	---	---	---	
		EPA AP-42 Table 1.4-3	Xylenes	---	---	---	---	---	---	---	
		EPA AP-42 Table 1.4-3	Other HAP	1.90E-03	1.86E-06	1.7E-05	7.7E-05	---	1.7E-05	7.7E-05	
			SUM	Tot HAP	1.88E+00	1.85E-03	0.02	0.08	---	0.02	0.08
			40CFR98 - Table C-1	CO2	119,317	1.17E+02	1,100	4,816	---	1,100	4,816
			40CFR98 - Table C-2	CH4	2.25	2.20E-03	0.02	0.09	---	0.02	0.09
	40CFR98 - Table C-2	N2O	2.25E-01	2.20E-04	2.1E-03	0.01	---	2.1E-03	0.01		
	40CFR98 - Table A-1	CO2e	119,440	117.10	1,101	4,821	---	1,101	4,821		

- Notes:
- 1 - The fuel heating value will vary, 920 Btu/scf (LHV) is at the low end of the range and results in a high (conservative) fuel consumption estimate.
  - 2 - PM10/2.5 is filterable and condensable particulate matter; including PM10 and PM2.5.
  - 3 - HCHO is formaldehyde; Total HAP includes, but not limited to, HCHO, n-hexane, BTEX (benzene, toluene, ethylbenzene, xylenes), 2,2,4-TMP (iso-octane), acetaldehyde, acrolein, and methanol (MeOH).
  - 4 - Emission factors in AP-42 are NOT EPA-recommended emission limits. Because emission factors essentially represent an average of a range of emission rates, a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance.

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**TXP2 & TXP3 Regen Gas Heater Emissions**

Unit ID	Description	Reference	Pollutant	Emission Factor		Pre-Controlled Emissions		Control Efficiency	Controlled Emissions		
				lb/MMscf	lb/MMBtu	lb/hr	tpy		%	lb/hr	tpy
H-03 (3E) and H-04 (4E) (each)	TXP2 & TXP3 Regen Gas Heaters (each)  18.31 MMBtu/hr (LHV) <b>20.30 MMBtu/hr (HHV)</b>  8,760 hr/yr  920 Btu/scf (LHV) 1,020 Btu/scf (HHV)  160,394 MMBtu/yr (LHV) 177,828 MMBtu/yr (HHV)  19,902 scf/hr 174.34 MMscf/yr	Vendor Data	NOX	36.72	0.04	0.73	3.20	---	0.73	3.20	
		Vendor Data	CO	40.80	0.04	0.81	3.56	---	0.81	3.56	
		Vendor Data	VOC	19.38	1.9E-02	0.39	1.69	---	0.39	1.69	
		EPA AP-42 Table 1.4-2	SO2	0.60	5.9E-04	0.01	0.05	---	0.01	0.05	
		Vendor Data	PM10/2.5	13.26	0.01	0.26	1.16	---	0.26	1.16	
		EPA AP-42 Table 1.4-3	Benzene	2.10E-03	2.06E-06	4.2E-05	1.8E-04	---	4.2E-05	1.8E-04	
		EPA AP-42 Table 1.4-3	Ethylbenzene	---	---	---	---	---	---	---	
		EPA AP-42 Table 1.4-3	HCHO	7.50E-02	7.35E-05	1.5E-03	0.01	---	1.5E-03	0.01	
		EPA AP-42 Table 1.4-3	n-Hexane	1.80E+00	1.76E-03	0.04	0.16	---	0.04	0.16	
		EPA AP-42 Table 1.4-3	Toluene	3.40E-03	3.33E-06	6.8E-05	3.0E-04	---	6.8E-05	3.0E-04	
		EPA AP-42 Table 1.4-3	2,2,4-TMP	---	---	---	---	---	---	---	
		EPA AP-42 Table 1.4-3	Xylenes	---	---	---	---	---	---	---	
		EPA AP-42 Table 1.4-3	Other HAP	1.90E-03	1.86E-06	3.8E-05	1.7E-04	---	3.8E-05	1.7E-04	
			SUM	Tot HAP	1.88E+00	1.85E-03	0.04	0.16	---	0.04	0.16
			40CFR98 - Table C-1	CO2	119,317	116.98	2,375	10,401	---	2,375	10,401
			Vendor Data	CH4	7.14	0.01	0.14	0.62	---	0.14	0.62
			40CFR98 - Table C-2	N2O	0.22	2.2E-04	4.5E-03	0.02	---	4.5E-03	0.02
			40CFR98 - Table A-1	CO2e	119,562	117.22	2,380	10,422	---	2,380	10,422

- Notes:
- 1 - The fuel heating value will vary, 920 Btu/scf (LHV) is at the low end of the range and results in a high (conservative) fuel consumption estimate.
  - 2 - PM10/2.5 is filterable and condensable particulate matter; including PM10 and PM2.5.
  - 3 - HCHO is formaldehyde; Total HAP includes, but not limited to, HCHO, n-hexane, BTEX (benzene, toluene, ethylbenzene, xylenes), 2,2,4-TMP (iso-octane), acetaldehyde, acrolein, and methanol (MeOH).
  - 4 - Emission factors in AP-42 are NOT EPA-recommended emission limits. Because emission factors essentially represent an average of a range of emission rates, a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance.

ZEECO BURNER DATA SHEETS					
BASIS OF EMISSIONS INFORMATION					Rev.
Furnace Temperature (°F)				1,508	
Excess Combustion Air (%)				15% Gas	
Combustion Air Temperature (°F)				100	
Relative Humidity (%)				70%	
Heat Release for Guarantee (MM Btu/hr)			18,200	to	9,100 LHV
EMISSIONS INFORMATION					1
		PREDICTED		GUARANTEED	
		(ppmv)	(#/MMBtu)	(ppmv)	(#/MMBtu)
NOx Design	9	0.011		30	0.036
NOx Rich Rjctn	9	0.011		30	0.036
CO - Gas	0	0.000		50	0.040
UHC - Gas	1	0.001		15	0.007
Particulate - Gas	2	0.002		15	0.013
VOC - Gas	0	0.000		15	0.019

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**De-Ethanizer Hot Oil Heater Emissions**

Unit ID	Description	Reference	Pollutant	Emission Factor		Pre-Controlled Emissions		Control Efficiency	Controlled Emissions	
				lb/MMscf	lb/MMBtu	lb/hr	tpy		%	lb/hr
H-05 (5E) and H-06 (6E) (each)	De-Ethanizer Hot Oil Heaters (each)  61.63 MMBtu/hr (LHV) <b>68.33 MMBtu/hr (HHV)</b>  8,760 hr/yr  920 Btu/scf (LHV) 1,020 Btu/scf (HHV)  539,864 MMBtu/yr (LHV) 598,545 MMBtu/yr (HHV)  66,987 scf/hr 586.81 MMscf/yr	Vendor Data	NOX	36.72	0.04	2.46	10.77	---	2.46	10.77
		Vendor Data	CO	37.74	0.04	2.53	11.07	---	2.53	11.07
		EPA AP-42 Table 1.4-2	VOC	5.68	5.6E-03	0.38	1.67	---	0.38	1.67
		EPA AP-42 Table 1.4-2	SO2	0.60	5.9E-04	0.04	0.18	---	0.04	0.18
		EPA AP-42 Table 1.4-2	PM10/2.5	7.60	0.01	0.51	2.23	---	0.51	2.23
		EPA AP-42 Table 1.4-3	Benzene	2.10E-03	2.06E-06	1.4E-04	6.2E-04	---	1.4E-04	6.2E-04
		EPA AP-42 Table 1.4-3	Ethylbenzene	---	---	---	---	---	---	---
		EPA AP-42 Table 1.4-3	HCHO	7.50E-02	7.35E-05	5.0E-03	0.02	---	5.0E-03	0.02
		EPA AP-42 Table 1.4-3	n-Hexane	1.80E+00	1.76E-03	0.12	0.53	---	0.12	0.53
		EPA AP-42 Table 1.4-3	Toluene	3.40E-03	3.33E-06	2.3E-04	1.0E-03	---	2.3E-04	1.0E-03
		EPA AP-42 Table 1.4-3	2,2,4-TMP	---	---	---	---	---	---	---
		EPA AP-42 Table 1.4-3	Xylenes	---	---	---	---	---	---	---
		EPA AP-42 Table 1.4-3	Other HAP	1.90E-03	1.86E-06	1.3E-04	5.6E-04	---	1.3E-04	5.6E-04
		SUM	Tot HAP	1.88E+00	1.85E-03	0.13	0.55	---	0.13	0.55
		40CFR98 - Table C-1	CO2	119,317	1.17E+02	7,993	35,008	---	7,993	35,008
		40CFR98 - Table C-2	CH4	2.25	2.20E-03	0.15	0.66	---	0.15	0.66
40CFR98 - Table C-2	N2O	2.25E-01	2.20E-04	1.5E-02	0.07	---	1.5E-02	0.07		
40CFR98 - Table A-1	CO2e	119,440	117.10	8,001	35,044	---	8,001	35,044		

- Notes:
- 1 - The fuel heating value will vary, 920 Btu/scf (LHV) is at the low end of the range and results in a high (conservative) fuel consumption estimate.
  - 2 - PM10/2.5 is filterable and condensable particulate matter; including PM10 and PM2.5.
  - 3 - HCHO is formaldehyde; Total HAP includes, but not limited to, HCHO, n-hexane, BTEX (benzene, toluene, ethylbenzene, xylenes), 2,2,4-TMP (iso-octane), acetaldehyde, acrolein, and methanol (MeOH).
  - 4 - Emission factors in AP-42 are NOT EPA-recommended emission limits. Because emission factors essentially represent an average of a range of emission rates, a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance.

**FABER BURNER COMPANY**  
 #13011  
**BURNER DATA**  
 Page 3 of 4

F. Gas Pilot Data:  
 Natural Gas at 1000 BTU/SCF & 0.6 S.G., 630 SCFH required at 1 PSIG at the pilot.

G. Turndown Data:  
 10:1 on Natural Gas  
 4:1 on Natural Gas (with emissions guarantee)

H. Excess Air Design Data:  
 15% on Natural Gas @ MCR

I. EMISSION GUARANTEES

Not to Exceed:	Natural Gas	
	Lbs/MMBTU	PPM
NOx	0.036	30
CO	0.037	50

Parts Per Million (PPM) @ 3% O2 Dry

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**DeC2 Regeneration Gas Heater Emissions**

Unit ID	Description	Reference	Pollutant	Emission Factor		Pre-Controlled Emissions		Control Efficiency	Controlled Emissions		
				lb/MMscf	lb/MMBtu	lb/hr	tpy		%	lb/hr	tpy
H-07 (7E)	DeC2 Regen Gas Heater  9.42 MMBtu/hr (LHV) 10.44 MMBtu/hr (HHV)  8,760 hr/yr  920 Btu/scf (LHV) 1,020 Btu/scf (HHV)  82,504 MMBtu/yr (LHV) 91,472 MMBtu/yr (HHV)  10,237 scf/hr 89.68 MMscf/yr	EPA AP-42 Table 1.4-1	NOX	100.00	9.80E-02	1.02	4.48	---	1.02	4.48	
		EPA AP-42 Table 1.4-1	CO	84.00	8.24E-02	0.86	3.77	---	0.86	3.77	
		EPA AP-42 Table 1.4-2	VOC	5.68	5.56E-03	0.06	0.25	---	0.06	0.25	
		EPA AP-42 Table 1.4-2	SO2	0.60	5.88E-04	0.01	0.03	---	0.01	0.03	
		EPA AP-42 Table 1.4-2	PM10/2.5	7.60	7.45E-03	0.08	0.34	---	0.08	0.34	
		EPA AP-42 Table 1.4-3	Benzene	2.10E-03	2.06E-06	2.1E-05	9.4E-05	---	2.1E-05	9.4E-05	
		EPA AP-42 Table 1.4-3	Ethylbenzene	---	---	---	---	---	---	---	
		EPA AP-42 Table 1.4-3	HCHO	7.50E-02	7.35E-05	7.7E-04	3.4E-03	---	7.7E-04	3.4E-03	
		EPA AP-42 Table 1.4-3	n-Hexane	1.80E+00	1.76E-03	0.02	0.08	---	0.02	0.08	
		EPA AP-42 Table 1.4-3	Toluene	3.40E-03	3.33E-06	3.5E-05	1.5E-04	---	3.5E-05	1.5E-04	
		EPA AP-42 Table 1.4-3	2,2,4-TMP	---	---	---	---	---	---	---	
		EPA AP-42 Table 1.4-3	Xylenes	---	---	---	---	---	---	---	
		EPA AP-42 Table 1.4-3	Other HAP	1.90E-03	1.86E-06	1.9E-05	8.5E-05	---	1.9E-05	8.5E-05	
			SUM	Tot HAP	1.88E+00	1.85E-03	0.02	0.08	---	0.02	0.08
			40CFR98 - Table C-1	CO2	119,317	1.17E+02	1,221	5,350	---	1,221	5,350
			40CFR98 - Table C-2	CH4	2.25	2.20E-03	0.02	0.10	---	0.02	0.1
	40CFR98 - Table C-2	N2O	2.25E-01	2.20E-04	2.3E-03	0.01	---	2E-03	0.01		
	40CFR98 - Table A-1	CO2e	119,440	117.10	1,223	5,356	---	1,223	5,356		

- Notes:
- 1 - The fuel heating value will vary, 920 Btu/scf (LHV) is at the low end of the range and results in a high (conservative) fuel consumption estimate.
  - 2 - PM10/2.5 is filterable and condensable particulate matter; including PM10 and PM2.5.
  - 3 - HCHO is formaldehyde; Total HAP includes, but not limited to, HCHO, n-hexane, BTEX (benzene, toluene, ethylbenzene, xylenes), 2,2,4-TMP (iso-octane), acetaldehyde, acrolein, and methanol (MeOH).
  - 4 - Emission factors in AP-42 are NOT EPA-recommended emission limits. Because emission factors essentially represent an average of a range of emission rates, a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance.

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Process Flare Emissions**

Unit ID	Description	Reference	Pollutant	Emission Factor		Pre-Controlled Emissions		Control Efficiency %	Controlled Emissions	
				lb/MMscf	lb/MMBtu	lb/hr	tpy		lb/hr	tpy
FLR-1 (8E)	<b>Process Flare-01</b>	TCEQ 2010 Flare Study	NOX	Varies	1.38E-01	---	---	---	638.12	73.27
		TCEQ 2010 Flare Study	CO	Varies	2.76E-01	---	---	---	1,273.93	146.28
	<b>Peak (Hourly)</b> 208,000 lb/hr (Peak)	Mass Balance	VOC	6,461	3.83	17,729.97	2,035.80	99%	177.30	20.36
		EPA AP-42 Table 1.4-2	SO2	0.60	3.33E-04	---	---	---	1.54	0.19
	<b>2,566,068 scf/hr (Peak)</b>	EPA AP-42 Table 1.4-2	PM10/2.5	7.60	4.22E-03	---	---	---	19.50	2.39
		Mass Balance	Benzene	163.59	0.10	448.93	51.55	99%	4.49	0.52
	4,624 MMBtu/hr (HHV) 1,802 Btu/scf (HHV)	Mass Balance	Ethylbenzene	221.99	0.13	609.20	69.95	99%	6.09	0.70
		EPA AP-42 Table 1.4-3	HCHO	0.12	7.35E-05	---	---	---	0.34	0.04
	<b>8,760 hr/yr</b>	Mass Balance	n-Hexane	199.79	0.12	548.28	62.95	99%	5.48	0.63
		Mass Balance	Toluene	193.17	0.11	530.10	60.87	99%	5.30	0.61
	<b>Average (Annual)</b> 71,940 scf/hr (Average)	Mass Balance	2,2,4-TMP	238.85	0.14	655.47	75.26	99%	6.55	0.75
		Mass Balance	Xylenes	222.72	0.13	611.18	70.18	99%	6.11	0.70
	121.22 MMBtu/hr (HHV)	EPA AP-42 Table 1.4-3	Other HAP	3.1E-03	1.86E-06	---	---	---	8.6E-03	9.9E-04
		Sum	Tot HAP	1,240.25	0.74	3,403.17	390.76	99%	34.38	3.95
	1,061,889 MMBtu/yr	40CFR98 Table C-1	CO2	263,621	156.45	---	---	---	723,433	83,066
		Mass Balance	CH4	7,910	4.69	21,707	2,492	99%	217	25
	<b>630.19 MMscf/yr</b>	40CFR98 - Table C-2	N2O	2.17	1.29E-03	---	---	---	6	1
		40CFR98 - Table A-1	CO2e	462,022	274.19	542,681	62,312	---	730,635	83,893

Notes: 1 - Flare design peak and short-term (lb/hr) emissions are based on an emergency ethane release  
 Flow rate = 208,000 lb/hr, MW = 30.76 lb/lb-mol, and heating value = 1,802 Btu/scf (HHV).

2 - Heat Input (See 'Att H - Waste Gas Summary' and 'Att H - Waste Gas Btu Analysis' spreadsheets):

Component	Waste Gas (to Flare)				
	Mol% (Vol%)	MMscf/yr	scf/hr (ave)	Btu/scf (HHV)	lb/MMscf
Nitrogen	0.1%	0.46	52.07	---	61
CO2	0.1%	0.52	59.61	---	96
Methane	18.7%	117.92	13,460.69	189	7,910
Ethane	76.8%	484.17	55,271.11	1,244	60,879
VOC	4.3%	27.11	3,094.90	252	6,461
Benzene	0.08%	0.50	57.17	2.9	164
E-Benzene	0.08%	0.50	57.08	3.9	222
n-Hexane	0.09%	0.55	63.29	3.9	200
Toluene	0.08%	0.50	57.23	3.4	193
2,2,4-TMP	0.08%	0.50	57.08	4.6	239
Xylenes	0.08%	0.50	57.27	3.9	223
<b>TOTAL</b>	<b>100.0%</b>	<b>630.19</b>	<b>71,938</b>	<b>1,685</b>	<b>75,407</b>

vs. 85.5 vs. 1,300

3 - CO2e Emission Factor (See 'Att H - Waste Gas Summary'):

40CFR98	kg/MMBtu	lb/MMBtu	Wgt%	lb/MMBtu
Methane	53.06	116.98	12.6%	14.74
Ethane	59.60	131.40	96.9%	127.38
VOC	62.87	138.60	10.3%	14.34
<b>Conservative Estimate:</b>			<b>119.9%</b>	<b>156.45</b>

4 - Waste Gas volumes to the flare are conservatively estimated as as follows:

Stream Description	Estimated Gas Volume to Process Flare (FLR-1 (8E))	scf/hr (ave)	MMscf/yr
<b>Inlet Gas</b>	TXP Blowdowns	2,146	18.80
	TXP Start-Up and Dry-out	2,383	20.88
	Balance of Plant Volumes	197	1.73
	Filters Change-Out	43	0.38
	Compressor Maintenance	2,493	21.84
	Amine Unit Flash Gas	1,297	4.54
	Gas Pig Trap Blowdown	920	8.06
	Compressor Dry Gas Seals	56	0.49
	Other/Misc/Contingency (20%)	1,752	15.34
	<b>SubTotal:</b>	<b>10,509</b>	<b>92.06</b>
<b>Ethane</b>	Ethane	57,078	500.00
	<b>SubTotal:</b>	<b>57,078</b>	<b>500.00</b>
<b>NGL</b>	Liquid Pig Trap Blowdown	6	0.06
	TXP Tanks Liquid Dry-Out	100	0.88
	Pump Maintenance	22	0.19
	<b>SubTotal:</b>	<b>128</b>	<b>1.12</b>
<b>Residue Gas</b>	Purge Gas	4,000	35.04
	Pilot Gas	225	1.971
	<b>SubTotal:</b>	<b>4,225</b>	<b>37.01</b>
<b>Grand-Total:</b>		<b>71,940</b>	<b>630.19</b>
		<b>5,425 lb/hr</b>	



Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**

Application for Class II Administrative Update (R13-3070A)

**Standby Generator Engine Emissions**

Unit ID (Point ID)	Description	Reference	Pollutant	Pre-Controlled Emissions				Control Efficiency	Controlled Emissions			
				g/bhp-hr	lb/MMBtu	lb/hr	tpy		g/bhp-hr	lb/MMBtu	lb/hr	tpy
GEN-1 (9E)	<b>Generator Engine (Propane) (EPA Certified)</b> <b>Olympian G150LG2</b> <b>224 bhp</b> <b>150 kW</b> Manufactured ≥ 07/01/10 NSPS JJJJ Affected  <b>500 hr/yr</b> 8,815 Btu/bhp-hr (LHV) 9,794 Btu/bhp-hr (HHV) 2.19 MMBtu/hr (HHV) 878 scf/hr 0.44 MMscf/yr 2,250 Btu/scf (LHV) 2,500 Btu/scf (HHV)	NSPS JJJJ	NOx	2.00	0.45	0.99	4.33	na	2.00	0.45	0.99	0.25
		NSPS JJJJ	CO	4.00	0.90	1.98	8.66	na	4.00	0.90	1.98	0.49
		NMHC+CH4	THC	1.23	0.28	0.61	2.66	na	1.23	0.28	0.61	0.15
		NMNEHC*120%	NMHC	1.20	0.27	0.59	2.60	na	1.20	0.27	0.59	0.15
		NSPS JJJJ	NMNEHC	1.00	0.23	0.49	2.16	na	1.00	0.23	0.49	0.12
		NMNEHC + HCHO	VOC	1.09	0.25	0.54	2.36	na	1.09	0.25	0.54	0.13
		AP-42 Table 3.2-3	SO2	2.61E-03	5.88E-04	1.3E-03	0.01	na	2.61E-03	5.88E-04	1.3E-03	3.2E-04
		AP-42 Table 3.2-3	PM10/2.5	8.62E-02	1.94E-02	0.04	0.19	na	8.62E-02	1.94E-02	0.04	0.01
		AP-42 Table 3.2-3	Benzene	6.74E-03	1.58E-03	3.5E-03	0.02	na	0.01	1.6E-03	3.5E-03	8.7E-04
		AP-42 Table 3.2-3	Ethylbenzene	1.06E-04	2.48E-05	5.4E-05	2.4E-04	na	1.1E-04	2.5E-05	5.4E-05	1.4E-05
		AP-42 Table 3.2-3	HCHO	8.74E-02	2.05E-02	0.04	0.20	na	0.09	0.02	0.04	0.01
		AP-42 Table 3.2-3	n-Hexane	---	---	---	---	na	---	---	---	---
		AP-42 Table 3.2-3	Toluene	2.38E-03	5.58E-04	1.2E-03	0.01	na	2.4E-03	5.6E-04	1.2E-03	3.1E-04
		AP-42 Table 3.2-3	2,2,4-TMP	---	---	---	---	na	---	---	---	---
		AP-42 Table 3.2-3	Xylenes	8.32E-04	1.95E-04	4.3E-04	1.9E-03	na	8.3E-04	2.0E-04	4.3E-04	1.1E-04
		AP-42 Table 3.2-3	Other HAP	4.02E-02	9.42E-03	0.02	0.09	na	0.04	0.01	0.02	0.01
		SUM	Total HAP	1.38E-01	3.23E-02	0.07	0.31	0.0%	0.14	0.03	0.07	0.02
		40CFR98 - Table C-1	CO2	616	138.60	304	1,332	na	616	139	304	76
<b>40CFR98 - Table C-2</b>	<b>CH4</b>	<b>0.03</b>	<b>6.61E-03</b>	<b>0.01</b>	<b>0.06</b>	na	<b>0.03</b>	<b>0.01</b>	<b>0.01</b>	<b>3.6E-03</b>		
40CFR98 - Table C-2	N2O	5.88E-03	1.32E-03	2.9E-03	0.01	na	0.01	1.3E-03	2.9E-03	7.3E-04		
<b>40CFR98 - Table A-1</b>	<b>CO2e</b>	<b>618</b>	<b>139</b>	<b>305</b>	<b>1,337</b>	na	<b>618</b>	<b>139</b>	<b>305</b>	<b>76</b>		

- Notes: 1 - The emissions are based on operation at 100% of rated load.  
 2 - Pre-Controlled emissions assume 8,760 hr/yr and Controlled emissions are based on 500 hr/yr.

**Table 1 to Subpart JJJJ of Part 60—NO<sub>x</sub>, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP**

Engine type and fuel	Maximum engine power	Manufacture date	Emission standards <sup>a</sup>					
			g/HP-hr			ppmvd at 15% O <sub>2</sub>		
			NO <sub>x</sub>	CO	VOC <sup>c</sup>	NO <sub>x</sub>	CO	VOC <sup>c</sup>
Non-Emergency SI Natural Gas <sup>b</sup> and Non-Emergency SI Lean Burn LPG <sup>b</sup>	100≤HP<500	7/1/2008	2.0	4.0	1.0	160	540	86
			1/1/2011	1.0	2.0	0.7	82	270
Non-Emergency SI Lean Burn Natural Gas and LPG	500≤HP<1,350	7/1/2008	2.0	4.0	1.0	160	540	86
			7/1/2010	1.0	2.0	0.7	82	270
Non-Emergency SI Natural Gas and Non-Emergency SI Lean Burn LPG (except lean burn 500≤HP<1,350)	HP≥500	7/1/2007	2.0	4.0	1.0	160	540	86
			7/1/2010	1.0	2.0	0.7	82	270
Landfill/Digester Gas (except lean burn 500≤HP<1,350)	HP<500	7/1/2008	3.0	5.0	1.0	220	610	80
			1/1/2011	2.0	5.0	1.0	150	610
	HP≥500	7/1/2007	3.0	5.0	1.0	220	610	80
			7/1/2010	2.0	5.0	1.0	150	610
Landfill/Digester Gas Lean Burn	500≤HP<1,350	1/1/2008	3.0	5.0	1.0	220	610	80
			7/1/2010	2.0	5.0	1.0	150	610
Emergency	25<HP<130	1/1/2009	≤10	387	N/A	N/A	N/A	N/A
			HP≥130	2.0	4.0	1.0	160	540

<sup>a</sup>Owners and operators of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr or ppmvd at 15 percent O<sub>2</sub>.

<sup>b</sup>Owners and operators of new or reconstructed non-emergency lean burn SI stationary engines with a site rating of greater than or equal to 250 brake HP located at a major source that are meeting the requirements of 40 CFR part 63, subpart ZZZZ, Table 2a do not have to comply with the CO emission standards of Table 1 of this subpart.

<sup>c</sup>The emission standards applicable to emergency engines between 25 HP and 130 HP are in terms of NO<sub>x</sub> + HC.

<sup>d</sup>For purposes of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

[76 FR 37975, June 28, 2011]

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Slop Oil/Condensate Storage Tank Emissions**

**Storage Tank PTE Calculations - Working, Breathing and Flashing Emissions**

Unit ID	Tank ID	Material Stored	Capacity		Turnovers per Year	Throughput		Working Losses	Breathing Losses	Flashing Losses	Total Losses	VOC		Hex, BTEX, TMP (Ea)		Total HAP	
			gal	bbl		gal/yr	bbl/yr					100%	3.33%	20.00%	20.00%		
TK-1	10E	Slop Oil/Condensate	16,800	400	60	1,000,000	23,810	6,840	2,644	0	9,484	1.08	4.74	0.04	0.16	0.22	0.95
TK-2	11E	Slop Oil/Condensate	16,800	400	60	1,000,000	23,810	6,840	2,644	0	9,484	1.08	4.74	0.04	0.16	0.22	0.95
TK-3	12E	Slop Oil/Condensate	16,800	400	60	1,000,000	23,810	6,840	2,644	0	9,484	1.08	4.74	0.04	0.16	0.22	0.95
TK-4	13E	Slop Oil/Condensate	16,800	400	60	1,000,000	23,810	6,840	2,644	0	9,484	1.08	4.74	0.04	0.16	0.22	0.95

<b>Total:</b>	<b>67,200</b>	<b>1,600</b>	<b>60</b>	<b>4,000,000</b>	<b>95,238</b>
---------------	---------------	--------------	-----------	------------------	---------------

<b>4.33</b>	<b>18.96</b>	<b>0.14</b>	<b>0.63</b>	<b>0.87</b>	<b>3.79</b>
-------------	--------------	-------------	-------------	-------------	-------------

- Notes: □ 1 - EPA TANKS 4.0.9d was used to determine the Slop Oil/Condensate Tank Working and Breathing (Standing) Losses.  
 2 - The ProMax process simulation software was used to estimate Flashing Losses from the slop oil/condensate storage tanks. The process simulation shows no flashing losses from the storage tanks.

**Oak Grove TK-01 thru TK-04 - Vertical Fixed Roof Tank  
 Moundsville, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Aug.	Min.	Max.		Aug.	Min.	Max.					
Slop Hydrocarbon Liquids	All	56.69	48.70	64.69	52.55	8.3448	7.2610	9.5477	51.3324			96.32	
2,2-Dimethylbutane						3.9522	3.2597	4.7496	86.1770	0.0031	0.0027	86.18	Option 1: VP50 = 3.355 VP60 = 4.247
2-Methylpentane						2.5136	2.0480	3.0623	86.1900	0.0345	0.0195	86.18	Option 2: A=6.8391, B=1135.41, C=-226.57
3-Methylpentane						2.2529	1.8262	2.7524	86.1770	0.0235	0.0119	86.18	Option 1: VP50 = 1.884 VP60 = 2.435
Benzene						1.0548	0.8454	1.3282	78.1100	0.0014	0.0003	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cyclohexane						1.1069	0.8846	1.3736	84.1600	0.0126	0.0031	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Cyclopentane						3.8828	3.1865	4.6754	70.1300	0.0044	0.0038	70.13	Option 1: VP50 = 3.287 VP60 = 4.177
Decane (-n)						0.0310	0.0257	0.0372	142.2900	0.0336	0.0002	142.29	Option 1: VP50 = 0.26411 VP60 = 0.33211
Ethane						477.7593	431.8129	527.0337	30.0700	0.0005	0.0516	30.07	Option 1: VP50 = 438.71 VP60 = 497.04
Heptane (-n)						0.5535	0.4327	0.7038	100.2000	0.0499	0.0311	100.20	Option 3: A=37358, B=-9.2585
Hexane (-n)						1.7545	1.4148	2.1588	86.1700	0.0787	0.0310	86.17	Option 2: A=6.876, B=1171.17, C=234.41
iso-Butane						36.1072	31.2831	41.4341	58.1300	0.0088	0.0715	58.13	Option 1: VP50 = 31.582 VP60 = 38.144
iso-Pentane						8.8178	7.3824	10.4372	72.1600	0.0250	0.0495	72.15	Option 1: VP50 = 7.592 VP60 = 9.423
Methylcyclopentane						1.5933	1.2851	1.9601	84.1600	0.0105	0.0038	84.16	Option 2: A=6.8628, B=1186.059, C=226.04
n-Butane						24.6056	21.0778	28.5399	58.1300	0.0335	0.1854	58.13	Option 1: VP50 = 21.583 VP60 = 26.098
Nonane (-n)						0.0507	0.0499	0.0736	128.2600	0.1096	0.0015	128.26	Option 1: VP50 = 351285 VP60 = 065278
Octane (-n)						0.1345	0.1091	0.1655	114.2300	0.2094	0.0054	114.23	Option 1: VP50 = 112388 VP60 = 145444
Pentane (-n)						6.3481	5.2897	7.5794	72.1600	0.0407	0.0580	72.15	Option 3: A=27591, B=7.558
Propane						103.0798	90.9417	116.2827	44.1100	0.0201	0.4654	44.11	Option 1: VP50 = 92.73 VP60 = 108.19

**Identification**  
 User Identification: Oak Grove TK-01 thru TK-04  
 City: Moundsville  
 State: West Virginia  
 Company: Williams Ohio Valley Midstream  
 Type of Tank: Vertical Fixed Roof Tank  
 Description: 400 bbl slop liquids storage tank

**Tank Dimensions**  
 Shell Height (ft): 20.00  
 Diameter (ft): 12.00  
 Liquid Height (ft): 20.00  
 Avg. Liquid Height (ft): 10.00  
 Volume (gallons): 16,800.00  
 Turnovers: 59.52  
 Net Throughput(gal/yr): 1,000,000.00  
 Is Tank Heated (y/n): N

**Paint Characteristics**  
 Shell Color/Shade: Gray/Light  
 Shell Condition: Good  
 Roof Color/Shade: Gray/Light  
 Roof Condition: Good

**Roof Characteristics**  
 Type: Cone  
 Height (ft): 0.00  
 Slope (ft/ft) (Cone Roof): 0.06

**Breather Vent Settings**  
 Vacuum Settings (psig): -0.03  
 Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Pittsburgh, Pennsylvania (Avg Atmospheric Pressure = 14.11 psia)

**Emissions Report for: Annual**

**Oak Grove TK-01 thru TK-04 - Vertical Fixed Roof Tank  
 Moundsville, West Virginia**

Components	Losses (lbs)		
	Working Loss	Breathing Loss	Total Emissions
Slop Hydrocarbon Liquids	8,840.14	2,644.02	9,484.17
Propane	3,183.55	1,230.58	4,414.13
Nonane (-n)	10.23	3.95	14.18
Decane (-n)	1.60	0.62	2.22
iso-Butane	489.28	189.12	678.39
n-Butane	1,268.18	490.21	1,758.39
iso-Pentane	338.92	131.01	469.93
Pentane (-n)	396.98	153.44	550.40
Cyclopentane	26.22	10.13	36.35
2,2-Dimethylbutane	18.78	7.26	26.04
2-Methylpentane	133.54	51.62	185.15
3-Methylpentane	81.57	31.53	113.10
Hexane (-n)	212.25	82.04	294.29
Methylcyclopentane	25.83	9.98	35.81
Benzene	2.26	0.87	3.13
Cyclohexane	21.45	8.29	29.74
Heptane (-n)	212.77	82.24	295.01
Octane (-n)	64.06	24.76	88.83
Ethane	352.72	136.34	489.06

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Truck Load-Out**

Unit ID	Description	S	P	MW	T	CE	L <sub>L</sub>	T-Put	VOC AP-42 Sect 5.2		Hex, BTEX, TMP (ea) 3.33% of VOC		Total HAP 20.0% of VOC	
		sat. fac.	psia	lb/lb-mol	°R	%	lb/Mgal	Mgal/yr	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
TLO-1 (14E)	Slop Oil/Condensate	1.45	5.00	51.33	512.55	---	9.05	4,000	27.13	18.09	0.90	0.60	5.43	3.62

Notes: 1 - Emission factors and formulas are from AP-42 Section 5.2 "Transportation and Marketing of Petroleum Liquids":

$$L_L = 12.46 \times S \times P \times MW / T \times (1 - CE)$$

- where:
- L<sub>L</sub> = Loading loss, lb/1000 gal of liquid loaded.
  - S = Saturation factor, use 1.45 for "splash loading".
  - P = True vapor pressure of liquid loaded, psia. Estimated as shown.
  - MW = molecular weight of vapors, lb/lb-mol. Obtained from EPA TANKS 4.0.
  - T = Temperature of bulk liquid loaded, °R = °F + 460. Obtained from EPA TANKS 4.0.
  - CE = Overall emission reduction efficiency (collection efficiency x control efficiency).

5 - Estimated load-out at: **50** gpm; which results in: **1,334** hr/yr of operation.

6 - **Emission factors in AP-42 are NOT EPA-recommended emission limits.** Because emission factors essentially represent an average of a range of emission rates, a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance.

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)

**Amine Process Unit (V-01)**

Unit ID	Description	Flow Rate				VOC (Propane)		CO2		CH4		CO2e	
		MMscfd	lb/hr	Safety	lb/hr	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
V-01 (16E)	Flash Gas	0.0124	40.65	2.50	101.63	NA - See Process Flare (FLR-1 (8E))							
	Pre-Control:	NA - See Process Flare (FLR-1 (8E))											
	Flash Gas Control:	99%						---		99%		---	
	Controlled:	NA - See Process Flare (FLR-1 (8E))											

Unit ID	Description	Flow Rate				VOC (Propane)		CO2		CH4		CO2e	
		MMscfd	lb/hr	Safety	lb/hr	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
V-01 (16E)	Acid Gas	0.4305	1,973.44	2.50	4,933.59	0.11	0.49	4,733	20,732	0.17	0.74	4,738	20,751
	Total:					0.11	0.49	4,733	20,732	0.17	0.74	4,738	20,751

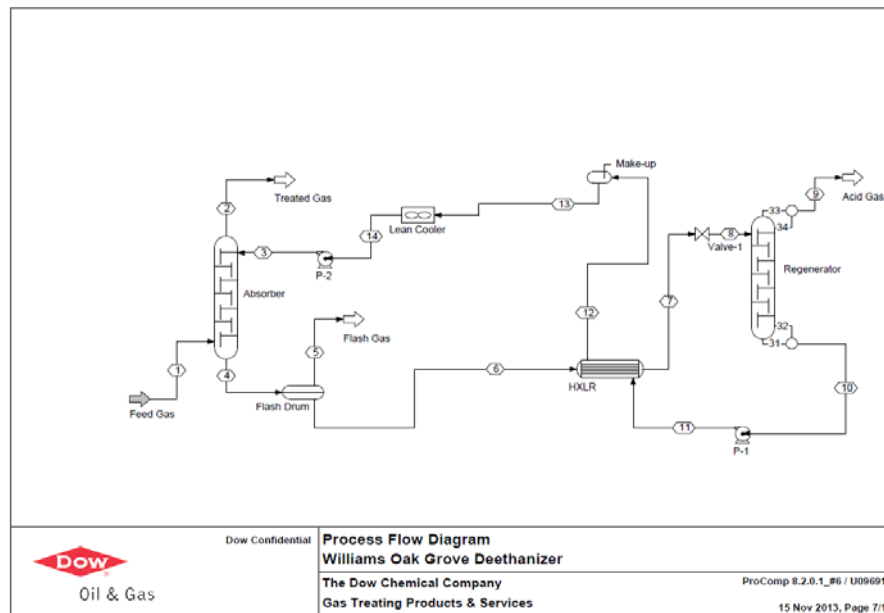
- Notes: 1 - Amine unit emissions based on process simulation done by the Dow Chemical Company Gas Treating Technology Group.  
 2 - The amine unit flash gas will either be used as fuel gas or burned in the flare. Worst-case assumption is the flash gas is sent to the flare for destruction.



**Simulation Summary**  
**Williams Oak Grove Deethanizer**

**Outlet Streams**

STREAM-ID		2	5	9
Stream Name		Treated Gas	Flash Gas	Acid Gas
Outlet Block		Treated Gas	Flash Gas	Acid Gas
Temperature	deg F	125.3454	116.0635	120.0000
Pressure	Psi (g)	642.4893	75.0000	6.4336
Vapor Fraction (mol/mol)	-	1.0000	1.0000	1.0000
Flowrate	lb/hr	2.1313E+05	40.6516	1973.4357
Volume Flow (Liquid)	USgal/min			
Volume Flow (Vapor)	MMSCFD @60F	65.2285	1.2448E-02	0.4305
Water	mass %	0.1622	0.8945	3.5978
Carbon Dioxide	mass %	1.8544E-03	1.2709	95.9423
Nitrogen	mass %	0.0000	0.0000	0.0000
Methane	mass %	1.2983	1.2035	3.4323E-03
Ethane	mass %	97.9399	96.1749	0.4541
Propane	mass %	0.5948	0.4559	2.2814E-03
TOTAL	mass %	100.0000	100.0000	100.0000



Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**

Application for Class II Administrative Update (R13-3070A)

**Reciprocating Compressors - Rod Packing Leaks (RPC)**

Unit Description	No. of Recip Compressors	Cyl per Recip Compressor	scfh per Cylinder	Contingency	Total Leak Rate MMscf/yr	VOC 200		HCHO ---		Hex,BTEX,TMP(Ea) ---		Total HAP ---		CO2 ---		CH4 42,275		CO2e CH4 GWP = 25	
						lb/MMscf	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Rod Packing - Residue	3	6.0	15	15%	2.72	0.06	0.27	---	---	---	---	---	---	---	---	13.13	57.49	328	1,437

Crankcase Emissions (Combustion Gas)			Operating hr/yr: 500		VOC 22.70		HCHO 1.89		Hex,BTEX,TMP(Ea) 0.50		Total HAP 2.98		CO2 12,803		CH4 1		CO2e CH4 GWP = 25		
Unit Description	GEN-1 Horsepower (bhp)	Leak Rate 0.50 scf/bhp-hr MMscf/yr	Safety Factor	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Crankcase - GEN-1	224	0.98	250%	0.11	0.03	0.01	2.3E-03	2.4E-03	6.1E-04	0.01	3.7E-03	63	16	0.00	0.00	63	16		

<b>Total Plant-Wide RPC Emissions:</b>	<b>0.17</b>	<b>0.30</b>	<b>0.01</b>	<b>2.3E-03</b>	<b>2.4E-03</b>	<b>6.1E-04</b>	<b>0.01</b>	<b>3.7E-03</b>	<b>62.81</b>	<b>15.70</b>	<b>13.13</b>	<b>57.49</b>	<b>391</b>	<b>1,453</b>
--	-------------	-------------	-------------	----------------	----------------	----------------	-------------	----------------	--------------	--------------	--------------	--------------	------------	--------------

Notes:

- Misc. equipment leaks is a broad category covering leaks of natural gas from sealed surfaces, such as packing and gaskets, resulting from the wear of mechanical joints, seals, and rotating surfaces over time. It also includes the crankcase emissions from reciprocating engines.
- Rod packing leaks include three (3) TXP1 residue gas reciprocating compressors. Note that the rod packing leaks from the stabilized gas reciprocating compressors are routed to the Flare.
- To be conservative, and to account for potential future changes, the following "worst-case" Residue gas characteristics were assumed:

Pollutant	Representative Gas Analysis	Worst-Case Assumption
CO2	--- lb/MMscf	--- lb/MMscf
CH4	40,322 lb/MMscf	42,275 lb/MMscf
VOC	--- lb/MMscf	200 lb/MMscf
Total HAP	--- lb/MMscf	--- lb/MMscf

- Estimates of Recip Compressor Leaks are based on vendor data w/ an appropriate contingency.
- Engine crankcase emissions are based on vendor data: "As a general rule, blow-by (i.e., crankcase emissions) on a new engine is approximately 0.5 scf/bhp-hr." A "safety factor" is used to account for increasing blow-by as the engines "wear".

6 - Crankcase emissions, from standby generator (GEN-1), are estimated as follows:

(Data from Olympian G150LG2 Data Sheet and Emissions Calculation Spreadsheet.)

Tot Engine Exhaust (TEEx) (Vol)	1,507 acf/min	12 MMscf/yr TEEEx*
Pollutant	GEN-1 PTE	Crankcase Emission Factor**
Crankcase THC emissions (Mass)	0.15 tpy THC	25.58 lb THC / MMscf TEEEx
Crankcase VOC emissions (Mass)	0.13 tpy VOC	22.70 lb VOC / MMscf TEEEx
Crankcase HCHO emissions (Mass)	0.01 tpy HCHO	1.89 lb HCHO / MMscf TEEEx
Crankcase H,BTEX,T (ea) emissions (Mass)	0.001 tpy BTEX	0.22 lb BTEX / MMscf TEEEx
Crankcase HAP (tot) emissions (Mass)	0.02 tpy HAP	2.98 lb HAP / MMscf TEEEx
Crankcase CO2 emissions (Mass)	76 tpy CO2	12,803 lb CO2 / MMscf TEEEx
Crankcase CH4 emissions (Mass)	0.00 tpy CH4	1 lb CH4 / MMscf TEEEx
Crankcase CH4 emissions (Mass)	0.00 tpy N2O	0 lb CH4 / MMscf TEEEx
Crankcase CO2e emissions (Mass)	76 tpy CO2e	12,854 lb CO2e / MMscf TEEEx

\* Conversion from acf/min to scf/yr based on 500 hr/yr, 1,550 oF exhaust temp, and 68 oF std temp.

\*\* Crankcase EmFact = PTE (tpy) from a G150LG2 Engine ÷ Tot Engine Exhaust (TEEx) (MMscf/yr).

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**

Application for Class II Administrative Update (R13-3070A)

**Centrifugal Compressor - Dry Gas Seal Leaks (DGS)**

Unit Description	No. of Turbine Compressors	Leak Rate Per Centrifugal Compressor		Contingency	Total Leak Rate MMscf/yr	VOC 13,600 lb/MMscf		HCHO na lb/MMscf		Hex,BTEX,TMP-Ea 33 lb/MMscf		Total HAP 200 lb/MMscf		CO2 300 lb/MMscf		CH4 37,300 lb/MMscf		CO2e CH4 GWP = 25 lb/MMscf			
		scf/hr	MMscf/yr			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
		Compressors - Inlet	3			16.2	0.14	15%	0.49	0.76	3.33	---	---	1.9E-03	0.01	0.01	0.05	0.02	0.07	2	9

Unit Description	No. of Turbine Compressors	Leak Rate Per Centrifugal Compressor		Contingency	Total Leak Rate MMscf/yr	VOC --- <th colspan="2">HCHO na <th colspan="2">Hex,BTEX,TMP-Ea --- <th colspan="2">Total HAP --- <th colspan="2">CO2 --- <th colspan="2">CH4 42,275 lb/MMscf</th> <th colspan="2">CO2e CH4 GWP = 25 lb/MMscf</th> </th></th></th></th>		HCHO na <th colspan="2">Hex,BTEX,TMP-Ea --- <th colspan="2">Total HAP --- <th colspan="2">CO2 --- <th colspan="2">CH4 42,275 lb/MMscf</th> <th colspan="2">CO2e CH4 GWP = 25 lb/MMscf</th> </th></th></th>		Hex,BTEX,TMP-Ea --- <th colspan="2">Total HAP --- <th colspan="2">CO2 --- <th colspan="2">CH4 42,275 lb/MMscf</th> <th colspan="2">CO2e CH4 GWP = 25 lb/MMscf</th> </th></th>		Total HAP --- <th colspan="2">CO2 --- <th colspan="2">CH4 42,275 lb/MMscf</th> <th colspan="2">CO2e CH4 GWP = 25 lb/MMscf</th> </th>		CO2 --- <th colspan="2">CH4 42,275 lb/MMscf</th> <th colspan="2">CO2e CH4 GWP = 25 lb/MMscf</th>		CH4 42,275 lb/MMscf		CO2e CH4 GWP = 25 lb/MMscf			
		scf/hr	MMscf/yr			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
		Compressors - Residue	5			48.6	0.43	15%	2.45	---	---	---	---	---	---	---	---	---	---	12	52

<b>TOTAL DRY GAS SEAL LEAKS:</b>	<b>0.76</b>	<b>3.33</b>	<b>---</b>	<b>---</b>	<b>1.9E-03</b>	<b>0.01</b>	<b>0.01</b>	<b>0.05</b>	<b>0.02</b>	<b>0.07</b>	<b>14</b>	<b>61</b>	<b>347</b>	<b>1,522</b>
----------------------------------	-------------	-------------	------------	------------	----------------	-------------	-------------	-------------	-------------	-------------	-----------	-----------	------------	--------------

- Notes:
- 1 - Centrifugal compressors in inlet gas service include mole sieve regeneration gas compressors.
  - 2 - Centrifugal compressors in residue gas service include TXP1, TXP2, and TXP3 expander/compressors and TXP2/TXP3 residue gas compressors.
  - 3 - To be conservative, and to account for potential future changes, the following "worst-case" Gas characteristics were assumed:

Inlet Gas	Representative Gas Analysis	Worst-Case Assumption
CO2	219 lb/MMscf	300 lb/MMscf
CH4	31,049 lb/MMscf	37,300 lb/MMscf
VOC	11,271 lb/MMscf	13,600 lb/MMscf
Total HAP	127 lb/MMscf	200 lb/MMscf

Residue Gas	Representative Gas Analysis	Worst-Case Assumption
CO2	---	---
CH4	40,322 lb/MMscf	42,275 lb/MMscf
VOC	---	200 lb/MMscf
Total HAP	---	---

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)  
**Attachment N**

**Process Piping Fugitive Emissions (FUG/15E) (MODIFIED) - Page 01 of 02**

Unit	Description	Component (Unit) Type (Gas/Vapor)	Unit Count	THC Factor lb/hr/Unit	LDAR Control Credit	THC Emission lb/hr	VOC		n-Hexane		BTEX,TMP (Ea)		Total HAP		CO2		CH4		CO2e	
							24.017 Wgt% lb/hr	tpy	0.265 Wgt% lb/hr	tpy	0.018 Wgt% lb/hr	tpy	0.353 Wgt% lb/hr	tpy	0.530 Wgt% lb/hr	tpy	65.870 Wgt% lb/hr	tpy	lb/hr	tpy
FUG/15E	Process Piping Fugitives (Gas/Vapor)	Valves	5,887	0.00992	92%	4.67	1.12	4.92	0.01	0.05	8.3E-04	3.6E-03	0.02	0.07	0.02	0.1	3	13	77	337
		Pump Seals	---	na	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		Pressure Relief	187	0.01940	---	3.63	0.87	3.82	0.01	0.04	6.4E-04	2.8E-03	0.01	0.06	0.02	0.1	2	10	60	262
		Connectors	34,021	0.00044	93%	1.05	0.25	1.10	2.8E-03	0.01	1.9E-04	8.1E-04	3.7E-03	0.02	5.6E-03	0.02	0.7	3	17	76
		Flanges	3,363	0.00086	93%	0.20	0.05	0.21	5.4E-04	2.3E-03	3.6E-05	1.6E-04	7.1E-04	3.1E-03	1.1E-03	4.7E-03	0.1	0.6	3	15
		Open-ended lines	27	0.00441	---	0.12	0.03	0.13	3.2E-04	1.4E-03	2.1E-05	9.2E-05	4.2E-04	1.8E-03	6E-04	3E-03	0.1	0.3	2	9
		Compressors	17	0.00750	---	0.13	0.03	0.13	3.4E-04	1.5E-03	2.3E-05	9.9E-05	4.5E-04	2.0E-03	7E-04	3E-03	0.08	0.4	2	9
<b>Current Permit:</b>	<b>15,098</b>	<b>SubTotal:</b>	<b>43,502</b>	<b>SubTotal (Controlled):</b>			<b>2.35</b>	<b>10.31</b>	<b>0.03</b>	<b>0.11</b>	<b>1.7E-03</b>	<b>7.6E-03</b>	<b>0.03</b>	<b>0.15</b>	<b>0.05</b>	<b>0.2</b>	<b>6</b>	<b>28</b>	<b>161</b>	<b>707</b>
				<b>SubTotal (PRE-Controlled):</b>			<b>19.25</b>	<b>84.34</b>	<b>0.21</b>	<b>0.93</b>	<b>0.01</b>	<b>0.06</b>	<b>0.28</b>	<b>1.24</b>	<b>0.42</b>	<b>1.86</b>	<b>53</b>	<b>231</b>	<b>1,321</b>	<b>5,784</b>

Unit	Description	Component (Unit) Type (Light Liquid)	Unit Count	THC Factor lb/hr/Unit	LDAR Control Credit	THC Emission lb/hr	VOC		n-Hexane		BTEX,TMP (Ea)		Total HAP		CO2		CH4		CO2e	
							100.000 Wgt% lb/hr	tpy	1.254 Wgt% lb/hr	tpy	0.026 Wgt% lb/hr	tpy	1.384 Wgt% lb/hr	tpy	-- Wgt% lb/hr	tpy	-- Wgt% lb/hr	tpy	lb/hr	tpy
FUG/15E	Process Piping Fugitives (Light Oil)	Valves	5,001	0.00551	88%	3.31	3.31	14.49	0.04	0.18	8.6E-04	3.8E-03	0.05	0.20	---	---	---	---	---	---
		Pump Seals	68	0.02866	69%	0.60	0.60	2.65	7.6E-03	0.03	1.6E-04	6.9E-04	8.4E-03	0.04	---	---	---	---	---	
		Pressure Relief	31	0.01653	---	0.51	0.51	2.25	0.01	0.03	1.3E-04	5.8E-04	0.01	0.03	---	---	---	---	---	
		Connectors	7,142	0.00046	93%	0.23	0.23	1.01	2.9E-03	0.01	6.0E-05	2.6E-04	3.2E-03	0.01	---	---	---	---	---	
		Flanges	3,575	0.00024	93%	0.06	0.06	0.27	7.6E-04	3.3E-03	1.6E-05	6.9E-05	8.4E-04	3.7E-03	---	---	---	---	---	
		Open-ended lines	12	0.00309	---	0.04	0.04	0.16	4.6E-04	2.0E-03	9.6E-06	4.2E-05	5.1E-04	2.2E-03	---	---	---	---	---	
		Compressors	---	0.01653	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
<b>Current Permit:</b>	<b>7,689</b>	<b>SubTotal:</b>	<b>15,829</b>	<b>SubTotal (Controlled):</b>			<b>4.75</b>	<b>20.82</b>	<b>0.06</b>	<b>0.26</b>	<b>1.2E-03</b>	<b>5.4E-03</b>	<b>0.07</b>	<b>0.29</b>	---	---	---	---	---	
				<b>SubTotal (PRE-Controlled):</b>			<b>34.24</b>	<b>149.95</b>	<b>0.43</b>	<b>1.88</b>	<b>0.01</b>	<b>0.04</b>	<b>0.47</b>	<b>2.08</b>	---	---	---	---	---	

Notes: 1 - Assumed 8,760 hours per year of fugitive emissions.

2 - Updated component counts from recent LDAR monitoring w/ 15% Contingency

3 - Gas/Vapor emissions calculated using EPA Protocol for Equipment Leak Emission Estimates, 1995, EPA-453/R-95-017

TABLE 2.4 O&G PROD (AVE)	Gas/Vapor		Light Oil	
	kg/hr	lb/hr	kg/hr	lb/hr
Valves	4.50E-03	0.00992	2.50E-03	0.00551
Pump Seals	na	na	1.30E-02	0.02866
Other <sup>(4)</sup>	8.80E-03	0.01940	7.50E-03	0.01653
Connectors	2.00E-04	0.00044	2.10E-04	0.00046
Flanges	3.90E-04	0.00086	1.10E-04	0.00024
Open-ended lines	2.00E-03	0.00441	1.40E-03	0.00309

4 - "Other" components include compressor seals, relief valves, diaphragms, drains, meters, etc.

5 - THC = total hydrocarbons, including methane (CH4) and ethane (C2H6).

6 - VOC = non-methane/non-ethane THC (C3+).

7 - HAP = hazardous air pollutants as designated by EPA, primarily n-hexane/BTEX.

8 - The following gas characteristics were assumed:

Pollutant	Gas/Vapor Estimated	Light Oil Estimated	Pollutant	Gas/Vapor Estimated	Light Oil Estimated
Carbon Dioxide	0.530 Wgt%	-- Wgt%	Toluene	0.018 Wgt%	0.038 Wgt%
Methane	65.870 Wgt%	-- Wgt%	Ethylbenzene	0.018 Wgt%	0.008 Wgt%
VOC (Propane)	24.017 Wgt%	100.000 Wgt%	Xylenes	0.018 Wgt%	0.054 Wgt%
n-Hexane	0.265 Wgt%	1.254 Wgt%	2,2,4-TMP	0.018 Wgt%	0.008 Wgt%
Benzene	0.018 Wgt%	0.023 Wgt%	Total HAP:	0.353 Wgt%	1.384 Wgt%

9 - LDAR Control Credit from "Leak Detection and Repair Compliance Assistance Guidance —A Best Practices Guide" Table 4-1, w/ Quarterly Monitoring and 500 ppm Leak Definition.

Equipment Type and Service	Monthly Monitoring 10,000 ppmv Leak Definition	Control Effectiveness (% Reduction)	
		Quarterly Monitoring 10,000 ppmv Leak Definition	500 ppm Leak Definition <sup>a</sup>
<b>Chemical Process Unit</b>			
Valves - Gas Service <sup>b</sup>	87	67	92
Valves - Light Liquid Service <sup>c</sup>	84	61	88
Pumps - Light Liquid Service <sup>c</sup>	69	45	75
Connectors - All Services			93

Williams Ohio Valley Midstream LLC (OVM)  
**OAK GROVE NATURAL GAS PROCESSING PLANT (OGGP)**  
 Application for Class II Administrative Update (R13-3070A)  
**Attachment N**

**Process Piping Fugitive Emissions (FUG/15E) (MODIFIED) - Page 02 of 02**

Unit	Description	Component (Unit) Type (Light Liquid)	Unit Count	THC Factor lb/hr/Unit	LDAR Control Credit	THC Emission lb/hr	VOC		n-Hexane		BTEX,TMP (Ea)		Total HAP		CO2		CH4		CO2e GWP = 25			
							100.000 Wgt% lb/hr	tpy	1.254 Wgt% lb/hr	tpy	0.026 Wgt% lb/hr	tpy	1.384 Wgt% lb/hr	tpy	0.530 Wgt% lb/hr	tpy	65.870 Wgt% lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
FUG/15E	Process Piping Fugitives (Mixture)	Valves	13	0.00992	88%	0.02	0.02	0.07	1.9E-04	8.5E-04	4.0E-06	1.8E-05	2.1E-04	9.4E-04	8.2E-05	3.6E-04	0.01	0.0	0.3	1		
		Pump Seals	---	0.02866	69%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Pressure Relief	---	0.01940	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		Connectors	21	0.00046	93%	6.8E-04	6.8E-04	3.0E-03	8.5E-06	3.7E-05	1.8E-07	7.8E-07	9.4E-06	4.1E-05	4E-06	1.6E-05	4E-04	2E-03	0.01	0.05		
		Flanges	9	0.00086	93%	5.4E-04	5.4E-04	2.4E-03	6.8E-06	3.0E-05	1.4E-07	6.2E-07	7.5E-06	3.3E-05	3E-06	1.3E-05	4E-04	2E-03	0.01	0.04		
		Open-ended lines	---	0.00441	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Compressors	---	0.01940	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
Current Permit:	0	SubTotal:	43	SubTotal (Controlled):		0.02	0.07	2.1E-04	9.2E-04	4.3E-06	1.9E-05	2.3E-04	1.0E-03	8.8E-05	3.9E-04	0.01	0.05	0.3	1			
				SubTotal (PRE-Controlled):		0.15	0.64	1.8E-03	0.01	3.8E-05	1.7E-04	2.0E-03	0.01	7.8E-04	3.4E-03	0.1	0.4	2	11			
CURRENT PERMIT:	22,787	UPDATED PERMIT:	59,374	TOTAL (Controlled):		7.12	31.21	0.09	0.38	2.97E-03	0.01	0.10	0.44	0.05	0.23	6	28	162	708			
				TOTAL (PRE-Controlled):		53.64	234.93	0.64	2.82	0.02	0.10	0.76	3.32	0.43	1.86	53	232	1,323	5,795			

Notes: 1 - Assumed 8,760 hours per year of fugitive emissions.

2 - Updated component counts from recent LDAR monitoring w/ 15.0% Safety Margin

3 - Gas/Vapor emissions calculated using EPA Protocol for Equipment Leak Emission Estimates, 1995, EPA-453/R-95-017

TABLE 2.4 O&G PROD (AVE)	Mixture (Max)	
	kg/hr	lb/hr
Valves	4.50E-03	0.00992
Pump Seals	1.30E-02	0.02866
Other <sup>(4)</sup>	8.80E-03	0.01940
Connectors	2.10E-04	0.00046
Flanges	3.90E-04	0.00086
Open-ended lines	2.00E-03	0.00441

4 - "Other" components include compressor seals, relief valves, diaphragms, drains, meters, etc.

5 - THC = total hydrocarbons, including methane (CH4) and ethane (C2H6).

6 - VOC = non-methane/non-ethane THC (C3+).

7 - HAP = hazardous air pollutants as designated by EPA, primarily n-hexane/BTEX.

8 - The following gas characteristics were assumed:

Pollutant	Mixture (Max) Estimated	Pollutant	Mixture (Max) Estimated
Carbon Dioxide	0.530 Wgt%	Toluene	0.038 Wgt%
Methane	65.870 Wgt%	Ethylbenzene	0.018 Wgt%
VOC (Propane)	100.000 Wgt%	Xylenes	0.054 Wgt%
n-Hexane	1.254 Wgt%	2,2,4-TMP	0.018 Wgt%
Benzene	0.023 Wgt%	Total HAP:	1.384 Wgt%

9 - LDAR Control Credit from "Leak Detection and Repair Compliance Assistance Guidance —A Best Practices Guide" Table 4-1, w/ Quarterly Monitoring and 500 ppm Leak Definition.

Table 4.1 – Control effectiveness for an LDAR program at a chemical process unit and a refinery.

Equipment Type and Service	Control Effectiveness (% Reduction)		
	Monthly Monitoring 10,000 ppmv Leak Definition	Quarterly Monitoring 10,000 ppmv Leak Definition	500 ppm Leak Definition <sup>a</sup>
<b>Chemical Process Unit</b>			
Valves – Gas Service <sup>b</sup>	87	67	92
Valves – Light Liquid Service <sup>c</sup>	84	61	88
Pumps – Light Liquid Service <sup>c</sup>	69	45	75
Connectors – All Services			93

Source: Protocol for Equipment Leak Emission Estimates, EPA-453/R-95-017, Nov 1995.

<sup>a</sup> Control effectiveness attributable to the HON-negotiated equipment leak regulation (40 CFR 63, Subpart H) is estimated based on equipment-specific leak definitions and performance levels. However, pumps subject to the HON at existing process units have a 1,000 to 5,000 ppm leak definition, depending on the type of process.

<sup>b</sup> Gas (vapor) service means the material in contact with the equipment component is in a gaseous state at the process operating conditions.

<sup>c</sup> Light liquid service means the material in contact with the equipment component is in a liquid state in which the sum of the concentration of individual constituents with a vapor pressure above 0.3 kilopascals (kPa) at 20°C is greater than or equal to 20% by weight.



Potentially Applicable  
**AP-42 and GHG EMISSION FACTORS**  
(Preferentially use test data or vendor data where available)

Pollutant		GAS-FIRED ENGINES			GAS-FIRED TURBINES		
		AP-42 Table 3.2-1; 3.2-2; 3.2-3 07/00			AP-42 Table 3.1-1; 3.1-2a; 3.1-3 04/00		
		2SLB lb/MMBtu	4SLB lb/MMBtu	4SRB lb/MMBtu	Uncontrolled lb/MMBtu	Water Injection lb/MMBtu	Lean Pre-Mix# lb/MMBtu
CRITERIA	NOX (≥ 90% Load)	3.17E+00	4.08E+00	2.21E+00	3.20E-01	1.30E-01	9.90E-02
	CO (≥ 90% Load)	3.86E-01	3.17E-01	3.72E+00	8.20E-02	3.00E-02	1.50E-02
	THC (TOC)	1.64E+00	1.47E+00	3.58E-01	1.10E-02	1.10E-02	1.10E-02
	NMHC (THC-CH4)	1.90E-01	2.20E-01	1.28E-01	2.40E-03	2.40E-03	2.40E-03
	NMNEHC (NMHC-C2H6)	1.19E-01	1.15E-01	5.76E-02	2.10E-03	2.10E-03	2.10E-03
	VOC	1.20E-01	1.18E-01	2.96E-02	2.10E-03	2.10E-03	2.10E-03
	SO2*** (2,000 gr-S/MMscf)	5.88E-04	5.88E-04	5.88E-04	5.88E-04	5.88E-04	5.88E-04
	PM10/2.5 (Filter+Cond)	4.83E-02	9.99E-03	1.94E-02	6.60E-03	6.60E-03	6.60E-03
HAPs	Benzene	1.94E-03	4.40E-04	1.58E-03	1.20E-05	1.20E-05	9.10E-07
	Ethylbenzene	1.08E-04	3.97E-05	2.48E-05	3.20E-05	3.20E-05	3.20E-05
	Formaldehyde (HCHO)	5.52E-02	5.28E-02	2.05E-02	7.10E-04	7.10E-04	2.00E-05
	n-Hexane	4.45E-04	1.11E-03	---	---	---	---
	Toluene	9.63E-04	4.08E-04	5.58E-04	1.30E-04	1.30E-04	1.30E-04
	TMP, 2,2,4- (i-Octane)	8.46E-04	2.50E-04	---	---	---	---
	Xylenes	2.68E-04	1.84E-04	1.95E-04	6.40E-05	6.40E-05	6.40E-05
	Other HAPs	1.96E-02	1.69E-02	9.42E-03	1.06E-04	1.06E-04	1.06E-04
GHG	CO2 (GWP=1)	1.17E+02	1.17E+02	1.17E+02	1.17E+02	1.17E+02	1.17E+02
	CH4 (GWP=25)	1.45E+00	1.25E+00	2.30E-01	8.60E-03	8.60E-03	8.60E-03
	N2O (GWP=298)	2.20E-04	2.20E-04	2.20E-04	3.00E-03	3.00E-03	3.00E-03
	CO2e	1.53E+02	1.48E+02	1.23E+02	1.18E+02	1.18E+02	1.18E+02

(#Lean Pre-Mix - aka: Dry Low Emissions (DLE or DLN) and SoLoNOX)

Pollutant		GAS-FIRED EXTERNAL COMBUSTION			FLARES	DIESEL ENGINES
		AP-42 Table 1.4-1; 1.4-2; 1.4-3 (<100 MMBtu/hr) 07/98			13.5-1 12/16	3.3-1; 3.3-2 10/96
		Uncontrolled lb/MMBtu	LoNOX Burners lb/MMBtu	Flue Gas Recirc lb/MMBtu	(Combustion) lb/MMBtu	Uncontrolled lb/MMBtu
CRITERIA	NOX	9.80E-02	4.90E-02	3.14E-02	External Combustion 3.10E-01  <u>USE</u>  ≥98% DRE  <u>OR</u> External Combustion  <u>AS APPLICABLE</u>	4.41E+00
	CO	8.24E-02	8.24E-02	8.24E-02		9.50E-01
	THC (TOC)	1.08E-02	1.08E-02	1.08E-02		3.60E-01
	NMHC (THC-CH4)	8.53E-03	8.53E-03	8.53E-03		3.53E-01
	NMNEHC (NMHC-C2H6)	5.49E-03	5.49E-03	5.49E-03		3.50E-01
	VOC	5.56E-03	5.56E-03	5.56E-03		3.60E-01
	SO2 (2,000 gr-S/MMscf)	5.88E-04	5.88E-04	5.88E-04		2.90E-01
	PM10/2.5 (Filter+Condense)	7.45E-03	7.45E-03	7.45E-03		3.10E-01
HAPs	Benzene	2.06E-06	2.06E-06	2.06E-06	9.33E-04	
	Ethylbenzene	---	---	---	---	
	HCHO (Formaldehyde)	7.35E-05	7.35E-05	7.35E-05	1.18E-03	
	n-Hexane	1.76E-03	1.76E-03	1.76E-03	---	
	Toluene	3.33E-06	3.33E-06	3.33E-06	4.09E-04	
	2,2,4-TMP (i-Octane)	---	---	---	---	
	Xylenes	---	---	---	2.85E-04	
	Other HAPs	1.86E-06	1.86E-06	1.86E-06	1.05E-03	
GHG	CO2 (GWP=1)	1.18E+02	1.18E+02	1.18E+02	1.64E+02	
	CH4 (GWP=25)	2.25E-03	2.25E-03	2.25E-03	6.61E-03	
	N2O (GWP=298)	2.16E-03	6.27E-04	6.27E-04	1.32E-03	
	CO2e	1.18E+02	1.18E+02	1.18E+02	1.65E+02	

40 CFR 98 - DEFAULT EMISSION FACTORS				
Fuel Type	Table C-1 to Subpart C of Part 98		Table C-2 to Subpart C of Part 98	
	Default HHV	Carbon Dioxide lb CO2/MMBtu	Methane lb CH4/MMBtu	Nitrous Oxide lb N2O/MMBtu
Fuel Oil No. 2 (Diesel)	0.138 MMBtu/gal	1.61E+02	6.61E-03	1.32E-03
<b>Propane</b>	<b>91,000 Btu/gal</b>	<b>1.39E+02</b>	<b>6.61E-03</b>	<b>1.32E-03</b>
Natural Gas	<b>1,026 Btu/scf</b>	1.17E+02	2.20E-03	2.20E-04

Conversion Factors	
1.0 lb =	453.592 g
1.0 kg =	2.2046226 lb
1.0 hp =	2,544.433 Btu/hr
1.0 hp =	745.700 Watt
1.0 kW =	3,412.142 Btu/hr
1.0 kW-hr =	1.340 hp-hr
1.0 ft <sup>3</sup> =	7.481 gal
1.0 gal H <sub>2</sub> O =	8.338 lb
1.0 cf H <sub>2</sub> O =	62.371 gal
1.0 m =	3.281 ft
1.0 km =	0.621 mi
1.0 acre =	43,560.174 ft <sup>2</sup>
1.0 °F =	(°C*9/5)+32
1.0 °R =	°F+459.67
UGC (stp) =	379.482 scf/lb-mol

Global Warming Potential (100 Yr) (GWP)		
Table A-1 to Subpart A of Part 98		
CO2	CH4*	N2O#
1	25	298

**ATTACHMENT O**  
**Monitoring/Recordkeeping/Reporting/Testing Plans**

---

“31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting, and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as Attachment O.”

---

**Williams OVM does NOT propose any changes to the monitoring, recordkeeping, reporting, and testing plans as provided in the current permit (R13-3070A).**

---

## ATTACHMENT P

### Public Notice

---

“32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and Example Legal Advertisement for details). Please submit the **Affidavit of Publication** as Attachment P immediately upon receipt.”

The applicant shall cause such legal advertisement to appear a minimum of one (1) day in the newspaper most commonly read in the area where the facility exists or will be constructed. The notice must be published no earlier than five (5) working days of receipt by this office of your application. The original affidavit of publication must be received by this office no later than the last day of the public comment period.

Types and amounts of pollutants discharged must include all regulated pollutants (PM, PM10, VOC, SO2, Xylene, etc.) and their potential to emit or the permit level being sought in units of tons per year (including fugitive emissions).

- 
- Legal Advertisement (as shown) will be placed in a newspaper of general circulation in the area where the source is located (See 45CSR§13-8.3 thru 45CSR§13-8.5).
  - An Affidavit of Publication shall be submitted immediately upon receipt.
-

**AIR QUALITY PUBLIC NOTICE  
Notice of Application**

Notice is given that Williams Ohio Valley Midstream LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a 45CSR13 New Source Review (NSR) Class II Administrative Update for the existing Oak Grove Gas Plant, located ~3.7 Miles Southeast of Moundsville, and North of Fork Ridge Road, in Marshall County, West Virginia.

Latitude and longitude coordinates are 39.8758 degrees North and -80.6959 degrees West, respectively.

The applicant estimates the increase/(decrease) in the potential to discharge the following regulated air pollutants will be:

- tons of nitrogen oxides per year
- tons of carbon monoxide per year
- (11.29) tons of volatile organic compounds per year
- tons of sulfur dioxide per year
- tons of particulate matter per year
- (0.08) tons of benzene per year
- (0.08) tons of ethylbenzene per year
- tons of formaldehyde per year
- 0.28 tons of n-hexane per year
- (0.09) tons of toluene per year
- (0.09) tons of 2,2,4-trimethylpentane per year
- (0.09) tons of xylenes per year
- (0.15) tons of total hazardous air pollutants per year
- (4,972) tons of carbon dioxide equivalent (CO<sub>2</sub>e) per year

Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated this the \_\_\_\_\_ day of \_\_\_\_\_ 2017.

By: Williams Ohio Valley Midstream LLC  
Paul V. Hunter  
Vice President  
Park Place Corporate Center 2  
2000 Commerce Drive  
Pittsburgh, PA 15275

**ATTACHMENT Q**  
**Business Confidential Claims**  
**(NOT APPLICABLE)**

---

also

**ATTACHMENT R**  
**Authority Forms**  
**(NOT APPLICABLE)**

---

**ATTACHMENT S**  
**Title V Permit Revision Information**

---

**Attachment S**  
**Title V Permit Revision Information**

<b>1. New Applicable Requirements Summary</b>	
Mark all applicable requirements associated with the changes involved with this permit revision:	
<input type="checkbox"/> SIP	<input type="checkbox"/> FIP
<input checked="" type="checkbox"/> <b>Minor source NSR (45CSR13)</b>	<input type="checkbox"/> PSD (45CSR14)
<input type="checkbox"/> NESHAP (45CSR15)	<input type="checkbox"/> Nonattainment NSR (45CSR19)
<input checked="" type="checkbox"/> <b>Section 111 NSPS (Subpart(s) A and OOOO)</b>	<input type="checkbox"/> Section 112(d) MACT standards (Subpart(s) _____)
<input type="checkbox"/> Section 112(g) Case-by-case MACT	<input type="checkbox"/> 112(r) RMP
<input type="checkbox"/> Section 112(i) Early reduction of HAP	<input type="checkbox"/> Consumer/commercial prod. reqts., section 183(e)
<input type="checkbox"/> Section 129 Standards/Reqts	<input type="checkbox"/> Stratospheric ozone (Title VI)
<input type="checkbox"/> Tank vessel reqts, section 183(f)	<input type="checkbox"/> Emissions cap 45CSR§30-2.6.1
<input type="checkbox"/> NAAQS, increments or visibility (temp. sources)	<input type="checkbox"/> 45CSR27 State enforceable only rule
<input type="checkbox"/> 45CSR4 State enforceable only rule (Odors)	<input type="checkbox"/> Acid Rain (Title IV, 45CSR33)
<input type="checkbox"/> Emissions Trading and Banking (45CSR28)	<input type="checkbox"/> Compliance Assurance Monitoring (40CFR64) <sup>(1)</sup>
<input type="checkbox"/> NO <sub>x</sub> Budget Trading Program Non-EGUs (45CSR1)	<input type="checkbox"/> NO <sub>x</sub> Budget Trading Program EGUs (45CSR26)
<sup>(1)</sup> If this box is checked, please include <b>Compliance Assurance Monitoring (CAM) Form(s)</b> for each Pollutants Specific Emission Unit (PSEU) (See Attachment H to Title V Application). If this box is not checked, please explain why <b>Compliance Assurance Monitoring</b> is not applicable:  <b>NA</b>	

<b>2. Non-Applicability Determinations</b>
List all requirements, which the source has determined not applicable to this permit revision and for which a permit shield is requested. The listing shall also include the rule citation and a rationale for the determination.  <b>NA</b>
<input type="checkbox"/> <b>Permit Shield Requested</b> <i>(not applicable to Minor Modifications)</i>
<i>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</i>

**3. Suggested Title V Draft Permit Language**

Are there any changes involved with this Title V Permit revision outside of the scope of the NSR Permit revision?  Yes  No If Yes, describe the changes below.

Also, please provide **Suggested Title V Draft Permit language** for the proposed Title V Permit revision (including all applicable requirements associated with the permit revision and any associated monitoring /recordkeeping/ reporting requirements), OR attach a marked up pages of current Title V Permit. Please include appropriate citations (Permit or Consent Order number, condition number and/or rule citation (e.g. 45CSR§7-4.1)) for those requirements being added / revised.

**1.1 Emission Units: FUG-M | 15E | Piping and Equip Fugitives (Mixed Service) | 2013 | n/a | LDAR**

**4. Active NSR Permits/Permit Determinations/Consent Orders Associated With This Permit Revision**

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
<b>R13-3070A</b>	<b>01/05/2016</b>	<b>1.0 Emission Units: FUG-M   15E   Piping and Equip Fugitives (Mixed Service)   2013   n/a   LDAR</b>

**5. Inactive NSR Permits/Obsolete Permit or Consent Orders Conditions Associated With This Revision**

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
<b>NA</b>	<b>NA</b>	<b>NA</b>

**6. Change in Potential Emissions (vs. R13-3070A)**

Pollutant	Change in Potential Emissions (+ or -), TPY
NOx	<b>NA</b>
CO	<b>NA</b>
VOC	<b>(11.29)</b>
PM	<b>NA</b>
SO2	<b>NA</b>
HAPs	<b>(0.15)</b>
CO2e	<b>(4,972)</b>

*All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.*



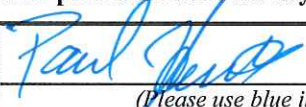
**7. Certification For Use Of Minor Modification Procedures (Required Only for Minor Modification Requests)**

*Note: This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. The criteria for allowing the use of Minor Modification Procedures are as follows:*

- i. Proposed changes do not violate any applicable requirement;
- ii. Proposed changes do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;
- iii. Proposed changes do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient air quality impacts, or a visibility increment analysis;
- iv. Proposed changes do not seek to establish or change a permit term or condition for which there is no underlying applicable requirement and which permit or condition has been used to avoid an applicable requirement to which the source would otherwise be subject (synthetic minor). Such terms and conditions include, but are not limited to a federally enforceable emissions cap used to avoid classification as a modification under any provision of Title I or any alternative emissions limit approved pursuant to regulations promulgated under § 112(j)(5) of the Clean Air Act;
- v. Proposed changes do not involve preconstruction review under Title I of the Clean Air Act or 45CSR14 and 45CSR19;
- vi. Proposed changes are not required under any rule of the Director to be processed as a significant modification;

Notwithstanding subparagraph 45CSR§30-6.5.a.1.A. (items i through vi above), minor permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in rules of the Director which are approved by the U.S. EPA as a part of the State Implementation Plan under the Clean Air Act, or which may be otherwise provided for in the Title V operating permit issued under 45CSR30.

**Pursuant to 45CSR§30-6.5.a.2.C., the proposed modification contained herein meets the criteria for use of Minor permit modification procedures as set forth in Section 45CSR§30-6.5.a.1.A. The use of Minor permit modification procedures are hereby requested for processing of this application.**

(Signed):		Date:	10 / 31 / 2017
	(Please use blue ink)		(Please use blue ink)
Named (typed):	PAUL HUNTER	Title:	VICE PRESIDENT

**Note: Please check if the following included (if applicable):**

- Compliance Assurance Monitoring Form(s)
- Suggested Title V Draft Permit Language

*All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.*

## APPLICATION FEE

---

Include a check payable to WVDEP – Division of Air Quality.

As per WV Rule 22 (45CSR22) filed on May 6, 1991, a **minimum fee of ... \$300 for each Class II administrative update application** filed with the WVDEP-DAQ.

- **Additional charges** may apply, depending on the nature of the application as outlined in Section 3.4.b. of Regulation 22, and shown below:
    - **NSPS Requirements:**            **\$1,000**    **Applicable**
    - NESHAP Requirements:        \$2,500    Not Applicable
    - New Major Source:            \$10,000   Not Applicable
    - Major Modifications:         \$5,000    Not Applicable
  
  - Total application fee is **\$1,300** [= \$300 minimum fee + \$1,000 additional charges]
-



WILLIAMS FIELD SERVICES GROUP LLC  
 PO BOX 21218  
 TULSA, OK 74121-1218

COMPANY NUMBER: 4000

CHECK NUMBER: 4000180806

PAY DATE	SUPPLIER NO.	SUPPLIER NAME	CHECK TOTAL
02-AUG-17	401733	STATE OF WEST VIRGINIA	1,300.00

Invoice Date	Invoice Or Credit Memo / Invoice Description	Gross	Discount	Net
31-JUL-17	31-JUL-17-401733 / PLEASE SEND CHECK OVERNIGHT TO REQU	1,300.00	0.00	1,300.00
		<b>Page Totals</b>	0.00	1,300.00

Supplier Support 1-866-778-2665

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT.

CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.



WILLIAMS FIELD SERVICES GROUP LLC  
 PO BOX 21218  
 TULSA, OK 74121-1218  
 Company Number: 4000

JPMorgan Chase Bank, N.A. 70-2322719  
 Chicago, IL

Check Number: 4000180806

Check Date: 02-AUG-17

One Thousand Three Hundred Dollars And Zero Cents

Pay To The Order Of:

STATE OF WEST VIRGINIA  
 DIVISION OF AIR QUALITY  
 601 57TH ST SE  
 CHARLESTON, WV 25304 United States

PAY (USD) \$1,300.00

*Donna R. Chappell*  
 Authorized Signature

⑈4000180806⑈ ⑆071923226⑆

001013127⑈

MA1353 (6/11)

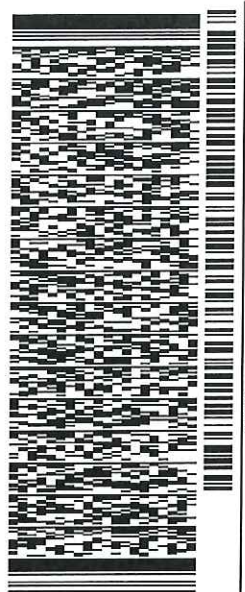
ORIGIN: D-01A (412) 787-4197  
DANIEL ZAWASKI  
WILLIAMS  
2000 COMMERCE DRIVE  
PARK PLACE 2  
PITTSBURGH, PA 15275  
UNITED STATES US

SHIP DATE: 01NOV17  
ACTWTG1: 1.00 LB  
CAD: 104269589/NET3920  
BILL SENDER

TO BEVERLY MCKEONE  
WV DIV OF AIR QUALITY PERMITTING  
601 57TH STREET, SE

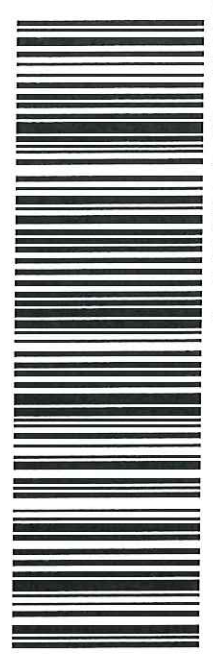
CHARLESTON WV 25304  
(304) 926-0499 X 1260  
NV/  
REF: 94200006100030355 6228 8325  
DEPT:

549J3/F877/104C



TRK# 7706 4670 4502  
0201  
FRI - 03 NOV 4:30P  
\*\* 2DAY \*\*

SH CRWA  
WV-US HTS  
25304



**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

**\*\*\*\*\* End of Application for Class II Administrative Update \*\*\*\***