



Dominion Transmission, Inc.

Permit Modification Hastings Compressor Station

Pine Grove, West Virginia

Prepared By:



ENVIRONMENTAL RESOURCES MANAGEMENT, Inc.

March 2015

INTRODUCTION

Dominion Transmission, Inc. (Dominion) is submitting this application for permit modification to the West Virginia Department of Air Quality for the Hastings Compressor Station (Station) located in Wetzel County, West Virginia. The facility currently operates under Title V operating permit R30-10300006-2011, which was issued on July 11, 2011 to Dominion Transmission, Inc. and revised to reflect the addition of an emergency generator on November 27, 2012. Other related permits include the Rule 13 construction permits R13-2555B and R13-2870A.

The Hastings Compressor Station is a production facility and currently operates a triethylene glycol (TEG) dehydration unit to remove moisture from natural gas. This application addresses the proposed replacement of the dehydration unit, the associated reboiler, and the control device. The process equipment affected by this proposed modification is displayed below in Table 1: Equipment Table

Table 1: Equipment Table

Emission Unit Name	Emission Unit ID
Old Equipment	
Natco Reboiler	005-05
Natco Dehydration Unit	004-01
Dehydration Unit Flare	DEHY
Proposed New Equipment	
Reboiler 02	005-06
Inegral Dehydration Unit	004-02
QTI. Q50 Enclosed Combustion Device	DEHY1

FACILITY DESCRIPTION

The Hastings Compressor Station is located off Route 20 in Pine Grove, Wetzel County, WV. The facility receives gas from nearby well sites and provides compression and dehydration of the gas. Hastings Compressor Station is classified as a production facility in its construction permit. The Title V operating permit for the site is aggregated with the nearby Mockingbird Hill Compressor Station and the Lewis Wetzel Compressor Station.

The Hastings Compressor Station currently consists of the follow equipment:

- Two (2) Cooper GMXE-6 engines each rated at 500 hp;
- One (1) Generac QT080 Auxillary Generator rated at 128 hp (80 kW);
- One (1) Natco Dehydration Unit rated at 7.5 MMscf/day;
- One (1) Natco Reboiler rated at 0.38 MMBtu/hr;
- One (1) Natco Heater rated at 10.0 MMBtu/hr;
- One (1) Dehydration Unit Flare rate at 73 scf/min; and
- Four (4) Tanks of various sizes for the storage of fluids.

The proposed modification would include the decommissioning of the Natco Dehydration Unit, the Natco Reboiler, and the Dehydration Unit Flare. To replace these units, Dominion is seeking approval to install:

- One (1) Inegral Dehydration Unit rated at 7.5 MMscf/day;
- One (1) Diverse Energy Systems Reboiler rated at 0.55 MMBtu/hr; and
- One (1) Questor Technologies Q50 Enclosed Combustion Device.

A process flow diagram is included in this application in Attachment D.

EXISTING PERMIT STATUS

The major source thresholds for the West Virginia Title V operating permitting program, WV 45CSR30, are 100 tons per year of any regulated air pollutant, 10 tons per year of single HAP or 25 tons per year of aggregate HAPs.

The aggregation of the Hastings Station, Mockingbird Hill Station, and Lewis Wetzel Station results in total Potential to Emit (PTE) that exceed the major source threshold for Nitrogen Oxides (NO_x), Volatile Organic Compounds (VOCs), Carbon Monoxide (CO) and the PSD threshold NO_x and VOCs. The facility is also currently classified as a major source of Hazardous Air Pollutants (HAPs), with a PTE of 32.3 tpy of aggregate HAPs.

REGULATORY DISCUSSION

This section outlines the State air quality regulations that could be reasonably expected to apply to the Hastings Compressor Station and makes an applicability determination for each regulation based on activities conducted at the Station and the emissions of regulated air pollutants associated with this project. This review is presented to supplement and/or add clarification to the information provided in the WVDAQ permit modification forms.

The West Virginia State Regulations address federal regulations, including Prevention of Significant Deterioration permitting, Title V permitting, New Source Performance Standards, and National Emission Standards for Hazardous

Air Pollutants. The regulatory requirements in reference to the Hastings Compressor Station are described in detail in the below section.

WEST VIRGINIA STATE AIR REGULATIONS

45 CSR 02 – To Prevent and Control Particulate Air Pollution From Combustion of Fuel in Indirect Heat Exchangers

The reboiler proposed in this application is an indirect heat exchanger that combusts natural gas. However, it is exempt from this regulation since the heat input capacity is less than 10 MMBtu/hr.

45 CSR 04 – To Prevent and Control the Discharge of Air Pollutants into the Air Which Causes or Contributes to an Objectionable Odor

Operations conducted at the Hastings Compressor Station are subject to this requirement. Based on the nature of the process at the compressor station, the presence of objectionable odors is unlikely and this project is not expected to impact the ability to comply with 45 CSR 04.

45 CSR 06 – Control of Air Pollution from the Combustion of Refuse

The enclosed combustion device proposed at the Hastings Compressor Station is subject to this regulation. Per 45 CSR 6-4.3, opacity of emissions from the enclosed combustion devices shall not exceed 20 percent, except as provided by 6-4.4. Particulate matter emissions from these units will not exceed the levels calculated in accordance with 6-4.1.

Where:

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

$$DEHY1- PM_{\text{allowable}} (\text{lb/hr}) = 86.09 \text{ lb/hr} \times 5.43 (\text{F factor}) \times 1 \text{ ton}/2000 \text{ lb} = 0.23 \text{ tpy}$$

Where 89.09 pounds per hour is the maximum mass flowrate of wet gas, 5.43 is the F factor. Based upon AP-42, the enclosed combustion device will comply with the allowable PM emission limit determined in accordance with 45 CSR6-4.

45 CSR 10 – To Prevent and Control Air Pollution From the Emission of Sulfur Oxides

The reboiler is an indirect heat exchanger that combusts natural gas but is exempt from this regulation since the heat input capacity is less than 10 MMBtu/hr.

45 CSR 13 – Permits for Construction, Modification, Relocation And Operation of Stationary Sources of Air Pollutants

This permit modification is being submitted to the WVDAQ to seek authorization for the operation of replacement equipment at the Hastings Compressor Station.

45 CSR 14 – Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration

The potential emissions from equipment at the Hastings Compressor Station, when aggregated with the Lewis Wetzel Station and Mockingbird Hill Station, exceed the Prevention of Significant Deterioration (PSD) emission thresholds for NO₂ and VOCs. As such, the facility is a major source under PSD and any modifications must be reviewed to determine if they are considered major modifications under the 45 CSR 14. Per 45 CSR 14-2.74, a modification is considered to be major if it results in a net emission increase that would equal or exceed any of the following rates:

Pollutant	Pollutant Emission Rate (tons/year)
Carbon monoxide:	100 tpy
Nitrogen oxides:	40 tpy
Sulfur dioxide:	40 tpy
Particulate matter:	25 tpy
PM ₁₀ :	15 tpy
PM _{2.5} :	10 tpy of direct PM _{2.5} emissions
PM _{2.5} :	40 tpy of SO ₂ emissions
PM _{2.5} :	40 tpy of NO _x emissions (unless demonstrated not to be a PM _{2.5} precursor under subsection 2.66).
Ozone:	40 tpy of VOC or NO _x
Lead:	0.6 tpy
Fluorides:	3 tpy

Sulfuric acid mist:	7 tpy
Hydrogen sulfide (H ₂ S):	10 tpy
Total reduced sulfur (including H ₂ S):	10 tpy
Reduced sulfur compounds (including H ₂ S):	10 tpy

Per 45 CSR 14-3.4, the determination of whether a project is a major modification is a two-step process. A project is a major modification for a regulated pollutant if it causes two types of emissions increases -- a significant emissions increase (as defined in subsection 2.75), and a significant net emissions increase (as defined in subsections 2.46 and 2.74).

Emissions calculations used to determine the PTE's are included in the permit application as Attachment I. GRI GLY-CALC was utilized to determine the PTE levels for the glycol dehydration unit. Pursuant to guidance from the WVDAQ, a 20% increase is applied to the simulated PTEs to account for potential gas variability. AP-42 and 40 CFR 98 Subpart C emission factors are utilized to calculate the PTE from the reboiler.

The proposed modification results in the overall decrease in the PTEs for regulated air pollutants. Despite the increase to the reboiler heat input rating, the total changes result in a net decrease to existing PTEs. The current Title V operating permit for the Hastings Compressor Station does not include Greenhouse Gas Emissions. Potentials to Emit have been included for GHGs from each applicable source. For this reason, the proposed modification is being treated as an increase to PTEs, based upon the increase to GHGs. The following table shows the change to the potential to emit for the proposed changes:

Hastings Compressor Station								
Proposed Change to PTEs								
Emission Unit	Reboiler 005-06		Dehydration Unit Process Vents 004-02		Enclosed Combustion Device DEHY1		Total	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
VOC's	--	0.01	-0.72	-3.15	-0.02	-0.11	-0.73	-3.24
CO	0.04	0.16	--	--	-1.58	-6.92	-1.54	-6.76
NOx	0.02	0.06	--	--	-0.25	-1.09	-0.24	-1.03
PM ₁₀	--	0.008	--	--	-0.03	-0.13	-0.03	-0.13
SO ₂	--	--	--	--	--	-0.01	--	-0.008
CO ₂	64.34	281.80	173.27	758.92	69.84	305.88	307.44	1,346.60
CH ₄	0.001	0.005	3.60	15.78	0.001	0.006	3.606	15.796
N ₂ O	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.002
Total HAPs	--	--	-0.74	-3.31	<0.001	<0.001	-0.74	-3.30
Total CO ₂ e	64.398	282.23	400.23	979.55	69.91	306.19	534.54	1,567.97

Since the proposed project does not cause a significant emissions increase, the proposed modification of the dehydration unit qualifies as a minor permitting action and is not subject to the requirements of this rule.

45 CSR 16 - Standards of Performance for New Stationary Sources (NSPS)

45 CSR 16 applies to all registrants that are subject to any of the NSPS requirements codified in 40 CFR 60. A discussion of NSPS that could be reasonably anticipated to apply at the Station is provided in the Federal Regulatory Discussion. This project only impacts the dehydration unit at the Station and therefore, it has been determined that no NSPS requirements are triggered by the project.

45 CSR 19 – Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contributed to Non-attainment

Wetzel County, WV is in attainment for all pollutants with a National Ambient Air Quality Standard (NAAQS). Therefore, this regulation would not apply to the Hastings Compressor Station.

45 CSR 25 – Control of Air Pollution from Hazardous Waste Treatment, Storage, and Disposal Facilities

This Site does not qualify as a waste treatment, storage, and disposal facility and no hazardous waste will be burned at this Site; therefore, it is not subject to this hazardous waste rule.

45 CSR 30 – Requirements for Operating Permits

45 CSR 30 codifies the requirements of the federal Title V operating permit program (40 CFR 70) for West Virginia. The major source thresholds for the Title V operating permit program regulations are 10 tons per year (tpy) of a single hazardous air pollutant (HAP), 25 tpy of any combination of HAPs, or 100 tpy of all other regulated pollutants.

The PTEs of VOCs, NO_x, and CO are above the corresponding major source thresholds. The Hastings Station, Lewis Wetzel Station, and Mockingbird Hill Station qualify as major sources under the Title V program. The submission of this permit modification application will serve as the application for modification for the facilities' Title V Operating Permit. An additional electronic copy of this application is included with this submission for distribution to the WVDAQ Title V Permitting Group.

45 CSR 34 – National Emission Standards for Hazardous Air Pollutants (NESHAP)

45 CSR 34 applies to all registrants that are subject to any of the NESHAP requirements. The following NESHAP Rules are applicable to the proposed changes at the Hastings Compressor Station:

- 40 CFR 63 Subpart HH - National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities. Additional discussion is provided in the federal discussion of this permit application.

FEDERAL REGULATIONS

40 CFR 60, Subpart OOOO (Standards of Performance for Crude oil and Natural Gas Production, Transmission and Distribution)

Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from certain affected facilities that commence construction, modification or reconstruction after August 23, 2011.

The proposed installation of the replacement dehydration unit neither involves installation of an affected facility as defined by Subpart OOOO, nor changes the facility status with respect to Subpart OOOO.

Similarly, no other NSPS are applicable to the proposed project.

40 CFR 63 Subpart HH (National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities).

Dominion is seeking a federally enforceable permit limitation on the control of emissions from the dehydration unit. This is allowable under West Virginia State Rules since the issued permit will require that the enclosed combustion device is operational at all times that a vent stream is present from the glycol process unit. The issuance of a federally enforceable permit limitation on the glycol process vents supports maintaining the classification of the Hastings Compressor Station as an area source of HAPs. **The issuance of a federally enforceable permit limit on the control of emissions needs to be issued by October 15, 2015.**

An area source of HAPs is defined as a facility that has a PTE of less than 10 tons per year of any single HAP, and less than 25 tpy of aggregate HAPs. The Hastings Compressor Station has been determined to be an area source of HAPs, since a major source HAP determination is completed for each surface site. Despite the aggregation of the Hastings, Lewis Wetzel, and Mockingbird Hill facilities in the Title V Operating Permit, these facilities are considered separate surface sites under 40 CFR 63. For this reason, the Hastings Compressor Station

qualifies as an area source facility that operates a 40 CFR 63 Section HH affected source, the dehydration unit.

The existing Title V Permit indicates that the Hastings Compressor Station is not located in an Urban-1 county, as defined in §63.761. The designation of a facility operating in a non-Urban county is made from data found in the 2000 US census. Since more recent census data has not become available since the issuance of this permit, there is no change to the urban classification of Pine Grove, West Virginia. Dominion has conducted the required analysis of PTE emissions from the affected source and determined that the facility is eligible to claim the benzene exemption under §63.764(e)(1)(ii), since the actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere is less than 0.90 megagrams. This applicability determination has been made utilizing controlled PTE values since Dominion is seeking a federally enforceable permit limitation that will require that all vapors from the glycol process unit be routed to the enclosed combustion device. The total benzene emissions for this proposed modification, as demonstrated in the GLY-CALC simulation provided as a part of this permit application, are 0.11 tons per year of benzene, which is equal to 0.10 megagrams of benzene. Since Dominion is claiming the benzene exemption under §63.764(e)(1)(ii), Dominion does not have to comply with control requirements for glycol dehydration unit process vents in §63.765.

Based upon this regulatory applicability analysis, Dominion is only required to comply with §63.772(b)(2) and conduct a determination of glycol dehydration unit flow rate or benzene emissions. This requires that Dominion makes a determination of actual average benzene or BTEX emissions from a glycol dehydration unit using an acceptable procedure under the Rule. This determination will be made using GRI GLY-CALC utilizing inputs that are representative of actual operating conditions. Records of actual natural gas throughput and actual average benzene emissions will be kept pursuant to §63.774(d)(1).

CAM Applicability Requirements Summary

40 CFR Part 64 applies to pollutant specific emissions at a major source. An applicability determination has been made as a part of this permit application.

The Hastings Compressor Station qualifies under 40 CFR §64.2(a) as a unit that is located at a major source that is required to obtain a Title V permit. The Station also is subject to an emissions limit or standard for an applicable pollutant (40 CFR §64.2(a)(1)), uses a control device to achieve compliance with an applicable limitation or standard (40 CFR §64.2(a)(2)), and the potential pre-

control emissions of the applicable pollutant from the unit is greater than 100 tpy of VOCs.

The Hastings Compressor Station, however, is exempt from the requirements of 40 CFR Part 64 since §64.2(b)(i) states that the requirements of Part 64 do not apply if, *“Emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act.”* The Hastings Compressor Station currently operates under Title V Permit R30-10300006-2011, where CAM rule non-applicability was determined during the Title V operating permit renewal application. The proposed modifications included in this permit application will not have an effect on the CAM applicability for the Hastings Compressor Station.



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):

Hastings Compressor Station

Currently, the Hastings Compressor Station Title V Permit aggregates the emissions from the Hastings Compressor Station, Mockingbird Hill Station, and the Lewis Wetzel Compressor Station. This permit application is for a modification proposed at the Hastings 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:

**P.O. Box 450, Route 20
Pine Grove, WV 26419**

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: **Dominion Resources 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: **The applicant is the owner of the site.**
- 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 Transmission Facility (Note: Hastings Compressor operations are considered production equipment with regards to MACT Rules)		10. North American Industry Classification System (NAICS) code for the facility: 486210	
11A. DAQ Plant ID No. (for existing facilities only): 103-00006		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only): R30-10300006-2011, Issued July 2011 – Updated Nov. 2012 R13-2555B, Issued September 2012 R13-2870, Issued February 2011	
<i>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</i>			
12A. – For Modifications, Administrative Updates or Temporary permits at an existing facility, please provide directions to the <i>present location</i> of the facility from the nearest state road; – For Construction or Relocation permits , please provide directions to the <i>proposed new site location</i> from the nearest state road. Include a MAP as Attachment B . From Clarksburg, take Rt. 20 North for 37 miles to Hastings. The Station entrance is on the left side of the road.			
12.B. New site address (if applicable): N/A		12C. Nearest city or town: Pine Grove	
		12D. County: Wetzel	
12.E. UTM Northing (KM): 4,377.66		12F. UTM Easting (KM): 528.64	
		12G. UTM Zone: 17	
13. Briefly describe the proposed change(s) at the facility: The proposed changes at the facility include the replacement of the TEG Dehydration Unit (Emission Unit 004-01), Dehydration Unit Flare (Emission Unit 005-01), and the Natco Reboiler (Emission Unit 005-02). Proposed replacement equipment includes an Inegral TEG Dehydration Unit, and Diverse Energy Systems 550 RECON reboiler with a heat input rating of 0.55 MMBtu/hr, and a Questor Technologies Q50 enclosed combustion device with a heat input rating of 2 MMBtu/hr.			
14A. Provide the date of anticipated installation or change: October 15, 2015 – If this is an After-The-Fact permit application, provide the date upon which the proposed change did happen: N/A		14B. Date of anticipated Start-Up if a permit is granted: October 15, 2015	
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? <input checked="" type="checkbox"/> YES <input type="checkbox"/> 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:

- | | | |
|--|--|--|
| <input type="checkbox"/> Bulk Liquid Transfer Operations | <input type="checkbox"/> Haul Road Emissions | <input type="checkbox"/> Quarry |
| <input type="checkbox"/> Chemical Processes | <input type="checkbox"/> Hot Mix Asphalt Plant | <input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities |
| <input type="checkbox"/> Concrete Batch Plant | <input type="checkbox"/> Incinerator | <input type="checkbox"/> Storage Tanks |
| <input type="checkbox"/> Grey Iron and Steel Foundry | <input type="checkbox"/> Indirect Heat Exchanger | |
| <input checked="" type="checkbox"/> General Emission Unit, specify – Reboiler, TEG 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:

- | | | |
|---|---|--|
| <input type="checkbox"/> Absorption Systems | <input type="checkbox"/> Baghouse | <input checked="" type="checkbox"/> Flare |
| <input type="checkbox"/> Adsorption Systems | <input type="checkbox"/> Condenser | <input type="checkbox"/> Mechanical Collector |
| <input type="checkbox"/> Afterburner | <input type="checkbox"/> Electrostatic Precipitator | <input type="checkbox"/> Wet Collecting System |
| <input type="checkbox"/> Other Collectors, specify N/A | | |

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  (Please use blue ink)

DATE: 03/19/2015 (Please use blue ink)

35B. Printed name of signer: **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: **Air Specialist**

36C. E-mail:
Rebekah.J.Remick@dom.com

36D. Phone: **804-273-3536**

36E. FAX: **N/A**

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

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

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

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

- ☐ Forward 1 copy of the application to the Title V Permitting Group and:
- ☐ For Title V Administrative Amendments:
 - ☐ NSR permit writer should notify Title V permit writer of draft permit,
- ☐ For Title V Minor Modifications:
 - ☐ Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,
 - ☐ NSR permit writer should notify Title V permit writer of draft permit.
- ☐ For Title V Significant Modifications processed in parallel with NSR Permit revision:
 - ☐ NSR permit writer should notify a Title V permit writer of draft permit,
 - ☐ Public notice should reference both 45CSR13 and Title V permits,
 - ☐ EPA has 45 day review period of a draft permit.

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

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ATTACHMENT A	BUSINESS CERTIFICATE
ATTACHMENT B	LOCATION MAP
ATTACHMENT C	SCHEDULE OF CHANGES
ATTACHMENT D	REGULATORY DISCUSSION
ATTACHMENT E	PLOT PLAN
ATTACHMENT F	DETAILED PROCESS FLOW DIAGRAMS
ATTACHMENT G	PROCESS DESCRIPTION
ATTACHMENT I	EQUIPMENT LIST FORM
ATTACHMENT J	EMISSION POINTS DATA SUMMARY SHEET
ATTACHMENT K	FUGITIVE EMISSIONS DATA SUMMARY SHEET
ATTACHMENT L	EMISSIONS UNIT DATA SHEETS
ATTACHMENT M	AIR POLLUTION CONTROL DEVICE SHEETS
ATTACHMENT N	SUPPORTING EMISSIONS CALCULATIONS
ATTACHMENT O	MONITORING, REPORTING, AND RECORDKEEPING PLAN
ATTACHMENT P	PUBLIC NOTICE
ATTACHMENT S	TITLE V PERMIT

Attachments H, Q, and R are not applicable to this application and are not provided.

Attachment A
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.*

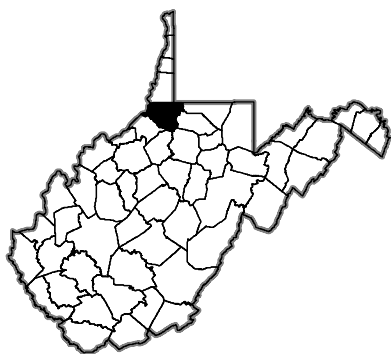
This certificate is not transferrable and must be displayed at the location for which issued.
This certificate shall be permanent until cessation of the business for which the certificate of registration
was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

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

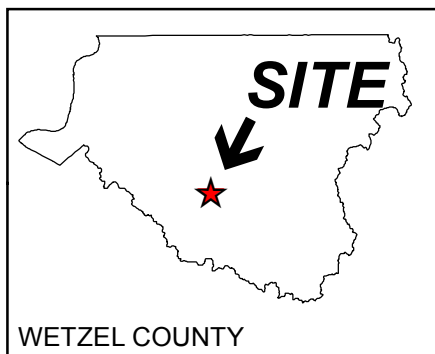
TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of
this certificate displayed at every job site within West Virginia.

Attachment B

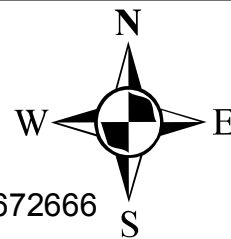
LOCATION MAP



WEST VIRGINIA



WETZEL COUNTY



LAT. 39.550105 LONG. -80.672666
CITY OF PINE GROVE
WETZEL COUNTY
WEST VIRGINIA



SITE LOCATION MAP

USGS 24K QUAD GRID
PINE GROVE



Dominion Transmission, Inc.
Hastings Compressor Station

P.O. BOX 450, ROUTE 20
PINE GROVE, WV 26419

Review GM

CHK'D GM

0285603

Drawn By
FB 2/24/15

Environmental Resources Management

ATTACHMENT B

Attachment C

Schedule of Changes

Attachment C

Schedule of Changes

Dominion Transmission, Inc. proposes that the modification equipment be permitted to install and operate as soon as possible, but no later than October 15, 2015.

Attachment D

REGULATORY DISCUSSION

Attachment D

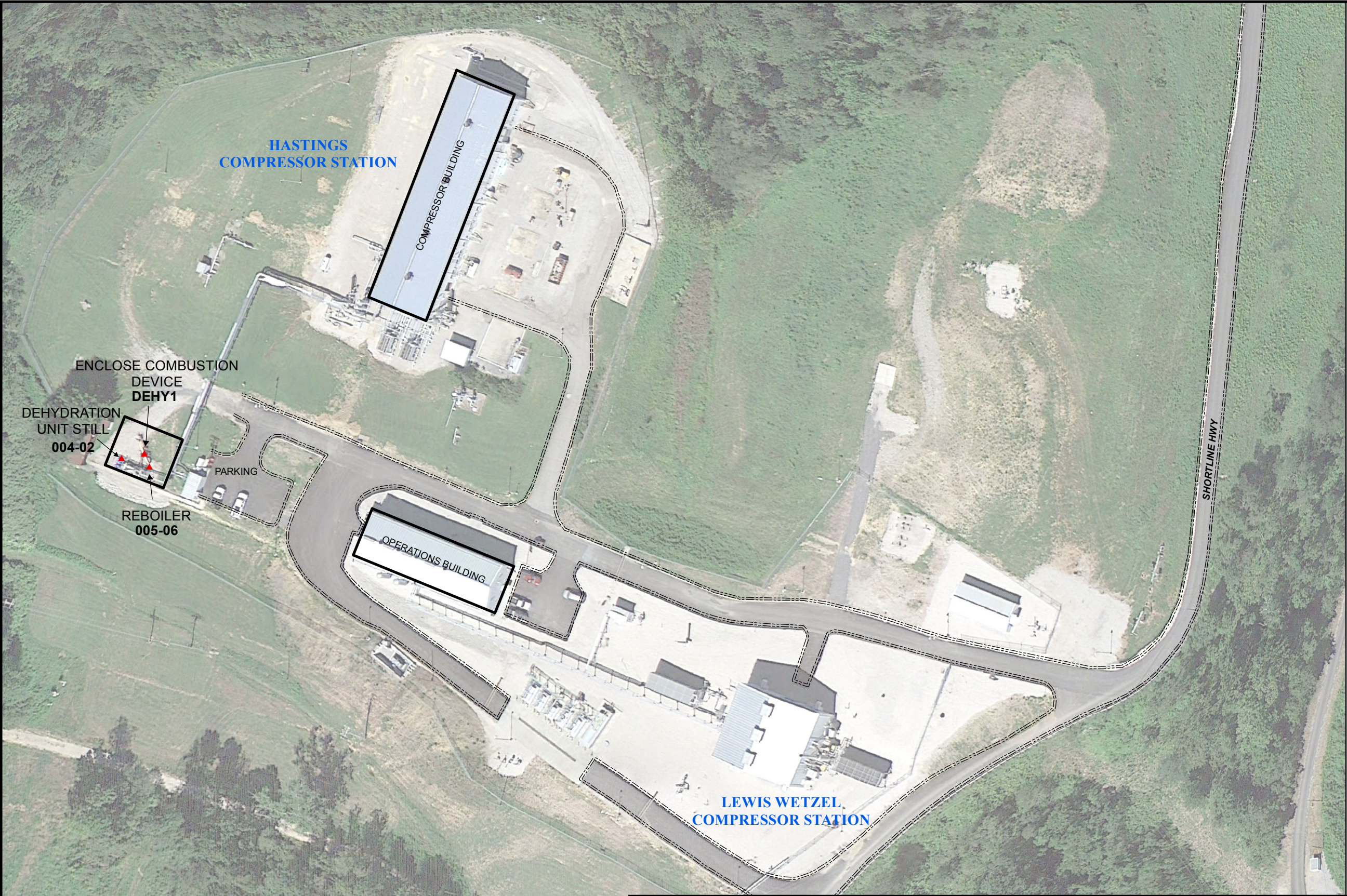
Regulatory Discussion

Dominion Transmission, Inc. has included a State and Federal Regulatory discussion in the introduction to this permit application.

Attachment E

PLOT PLAN

Document Path: F:\Projects\Spencer's Projects\Drawings\Dominion Transmission, Inc\FIGURE2.mxd



Legend

- ===== PAVED ROADS
- ▲ EMISSION POINTS

Coordinate System: NAD 1983 UTM Zone 17N
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: -81.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
528168.8 Easting
4377850.8 Northing 17N
Elevation 275m



REV.	DATE	DESCRIPTION		BY	CHK
DRAWN BY		CADD Review	G.M.	CADD Review	G.M.
FB					



Dominion Transmission, Inc.
Lewis Wetzel & Hastings Compressor Station

P.O. BOX 450, ROUTE 20
PINE GROVE, WV 26419

PLOT PLAN

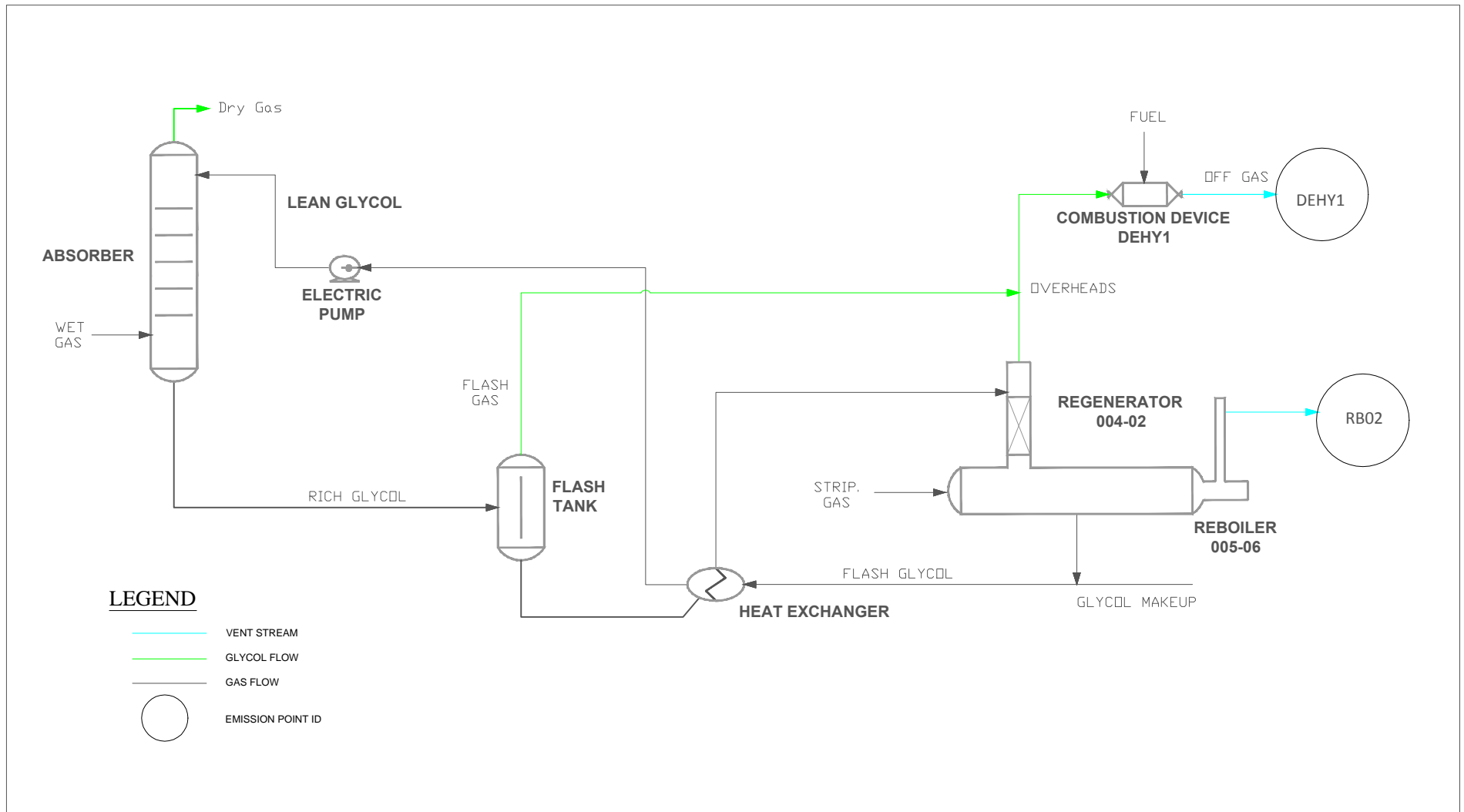
SCALE	1 " = 83 '	PROJECT NUMBER	
DATE	2/26/2015	0285603	ATTACHMENT E

Attachment F

DETAILED PROCESS FLOW DIAGRAM

Attachment F

Detailed Process Flow Diagram



Attachment G

PROCESS DESCRIPTION

Attachment G

Process Description

This permit application is being filed for Dominion Transmission, Inc. to replace a dehydration unit at the Hastings Compressor Station. This process description discusses the gas dehydration at the Station.

The wet gas is first routed through an absorber, which uses lean glycol to remove water from the gas. Dry gas from the absorber leaves the station via pipeline. Rich glycol from the absorber flows to an uncontrolled flash gas tank and then to a heat exchanger. The exchanger transfers heat from both the flashed glycol and the Reboiler Heater (RB02) to the lean and makeup glycol stream. The flashed glycol continues to the Regenerator, which separates the overheads (moisture and any absorbed hydrocarbons) from the glycol. Overheads are released as off gas from the Dehy Unit and routed to the Enclosed Combustion Device (DEHY1) for incineration. Glycol leaving the Regenerator is pumped and returned to the absorber after passing through the heat exchanger.

A process flow diagram is included as Attachment F.

Attachment I
EQUIPMENT LIST FORM

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices)

that will be part of this permit application review, regardless of permitting status)

[illegible]

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

⁴ For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

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 (mg/m ³)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
DEHY1	Upward Vertical Stack	004-02, DEHY1	Dehydration Unit Still	DEHY1	DEHY1	NA	NA	Total VOCs	32.75	143.44	3.75	16.44	Gas	GRI GLY CALC, 40 CFR 98	NA
								Total HAPs	4.48	19.61	0.29	1.28			
								Benzene	0.40	1.75	0.02	0.10			
								Ethylbenzene	0.04	0.18	0.002	0.01			
								Toluene	1.19	5.21	0.07	0.28			
								Xylenes	2.24	9.80	0.12	0.51			
								n-Hexane	0.61	2.67	0.09	0.38			
								CO	<0.001	<0.001	0.04	0.18			
								NOx	<0.001	<0.001	0.05	0.21			
								PM ₁₀	<0.001	<0.001	<0.001	0.02			
								SO ₂	<0.001	<0.001	<0.001	<0.001			
								CO ₂	0.33	1.47	243.10	1,064.80			
								CH ₄	41.34	181.05	3.60	15.79			
								N ₂ O	<0.001	<0.001	<0.001	0.001			
								CO ₂ e	1,033.74	4,527.72	470.14	1,285.75			
RB02	Upward Vertical Stack	005-06	Reboiler	NA	NA	NA	NA	Total VOCs	0.003	0.01	0.003	0.01	Gas	AP-42, 40 CFR 98	NA
								Total HAPs	0.001	0.004	0.001	0.004			
								Hexane	0.001	0.004	0.001	0.004			
								Formaldehyde	<0.001	<0.001	<0.001	<0.001			
								Benzene	<0.001	<0.001	<0.001	<0.001			
								Toluene	<0.001	<0.001	<0.001	<0.001			
								Pb	<0.001	<0.001	<0.001	<0.001			
								CO	0.05	0.20	0.05	0.20			
								NO _x	0.06	0.24	0.06	0.24			
								PM ₁₀	0.004	0.02	0.004	0.02			
								SO ₂	<0.001	0.001	<0.001	0.001			
								CO ₂	64.34	281.80	64.34	281.80			
								CH ₄	0.001	0.01	0.001	0.01			
								N ₂ O	<0.001	0.001	<0.001	0.001			
								Total CO ₂ e	64.40	282.23	64.40	282.23			

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

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

² Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed

to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

³ List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. **DO NOT LIST** H₂, H₂O, N₂, O₂, and Noble Gases.

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

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

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

⁷ Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

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. (°F)	Volumetric Flow ¹ (acfm) <i>at operating conditions</i>	Velocity (fps)	Ground Level (Height above mean sea level)	Stack Height ² (Release height of emissions above ground level)	Northing	Easting
RB02	0.9	1,086	415.2	12.6	900	21	4,377.836	528.169
DEHY1	1.7	1465	1411	20.3	900	30	4,377.836	528.169

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not 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).

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

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

☐ Yes ☒ No

☐ If YES, 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, 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, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.

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

☐ Yes ☒ No

☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.

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

☐ Yes ☒ No

☐ If YES, 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."

Attachment L
EMISSION UNIT DATA SHEETS

NATURAL GAS GLYCOL DEHYDRATION UNIT DATA SHEET

General Glycol Dehydration Unit Data		Manufacturer and Model		Inegral	
		Max Dry Gas Flow Rate (mmscf/day)		7.5 MMscf/day	
		Design Heat Input (mmBtu/hr)		0.55 MMBtu/hr	
		Design Type (DEG or TEG)		TEG	
		Source Status ²		New	
		Date Installed/Modified/Removed ³		October 2015	
		Regenerator Still Vent APCD ⁴		TO	
		Fuel HV (Btu/scf)		1,236	
		H ₂ S Content (gr/100 scf)		0 ppm	
		Operation (hrs/yr)		8,760	
Source ID # ¹	Vent	Reference ⁵	Potential Emissions ⁶	lbs/hr	tons/yr
005-06	Reboiler Vent	AP-42	NO _x	0.05	0.23
		AP-42	CO	0.04	0.19
		AP-42	VOC	0.003	0.01
		AP-42	SO ₂	<0.001	0.001
		AP-42	PM ₁₀	0.004	0.02
004-02	Glycol Regenerator Still Vent	GRI-GLYCalc TM	VOC	3.75	16.44
		GRI-GLYCalc TM	Benzene	0.02	0.07
		GRI-GLYCalc TM	Ethylbenzene	0.002	0.008
		GRI-GLYCalc TM	Toluene	0.05	0.22
		GRI-GLYCalc TM	Xylenes	0.09	0.41
		GRI-GLYCalc TM	n-Hexane	0.02	0.10

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
GR GRI-GLYCalcTM

AP AP-42
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.**

West Virginia Department of Environmental Protection

DIVISION OF AIR QUALITY : (304) 926-0475

Division of Air Quality

WEB PAGE: <http://www.wvdep.org>

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): 7.5 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.			<u>Yes</u> 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 <u>No</u>
The affected facility is: <input type="checkbox"/> prior to a NG processing plant <input type="checkbox"/> a NG processing plant <input type="checkbox"/> 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).			<u>Yes</u> No
The affected facility exclusively processes, stores, or transfers black oil.			Yes <u>No</u>
Initial producing gas-to-oil ratio (GOR): _____ scf/bbl API gravity: _____ degrees			
Section B: Dehydration Unit (if applicable) ¹			
Description: Inegral 7.5 MMscf/day Dehydration Unit			
Date of Installation: 2015	Annual Operating Hours: 8,760	Burner rating (MMBtu/hr): 0.55 MMBtu/hr	
Exhaust Stack Height (ft): 21	Stack Diameter (ft): 0.9	Stack Temp. (°F): 1,086	
Glycol Type: <input checked="" type="checkbox"/> TEG <input type="checkbox"/> EG <input type="checkbox"/> Other:			
Glycol Pump Type: <input checked="" type="checkbox"/> Electric <input type="checkbox"/> Gas If gas, what is the volume ratio? _____ ACFM/gpm			
Condenser installed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Exit Temp. _____ °F Condenser Pressure _____ psig			
Incinerator/flare installed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Destruction Eff. <u>95</u> %			
Other controls installed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe:			
Wet Gas ² : Gas Temp.: <u>110</u> °F Gas Pressure <u>314.70</u> psig (Upstream of Contact Tower) Saturated Gas? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, water content _____ lb/MMSCF			
Dry Gas: Gas Flowrate(MMSCFD) Actual _____ Design <u>7.5 MMscf/day</u> (Downstream of Contact Tower) Water Content <u>7.0000</u> lb/MMSCF			
Lean Glycol: Circulation rate (gpm) Actual ³ _____ Maximum ⁴ <u>3.0 gal/lb H2O</u> Pump make/model:			
Glycol Flash Tank (if applicable): Temp.: <u>150</u> °F Pressure <u>60</u> psig Vented? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, describe vapor control:			
Stripping Gas (if applicable): Source of gas: Dry Gas Rate <u>16.065</u> 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 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)	<input checked="" type="checkbox"/>	Subject to Subpart HH – Benzene Exemption Claimed
	<input type="checkbox"/>	Subject to Subpart HHH
	<input type="checkbox"/>	Not Subject
	because:	<div><input type="checkbox"/> < 10/25 TPY</div> <div><input type="checkbox"/> Affected facility exclusively handles black oil</div> <div><input type="checkbox"/> The facility wide actual annual average NG throughput is < 650 thousand scf/day and facility wide actual annual average hydrocarbon liquid is < 250 bpd</div> <div><input type="checkbox"/> No affected source is present</div>

Attachment M

AIR POLLUTION CONTROL DEVICE SHEETS

AIR POLLUTION CONTROL DEVICE

Vapor Combustion Control Device Sheet

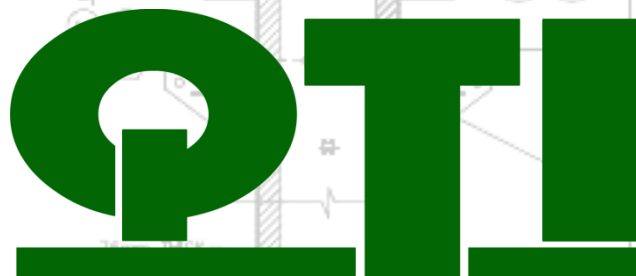
Complete this vapor combustion control device sheet for each enclosed combustion device, flare, thermal oxidizer, or completion combustion device that is located at the natural gas production pad for the purpose of thermally destructing waste gas to control emissions of regulated pollutants to the atmosphere.

IMPORTANT: READ THE INSTRUCTIONS ACCOMPANYING THIS FORM BEFORE COMPLETING.			
General Information			
1. Control Device ID#: DEHY1		2. Installation Date: 2015 <input checked="" type="checkbox"/> New	
3. Maximum Rated Total Flow Capacity: 50,000 scf/d	4. Maximum Design Heat Input: 2 MMBtu/hr	5. Design Heat Content: 588.3 Btu/scf	
Control Device Information			
6. Select the type of vapor combustion control device being used: <input checked="" type="checkbox"/> Enclosed Combustion Device <input type="checkbox"/> Elevated Flare <input type="checkbox"/> Ground Flare <input type="checkbox"/> Thermal Oxidizer <input type="checkbox"/> Completion Combustion Device			
7. Manufacturer: Questor Technologies Inc. Model No.: Q50		8. Hours of operation per year: 8,760	
9. List the emission units whose emissions are controlled by this vapor combustion control device: Emission Units: 004-02, DEHY1			
10. Emission Unit ID#	Emission Source Description:	Emission Unit ID#	Emission Source Description:
004-02	Dehydration Unit Still		
DEHY1	Enclosed Combustion Device		
<i>If this vapor combustor controls emissions from more than six emission units, please attach additional pages.</i>			
11. Assist Type		12. Flare Height	13. Tip Diameter
<input type="checkbox"/> Steam - <input type="checkbox"/> Air - <input type="checkbox"/> Pressure - <input checked="" type="checkbox"/> Non -		~8 ft	20 in
		14. Was the design per §60.18? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Waste Gas Information			
15. Maximum waste gas flow rate (scfm):	16. Heat value of waste gas stream (BTU/ft3)	17. Temperature of the emissions stream (°F)	18. Exit Velocity of the emissions stream (ft/s)
55,200 scf/d	Variable	70	
19. Provide an attachment with the characteristics of the waste gas stream to be burned.			

Pilot Information				
20. Type/Grade of pilot fuel:	21. Number of pilot lights:	22. Fuel flow rate to pilot flame per pilot (scf/hr):	23. Heat input per pilot (BTU/hr):	24. Will automatic re-ignition be used?
Pipeline quality Natural Gas	1	~50	0.03 MMBtu/hr	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
25. If automatic re-ignition will be used, describe the method: N/A				
26. Describe the method of controlling flame: There are 3 flame cells to stop the main flame front and two (2) 2" flame arrestors on the piping from the drip pot to the burner assembly.				
27. Is pilot flame equipped with a monitor to detect the presence of the flame? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		28. If yes, what type? <input checked="" type="checkbox"/> Thermocouple <input type="checkbox"/> Infra-Red <input type="checkbox"/> Ultra Violet <input type="checkbox"/> Camera with monitoring control room <input type="checkbox"/> Other, describe:		

29. Pollutant(s) Controlled	30. % Capture Efficiency	31. Manufacturer's Guaranteed Control Efficiency (%)
HC	100	>95
VOC	100	>95
HAP	100	>95
32. Has the control device been tested by the manufacturer and certified? Pending Testing		
33. Describe all operating ranges and maintenance procedures required by the manufacturer to maintain warranty: See Attached		
34. Additional Information Attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <i>Please attach a copy of manufacturer's data sheet. Please attach a copy of manufacturer's drawing. Please attach a copy of the manufacturer's performance testing.</i>		

**Dominion Transmission, Inc. has contacted Questor Technologies, Inc. regarding the maximum rated waste gas flow rate for the Q50 unit. QTI has informed Dominion that the 50,000 scf/day rating provided on the specification sheet is a methane-equivalent measurement. The unit will realize a higher capacity based upon the heat input characteristics of the waste gas stream. QTI is having this unit tested and the results are being submitted to the EPA for review and approval. The Q50 unit is expected to be a MACT HH/HHH certified control device and a maximum rated flow capacity will be published by the EPA.*



QUESTOR TECHNOLOGY INC.

Incinerator Technical Data Sheet

Q50

**For more information call (780) 830-2797
or (403) 571-1530**

Or visit: www.questortech.com



Incinerator Technical Data Sheet:

Q50

Rev: 0

Application	Imperial	Metric
Maximum flow throughput	50,000 scf/d	1416 sm ³ /d
Maximum heat throughput	2 MMBtu/h	2.11 GJ/h
Operating temperature	1112° – 2192° F	600° – 1200° C
Application	Various	
Input composition	As per design	
Output composition	As per design	
Fuel gas requirement	As per design	
Waste gas pressure	As per design	
Application	Continuous	
Combustion efficiency	>99.99%	

Design Specifications	Imperial	Metric
Total height	30 ft	9.14 m
Total weight	10,000 lb	4,545 kg
Foot print dimensions	5 ft x 6 ft	1,524 mm x 1,828 mm
Foundation	Base bolted	
Support system	Free-standing: no guy wires	
Wind load	100 mph	160 km/h
Air induction	Natural draft: no fans or blowers	
Power requirement	24 volt DC	

Burner Section	Imperial	Metric
Burner height	8 ft	2,438 mm
Burner Outer Diameter	20 in	508 mm
Burner material	A36 CS	
Burner wall thickness	0.5 in	12.7 mm
Air intakes with manual doors	Three (3)	
Dimensions (O.D.)	14 in	356 mm
Material	A36 CS	
Air intake arrestors	Three (3) STANDARD	
Material	Spiral wound aluminum	
Dimensions	4 in x 14 in	102 mm x 356 mm
Manufacturer	Black, Sivalls & Bryson	



Incinerator Technical Data Sheet:

Q50

Rev: 0

Waste gas manifold dimensions	3 in	76 mm
Material	304 SS	
Manufacturer	Questor Technology	
Inline flame arrestor (Waste Gas)	One (1) STANDARD	
Classification	3 in – 150 ANSI	76 mm - 150 ANSI
Dimensions	4 ½ in x 6 in	111 mm x 152 mm
Material	304 SS	
Manufacturer	Black, Sivalls & Bryson	
Sour service ball valve (Waste Gas)	3 in	76 mm
Model	150 Full Port	
Manufacturer	WKM DynaSeal	
Proximity switch	One (1)	
Model	LPS-DZ1NA2	
Manufacturer	TopWorx	
Fuel gas manifold dimensions	2 in	
Material	304 SS	
Manufacturer	Questor Technology	
Sight glass	galvanized	51 mm
Diameter	2 in	

Stack Section	Imperial	Metric
Stack height	20 ft	6.1 m
Stack O.D.	20 in	508 mm
Stack I.D.	13-¼ in	337 mm
Stack material	A36 CS	
Stack wall thickness	0.5 in	12.7 mm
Wind shroud O.D.	34-3/8 in	873 mm
Material	A36 CS	
Lifting lugs material	A36 CS	



Incinerator Technical Data Sheet:

Q50

Rev: 0

Thermocouple ports	Two (2)
Manufacturer	Wika
Model	TC 10

Gas Supply Connections	Imperial	Metric
Pilot gas	1/4 in NPT	6 mm
Waste gas	3 in - RFWN	76 mm
Fuel gas	2 in - RFWN	51 mm

Pilot Gas Burner	Imperial	Metric
Burner control system	Profire 2100	
Igniters	One (1)	
Capacity	1200 scf/d	34 sm ³ /d
Operational pressure	8 psig	55.2 kPa

Fuel Gas Manifold	Imperial	Metric
Manifold material	304 SS	
Nozzles	Four (4)	
Operational pressure range	5-18 psig	34.5-124.1 kPa

Waste Gas Manifold	Imperial	Metric
Manifold material	304 SS	
Nozzles	Four (4)	
Operational pressure range	1-40 psig	7-276 kPa

Refractory Specifications	Imperial	Metric
Type	26LI Castable	
Model	KAST-O-LITE 26 LI PLUS	
Dimensions	3 in	76 mm
Manufacturer	APGreen	
Maximum operating temperature	2600° F	1425° C



Incinerator Technical Data Sheet:

Q50

Rev: 0

Paint Specifications	
Stack and base surface code	<i>Steel Structures Painting Council</i>
Preparation	<i>SSPC-SP 5 - White Metal Blast Cleaning</i>
Primer	<i>Clovatherm Hi-Heat Resistant Zinc - 83220</i>
Paint	<i>Clovatherm Hi-Heat Resistant Enamel - 83225</i>
Dry film thickness	<i>2-4 mil</i>
Base skid surface code	<i>Steel Structures Painting Council</i>
Preparation	<i>SSPC-SP 6 - Commercial Blast Cleaning</i>
Paint	<i>Cloverdale Rustex 71029 Primer - Cloverdale 74 Enamel</i>

Fuel Train	Imperial	Metric
Fuel train classification	<i>CSA B149.3 STANDARD - Class 1 Div. 2</i>	
CCS pressure switches	<i>Two (2)</i>	
Model	<i>6900GZE</i>	
Manufacturer	<i>Custom Control Sensors Inc.</i>	
Operating pressure	<i>1-18 psig</i>	<i>7-124.1 kPa</i>
Fuel gas regulator	<i>One (1)</i>	
Model	<i>627-462</i>	
Manufacturer	<i>Fisher</i>	
Fuel line code	<i>A106B pipe / A105 fittings</i>	
Pilot gas regulator	<i>One (1)</i>	
Model	<i>67 CFR -362SC</i>	
Manufacturer	<i>Fisher</i>	
Instrument air regulator	<i>One (1)</i>	
Model	<i>67 CFR – 362 SC</i>	
Manufacturer	<i>Fisher</i>	



Incinerator Technical Data Sheet:

Q50

Rev: 0

Main gas solenoids	Two (2)	
Model	HV285926 CSA Gas Approved	
Manufacturer	ASCO	
Pilot solenoid	Two (2)	
Model	HV287776 CSA Gas Approved	
Manufacturer	ASCO	
Temperature transmitter	One (1)	
Model	644	
Manufacturer	Rosemount	
Temperature control valve	One (1)	
Model	SMT 1400	
Manufacturer	Kimray	
Ball Valves	Two (2)	
Model	CF8M CSA Approved	
Manufacturer	Neo 2500 Series	
Tube valves manufacturer	Swagelok	
Tubing fittings manufacturer	Swagelok	
Tubing material	0.035 in (SS)	0.9 mm (SS)
Tubing	Swagelok	
Gauges	2 ½" Dial, Stainless	
Model	WJ Series	
Manufacturer	Western Gauge	
Needle Valves		
Model	WN1412P	
Manufacturer	WGI	



Incinerator Technical Data Sheet:

Q50

Rev: 0

Electrical	
Control panel classification	NEMA 4x (Hoffman)
Ignition panel classification	NEMA 4x (Hoffman)
Power requirements	24 VDC
Power Consumption	
Profire BMS	1.6 watts
ESD Solenoids (each)	12.1 watts
Pilot Solenoids (each)	4 watts
Electrical JBS	
Model	NEMA 4x
Manufacturer	Hoffman
Electrical Connectors	
Model	STX/STO 050-464
Manufacturer	Thomas and Betts
Terminal Blocks	
Model	SAK 6
Manufacturer	Weidmuller
Fuses	
Classification	Sand Filled fast acting
Model	GSD10
Manufacturer	Ferraz



Incinerator Technical Data Sheet:

Q50

Rev: 0

Burner Management System

Overview

The BMS system operates fuel and pilot valves and can incorporate two (2) swing valve solenoids (incinerator feed/vent) on the waste gas line. The status contact can go the PLC and the ESD contact can be tied to a remote shutdown. Additionally, the BMS system provides an Emergency Stop Reset push button. The air damper is manual with a stop to prevent complete closure.

System	Profire 2100
Manufacturer	Profire Combustion Inc.
BMS code	CSA, TSSA & UL
Flame testing	Ionization loop
Shutdown rate	3 seconds
Remote operation	Start/Stop & ESD contact
Instrument air code	ANSI/ISA S7.3
Programmable	Purge times, auto restart & restart tries
Display	Flame, Program, ESD, Display Window, Auto & Manual Modes, Pilot, Ignite, Main
Power requirements	24 VDC
Optional – 24 VDC Power Supply	
Model	CP SNT 160W
Manufacturer	Weidmuller
	Single or 3-phase input option, 120/230/480VAC

Table B-1
Section 60.18 Demonstration

Hastings Compressor Station	
Type	Unassisted
Throat Diameter (inches)	13.25

GLYCalc		2300	scf/h
	INPUT	Compound Net	Mixture Net
	mole	Heating Value	Heating Value
Compound	percent	(Btu/scf)	(Btu/scf)
water	55.100	0	0.0
carbon dioxide	0.089	0	0.0
nitrogen	0.304	0	0.0
methane	34.000	913	310.4
ethane	5.000	1641	82.1
propane	2.110	2385	50.3
Isobutane	0.446	3105	13.8
n-butane	0.729	3113	22.7
Isopentane	0.237	3716	8.8
n-pentane	0.205	3709	7.6
cyclopentane	0.048	3516	1.7
n-hexane	0.088	4412	3.9
cyclohexane	0.048	4185	2.0
other hexanes	0.130	4870	6.3
heptane	0.183	4925	9.0
benzene	0.070	3601	2.5
toluene	0.176	4284	7.5
ethylbenzene	0.005	4977	0.3
xylene	0.289	4980	14.4
octane (C8+)	0.774	5804	44.9
hydrogen sulfide	0.000	596	0.0
TOTALS:	100		588.3

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 - (From Flash Tank)	56.6	scfh
Composite net heating value	606.40	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)	588	21.9
$V_{max} = 10^{0.5}[(LHV+28.2)/31.7]$ for V_{max} in m/sec and LHV in MJ/scm	m/sec	ft/sec
(1 m = 3.28 ft)	39.9	130.8
V_{max} limit based on 40 CFR 60.18(b)(4)(iii)	39.9	130.8

Actual flare exit velocity:

Total volumetric flow (vent gas + assist gas in scfh/3600 sec/hr) =	0.65	scf/sec
Total volumetric flow at 180F & atmospheric pressure =	0.85	cf/sec
Flare exit cross-sectional area based on throat diameter =	0.96	ft ²
Velocity = volumetric flow / cross-sectional area =	0.9	ft/sec

Attachment N

SUPPORTING EMISSIONS CALCULATIONS

Reboiler - Emission Unit 005-06

Pollutant	Emission Factor	Emission Factor Units	Emission Factor Basis / Source	Reboiler Rating (MMBtu/hr)	Heat Value of Natural Gas (Btu/scf)	Annual Operating Hours	Max. Hourly Emissions. (lb/hr)	Max. Annual Emissions. (tpy)
VOC's	5.5	lb/10 ⁶ scf	AP-42 Chapter 1.4	0.55	1,000	8,760	0.003	0.01
Hexane	1.8	lb/10 ⁶ scf	AP-42 Chapter 1.4	0.55	1,000	8,760	0.001	0.004
Formaldehyde	0.075	lb/10 ⁶ scf	AP-42 Chapter 1.4	0.55	1,000	8,760	<0.001	<0.001
Benzene	0.0021	lb/10 ⁶ scf	AP-42 Chapter 1.4	0.55	1,000	8,760	<0.001	<0.001
Toluene	0.0034	lb/10 ⁶ scf	AP-42 Chapter 1.4	0.55	1,000	8,760	<0.001	<0.001
Pb	0.0005	lb/10 ⁶ scf	AP-42 Chapter 1.4	0.55	1,000	8,760	<0.001	<0.001
CO	84	lb/10 ⁶ scf	AP-42 Chapter 1.4	0.55	1,000	8,760	0.05	0.20
NOx	100	lb/10 ⁶ scf	AP-42 Chapter 1.4	0.55	1,000	8,760	0.06	0.24
PM ₁₀	7.6	lb/10 ⁶ scf	AP-42 Chapter 1.4	0.55	1,000	8,760	0.004	0.02
SO ₂	0.6	lb/10 ⁶ scf	AP-42 Chapter 1.4	0.55	1,000	8,760	<0.001	0.001
CO ₂	53.06	kg CO ₂ / MMBtu	40CFR98 Subpart C	0.55	1,000	8,760	64.34	281.80
CH ₄	0.001	kg CH ₄ / MMBtu	40CFR98 Subpart C	0.55	1,000	8,760	0.001	0.01
N ₂ O	0.0001	kg N ₂ O / MMBtu	40CFR98 Subpart C	0.55	1,000	8,760	<0.001	0.001
Total HAPs							0.001	0.004
Total CO ₂ e							64.40	282.23

Notes:

- AP-42, Chapter 1.4 references are from the July 1998 revision.
- Greenhouse Gas Emissions are calculated using 40 CFR 98 Subpart C Table C-1 and C-2 emission factors.
- Max. Annual Emissions based upon Max. Hourly Emissions @ 8760 hr/yr.
- CO₂ equivalency solved for using Global Warming Potentials found in 40CFR98 Table A-1 (Updated January 2014). GWP CO₂=1, GWP CH₄=25, GWP N₂O=298

Example Equations:

Max. Hourly Emission Rate (lb/hr) = Emission Factor (lb/10⁶ scf) ÷ Heating Value of Natural Gas (Btu/scf) x Boiler Rating (MMBtu/hr)

Dehydrator Emissions - Emission Unit 004-02

Regenerator Overhead Vent

Pollutant	Max. Hourly Uncontrolled Emissions (lb/hr)	Max. Annual Uncontrolled Emissions (tons/yr)	Max. Hourly Controlled Emissions (lb/hr)	Max. Annual Controlled Emissions (tons/yr)
VOCs	25.43	111.40	1.27	5.57
HAPs	3.67	16.08	0.18	0.80
Benzene	0.33	1.45	0.02	0.07
Ethylbenzene	0.04	0.15	0.00	0.008
Toluene	0.99	4.32	0.05	0.22
Xylenes	1.86	8.15	0.09	0.41
n-Hexane	0.46	2.01	0.02	0.10
CO ₂	0.24	1.05	144.35	632.26
CH ₄	33.10	144.97	1.66	7.25
Total CO ₂ e	827.71	3,625.30	185.73	813.48

Vent Gas Properties

Gas Stream	Mole Fraction	Vent Gas Parameter	Flow Rate (scf/hr)	Destruction Efficiency
Methane	0.34	Regen. Overhead	2,300	0.95
Ethane	0.05			
Propane	0.02			
Butane	0.01			
Pentanes	0.004			
Carbon Dioxide	0.0008			

Flash Tank

Pollutant	Max. Hourly Uncontrolled Emissions (lb/hr)	Max. Annual Uncontrolled Emissions (tons/yr)	Max. Hourly Controlled Emissions (lb/hr)	Max. Annual Controlled Emissions (tons/yr)
VOCs	1.86	8.13	0.09	0.41
HAPs	0.06	0.27	0.003	0.01
Benzene	0.0001	0.01	0.0001	0.001
Ethylbenzene	0.0001	0.0005	0.0001	0.000
Toluene	0.005	0.02	0.0002	0.001
Xylenes	0.004	0.02	0.0002	0.0009
n-Hexane	0.05	0.22	0.003	0.01
CO ₂	0.04	0.18	1.14	4.99
CH ₄	1.35	5.91	0.07	0.30
Total CO ₂ e	33.74	147.80	2.82	12.37

Dehydrator Emissions - Emission Unit 004-02

Total Dehydrator Emissions

Pollutant	Max. Hourly Uncontrolled Emissions (lb/hr)	Max. Annual Uncontrolled Emissions (tons/yr)	Max. Hourly Controlled Emissions (lb/hr)	Max. Annual Controlled Emissions (tons/yr)
VOCs	27.29	119.54	3.13	13.70
HAPs	3.73	16.34	0.24	1.07
Benzene	0.33	1.46	0.02	0.08
Ethylbenzene	0.04	0.15	0.00	0.01
Toluene	0.99	4.34	0.05	0.24
Xylenes	1.86	8.16	0.10	0.42
n-Hexane	0.51	2.22	0.07	0.32
CO ₂	0.276	1.22	144.39	632.43
CH ₄	34.45	150.88	3.00	13.15
Total CO ₂ e	861.45	3,773.10	333.53	816.29

Total Dehydrator Emissions - 20% Contingency

Pollutant	Max. Hourly Uncontrolled Emissions (lb/hr)	Max. Annual Uncontrolled Emissions (tons/yr)	Max. Hourly Controlled Emissions (lb/hr)	Max. Annual Controlled Emissions (tons/yr)
VOCs	32.75	143.44	3.75	16.44
HAPs	4.48	19.61	0.29	1.28
Benzene	0.40	1.75	0.02	0.10
Ethylbenzene	0.04	0.18	0.002	0.01
Toluene	1.19	5.21	0.07	0.28
Xylenes	2.24	9.80	0.12	0.51
n-Hexane	0.61	2.67	0.09	0.38
CO ₂	0.33	1.47	173.27	758.92
CH ₄	41.34	181.05	3.60	15.78
Total CO ₂ e	1,033.74	4,527.72	400.23	979.55

- Notes:**
- The WVDAQ has historically issued permits for dehydration units that include a 20% contingency on the total dehydration emissions soved for using GRI GLY-CALC to account for gas variability through the system. This contingency is being included in the permit application in order to properly assess expected permit PTE levels.
 - Emission rates for the dehydrator were calculated using GRI-GLYCALC version 4.0. The GRI-GLYCALC output sheets for the Hastings Compressor Station are attached
 - Emissions from the reboiler overhead vent is routed to the enclosed combustion device.

-CO₂ equivalency solved for using Global Warming Potentials found in 40CFR98 Table A-1. GWP CO₂=1, GWP CH₄=25, GWP N₂O=298
Emissions from Enclosed Combustion Device Vapor Destruction CO2 Methodologies shown below sample equation

$$E_{a,CH_4}(un-combusted) = V_a * (1-\eta) * X_{CH_4} \tag{Eq. W-19}$$

$$E_{a,CO_2}(un-combusted) = V_a * X_{CO_2} \tag{Eq. W-20}$$

$$E_{a,CO_2}(combusted) = \sum_{j=1}^5 (\eta * V_a * Y_j * R_j) \tag{Eq. W-21}$$

Where:
Ea,CH4(un-combusted) = Contribution of annual un-combusted CH4 emissions from Enclosed Combustion Device stack in cubic feet, under actual conditions.
Ea,CO2(un-combusted) = Contribution of annual un-combusted CO2 emissions from Enclosed Combustion Device stack in cubic feet, under actual conditions.
Ea,CO2(combusted) = Contribution of annual combusted CO2 emissions from Enclosed Combustion Device stack in cubic feet, under actual conditions.
Va = Volume of gas sent to Enclosed Combustion Device in cubic feet, during the year.
η = Fraction of gas combusted by a burning Enclosed Combustion Device (default is 0.98). For gas sent to an unlit Enclosed Combustion Device, η is zero.
XCH4 = Mole fraction of CH4 in gas to the Enclosed Combustion Device.
XCO2 = Mole fraction of CO2 in gas to the Enclosed Combustion Device.
Yj = Mole fraction of gas hydrocarbon constituents j (such as methane, ethane, propane, butane, and pentanes-plus).
Rj = Number of carbon atoms in the gas hydrocarbon constituent j: 1 for methane, 2 for ethane, 3 for propane, 4 for butane, and 5 for pentanes plus).

Enclosed Combustion Device - DEHY 1

Burner and Pilot Emissions

Pollutant	Emission Factor (lb/10 ⁶ scf)	Emission Factors (kg XX/MMBtu)	Heat Value of Natural Gas (Btu/scf)	Pilot Gas Rating (Btu/hr)	Enclosed Ground Flare Burner Rating (Btu/hr)	Pilot Max. Hourly Emissions (lb/hr)	Pilot Max. Hourly Emissions (tons/yr)	Burner Max.Hourly Emissions (lb/hr)	Burner Max.Hourly Emissions (tons/hr)	Max. Hourly Emissions (lb/hr)	Max. Yearly Emissions (tons/yr)
VOCs	5.5	--	1,236	30,000	567,000	0.000	0.001	--	--	0.000	0.001
Hexane	1.8	--	1,236	30,000	567,000	0.000	0.000	--	--	0.000	0.000
Formaldehyde	0.075	--	1,236	30,000	567,000	0.000	0.000	0.000	0.000	0.000	0.000
CO	84	--	1,236	30,000	567,000	0.002	0.01	0.04	0.17	0.04	0.18
NO _x	100	--	1,236	30,000	567,000	0.002	0.01	0.05	0.20	0.05	0.21
PM	7.6	--	1,236	30,000	567,000	0.000	0.001	0.003	0.02	0.004	0.02
SO ₂	0.6	--	1,236	30,000	567,000	0.000	0.000	0.000	0.001	0.000	0.001
CO ₂	--	53	1,236	30,000	567,000	3.51	15.37	66.33	290.51	69.84	305.88
CH ₄	--	0.001	1,236	30,000	567,000	0.000	0.000	0.001	0.01	0.001	0.006
N ₂ O	--	0.0001	1,236	30,000	567,000	0.000	0.000	0.000	0.001	0.000	0.001
Total HAPs						0.000	0.000	--	--	0.000	0.000
CO ₂ e						3.51	15.39	66.395	290.81	69.91	306.19

Notes:
-AP-42, Chapter 1.4 references are from the July 1998 revision.
-Greenhouse Gas Emissions are calculated using 40 CFR 98 Subpart C Table C-1 and C-2 emission factors.
Max. Annual Emissions based upon Max. Hourly Emissions @ 8760 hr/yr.
-CO₂ equivalency solved for using Global Warming Potentials found in 40CFR98 Table A-1 (Updated January 2014). GWP CO₂=1, GWP CH₄=25, GWP N₂O=298

Example Equations:
Max. Hourly Emission Rate (lb/hr) = Emission Factor (lb/10⁶ scf) ÷ Heating Value of Natural Gas (Btu/scf) x Boiler Rating (MMBtu/hr)

Hastings Compressor Station

Total Modification PTEs

Emission Unit	Reboiler 005-06		Dehydration Unit Process Vents 004-02		Enclosed Combustion Device DEHY1		Total	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
VOC's	0.003	0.01	3.75	16.44	<0.001	0.001	3.76	16.46
CO	0.05	0.20	<0.001	<0.001	0.04	0.18	0.09	0.38
NOx	0.06	0.24	<0.001	<0.001	0.05	0.21	0.10	0.45
PM ₁₀	0.004	0.02	<0.001	<0.001	<0.001	0.016	0.004	0.03
SO ₂	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.002
CO ₂	64.34	281.80	173.27	758.92	69.84	305.88	307.44	1346.60
CH ₄	0.001	0.005	3.60	15.78	0.001	0.006	3.61	15.80
N ₂ O	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.002
Total HAPs	0.001	0.004	0.29	1.28	<0.001	<0.001	0.29	1.29
Total CO ₂ e	64.40	282.23	400.23	979.55	69.91	306.19	534.54	1,567.97

Total Existing PTEs

[illegible]

Hastings Compressor Station
Proposed Change to PTEs

Emission Unit	Reboiler 005-06		Dehydration Unit Process Vents 004-02		Enclosed Combustion Device DEHY1		Total	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
VOC's	--	0.01	-0.72	-3.15	-0.02	-0.11	-0.73	-3.24
CO	0.04	0.16	--	--	-1.58	-6.92	-1.54	-6.76
NOx	0.02	0.06	--	--	-0.25	-1.09	-0.24	-1.03
PM ₁₀	--	0.008	--	--	-0.03	-0.13	-0.03	-0.13
SO ₂	--	--	--	--	--	-0.01	--	-0.008
CO ₂	64.34	281.80	173.27	758.92	69.84	305.88	307.44	1,346.60
CH ₄	0.001	0.005	3.60	15.78	0.001	0.006	3.606	15.796
N ₂ O	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.002
Total HAPs	--	--	-0.74	-3.31	<0.001	<0.001	-0.74	-3.30
Total CO ₂ e	64.398	282.23	400.23	979.55	69.91	306.19	534.54	1,567.97

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Hastings Compressor Station

File Name: M:\Projects\D\Dominion\Hasting Permit Modification\Hastings Permit Modification - GLY CALC.ddf

Date: March 12, 2015

DESCRIPTION:

Description: Updated GLY CALC to reflect changes in permitted equipment - February 2015

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	1.6550	39.719	7.2487
Ethane	0.4564	10.955	1.9992
Propane	0.2820	6.769	1.2353
Isobutane	0.0786	1.887	0.3443
n-Butane	0.1285	3.085	0.5630
Isopentane	0.0520	1.247	0.2276
n-Pentane	0.0449	1.077	0.1966
n-Hexane	0.0229	0.550	0.1003
Cyclohexane	0.0123	0.294	0.0537
Other Hexanes	0.0340	0.816	0.1490
Heptanes	0.0555	1.333	0.2433
Benzene	0.0166	0.398	0.0726
Toluene	0.0493	1.183	0.2159
Ethylbenzene	0.0017	0.042	0.0077
Xylenes	0.0930	2.232	0.4073
C8+ Heavies	0.4004	9.609	1.7537
Total Emissions	3.3831	81.195	14.8181
Total Hydrocarbon Emissions	3.3831	81.195	14.8181
Total VOC Emissions	1.2717	30.522	5.5702
Total HAP Emissions	0.1835	4.404	0.8038
Total BTEX Emissions	0.1606	3.855	0.7035

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	33.0991	794.378	144.9740
Ethane	9.1290	219.095	39.9849
Propane	5.6407	135.377	24.7063
Isobutane	1.5721	37.731	6.8860
n-Butane	2.5709	61.702	11.2606
Isopentane	1.0392	24.940	4.5515
n-Pentane	0.8977	21.544	3.9317
n-Hexane	0.4579	10.990	2.0057
Cyclohexane	0.2452	5.885	1.0740
Other Hexanes	0.6802	16.324	2.9792

Heptanes	1.1108	26.658	4.8651
Benzene	0.3317	7.960	1.4528
Toluene	0.9860	23.663	4.3185
Ethylbenzene	0.0350	0.840	0.1533
Xylenes	1.8596	44.631	8.1452
C8+ Heavies	8.0077	192.186	35.0739
<hr/>			
Total Emissions	67.6627	1623.905	296.3626
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Total Hydrocarbon Emissions	67.6627	1623.905	296.3626
Total VOC Emissions	25.4346	610.432	111.4038
Total HAP Emissions	3.6702	88.084	16.0754
Total BTEX Emissions	3.2123	77.094	14.0697

FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0674	1.618	0.2953
Ethane	0.0457	1.097	0.2002
Propane	0.0347	0.832	0.1519
Isobutane	0.0104	0.250	0.0457
n-Butane	0.0173	0.414	0.0756
Isopentane	0.0069	0.166	0.0304
n-Pentane	0.0059	0.140	0.0256
n-Hexane	0.0025	0.059	0.0109
Cyclohexane	0.0005	0.013	0.0023
Other Hexanes	0.0041	0.098	0.0180
Heptanes	0.0041	0.098	0.0179
Benzene	0.0001	0.003	0.0005
Toluene	0.0002	0.006	0.0011
Ethylbenzene	<0.0001	<0.001	<0.0001
Xylenes	0.0002	0.005	0.0009
C8+ Heavies	0.0059	0.142	0.0259
<hr/>			
Total Emissions	0.2060	4.943	0.9021
<hr/>			
Total Hydrocarbon Emissions	0.2060	4.943	0.9021
Total VOC Emissions	0.0928	2.228	0.4066
Total HAP Emissions	0.0030	0.073	0.0133
Total BTEX Emissions	0.0006	0.014	0.0025

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	1.3482	32.357	5.9051
Ethane	0.9142	21.942	4.0043
Propane	0.6935	16.643	3.0374
Isobutane	0.2087	5.010	0.9143
n-Butane	0.3453	8.288	1.5126
Isopentane	0.1386	3.327	0.6072
n-Pentane	0.1170	2.809	0.5126
n-Hexane	0.0496	1.190	0.2171
Cyclohexane	0.0104	0.250	0.0456
Other Hexanes	0.0821	1.969	0.3594
Heptanes	0.0818	1.962	0.3581
Benzene	0.0024	0.057	0.0104
Toluene	0.0049	0.117	0.0214
Ethylbenzene	0.0001	0.003	0.0005

Xylenes	0.0039	0.095	0.0173
C8+ Heavies	0.1183	2.839	0.5181

Total Emissions	4.1191	98.857	18.0415
Total Hydrocarbon Emissions	4.1191	98.857	18.0415
Total VOC Emissions	1.8566	44.559	8.1320
Total HAP Emissions	0.0609	1.462	0.2668
Total BTEX Emissions	0.0113	0.272	0.0496

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr

Methane	1.7224	41.337	7.5440
Ethane	0.5022	12.052	2.1995
Propane	0.3167	7.601	1.3872
Isobutane	0.0890	2.137	0.3900
n-Butane	0.1458	3.499	0.6387
Isopentane	0.0589	1.413	0.2579
n-Pentane	0.0507	1.218	0.2222
n-Hexane	0.0254	0.609	0.1111
Cyclohexane	0.0128	0.307	0.0560
Other Hexanes	0.0381	0.915	0.1669
Heptanes	0.0596	1.431	0.2612
Benzene	0.0167	0.401	0.0732
Toluene	0.0495	1.189	0.2170
Ethylbenzene	0.0018	0.042	0.0077
Xylenes	0.0932	2.236	0.4081
C8+ Heavies	0.4063	9.751	1.7796

Total Emissions	3.5891	86.138	15.7202
Total Hydrocarbon Emissions	3.5891	86.138	15.7202
Total VOC Emissions	1.3646	32.750	5.9768
Total HAP Emissions	0.1866	4.477	0.8171
Total BTEX Emissions	0.1612	3.868	0.7060

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction

Methane	150.8791	7.5440	95.00
Ethane	43.9892	2.1995	95.00
Propane	27.7437	1.3872	95.00
Isobutane	7.8003	0.3900	95.00
n-Butane	12.7731	0.6387	95.00
Isopentane	5.1587	0.2579	95.00
n-Pentane	4.4443	0.2222	95.00
n-Hexane	2.2228	0.1111	95.00
Cyclohexane	1.1197	0.0560	95.00
Other Hexanes	3.3386	0.1669	95.00
Heptanes	5.2232	0.2612	95.00
Benzene	1.4632	0.0732	95.00
Toluene	4.3399	0.2170	95.00
Ethylbenzene	0.1537	0.0077	95.00
Xylenes	8.1624	0.4081	95.00

C8+ Heavies	35.5920	1.7796	95.00
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Total Emissions	314.4041	15.7202	95.00
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Total Hydrocarbon Emissions	314.4041	15.7202	95.00
Total VOC Emissions	119.5358	5.9768	95.00
Total HAP Emissions	16.3421	0.8171	95.00
Total BTEX Emissions	14.1193	0.7060	95.00

EQUIPMENT REPORTS:

COMBUSTION DEVICE

Ambient Temperature: 60.00 deg. F
 Excess Oxygen: 0.00 %
 Combustion Efficiency: 95.00 %
 Supplemental Fuel Requirement: 3.07e-001 MM BTU/hr

Component	Emitted	Destroyed
<hr/>		
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

Calculated Absorber Stages: 2.54
 Specified Dry Gas Dew Point: 7.00 lbs. H2O/MMSCF
 Temperature: 110.0 deg. F
 Pressure: 314.7 psig
 Dry Gas Flow Rate: 7.5000 MMSCF/day
 Glycol Losses with Dry Gas: 0.0736 lb/hr
 Wet Gas Water Content: Saturated
 Calculated Wet Gas Water Content: 198.95 lbs. H2O/MMSCF
 Specified Lean Glycol Recirc. Ratio: 3.00 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
<hr/>		
Water	3.50%	96.50%
Carbon Dioxide	99.80%	0.20%
Nitrogen	99.98%	0.02%
Methane	99.98%	0.02%

Ethane	99.95%	0.05%
Propane	99.90%	0.10%
Isobutane	99.84%	0.16%
n-Butane	99.79%	0.21%
Isopentane	99.77%	0.23%
n-Pentane	99.71%	0.29%
n-Hexane	99.49%	0.51%
Cyclohexane	97.84%	2.16%
Other Hexanes	99.61%	0.39%
Heptanes	98.97%	1.03%
Benzene	82.95%	17.05%
Toluene	74.12%	25.88%
Ethylbenzene	60.05%	39.95%
Xylenes	46.87%	53.13%
C8+ Heavies	91.77%	8.23%

FLASH TANK

Flash Control: Combustion device
Flash Control Efficiency: 95.00 %
Flash Temperature: 150.0 deg. F
Flash Pressure: 60.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.98%	0.02%
Carbon Dioxide	66.02%	33.98%
Nitrogen	15.27%	84.73%
Methane	16.03%	83.97%
Ethane	37.69%	62.31%
Propane	56.85%	43.15%
Isobutane	65.11%	34.89%
n-Butane	70.48%	29.52%
Isopentane	72.57%	27.43%
n-Pentane	76.41%	23.59%
n-Hexane	84.49%	15.51%
Cyclohexane	95.50%	4.50%
Other Hexanes	80.94%	19.06%
Heptanes	91.16%	8.84%
Benzene	99.31%	0.69%
Toluene	99.54%	0.46%
Ethylbenzene	99.73%	0.27%
Xylenes	99.82%	0.18%
C8+ Heavies	98.68%	1.32%

REGENERATOR

Regenerator Stripping Gas:
Dry Product Gas
Stripping Gas Flow Rate: 16.0650 scfm

Component	Remaining in Glycol	Distilled Overhead
Water	29.58%	70.42%
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	1.24%	98.76%
Heptanes	0.55%	99.45%
Benzene	5.03%	94.97%
Toluene	7.94%	92.06%
Ethylbenzene	10.44%	89.56%
Xylenes	12.95%	87.05%
C8+ Heavies	12.19%	87.81%

STREAM REPORTS:

WET GAS STREAM

Temperature: 110.00 deg. F
 Pressure: 329.40 psia
 Flow Rate: 3.14e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.19e-001	6.25e+001
Carbon Dioxide	1.49e-001	5.44e+001
Nitrogen	7.18e-001	1.66e+002
Methane	8.03e+001	1.07e+004
Ethane	1.12e+001	2.78e+003
Propane	4.21e+000	1.53e+003
Isobutane	7.99e-001	3.84e+002
n-Butane	1.18e+000	5.67e+002
Isopentane	3.67e-001	2.19e+002
n-Pentane	2.84e-001	1.69e+002
n-Hexane	8.66e-002	6.18e+001
Cyclohexane	1.49e-002	1.04e+001
Other Hexanes	1.53e-001	1.09e+002
Heptanes	1.08e-001	8.92e+001
Benzene	2.99e-003	1.93e+000
Toluene	4.98e-003	3.80e+000
Ethylbenzene	9.96e-005	8.75e-002
Xylenes	3.98e-003	3.50e+000
C8+ Heavies	6.77e-002	9.54e+001
Total Components	100.00	1.70e+004

DRY GAS STREAM

Temperature: 110.00 deg. F
 Pressure: 329.40 psia
 Flow Rate: 3.13e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
-----	-----	-----
Water	1.47e-002	2.19e+000
Carbon Dioxide	1.50e-001	5.43e+001
Nitrogen	7.21e-001	1.66e+002
Methane	8.06e+001	1.06e+004
Ethane	1.12e+001	2.78e+003
Propane	4.22e+000	1.53e+003
Isobutane	8.01e-001	3.83e+002
n-Butane	1.18e+000	5.66e+002
Isopentane	3.68e-001	2.19e+002
n-Pentane	2.84e-001	1.69e+002
n-Hexane	8.66e-002	6.15e+001
Cyclohexane	1.47e-002	1.02e+001
Other Hexanes	1.53e-001	1.09e+002
Heptanes	1.07e-001	8.82e+001
Benzene	2.49e-003	1.60e+000
Toluene	3.71e-003	2.81e+000
Ethylbenzene	6.01e-005	5.25e-002
Xylenes	1.88e-003	1.64e+000
C8+ Heavies	6.24e-002	8.76e+001
-----	-----	-----
Total Components	100.00	1.69e+004

LEAN GLYCOL STREAM

Temperature: 110.00 deg. F
Flow Rate: 3.00e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
-----	-----	-----
TEG	9.84e+001	1.66e+003
Water	1.50e+000	2.53e+001
Carbon Dioxide	6.40e-013	1.08e-011
Nitrogen	1.50e-013	2.53e-012
Methane	3.20e-018	5.39e-017
Ethane	4.10e-008	6.92e-007
Propane	3.88e-009	6.54e-008
Isobutane	1.06e-009	1.79e-008
n-Butane	1.72e-009	2.90e-008
Isopentane	1.50e-004	2.53e-003
n-Pentane	1.47e-004	2.48e-003
n-Hexane	9.47e-005	1.60e-003
Cyclohexane	4.39e-004	7.41e-003
Other Hexanes	2.55e-004	4.30e-003
Heptanes	2.74e-004	4.62e-003
Benzene	1.03e-003	1.73e-002
Toluene	5.00e-003	8.43e-002
Ethylbenzene	2.41e-004	4.06e-003
Xylenes	1.63e-002	2.76e-001
C8+ Heavies	6.36e-002	1.07e+000
-----	-----	-----
Total Components	100.00	1.69e+003

RICH GLYCOL STREAM

Temperature: 110.00 deg. F
Pressure: 329.40 psia

Flow Rate: 3.16e+000 gpm

NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
-----	-----	-----
TEG	9.39e+001	1.66e+003
Water	4.85e+000	8.56e+001
Carbon Dioxide	6.11e-003	1.08e-001
Nitrogen	1.43e-003	2.53e-002
Methane	9.09e-002	1.61e+000
Ethane	8.31e-002	1.47e+000
Propane	9.10e-002	1.61e+000
Isobutane	3.39e-002	5.98e-001
n-Butane	6.63e-002	1.17e+000
Isopentane	2.86e-002	5.05e-001
n-Pentane	2.81e-002	4.96e-001
n-Hexane	1.81e-002	3.20e-001
Cyclohexane	1.31e-002	2.32e-001
Other Hexanes	2.44e-002	4.31e-001
Heptanes	5.24e-002	9.25e-001
Benzene	1.96e-002	3.46e-001
Toluene	6.04e-002	1.07e+000
Ethylbenzene	2.21e-003	3.90e-002
Xylenes	1.21e-001	2.13e+000
C8+ Heavies	5.06e-001	8.93e+000
-----	-----	-----
Total Components	100.00	1.77e+003

FLASH TANK OFF GAS STREAM

Temperature: 150.00 deg. F

Pressure: 74.70 psia

Flow Rate: 5.66e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
-----	-----	-----
Water	6.17e-001	1.66e-002
Carbon Dioxide	5.59e-001	3.67e-002
Nitrogen	5.12e-001	2.14e-002
Methane	5.64e+001	1.35e+000
Ethane	2.04e+001	9.14e-001
Propane	1.05e+001	6.93e-001
Isobutane	2.41e+000	2.09e-001
n-Butane	3.99e+000	3.45e-001
Isopentane	1.29e+000	1.39e-001
n-Pentane	1.09e+000	1.17e-001
n-Hexane	3.86e-001	4.96e-002
Cyclohexane	8.30e-002	1.04e-002
Other Hexanes	6.39e-001	8.21e-002
Heptanes	5.47e-001	8.18e-002
Benzene	2.05e-002	2.38e-003
Toluene	3.56e-002	4.90e-003
Ethylbenzene	6.75e-004	1.07e-004
Xylenes	2.49e-002	3.94e-003
C8+ Heavies	4.66e-001	1.18e-001
-----	-----	-----
Total Components	100.00	4.19e+000

FLASH TANK GLYCOL STREAM

Temperature: 150.00 deg. F
Flow Rate: 3.15e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.41e+001	1.66e+003
Water	4.86e+000	8.56e+001
Carbon Dioxide	4.05e-003	7.13e-002
Nitrogen	2.19e-004	3.86e-003
Methane	1.46e-002	2.57e-001
Ethane	3.14e-002	5.53e-001
Propane	5.19e-002	9.14e-001
Isobutane	2.21e-002	3.90e-001
n-Butane	4.68e-002	8.24e-001
Isopentane	2.08e-002	3.67e-001
n-Pentane	2.15e-002	3.79e-001
n-Hexane	1.53e-002	2.70e-001
Cyclohexane	1.26e-002	2.21e-001
Other Hexanes	1.98e-002	3.49e-001
Heptanes	4.79e-002	8.43e-001
Benzene	1.95e-002	3.44e-001
Toluene	6.03e-002	1.06e+000
Ethylbenzene	2.21e-003	3.89e-002
Xylenes	1.21e-001	2.13e+000
C8+ Heavies	5.00e-001	8.81e+000
Total Components	100.00	1.76e+003

FLASH GAS EMISSIONS

Flow Rate: 2.53e+002 scfh
Control Method: Combustion Device
Control Efficiency: 95.00

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.98e+001	7.18e+000
Carbon Dioxide	3.90e+001	1.14e+001
Nitrogen	1.15e-001	2.14e-002
Methane	6.30e-001	6.74e-002
Ethane	2.28e-001	4.57e-002
Propane	1.18e-001	3.47e-002
Isobutane	2.69e-002	1.04e-002
n-Butane	4.46e-002	1.73e-002
Isopentane	1.44e-002	6.93e-003
n-Pentane	1.22e-002	5.85e-003
n-Hexane	4.31e-003	2.48e-003
Cyclohexane	9.28e-004	5.21e-004
Other Hexanes	7.14e-003	4.10e-003
Heptanes	6.12e-003	4.09e-003
Benzene	2.29e-004	1.19e-004
Toluene	3.99e-004	2.45e-004
Ethylbenzene	7.55e-006	5.34e-006
Xylenes	2.79e-004	1.97e-004
C8+ Heavies	5.21e-003	5.91e-003
Total Components	100.00	1.88e+001

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
 Pressure: 14.70 psia
 Flow Rate: 2.30e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.51e+001	6.03e+001
Carbon Dioxide	8.93e-002	2.39e-001
Nitrogen	3.04e-001	5.17e-001
Methane	3.40e+001	3.31e+001
Ethane	5.00e+000	9.13e+000
Propane	2.11e+000	5.64e+000
Isobutane	4.46e-001	1.57e+000
n-Butane	7.29e-001	2.57e+000
Isopentane	2.37e-001	1.04e+000
n-Pentane	2.05e-001	8.98e-001
n-Hexane	8.75e-002	4.58e-001
Cyclohexane	4.80e-002	2.45e-001
Other Hexanes	1.30e-001	6.80e-001
Heptanes	1.83e-001	1.11e+000
Benzene	7.00e-002	3.32e-001
Toluene	1.76e-001	9.86e-001
Ethylbenzene	5.43e-003	3.50e-002
Xylenes	2.89e-001	1.86e+000
C8+ Heavies	7.74e-001	8.01e+000
Total Components	100.00	1.29e+002

COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F
 Pressure: 14.70 psia
 Flow Rate: 5.12e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	7.64e+001	1.65e+000
Ethane	1.12e+001	4.56e-001
Propane	4.74e+000	2.82e-001
Isobutane	1.00e+000	7.86e-002
n-Butane	1.64e+000	1.29e-001
Isopentane	5.33e-001	5.20e-002
n-Pentane	4.61e-001	4.49e-002
n-Hexane	1.97e-001	2.29e-002
Cyclohexane	1.08e-001	1.23e-002
Other Hexanes	2.92e-001	3.40e-002
Heptanes	4.11e-001	5.55e-002
Benzene	1.57e-001	1.66e-002
Toluene	3.96e-001	4.93e-002
Ethylbenzene	1.22e-002	1.75e-003
Xylenes	6.49e-001	9.30e-002
C8+ Heavies	1.74e+000	4.00e-001
Total Components	100.00	3.38e+000

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Hastings Compressor Station

File Name: M:\Projects\D\Dominion\Hasting Permit Modification\Hastings Permit Modification - GLY CALC.ddf

Date: March 12, 2015

DESCRIPTION:

Description: Updated GLY CALC to reflect changes in
permitted equipment - February 2015

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 110.00 deg. F
Pressure: 314.70 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	0.1500
Nitrogen	0.7210
Methane	80.5910
Ethane	11.2300
Propane	4.2230
Isobutane	0.8020
n-Butane	1.1850
Isopentane	0.3690
n-Pentane	0.2850
n-Hexane	0.0870
Cyclohexane	0.0150
Other Hexanes	0.1540
Heptanes	0.1080
Benzene	0.0030
Toluene	0.0050
Ethylbenzene	0.0001
Xylenes	0.0040
C8+ Heavies	0.0680

DRY GAS:

Flow Rate: 7.5 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

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: Combustion device
Flash Control Efficiency: 95.00 %
Temperature: 150.0 deg. F
Pressure: 60.0 psig

STRIPPING GAS:

Source of Gas: Dry Gas
Gas Flow Rate: 16.065 scfm

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device: Combustion Device
Destruction Efficiency: 95.0 %
Excess Oxygen: 0.0 %
Ambient Air Temperature: 60.0 deg. F



Certificate of Analysis

Number: 1030-14100796-006A

Houston Laboratories
8820 Interchange Drive
Houston, TX 77054
Phone 713-660-0901

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

Oct. 23, 2014

Station Name: Old Hastings Station
Sample Point: Before Dehy Contactor
Cylinder No: 1790
Analyzed: 10/22/2014 13:33:04 by JD

Sampled By: TR
Sample Of: Gas Spot
Sample Date: 10/13/2014 12:00
Sample Conditions: 7.4 psig, @ 68.21 °F
Method: GPA 2286

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia		
Nitrogen	0.721	0.986		GPM TOTAL C2+	5.234
Carbon Dioxide	0.150	0.322		GPM TOTAL C3+	2.228
Methane	80.591	63.137		GPM TOTAL IC5+	0.427
Ethane	11.230	16.490	3.006		
Propane	4.223	9.094	1.164		
Iso-butane	0.802	2.276	0.263		
n-Butane	1.185	3.363	0.374		
Iso-pentane	0.369	1.300	0.135		
n-Pentane	0.285	1.004	0.103		
Hexanes Plus	0.444	2.028	0.189		
	100.000	100.000	5.234		

Physical Properties	Total	C6+
Relative Density Real Gas	0.7092	3.2186
Calculated Molecular Weight	20.48	93.22
Compressibility Factor	0.9966	

GPA 2172-09 Calculation:

Calculated Gross BTU per ft³ @ 14.696 psia & 60°F

Real Gas Dry BTU	1237	5073
Water Sat. Gas Base BTU	1215	4985

Comments: H₂O Content: 80 #/MMCF ; H₂O Mol% : 1.744 ; Wt% : 1.538
H₂S 0 ppm

Hydrocarbon Laboratory Manager

Quality Assurance:

The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.



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Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia		
Nitrogen	0.721	0.986		GPM TOTAL C2+	5.234
Carbon Dioxide	0.150	0.322		GPM TOTAL C3+	2.228
Methane	80.591	63.137		GPM TOTAL iC5+	0.427
Ethane	11.230	16.490	3.006		
Propane	4.223	9.094	1.164		
Iso-Butane	0.802	2.276	0.263		
n-Butane	1.185	3.363	0.374		
Iso-Pentane	0.369	1.300	0.135		
n-Pentane	0.285	1.004	0.103		
Hexanes	0.241	0.971	0.095		
Heptanes Plus	0.203	1.057	0.094		
	100.000	100.000	5.234		

Physical Properties	Total	C7+
Relative Density Real Gas	0.7092	3.5187
Calculated Molecular Weight	20.48	101.91
Compressibility Factor	0.9966	

GPA 2172-09 Calculation:

Calculated Gross BTU per ft³ @ 14.696 psia & 60°F

Real Gas Dry BTU	1237	5486
Water Sat. Gas Base BTU	1215	5391

Comments: H2O Content: 80 #/MMCF ; H2O Mol% : 1.744 ; Wt% : 1.538
H2S 0 ppm

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.



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Sample Of: Gas Spot
Sample Date: 10/13/2014 12:00
Sample Conditions: 7.4 psig, @ 68.21 °F
Method: GPA 2286

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia	
Nitrogen	0.721	0.986		
Methane	80.591	63.137		
Carbon Dioxide	0.150	0.322		
Hydrogen Sulfide	NIL	NIL		
Ethane	11.230	16.490	3.006	
Propane	4.223	9.094	1.164	
Iso-Butane	0.802	2.276	0.263	
n-Butane	1.185	3.363	0.374	
Iso-Pentane	0.369	1.300	0.135	
n-Pentane	0.285	1.004	0.103	
i-Hexanes	0.154	0.612	0.060	
n-Hexane	0.087	0.359	0.035	
Benzene	0.003	0.011	0.001	
Cyclohexane	0.015	0.063	0.005	
i-Heptanes	0.079	0.364	0.034	
n-Heptane	0.029	0.137	0.013	
Toluene	0.005	0.021	0.002	
i-Octanes	0.053	0.287	0.025	
n-Octane	0.007	0.041	0.004	
Ethylbenzene	NIL	NIL	NIL	
Xylenes	0.004	0.019	0.001	
i-Nonanes	0.005	0.064	0.006	
n-Nonane	0.002	0.016	0.001	
i-Decanes	NIL	0.024	0.001	
n-Decane	0.001	0.006	0.001	
Undecanes	NIL	0.002	NIL	
Dodecanes	NIL	NIL	NIL	
Tridecanes	NIL	0.001	NIL	
Tetradecanes Plus	NIL	0.001	NIL	
	100.000	100.000	5.234	



Certificate of Analysis

Number: 1030-14100796-006A

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Cylinder No: 1790
Analyzed: 10/22/2014 13:33:04 by JD

Sampled By: TR
Sample Of: Gas Spot
Sample Date: 10/13/2014 12:00
Sample Conditions: 7.4 psig, @ 68.21 °F
Method: GPA 2286

Physical Properties	Total	C14+
Calculated Molecular Weight	20.478	198.413
GPA 2172-09 Calculation:		
Calculated Gross BTU per ft³ @ 14.696 psia & 60°F		
Real Gas Dry BTU	1236.6	10728.8
Water Sat. Gas Base BTU	1215.1	10541.6
Relative Density Real Gas	0.7092	6.8500
Compressibility Factor	0.9966	

Comments: H2O Content: 80 #/MMCF
H2S 0 ppm

Hydrocarbon Laboratory Manager

Quality Assurance:

The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

Attachment O

MONITORING, REPORTING, AND RECORDKEEPING PLAN

Attachment O

Monitoring, Recordkeeping, Reporting, Testing Plans.

Dominion Transmission, Inc. proposes the following MRRT for the equipment included in this permit modification:

Reboiler – Emission Unit ID: 005-06

- Monitoring - None
- Recordkeeping - Dominion shall maintain records of the operating schedule and the quantity and quality of fuel consumed in each fuel burning unit.
- Testing - None

Dehydration Unit – Emission Unit ID: 004-02

- Monitoring – Dominion shall monitor its minor source of HAPs status and the benzene exemption status of the Station to ensure dehydration unit compliance.
Recordkeeping –Dominion will maintain records of actual average benzene emissions in accordance with 40 CFR 63 Section HH.
- Reporting – None
- Testing – Dominion is required to collect a wet gas samples 180 days after the issuance of the Title V Renewal Application and within 2 years prior to the submission of the subsequent Renewal Application.

Enclosed Combustion Device – Emission Unit ID: DEHY1

- Monitoring - Method 22 Visual emissions checks shall be conducted monthly.
- Recordkeeping - Dominion will maintain records of all visual emissions checks.
- Reporting - Dominion will report any violations of the allowable visual emissions requirements.
- Testing - None

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 Hastings Compressor Station, for a natural gas production operation, located in Pine Grove, Wetzel County, West Virginia. The latitude and longitude coordinates are: 39.54989 and -80.67244. Startup of operations is scheduled to begin on October 15, 2015.

The applicant estimates the total increase in maximum potential to discharge the following regulated air pollutants on a facility-wide basis: 1,567.97 tpy of greenhouse gases, measured in CO₂ equivalencies. All other pollutants decrease with this proposed project. 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 XXth day of March, 2015.

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

Attachment S

TITLE V PERMIT

Attachment S
Title V Permit Revision Information

1. New Applicable Requirements Summary	
Mark all applicable requirements associated with the changes involved with this permit revision:	
<input type="checkbox"/> SIP	<input type="checkbox"/> FIP
<input checked="" type="checkbox"/> Minor source NSR (45CSR13)	<input type="checkbox"/> PSD (45CSR14)
<input type="checkbox"/> NESHAP (45CSR15)	<input type="checkbox"/> Nonattainment NSR (45CSR19)
<input type="checkbox"/> Section 111 NSPS (Subpart(s) _____)	<input checked="" type="checkbox"/> Section 112(d) MACT standards (Subpart(s) <u>Subpart HH</u>)
<input type="checkbox"/> Section 112(g) Case-by-case MACT	<input type="checkbox"/> 112(r) RMP
<input type="checkbox"/> Section 112(i) Early reduction of HAP	<input type="checkbox"/> Consumer/commercial prod. reqts., section 183(e)
<input type="checkbox"/> Section 129 Standards/Reqts.	<input type="checkbox"/> Stratospheric ozone (Title VI)
<input type="checkbox"/> Tank vessel reqt., section 183(f)	<input type="checkbox"/> Emissions cap 45CSR§30-2.6.1
<input type="checkbox"/> NAAQS, increments or visibility (temp. sources)	<input type="checkbox"/> 45CSR27 State enforceable only rule
<input checked="" type="checkbox"/> 45CSR4 State enforceable only rule	<input type="checkbox"/> Acid Rain (Title IV, 45CSR33)
<input type="checkbox"/> Emissions Trading and Banking (45CSR28)	<input type="checkbox"/> Compliance Assurance Monitoring (40CFR64) ⁽¹⁾
<input type="checkbox"/> NO _x Budget Trading Program Non-EGUs (45CSR1)	<input type="checkbox"/> NO _x Budget Trading Program EGUs (45CSR26)
⁽¹⁾ If this box is checked, please include Compliance Assurance Monitoring (CAM) Form(s) for each Pollutants Specific Emission Unit (PSEU) (See Attachment H to Title V Application).	

2. Non Applicability Determinations

List all requirements, which the source has determined not applicable to this permit revision and for which a permit shield is requested. The listing shall also include the rule citation and a rationale for the determination.

- SIP/FIP - Not a specifically listed facility under either plan.
- NESHAP (45CSR15) – Rule no longer effective.
- Section 111 NSPS – The facility not is subject to the requirements Section OOOO. No NSPS standards are applicable to revision.
- Section 112(g) Case-by-case MACT – No case-by-case MACT being requested.
- Section 112(i) - Early HAP reduction - Facility did not utilize the early reduction program.
- Section 129 – Facility does not own a solid waste incinerator.
- Section 183(f) - Any tank vessels per section 183(f) are not included in this revision.
- NAAQs - Facility is a permanent source and not a contemporary source.
- 45CSR4 - No changes requested.
- 45CSR28 - No emissions are banked or traded per this regulation.
- 45CSR1 – No changes to the facility are being requested.
- 45CSR14 – The proposed modification qualifies as a minor permitting action.
- 45CSR19 – Revision does not trigger thresholds. Area is listed as attainment
- Section 112(d) MACT standards – Facility operates an affected unit under Section HH.
- 112(r) RMP – Does not affect facility RMP.
- Section 183 (e) - Facility does not produce a 183(e) listed consumer or commercial product.
- Stratospheric ozone (Title VI) – Revision does not involve any regulate pollutant.
- Emission Cap 45CSR section 30-2.6.1 - Facility has no emission cap agreement per section 2.6.1.
- 45CSR27 – Revision does not affect existing TAP emissions.
- 45CSR33 - Facility is not subject to the Acid Rain provisions listed in section 1.5.
- 40CFR64 – Revision does not impact CAM.
- 45CSR26 - Compressors are not defined as EGU's.

☐ **Permit Shield Requested** *(not applicable to Minor Modifications)*

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

3. Suggested Title V Draft Permit Language

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

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

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

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
R30-10300006-2011	07/11/2012	N/A
R13-2555B	09/17/2012	N/A
	/ /	


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

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
NA	/ /	
	/ /	

6. Change in Potential Emissions

Pollutant	Change in Potential Emissions (+ or -), TPY
CO	-6.76
NOx	-1.03
PM10	-0.13
SO2	-0.008
Total VOC	-3.24
Total HAP	-3.30

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

7. Certification For Use Of Minor Modification Procedures (Required Only for Minor Modification Requests)	
<i>Note:</i>	<i>This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. The criteria for allowing the use of Minor Modification Procedures are as follows:</i>
<ul style="list-style-type: none"> i. Proposed changes do not violate any applicable requirement; ii. Proposed changes do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit; iii. Proposed changes do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient air quality impacts, or a visibility increment analysis; iv. Proposed changes do not seek to establish or change a permit term or condition for which there is no underlying applicable requirement and which permit or condition has been used to avoid an applicable requirement to which the source would otherwise be subject (synthetic minor). Such terms and conditions include, but are not limited to a federally enforceable emissions cap used to avoid classification as a modification under any provision of Title I or any alternative emissions limit approved pursuant to regulations promulgated under § 112(j)(5) of the Clean Air Act; v. Proposed changes do not involve preconstruction review under Title I of the Clean Air Act or 45CSR14 and 45CSR19; vi. Proposed changes are not required under any rule of the Director to be processed as a significant modification; <p>Notwithstanding subparagraph 45CSR§30-6.5.a.1.A. (items i through vi above), minor permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in rules of the Director which are approved by the U.S. EPA as a part of the State Implementation Plan under the Clean Air Act, or which may be otherwise provided for in the Title V operating permit issued under 45CSR30.</p>	
<p>Pursuant to 45CSR§30-6.5.a.2.C., the proposed modification contained herein meets the criteria for use of Minor permit modification procedures as set forth in Section 45CSR§30-6.5.a.1.A. The use of Minor permit modification procedures are hereby requested for processing of this application.</p>	
(Signed):	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">  (Please use blue ink) </div> <div style="width: 45%;"> Date: <u>03 / 19 / 15</u> (Please use blue ink) </div> </div>
Named (typed):	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Brian Sheppard </div> <div style="width: 45%;"> Title: Vice President, Pipeline Operations </div> </div>

Note: Please check if the following included (if applicable):	
<input type="checkbox"/>	Compliance Assurance Monitoring Form(s)
<input type="checkbox"/>	Suggested Title V Draft Permit Language
<p><i>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</i></p>	