Dominion Resource Services, Inc.
5000 Dominion Boulevard, Glen Allen, VA 23060
dom.com

May 29, 2015

BY: U.S. CERTIFIED MAIL, RETURN RECEIPT REQUESTED
7014 3490 0000 0448 3979

William F. Durham
Director, Division of Air Quality
WVDEP
601 57th Street
Charleston, WV 25304

RE: Dominion Transmission, Inc. – R13 Class II Administrative Update Application Smithburg Compressor Station

Dear Mr. Durham:

Pursuant to Condition 2.7 of Permit R13-2695A, Dominion Transmission, Inc. ("DTI") is submitting the attached R13 Class II Administrative Update application. Enclosed are one complete original and two (2) cd copies. We ask that the West Virginia Department of Environmental Protection ("WVDEP") amend our permit consistent with this application. DTI is submitting this application to amend emission limitation based on actual operating conditions rather than vendor information provided at the time the original application was submitted.

In the permit application dated May 20, 2010, DTI provided vendor design criteria relating to the operation of the Dehydration Unit (DEHY01), specifically, the Contactor pressure (200 psi) and temperature (65 °F). These parameters were used in GLYCalc™ to estimate the emissions that WVDEP incorporated into the permit as limits at Condition 7.1.2. Actual operating data indicate that the Contactor pressure ranges between 160 and 355 psi, while the temperature ranges between 60°F and 120°F. Therefore, while the design data are within the range of actual operating data, those operating data were arguably not "representative of actual operating data" as required by 40 CFR 63 Subpart HH. To ensure that the limits in Section 7.1.2 reflect GLYCalc ™ using inputs that are representative of actual operating data, DTI is requesting, in the attached application, that the limits in Condition 7.1.2 be revised to address the variability in actual operating conditions. More specifically, DTI is requesting that the emission limits in Section 7.1.2 be amended to reflect the GLYCalc ™ calculations using the upper range of the actual operating conditions. As a result, the new emission limits are as follows (and in Attachment D):

Pollutant	(lbs/hr)	(tons/yr)
VOC	3.80	16.63
Benzene	0.05	0.22
Ethylbenzene	0.02	0.10
n-Hexane	0.05	0.23
Toluene	0.15	0.67
Xylene	0.22	0.95
Total HAPs	0.49	2.16

This requested revision does not affect the facility's status as an area source of hazardous air pollutants or its exemption from 40 CFR 63, Subpart HH, because the facility still complies with the applicable limits in Sections 4.1.2 and 8.1.1 using values from high end of the actual operating data as inputs to GLYCalc™.

If you require any additional information, please contact Rebekah Remick at (804) 273-3536 or via email at Rebekah.J.Remick@dom.com.

Sincerely,

Amanda B. Tornabene
Director, Gas Environmental Services

DEP – The original and copies

Please scan signed original/attachments and name file as:
Smithburg – R13 Application for Increase in Dehy Limits – May 2015

Please upload to Documentum

Facility:	Smithburg Compressor Station
Title:	Smithburg – R13 Application for Increase in Dehy Limits – May 2015
Document Type:	Permit Applications
Environmental Program:	Air – State Permits

Send document link electronically to:

Pam Faggert
Mandy Tornabene
Paul Dickens
Becky Remick
Abby Credicott
Brian Sheppard
Phyllis Hinterer
Nick Cabo
Tyler Moyers
Shawnie Davis

DOMINION TRANSMISSION, INC.
SMITHBURG COMPRESSOR STATION

TABLE OF CONTENTS

Application for Permit to Construct, Modify, Relocate or Administratively Update a Stationary Source of Air Pollutants

ATTACHMENTS

**Note – There are no Attachments C, H, I, K, O, R, and S for this permit application

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**

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):*
Dominion Transmission, Inc.

2. Federal Employer ID No. ***(FEIN):***
550629203

3. Name of facility *(if different from above):*
Smithburg Compressor Station

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

5A. Applicant's mailing address:
445 West Main Street
Clarksburg, WV 26301

5B. Facility's present physical address:
Route 2, Box 45-A
West Union, WV 26456

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:

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: Own
- 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.): Natural gas compressor station

10. North American Industry Classification System **(NAICS)** code for the facility:
486210

11A. DAQ Plant ID No. (for existing facilities only):
017-00002

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
R13-2695A
G60-C027

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

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;
- 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 intersection of Rt. 50 and Rt. 98, go West of Rt. 50 for 19.2 miles to the Snowbird Road. Turn left onto the Snowbird Road and travel 0.3 miles to the station (on the left).

12.B. New site address (if applicable):	12C. Nearest city or town: Smithburg	12D. County: Doddridge
12.E. UTM Northing (KM): 4348113	12F. UTM Easting (KM): 522900	12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:
Revising GLYCalc input operating parameters to represent current worst case operating conditions

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

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).

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

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.**

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

☐ Bulk Liquid Transfer Operations	☐ Haul Road Emissions	☐ Quarry
☐ Chemical Processes	☐ Hot Mix Asphalt Plant	☐ Solid Materials Sizing, Handling and Storage Facilities
☐ Concrete Batch Plant	☐ Incinerator	☐ Storage Tanks
☐ Grey Iron and Steel Foundry	☐ Indirect Heat Exchanger	

☒ General Emission Unit, specify Dehydration Unit

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 (Vapor Incinerator)
☐ 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:

☐ 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 (per 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 _____ DATE: 05-22-15

(Please use blue ink) *(Please use blue ink)*

35B. Printed name of signee: Brian Sheppard		35C. Title: Vice President, Pipeline Operations
35D. E-mail: Brian.C.Sheppard@dom.com	36E. Phone: 304-627-3733	36F. FAX: 304-627-3323
36A. Printed name of contact person (if different from above): Rebekah Remick		36B. Title: Environmental Specialist III
36C. E-mail: Rebekah.J.Remick@dom.com	36D. Phone: 804-273-3536	36E. FAX: 804-273-2964

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**
- ☐ **Attachment R: Authority Forms**
- ☐ **Attachment S: Title V Permit Revision Information**
- ☒ **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

Current Business Certificate

WEST VIRGINIA
STATE TAX DEPARTMENT

BUSINESS REGISTRATION CERTIFICATE

ISSUED TO:
DOMINION TRANSMISSION INC
445 W MAIN ST
CLARKSBURG, WV 26301-2843

BUSINESS REGISTRATION ACCOUNT NUMBER: **1038-3470**

This certificate is issued on: 06/8/2011

This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12, of the West Virginia Code

The person or organization identified on this certificate is registered to conduct business in the State of West Virginia at the location above.

This certificate is not transferrable and must be displayed at the location for which issued.

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

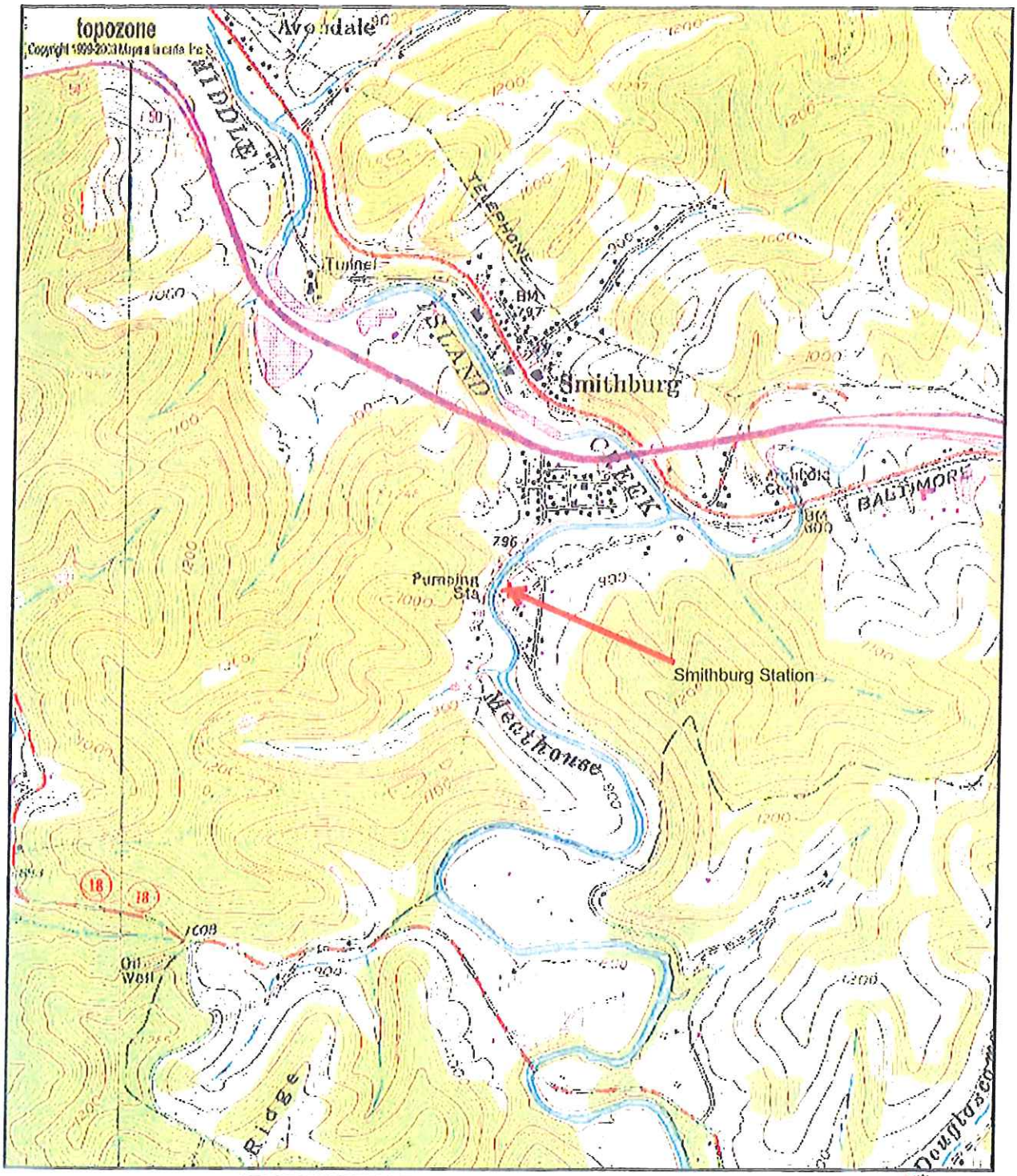
Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

atL006 v.4
L0228957312

Attachment B

Map



0 0.3 0.6 0.9 1.2 1.5 km

0 0.2 0.4 0.6 0.8 1 mi

M
G

M=-8.213

G=0.168

UTM 17 522900E 4348113N (NAD83/WGS84)

USGS Smithburg (WV) Quadrangle

Projection is UTM Zone 17 NAD83 Datum

Attachment D

Regulatory Discussion

REGULATORY DISCUSSION

This section provides an air quality regulatory review of the proposed Class II Administrative Update to Smithburg Compressor Station. To determine the regulations of concern, a regulatory applicability analysis has been conducted. Regulations that require an applicability determination include:

- Classification of Ambient Air Quality (40 CFR 81)
- Prevention of Significant Deterioration (PSD) Regulations (40 CFR 52.21)
- Non-Attainment New Source Review (NSR) Regulations (40 CFR 52.24)
- West Virginia Minor Source Permitting (WV Regulation 13)
- National Emissions Standards for Hazardous Air Pollutants (40 CFR 63)

Classification of Air Quality

Smithburg Compressor Station is located on a property near Smithburg, Doddridge County, West Virginia. The area is classified as attainment with respect to the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants.

Prevention of Significant Deterioration (PSD)

The WVDEP is delegated the authority to implement federal air quality requirements. West Virginia's PSD regulations are found in 45 CSR 14. The PSD program is a new source review process used to ensure that a new source will not cause a significant deterioration of local ambient air quality. PSD applies only to "major" new sources or "major" modifications to an existing source located in attainment areas. A "major" stationary source is defined as one of the 28 source categories identified in 40 CFR 52.21, which has a potential to emit of 100 tons or more per year of any regulated pollutant, OR any other stationary source which has the potential to emit 250 tons or more per year of a regulated pollutant. Smithburg Compressor Station is not one of the 28 categories identified in 40 CFR 52.21 and has potential emissions below 250 tons per year of all regulated pollutants. Therefore, is not classified as a major source and the PSD regulations do not apply.

Non-Attainment New Source Review

As identified above, Doddridge County, West Virginia, is currently classified as attainment with respect to the NAAQS for all criteria pollutants. Therefore, the nonattainment regulations are not applicable.

West Virginia Minor Source Permitting (R13)

The requirement for new or modified sources to make application to the WVDEP is provided in 45 CSR 13 (Permits for Construction, Modification, Relocation, and Operation of Stationary Sources of Air Pollutants) – Regulation 13. Regulation 13 is applicable to new sources or modifications that result in an emissions increase of:

- 6 lbs/hr and 10 tons/yr of any regulated pollutant, or
- 144 lbs/day of any regulated pollutant, OR
- 2 lbs/hr or 5 tons/yr of HAPs

Since the proposed increase in emissions from the dehydration unit are not above these threshold levels, this permit action will be a Class II Administrative Update to a Regulation 13 permit.

Pollutant	Current PTE of Dehy Unit		New PTE with Updated Dehy Limits		Change in PTE Emissions		
	(lbs/hr)	(tons/yr)	(lbs/hr)	(tons/yr)	(lbs/hr)	(lbs/day)	(tons/yr)
VOC	0.85	3.74	3.80	16.63	+2.95	+70.8	+12.89
Benzene	0.01	0.05	0.05	0.22	+0.04	+0.96	+0.17
Ethylbenzene	0.03	0.13	0.02	0.10	-0.01	-0.24	-0.03
n-Hexane	0.01	0.05	0.05	0.23	+0.04	+0.96	+0.18
Toluene	0.05	0.21	0.15	0.67	+0.1	+2.4	+0.46
Xylene	0.06	0.26	0.22	0.95	+0.16	+3.84	+0.69
Total HAPs	0.16	0.7	0.49	2.16	+0.33	+7.92	+1.46

****Note:** The potential to emit (PTE) calculations for the dehydration unit have been updated to represent actual operations at worst case scenarios. A new GLYCalc run has been processed and a 20% safety factor has been included to the VOC and HAP limits to help with variability in operating parameters and wet gas samples.

For example: VOC

GLYCalc = 13.8544 tons/yr

PTE Limits = 13.8544 * 1.2 = 16.63 tons VOC/yr

National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart HH

Section 112 of the Clean Air Act provides the EPA with a vehicle for developing standards for potentially hazardous air pollutants (HAPs) for specific categories of sources. The regulations that have been developed to implement Section 112(b) are presented in 40 CFR Part 63: National Emission Standards for Hazardous Air Pollutants (NESHAP). Sources located at a facility with potential emission levels of 10 tons/yr of any single HAP or 25 tons/yr total HAPs are potentially subject to these requirements.

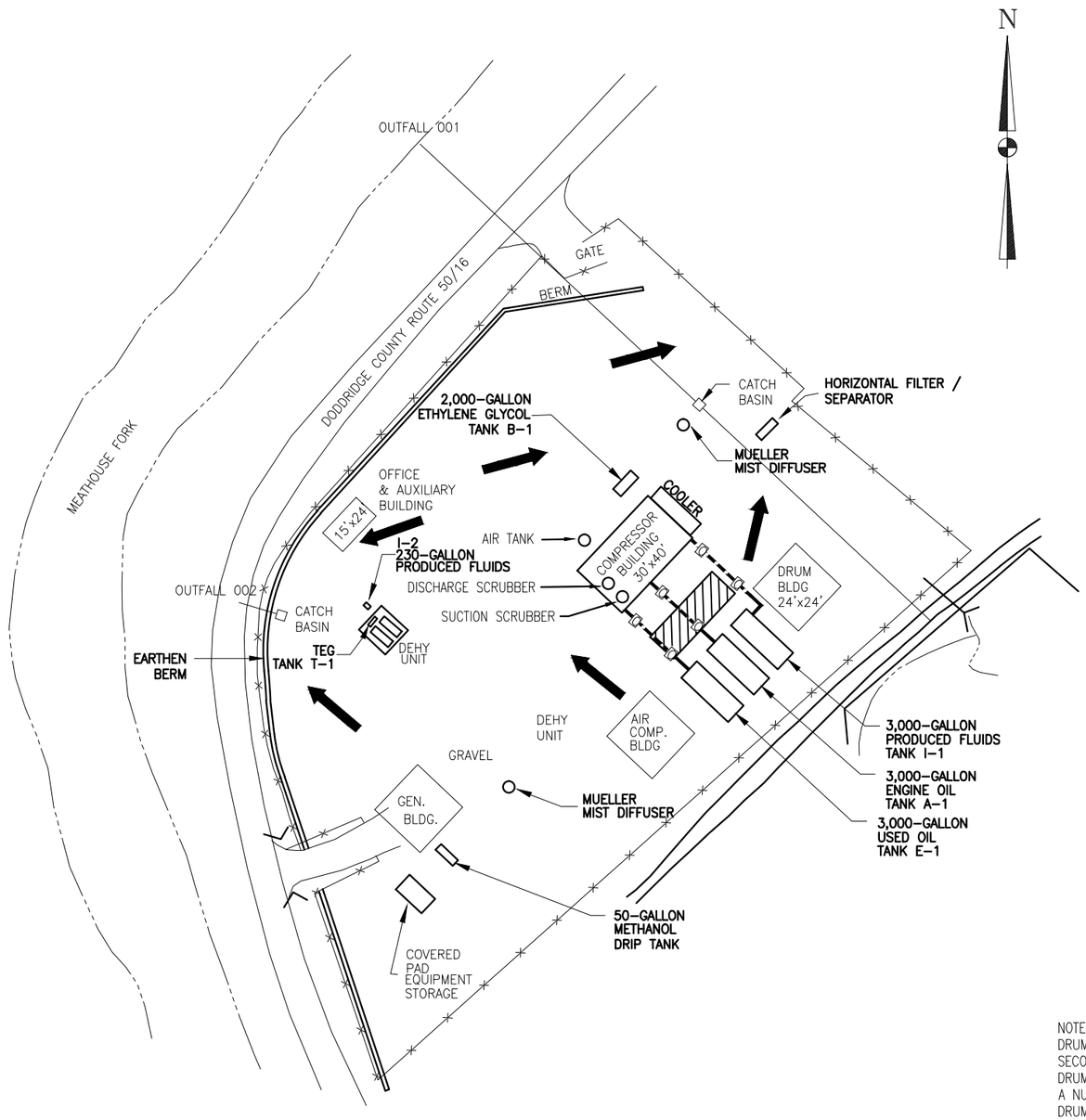
On June 17, 1999 the USEPA issued the NESHAP for Oil and Natural Gas Production facilities (Subpart HH). These rules contain air pollution emission control and monitoring requirements for new and existing glycol dehydration units.

On January 3, 2007 the USEPA amended Subpart HH, promulgating standards for area sources. Area sources are facilities that have potential emission levels of less than 10 tons/yr of any single HAP and less than 25 tons/yr total HAPs. Smithburg Compressor Station, having the existing thermal oxidizer permitted for control efficiency, is considered an area source and thus is subject to the requirements of Subpart HH. The unit is exempted under §63.764(e)(1)(ii) from the requirements of the Subpart due to actual benzene emissions being less than 1 ton/yr as shown by the potential to emit for the unit.

Attachment E

Plot Plan

OIL–CONTAINING MECHANICAL EQUIPMENT		
QUANTITY	MATERIAL	LOCATION
112–GALLONS	LUBE OIL	COMPRESSOR ENGINE COMPRESSOR BUILDING
171–GALLONS	PRODUCED FLUIDS	SUCTION SCRUBBER
102–GALLONS	PRODUCED FLUIDS	DISCHARGE SCRUBBER
149–GALLONS	PRODUCED FLUIDS	FILTER / SEPARATOR
(2) 216–GALLONS	PRODUCED FLUIDS	MUELLER MIST DIFFUSER (2)



LEGEND:

- ABOVEGROUND OIL CONTAINING PIPE
- UNDERGROUND OIL CONTAINING PIPE
- FLOW DIRECTION
- TRUCK LOADING/UNLOADING

NOTES:

1. LOCATIONS OF ALL BUILDINGS, AREAS, AND SITE FEATURES ARE APPROXIMATE.

NOTES:
DRUMS STORED AT DEHY UNIT WITH IN SECONDARY CONTAINMENT AND ALSO DRUM BLDG. CAN BE USED TO STORE A NUMBER OF DRUMS AND TYPE OF DRUMS CAN VARY DURING THE YEAR.

SYM.	DATE	BY	REVISION DESCRIPTION	PRJ/TSK	APP.
2	3/24/11	JDB	PER TIM JACKSON MARK UPS		
1	4/27/10	JDB	PER RUSS EVANS MARK UPS		

SCALE	N.T.S.	DATE
DRAWN	DJF SE TECH.	
CHECKED		

Dominion Transmission, Inc.
445 West Main St. Clarksburg, West Virginia 26301 / Phone: (304) 623–8000

TITLE: SMITHBURG COMPRESSOR STATION
DODDRIDGE CO., WEST VIRGINIA
ENVIRONMENTAL EMERGENCY SITE PLAN

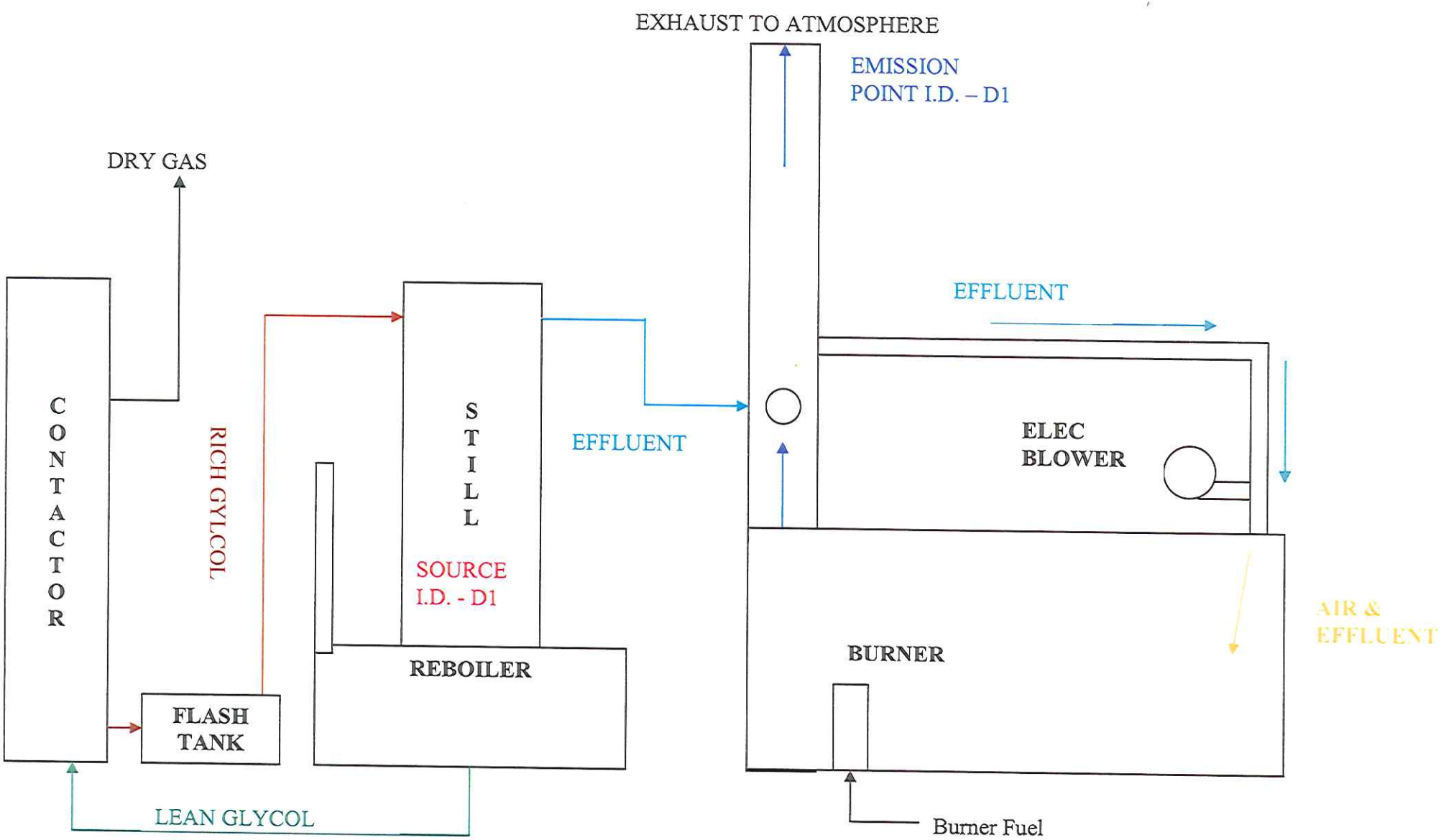
DIR:		GROUP	DWG. NO.	REV.
FILE:	PRJ/TSK:	PD	X3720C	2

Printed: Mar 24, 2011 @07:14, By: jerem35, Filename: PDX3720C.dwg

Attachment F

Detailed Process Flow Diagram

PROCESS FLOW DIAGRAMS



Attachment G

Process Description

PROCESS DESCRIPTION

Natural gas comes into the facility and is compressed by one reciprocating internal combustion engine (E1) burning natural gas. The compressed natural gas then proceeds to the dehydration unit. The purpose of the dehydration unit is to remove moisture from the gas stream to comply with gas quality specifications. The process to remove the moisture begins with the incoming gas being passed through a triethylene glycol dehydration unit (D1) consisting of a contactor bed, a reboiler (RB1), and associated equipment. During this process, a small amount of hydrocarbons are extracted from the gas stream. The wet gas enters the contactor where moisture and some hydrocarbons are absorbed into the lean glycol. The glycol, which has become rich with absorbed moisture and hydrocarbons, is regenerated by heat in the natural gas fired reboiler (RB1) to liberate the moisture and hydrocarbon vapors. The regenerator vapors are vented to a vapor incinerator (I1) to combust the hydrocarbons prior to release to the atmosphere. The compressed, dehydrated gas then enters the pipeline.

Attachment J

Emission Points Data Summary Sheet

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^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr*	ton/yr*			
D1	Horizontal Stack	Dehy Still	I1	I1	Vapor Incin-erator	N/A	N/A	VOC	63.26	63.26	3.80	16.63	Gas	Other - GLYCalc	N/A
								Benzene	0.85	0.85	0.05	0.22			
								Ethylbenzene	0.38	0.38	0.02	0.10			
								n-Hexane	0.86	0.86	0.05	0.23			
								Toluene	2.54	2.54	0.15	0.67			
								Xylene	3.60	3.60	0.22	0.95			
											*Includes 20% safety factor				

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

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** H_2, H_2O, N_2, O_2, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

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) *at operating conditions*	Velocity (fps)	Ground Level *(Height above mean sea level)*	Stack Height [2] *(Release height of emissions above ground level)*	Northing	Easting
D1	0.69	455	65.8	3	N/A	19.2	4348113	522900

[1] Give at operating conditions. Include inerts.
[2] Release height of emissions above ground level.

Attachment L

Emissions Unit Data Sheet

NATURAL GAS GLYCOL DEHYDRATION UNIT DATA SHEET

General Glycol Dehydration Unit Data		Manufacturer and Model		Q.B. Johnson	
		Max Dry Gas Flow Rate (mmscf/day)		7.75 MMscf/day	
		Design Heat Input (mmBtu/hr)		0.375 MMBtu/hr	
		Design Type (DEG or TEG)		TEG	
		Source Status[2]		Existing	
		Date Installed/Modified/Removed[3]		2007	
		Regenerator Still Vent APCD[4]		FL	
		Fuel HV (Btu/scf)		1,000	
		H_2S Content (gr/100 scf)		0 ppm	
		Operation (hrs/yr)		8,760	
Source ID #[1]	Vent	Reference[5]	Potential Emissions[6]	lbs/hr	tons/yr
RBR01	Reboiler Vent	AP	NO_X	0.04	0.15
		AP	CO	0.03	0.13
		AP	VOC	0.00	0.01
		AP	SO_2	0.00	0.00
		AP	PM_{10}	0.00	0.01
D1	Glycol Regenerator Still Vent	GR	VOC	3.80	16.63
		GR	Benzene	0.05	0.22
		GR	Ethylbenzene	0.02	0.10
		GR	Toluene	0.15	0.67
		GR	Xylenes	0.22	0.95
		GR	n-Hexane	0.05	0.23

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
   MS Modification of Existing Source
   ES 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
   FL Flare
   TO Thermal Oxidizer
   CD Condenser
   CC Condenser/Combustion Combination

5. Enter the Potential Emissions Data Reference designation using the following codes:

MD	Manufacturer's Data	AP	AP-42	
GR	GRI-GLYCalc™	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-GLYCalc™ (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-GLYCalc™ 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-GLYCalc™ is available on our website.**

West Virginia Department of Environmental Protection

DIVISION OF AIR QUALITY : (304) 926-0475
WEB PAGE: http:\\www.wvdep.org

Division of Air Quality

40 CFR Part 63; Subpart HH & HHH Registration Form

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): 7.75 MMscf/day		
Affected facility actual annual average hydrocarbon liquid throughput: (bbl/day):		
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 ☐ a 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.	Yes	**No**
Initial producing gas-to-oil ratio (GOR): _____scf/bbl API gravity: _____degrees		

Section B: Dehydration Unit (if applicable) [1]		
Description: **Q.B. Johnson 7.75 MMscf/day Dehydration Unit**		
Date of Installation: **2007**	Annual Operating Hours: **8,760**	Burner rating (MMbtu/hr): **0.375 MMBtu/hr**
Exhaust Stack Height (ft): **19.2**	Stack Diameter (ft): **0.69**	Stack Temp. (°F): **455**
Glycol Type: ☒ TEG ☐ EG ☐ Other:		
Glycol Pump Type: ☒ Electric ☐ Gas If gas, what is the volume ratio? _____ACFM/gpm		
Condenser installed? ☐ Yes ☒ No Exit Temp. _____ °F Condenser Pressure _____psig		
Incinerator/flare installed? ☒ Yes ☐ No Destruction Eff. _95__%		
Other controls installed? ☐ Yes ☒ No Describe:		
Wet Gas[2]: Gas Temp.: _120__°F Gas Pressure __355__ psig (Upstream of Contact Tower) Saturated Gas? ☒ Yes ☐ No If no, water content _____ lb/MMSCF		
Dry Gas: Gas Flowrate(MMSCFD) Actual _____ Design _7.75 MMscf/day__ (Downstream of Contact Tower) Water Content ____ lb/MMSCF		
Lean Glycol: Circulation rate (gpm) Actual[3] _____ Maximum[4] __3.0 gal/lb H_2O Pump make/model:		
Glycol Flash Tank (if applicable): Temp.: __150____°F Pressure __70___ psig Vented? Yes ☐ No ☒ If no, describe vapor control: Recycle/recompression		
Stripping Gas (if applicable): Source of gas: Dry Gas Rate _5.830_ scfm		

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 percents of C_1-C_8, 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 – Benzene Exemption Claimed
- ☐ Subject to Subpart HHH
- ☐ Not Subject because:
  - ☐ < 10/25 TPY
  - ☐ Affected facility exclusively handles black oil
  - ☐ The 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 M

Air Pollution Control Device Sheet

Attachment M
Air Pollution Control Device Sheet
(FLARE SYSTEM)

Control Device ID No. (must match Emission Units Table): I1 (no changes with permit action)

Equipment Information

1. Manufacturer: Q.B. Johnson

   Model No.

2. Method:
   - ☐ Elevated flare
   - ☐ Ground flare
   - ☒ Other

   Describe: Vapor Incinerator

3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.

4. Method of system used:
   ☐ Steam-assisted ☒ Air-assisted ☐ Pressure-assisted ☐ Non-assisted

5. Maximum capacity of flare:
   scf/min
   scf/hr

6. Dimensions of stack:
   Diameter ft.
   Height ft.

7. Estimated combustion efficiency:
   (Waste gas destruction efficiency)
   Estimated: %
   Minimum guaranteed: 95 %

8. Fuel used in burners:
   - ☒ Natural Gas
   - ☐ Fuel Oil, Number
   - ☐ Other, Specify:

9. Number of burners:
   Rating: 700,000 BTU/hr

10. Will preheat be used? ☐ Yes ☐ No

11. Describe method of controlling flame:

12. Flare height: ft

13. Flare tip inside diameter: 2 inch burner nozzle ft

14. Natural gas flow rate to flare pilot flame per pilot light:
    11.67 scf/min
    700 scf/hr

15. Number of pilot lights:
    Total BTU/hr

16. Will automatic re-ignition be used?
    ☒ Yes ☐ No

17. If automatic re-ignition will be used, describe the method:
    Honeywell temperature control actuator

18. Is pilot flame equipped with a monitor? ☒ Yes ☐ No
    If yes, what type?
    - ☒ Thermocouple
    - ☐ Infra-Red
    - ☐ Ultra Violet
    - ☐ Camera with monitoring control room
    - ☐ Other, Describe:

19. Hours of unit operation per year: 8,760

Steam Injection

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

Characteristics of the Waste Gas Stream to be Burned

29.

Name	Quantity Grains of H_2S/100 ft^3	Quantity (LB/hr, ft^3/hr, etc)	Source of Material
Regen Stream	0	2,670 cf/hr	D1

30. Estimate total combustible to flare:	2,670 cf/hr	LB/hr or ACF/hr
(Maximum mass flow rate of waste gas)	60.5	scfm

31. Estimated total flow rate to flare including materials to be burned, carrier gases, auxiliary fuel, etc.:
LB/hr or ACF/hr

32. Give composition of carrier gases:

33. Temperature of emission stream: 212 °F Heating value of emission stream: 368.73 BTU/ft^3 Mean molecular weight of emission stream: MW = lb/lb-mole	34. Identify and describe all auxiliary fuels to be burned. BTU/scf BTU/scf BTU/scf BTU/scf
35. Temperature of flare gas: 900 - 1100 °F	36. Flare gas flow rate: scf/min
37. Flare gas heat content: BTU/ft^3	38. Flare gas exit velocity: scf/min

39. Maximum rate during emergency for one major piece of equipment or process unit: scf/min

40. Maximum rate during emergency for one major piece of equipment or process unit: BTU/min

41. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):

42. Describe the collection material disposal system:

43. Have you included ***Flare Control Device*** in the Emissions Points Data Summary Sheet? Yes

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

MONITORING:	RECORDKEEPING:
REPORTING:	TESTING:

MONITORING:	Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.
RECORDKEEPING:	Please describe the proposed recordkeeping that will accompany the monitoring.
REPORTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.
TESTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.

45. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

46. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

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

Attachment N

Supporting Emissions Calculations

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Smithburg
File Name: Q:\Facilities\DTI\West Virginia\Smithburg Station\Air\Dehy Re-Permit 2015\Smithburg 2015 PTE GLYCalc\Smithburg PTE GLYCacl 4-22-2015.ddf
Date: May 11, 2015

DESCRIPTION:

Description: Smithburg Glycalc

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 120.00 deg. F
Pressure: 355.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	0.1060
Nitrogen	1.3180
Methane	76.5890
Ethane	11.9450
Propane	5.2320
Isobutane	0.8810
n-Butane	1.6620
Isopentane	0.5970
n-Pentane	0.4960
n-Hexane	0.1910
Cyclohexane	0.0390
Other Hexanes	0.2840
Heptanes	0.3140
Benzene	0.0070
Toluene	0.0120
Ethylbenzene	0.0010
Xylenes	0.0070
C8+ Heavies	0.3190

DRY GAS:

Flow Rate: 7.8 MMSCF/day
Absorber Stages: 4.0

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Recirculation Ratio: 3.0 gal/lb H2O

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control:	Recycle/recompression
Temperature:	150.0 deg. F
Pressure:	70.0 psig

STRIPPING GAS:

Source of Gas:	Dry Gas
Gas Flow Rate:	5.830 scfm

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device:	Combustion Device
Destruction Efficiency:	95.0 %
Excess Oxygen:	15.0 %
Ambient Air Temperature:	60.0 deg. F

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Smithburg
File Name: Q:\Facilities\DTI\West Virginia\Smithburg Station\Air\Dehy Re-Permit 2015\Smithburg 2015 PTE GLYCalc\Smithburg PTE GLYCacl 4-22-2015.ddf
Date: May 11, 2015

DESCRIPTION:

Description: Smithburg Glycalc

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.5851	14.042	2.5626
Ethane	0.2077	4.984	0.9096
Propane	0.1830	4.392	0.8015
Isobutane	0.0515	1.237	0.2257
n-Butane	0.1189	2.854	0.5208
Isopentane	0.0571	1.371	0.2502
n-Pentane	0.0574	1.377	0.2514
n-Hexane	0.0430	1.032	0.1883
Cyclohexane	0.0347	0.833	0.1521
Other Hexanes	0.0500	1.199	0.2189
Heptanes	0.1556	3.734	0.6814
Benzene	0.0423	1.015	0.1852
Toluene	0.1271	3.051	0.5567
Ethylbenzene	0.0189	0.454	0.0828
Xylenes	0.1801	4.323	0.7890
C8+ Heavies	2.0435	49.043	8.9504
Total Emissions	3.9558	94.940	17.3266
Total Hydrocarbon Emissions	3.9558	94.940	17.3266
Total VOC Emissions	3.1631	75.914	13.8544
Total HAP Emissions	0.4114	9.875	1.8021
Total BTEX Emissions	0.3684	8.843	1.6138

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	11.7015	280.836	51.2526
Ethane	4.1533	99.680	18.1916
Propane	3.6598	87.835	16.0298
Isobutane	1.0305	24.732	4.5136
n-Butane	2.3780	57.072	10.4156
Isopentane	1.1424	27.418	5.0039
n-Pentane	1.1478	27.547	5.0272
n-Hexane	0.8600	20.640	3.7667
Cyclohexane	0.6944	16.666	3.0415
Other Hexanes	0.9995	23.989	4.3779
Heptanes	3.1113	74.671	13.6275

Benzene	0.8457	20.297	3.7041
Toluene	2.5422	61.013	11.1349
Ethylbenzene	0.3783	9.079	1.6570
Xylenes	3.6027	86.465	15.7799
C8+ Heavies	40.8694	980.867	179.0082
Total Emissions	79.1169	1898.806	346.5321
Total Hydrocarbon Emissions	79.1169	1898.806	346.5321
Total VOC Emissions	63.2621	1518.290	277.0879
Total HAP Emissions	8.2289	197.494	36.0426
Total BTEX Emissions	7.3689	176.854	32.2759

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	1.9634	47.121	8.5995
Ethane	1.3853	33.247	6.0676
Propane	1.1682	28.036	5.1166
Isobutane	0.3004	7.210	1.3159
n-Butane	0.6257	15.018	2.7408
Isopentane	0.2811	6.746	1.2312
n-Pentane	0.2523	6.056	1.1052
n-Hexane	0.1292	3.101	0.5660
Cyclohexane	0.0321	0.770	0.1406
Other Hexanes	0.1819	4.365	0.7966
Heptanes	0.2706	6.494	1.1851
Benzene	0.0065	0.156	0.0284
Toluene	0.0133	0.320	0.0584
Ethylbenzene	0.0012	0.029	0.0053
Xylenes	0.0079	0.190	0.0346
C8+ Heavies	0.5717	13.721	2.5040
Total Emissions	7.1908	172.580	31.4958
Total Hydrocarbon Emissions	7.1908	172.580	31.4958
Total VOC Emissions	3.8422	92.212	16.8287
Total HAP Emissions	0.1582	3.796	0.6928
Total BTEX Emissions	0.0289	0.695	0.1268

EQUIPMENT REPORTS:

COMBUSTION DEVICE

Ambient Temperature:	60.00 deg. F
Excess Oxygen:	15.00 %
Combustion Efficiency:	95.00 %
Supplemental Fuel Requirement:	3.81e-001 MM BTU/hr

Component	Emitted	Destroyed
Methane	5.00%	95.00%
Ethane	5.00%	95.00%
Propane	5.00%	95.00%
Isobutane	5.00%	95.00%
n-Butane	5.00%	95.00%
Isopentane	5.00%	95.00%
n-Pentane	5.00%	95.00%
n-Hexane	5.00%	95.00%
Cyclohexane	5.00%	95.00%
Other Hexanes	5.00%	95.00%
Heptanes	5.00%	95.00%
Benzene	5.00%	95.00%
Toluene	5.00%	95.00%
Ethylbenzene	5.00%	95.00%
Xylenes	5.00%	95.00%
C8+ Heavies	5.00%	95.00%

ABSORBER

Specified Absorber Stages:	4.00	
Calculated Dry Gas Dew Point:	8.16	lbs. H2O/MMSCF
Temperature:	120.0	deg. F
Pressure:	355.0	psig
Dry Gas Flow Rate:	7.8000	MMSCF/day
Glycol Losses with Dry Gas:	0.1352	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	236.65	lbs. H2O/MMSCF
Specified Lean Glycol Recirc. Ratio:	3.00	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.43%	96.57%
Carbon Dioxide	99.75%	0.25%
Nitrogen	99.98%	0.02%
Methane	99.98%	0.02%
Ethane	99.93%	0.07%
Propane	99.86%	0.14%
Isobutane	99.80%	0.20%
n-Butane	99.74%	0.26%
Isopentane	99.72%	0.28%
n-Pentane	99.65%	0.35%
n-Hexane	99.41%	0.59%
Cyclohexane	97.52%	2.48%
Other Hexanes	99.54%	0.46%
Heptanes	98.85%	1.15%
Benzene	81.91%	18.09%
Toluene	73.12%	26.88%
Ethylbenzene	58.36%	41.64%
Xylenes	43.36%	56.64%
C8+ Heavies	91.20%	8.80%

FLASH TANK

Flash Control: Recycle/recompression

Flash Temperature: 150.0 deg. F
Flash Pressure: 70.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.98%	0.02%
Carbon Dioxide	64.96%	35.04%
Nitrogen	14.71%	85.29%
Methane	15.89%	84.11%
Ethane	37.81%	62.19%
Propane	56.77%	43.23%
Isobutane	65.05%	34.95%
n-Butane	70.41%	29.59%
Isopentane	72.77%	27.23%
n-Pentane	76.56%	23.44%
n-Hexane	84.66%	15.34%
Cyclohexane	95.54%	4.46%
Other Hexanes	81.18%	18.82%
Heptanes	91.30%	8.70%
Benzene	99.27%	0.73%
Toluene	99.52%	0.48%
Ethylbenzene	99.72%	0.28%
Xylenes	99.81%	0.19%
C8+ Heavies	98.77%	1.23%

REGENERATOR

Regenerator Stripping Gas:
Dry Product Gas
Stripping Gas Flow Rate: 5.8300 scfm

Component	Remaining in Glycol	Distilled Overhead
Water	29.60%	70.40%
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	0.69%	99.31%
n-Pentane	0.65%	99.35%
n-Hexane	0.59%	99.41%
Cyclohexane	3.35%	96.65%
Other Hexanes	1.23%	98.77%
Heptanes	0.55%	99.45%
Benzene	5.04%	94.96%
Toluene	7.94%	92.06%
Ethylbenzene	10.44%	89.56%
Xylenes	12.95%	87.05%
C8+ Heavies	12.15%	87.85%

STREAM REPORTS:

WET GAS STREAM

Temperature: 120.00 deg. F
Pressure: 369.70 psia
Flow Rate: 3.27e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.99e-001	7.74e+001
Carbon Dioxide	1.05e-001	4.00e+001
Nitrogen	1.31e+000	3.16e+002
Methane	7.62e+001	1.05e+004
Ethane	1.19e+001	3.08e+003
Propane	5.21e+000	1.98e+003
Isobutane	8.77e-001	4.39e+002
n-Butane	1.65e+000	8.28e+002
Isopentane	5.94e-001	3.69e+002
n-Pentane	4.94e-001	3.07e+002
n-Hexane	1.90e-001	1.41e+002
Cyclohexane	3.88e-002	2.81e+001
Other Hexanes	2.83e-001	2.10e+002
Heptanes	3.12e-001	2.70e+002
Benzene	6.97e-003	4.69e+000
Toluene	1.19e-002	9.48e+000
Ethylbenzene	9.95e-004	9.10e-001
Xylenes	6.97e-003	6.37e+000
C8+ Heavies	3.17e-001	4.66e+002
Total Components	100.00	1.91e+004

DRY GAS STREAM

Temperature: 120.00 deg. F
Pressure: 369.70 psia
Flow Rate: 3.25e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.72e-002	2.65e+000
Carbon Dioxide	1.06e-001	3.99e+001
Nitrogen	1.32e+000	3.16e+002
Methane	7.66e+001	1.05e+004
Ethane	1.19e+001	3.08e+003
Propane	5.23e+000	1.98e+003
Isobutane	8.80e-001	4.38e+002
n-Butane	1.66e+000	8.26e+002
Isopentane	5.96e-001	3.68e+002
n-Pentane	4.95e-001	3.06e+002
n-Hexane	1.90e-001	1.40e+002
Cyclohexane	3.81e-002	2.74e+001
Other Hexanes	2.83e-001	2.09e+002
Heptanes	3.11e-001	2.67e+002
Benzene	5.74e-003	3.84e+000
Toluene	8.78e-003	6.93e+000
Ethylbenzene	5.84e-004	5.31e-001
Xylenes	3.04e-003	2.76e+000
C8+ Heavies	2.91e-001	4.25e+002

Total Components	100.00	1.90e+004

LEAN GLYCOL STREAM

Temperature: 120.00 deg. F
Flow Rate: 3.72e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.82e+001	2.06e+003
Water	1.50e+000	3.14e+001
Carbon Dioxide	4.83e-013	1.01e-011
Nitrogen	3.34e-013	7.00e-012
Methane	3.74e-018	7.84e-017
Ethane	5.02e-008	1.05e-006
Propane	5.25e-009	1.10e-007
Isobutane	1.23e-009	2.58e-008
n-Butane	2.50e-009	5.24e-008
Isopentane	2.47e-004	5.16e-003
n-Pentane	2.57e-004	5.38e-003
n-Hexane	2.01e-004	4.21e-003
Cyclohexane	1.10e-003	2.30e-002
Other Hexanes	4.61e-004	9.66e-003
Heptanes	7.43e-004	1.55e-002
Benzene	2.13e-003	4.46e-002
Toluene	1.04e-002	2.19e-001
Ethylbenzene	2.10e-003	4.40e-002
Xylenes	2.56e-002	5.36e-001
C8+ Heavies	2.67e-001	5.59e+000
Total Components	100.00	2.09e+003

RICH GLYCOL STREAM

Temperature: 120.00 deg. F
Pressure: 369.70 psia
Flow Rate: 4.01e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.20e+001	2.05e+003
Water	4.75e+000	1.06e+002
Carbon Dioxide	4.53e-003	1.01e-001
Nitrogen	3.13e-003	7.00e-002
Methane	1.05e-001	2.33e+000
Ethane	9.98e-002	2.23e+000
Propane	1.21e-001	2.70e+000
Isobutane	3.85e-002	8.59e-001
n-Butane	9.48e-002	2.11e+000
Isopentane	4.63e-002	1.03e+000
n-Pentane	4.82e-002	1.08e+000
n-Hexane	3.78e-002	8.42e-001
Cyclohexane	3.23e-002	7.20e-001
Other Hexanes	4.33e-002	9.66e-001
Heptanes	1.39e-001	3.11e+000
Benzene	4.00e-002	8.93e-001
Toluene	1.24e-001	2.77e+000

Ethylbenzene	1.90e-002	4.23e-001
Xylenes	1.86e-001	4.14e+000
C8+ Heavies	2.09e+000	4.66e+001
Total Components	100.00	2.23e+003

FLASH TANK OFF GAS STREAM

Temperature: 150.00 deg. F
Pressure: 84.70 psia
Flow Rate: 8.84e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.54e-001	2.32e-002
Carbon Dioxide	3.45e-001	3.54e-002
Nitrogen	9.15e-001	5.97e-002
Methane	5.26e+001	1.96e+000
Ethane	1.98e+001	1.39e+000
Propane	1.14e+001	1.17e+000
Isobutane	2.22e+000	3.00e-001
n-Butane	4.62e+000	6.26e-001
Isopentane	1.67e+000	2.81e-001
n-Pentane	1.50e+000	2.52e-001
n-Hexane	6.44e-001	1.29e-001
Cyclohexane	1.64e-001	3.21e-002
Other Hexanes	9.06e-001	1.82e-001
Heptanes	1.16e+000	2.71e-001
Benzene	3.57e-002	6.49e-003
Toluene	6.22e-002	1.33e-002
Ethylbenzene	4.85e-003	1.20e-003
Xylenes	3.20e-002	7.91e-003
C8+ Heavies	1.44e+000	5.72e-001
Total Components	100.00	7.31e+000

FLASH TANK GLYCOL STREAM

Temperature: 150.00 deg. F
Flow Rate: 3.99e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.23e+001	2.05e+003
Water	4.77e+000	1.06e+002
Carbon Dioxide	2.95e-003	6.56e-002
Nitrogen	4.63e-004	1.03e-002
Methane	1.67e-002	3.71e-001
Ethane	3.79e-002	8.42e-001
Propane	6.90e-002	1.53e+000
Isobutane	2.51e-002	5.59e-001
n-Butane	6.69e-002	1.49e+000
Isopentane	3.38e-002	7.51e-001
n-Pentane	3.71e-002	8.24e-001
n-Hexane	3.21e-002	7.13e-001
Cyclohexane	3.09e-002	6.88e-001
Other Hexanes	3.53e-002	7.84e-001
Heptanes	1.28e-001	2.84e+000

Benzene	3.98e-002	8.86e-001
Toluene	1.24e-001	2.75e+000
Ethylbenzene	1.90e-002	4.22e-001
Xylenes	1.86e-001	4.14e+000
C8+ Heavies	2.07e+000	4.60e+001
Total Components	100.00	2.22e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 2.12e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.43e+001	7.47e+001
Carbon Dioxide	4.42e-002	1.09e-001
Nitrogen	2.24e-001	3.51e-001
Methane	1.31e+001	1.17e+001
Ethane	2.48e+000	4.15e+000
Propane	1.49e+000	3.66e+000
Isobutane	3.18e-001	1.03e+000
n-Butane	7.33e-001	2.38e+000
Isopentane	2.84e-001	1.14e+000
n-Pentane	2.85e-001	1.15e+000
n-Hexane	1.79e-001	8.60e-001
Cyclohexane	1.48e-001	6.94e-001
Other Hexanes	2.08e-001	1.00e+000
Heptanes	5.56e-001	3.11e+000
Benzene	1.94e-001	8.46e-001
Toluene	4.94e-001	2.54e+000
Ethylbenzene	6.39e-002	3.78e-001
Xylenes	6.08e-001	3.60e+000
C8+ Heavies	4.30e+000	4.09e+001
Total Components	100.00	1.54e+002

COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F
Pressure: 14.70 psia
Flow Rate: 2.69e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	5.15e+001	5.85e-001
Ethane	9.74e+000	2.08e-001
Propane	5.85e+000	1.83e-001
Isobutane	1.25e+000	5.15e-002
n-Butane	2.89e+000	1.19e-001

Isopentane	1.12e+000	5.71e-002
n-Pentane	1.12e+000	5.74e-002
n-Hexane	7.04e-001	4.30e-002
Cyclohexane	5.82e-001	3.47e-002
Other Hexanes	8.18e-001	5.00e-002
Heptanes	2.19e+000	1.56e-001
Benzene	7.64e-001	4.23e-002
Toluene	1.95e+000	1.27e-001
Ethylbenzene	2.51e-001	1.89e-002
Xylenes	2.39e+000	1.80e-001
C8+ Heavies	1.69e+001	2.04e+000
Total Components	100.00	3.96e+000

HOUSTON LABORATORIES
8820 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

CERTIFICATE OF ANALYSIS

Number : 2011020476-004A

Dominion Transmission
W. Steven Kiser
335 US Highway 33 West

Weston , West Virginia 26452

Field:	Weston, WV	**Report Date:**	02/28/11
Station:	Smithburg Station	**Sample Of:**	Spot - Gas
Station No.:		**Sample Date:**	02/15/2011 09:30
Sample Point:	Discharge	**Sample Conditions:**	219.2 psi ,85.5° F
Cylinder # :	1522	**PO / Ref. No.:**	

Comments: Field Water Content: 15.0 Lbs./mmscf 23.0 Dew Point °F

ANALYTICAL DATA

Components	Mol %	Wt%	GPM at 14.696 psia	Method	Lab Tech.	Date Analyzed
				GPA-2286 (MC14)	JL	02/28/11
Nitrogen	1.318	1.677				
Methane	76.589	55.852				
Carbon Dioxide	0.106	0.214				
Ethane	11.945	16.329	3.186			
Propane	5.232	10.487	1.438			
Iso Butane	0.881	2.327	0.288			
n-Butane	1.662	4.391	0.523			
Iso Pentane	0.597	1.959	0.218			
n-Pentane	0.496	1.627	0.179			
Hexanes Plus	1.174	5.137	0.507			
	100.000	100.000	6.339			

		TOTAL	C6+
Relative Density at 60 °F (air =1) Real Gas		0.7621	3.3306
Calculated Molecular Weight		21.998	96.246
Compressibility Factor		0.9961	
Calculated Gross BTU per ft3 @ 14.696 psia & 60 °F			
Real Gas	Dry Basis	1309.8	5236.6
	Saturated Basis	1287.8	5146.1

Hydrocarbon Laboratory Manager

HOUSTON LABORATORIES
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CERTIFICATE OF ANALYSIS

Number : 2011020476-004A

Dominion Transmission
W. Steven Kiser
335 US Highway 33 West

Weston , West Virginia 26452

Field:	Weston, WV	**Report Date:**	02/28/11
Station:	Smithburg Station	**Sample Of:**	Spot - Gas
Station No.:		**Sample Date:**	02/15/2011 09:30
Sample Point:	Discharge	**Sample Conditions:**	219.2 psi ,85.5° F
Cylinder # :	1522	**PO / Ref. No.:**	

Comments: Field Water Content: 15.0 Lbs./mmscf 23.0 Dew Point °F

ANALYTICAL DATA

Components	Mol %	Wt%	GPM at 14.696 psia	Method	Lab Tech.	Date Analyzed
				GPA-2286 (MC14)	JL	02/28/11
Nitrogen	1.318	1.677				
Methane	76.589	55.852				
Carbon Dioxide	0.106	0.214				
Ethane	11.945	16.329	3.186			
Propane	5.232	10.487	1.438			
Iso Butane	0.881	2.327	0.288			
n-Butane	1.662	4.391	0.523			
Iso Pentane	0.597	1.959	0.218			
n-Pentane	0.496	1.627	0.179			
Hexanes	0.475	1.817	0.190			
Heptanes Plus	0.699	3.320	0.317			
	100.000	100.000	6.339			

		TOTAL	C7+
Relative Density at 60 °F (air =1) Real Gas		0.7621	3.5838
Calculated Molecular Weight		21.998	103.456
Compressibility Factor		0.9961	
Calculated Gross BTU per ft3 @ 14.696 psia & 60 °F			
Real Gas	Dry Basis	1309.8	5590.2
	Saturated Basis	1287.8	5493.6

Chris Staley

Hydrocarbon Laboratory Manager

HOUSTON LABORATORIES
6820 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

CERTIFICATE OF ANALYSIS

Number : 2011020476-004A

Dominion Transmission
W. Steven Kiser
335 US Highway 33 West
Weston , West Virginia 26452

Field:	Weston, WV	**Report Date:**	02/28/11
Station:	Smithburg Station	**Sample Of:**	Spot - Gas
Station No.:		**Sample Date:**	02/15/2011 09:30
Sample Point:	Discharge	**Sample Conditions:**	219.2 psi ,85.5° F
Cylinder # :	1522	**PO / Ref. No.:**	

Comments: Field Water Content: 15.0 Lbs./mmscf `23.0 Dew Point °F

ANALYTICAL DATA

Components	Mol %	Wt%	GPM at 14.696 psia	Method	Lab Tech.	Date Analyzed
				GPA-2286	JL	02/28/11
Nitrogen	1.318	1.677		(MC14)		
Methane	76.589	55.852				
Carbon Dioxide	0.106	0.214				
Ethane	11.945	16.329	3.186			
Propane	5.232	10.487	1.438			
Iso Butane	0.881	2.327	0.288			
n-Butane	1.662	4.391	0.523			
iso Pentane	0.597	1.959	0.218			
n-Pentane	0.496	1.627	0.179			
i-Hexanes	0.284	1.092	0.114			
n-Hexane	0.191	0.725	0.076			
Benzene	0.007	0.025	0.002			
Cyclohexane	0.039	0.149	0.013			
i-Heptanes	0.215	0.958	0.094			
n-Heptane	0.099	0.450	0.046			
Toluene	0.012	0.048	0.004			
i-Octanes	0.200	0.978	0.092			
n-Octane	0.041	0.215	0.021			
*e-Benzene	0.001	0.005	NIL			
*m,o,&p-Xylene	0.007	0.039	0.003			
i-Nonanes	0.050	0.291	0.027			
n-Nonane	0.012	0.071	0.007			
i-Decanes	0.013	0.072	0.006			
n-Decane	0.003	0.019	0.002			
Undecanes	NIL	NIL	NIL			
Dodecanes	NIL	NIL	NIL			
Tridecanes	NIL	NIL	NIL			
Tetradecanes Plus	NIL	NIL	NIL			
Totals	100.000	100.000	6.339			

Calculated Values	TOTAL	C10+
Molecular Weight	21.998	123.333
Real Dry BTU @ 14.696 psia, 60 °F	1309.8	7742.9
Real Wet BTU @ 14.696 psia, 60 °F	1287.8	7608.7
Relative Density	0.7621	4.9126

GPM's at 14.696 psia, 60 °F	6.339
Compressibility Factor	0.9961

Chris Stalcup
Hydrocarbon Laboratory Manager

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CERTIFICATE OF ANALYSIS

Number : 2011020476-004A

Dominion Transmission
W. Steven Kiser
335 US Highway 33 West

Weston , West Virginia 26452

Field:	Weston, WV	**Report Date:**	02/28/11
Station:	Smithburg Station	**Sample Of:**	Spot - Gas
Station No.:		**Sample Date:**	02/15/2011 09:30
Sample Point:	Discharge	**Sample Conditions:**	219.2 psi ,85.5° F
Cylinder # :	1522	**PO / Ref. No.:**	
Comments:	Field Water Content: 15.0 Lbs./mmscf 23.0 Dew Point °F		

Components	Mol %	Wt%	Method	Lab Tech.	Date Analyzed
			GPA-2286 (MC14)	JL	02/28/11
Nitrogen	1.318	1.677			
Methane	76.589	55.852			
Carbon Dioxide	0.106	0.214			
Ethane	11.945	16.329			
Propane	5.232	10.487			
I-butane	0.881	2.327			
n-Butane	1.662	4.391			
i-Pentane	0.597	1.959			
n-Pentane	0.496	1.627			
2,2-dimethylbutane	0.018	0.069			
2,3-dimethylbutane	0.018	0.071			
Cyclopentane	0.022	0.071			
2-methylpentane	0.143	0.558			
3-methylpentane	0.083	0.323			
N-Hexane	0.191	0.725			
2,2-dimethylpentane	0.007	0.032			
Methylcyclopentane	0.038	0.146			
2,4-dimethylpentane	0.011	0.051			
2,2,3-trimethylbutane	0.002	0.011			
Benzene	0.007	0.025			
3,3-dimethylpentane	0.003	0.016			
Cyclohexane	0.039	0.149			
2-methylhexane	0.054	0.247			
2,3-dimethylpentane	0.014	0.062			
1,1-dimethylcyclopentane	0.005	0.024			
3-methylhexane	0.053	0.243			
1,t3-dimethylcyclopentane	0.008	0.034			
1,c3-dimethylcyclopentane	0.010	0.046			
1,t2-dimethylcyclopentane	0.010	0.046			
N-Heptane	0.099	0.450			
Methylcyclohexane	0.078	0.350			
1,1,3-trimethylcyclopentane	0.005	0.027			
2,2-dimethylhexane	0.002	0.012			
2,5-dimethylhexane	0.006	0.028			
2,4-dimethylhexane	0.002	0.013			
ethylcyclopentane	0.008	0.036			
2,2,3-trimethylpentane	Nil	0.003			

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CERTIFICATE OF ANALYSIS

Number : 2011020476-004A

Dominion Transmission
W. Steven Kiser
335 US Highway 33 West

Weston , West Virginia 26452

Field:	Weston, WV	Report Date:	02/28/11
Station:	Smithburg Station	Sample Of:	Spot - Gas
Station No.:		Sample Date:	02/15/2011 09:30
Sample Point:	Discharge	Sample Conditions:	219.2 psi ,85.5° F
Cylinder # :	1522	PO / Ref. No.:	
Comments:			

Components	Mol %	Wt%	Method	Lab Tech.	Date Analyzed
			GPA-2286 (MC14)	JL	02/28/11
1,t2,c3-trimethylcyclopentane	0.005	0.026			
2,3,4-trimethylpentane	0.002	0.011			
Toluene	0.012	0.048			
2,3-dimethylhexane	0.004	0.020			
1,1,2-trimethylcyclopentane	0.001	0.003			
2-methylheptane	0.025	0.129			
4-methylheptane	0.009	0.045			
3,4-dimethylhexane	0.002	0.010			
3-methylheptane	0.024	0.123			
1,t4-dimethylcyclohexane	0.015	0.078			
2,2,5-trimethylhexane	0.006	0.037			
1-methyl,c3-ethylcyclopentane	0.001	0.003			
1-methyl,t2-ethylcyclopentane	0.002	0.008			
2,2,4-trimethylhexane	0.001	0.008			
1-methyl,1-ethylcyclopentane	0.001	0.003			
Cycloheptane	0.001	0.005			
N-Octane	0.041	0.215			
1,t2-dimethylcyclohexane	0.002	0.011			
1,t3-dimethylcyclohexane	0.001	0.007			
1,c4-dimethylcyclohexane	0.001	0.007			
1,c2,c3-trimethylcyclopentane	0.001	0.007			
Isopropylcyclopentane	0.001	0.003			
2,3,5-trimethylhexane	0.001	0.006			
2,2-dimethylheptane	0.002	0.012			
2,4-dimethylheptane	0.002	0.009			
1-methyl,c2-ethylcyclopentane	0.002	0.009			
2,2,3-trimethylhexane	0.001	0.008			
1,c2-dimethylcyclohexane	0.005	0.027			
2,6-dimethylheptane	0.005	0.027			
N-Propylcyclopentane	0.002	0.009			
1,c3,c5-trimethylcyclohexane	0.002	0.009			
Ethylcyclohexane	0.001	0.005			
Ethylbenzene	0.001	0.005			
1,t2,t4-trimethylcyclohexane	0.003	0.020			
m-Xylene	0.003	0.017			
p-Xylene	0.003	0.017			
3,4-dimethylheptane	Nil	0.001			
2-methyloctane	0.004	0.026			
4-methyloctane	0.004	0.026			
3-methyloctane	0.006	0.035			
1,t2,c3-trimethylcyclohexane	Nil	0.002			
1,t2,c4-trimethylcyclohexane	Nil	0.002			
o-Xylene	0.001	0.005			
1,1,2-trimethylcyclohexane	0.001	0.006			
Unknown C9 naphthene	0.002	0.012			
Unknown C9 naphthene	0.001	0.005			
N-Nonane	0.012	0.071			
Unknown C10 paraffin	0.001	0.006			
Unknown C10 paraffin	0.001	0.007			
1,c2,t3-trimethylcyclohexane	0.001	0.005			

HOUSTON LABORATORIES
9820 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

CERTIFICATE OF ANALYSIS

Number : 2011020476-004A

Dominion Transmission
W. Steven Kiser
335 US Highway 33 West

Weston , West Virginia 26452

Field:	Weston, WV	Report Date:	02/28/11
Station:	Smithburg Station	Sample Of:	Spot - Gas
Station No.:		Sample Date:	02/15/2011 09:30
Sample Point:	Discharge	Sample Conditions:	219.2 psi ,85.5° F
Cylinder # :	1522	PO / Ref. No.:	
Comments:			

Components	Mol %	Wt%	Method	Lab Tech.	Date Analyzed
			GPA-2286 (MC14)	JL	02/28/11
1,c2,c3-trimethylcyclohexane	0.001	0.005			
Isopropylbenzene	0.003	0.016			
N-Propylbenzene	0.002	0.009			
p-Ethyltoluene	0.001	0.004			
2,3-dimethyloctane	0.001	0.004			
2-methylnonane	0.001	0.006			
Unknown C10 aromatic	0.001	0.005			
1,2,4-trimethylbenzene	Nil	0.003			
tert-Butylbenzene	Nil	0.001			
Methylcyclooctane	Nil	0.001			
N-Decane	0.003	0.019			
	100.000	100.000			

Flare Design Evaluation
Section 60.18 Demonstration

Smithburg	
Type	Unassisted
Throat Diameter (inches)	18

GLYCalc		2120	scf/h
	INPUT mole	Compound Net Heating Value	Mixture Net Heating Value
Compound	percent	(Btu/scf)	(Btu/scf)
water	74.300	0	0.0
carbon dioxide	0.042	0	0.0
nitrogen	0.224	0	0.0
methane	13.100	913	119.6
ethane	2.480	1641	40.7
propane	1.490	2385	35.5
Isobutane	0.318	3105	9.9
n-butane	0.733	3113	22.8
Isopentane	0.284	3716	10.6
n-pentane	0.285	3709	10.6
cyclopentane	0.000	3516	0.0
n-hexane	0.179	4412	7.9
cyclohexane	0.148	4185	6.2
other hexanes	0.208	4870	10.1
heptane	0.556	4925	27.4
benzene	0.194	3601	7.0
toluene	0.494	4284	21.2
ethylbenzene	0.064	4977	3.2
xylene	0.608	4980	30.3
octane (C8+)	4.300	5804	249.6
hydrogen sulfide	0.000	596	0.0
TOTALS:	100		612.4

Assist gas requirements for nonassisted flare per 40 CFR 60.18(c)(3):

Minimum allowable net heating value	200	*Btu/scf*
Additional assist gas required	0.0	*scfh*
Assist (fuel) gas supplied	0	*scfh*
Composite net heating value	619.13	*Btu/scf*

Maximum allowable flare exit velocity (V_{max}) for nonassisted flare per 40 CFR 60.18(f)(5):

Lower (Net) Heating Value	Btu/scf	MJ/scm
(1000 Btu/scf = 37.3 MJ/scm)	612	22.8
Vmax = 10^[(LHV+28.2)/31.7] for Vmax in m/sec and LHV in MJ/scm	m/sec	ft/sec
(1 m = 3.28 ft)	42.6	139.6
Vmax limit based on 40 CFR 60.18(b)(4)(iii)	42.6	139.6

Actual flare exit velocity:

Total volumetric flow *(vent gas + assist gas in scfh/3600 sec/hr)* =	0.59	*scf/sec*
Total volumetric flow at 180F & atmospheric pressure =	0.76	*cf/sec*
Flare exit cross-sectional area based on throat diameter =	1.77	*ft2*
Velocity = volumetric flow / cross-sectional area =	0.4	*ft/sec*

Attachment P

Public Notice

AIR QUALITY PERMIT NOTICE

Notice of Application

Notice is given that Dominion Transmission, Inc. has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Modification Permit for the Smithburg Compressor Station located off Snowbird Road, Smithburg, in Doddridge County, West Virginia. The latitude and longitude coordinates are:

Latitude: 39.2821
Longitude: -80.7345

The applicant estimates the increased potential to discharge the following Regulated Air Pollutants will be:

VOC	+12.89 tons/yr
Total HAPs:	+1.46 tons/yr

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)** day of **(Month)**, **(Year)**.

By: Dominion Transmission, Inc.
Brian Sheppard
VP of Pipeline Operations
445 West Main Street
Clarksburg, WV 26301