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

April 6, 2015
(Via Federal Express)

Bev McKeone
New Source Review Program Manager
Division of Air Quality
West Virginia Department of Environmental Protection
601 57th Street SE
Charleston, WV 25304-2345

Subject: **Application for 45CSR13 NSR Permit**
Williams Ohio Valley Midstream LLC
STOUT DEHYDRATION STATION
Marshall County, West Virginia

Dear Ms. McKeone,

Williams Ohio Valley Midstream LLC (OVM) is submitting an Application for 45CSR13 New Source Review (NSR) Permit for the existing, but permit exempt, Stout Dehydration Station, located approximately 0.6 Miles East of State Highway 250, approximately 3.1 Miles Northeast of Cameron in Marshall County, West Virginia.

This application for 45CSR13 NSR Permit has been prepared and submitted as the following changes are proposed to site resulting in emissions above permitting thresholds:

- Increase the Dehydration Unit natural gas throughput from 5 MMscfd to 7 MMscfd
- Increase the Dehydration Unit glycol circulation rate from 0.67 gpm to 1.5 gpm

The facility continues to qualify as a Minor Source under Non-Attainment New Source Review (NNSR), Prevention of Significant Deterioration (PSD), and Title V Operating Permits. The facility is also 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, PE
Environmental Specialist

Enclosures:

Application for NSR Construction Permit w/ Attachments A through S
Check for Application Fee

APPLICATION FOR
45CSR13 NEW SOURCE REVIEW PERMIT

For the:

Williams Ohio Valley Midstream LLC

STOUT DEHYDRATION STATION

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, Suite 2
Moundsville, WV 26041

Prepared by:

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

April 2015

APPLICATION FOR
45CSR13 NSR PERMIT

Williams Ohio Valley Midstream LLC

STOUT DEHYDRATION STATION

Marshall County, West Virginia

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APPLICATION FOR
45CSR13 NSR PERMIT

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WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
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):*
WILLIAMS OHIO VALLEY MIDSTREAM LLC (OVM)

2. Federal Employer ID No. ***(FEIN):***
2 7 – 0 8 5 6 7 0 7

3. Name of facility *(if different from above):*
STOUT COMPRESSOR STATION

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR** ☒ **BOTH**

5A. Applicant's mailing address:
PARK PLACE CORPORATE CENTER 2
2000 COMMERCE DRIVE
PITTSBURGH, PA 15275

5B. Facility's present physical address:
~0.6 MILES EAST OF STATE HIGHWAY 250
~3.1 MILES NORTHEAST OF CAMERON

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☐ **YES** ☒ **NO**
– If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**
– If **NO,** 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.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: **THE WILLIAMS COMPANIES, INC.**

8. Does the applicant own, lease, have an option to buy, or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**
– If **YES,** please explain: **APPLICANT LEASES THE PROPERTY**
– If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.):
1389 - OIL AND GAS FIELD SERVICES, N.E.C.

10. North American Industry Classification System **(NAICS)** code for the facility:
213112 - SUPPORT ACTIVITIES FOR OIL AND GAS OPERATIONS

11A. DAQ Plant ID No. (existing facilities):
NA

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (existing facilities):
NA

12A. Directions to the facility:
– 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;
– For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

FROM MAIN STREET IN CAMERON: A. HEAD EAST ON MAIN ST TOWARD US-250 S/WAYNESBURG PIKE ~150 FT; B. TURN LEFT ONTO US-250 S/WAYNESBURG PIKE AND TRAVEL ~2.5 MI.; C. TURN RIGHT ONTO MOOSE LAKE ROAD AND TRAVEL ~0.5 MI; D. VEER TO THE LEFT ON UNMARKED ROAD AND TRAVEL ~ 0.2 MI TO SITE.

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): **Moose Lake Rd, Cameron, WV 260333**	12C. Nearest city or town: **CAMERON**	12D. County: **MARSHALL**
12.E. UTM Northing (KM): **4,412.906 km Northing**	12F. UTM Easting (KM): **538.846 km Easting**	12G. UTM Zone: **17S**

13. Briefly describe the proposed change(s) at the facility:

THIS APPLICATION IS PREPARED AND SUBMITTED TO:

- **INCREASE THE DEHYDRATION UNIT NATURAL GAS THROUGHPUT FROM 5 MMSCFD TO 7 MMSCFD**
- **INCREASE THE DEHYDRATION UNIT GLYCOL CIRCULATION RATE FROM 0.67 GPM TO 1.5 GPM**

14A. Provide the date of anticipated installation or change: – If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: **NA**	14B. Date of anticipated Start-Up if a permit is granted: **UPON PERMIT ISSUANCE**

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** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day: **24** Days Per Week: **7** Weeks Per Year: **52**

16. Is demolition or physical renovation at an existing facility involved? ☐ **YES** ☒ **NO**

17. **Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U.S. EPA Region III.

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

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

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** (Refer to ***Plot Plan Guidance*****).**
– Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

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

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).

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

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

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

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

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

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

☐ Bulk Liquid Transfer Operations (TLO) ☐ Haul Road Emissions ☐ Quarry

☐ Chemical Processes ☐ Hot Mix Asphalt Plant ☐ Solid Materials Sizing, Handling and Storage Facilities

☐ Concrete Batch Plant ☐ Incinerator

☐ Grey Iron and Steel Foundry ☐ Indirect Heat Exchanger ☐ Storage Tanks

☒ **General Emission Unit, specify:**

- **NATURAL GAS GLYCOL DEHYDRATION UNIT DATA SHEET (RSV-1, RBV-1)**
- **FUGITIVE LEAK SOURCES (FUG-G AND FUG-W)**

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

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

☐ Absorption Systems ☐ Baghouse ☐ Flare

☐ Adsorption Systems ☐ Condenser ☐ Mechanical Collector

☐ Afterburner ☐ Electrostatic Precipitator ☐ Wet Collecting System

☐ Other Collectors, specify:

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**

☐ Authority of Corporation or Other Business Entity ☐ Authority of Partnership

☐ Authority of Governmental Agency ☐ 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: Don Wicburg *(Please use blue ink)* DATE: 3/17/2015 *(Please use blue ink)*

35B. Printed name of signee: **DON WICBURG**	35C. Title: **VICE PRESIDENT AND GENERAL MANAGER**	
35D. E-mail: **DON.WICBURG@WILLIAMS.COM**	36E. Phone: **(304) 843-3158**	36F. FAX: **(304) 843-3131**
36A. Printed name of contact person: **R. DANELL ZAWASKI**	36B. Title: **ENVIRONMENTAL SPECIALIST**	
36C. E-mail: **DANELL.ZAWASKI@WILLIAMS.COM**	36D. Phone: **(412) 787-4259**	36E. FAX: **(412) 787-6002**

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- ☒ **Attachment A: Business Certificate**
- ☒ **Attachment B: Map(s)**
- ☒ **Attachment C: Installation and Start Up Schedule**
- ☒ **Attachment D: Regulatory Discussion**
- ☒ **Attachment E: Plot Plan**
- ☒ **Attachment F: Detailed Process Flow Diagram(s)**
- ☒ **Attachment G: Process Description**
- ☒ **Attachment H: Material Safety Data Sheets (MSDS)**
- ☒ **Attachment I: Emission Units Table**
- ☒ **Attachment J: Emission Points Data Summary Sheet**
- ☒ **Attachment K: Fugitive Emissions Data Summary Sheet**
- ☒ **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**
- ☐ **Attachment Q: Business Confidential Claims) (NA)**
- ☐ **Attachment R: Authority Forms) (NA)**
- ☐ **Attachment S: Title V Permit Revision Information) (NA)**
- ☒ **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:**
  ~0.6 miles East of State Highway 250
  ~3.1 miles Northeast of Cameron
  Cameron, Marshall County, WV 26033

- **Latitude and Longitude:**
  39°51'55.1" North X 80°32'44.9" West
  (39.8653° North x -80.5458° West)

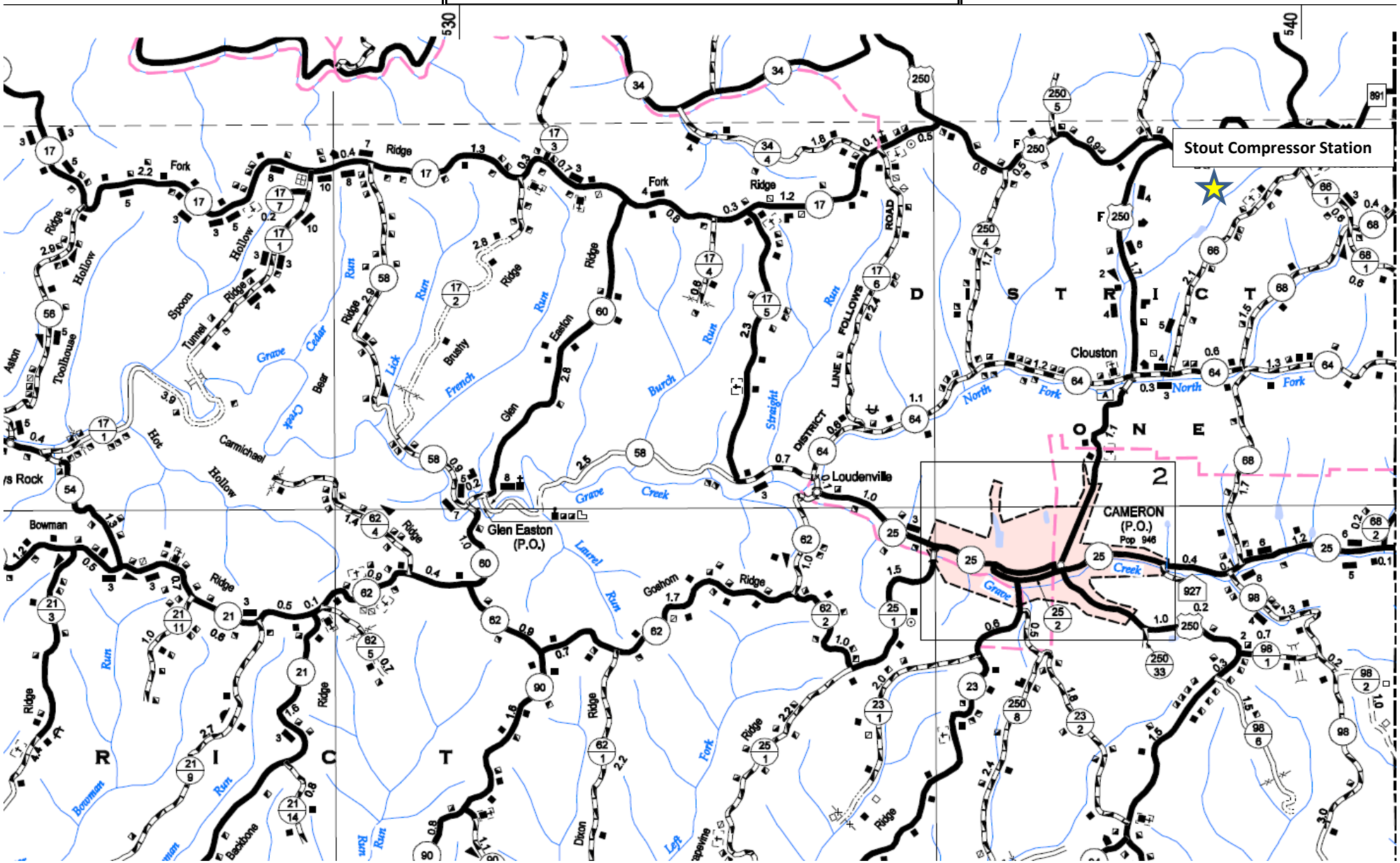
- **UTM:**
  538.846 km Easting x 4,412.906 km Northing x Zone 17

- **Elevation:**
  ~1,300'

- **Directions:**
  From Main Street in Cameron:
  a. Head East Toward US-250S /Waynesburg Pike ~150 Ft
  b. Turn left and travel on US-250S /Waynesburg Pike ~2.5 Mi
  c. Turn right and travel on Moose Lake Rd ~0.5 Mi;
  d. Veer to left and travel on unmarked Rd ~0.2 Mi.

- **USGS:**
  7.5" Topographic – Cameron WV – 2014

Attachment B - Location 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 Stout Dehydration Station is an existing, but permit exempt, operation. This application is prepared and submitted as changes are proposed to the site as follows:

- Increase Glycol Dehydrator Natural Gas Throughput from 5 MMscfd to 7 MMscfd
- Increase Glycol Circulation rate from 0.67 gpm to 1.5 gpm

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

STOUT DEHYDRATION STATION

Application for 45CSR13 Permit

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 production facilities. 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 Natural Minor Source with Pre-Controlled PTE < 250 tpy
- SO2: PSD Natural Minor Source with Pre-Controlled PTE < 250 tpy
- PM10/2.5: PSD Natural Minor Source with Pre-Controlled PTE < 250 tpy
- CO2e: PSD Natural Minor Source with Pre-Controlled PTE < 100,000 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" as follows:

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

4. Title V Operating Permit (TVOP) [Not Applicable]

This rule does not apply. The facility qualifies as a "Title V Minor Source" as follows:

- NOx: Title V Natural Minor Source with Pre-Controlled PTE < 100 tpy
- CO: Title V Natural Minor Source with Pre-Controlled PTE < 100 tpy
- VOC: Title V Natural Minor Source with Pre-Controlled PTE < 100 tpy
- SO2: Title V Natural Minor Source with Pre-Controlled PTE < 100 tpy
- PM10/2.5: Title V Natural Minor Source with Pre-Controlled PTE < 100 tpy
- Each HAP: Title V Natural Minor Source with Pre-Controlled PTE < 10 tpy
- Total HAPs: Title V Natural Minor Source with Pre-Controlled PTE < 25 tpy

B. Applicability of Federal Regulations

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

1. NSPS A, General Provisions

40CFR§60.1-§60.19 [Not Applicable]

This rule does not apply as there are no equipment subject to NSPS regulations.

2. NSPS Dc, Steam Generating Units

40CFR§60.40c-§60.48c [Not Applicable]

This rule does not apply because there is no steam generating unit at the facility with a maximum design heat input capacity ≥ 10 MMBtu/hr and ≤ 100 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 used to store volatile organic liquids (VOL) with a design capacity ≥ 75 m3 (19,815 gal, 471.79 bbl) (§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 the facility is not a natural gas processing plant (§60.630(b)).

6. NSPS LLL, Onshore Natural Gas Processing: SO2 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 [Not Applicable]

This rule does not apply because there is no spark ignition internal combustion engine at the facility (§60.4230(a)).

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 [Not Applicable]

This rule does not apply to the pneumatic controllers because they are either air driven or located between the wellhead and point of custody transfer, are not located at a natural gas processing plant, and their bleed rate is ≤ 6 scfh (§60.5365(d)(i)).

This rule does not apply to the storage vessels because they each have a VOC PTE < 6 tpy (§60.5395). However, records of VOC emissions must be retained to demonstrate continuing exemption status (§60.5420(b)(6)(ii) and (§60.5420 (c)(5)(ii)).

11. NESHAP A, General Provisions
40CFR§63.1-§63.16 [Applicable]

This rule does apply to the 7.0 MMscfd TEG Dehydrator (RSV-1) because it is subject to NESHAP Subpart HH. Requirements include notification and recordkeeping.

12. NESHAP HH, Oil and Natural Gas Production Facilities
40CFR§63.760-§63.779 [Applicable]

This rule does apply to the 7.0 MMscfd TEG Dehydrator (RSV-1). However, because the TEG dehydrator has a benzene PTE < 0.9 megagrams per year, it is exempt from all requirements except to maintain records of actual annual average benzene emissions to demonstrate continuing exemption status (§63.764(e)(1)).

This rule does not apply to storage vessels (tanks), compressors, or ancillary equipment because the facility is an area source of HAP emissions (§63.760(b)(2)). In no case does this rule apply to engines or turbines.

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 [Not Applicable]

This rule does not apply because there is no reciprocating internal combustion engine at the facility (§63.6580).

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

40CFR§68.1-§68.220 [Not Applicable]

This rule does not apply because the facility does not store more than a threshold quantity of a 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, no control device is used to achieve compliance.

20. Mandatory Greenhouse Gases (GHG) Reporting

40CFR§98.1-§98.9 [Not Applicable]

This rule does not apply. The facility is not subject to a listed source category and the aggregate maximum heat input capacity is < 30 MMBtu/hr from all stationary fuel combustion sources combined (§98.2(a)).

C. Applicability of Source Aggregation

For New Source Review (NSR) and Title V permitting, the three-part regulatory criteria 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 industrial grouping; and
ii) Are located on one or more contiguous or adjacent properties; and
iii) Are under control of the same person (or persons under common control).

i) **Same Industrial Grouping**

The subject facility shares the same two-digit major SIC code of 13 as the upstream gas production wells and other Williams' facilities.

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 it is important to focus on this criterion 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."

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 Stout Dehydration Station is the Woodruff Station, which is located 1.2 miles away. The Woodruff Station does not meet the common sense definition of being "contiguous" with or "adjacent" to the Stout Dehydration Station.

The Stout Dehydration Station compresses and dehydrates gas produced from an upstream production well located in northern West Virginia. The subject facility is located on a parcel that is directly adjacent to a pre-existing upstream production wellpad operated by Chevron and is located less than ½ mile from that wellpad.

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 and the initial configuration is merely a foundation for additional opportunities in the area. The subject facility does not need to be located in the immediate vicinity of the upstream wells in order to operate properly. Had suitable land been available elsewhere, the subject facility could have been located farther from the upstream wells and could theoretically be moved farther from the wells without affecting operations. Therefore, despite the fact that the subject facility is located in close proximity to one or many upstream production sources, aggregation of the subject facility with upstream wells 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 Woodruff Station, located approximately 1.2 miles away. This facility is the closest to Stout to have common ownership but it is not "contiguous" with or "adjacent" to the Stout facility.

The production wells, including the Chevron wellpad, that 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 production well or company in West Virginia that may send natural gas to the subject facility.

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 subject facility 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. As future commercial opportunities are identified, the subject facility will potentially receive gas from other producers. 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 reason above, it is clear that Williams does not have common control of any production wells including the Chevron well.

Summary

The subject facility 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. 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 natural gas production facilities. Applicability to the facility has been determined as follows:

1. **Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers**
   45CSR2 [Applicable]

   This rule does apply, however, because the dehydrator reboiler has a maximum design heat input (MDHI) rating < 10 MMBtu/hr, the only requirement is to limit visible emissions to < 10% opacity during normal operations (§45-02-3.1). The reboiler combusts only natural gas which inherently conforms to the visible emission standards.

2. **Prevent and Control the Discharge of Air Pollutants into the Open Air which Causes or Contributes to an Objectionable Odor or 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 [Not Applicable]

   This rule does not apply because there is no refuse combustion performed at the facility.

4. **Prevent and Control Air Pollution from the Emission of Sulfur Oxides**
   45CSR10 [Not Applicable]

   This rule does not apply because each “fuel burning unit” at the facility has a Maximum Design Heat Input (MDHI) rating < 10 MMBtu/hr.

5. **Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation**
   45CSR13 [Applicable]

   This rule does apply. Williams OVM has received a 45CSR13 Permit for the subject facility and has published the required Class I legal advertisement notifying the public of this application to modify the existing permit.

6. **Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants**
   45CSR14 [Not Applicable]

   The rule does not apply because the facility is not a major source of air pollutants.

7. **Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60**
   45CSR16 [Not Applicable]

   This rule does not apply because the facility is not subject to any New Source Performance Standard (NSPS).

8. Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment

45CSR19 [Not Applicable]

This rule does not apply because the facility is a minor (or "deferred") source of all regulated pollutants.

9. Requirements for Operating Permits

45CSR30 [Not Applicable]

This rule does not apply because the facility is a minor (or "deferred") source of all regulated pollutants.

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 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 [Not Applicable]

This rule does not apply because the facility is a non-major "deferred" source of all regulated pollutants.

Pursuant to the authority granted in West Virginia 45CSR§30-3.2 and 45CSR§30A-3.1, the DAQ is extending the deferral, which was set to expire December 15, 2000, of non-major sources subject to West Virginia 45CSR30 (Title V Program) from the obligation to submit an operating permit application.

15. Emission Standards for Hazardous Air Pollutants (HAP)

45CSR34 [Not Applicable]

This rule does not apply because the provisions under Subpart HH of 40 CFR Part 63 which apply to non-major area sources of hazardous air pollutants are excluded.

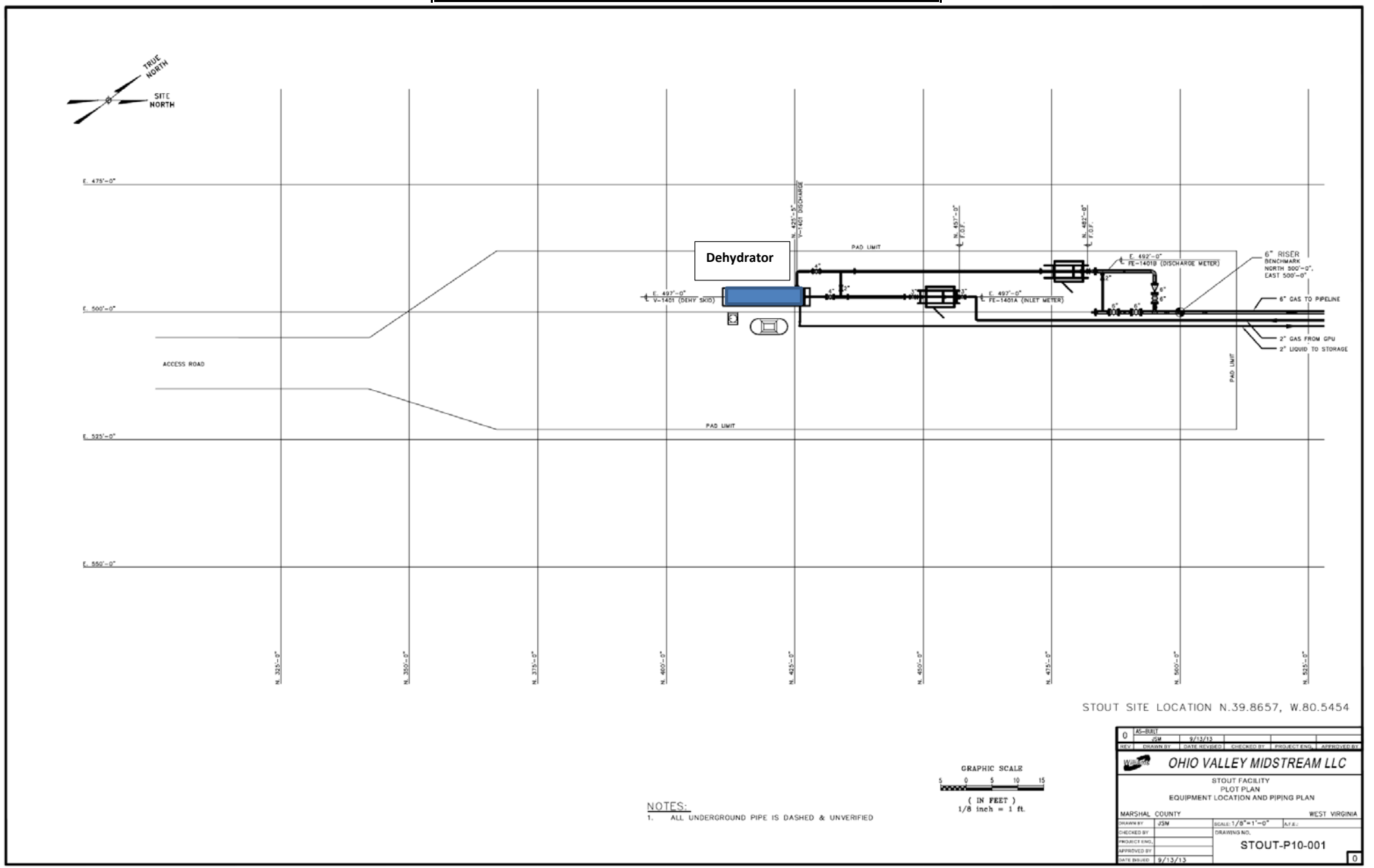
ATTACHMENT E

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**

Attachment E - Plot Plan



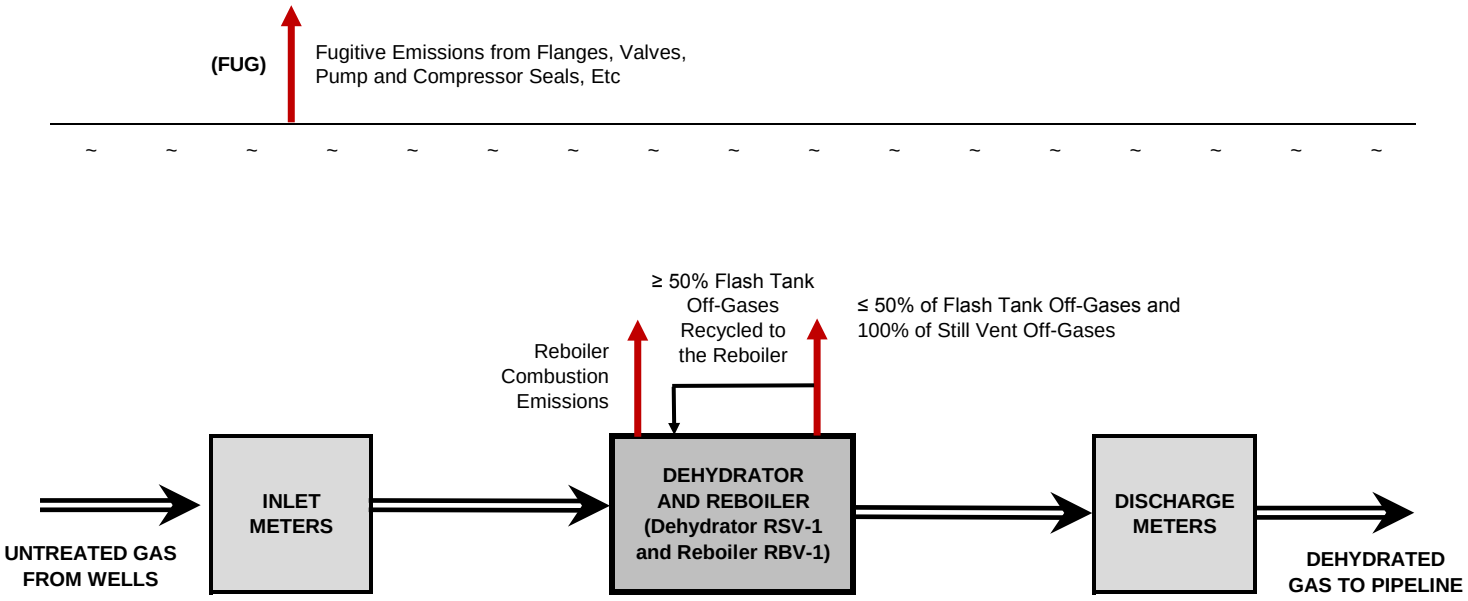
ATTACHMENT F

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)**

Attachment F - Process Flow Diagram (PFD)



ID No.	Company ID	Description
RSV-1 (1E)	Dehy 01	7.0 MMscfd Dehydrator
RBV-1 (2E)	Reboiler 01	0.22 MMBtu/hr Reboiler
FUG (1F, 2F)	Fugitives	Piping and Process Fugitives

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. Triethylene Glycol (TEG) Dehydrator
  - C. Triethylene Glycol (TEG) Reboiler
  - D. Piping and Equipment Fugitive Emissions

Williams Ohio Valley Midstream LLC

STOUT DEHYDRATION STATION

Application for 45CSR13 Permit

Attachment G

PROCESS DESCRIPTION

A. Project Overview

Williams Ohio Valley Midstream LLC owns and operates the existing Stout Dehydration Station located located approximately 0.6 Miles East of State Highway 250, approximately 3.1 Miles Northeast of Cameron in Marshall County (See Appendix B – Site Location Maps). The facility receives natural gas from local production wells then dehydrates the gas for delivery to a gathering pipeline.

This application is prepared and submitted as changes are proposed to the site as follows:

- Increase glycol dehydration unit throughput capacity from 5 MMscfd to 7 MMscfd
- Increase Glycol Circulation rate from 0.67 gpm to 1.5 gpm

B. Tri-Ethylene Glycol (TEG) Dehydrator

One (1) Triethylene Glycol (TEG) Dehydrator is utilized at the facility. The dehydrator is comprised of a Contactor/Absorber Tower (no vented emissions), a Flash Tank, and a Regenerator/Still Vent.

The TEG Dehydrator is used to remove water vapor from the inlet wet gas stream to meet pipeline specifications. In the dehydration process, the wet inlet gas stream flows through a contactor tower where the gas is contacted with lean glycol. The lean glycol absorbs the water in the gas stream and becomes rich glycol laden with water and trace amounts of hydrocarbons.

The rich glycol is then routed to a flash tank where the glycol pressure is reduced to liberate the lighter end hydrocarbons (especially methane). Whenever practical, the lighter end hydrocarbons are routed from the flash tank to the Reboiler for use as fuel; otherwise these off-gases are vented to the atmosphere.

The rich glycol is then sent from the flash tank to the regenerator/still where the TEG is heated to drive off the water vapor and any remaining hydrocarbons. Once boiled, the glycol is returned to a lean state and used again in the process.

C. Tri-Ethylene Glycol (TEG) Reboiler

Tri-Ethylene Glycol (TEG) Reboiler is utilized to supply heat for the Triethylene Glycol (TEG) Regenerator/Still Vent.

D. Piping and Equipment Fugitive Emissions

Piping and process equipment generate from leaks from different component types (connectors, valves, pumps, etc.) in gas-vapor service and water/oil service.

ATTACHMENT H

Material Safety Data Sheets (MSDS)

(And Representative Gas Analysis)

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

- **NATURAL GAS**
  - Natural Gas Composition
  - Extended Gas Analysis

- **MATERIAL SAFETY DATA SHEETS (MSDS):**
  - Natural Gas
  - Triethylene Glycol (TEG)

Williams Ohio Valley Midstream LLC

STOUT DEHYDRATION STATION

Application for 45CSR13 NSR Permit

Attachment H

INLET GAS COMPOSITION - SUMMARY

Representative Inlet Gas Composition (Stout DS - Sampled 07/02/13)

Compound	CAS	Formula	Molecular Weight (MW)	Mole % (M% = V%)	Mole Fraction (M%/Sum-M%)	Weighted Sum (MW*MF)	Weight % (WS/Sum-WS)	lb/MMscf (WS/UGC#)
Nitrogen	7727-37-9	N2	28.013	**0.3187**	0.003187	0.0893	0.4698	235.26
Hydrogen Sulfide	2148-87-8	H2S	34.086	**---**	---	---	---	---
Carbon Dioxide	124-38-9	CO2	44.010	**0.1530**	0.001530	0.0673	0.3543	177.44
Methane*	75-82-8	CH4	16.042	**84.5273**	0.845273	13.5603	71.3585	35,733.60
Ethane*	74-84-0	C2H6	30.069	**11.2796**	0.112796	3.3917	17.8481	8,937.62
Propane**	74-98-6	C3H8	44.096	**2.5254**	0.025254	1.1136	5.8601	2,934.50
i-Butane**	75-28-5	C4H10	58.122	**0.3476**	0.003476	0.2020	1.0632	532.39
n-Butane**	106-97-8	C4H10	58.122	**0.4669**	0.004669	0.2714	1.4281	715.11
Cyclopentane**	287-92-3	C5H10	70.100	**0.0000**	---	---	---	---
i-Pentane**	78-78-4	C5H12	72.149	**0.1395**	0.001395	0.1006	0.5296	265.22
n-Pentane**	109-66-0	C5H12	72.149	**0.0865**	0.000865	0.0624	0.3284	164.46
Cyclohexane**	110-82-7	C6H12	84.159	**0.0069**	0.000069	0.0058	0.0306	15.30
Other Hexanes**	varies	C6H14	86.175	**0.0624**	0.000624	0.0538	0.2830	141.70
Methylcyclohexane**	varies	C7H14	98.186	**0.0058**	0.000058	0.0057	0.0300	15.01
Heptanes**	varies	C7H16	100.202	**0.0346**	0.000346	0.0347	0.1824	91.36
C8+ Heavies**	varies	C8+	114.229	**0.0153**	0.000153	0.0175	0.0920	46.05
Benzene***	71-43-2	C6H6	78.112	**0.0007**	0.000007	0.0005	0.0029	1.44
Ethylbenzene***	100-41-4	C8H10	106.165	**0.0000**	0.000000	0.0000	0.0000	0.00
n-Hexane***	110-54-3	C6H14	86.175	**0.0247**	0.000247	0.0213	0.1120	56.09
Toluene***	108-88-3	C7H8	92.138	**0.0018**	0.000018	0.0017	0.0087	4.37
2,2,4-TMP (i-octane)***	540-84-1	C8H18	114.229	**0.0000**	---	---	---	---
Xylenes***	1330-20-7	C8H10	106.165	**0.0033**	0.000033	0.0035	0.0184	9.23
Totals:				**100.00**	**1.0000**	**19.0030**	**100.00**	**50,076.18**
THC:				**99.53**	**0.9953**	**18.8464**	**99.18**	**49,663.47**
Total VOC:				**3.72**	**0.0372**	**1.8945**	**9.97**	**4,992.25**
Total HAP:				**0.03**	**0.0003**	**0.0270**	**0.14**	**71.13**

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

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

To be conservative, the following "worst-case" values were assumed:

Compound	CAS	Formula	Representative Gas Analysis			Assumed "Worst-Case" Parameters		
			Mole %	Wgt %	lb/MMscf	Mole %	Wgt %	lb/MMscf
Carbon Dioxide	124-38-9	CO2	0.153	0.354	177.44	0.259	0.599	300.00
Methane	75-82-8	CH4	84.527	71.358	35,733.60	100.001	75.000	42,275.00
Ethane	74-84-0	CH5	11.280	17.848	8,937.62	13.630	25.000	10,800.00
VOC (Propane)	74-98-6	C3H8	3.721	9.969	4,992.25	4.473	11.982	6,000.00
Benzene	71-43-2	C6H6	0.0007	0.0029	1.44	0.0049	0.0200	10.00
Ethylbenzene	100-41-4	C8H10	0.0000	0.0000	0.00	0.0300	0.1500	10.00
n-Hexane	110-54-3	C6H14	0.0247	0.1120	56.09	0.0308	0.1398	70.00
Toluene	108-88-3	C7H8	0.0018	0.0087	4.37	0.0041	0.0200	10.00
2,2,4-TMP (i-octane)	540-84-1	C8H18	0.0000	---	---	0.0050	0.0150	10.00
Xylenes	1330-20-7	C8H10	0.0033	0.0184	9.23	0.0300	0.1500	20.00
Total HAP:	Various	C6 thru C8	0.0305	0.1421	71.13	0.0557	0.2596	130.00

EXTENDED GAS ANALYSIS

J-W Measurement Company
Canonsburg, PA
724-749-5180

Customer	: 2259 - WILLIAMS	**Date Sampled**	: 07/02/2013
Station ID	: 52062-50	**Date Analyzed**	: 07/11/2013
Cylinder ID	: W1105	**Effective Date**	: 08/01/2013
Producer	: 009402-TRANS ENERGY INC	**Cyl Pressure**	: 863
Lease	: STOUT MASTER	**Temp**	: 67
Area	: 500 - OHIO VALLEY MID	**Cylinder Type**	: Spot
State	: WV	**Sample By**	: JR

COMPONENT	MOL%	GPM@14.73(PSIA)
Oxygen	0.0000	0.000
Nitrogen	0.3187	0.000
Methane	84.5273	0.000
Carbon-Dioxide	0.1530	0.000
Ethane	11.2796	3.025
Propane	2.5254	0.698
Iso-Butane	0.3476	0.114
Normal-Butane	0.4669	0.148
Iso-Pentane	0.1395	0.051
Normal-Pentane	0.0865	0.031
2,2-Dimethylbutane	0.0071	0.003
2,3-Dimethylbutane/CycloC5	0.0078	0.003
2-methylpentane	0.0292	0.012
3-methylpentane	0.0183	0.007
Normal-Hexane	0.0247	0.010
2,2-Dimethylpentane	0.0007	0.000
Methylcyclopentane	0.0043	0.002
BENZENE	0.0007	0.000
3,3-Dimethylpentane	0.0028	0.001
CYCLOHEXANE	0.0026	0.001
2-Methylhexane	0.0124	0.006
2,3-Dimethylpentane	0.0027	0.001
3-Methylhexane	0.0081	0.004
1,t2-DMCYC5 / 2,2,4-TMC5	0.0002	0.000
1,t3-Dimethylcyclopentane	0.0001	0.000
N-Heptane	0.0079	0.004
METHYLCYCLOHEXANE	0.0055	0.003
2,5-Dimethylhexane	0.0008	0.000
2,3-Dimethylhexane	0.0009	0.000
M-XYLENE/P-XYLENE	0.0000	0.000
TOLUENE	0.0018	0.001
2-Methylheptane	0.0029	0.001
4-Methylheptane	0.0012	0.001
3-Methylheptane	0.0018	0.001
1,t4-Dimethylcyclohexane	0.0006	0.000
N-OCTANE / 1,T2-DMCYC6	0.0026	0.001
1,t3-DMCYC6/1,C4-DMCYC6/1,C2,C3-TMCYC5	0.0000	0.000
2,4,4 TMC6	0.0000	0.000
2,6-Dimethylheptane / 1,C2-DMCYC6	0.0005	0.000
Ethylcyclohexane	0.0000	0.000
ETHYLBENZENE	0.0000	0.000
M-XYLENE	0.0020	0.001
P-XYLENE	0.0013	0.001
O-XYLENE	0.0000	0.000
NONANE	0.0014	0.001
N-DECANE	0.0014	0.001
N-UNDECANE	0.0012	0.001
TOTAL	**100.0000**	**4.134**

SAFETY DATA SHEET

1. Identification

Product identifier	**Natural Gas**
Other means of identification	Not available.
Synonyms	Methane, Natural Gas Sweet, Fuel Gas, Petroleum Gas, Methyl Hydride
Recommended use	Fuel.
Recommended restrictions	None known.

Manufacturer / Importer / Supplier / Distributor information

Company name	Williams, Inc.
Address	One Williams Center Tulsa, OK 74172 US
Telephone	800-688-7507
E-mail	enterpriseehs@williams.com
Emergency phone number	888-677-2370

2. Hazard(s) identification

Physical hazards	Flammable gases	Category 1
	Gases under pressure	Compressed gas
Health hazards	Not classified.	
OSHA hazard(s)	Simple asphyxiant	

Label elements

Hazard symbol

Signal word	Danger
Hazard statement	Extremely flammable gas. Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.

Precautionary statement

Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Response	Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.
Storage	Protect from sunlight. Store in a well-ventilated place.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Not classified.

3. Composition/information on ingredients

Substance

Hazardous components

Chemical name	Common name and synonyms	CAS number	%
Natural gas		8006-14-2	100

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation	Move injured person into fresh air and keep person calm under observation. If breathing is difficult, give oxygen. Get medical attention if any discomfort continues.
Skin contact	Frostbite: Do not remove clothes, but flush with copious amounts of lukewarm water. Call an ambulance and continue to flush during transportation to hospital.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

Ingestion	This material is a gas under normal atmospheric conditions and ingestion is unlikely.
Most important symptoms/effects, acute and delayed	Narcosis. Behavioral changes. Decrease in motor functions.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Extinguish with foam, carbon dioxide, dry powder or water fog.
Unsuitable extinguishing media	None.
Specific hazards arising from the chemical	Extremely flammable gas. Closed containers can burst violently when heated, due to excess pressure build-up. Gas may travel considerable distance to a source of ignition and flash back. Gases may form explosive mixtures with air. Fire or high temperatures create: Carbon monoxide. Carbon oxides. Sulfur oxides.
Special protective equipment and precautions for firefighters	Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with full face-piece operated in positive pressure mode. Use approved gas detectors in confined spaces.
Fire-fighting equipment/instructions	Evacuate area. Move container from fire area if it can be done without risk. Stay away from ends of tanks. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect men attempting to stop a leak. Cool equipment exposed to flames with water, if it can be done without risk. Close the valve if no risk is involved. Do not extinguish a leaking gas fire unless leak can be stopped. If leak cannot be stopped and no danger to surrounding area allow the fire to burn out. Fight fire from a protected location. Prevent buildup of vapors or gases to explosive concentrations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Extremely flammable. Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Beware of accumulation in low areas or contained areas, where explosive concentrations may occur. Prevent from entering drains or any places where accumulation may occur. Ventilate well and allow to evaporate. Stay upwind. Avoid inhalation and contact with skin and eyes. For large spillages notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate personal protective equipment (See Section 8).
Methods and materials for containment and cleaning up	In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.
Environmental precautions	Stop leak if possible without any risk. Water may be useful in minimizing or dispersing vapors. If spill occurs on water notify appropriate authorities in accordance with all applicable regulations.

7. Handling and storage

Precautions for safe handling	Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Observe good industrial hygiene practices. Wear appropriate personal protective equipment (See Section 8). Contents under pressure. Gas can accumulate in confined spaces and limit oxygen available for breathing. Use only with adequate ventilation. Use non-sparking hand tools and explosion-proof electrical equipment. The product can accumulate electrostatic charges, which may cause an electrical spark (ignition source). Ground container and transfer equipment to eliminate static electric sparks. Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content, hydrogen sulfide (H2S) and flammability. Cold burns may occur during filling operations. Containers and delivery lines may become cold enough to present cold burn hazard. The use hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion products (e.g. carbon monoxide, oxides of sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels.

Conditions for safe storage, including any incompatibilities	Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post areas "No Smoking or Open Flame." Store away from incompatible materials. Protect against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes. Empty containers may contain flammable product residues. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
Natural gas (CAS 8006-14-2)	TWA	1000 ppm

Biological limit values	No biological exposure limits noted for the ingredient(s).
Exposure guidelines	No exposure standards allocated.
Appropriate engineering controls	Provide shower facilities near the work place. In confined spaces, make sure the area is well-ventilated and sufficient oxygen (19.5%) exists before entry. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear approved safety glasses as a good hygiene practice.
Skin protection	
Hand protection	Wear suitable gloves as a good hygiene practice.
Other	Wear suitable protective clothing.
Respiratory protection	A NIOSH approved, self-containing breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used in situations of oxygen deficiency (oxygen content less than 19.5 percent), unknown exposure concentrations, or situations that are immediately dangerous to life or health (IDLH). A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever work place conditions warrant a respirator's use.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	Colorless gas.
Physical state	Gas Compressed.
Form	Gas.
Color	Colorless.
Odor	Odorless to slight, sweet.
Odor threshold	Not available.
pH	Not applicable.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	-259.6 °F (-162 °C)
Flash point	-304.6 °F (-187 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Extremely flammable gas.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	5 %
Flammability limit - upper (%)	15 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.

Vapor pressure	40 mm Hg (77°F/25°C)
Vapor density	0.55 Approximate.
Relative density	Not available.
Solubility(ies)	Slightly soluble in water.
Partition coefficient (n-octanol/water)	1.81
Auto-ignition temperature	> 550.4 °F (> 288 °C)
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Percent volatile	100

10. Stability and reactivity

Reactivity	The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Polymerization will not occur.
Conditions to avoid	Heat, sparks, flames, elevated temperatures. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
Incompatible materials	Oxidizing agents.
Hazardous decomposition products	Carbon oxides. Sulfur oxides.

11. Toxicological information

Information on likely routes of exposure

Ingestion	This material is a gas under normal atmospheric conditions and ingestion is unlikely.
Inhalation	High concentrations: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. In high concentrations, vapors are narcotic and may cause headache, fatigue, dizziness and nausea.
Skin contact	Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.
Eye contact	Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.
Symptoms related to the physical, chemical and toxicological characteristics	Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Contact with evaporating liquid may cause frostbite or freezing of skin. Symptoms of overexposure can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting, and are reversible if exposure is stopped. Continued exposure can lead to hypoxia (inadequate oxygen), rapid breathing, cyanosis (bluish discoloration of skin), numbness of the extremities, unconsciousness and death.

Information on toxicological effects

Acute toxicity	Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn").

Product	Species	Test Results
Natural gas (CAS 8006-14-2)		
Acute		
Oral		
LD50	Rat	> 5 g/kg

Skin corrosion/irritation	Not classified.
Serious eye damage/eye irritation	Not classified.
Respiratory sensitization	Not classified.
Skin sensitization	Not a skin sensitizer.
Germ cell mutagenicity	Not classified.
Carcinogenicity	Not classified.
Reproductive toxicity	Not classified.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.

Aspiration hazard	Not applicable.
Chronic effects	Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity	Not expected to be harmful to aquatic organisms.
Persistence and degradability	The hydrocarbons in this material are expected to be inherently biodegradable. In practice, hydrocarbon gases are not likely to remain in solution long enough for biodegradation to be a significant loss process. Hydrogen sulfide, if present in refinery gas streams, will be oxidized in water and insoluble sulfides precipitated from water when metallic radicals are present.
Bioaccumulative potential	The product is not expected to bioaccumulate.

Partition coefficient n-octanol / water (log Kow)

Natural gas	1.81

Mobility in soil	Not relevant, due to the form of the product.
Mobility in general	The product is a volatile substance, which may spread in the atmosphere.
Other adverse effects	The product is a volatile organic compound which has a photochemical ozone creation potential.

13. Disposal considerations

Disposal instructions	This material is a gas and would not typically be managed as a waste.
Local disposal regulations	Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.
Hazardous waste code	D001
Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1971
UN proper shipping name	Natural gas, compressed
Transport hazard class(es)	2.1
Subsidary class(es)	Not available.
Packing group	Not available.
Special precautions for user	Not available.
Labels required	2.1
Packaging exceptions	306
Packaging non bulk	302
Packaging bulk	302

IATA

UN number	UN1971
UN proper shipping name	Natural gas, compressed
Transport hazard class(es)	2.1
Subsidary class(es)	-
Packaging group	Not available.
Environmental hazards	No
Labels required	2.1
ERG Code	10L
Special precautions for user	Not available.

IMDG

UN number	UN1971
UN proper shipping name	NATURAL GAS, COMPRESSED
Transport hazard class(es)	2.1
Subsidary class(es)	-
Packaging group	Not available.
Environmental hazards	
Marine pollutant	No
Labels required	2,1
EmS	F-D, S-U
Special precautions for user	Not available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available.

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

CERCLA Hazardous Substance List (40 CFR 302.4)

Natural gas (CAS 8006-14-2) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - Yes
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

No

SARA 311/312 Hazardous chemical

Yes

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

Food and Drug Administration (FDA)

Not regulated.

US state regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

Natural gas (CAS 8006-14-2)

US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

US. Pennsylvania RTK - Hazardous Substances

Natural gas (CAS 8006-14-2)

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last version

Issue date	11-08-2012
Revision date	-
Version #	01
Further information	Not available.
References	Registry of Toxic Effects of Chemical Substances (RTECS)
Disclaimer	This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.

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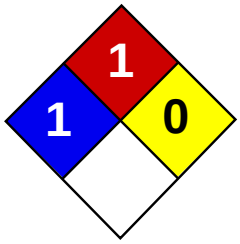

Health	1
Fire	1
Reactivity	0
Personal Protection	J

Material Safety Data Sheet
Triethylene glycol MSDS

Section 1: Chemical Product and Company Identification

Product Name: Triethylene glycol

Catalog Codes: SLT2644

CAS#: 112-27-6

RTECS: YE4550000

TSCA: TSCA 8(b) inventory: Triethylene glycol

CI#: Not available.

Synonym: 2,2'-[1,2-Ethanediylbis(oxy)]bisethanol

Chemical Formula: C6H14O4

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Triethylene glycol	112-27-6	100

Toxicological Data on Ingredients: Triethylene glycol: ORAL (LD50): Acute: 17000 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of eye contact (irritant), of ingestion. Slightly hazardous in case of inhalation. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:
Very hazardous in case of eye contact (irritant). Slightly hazardous in case of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, the nervous system. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact: No known effect on skin contact, rinse with water for a few minutes.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not available.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 371°C (699.8°F)

Flash Points: CLOSED CUP: 177°C (350.6°F). OPEN CUP: 165.5°C (329.9°F).

Flammable Limits: LOWER: 0.9% UPPER: 9.2%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Avoid contact with eyes If ingested, seek medical advice immediately and show the container or the label.

Storage:

Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Splash goggles. Lab coat.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Hygroscopic liquid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 150.18 g/mole

Color: Colorless.

pH (1% soln/water): Not available.

Boiling Point: 285°C (545°F)

Melting Point: -5°C (23°F)

Critical Temperature: Not available.

Specific Gravity: 1.1274 (Water = 1)

Vapor Pressure: Not available.

Vapor Density: 5.17 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 17000 mg/kg [Rat].

Chronic Effects on Humans: The substance is toxic to kidneys, the nervous system.

Other Toxic Effects on Humans:
Very hazardous in case of ingestion. Slightly hazardous in case of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Triethylene glycol TSCA 8(b) inventory: Triethylene glycol

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC): R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 1

Reactivity: 0

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Not applicable. Lab coat. Not applicable. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:31 PM

Last Updated: 05/21/2013 12:00 PM

ATTACHMENT I

Emission Units Table

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

- **Emissions Unit Table**

Williams Ohio Valley Midstream LLC

STOUT DEHYDRATION STATION

Application for 45CSR13 NSR Permit

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[1]	Emission Point[2]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
Point Sources						
RSV-1	1E	TEG Dehydrator - Still Vent/Flash Tank	2012	7.0 MMscfd	Existing	na
RBV-1	2E	TEG Dehydrator - Reboiler	2012	0.22 MMBtu/hr	Existing	na
Fugitive Sources						
FUG-G	1F	Piping and Equipment Fugitives - Gas	2012	1,737 units	Existing	na
FUG-W	2F	Piping and Equipment Fugitives - Water/Oil	2012	871 units	Existing	na

[1] For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S, ... or other appropriate designation.
[2] For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.
[3] New, modification, removal, etc.
[4] 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**
- **Table 2 – Release Parameter Data**

Williams Ohio Valley Midstream LLC

STOUT DEHYDRATION STATION

Application for 45CSR13 NSR Permit

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[1]	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[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions[4]		Maximum Potential Controlled Emissions[5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used[6]	Emission Concentration[7] *(ppmv or mg/m^3)*
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
RSV-1 (1E)	Upward Vertical Stack	RSV-1 (1E)	RSV-1 (1E)	na	na	C	8,760	NOX	---	---	---	---	---	---	
								CO	---	---	---	---	---	---	
		TEG Dehydrator - Still Vent/Flash Tank						VOC	6.74	29.53	6.74	29.53	Gas	Model	
								SO2	---	---	---	---	Gas	---	
								PM10/2.5	---	---	---	---	---	---	
								Benzene	0.11	0.47	0.11	0.47	Gas	Model	
								Ethylbenzene	0.17	0.74	0.17	0.74	Gas	Model	
								HCHO	---	---	---	---	Gas	Model	
								n-Hexane	0.10	0.46	0.10	0.46	Gas	Model	
								Toluene	0.45	1.97	0.45	1.97	Gas	Model	
								2,2,4-TMP	---	---	---	---	Gas	Model	
								Xylenes	1.43	6.29	1.43	6.29	Gas	Model	
								Other HAP	---	---	---	---	Gas	Model	
								Total HAP	2.27	9.93	2.27	9.93	Gas	Model	
								CO2e	374	1,638	374	1,638	Gas	Model	
RBV-1 (2E)	Upward Vertical Stack	RBV-1 (2E)	RBV-1 (2E)	na	na	C	8,760	NOX	0.02	0.10	0.02	0.10	Gas	AP-42	
								CO	0.02	0.08	0.02	0.08	Gas	AP-42	
		TEG Dehydrator - Reboiler						VOC	1.2E-03	0.01	1.2E-03	0.01	Gas	AP-42	
								SO2	1.3E-04	5.7E-04	1.3E-04	5.7E-04	Gas	AP-42	
								PM10/2.5	1.7E-03	0.01	1.7E-03	0.01	Solid/Gas	AP-42	
								Benzene	4.6E-07	2.0E-06	4.6E-07	2.0E-06	Gas	AP-42	
								Ethylbenzene	---	---	---	---	---	---	
								HCHO	1.6E-05	7.1E-05	1.6E-05	7.1E-05	Gas	AP-42	
								n-Hexane	3.9E-04	1.7E-03	3.9E-04	1.7E-03	Gas	AP-42	
								Toluene	7.4E-07	3.2E-06	7.4E-07	3.2E-06	Gas	AP-42	
								2,2,4-TMP	---	---	---	---	---	---	
								Xylenes	---	---	---	---	---	---	
								Other HAP	4.1E-07	1.8E-06	4.1E-07	1.8E-06	Gas	AP-42	
								Total HAP	4.1E-04	1.8E-03	4.1E-04	1.8E-03	Gas	AP-42	
								CO2e	26	115	26	115	Gas	EPA	

Williams Ohio Valley Midstream LLC

STOUT DEHYDRATION STATION

Application for 45CSR13 NSR Permit

Attachment J

EMISSION POINTS DATA SUMMARY SHEET - Continued

Table 1: Emissions Data - Continued

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	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[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions[4]		Maximum Potential Controlled Emissions[5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used[6]	Emission Concentration[7] *(ppmv or mg/m^3)*
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
								NOX	0.02	0.10	0.02	0.10	Gas	Varies	
	Total Plant-Wide (w/o Fugitives)							CO	0.02	0.08	0.02	0.08	Gas	Varies	
								VOC	6.74	29.53	6.74	29.53	Gas	Varies	
								SO2	1.3E-04	5.7E-04	1.3E-04	5.7E-04	Gas	Varies	
								PM10/2.5	1.7E-03	0.01	1.7E-03	0.01	Solid/Gas	Varies	
								Benzene	0.11	0.47	0.11	0.47	Gas	Varies	
								Ethylbenzene	0.17	0.74	0.17	0.74	Gas	Varies	
								HCHO	1.6E-05	7.1E-05	1.6E-05	7.1E-05	Gas	Varies	
								n-Hexane	0.10	0.46	0.10	0.46	Gas	Varies	
Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Toluene	0.45	1.97	0.45	1.97	Gas	Varies	
								2,2,4-TMP	0.0E+00	0.00	0.0E+00	0.00	Gas	Varies	
								Xylenes	1.43	6.29	1.43	6.29	Gas	Varies	
								Other HAP	4.1E-07	1.8E-06	4.1E-07	1.8E-06	Gas	Varies	
								Total HAP	2.27	9.93	2.27	9.93	Gas	Varies	
								CO2e	400	1,753	400	1,753	Gas	Varies	
								NOX	0.02	0.10	0.02	0.10	Gas	Varies	
	Total Plant-Wide (w/ Fugitives)							CO	0.02	0.08	0.02	0.08	Gas	Varies	
								VOC	8.27	36.22	8.27	36.22	Gas	Varies	
								SO2	1.3E-04	5.7E-04	1.3E-04	5.7E-04	Gas	Varies	
								PM10/2.5	1.7E-03	0.01	1.7E-03	0.01	Solid/Gas	Varies	
								Benzene	0.14	0.60	0.14	0.60	Gas	Varies	
								Ethylbenzene	0.20	0.86	0.20	0.86	Gas	Varies	
								HCHO	1.6E-05	7.1E-05	1.6E-05	7.1E-05	Gas	Varies	
								n-Hexane	0.20	0.87	0.20	0.87	Gas	Varies	
Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Toluene	0.48	2.10	0.48	2.10	Gas	Varies	
								2,2,4-TMP	0.03	0.12	0.03	0.12	Gas	Varies	
								Xylenes	1.46	6.41	1.46	6.41	Gas	Varies	
								Other HAP	4.1E-07	1.8E-06	4.1E-07	1.8E-06	Gas	Varies	
								Total HAP	2.50	10.95	2.50	10.95	Gas	Varies	
								CO2e	502	2,200	502	2,200	Gas	Varies	

Williams Ohio Valley Midstream LLC

STOUT DEHYDRATION STATION

Application for 45CSR13 NSR Permit

Attachment J

EMISSION POINTS DATA SUMMARY SHEET - Continued

Table 2: Release Parameter Data

Emission Point ID No. *(Must match Emission Units Table)*	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (oF)	Volumetric Flow[1] (acfm) (A*t operating conditions)*	Velocity (fps)	Ground Level *(Height above mean sea level)*	Stack Height[2] *(Release height of emissions above ground level)*	Northing	Easting
RSV (1E)	0.6	212	na	---	1,300	10.0	4,412.91	538.85
RBV (2E)	0.6	120	na	---	1,300	10.0	4,412.91	538.85

[1] Give at operating conditions. Include inerts.
2 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**

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 ((Truck Load-Out (TLO (4E)) 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

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Attachment K

FUGITIVE EMISSIONS 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.

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants Chemical Name/CAS[1]	Maximum Potential Pre-Controlled Emissions[2]		Maximum Potential Controlled Emissions[3]		Est. Method Used[4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Paved Haul Roads	na	---	---	---	---	---
Unpaved Haul Roads	na	---	---	---	---	---
Storage Pile Emissions	na	---	---	---	---	---
Loading/Unloading Operations	((Truck Load-Out (TLO (4E)) is included in the Point Source Emissions))					
Wastewater Treatment	na	---	---	---	---	---
Process and Piping Fugitives (FUG-G (1F) and FUG-W (2F) (Total Combined)	VOC	1.53	6.69	1.53	6.69	O - AP-42
	Benzene	0.03	0.12	0.03	0.12	O - AP-42
	E-Benzene	0.03	0.12	0.03	0.12	O - AP-42
	Formaldehyde	---	---	---	---	---
	n-Hexane	0.10	0.42	0.10	0.42	O - AP-42
	Toluene	0.03	0.12	0.03	0.12	O - AP-42
	2,2,4-TMP	0.03	0.12	0.03	0.12	O - AP-42
	Xylenes	0.03	0.12	0.03	0.12	O - AP-42
	Other HAP	---	---	---	---	---
	Total HAP	0.23	1.02	0.23	1.02	O - AP-42
	CO2e	102	446	102	446	O - GWP
General Clean-up VOC Emissions	na	---	---	---	---	---
Other	na	---	---	---	---	---

[1] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases, etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.

[2] 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).

[3] 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).

[4] 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

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Attachment K

LEAK SOURCE DATA SHEET

Soure Category	Pollutant	Number of Source Components[1]	Number of Components Monitored by Frequency[2]	Average Time to Repair (Days)[3]	Estimated Annual Emission Rate (lb/yr)[4]
Pumps[5]	Light Liquid VOC[6,7]	2	na - LDAR Does ***NOT*** Apply		See ATTACHMENT N EMISSION CALCULATIONS
	Heavy Liquid VOC[8]	---			
	Non-VOC[9]	---			
Valves[10]	Gas VOC	386			
	Light Liquid VOC	193			
	Heavy Liquid VOC	---			
	Non-VOC	---			
Safety Relief Valves[11]	Gas VOC	See "Other"			
	Light Liquid VOC	See "Other"			
	Non-VOC	---			
Open Ended Lines[12]	Gas VOC	21			
	Light Liquid VOC	11			
	Non-VOC	---			
Sampling Connections[13]	Gas VOC	See "Open Ended Lines"			
	Light Liquid VOC	See "Open Ended Lines"			
	Non-VOC	---			
Compressors	Gas VOC	See "Other"			
	Non-VOC	---			
Flanges	Gas VOC	180			
	Light Liquid VOC	90			
	Non-VOC	---			
Other (Connectors)	Gas VOC	1,151			
	Light Liquid VOC	575			
	Non-VOC	---			

Continued ...

Attachment K
DESCRIPTION OF FUGITIVE EMISSIONS - 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, H2S, mineral acids, NO, NO, SO, etc. DO NOT LIST CO, H, H20, N, O, 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 ifthe 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."

- Natural Gas Glycol Dehydration Unit Data Sheet
- 40 CFR Part 63; Subpart HH & HHH Registration Form

Williams Ohio Valley Midstream LLC

STOUT DEHYDRATION STATION

Application for 45CSR13 NSR Permit

Attachment L

NATURAL GAS GLYCOL DEHYDRATION UNIT DATA SHEET

General Glycol Dehydration Unit Data		Compressor Station		**Stout DS**			
		Manufacturer and Model		**na**			
		Max Dry Gas Flow Rate (MMscfd)		**7.0**			
		Heat Input (MMBtu/hr) - HHV		**0.22**			
		Design Type (DEG or TEG)		**TEG**			
		Source Status[2]		**ES**			
		Date Installed/Modified/Removed[3]		**2012**			
		Regenerator Still Vent APCD[4]		**NA**			
		Fuel HV (Btu/scf) - HHV		**1,020**			
		H_2S Content (gr/100 scf)		**0.2**			
		Operation (hrs/yr)		**8,760**			
Source ID #[1]	Vent	Reference[5]	PTE[6]	lbs/hr	tons/yr	lbs/hr	tons/yr
RSV-1 (1E)	Dehydrator 01 Still Vent/Flash Tank	GRI-GLYCalc	VOC	**6.74**	**29.53**		
		GRI-GLYCalc	Benzene	**0.11**	**0.47**		
		GRI-GLYCalc	E-Benzene	**0.17**	**0.74**		
		GRI-GLYCalc	Formaldehyde	**---**	**---**		
		GRI-GLYCalc	n-Hexane	**0.10**	**0.46**		
		GRI-GLYCalc	Toluene	**0.45**	**1.97**		
		GRI-GLYCalc	2,2,4-TMP	**---**	**---**		
		GRI-GLYCalc	Xylenes	**1.43**	**6.29**		
		GRI-GLYCalc	Other HAPs	**---**	**---**		
		GRI-GLYCalc	Total HAP	**2.27**	**9.93**		
		GRI-GLYCalc	CO2e	**374**	**1,638**		
RBV-01 (2E)	Dehydrator 01 Reboiler Vent	AP-42	NOX	**0.02**	**0.10**		
		AP-42	CO	**0.02**	**0.08**		
		AP-42	VOC	**1.2E-03**	**0.01**		
		AP-42	SO2	**1.3E-04**	**5.7E-04**		
		AP-42	PM10/2.5	**1.7E-03**	**0.01**		
		AP-42	Benzene	**4.6E-07**	**2.0E-06**		
		AP-42	E-Benzene	**---**	**---**		
		AP-42	Formaldehyde	**1.6E-05**	**7.1E-05**		
		AP-42	n-Hexane	**3.9E-04**	**1.7E-03**		
		AP-42	Toluene	**7.4E-07**	**3.2E-06**		
		AP-42	2,2,4-TMP	**---**	**---**		
		AP-42	Xylenes	**---**	**---**		
		AP-42	Other HAPs	**4.1E-07**	**1.8E-06**		
		AP-42	Total HAP	**4.1E-04**	**1.8E-03**		
		40CFR98	CO2e	**26**	**115**		

ATTACHMENT L - NATURAL GAS GLYCOL DEHYDRATION UNIT DATA SHEET - Continued

Notes to **NATURAL GAS GLYCOL DEHYDRATION UNIT DATA SHEET**

1. Enter the appropriate Source Identification Numbers for the glycol dehydration unit Reboiler Vent and glycol Regenerator Still Vent. The glycol dehydration unit Reboiler Vent and glycol Regenerator Still Vent should be designated RBV-1 and RSV-1, respectively. If the compressor station incorporates multiple glycol dehydration units, a Glycol Dehydration Unit Data Sheet shall be completed for each, using Source Identification #s RBV-2 and RSV-2, RBV-3 and RSV-3, etc.

2. Enter the Source Status using the following codes:
NS = Construction of New Source
ES = Existing Source
MS = Modification of Existing Source
RS = Removal of Source

3. Enter the date (or anticipated date) of the glycol dehydration unit's installation (construction of source), modification or removal.

4. Enter the Air Pollution Control Device (APCD) type designation using the following codes:
NA = None
CD = Condenser
FL = Flare
CC = Condenser/Combustion Combination
TO = Thermal Oxidizer

5. Enter the Potential Emissions Data Reference designation using the following codes:
MD = Manufacturer's Data
AP = AP-42
GR = GRI-GLYCalcTM
OT = Other (please list): _____ .

6. Enter the Reboiler Vent and glycol Regenerator Still Vent Potential to Emit (PTE) for the listed regulated pollutants in lbs per hour and tons per year. The glycol Regenerator Still Vent potential emissions may be determined using the most recent version of the thermodynamic software model GRI-GLYCalcTM (Radian International LLC & Gas Research Institute). Attach all referenced Potential Emissions Data (or calculations) and the GRI-GLYCalc Aggregate Calculations Report to this Glycol Dehydration Unit Data Sheet(s). This PTE data shall be incorporated in the Emissions Summary Sheet.

Include a copy of the GRI-GLYCalcTM analysis. This includes a printout of the aggregate calculations report, which shall include emissions reports, equipment reports, and stream reports.

***An explanation of input parameters and examples, when using GRI-GLYCalcTM is available on our website.**

Williams Ohio Valley Midstream LLC

STOUT DEHYDRATION STATION

Application for 45CSR13 NSR Permit

Attachment L

40 CFR Part 63; Subpart HH & HHH Registration Form

West Virginia Department of Environmental Protection

Division of Air Quality

40 CFR Part 63; Subpart HH & HHH Registration Form

DIVISION OF AIR QUALITY : (304) 926-0475

WEB PAGE: http:\\www.wvdep.org

Complete this form for any oil and natural gas production or natural gas transmission and storage facility that uses an affected unit under HH/HHH, whether subject or not.

Section A: Facility Description		
Affected facility actual annual average natural gas throughput (scf/day):	**7.0 MM**	
Affected facility actual annual average hydrocarbon liquid throughput: (bbl/day):	**na**	
The affected facility processes, upgrades, or stores hydrocarbon liquids prior to custody transfer.	☑ Yes	☐ No
The affected facility processes, upgrades, or stores natural gas prior to the point at which natural gas (NG) enters the NG transmission and storage source category or is delivered to the end user.	☑ Yes	☐ No
The affected facility is: ☑ prior to a NG processing plant ☐ NG processing plant ☐ prior to the point of custody transfer and there is no NG processing plant		
The affected facility transports or stores natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company).	☐ Yes	☑ No
The affected facility exclusively processes, stores, or transfers black oil with an initial producing gas-to-oil ratio (GOR): **na** scf/bbl API gravity: **na** degrees	☐ Yes	☑ No

Section B: Dehydration Unit (if applicable)[1]						
Description: **7.0 MMscfd - TEG Dehy 01 (RSV-1 (1E))**						
Date of Installation:	**2012**	Annual Operating Hours:	**8,760**	Burner rating (MMBtu/hr):	**0.22**	
Exhaust Stack Height (ft):	**10.0**	Stack Diameter (ft):	**0.6**	Stack Temp. (oF):	**120**	
Glycol Type:	☑ TEG	☐ EG	☐ Other: **na**			
Glycol Pump Type:	☐ Elect	☑ Gas	If Gas, what is the volume ratio?: **0.08 acfm/gpm**			
Condenser installed?	☐ Yes	☑ No	Exit Temp: **na**	Condenser Pressure: **na**		
Incinerator/flare installed?	☐ Yes	☑ No	Destruction Eff.: **na**			
Other controls installed?	☐ Yes	☑ No	Describe: **na**			
Wet Gas[2]: (Upstream of Contact Tower)	Gas Temperature: **60 oF**		Gas Pressure: **1,000 psig**			
	Saturated Gas?:	☑ Yes	☐ No	If no, water content?: na		
Dry Gas: (Downstream of Contact Tower)	Gas Flowrate:	Actual: **7.0 MMscfd**	Design: **7.0 MMscfd**			
	Water Content: **7.0 lb/MMscf**					
Lean Glycol:	Circulation Rate:	Actual[3]: **0.67 gpm**	Max[4]: **1.5 gpm**			
	Pump make/model: **Kimray 9015PV**					
Glycol Flash Tank (if applicable):	Temp: **70 oF**	Pressure: **150 psig**	Vented: ☑ Yes	☐ No		
	If no, describe vapor control: **At least 50% of flash tank offgas is used as reboiler fuel, the remainder is vented to atmosphere**					
Stripping Gas (if applicable):	Source of Gas **na**	Rate: **na**				

40 CFR Part 63; Subpart HH & HHH Registration Form - Continued

Please attach the following required dehydration unit information:

1. System map indicating the chain of custody information. See Page 43 of this document for an example of a gas flow schematic. It is not intended that the applicant provide this level of detail for all sources. The level of detail that is necessary is to establish where the custody transfer points are located. This can be accomplished by submitting a process flow diagram indicating custody transfer points and the natural gas flow. However, the DAQ reserves the right to request more detailed information in order to make the necessary decisions.

2. Extended gas analysis from the Wet Gas Stream, including mole percent of C1-C8, benzene, ethylbenzene, toluene, xylene and n-hexane, using Gas Processors Association (GPA) 2286 (or similar). A sample should be taken from the inlet gas line, downstream from any inlet separator, and using a manifold to remove entrained liquids from the sample and a probe to collect the sample from the center of the gas line. GPA standard 2166 reference method or a modified version of EPA Method TO-14, (or similar) should be used.

3. GRI-GLYCalc Ver. 3.0 aggregate report based on maximum Lean Glycol circulation rate and maximum throughput.

4. Detailed calculations of gas or hydrocarbon flow rate.

Section C: Facility NESHAPS Subpart HH/HHH status

Affected facility status: (choose only one)

☑ Subject to Subpart HH -- However, ***EXEMPT*** because the facility is an area source of HAP emissions ***and*** the actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere is < 0.90 megagram per year (1.0 tpy); see 40CFR§63.764(e)(1)(ii).

☐ Subject to Subpart HHH

☐ Not Subject Because:

- ☐ < 10/25 TPY
- ☐ Affected facility exclusively handles black oil.
- ☐ Facility-wide actual annual average NG throughput is < 650 thousand scf/day and facility-wide actual annual average hydrocarbon liquid is < 250 bpd.
- ☐ No affected source is present.

ATTACHMENT L - STORAGE TANK DATA SHEET

Source ID	Status	Contents	Volume (gal)	Diam (ft)	Thru-Put (gal/yr)	Orientation	Ave Liq Hght (ft)
The following Insignificant Storage Tanks:							
T01	Exist	Triethylene Glycol	150				
T02	New	Methanol	300				

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 M

Air Pollution Control Device Sheet(s)

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

NOT APPLICABLE

ATTACHMENT N

Supporting Emissions Calculations

"30. Provide all **Supporting Emissions Calculations** as Attachment N."

- **Emission Summary Spreadsheets**
  - Potential to Emit (PTE) – CRITERIA POLLUTANTS – CONTROLLED
  - Potential to Emit (PTE) – HAZARDOUS AIR POLLUTANTS – CONTROLLED
  - Potential to Emit (PTE) – GREENHOUSE GASES (GHG) – CONTROLLED
  - Potential to Emit (PTE) – PRE-CONTROLLED
- **Unit-Specific Emission Spreadsheets**
  - Triethylene Glycol (TEG) Dehydrator – 7.0 MMscfd
  - Triethylene Glycol (TEG) Reboiler – 0.22 MMBtu/hr
  - Process Piping Fugitives – Gas & Water/Oil
- **AP-42 and GHG Emission Factors**
- **Model Results**
  - Dehydrator - GRI-GLYCalc 4.0
    - Summary of Emissions
    - Summary of Input Values
    - Aggregate Calculations Report

POTENTIAL-TO-EMIT (PTE) – CRITERIA POLLUTANTS – CONTROLLED

Unit ID	Point ID	Control 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
RSV-1	1E	na	TEG Dehydrator - Still Vent/Flash Tank	7.0 MMscfd	---	---	---	---	6.74	29.53	---	---	---	---
RBV-1	2E	na	TEG Dehydrator - Reboiler	0.22 MMBtu/hr	0.02	0.10	0.02	0.08	1.2E-03	0.01	1.3E-04	5.7E-04	1.7E-03	0.01
			TOTAL POINT SOURCE EMISSIONS:		**0.02**	**0.10**	**0.02**	**0.08**	**6.74**	**29.53**	**1.3E-04**	**5.7E-04**	**1.7E-03**	**0.01**
			WV NSR THRESHOLD:		6 lb/hr *AND* 10 tpy		6 lb/hr *AND* 10 tpy		6 lb/hr *AND* 10 tpy		6 lb/hr *AND* 10 tpy		6 lb/hr *AND* 10 tpy	
			TVOP THRESHOLD:		---	100	---	100	---	100	---	100	---	100
FUG-G	1F	na	Piping and Equipment Fugitives - Gas	1,737 units	---	---	---	---	0.65	2.85	---	---	---	---
FUG-W	2F	na	Piping and Equipment Fugitives - Water/Oil	871 units	---	---	---	---	0.88	3.84	---	---	---	---
			TOTAL FUGITIVE EMISSIONS:		**---**	**---**	**---**	**---**	**1.53**	**6.69**	**---**	**---**	**---**	**---**
			TOTAL FACILITY-WIDE EMISSIONS:		**0.02**	**0.10**	**0.02**	**0.08**	**8.27**	**36.22**	**1.3E-04**	**5.7E-04**	**1.7E-03**	**0.01**

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; Other HAP includes Acetaldehyde, Acrolein, 1,3-Butadiene, Methanol, Methylene Chloride, and traces of other HAP.

POTENTIAL-TO-EMIT (PTE) – HAZARDOUS AIR POLLUTANTS (HAP) – 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
RSV-1	1E	0.11	0.47	0.17	0.74	---	---	0.10	0.46	0.45	1.97	---	---	1.43	6.29	---	---	2.27	9.93
RBV-1	2E	4.6E-07	2.0E-06	---	---	1.6E-05	7.1E-05	3.9E-04	1.7E-03	7.4E-07	3.2E-06	---	---	---	---	4.1E-07	1.8E-06	4.1E-04	1.8E-03
TOTAL POINT:		**0.11**	**0.47**	**1.7E-01**	**0.74**	**1.6E-05**	**7.1E-05**	**0.10**	**0.46**	**0.45**	**1.97**	**0.0E+00**	**0.00**	**1.43**	**6.29**	**4.1E-07**	**1.8E-06**	**2.27**	**9.93**
FUG-G	1F	1.3E-03	5.7E-03	1.3E-03	5.7E-03	---	---	0.01	0.03	1.3E-03	5.7E-03	1.3E-03	5.7E-03	1.3E-03	5.7E-03	---	---	0.01	0.06
FUG-W	2F	0.03	0.12	0.03	0.12	---	---	0.09	0.38	0.03	0.12	0.03	0.12	0.03	0.12	---	---	0.22	0.96
TOTAL FUG:		**0.03**	**0.12**	**0.03**	**0.12**	**---**	**---**	**0.10**	**0.42**	**0.03**	**0.12**	**0.03**	**0.12**	**0.03**	**0.12**	**---**	**---**	**0.23**	**1.02**
TOTAL FACILITY:		**0.14**	**0.60**	**0.20**	**0.86**	**1.6E-05**	**7.1E-05**	**0.20**	**0.87**	**0.48**	**2.10**	**0.03**	**0.12**	**1.46**	**6.41**	**4.1E-07**	**1.8E-06**	**2.50**	**10.95**
NSR THRESHOLD:		2 lb/hr *OR*	0.5 tpy	2 lb/hr *OR*	5 tpy	2 lb/hr *OR*	0.5 tpy	2 lb/hr *OR*	5 tpy	2 lb/hr *OR*	5 tpy	2 lb/hr *OR*	5 tpy	2 lb/hr *OR*	5 tpy	2 lb/hr *OR*	5 tpy	2 lb/hr *OR*	5 tpy
TVOP THRESHOLD:		---	10	---	10	---	10	---	10	---	10	---	10	---	10	---	10	---	25

Notes: 1 - Emissions are based on operation at 100% of rated load for 8,760 hrs/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.

Potential to Emit (PTE) - GREENHOUSE GASES (GHG) - CONTROLLED

Unit ID	Point ID	Control ID	Description	Heat Input MMBtu/hr (HHV)	Hours of Operation hr/yr	kg/MMBtu: GWP: CO2 tpy	53.06 1 CO2e tpy	kg/MMBtu: GWP: CH4 tpy	1.00E-03 25 CO2e tpy	kg/MMBtu: GWP: N2O tpy	1.00E-04 298 CO2e tpy	TOTAL CO2e tpy
RSV-1	1E	na	TEG Dehydrator - Still Vent/Flash Tank	---	8,760	---	---	66	1,638	---	---	**1,638**
RBV-1	2E	na	TEG Dehydrator - Reboiler	0.22	8,760	114	114	2.2E-03	0.1	2.1E-03	1	**115**
			TOTAL POINT SOURCE EMISSIONS:			**114**	**114**	**66**	**1,639**	**2.1E-03**	**1**	**1,753**
			NSR/PSD Threshold: (			**na**	**- OR -**	**na**	**- OR -**	**na**	**) - AND -**	**na**
			Title V Major Source Threshold:			**na**		**na**		**na**		**na**
FUG-G	1F	na	Piping and Equipment Fugitives - Gas	---	8,760	0.1	0.1	18	446	---	---	**446**
FUG-W	2F		Piping and Equipment Fugitives - Water/Oil	---	8,760	---	0.00	---	0	---	---	**0**
			TOTAL FUGITIVE EMISSIONS:			**---**	**---**	**18**	**446**	**---**	**---**	**446**
			TOTAL FACILITY-WIDE PTE:			**114**		**83**		**2.1E-03**		**2,200**

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 - GHG NSR/PSD Thresholds and Title V Major Source Thresholds are applicable only if other regulated air pollutants exceed the corresponding Thresholds.

Attachment N - Supporting Emissions Calculations

POTENTIAL-TO-EMIT (PTE) – PRE-CONTROLLED

Unit ID	Point ID	Control ID	Description	Site Rating	NOX		CO		VOC		n-HEXANE		TOTAL HAP	
					lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
RSV-1	1E	na	TEG Dehydrator - Still Vent/Flash Tank	7.0 MMscfd	---	---	---	---	6.74	29.53	0.10	0.46	2.27	9.93
RBV-1	2E	na	TEG Dehydrator - Reboiler	0.22 MMBtu/hr	0.02	0.10	0.02	0.08	1.2E-03	0.01	3.9E-04	1.7E-03	4.1E-04	1.8E-03
				TOTAL POINT SOURCE EMISSIONS:	**0.02**	**0.10**	**0.02**	**0.08**	**6.74**	**29.53**	**0.10**	**0.46**	**2.27**	**9.93**
				WV NSR THRESHOLD:	6 lb/hr *AND* 10 tpy		6 lb/hr *AND* 10 tpy		6 lb/hr *AND* 10 tpy		6 lb/hr *AND* 10 tpy		6 lb/hr *AND* 10 tpy	
				TVOP THRESHOLD:	---	100	---	100	---	100	---	100	---	100
FUG-G	1F	na	Piping and Equipment Fugitives - Gas	1,737 units	---	---	---	---	0.65	2.85	0.01	0.03	0.01	0.06
FUG-W	2F	na	Piping and Equipment Fugitives - Water/Oil	871 units	---	---	---	---	0.88	3.84	0.09	0.38	0.22	0.96
				TOTAL FUGITIVE EMISSIONS:	**---**	**---**	**---**	**---**	**1.53**	**6.69**	**0.10**	**0.42**	**0.23**	**1.02**
				TOTAL FACILITY-WIDE EMISSIONS:	**0.02**	**0.10**	**0.02**	**0.08**	**8.27**	**36.22**	**0.20**	**0.87**	**2.50**	**10.95**

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; Other HAP includes Acetaldehyde, Acrolein, 1,3-Butadiene, Methanol, Methylene Chloride, and traces of other HAP.

TEG Dehydrator - Still Vent/Flash Tank

Unit ID (Point ID)	Description	Reference	Pollutant	Emission Factor		Pre-Control Emissions		Control	Controlled Emissions	
				lb/MMscf	lb/MMBtu	lb/hr	tpy	%	lb/hr	tpy
RSV-1 (1E)	Dehydrator 01 (Still Vent/Flash Tank)	See BLR-01	NOX	---	---	---	---	---	---	---
		See BLR-01	CO	---	---	---	---	---	---	---
		GRI-GLYCalc 4.0	THC	---	---	26.54	116.23	---	**26.54**	**116.23**
		GRI-GLYCalc 4.0	NMHC	---	---	11.57	50.69	---	**11.57**	**50.69**
		GRI-GLYCalc 4.0	NMNEHC	---	---	6.74	29.53	---	**6.74**	**29.53**
	(No Combustion Emissions Shown) (See RBV-1 (3E))	GRI-GLYCalc 4.0	VOC	---	---	6.74	29.53	---	**6.74**	**29.53**
		See BLR-01	SO2	---	---	---	---	---	---	---
		See BLR-01	PM10/2.5	---	---	---	---	---	---	---
		GRI-GLYCalc 4.0	Benzene	---	---	0.11	0.47	---	**0.11**	**0.47**
	7.0 MMscfd	GRI-GLYCalc 4.0	Ethylbenzene	---	---	0.17	0.74	---	**0.17**	**0.74**
		See BLR-01	HCHO	---	---	---	---	---	---	---
		GRI-GLYCalc 4.0	n-Hexane	---	---	0.10	0.46	---	**0.10**	**0.46**
	8,760 hr/yr	GRI-GLYCalc 4.0	Toluene	---	---	0.45	1.97	---	**0.45**	**1.97**
		GRI-GLYCalc 4.0	2,2,4-TMP	---	---	---	---	---	---	---
		GRI-GLYCalc 4.0	Xylenes	---	---	1.43	6.29	---	**1.43**	**6.29**
	0.29 MMscf/hr	GRI-GLYCalc 4.0	Other HAP	---	---	---	---	---	---	---
	2,555 MMscf/yr	GRI-GLYCalc 4.0	Total HAP	---	---	2.27	9.93	---	**2.27**	**9.93**
		See BLR-01	CO2	---	---	---	---	---	---	---
	NESHAP HH - Exempt	GRI-GLYCalc 4.0	CH4	---	---	15	66	---	**15**	**66**
		See BLR-01	N2O	---	---	---	---	---	---	---
		40CFR98 - Table A-1	CO2e	---	---	374	1,638	---	**374**	**1,638**

Notes: 1 - To be conservative, and to account for potential future changes in gas quality, the following worst-case emissions were assumed:

7.0 MMscfd Dehydrator 01	GRI-GLYCalc 4.0* (Still Vent/Flash Tank)	Worst-Case (With 20% Margin)
THC	96.85 tpy	116.23 tpy
NMHC	42.24 tpy	50.69 tpy
NMNEHC = VOC	24.61 tpy	29.53 tpy
Benzene	0.40 tpy	0.47 tpy
Ethylbenzene	0.62 tpy	0.74 tpy
HCHO	--- tpy	--- tpy
n-Hexane	0.38 tpy	0.46 tpy
Toluene	1.65 tpy	1.97 tpy
2,2.4-TMP (i-Octane)	--- tpy	--- tpy
Xylenes	5.24 tpy	6.29 tpy
Other HAP	--- tpy	--- tpy
Total HAP	8.27 tpy	9.93 tpy
CH4	55 tpy	66 tpy

*Dehydrator Operating Parameters (See Attachment N)			
Flow Rate:	7.0 MMscfd	Flash Tank Temperature:	70 oF
Gas Analysis:	Attachment H	Flash Tank Pressure:	150 psig
Wet Gas Temperature:	60 oF	Flash Tank Control:	na
Wet Gas Presssure:	1,000 psig	Stripping Gas:	na
Wet Gas Water Content:	Saturated	Stripping Gas Flow Rate:	na
Dry Gas Water Content:	7.0 lb H2O/MMscf	Condenser Temperature:	na
Lean Glycol Water Content:	1.5 wt% H2O	Condenser Pressure:	na
Glycol Circulation Rate:	1.50 gpm	Combustor Temperature:	na
Glycol Pump:	Gas Injection	Combustor Excess O2:	na
Glycol Pump:	Kimray 9015PV	Combustor Efficiency:	na

TEG Dehydrator - Reboiler

Unit ID (Point ID)	Description	Reference	Pollutant	Emission Factor		Pre-Controlled Emissions		Control Efficiency	Controlled Emissions	
				lb/MMscf	lb/MMBtu	lb/hr	tpy	%	lb/hr	tpy
RBV-1 (2E)	**TRIETHYLENE GLYCOL (TEG) REBOILER** 0.20 MMBtu/hr (LHV) **0.22 MMBtu/hr (HHV)** **8,760 hr/yr** 920 Btu/scf (LHV) 1,020 Btu/scf (HHV) 1,752 MMBtu/yr (LHV) 1,942 MMBtu/yr (HHV) 217 scf/hr 1.90 MMscf/yr	EPA AP-42 Table 1.4-1	NOX	100.00	0.10	0.02	0.10	---	**0.02**	**0.10**
		EPA AP-42 Table 1.4-1	CO	84.00	0.08	0.02	0.08	---	**0.02**	**0.08**
		EPA AP-42 Table 1.4-2	THC	11.00	0.01	2.4E-03	0.01	---	**2.4E-03**	**0.01**
		EPA AP-42 Table 1.4-2	NMHC	8.70	0.01	1.9E-03	0.01	---	**1.9E-03**	**0.01**
		EPA AP-42 Table 1.4-2	NMNEHC	5.60	0.01	1.2E-03	0.01	---	**1.2E-03**	**0.01**
		EPA AP-42 Table 1.4-2	VOC	5.68	0.01	1.2E-03	0.01	---	**1.2E-03**	**0.01**
		EPA AP-42 Table 1.4-2	SO2	0.60	5.9E-04	1.3E-04	5.7E-04	---	**1.3E-04**	**5.7E-04**
		EPA AP-42 Table 1.4-2	PM10/2.5	7.60	0.01	1.7E-03	0.01	---	**1.7E-03**	**0.01**
		EPA AP-42 Table 1.4-3	Benzene	2.1E-03	2.1E-06	4.6E-07	2.0E-06	---	**4.6E-07**	**2.0E-06**
		EPA AP-42 Table 1.4-3	Ethylbenzene	---	---	---	---	---	**---**	**---**
		EPA AP-42 Table 1.4-3	HCHO	0.08	7.4E-05	1.6E-05	7.1E-05	---	**1.6E-05**	**7.1E-05**
		EPA AP-42 Table 1.4-3	n-Hexane	1.80	1.8E-03	3.9E-04	1.7E-03	---	**3.9E-04**	**1.7E-03**
		EPA AP-42 Table 1.4-3	Toluene	3.4E-03	3.3E-06	7.4E-07	3.2E-06	---	**7.4E-07**	**3.2E-06**
		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	1.9E-03	1.9E-06	4.1E-07	1.8E-06	---	**4.1E-07**	**1.8E-06**
		SUM	Tot HAP	1.88	1.8E-03	4.1E-04	1.8E-03	---	**4.1E-04**	**1.8E-03**
		EPA AP-42 Table 1.4-3	CO2	120,000	118	26	114	---	**26**	**114**
		EPA AP-42 Table 1.4-3	CH4	2.30	2.3E-03	5.0E-04	2.2E-03	---	**5.0E-04**	**2.2E-03**
		EPA AP-42 Table 1.4-3	N2O	2.20	2.2E-03	4.8E-04	2.1E-03	---	**4.8E-04**	**2.1E-03**
		40CFR98 - Table A-1	CO2e	120,713	118	26	115	---	**26**	**115**

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; Other HAP includes Acetaldehyde, Acrolein, 1,3-Butadiene, Methanol, Methylene Chloride, and traces of other HAP.

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.

Piping and Equipment Fugitives - Gas & Water/Oil

Unit ID (Point ID)	Description	Component (Unit) Type (Gas)	Unit Count	THC Factor lb/hr/Unit	LDAR Control Credit	Hydrocarbons (THC) lb/hr	Hydrocarbons (THC) tpy	VOC 11.98 Wgt% lb/hr	VOC 11.98 Wgt% tpy	n-Hexane 0.14 Wgt% lb/hr	n-Hexane 0.14 Wgt% tpy	BTEX, TMP-ea 0.02 Wgt% lb/hr	BTEX, TMP-ea 0.02 Wgt% tpy	Total HAP 0.26 Wgt% lb/hr	Total HAP 0.26 Wgt% tpy	CO2 0.60 Wgt% lb/hr	CO2 0.60 Wgt% tpy	CH4 75.00 Wgt% lb/hr	CH4 75.00 Wgt% tpy	CO2e GWP = 25 lb/hr	CO2e GWP = 25 tpy
FUG-G (1F)	Process Piping Fugitives (Gas)	Valves	386	0.00992	0%	3.82	16.75	0.46	2.01	0.01	0.02	9.2E-04	0.00	0.01	0.04	0.02	0.10	2.87	12.56	72	314
		Pump Seals	0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		Other	45	0.01940	0%	0.87	3.82	0.10	0.46	1.2E-03	0.01	2.1E-04	9.2E-04	2.3E-03	0.01	5.2E-03	0.02	0.65	2.87	16	72
		Connectors	1,106	0.00044	0%	0.49	2.13	0.06	0.26	6.8E-04	0.00	1.2E-04	5.1E-04	1.3E-03	0.01	2.9E-03	0.01	0.37	1.60	9	40
		Flanges	180	0.00086	0%	0.15	0.68	0.02	0.08	2.2E-04	9.5E-04	3.7E-05	1.6E-04	4.0E-04	1.8E-03	9.3E-04	4.1E-03	0.12	0.51	3	13
		Open-ended	21	0.00441	0%	0.09	0.41	0.01	0.05	1.3E-04	5.7E-04	2.2E-05	9.7E-05	2.4E-04	1.1E-03	5.5E-04	2.4E-03	0.07	0.30	2	8
			1,737	**Pre-Control:**		5.43	23.79	0.65	2.85	0.01	0.03	1.3E-03	5.7E-03	0.01	0.06	0.03	0.14	4.07	17.85	102	446
				Controlled:		**5.43**	**23.79**	**0.65**	**2.85**	**0.01**	**0.03**	**1.3E-03**	**5.7E-03**	**0.01**	**0.06**	**0.03**	**0.14**	**4.07**	**17.85**	**102**	**446**

Unit ID (Point ID)	Description	Component (Unit) Type (Water/Oil)	Unit Count	THC Factor lb/hr/Unit	LDAR Control Credit	Hydrocarbons (THC) lb/hr	Hydrocarbons (THC) tpy	VOC 100.00 Wgt% lb/hr	VOC 100.00 Wgt% tpy	n-Hexane 10.00 Wgt% lb/hr	n-Hexane 10.00 Wgt% tpy	BTEX, TMP-ea 3.00 Wgt% lb/hr	BTEX, TMP-ea 3.00 Wgt% tpy	Total HAP 25.00 Wgt% lb/hr	Total HAP 25.00 Wgt% tpy	CO2 --- Wgt% lb/hr	CO2 --- Wgt% tpy	CH4 --- Wgt% lb/hr	CH4 --- Wgt% tpy	CO2e GWP = 25 lb/hr	CO2e GWP = 25 tpy
FUG-W (2F)	Process Piping Fugitives (Water/Oil)	Valves	193	0.00022	0%	0.04	0.18	0.04	0.18	4.2E-03	1.8E-02	1.2E-03	5.5E-03	1.0E-02	4.6E-02	---	---	---	---	---	---
		Pump Seals	2	0.00005	0%	1.1E-04	4.6E-04	1.1E-04	4.6E-04	1.1E-05	4.6E-05	3.2E-06	1.4E-05	2.6E-05	1.2E-04	---	---	---	---	---	---
		Other	23	0.03086	0%	0.69	3.04	0.69	3.04	6.9E-02	3.0E-01	2.1E-02	9.1E-02	1.7E-01	7.6E-01	---	---	---	---	---	---
		Connectors	553	0.00024	0%	0.13	0.59	0.13	0.59	1.3E-02	5.9E-02	4.0E-03	1.8E-02	3.4E-02	0.15	---	---	---	---	---	---
		Flanges	90	0.00001	0%	5.8E-04	2.5E-03	5.8E-04	2.5E-03	5.8E-05	2.5E-04	1.7E-05	7.6E-05	1.4E-04	6.3E-04	---	---	---	---	---	---
		Open-ended	11	0.00055	0%	5.8E-03	0.03	5.8E-03	0.03	5.8E-04	2.5E-03	1.7E-04	7.6E-04	1.4E-03	6.3E-03	---	---	---	---	---	---
			871	**Pre-Control:**		0.88	3.84	0.88	3.84	8.8E-02	0.38	2.6E-02	0.12	0.22	0.96	---	---	---	---	---	---
				Controlled:		**0.88**	**3.84**	**0.88**	**3.84**	**8.8E-02**	**0.38**	**0.03**	**0.12**	**0.22**	**0.96**	**---**	**---**	**---**	**---**	**---**	**---**

	Hydrocarbons (THC) lb/hr	Hydrocarbons (THC) tpy	VOC lb/hr	VOC tpy	n-Hexane lb/hr	n-Hexane tpy	BTEX, TMP-ea lb/hr	BTEX, TMP-ea tpy	Total HAP lb/hr	Total HAP tpy	CO2 lb/hr	CO2 tpy	CH4 lb/hr	CH4 tpy	CO2e lb/hr	CO2e tpy
TOTAL PRE-CONTROL FUGITIVE EMISSIONS:	**6.31**	**27.63**	**1.53**	**6.69**	**0.10**	**0.42**	**0.03**	**0.12**	**0.23**	**1.02**	**0.03**	**0.14**	**4.07**	**17.85**	**102**	**446**
TOTAL CONTROLLED FUGITIVE EMISSIONS:	**6.31**	**27.63**	**1.53**	**6.69**	**0.10**	**0.42**	**0.03**	**0.12**	**0.23**	**1.02**	**0.03**	**0.14**	**4.07**	**17.85**	**102**	**446**

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

2 - Gas and Water/Oil emissions calculated using EPA Protocol for Equipment Leak Emission Estimates, EPA-453/R-95-017, Nov 1995.

TABLE 2.4 O&G PROD (AVE)	Gas kg/hr	Gas lb/hr	Water/Oil kg/hr	Water/Oil lb/hr
Valves	4.5E-03	0.00992	9.8E-05	0.00022
Pump Seals	na	na	2.4E-05	0.00005
Others	8.8E-03	0.01940	1.4E-02	0.03086
Connectors	2.0E-04	0.00044	1.1E-04	0.00024
Flanges	3.9E-04	0.00086	2.9E-06	0.00001
Open-Ended Lines	2.0E-03	0.00441	2.5E-04	0.00055

3 - Component in Gas Service are based on GRI-HAPCalc estimates, plus a **50%** margin

4 - Component in Water/Oil Service are based on Gas Component count, times a **50%** reduction

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

6 - To be conservative, the following gas characteristics were assumed:

Pollutant	Gas Analysis	Gas Estimated	Water/Oil Analysis	Water/Oil Estimated
Carbon Dioxide	0.35 Wgt%	0.60 Wgt%	--- Wgt%	--- Wgt%
Methane	71.36 Wgt%	75.00 Wgt%	--- Wgt%	--- Wgt%
VOC	9.97 Wgt%	11.98 Wgt%	--- Wgt%	100.00 Wgt%
n-Hexane	0.11 Wgt%	0.14 Wgt%	--- Wgt%	10.00 Wgt%
BTEX, TMP-ea	0.01 Wgt%	0.02 Wgt%	--- Wgt%	3.00 Wgt%
Total HAP	0.14 Wgt%	0.26 Wgt%	--- Wgt%	25.00 Wgt%

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 01/95	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	6.80E-02	4.41E+00
	CO	8.24E-02	8.24E-02	8.24E-02	3.70E-01	9.50E-01
	THC (TOC)	1.08E-02	1.08E-02	1.08E-02	1.40E-01	3.60E-01
	NMHC (THC-CH4)	8.53E-03	8.53E-03	8.53E-03	1.38E-01	3.53E-01
	NMNEHC (NMHC-C2H6)	5.49E-03	5.49E-03	5.49E-03	*5.49E-03*	3.50E-01
	VOC	5.56E-03	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	*5.88E-04*	2.90E-01
	PM10/2.5 (Filter+Condense)	7.45E-03	7.45E-03	7.45E-03	*7.45E-03*	3.10E-01
HAPs	Benzene	2.06E-06	2.06E-06	2.06E-06	*2.06E-06*	9.33E-04
	Ethylbenzene	---	---	---	---	---
	HCHO (Formaldehyde)	7.35E-05	7.35E-05	7.35E-05	*7.35E-05*	1.18E-03
	n-Hexane	1.76E-03	1.76E-03	1.76E-03	*1.76E-03*	---
	Toluene	3.33E-06	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	*1.86E-06*	1.05E-03
GHG	CO2 (GWP=1)	1.18E+02	1.18E+02	1.18E+02	*1.18E+02*	1.64E+02
	CH4 (GWP=25)	2.25E-03	2.25E-03	2.25E-03	*2.25E-03*	*6.61E-03*
	N2O (GWP=298)	2.16E-03	6.27E-04	6.27E-04	*2.16E-03*	*1.32E-03*
	CO2e	*1.18E+02*	*1.18E+02*	*1.18E+02*	*1.18E+02*	*1.65E+02*

40 CFR 98 - DEFAULT EMISSION FACTORS				
	Table C-1 to Subpart C of Part 98		Table C-2 to Subpart C of Part 98	
Fuel Type	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
Natural Gas	1,026 Btu/scf	1.17E+02	2.20E-03	2.20E-04

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

#Revised by EPA on 11/29/13

Conversion Factors

http://www.onlineconversion.com/

1.0 lb	=	453.592 g
1.0 kg	=	2.205 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 cf	=	7.481 gal
1.0 gal H2O	=	8.338 gal
1.0 cf H2O	=	62.371 gal
1.0 m	=	3.281 gal
1.0 km	=	0.621 gal
1.0 acre	=	43560.174 gal
1.0 ^{o}F	=	(^{o}C*9/5)+32
1.0 ^{o}R	=	^{o}F+459.67
1.0 %	=	10,000 ppm
UGC (stp)	=	379.48 scf/lb-mol

*Converted Ext Comb Emission Factors to lb/MMBtu by dividing lb/MMscf by AP-42 default HHV of 1,020 Btu/scf.

**Converted GHG Emission Factors to lb/MMBtu by multiplying kg/MMBtu by 2.2046 lb/kg.

***Assumes 100% conversion of fuel sulfur to SO2 (2,000 gr/MMscf).

****Assumes 99.5% conversion of fuel carbon to CO2 for natural gas.

Rev 03/01/14

GRI-GLYCalc VERSION 4.0 - EMISSIONS SUMMARY

Case Name: Stout DS - 7.0 MMscfd Dehy-01
File Name: C:\projects2\wfs\OVM\Stout\R13 Application\Stout 7.0 Dehy - 03.11.15.ddf
Date: March 11, 2015

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.4353	10.446	1.9064
Ethane	0.5484	13.160	2.4018
Propane	0.4349	10.437	1.9047
Isobutane	0.1401	3.362	0.6135
n-Butane	0.2757	6.617	1.2076
Isopentane	0.1169	2.806	0.5121
n-Pentane	0.1005	2.412	0.4402
n-Hexane	0.0661	1.585	0.2893
Cyclohexane	0.0919	2.206	0.4027
Other Hexanes	0.1205	2.892	0.5278
Heptanes	0.2157	5.178	0.9450
Methylcyclohexane	0.0971	2.331	0.4254
Benzene	0.0896	2.149	0.3923
Toluene	0.3740	8.977	1.6382
Ethylbenzene	0.1405	3.373	0.6156
Xylenes	1.1941	28.658	5.2301
C8+ Heavies	0.1690	4.056	0.7402
Total Emissions	4.6102	110.646	20.1928
Total Hydrocarbon Emissions	4.6102	110.646	20.1928
Total VOC Emissions	3.6266	87.039	15.8846
Total HAP Emissions	1.8643	44.742	8.1655
Total BTEX Emissions	1.7982	43.157	7.8762

FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	12.0457	289.096	52.7600
Ethane	3.4660	83.183	15.1809
Propane	1.1774	28.258	5.1571
Isobutane	0.2175	5.221	0.9528
n-Butane	0.3056	7.335	1.3386
Isopentane	0.1028	2.467	0.4502
n-Pentane	0.0663	1.592	0.2905
n-Hexane	0.0207	0.497	0.0907
Cyclohexane	0.0067	0.161	0.0295
Other Hexanes	0.0527	1.264	0.2308
Heptanes	0.0281	0.674	0.1229
Methylcyclohexane	0.0050	0.120	0.0219
Benzene	0.0007	0.017	0.0030
Toluene	0.0016	0.038	0.0069
Ethylbenzene	0.0003	0.007	0.0013
Xylenes	0.0017	0.041	0.0075
C8+ Heavies	0.0038	0.092	0.0168
Total Emissions	17.5026	420.063	76.6615
Total Hydrocarbon Emissions	17.5026	420.063	76.6615

Total VOC Emissions	1.9910	47.784	8.7205
Total HAP Emissions	0.0250	0.600	0.1095
Total BTEX Emissions	0.0043	0.103	0.0188

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	24.0913	578.192	105.5200
Ethane	6.9319	166.367	30.3619
Propane	2.3548	56.516	10.3141
Isobutane	0.4351	10.442	1.9056
n-Butane	0.6112	14.670	2.6773
Isopentane	0.2056	4.934	0.9004
n-Pentane	0.1326	3.183	0.5810
n-Hexane	0.0414	0.994	0.1814
Cyclohexane	0.0134	0.323	0.0589
Other Hexanes	0.1054	2.529	0.4615
Heptanes	0.0561	1.347	0.2459
Methylcyclohexane	0.0100	0.240	0.0439
Benzene	0.0014	0.033	0.0060
Toluene	0.0032	0.076	0.0139
Ethylbenzene	0.0006	0.015	0.0027
Xylenes	0.0034	0.082	0.0150
C8+ Heavies	0.0077	0.184	0.0336
Total Emissions	35.0052	840.126	153.3229
Total Hydrocarbon Emissions	35.0052	840.126	153.3229
Total VOC Emissions	3.9820	95.567	17.4410
Total HAP Emissions	0.0500	1.200	0.2189
Total BTEX Emissions	0.0086	0.206	0.0376

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	12.4809	299.542	54.6664
Ethane	4.0143	96.344	17.5827
Propane	1.6123	38.695	7.0618
Isobutane	0.3576	8.583	1.5663
n-Butane	0.5813	13.952	2.5462
Isopentane	0.2197	5.273	0.9623
n-Pentane	0.1668	4.004	0.7307
n-Hexane	0.0868	2.082	0.3800
Cyclohexane	0.0987	2.368	0.4321
Other Hexanes	0.1732	4.156	0.7585
Heptanes	0.2438	5.852	1.0679
Methylcyclohexane	0.1021	2.451	0.4473
Benzene	0.0902	2.166	0.3953
Toluene	0.3756	9.015	1.6452
Ethylbenzene	0.1409	3.380	0.6169
Xylenes	1.1958	28.699	5.2375
C8+ Heavies	0.1728	4.148	0.7570
Total Emissions	22.1128	530.708	96.8543
Total Hydrocarbon Emissions	22.1128	530.708	96.8543
Total VOC Emissions	5.6176	134.822	24.6051
Total HAP Emissions	1.8893	45.342	8.2749

Total BTEX Emissions	1.8025	43.260	7.8949

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Stout DS - 7.0 MMscfd Dehy-01
File Name: C:\projects2\wfs\OVM\Stout\R13 Application\Stout 7.0 Dehy - 03.11.15.ddf
Date: March 11, 2015

DESCRIPTION:

Description: Wet Gas: 60oF, 1,000 psig
Glycol Pump: Kimray 9015 PV, 1.5 gpm
Flash Tank: 70 oF, 150 psig, 50% Recycle
No Condenser, No Flare

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 60.00 deg. F
Pressure: 1000.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	0.1530
Nitrogen	0.3187
Methane	84.5273
Ethane	11.2796
Propane	2.5254
Isobutane	0.3476
n-Butane	0.4669
Isopentane	0.1395
n-Pentane	0.0865
n-Hexane	0.0247
Cyclohexane	0.0069
Other Hexanes	0.0624
Heptanes	0.0346
Methylcyclohexane	0.0058
Benzene	0.0007
Toluene	0.0018
Ethylbenzene	0.0005
Xylenes	0.0033
C8+ Heavies	0.0153

DRY GAS:

Flow Rate: 7.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 1.5 gpm

PUMP:

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.080 acfm gas/gpm glycol

FLASH TANK:

Flash Control: Combustion device
Flash Control Efficiency: 50.00 %
Temperature: 70.0 deg. F
Pressure: 150.0 psig

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Stout DS - 7.0 MMscfd Dehy-01
File Name: C:\projects2\wfs\OVM\Stout\R13 Application\Stout 7.0 Dehy - 03.11.15.ddf
Date: March 11, 2015

DESCRIPTION:

Description: Wet Gas: 60oF, 1,000 psig
Glycol Pump: Kimray 9015 PV, 1.5 gpm
Flash Tank: 70 oF, 150 psig, 50% Recycle
No Condenser, No Flare

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.4353	10.446	1.9064
Ethane	0.5484	13.160	2.4018
Propane	0.4349	10.437	1.9047
Isobutane	0.1401	3.362	0.6135
n-Butane	0.2757	6.617	1.2076
Isopentane	0.1169	2.806	0.5121
n-Pentane	0.1005	2.412	0.4402
n-Hexane	0.0661	1.585	0.2893
Cyclohexane	0.0919	2.206	0.4027
Other Hexanes	0.1205	2.892	0.5278
Heptanes	0.2157	5.178	0.9450
Methylcyclohexane	0.0971	2.331	0.4254
Benzene	0.0896	2.149	0.3923
Toluene	0.3740	8.977	1.6382
Ethylbenzene	0.1405	3.373	0.6156
Xylenes	1.1941	28.658	5.2301
C8+ Heavies	0.1690	4.056	0.7402
Total Emissions	4.6102	110.646	20.1928
Total Hydrocarbon Emissions	4.6102	110.646	20.1928
Total VOC Emissions	3.6266	87.039	15.8846
Total HAP Emissions	1.8643	44.742	8.1655
Total BTEX Emissions	1.7982	43.157	7.8762

FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	12.0457	289.096	52.7600
Ethane	3.4660	83.183	15.1809
Propane	1.1774	28.258	5.1571
Isobutane	0.2175	5.221	0.9528
n-Butane	0.3056	7.335	1.3386
Isopentane	0.1028	2.467	0.4502
n-Pentane	0.0663	1.592	0.2905
n-Hexane	0.0207	0.497	0.0907
Cyclohexane	0.0067	0.161	0.0295

Other Hexanes	0.0527	1.264	0.2308
Heptanes	0.0281	0.674	0.1229
Methylcyclohexane	0.0050	0.120	0.0219
Benzene	0.0007	0.017	0.0030
Toluene	0.0016	0.038	0.0069
Ethylbenzene	0.0003	0.007	0.0013
Xylenes	0.0017	0.041	0.0075
C8+ Heavies	0.0038	0.092	0.0168
Total Emissions	17.5026	420.063	76.6615
Total Hydrocarbon Emissions	17.5026	420.063	76.6615
Total VOC Emissions	1.9910	47.784	8.7205
Total HAP Emissions	0.0250	0.600	0.1095
Total BTEX Emissions	0.0043	0.103	0.0188

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	24.0913	578.192	105.5200
Ethane	6.9319	166.367	30.3619
Propane	2.3548	56.516	10.3141
Isobutane	0.4351	10.442	1.9056
n-Butane	0.6112	14.670	2.6773
Isopentane	0.2056	4.934	0.9004
n-Pentane	0.1326	3.183	0.5810
n-Hexane	0.0414	0.994	0.1814
Cyclohexane	0.0134	0.323	0.0589
Other Hexanes	0.1054	2.529	0.4615
Heptanes	0.0561	1.347	0.2459
Methylcyclohexane	0.0100	0.240	0.0439
Benzene	0.0014	0.033	0.0060
Toluene	0.0032	0.076	0.0139
Ethylbenzene	0.0006	0.015	0.0027
Xylenes	0.0034	0.082	0.0150
C8+ Heavies	0.0077	0.184	0.0336
Total Emissions	35.0052	840.126	153.3229
Total Hydrocarbon Emissions	35.0052	840.126	153.3229
Total VOC Emissions	3.9820	95.567	17.4410
Total HAP Emissions	0.0500	1.200	0.2189
Total BTEX Emissions	0.0086	0.206	0.0376

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	12.4809	299.542	54.6664
Ethane	4.0143	96.344	17.5827
Propane	1.6123	38.695	7.0618
Isobutane	0.3576	8.583	1.5663
n-Butane	0.5813	13.952	2.5462
Isopentane	0.2197	5.273	0.9623
n-Pentane	0.1668	4.004	0.7307
n-Hexane	0.0868	2.082	0.3800
Cyclohexane	0.0987	2.368	0.4321
Other Hexanes	0.1732	4.156	0.7585

Heptanes	0.2438	5.852	1.0679
Methylcyclohexane	0.1021	2.451	0.4473
Benzene	0.0902	2.166	0.3953
Toluene	0.3756	9.015	1.6452
Ethylbenzene	0.1409	3.380	0.6169
Xylenes	1.1958	28.699	5.2375
C8+ Heavies	0.1728	4.148	0.7570
Total Emissions	22.1128	530.708	96.8543
Total Hydrocarbon Emissions	22.1128	530.708	96.8543
Total VOC Emissions	5.6176	134.822	24.6051
Total HAP Emissions	1.8893	45.342	8.2749
Total BTEX Emissions	1.8025	43.260	7.8949

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	107.4264	54.6664	49.11
Ethane	32.7637	17.5827	46.33
Propane	12.2189	7.0618	42.21
Isobutane	2.5191	1.5663	37.82
n-Butane	3.8848	2.5462	34.46
Isopentane	1.4125	0.9623	31.87
n-Pentane	1.0212	0.7307	28.45
n-Hexane	0.4707	0.3800	19.27
Cyclohexane	0.4616	0.4321	6.38
Other Hexanes	0.9893	0.7585	23.33
Heptanes	1.1909	1.0679	10.32
Methylcyclohexane	0.4693	0.4473	4.67
Benzene	0.3983	0.3953	0.76
Toluene	1.6521	1.6452	0.42
Ethylbenzene	0.6183	0.6169	0.22
Xylenes	5.2450	5.2375	0.14
C8+ Heavies	0.7738	0.7570	2.17
Total Emissions	173.5157	96.8543	44.18
Total Hydrocarbon Emissions	173.5157	96.8543	44.18
Total VOC Emissions	33.3256	24.6051	26.17
Total HAP Emissions	8.3844	8.2749	1.31
Total BTEX Emissions	7.9137	7.8949	0.24

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25

Calculated Dry Gas Dew Point: 0.56 lbs. H2O/MMSCF

Temperature: 60.0 deg. F
Pressure: 1000.0 psig
Dry Gas Flow Rate: 7.0000 MMSCF/day
Glycol Losses with Dry Gas: 0.0274 lb/hr
Wet Gas Water Content: Saturated
Calculated Wet Gas Water Content: 16.94 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio: 18.84 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.33%	96.67%
Carbon Dioxide	99.59%	0.41%
Nitrogen	99.97%	0.03%
Methane	99.98%	0.02%
Ethane	99.92%	0.08%
Propane	99.89%	0.11%
Isobutane	99.84%	0.16%
n-Butane	99.79%	0.21%
Isopentane	99.79%	0.21%
n-Pentane	99.73%	0.27%
n-Hexane	99.56%	0.44%
Cyclohexane	97.85%	2.15%
Other Hexanes	99.67%	0.33%
Heptanes	99.19%	0.81%
Methylcyclohexane	97.76%	2.24%
Benzene	78.58%	21.42%
Toluene	70.64%	29.36%
Ethylbenzene	65.65%	34.35%
Xylenes	55.82%	44.18%
C8+ Heavies	99.33%	0.67%

FLASH TANK

Flash Control: Combustion device
Flash Control Efficiency: 50.00 %
Flash Temperature: 70.0 deg. F
Flash Pressure: 150.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.98%	0.02%
Carbon Dioxide	25.06%	74.94%
Nitrogen	1.77%	98.23%
Methane	1.77%	98.23%
Ethane	7.33%	92.67%
Propane	15.59%	84.41%
Isobutane	24.35%	75.65%
n-Butane	31.08%	68.92%
Isopentane	36.41%	63.59%
n-Pentane	43.27%	56.73%
n-Hexane	61.60%	38.40%
Cyclohexane	87.61%	12.39%
Other Hexanes	53.64%	46.36%
Heptanes	79.43%	20.57%
Methylcyclohexane	90.99%	9.01%
Benzene	98.56%	1.44%
Toluene	99.23%	0.77%

Ethylbenzene	99.61%	0.39%
Xylenes	99.75%	0.25%
C8+ Heavies	96.06%	3.94%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	72.57%	27.43%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.68%	99.32%
n-Pentane	0.65%	99.35%
n-Hexane	0.55%	99.45%
Cyclohexane	3.34%	96.66%
Other Hexanes	1.15%	98.85%
Heptanes	0.50%	99.50%
Methylcyclohexane	4.03%	95.97%
Benzene	5.02%	94.98%
Toluene	7.88%	92.12%
Ethylbenzene	10.32%	89.68%
Xylenes	12.78%	87.22%
C8+ Heavies	9.68%	90.32%

STREAM REPORTS:

WET GAS STREAM

Temperature: 60.00 deg. F
Pressure: 1014.70 psia
Flow Rate: 2.92e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	3.57e-002	4.94e+000
Carbon Dioxide	1.53e-001	5.18e+001
Nitrogen	3.19e-001	6.86e+001
Methane	8.45e+001	1.04e+004
Ethane	1.13e+001	2.61e+003
Propane	2.52e+000	8.56e+002
Isobutane	3.47e-001	1.55e+002
n-Butane	4.67e-001	2.09e+002
Isopentane	1.39e-001	7.74e+001
n-Pentane	8.65e-002	4.80e+001
n-Hexane	2.47e-002	1.64e+001
Cyclohexane	6.90e-003	4.47e+000
Other Hexanes	6.24e-002	4.14e+001

Heptanes	3.46e-002	2.67e+001
Methylcyclohexane	5.80e-003	4.38e+000
Benzene	7.00e-004	4.20e-001
Toluene	1.80e-003	1.28e+000
Ethylbenzene	5.00e-004	4.08e-001
Xylenes	3.30e-003	2.69e+000
C8+ Heavies	1.53e-002	2.00e+001
Total Components	100.00	1.46e+004

DRY GAS STREAM

Temperature: 60.00 deg. F
Pressure: 1014.70 psia
Flow Rate: 2.92e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.19e-003	1.65e-001
Carbon Dioxide	1.52e-001	5.16e+001
Nitrogen	3.19e-001	6.86e+001
Methane	8.45e+001	1.04e+004
Ethane	1.13e+001	2.61e+003
Propane	2.52e+000	8.55e+002
Isobutane	3.47e-001	1.55e+002
n-Butane	4.66e-001	2.08e+002
Isopentane	1.39e-001	7.72e+001
n-Pentane	8.63e-002	4.79e+001
n-Hexane	2.46e-002	1.63e+001
Cyclohexane	6.75e-003	4.37e+000
Other Hexanes	6.22e-002	4.12e+001
Heptanes	3.43e-002	2.64e+001
Methylcyclohexane	5.67e-003	4.28e+000
Benzene	5.50e-004	3.30e-001
Toluene	1.27e-003	9.01e-001
Ethylbenzene	3.28e-004	2.68e-001
Xylenes	1.84e-003	1.50e+000
C8+ Heavies	1.52e-002	1.99e+001
Total Components	100.00	1.46e+004

LEAN GLYCOL STREAM

Temperature: 60.00 deg. F
Flow Rate: 1.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	8.31e+002
Water	1.50e+000	1.27e+001
Carbon Dioxide	2.49e-012	2.10e-011
Nitrogen	2.34e-013	1.98e-012
Methane	9.85e-018	8.32e-017
Ethane	1.10e-007	9.27e-007
Propane	4.72e-009	3.98e-008
Isobutane	8.76e-010	7.40e-009
n-Butane	1.31e-009	1.10e-008
Isopentane	9.45e-005	7.98e-004

n-Pentane	7.84e-005	6.62e-004
n-Hexane	4.34e-005	3.66e-004
Cyclohexane	3.76e-004	3.17e-003
Other Hexanes	1.66e-004	1.40e-003
Heptanes	1.28e-004	1.08e-003
Methylcyclohexane	4.83e-004	4.08e-003
Benzene	5.61e-004	4.73e-003
Toluene	3.79e-003	3.20e-002
Ethylbenzene	1.92e-003	1.62e-002
Xylenes	2.07e-002	1.75e-001
C8+ Heavies	2.15e-003	1.81e-002
Total Components	100.00	8.44e+002

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 60.00 deg. F
Pressure: 1014.70 psia
Flow Rate: 1.60e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.35e+001	8.31e+002
Water	1.96e+000	1.75e+001
Carbon Dioxide	3.60e-002	3.20e-001
Nitrogen	1.86e-002	1.65e-001
Methane	2.76e+000	2.45e+001
Ethane	8.41e-001	7.48e+000
Propane	3.14e-001	2.79e+000
Isobutane	6.47e-002	5.75e-001
n-Butane	9.98e-002	8.87e-001
Isopentane	3.64e-002	3.23e-001
n-Pentane	2.63e-002	2.34e-001
n-Hexane	1.21e-002	1.08e-001
Cyclohexane	1.22e-002	1.09e-001
Other Hexanes	2.56e-002	2.27e-001
Heptanes	3.07e-002	2.73e-001
Methylcyclohexane	1.25e-002	1.11e-001
Benzene	1.08e-002	9.57e-002
Toluene	4.60e-002	4.09e-001
Ethylbenzene	1.77e-002	1.57e-001
Xylenes	1.54e-001	1.37e+000
C8+ Heavies	2.19e-002	1.95e-001
Total Components	100.00	8.89e+002

FLASH TANK OFF GAS STREAM

Temperature: 70.00 deg. F
Pressure: 164.70 psia
Flow Rate: 6.92e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.85e-003	3.23e-003
Carbon Dioxide	2.99e-001	2.40e-001
Nitrogen	3.17e-001	1.62e-001

Methane	8.24e+001	2.41e+001
Ethane	1.26e+001	6.93e+000
Propane	2.93e+000	2.35e+000
Isobutane	4.11e-001	4.35e-001
n-Butane	5.77e-001	6.11e-001
Isopentane	1.56e-001	2.06e-001
n-Pentane	1.01e-001	1.33e-001
n-Hexane	2.64e-002	4.14e-002
Cyclohexane	8.77e-003	1.34e-002
Other Hexanes	6.71e-002	1.05e-001
Heptanes	3.07e-002	5.61e-002
Methylcyclohexane	5.60e-003	1.00e-002
Benzene	9.70e-004	1.38e-003
Toluene	1.89e-003	3.17e-003
Ethylbenzene	3.14e-004	6.08e-004
Xylenes	1.77e-003	3.42e-003
C8+ Heavies	2.47e-003	7.66e-003
Total Components	100.00	3.54e+001

FLASH TANK GLYCOL STREAM

Temperature: 70.00 deg. F
Flow Rate: 1.52e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.74e+001	8.31e+002
Water	2.04e+000	1.75e+001
Carbon Dioxide	9.38e-003	8.01e-002
Nitrogen	3.42e-004	2.92e-003
Methane	5.10e-002	4.35e-001
Ethane	6.42e-002	5.48e-001
Propane	5.09e-002	4.35e-001
Isobutane	1.64e-002	1.40e-001
n-Butane	3.23e-002	2.76e-001
Isopentane	1.38e-002	1.18e-001
n-Pentane	1.19e-002	1.01e-001
n-Hexane	7.78e-003	6.64e-002
Cyclohexane	1.11e-002	9.51e-002
Other Hexanes	1.43e-002	1.22e-001
Heptanes	2.54e-002	2.17e-001
Methylcyclohexane	1.19e-002	1.01e-001
Benzene	1.10e-002	9.43e-002
Toluene	4.76e-002	4.06e-001
Ethylbenzene	1.84e-002	1.57e-001
Xylenes	1.60e-001	1.37e+000
C8+ Heavies	2.19e-002	1.87e-001
Total Components	100.00	8.54e+002

FLASH GAS EMISSIONS

Flow Rate: 1.54e+003 scfh
Control Method: Combustion Device
Control Efficiency: 50.00

Component	Conc.	Loading

	(vol%)	(lb/hr)
Water	4.99e+001	3.64e+001
Carbon Dioxide	2.77e+001	4.94e+001
Nitrogen	1.43e-001	1.62e-001
Methane	1.85e+001	1.20e+001
Ethane	2.84e+000	3.47e+000
Propane	6.58e-001	1.18e+000
Isobutane	9.22e-002	2.18e-001
n-Butane	1.30e-001	3.06e-001
Isopentane	3.51e-002	1.03e-001
n-Pentane	2.27e-002	6.63e-002
n-Hexane	5.92e-003	2.07e-002
Cyclohexane	1.97e-003	6.72e-003
Other Hexanes	1.51e-002	5.27e-002
Heptanes	6.90e-003	2.81e-002
Methylcyclohexane	1.26e-003	5.01e-003
Benzene	2.18e-004	6.90e-004
Toluene	4.24e-004	1.58e-003
Ethylbenzene	7.05e-005	3.04e-004
Xylenes	3.97e-004	1.71e-003
C8+ Heavies	5.54e-004	3.83e-003
Total Components	100.00	1.04e+002

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.36e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.42e+001	4.79e+000
Carbon Dioxide	5.08e-001	8.01e-002
Nitrogen	2.91e-002	2.92e-003
Methane	7.57e+000	4.35e-001
Ethane	5.09e+000	5.48e-001
Propane	2.75e+000	4.35e-001
Isobutane	6.73e-001	1.40e-001
n-Butane	1.32e+000	2.76e-001
Isopentane	4.52e-001	1.17e-001
n-Pentane	3.89e-001	1.01e-001
n-Hexane	2.14e-001	6.61e-002
Cyclohexane	3.05e-001	9.19e-002
Other Hexanes	3.90e-001	1.20e-001
Heptanes	6.01e-001	2.16e-001
Methylcyclohexane	2.76e-001	9.71e-002
Benzene	3.20e-001	8.96e-002
Toluene	1.13e+000	3.74e-001
Ethylbenzene	3.69e-001	1.41e-001
Xylenes	3.14e+000	1.19e+000
C8+ Heavies	2.77e-001	1.69e-001
Total Components	100.00	9.48e+000

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."

- **Monitoring/Recordkeeping/Reporting/Testing Plans**
  A. Monitoring
  B. Recordkeeping
  C. Reporting
  D. Testing

Attachment O
MONITORING/RECORDKEEPING/REPORTING/TESTING PLANS

Williams Ohio Valley Midstream LLC proposes the following monitoring, recordkeeping, testing and reporting requirements at the subject facility:

A. Monitoring

1. Monitor and record quantity of natural gas treated in the dehydrator.
2. Use data collected above as input into GRI-GLYCalc Model to determine actual and potential VOC and HAP emissions on yearly basis.

B. Recordkeeping

1. Maintain records of the amount of natural gas treated in the dehydrator.
2. Maintain records demonstrating the actual annual average volume of natural gas treated in the dehydrator is less than 3 MMscfd OR the actual annual average benzene emissions are less than one ton per year.
4. Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the dehydration unit and ancillary equipment.
5. The records shall be maintained on site or in a readily available off-site location for a period of five (5) years.

C. Reporting

1. Any deviations from the allowable emissions limitations, including visible emissions.
2. Any and all application forms, reports, or compliance certifications required by this Permit shall be certified by a responsible official.

D. Testing

Not Applicable (except for annual extended gas analysis described above).

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.

Williams Ohio Valley Midstream LLC

STOUT DEHYDRATION STATION

Application for 45CSR13 NSR Permit

Attachment P

Public Notice

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) Permit for the existing Stout Dehydration Station; located approx. 0.6 miles East of State Highway 250, approx. 3.1 miles Northeast of Cameron in Marshall County, West Virginia.

The latitude and longitude coordinates are 39.8653° North x -80.5458° West.

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

0.10	tons of nitrogen oxides per year
0.08	tons of carbon monoxide per year
36.22	tons of volatile organic compounds per year
0.001	tons of sulfur dioxide per year
0.01	tons of particulate matter per year
0.60	tons of benzene per year
0.86	tons of ethylbenzene per year
0.0001	tons of formaldehyde per year
0.87	tons of n-hexane per year
2.10	tons of toluene per year
0.12	tons of 2,2,4-trimethylpentane per year
6.41	tons of xylenes per year
10.95	tons of total hazardous air pollutants per year
2,200	tons of carbon dioxide equivalent 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 1227, during normal business hours.

Dated this the _____ day of _____ 2015.

By: Mr. Don Wicburg, Vice President and General Manager
Williams Ohio Valley Midstream LLC
100 Teletech Drive, Suite 2
Moundsville, WV 26041

ATTACHMENT Q
Business Confidential Claims
(NOT APPLICABLE)

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also

ATTACHMENT R
Authority Forms
(NOT APPLICABLE)

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also

ATTACHMENT S
Title V Permit Revision Information
(NOT APPLICABLE)

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 $1,000** must be submitted for each 45CSR13 permit 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: $1,500 Not Applicable
  - **NESHAP Requirements: $2,500 Dehydrator (NESHAP HH)**
- Total application fee is **$3,500** [= $1,000 minimum fee + $2,500 additional charges]

******* End of Application for 45CSR13 NSR Permit ******