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Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation

Danville Compressor Station

Danville, West Virginia

Rule 13 Permit Modification Application

SLR Ref: 116.00400.00153

April 2017

Rule 13 Permit Modification Application

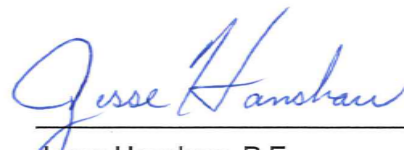
Prepared for:

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia 25301

This document has been prepared by SLR International Corporation. The material and data in this permit application were prepared under the supervision and direction of the undersigned.



Chris Boggess
Associate Engineer



Jesse Hanshaw, P.E.
Principal Engineer

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Notes:

ATTACHMENT C – Not applicable – Application addresses after the fact changes

ATTACHMENT H – Not applicable – SDS Sheets submitted with previous permit applications

ATTACHMENT M – Not applicable – No APCD associated with proposed permit modification

ATTACHMENT Q – Not applicable – No information contained within this application claimed as confidential

APPLICATION FOR PERMIT

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017



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): Cranberry Pipeline Corporation		2. Federal Employer ID No. (FEIN): 042989934	
3. Name of facility (if different from above): Danville Compressor Station		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: 900 Lee Street East Suite 1500 Charleston, WV 25301		5B. Facility's present physical address: Lick Creek Rd. Danville, WV 25053	
6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If YES, provide a copy of the Certificate of Incorporation/Organization/Limited Partnership (one page) including any name change amendments or other Business Registration Certificate as Attachment A . – If NO, provide a copy of the Certificate of Authority/Authority of L.L.C./Registration (one page) including any name change amendments or other Business Certificate as Attachment A .			
7. If applicant is a subsidiary corporation, please provide the name of parent corporation:			
8. Does the applicant own, lease, have an option to buy or otherwise have control of the <i>proposed site</i> ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If YES, please explain: The applicant owns 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 Compressor Station with Dehydration Unit		10. North American Industry Classification System (NAICS) code for the facility: 211111	
11A. DAQ Plant ID No. (for existing facilities only): 005-00020		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only): R30-00500020-2012(MM01) R13-2585D	

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

12A.

- For **Modifications, Administrative Updates or Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction or Relocation permits**, please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP as Attachment B**.

Travel south on US-119 toward Madison. Bear left onto CR-7/03 (Left Fork) for approximately 2.4 miles. Turn left on CR-119/07 (Lick Creek Rd) for approximately 0.9 miles to the station entrance.

12B. New site address (if applicable): N/A	12C. Nearest city or town: Danville	12D. County: Boone
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12.E. UTM Northing (KM): 4,214.250	12F. UTM Easting (KM): 422.070	12G. UTM Zone: 17N
------------------------------------	--------------------------------	--------------------

13. Briefly describe the proposed change(s) at the facility:
This permit modification will address an increase in throughput to storage vessels, TKO-1 and TKO-2 and material loaded via Truck Loading, TL-01

14A. Provide the date of anticipated installation or change: - If this is an After-The-Fact permit application, provide the date upon which the proposed change did happen: 12/01/2016	14B. Date of anticipated Start-Up if a permit is granted:
---	---

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). **After the Fact**

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

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

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

18. **Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (*if known*). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (*if known*). Provide this information as **Attachment D**.

Section II. Additional attachments and supporting documents.

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

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

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

- Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

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

23. Provide a **Process Description** as **Attachment G**.

- Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

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

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H**.

– For chemical processes, provide a MSDS for each compound emitted to the air.

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

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

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

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

- | | | |
|--|--|--|
| <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 | |
- General Emission Unit, specify: **Storage Vessel Data Sheet; Truck Loading Data Sheet**

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 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 |

Other Collectors, specify

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

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

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

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

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

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

YES NO

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

Section III. Certification of Information

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

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

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

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

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

Certification of Truth, Accuracy, and Completeness

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

Compliance Certification

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

SIGNATURE  DATE: 6/8/17
(Please use blue ink) (Please use blue ink)

35B. Printed name of signee: Brody Webster, CSP		35C. Title: Manager, Safety & Environment
35D. E-mail: brody.webster@cabotog.com	36E. Phone: 304-347-1642	36F. FAX 304-347-1618
36A. Printed name of contact person (if different from above): Jesse Hanshaw, P.E.		36B. Title: Principal Engineer, SLR International Corporation
36C. E-mail: jhanshaw@slrconsulting.com	36D. Phone: 681-205-8949	36E. FAX: 681-205-8969

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 type="checkbox"/> Attachment C: Installation and Start Up Schedule | <input 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 checked="" 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.

ATTACHMENT A

BUSINESS CERTIFICATE

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

**WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION
CERTIFICATE**

ISSUED TO:
CRANBERRY PIPELINE CORPORATION
900 LEE ST E 1700
CHARLESTON, WV 25301-1741

BUSINESS REGISTRATION ACCOUNT NUMBER: **1006-3673**

This certificate is issued on: **06/1/2011**

*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

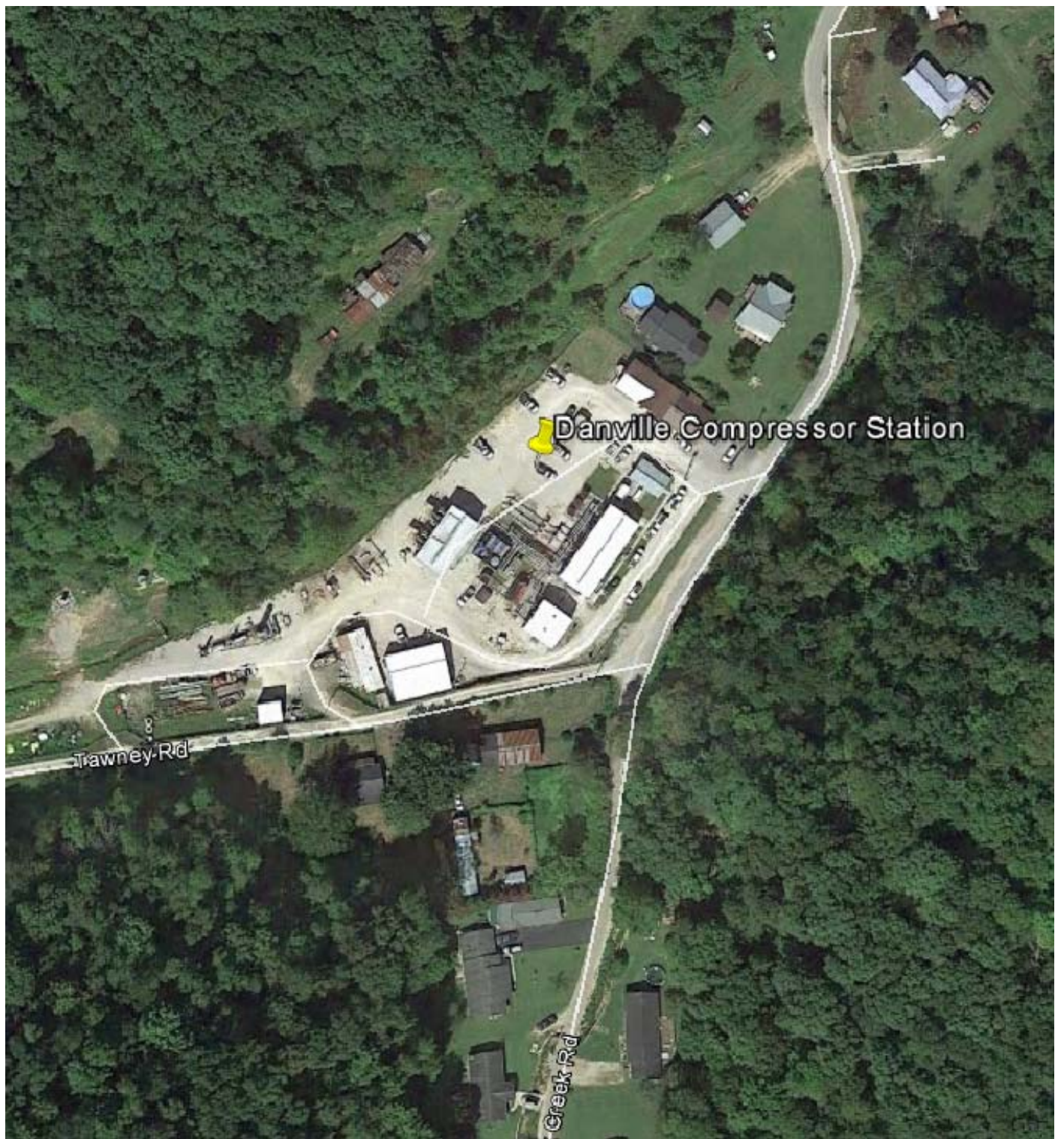
MAP(S)

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017



GPS Coordinates of Sites:
Lat: 38.07266, Long: -81.88848

UTM Coordinates of Sites:
Easting: 422.070 km, Northing: 4,214.250 km, Zone: 17

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Coporation
900 Lee Street East, Suite 1500,
Charleston, WV 25301

Report
Rule 13 Class II Modification Permit Application
Danville Compressor Station

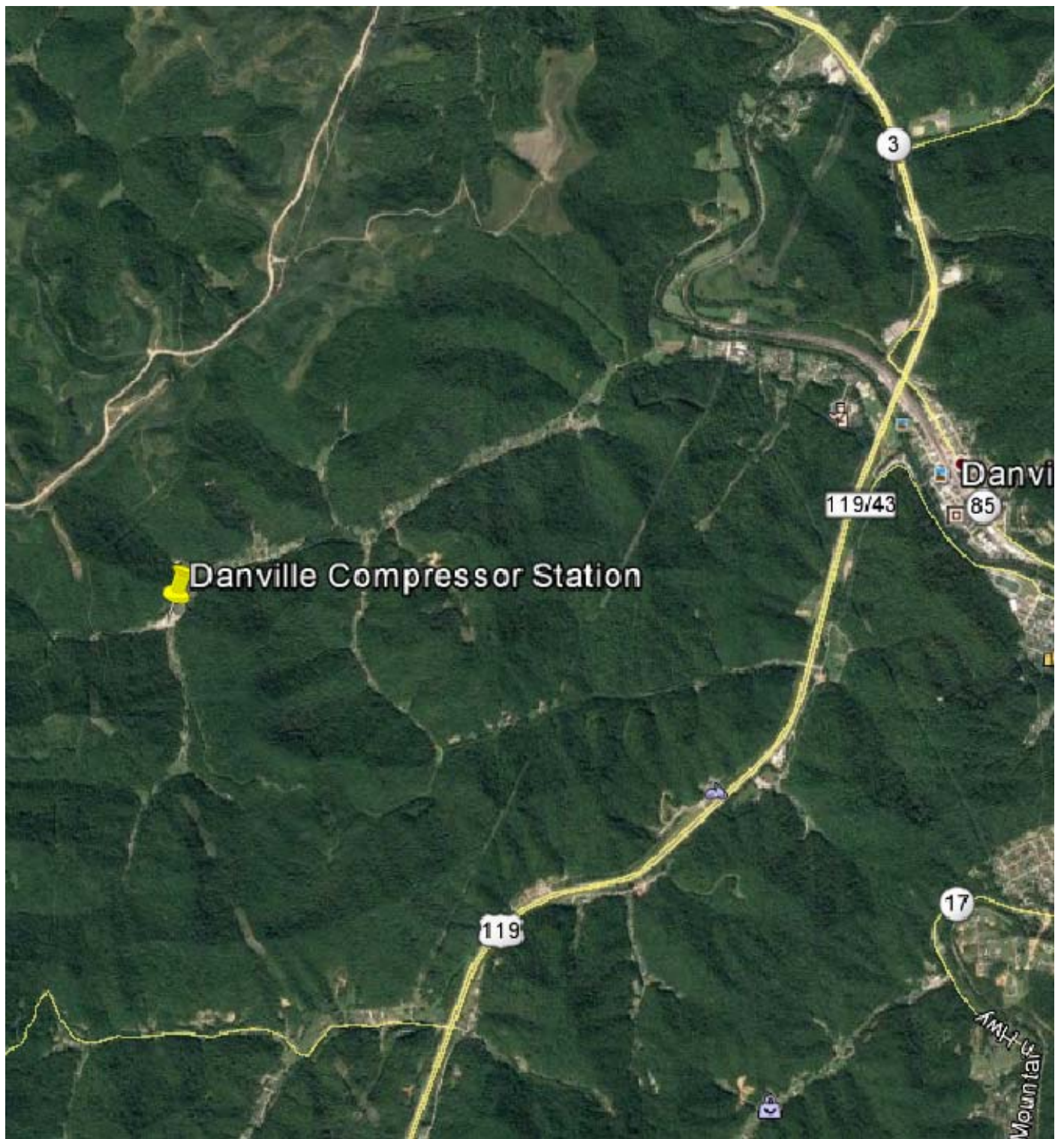
Drawing
Attachment B - Area Map

Date: October 2016

Drawn By: CLB

Project: 116,00400,00157 Task: 0001





GPS Coordinates of Sites:
 Lat: 38.07266, Long: -81.88848

UTM Coordinates of Sites:
 Easting: 422.070 km, Northing: 4,214.250 km, Zone: 17

Cranberry Pipeline Corporation
 c/o Cabot Oil & Gas Corporation
 900 Lee Street East, Suite 1500,
 Charleston, WV 25301

Report
 Rule 13 Class II Modification Permit Application
 Danville Compressor Station

Drawing
 Attachment B - Area Map

Date: October 2016

Drawn By: CLB

Project: 116.00400.00157 Task: 0001



ATTACHMENT C

INSTALLATION AND START-UP

NOT APPLICABLE

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

ATTACHMENT D

REGULATORY DISCUSSION

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

REGULATORY DISCUSSION

APPLICABLE REGULATIONS

The modified equipment at this facility is subject to the following applicable rules and regulations:

Federal and State:

45 CSR 13 – *Permits for Construction, Modification, Relocation, and Operation of Stationary Source of Air Pollutants*

Cranberry has applied for a Rule 13 modification permit in order to increase the throughput limit associated with storage vessels TKO-1 and TKO-2 and material loaded via truck loading (TL-01). This increase is required to more accurately reflect the liquids being removed from the various separators located throughout the compression and dehydration phases of the Danville Station. Although, the throughput is increase to tanks TKO-1 and TKO-2, the emissions from the equipment are predicted to decrease as compared to overly conservative estimates used in the past. The emission decrease is attributed to using site specific extended gas and dew point sampling information as representative inputs to model the process with ProMax™.

NON-APPLICABILITY DETERMINATIONS

The following requirements have been determined “not applicable” due to the following:

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

Storage Vessels TKO-1 and TKO-2 located at the Danville Compressor Station were installed in 2005 which predates the applicability date of August 23, 2011, therefore these storage vessels are not subject to this subpart. Additionally, the emission estimates show emissions significantly less than 6 tpy VOCs.

40 CFR 60 Subpart OOOOa – *Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015*

The GHG and VOC requirements defined by this NSPS are not applicable to this site because all affected sources commenced construction prior to September 18, 2015 in accordance with [40CFR§60.5365a]

40 CFR 60 Subpart K, Ka – *Standards of Performance for Storage Vessels of Petroleum Liquids*

This subpart is not applicable because all tanks at this station are below 40,000 gallons in capacity as specified in 60.11a(a).

40 CFR 60 Subpart Kb – *Standards of Performance for Volatile Organic Liquid Storage Vessels*

This subpart is not applicable because all tanks at this station are below 75m³ (19,813 gallons) in capacity as specified in 60.11(b).

ATTACHMENT E

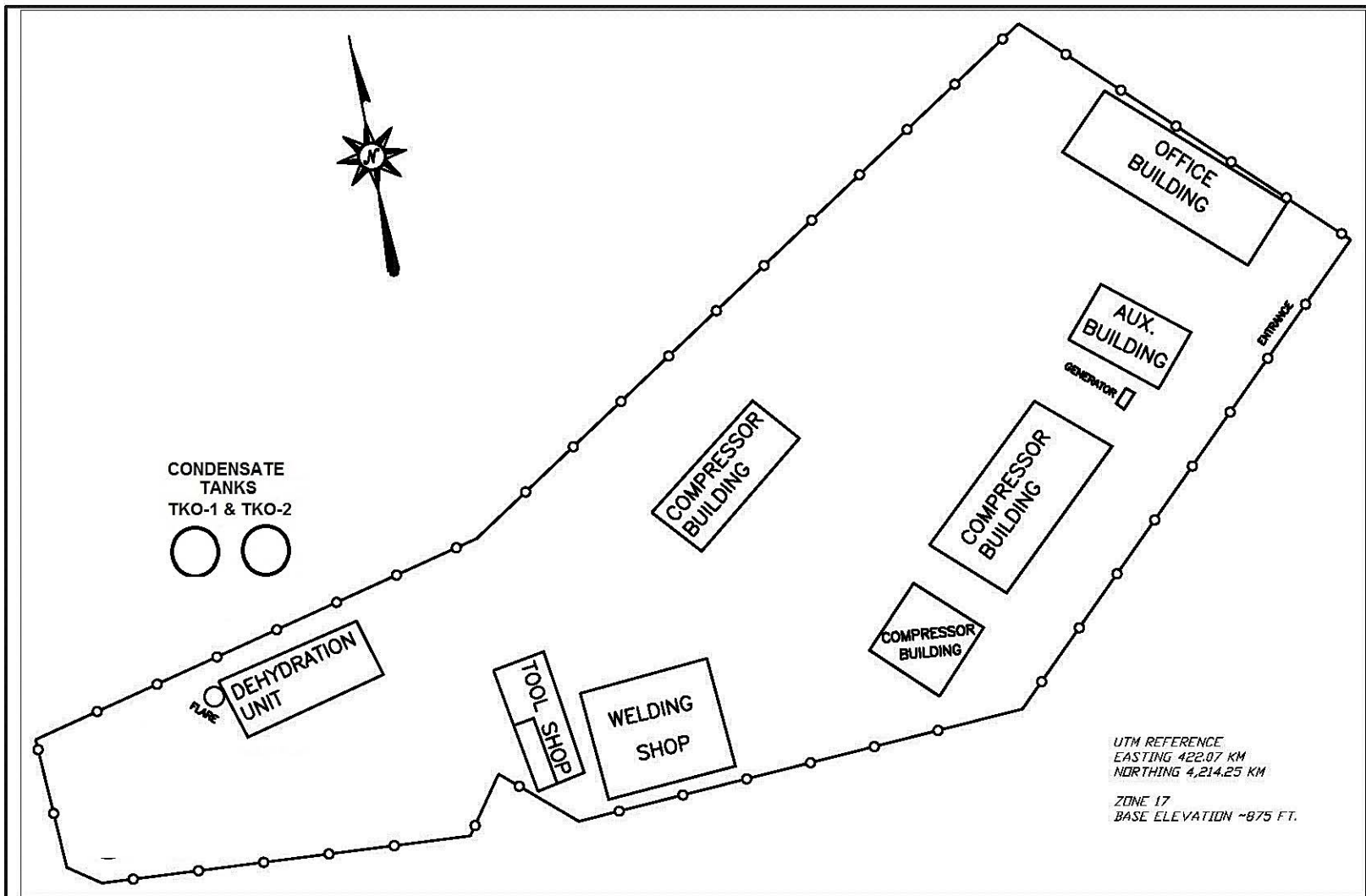
PLOT PLAN

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017



PLOT PLAN
CRANBERRY PIPELINE CORPORATION
DANVILLE COMPRESSOR STATION
DANVILLE, WEST VIRGINIA

ATTACHMENT F

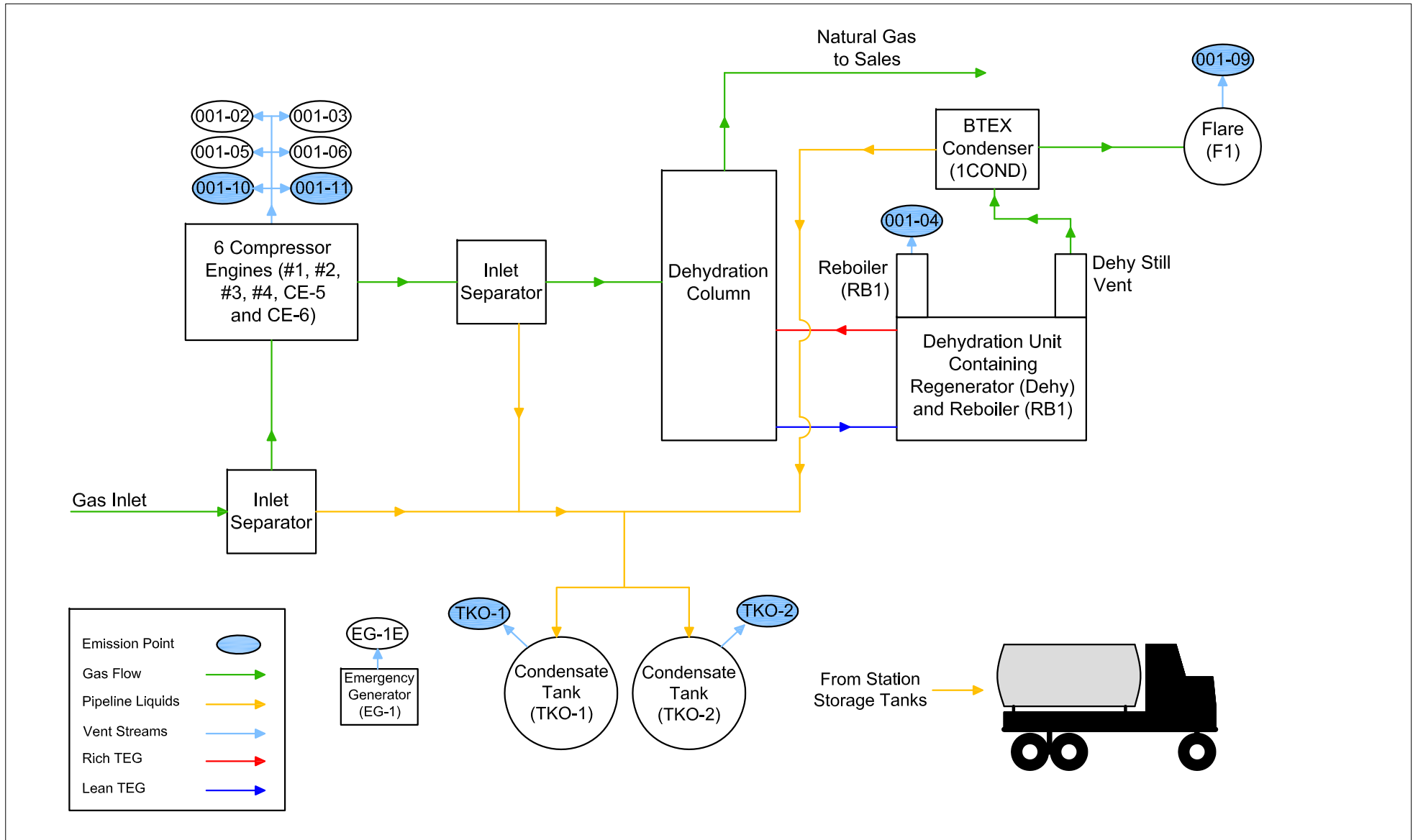
PROCESS FLOW DIAGRAM

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017



Process Flow Diagram
Cranberry Pipeline Corporation
Danville Compressor Station - ID # 005-00020
Danville, West Virginia

ATTACHMENT G

PROCESS DESCRIPTION

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

PROCESS DESCRIPTION

Description of Process

In 2014, Cranberry modified its permit for Danville Station to add a BTEX condenser to the dehydration process to remove excess water from the dehydration unit still vent prior to it reaching the flare. Over the past year the new BTEX condenser and dehydration unit has experienced an increase in amount of water contained within their wet gas stream. When the condenser was first permitted the gas was averaging 50 lb H₂O/MMscf of gas dehydrated. Last year the average gas dew point readings started to approach 200 lb H₂O/MMscf. As a result Cranberry feels it necessary to increase the liquid limits for storage vessels TKO-1 and TKO-2 and material loaded via truck loading (TL-01).

Proposed Process Modification(s)

Cranberry is proposing to modify the existing permit for Danville Compressor Station (WV NSR R13-2585D) by addressing an increase in liquid throughputs for storage vessels TKO-1 and TKO-2 and material loaded via truck loading (TL-01). Although, this is an increase to the throughput limit of liquids to tanks TKO-1 and TKO-2 and material loaded via (TL-01), the emissions from the equipment are shown to decrease. This emission decrease is attributed to using site specific information for the station and modeling all processes at the station with Promax™ simulation software to estimate emissions. Wet gas and dew point samples were taken at the inlet to the station and inlet to the dehydration column. This along with collecting site specific operating parameters resulted in an increase to the station's water removal estimates. The Station would like to increase the amount of liquids the tanks can handle on an annual basis from 70,533 gallons to 243,355 gallons.

ATTACHMENT H

SAFETY DATA SHEETS (SDS)

NOT APPLICABLE

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

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ATTACHMENT I

EMISSION UNITS TABLE

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

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)

Emission Unit ID ¹	Emission Point ID ²	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type ³ and Date of Change	Control Device ⁴
TKO-1	TKO-1	Pipeline Fluids Storage Tank	2005 /2017	4,200 gal	Modification	None
TKO-2	TKO-2	Pipeline Fluids Storage Tank	2005 / 2017	4,200 gal	Modification	None
TL-01	001-12	Pipeline Fluids Truck Loading	2014 / 2017	243,355 gal/yr	Modification	None

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.
removal

³ New, modification,

⁴ For Control

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

ATTACHMENT J

EMISSION POINTS DATA SUMMARY SHEET

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

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c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

**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 <i>(Speciate VOCs & HAPS)</i>	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase <i>(At exit conditions, Solid, Liquid or Gas/Vapor)</i>	Est. Method Used ⁶	Emission Concentration ⁷ (ppmv or mg/m ⁴)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
TKO-1	Vertical Stack	TKO-1	Pipeline Fluids Storage Tank	NA	NA	C	8760	VOCs	< 0.01	< 0.01	-	-	Gas/Vapor	EE	Can Supply Upon Request
TKO-2	Vertical Stack	TKO-2	Pipeline Fluids Storage Tank	NA	NA	C	8760	VOCs	< 0.01	< 0.01	-	-	Gas/Vapor	EE	Can Supply Upon Request

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. <i>(Must match Emission Units Table)</i>	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 <i>(Height above mean sea level)</i>	Stack Height ² <i>(Release height of emissions above ground level)</i>	Northing	Easting
TKO-1	0.25	68	0.00	0.00	1,660 ft	12 ft	4,214.250	422.070
TKO-2	0.25	68	0.00	0.00	1,660 ft	12 ft	4,214.250	422.070

¹ Give at operating conditions. Include inerts.

² Release height of emissions above ground level.

ATTACHMENT K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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.)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET. Note: Component count and emission totals are included within site calculations. No monitoring or LDAR required at this site.
6.) Will there be General Clean-up VOC Operations? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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."

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants Chemical Name/CAS ¹	Maximum Potential Uncontrolled Emissions ²		Maximum Potential Controlled Emissions ³		Est. Method Used ⁴
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	-	-	-	-	-	EE
Unpaved Haul Roads	-	-	-	-	-	EE
Storage Pile Emissions	-	-	-	-	-	EE
Loading/Unloading Operations	VOC	< 0.01	< 0.01	-	-	EE
Wastewater Treatment Evaporation & Operations	-	-	-	-	-	EE
Equipment Leaks	-	-	-	-	-	EE
General Clean-up VOC Emissions	-	-	-	-	-	EE
Other	-	-	-	-	-	EE

¹ 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.

² Give 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).

³ Give 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).

⁴ Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

ATTACHMENT L

EMISSION UNIT DATA SHEET

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

STORAGE VESSEL DATA SHEET

Complete this data sheet if you are the owner or operator of a storage vessel that contains condensate and/or produced water. This form must be completed for *each* new or modified bulk liquid storage vessel(s) that contains condensate and/or produced water. (If you have more than one (1) identical tank (i.e. 4-400 bbl condensate tanks), then you can list all on one (1) data sheet). **Include gas sample analysis, flashing emissions, working and breathing losses, USEPA Tanks, simulation software (ProMax, E&P Tanks, HYSYS, etc.), and any other supporting documents where applicable.**

The following information is REQUIRED:

- Composition of the representative sample used for the simulation
- For each stream that contributes to flashing emissions:
 - Temperature and pressure (inlet and outlet from separator(s))
 - Simulation-predicted composition
 - Molecular weight
 - Flow rate
- Resulting flash emission factor or flashing emissions from simulation
- Working/breathing loss emissions from tanks and/or loading emissions if simulation is used to quantify those emissions

Additional information may be requested if necessary.

GENERAL INFORMATION

1. Bulk Storage Area Name Danville Station	2. Tank Name Pipeline Fluids Storage Tank
3. Emission Unit ID number TKO-1	4. Emission Point ID number TKO-1
5. Date Installed , Modified or Relocated (<i>for existing tanks</i>) 2005 Was the tank manufactured after August 23, 2011? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Type of change: <input type="checkbox"/> New construction <input type="checkbox"/> New stored material <input checked="" type="checkbox"/> Other <input type="checkbox"/> Relocation
7A. Description of Tank Modification (<i>if applicable</i>) Increase Throughput through storage tank	
7B. Will more than one material be stored in this tank? <i>If so, a separate form must be completed for each material.</i> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
7C. Was USEPA Tanks simulation software utilized? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ProMax model simulation report ran (See calculations) <i>If Yes, please provide the appropriate documentation and items 8-42 below are not required.</i>	

TANK INFORMATION

8. Design Capacity (<i>specify barrels or gallons</i>). Use the internal cross-sectional area multiplied by internal height. 100 bbl / 4,200 gallons	
9A. Tank Internal Diameter (ft.) 8.5	9B. Tank Internal Height (ft.) 10
10A. Maximum Liquid Height (ft.) 10	10B. Average Liquid Height (ft.) 5
11A. Maximum Vapor Space Height (ft.) 10	11B. Average Vapor Space Height (ft.) 5
12. Nominal Capacity (<i>specify barrels or gallons</i>). This is also known as "working volume". 100 bbl / 4,200 gallons	
13A. Maximum annual throughput (gal/yr) 121,677	13B. Maximum daily throughput (gal/day) 333.36
14. Number of tank turnovers per year 28.97	15. Maximum tank fill rate (gal/min) 0.23
16. Tank fill method <input type="checkbox"/> Submerged <input checked="" type="checkbox"/> Splash <input type="checkbox"/> Bottom Loading	
17. Is the tank system a variable vapor space system? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If yes, (A) What is the volume expansion capacity of the system (gal)?
 (B) What are the number of transfers into the system per year?

18. Type of tank (check all that apply):
 Fixed Roof vertical horizontal flat roof cone roof dome roof other (describe)

External Floating Roof pontoon roof double deck roof
 Domed External (or Covered) Floating Roof
 Internal Floating Roof vertical column support self-supporting
 Variable Vapor Space lifter roof diaphragm
 Pressurized spherical cylindrical
 Other (describe)

PRESSURE/VACUUM CONTROL DATA

19. Check as many as apply:
 Does Not Apply Rupture Disc (psig)
 Inert Gas Blanket of _____ Carbon Adsorption¹
 Vent to Vapor Combustion Device¹ (vapor combustors, flares, thermal oxidizers, enclosed combustors)
 Conservation Vent (psig) Condenser¹
 -0.03 Vacuum Setting 0.03 Pressure Setting
 Emergency Relief Valve (psig)
 Vacuum Setting Pressure Setting
 Thief Hatch Weighted Yes No
¹ Complete appropriate Air Pollution Control Device Sheet

20. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name	Flashing Loss		Working/Breathing Loss		Total Emissions Loss		Estimation Method ¹
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	
VOCs	0.001	0.002	0.001	0.001	0.001	0.003	Promax

¹ EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)
 Remember to attach emissions calculations, including TANKS Summary Sheets and other modeling summary sheets if applicable.

TANK CONSTRUCTION AND OPERATION INFORMATION

21. Tank Shell Construction:
 Riveted Gunitite lined Epoxy-coated rivets Other (describe) Welded Seams

21A. Shell Color: Silver/Grey 21B. Roof Color: Silver/Grey 21C. Year Last Painted: 2014

22. Shell Condition (if metal and unlined):
 No Rust Light Rust Dense Rust Not applicable

22A. Is the tank heated? Yes No 22B. If yes, operating temperature: 22C. If yes, how is heat provided to tank?

23. Operating Pressure Range (psig):
Must be listed for tanks using VRUs with closed vent system.

24. Is the tank a **Vertical Fixed Roof Tank**? 24A. If yes, for dome roof provide radius (ft): 24B. If yes, for cone roof, provide slop (ft/ft):
 Yes No 4.25

25. Complete item 25 for **Floating Roof Tanks** Does not apply

25A. Year Internal Floaters Installed:
 25B. Primary Seal Type (check one): Metallic (mechanical) shoe seal Liquid mounted resilient seal
 Vapor mounted resilient seal Other (describe):

25C. Is the Floating Roof equipped with a secondary seal? Yes No

25D. If yes, how is the secondary seal mounted? (check one) Shoe Rim Other (describe):

25E. Is the floating roof equipped with a weather shield? Yes No

25F. Describe deck fittings:

26. Complete the following section for Internal Floating Roof Tanks <input checked="" type="checkbox"/> Does not apply			
26A. Deck Type: <input type="checkbox"/> Bolted <input type="checkbox"/> Welded		26B. For bolted decks, provide deck construction:	
26C. Deck seam. Continuous sheet construction: <input type="checkbox"/> 5 ft. wide <input type="checkbox"/> 6 ft. wide <input type="checkbox"/> 7 ft. wide <input type="checkbox"/> 5 x 7.5 ft. wide <input type="checkbox"/> 5 x 12 ft. wide <input type="checkbox"/> other (describe)			
26D. Deck seam length (ft.):	26E. Area of deck (ft ²):	26F. For column supported tanks, # of columns:	26G. For column supported tanks, diameter of column:
27. Closed Vent System with VRU? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
28. Closed Vent System with Enclosed Combustor? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
SITE INFORMATION			
29. Provide the city and state on which the data in this section are based: Charleston, WV			
30. Daily Avg. Ambient Temperature (°F): 54.98		31. Annual Avg. Maximum Temperature (°F): 65.75	
32. Annual Avg. Minimum Temperature (°F): 44.22		33. Avg. Wind Speed (mph): 6.05	
34. Annual Avg. Solar Insulation Factor (BTU/ft ² -day): 1,250.6		35. Atmospheric Pressure (psia): 14.25	
LIQUID INFORMATION			
36. Avg. daily temperature range of bulk liquid (°F): 58.06		36A. Minimum (°F): 44.22	36B. Maximum (°F): 65.75
37. Avg. operating pressure range of tank (psig): 0.0		37A. Minimum (psig): -0.03	37B. Maximum (psig): 0.03
38A. Minimum liquid surface temperature (°F): 53.60		38B. Corresponding vapor pressure (psia): 0.24	
39A. Avg. liquid surface temperature (°F): 63.43		39B. Corresponding vapor pressure (psia): 0.32	
40A. Maximum liquid surface temperature (°F): 73.25		40B. Corresponding vapor pressure (psia): 0.44	
41. Provide the following for each liquid or gas to be stored in the tank. Add additional pages if necessary. SEE PROMAX MODEL IN CALCULATIONS			
41A. Material name and composition:			
41B. CAS number:			
41C. Liquid density (lb/gal):			
41D. Liquid molecular weight (lb/lb-mole):			
41E. Vapor molecular weight (lb/lb-mole):			
41F. Maximum true vapor pressure (psia):			
41G. Maximum Reid vapor pressure (psia):			
41H. Months Storage per year. From: To:			
42. Final maximum gauge pressure and temperature prior to transfer into tank used as inputs into flashing emission calculations.			

STORAGE VESSEL DATA SHEET

Complete this data sheet if you are the owner or operator of a storage vessel that contains condensate and/or produced water. This form must be completed for *each* new or modified bulk liquid storage vessel(s) that contains condensate and/or produced water. (If you have more than one (1) identical tank (i.e. 4-400 bbl condensate tanks), then you can list all on one (1) data sheet). **Include gas sample analysis, flashing emissions, working and breathing losses, USEPA Tanks, simulation software (ProMax, E&P Tanks, HYSYS, etc.), and any other supporting documents where applicable.**

The following information is REQUIRED:

- Composition of the representative sample used for the simulation
- For each stream that contributes to flashing emissions:
 - Temperature and pressure (inlet and outlet from separator(s))
 - Simulation-predicted composition
 - Molecular weight
 - Flow rate
- Resulting flash emission factor or flashing emissions from simulation
- Working/breathing loss emissions from tanks and/or loading emissions if simulation is used to quantify those emissions

Additional information may be requested if necessary.

GENERAL INFORMATION

1. Bulk Storage Area Name Danville Station	2. Tank Name Pipeline Fluids Storage Tank
3. Emission Unit ID number TKO-2	4. Emission Point ID number TKO-2
5. Date Installed , Modified or Relocated (<i>for existing tanks</i>) 2005 Was the tank manufactured after August 23, 2011? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Type of change: <input type="checkbox"/> New construction <input type="checkbox"/> New stored material <input checked="" type="checkbox"/> Other <input type="checkbox"/> Relocation
7A. Description of Tank Modification (<i>if applicable</i>) Increase Throughput through storage tank	
7B. Will more than one material be stored in this tank? <i>If so, a separate form must be completed for each material.</i> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
7C. Was USEPA Tanks simulation software utilized? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ProMax model simulation report ran (See calculations) <i>If Yes, please provide the appropriate documentation and items 8-42 below are not required.</i>	

TANK INFORMATION

8. Design Capacity (<i>specify barrels or gallons</i>). Use the internal cross-sectional area multiplied by internal height. 100 bbl / 4,200 gallons	
9A. Tank Internal Diameter (ft.) 8.5	9B. Tank Internal Height (ft.) 10
10A. Maximum Liquid Height (ft.) 10	10B. Average Liquid Height (ft.) 5
11A. Maximum Vapor Space Height (ft.) 10	11B. Average Vapor Space Height (ft.) 5
12. Nominal Capacity (<i>specify barrels or gallons</i>). This is also known as "working volume". 100 bbl / 4,200 gallons	
13A. Maximum annual throughput (gal/yr) 121,677	13B. Maximum daily throughput (gal/day) 333.36
14. Number of tank turnovers per year 28.97	15. Maximum tank fill rate (gal/min) 0.23
16. Tank fill method <input type="checkbox"/> Submerged <input checked="" type="checkbox"/> Splash <input type="checkbox"/> Bottom Loading	
17. Is the tank system a variable vapor space system? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If yes, (A) What is the volume expansion capacity of the system (gal)?
 (B) What are the number of transfers into the system per year?

18. Type of tank (check all that apply):

Fixed Roof vertical horizontal flat roof cone roof dome roof other (describe)

External Floating Roof pontoon roof double deck roof

Domed External (or Covered) Floating Roof

Internal Floating Roof vertical column support self-supporting

Variable Vapor Space lifter roof diaphragm

Pressurized spherical cylindrical

Other (describe)

PRESSURE/VACUUM CONTROL DATA

19. Check as many as apply:

Does Not Apply Rupture Disc (psig)

Inert Gas Blanket of _____ Carbon Adsorption¹

Vent to Vapor Combustion Device¹ (vapor combustors, flares, thermal oxidizers, enclosed combustors)

Conservation Vent (psig) Condenser¹

-0.03 Vacuum Setting 0.03 Pressure Setting

Emergency Relief Valve (psig)
 Vacuum Setting Pressure Setting

Thief Hatch Weighted Yes No

¹ Complete appropriate Air Pollution Control Device Sheet

20. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name	Flashing Loss		Working/Breathing Loss		Total Emissions Loss		Estimation Method ¹
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	
VOCs	0.001	0.002	0.001	0.001	0.001	0.003	Promax

¹ EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)
 Remember to attach emissions calculations, including TANKS Summary Sheets and other modeling summary sheets if applicable.

TANK CONSTRUCTION AND OPERATION INFORMATION

21. Tank Shell Construction:
 Riveted Gunitite lined Epoxy-coated rivets Other (describe) Welded Seams

21A. Shell Color: Silver/Grey 21B. Roof Color: Silver/Grey 21C. Year Last Painted: 2014

22. Shell Condition (if metal and unlined):
 No Rust Light Rust Dense Rust Not applicable

22A. Is the tank heated? Yes No 22B. If yes, operating temperature: 22C. If yes, how is heat provided to tank?

23. Operating Pressure Range (psig):
Must be listed for tanks using VRUs with closed vent system.

24. Is the tank a **Vertical Fixed Roof Tank**? 24A. If yes, for dome roof provide radius (ft): 24B. If yes, for cone roof, provide slop (ft/ft):
 Yes No 4.25

25. Complete item 25 for **Floating Roof Tanks** Does not apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type (check one): Metallic (mechanical) shoe seal Liquid mounted resilient seal
 Vapor mounted resilient seal Other (describe):

25C. Is the Floating Roof equipped with a secondary seal? Yes No

25D. If yes, how is the secondary seal mounted? (check one) Shoe Rim Other (describe):

25E. Is the floating roof equipped with a weather shield? Yes No

25F. Describe deck fittings:

26. Complete the following section for Internal Floating Roof Tanks <input checked="" type="checkbox"/> Does not apply			
26A. Deck Type: <input type="checkbox"/> Bolted <input type="checkbox"/> Welded		26B. For bolted decks, provide deck construction:	
26C. Deck seam. Continuous sheet construction: <input type="checkbox"/> 5 ft. wide <input type="checkbox"/> 6 ft. wide <input type="checkbox"/> 7 ft. wide <input type="checkbox"/> 5 x 7.5 ft. wide <input type="checkbox"/> 5 x 12 ft. wide <input type="checkbox"/> other (describe)			
26D. Deck seam length (ft.):	26E. Area of deck (ft ²):	26F. For column supported tanks, # of columns:	26G. For column supported tanks, diameter of column:
27. Closed Vent System with VRU? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
28. Closed Vent System with Enclosed Combustor? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
SITE INFORMATION			
29. Provide the city and state on which the data in this section are based: Charleston, WV			
30. Daily Avg. Ambient Temperature (°F): 54.98		31. Annual Avg. Maximum Temperature (°F): 65.75	
32. Annual Avg. Minimum Temperature (°F): 44.22		33. Avg. Wind Speed (mph): 6.05	
34. Annual Avg. Solar Insulation Factor (BTU/ft ² -day): 1,250.6		35. Atmospheric Pressure (psia): 14.25	
LIQUID INFORMATION			
36. Avg. daily temperature range of bulk liquid (°F): 58.06	36A. Minimum (°F): 44.22	36B. Maximum (°F): 65.75	
37. Avg. operating pressure range of tank (psig): 0.0	37A. Minimum (psig): -0.03	37B. Maximum (psig): 0.03	
38A. Minimum liquid surface temperature (°F): 53.60	38B. Corresponding vapor pressure (psia): 0.24		
39A. Avg. liquid surface temperature (°F): 63.43	39B. Corresponding vapor pressure (psia): 0.32		
40A. Maximum liquid surface temperature (°F): 73.25	40B. Corresponding vapor pressure (psia): 0.44		
41. Provide the following for each liquid or gas to be stored in the tank. Add additional pages if necessary. SEE PROMAX MODEL IN CALCULATIONS			
41A. Material name and composition:			
41B. CAS number:			
41C. Liquid density (lb/gal):			
41D. Liquid molecular weight (lb/lb-mole):			
41E. Vapor molecular weight (lb/lb-mole):			
41F. Maximum true vapor pressure (psia):			
41G. Maximum Reid vapor pressure (psia):			
41H. Months Storage per year. From: _____ To: _____			
42. Final maximum gauge pressure and temperature prior to transfer into tank used as inputs into flashing emission calculations.			

TANKER TRUCK LOADING DATA SHEET

Complete this data sheet for each new or modified bulk liquid transfer area or loading rack at the facility. This is to be used for bulk liquid transfer operations to tanker trucks. Use extra pages if necessary.

Truck Loadout Collection Efficiencies

The following applicable capture efficiencies of a truck loadout are allowed:

- For tanker trucks passing the MACT level annual leak test – 99.2%
- For tanker trucks passing the NSPS level annual leak test – 98.7%
- For tanker trucks not passing one of the annual leak tests listed above – 70%

Compliance with this requirement shall be demonstrated by keeping records of the applicable MACT or NSPS Annual Leak Test certification for *every* truck and railcar loaded/unloaded. This requirement can be satisfied if the trucking company provided certification that its entire fleet was compliant. This certification must be submitted in writing to the Director of the DAQ. These additional requirements must be noted in the Registration Application and will be noted on the issued G35-C Registration.

Emission Unit ID#: TL-01	Emission Point ID#: 001-12	Year Installed/Modified: 2014/2017		
Emission Unit Description: Emissions from Truck Loading are vented to Atmosphere				
Loading Area Data				
Number of Pumps: 1 / On Truck	Number of Liquids Loaded: 1	Max number of trucks loading at one (1) time: 1		
Are tanker trucks pressure tested for leaks at this or any other location? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required				
If Yes, Please describe:				
Provide description of closed vent system and any bypasses.				
Are any of the following truck loadout systems utilized?				
<input type="checkbox"/> Closed System to tanker truck passing a MACT level annual leak test?				
<input type="checkbox"/> Closed System to tanker truck passing a NSPS level annual leak test?				
<input type="checkbox"/> Closed System to tanker truck not passing an annual leak test and has vapor return?				
Projected Maximum Operating Schedule (for rack or transfer point as a whole)				
Time	Jan – Mar	Apr - Jun	Jul – Sept	Oct - Dec
Hours/day	24	24	24	24
Days/week	7	7	7	7
Bulk Liquid Data (use extra pages as necessary)				
Liquid Name	Pipeline Liquids			
Max. Daily Throughput (1000 gal/day)	0.67			
Max. Annual Throughput (1000 gal/yr)	243.3546			
Loading Method ¹	SUB			
Max. Fill Rate (gal/min)	0.23			
Average Fill Time (min/loading)	60			
Max. Bulk Liquid Temperature (°F)	58.06			

True Vapor Pressure ²		0.32		
Cargo Vessel Condition ³		C		
Control Equipment or Method ⁴		None		
Max. Collection Efficiency (%)		0		
Max. Control Efficiency (%)		0		
Max.VOC Emission Rate	Loading (lb/hr)	< 0.01		
	Annual (ton/yr)	< 0.01		
Max.HAP Emission Rate	Loading (lb/hr)	0.00		
	Annual (ton/yr)	0.00		
Estimation Method ⁵		TM		

- 1 BF Bottom Fill SP Splash Fill SUB Submerged Fill
- 2 At maximum bulk liquid temperature
- 3 B Ballasted Vessel C Cleaned U Uncleaned (dedicated service)
O Other (describe)
- 4 List as many as apply (complete and submit appropriate Air Pollution Control Device Sheets)
CA Carbon Adsorption VB Dedicated Vapor Balance (closed system)
ECD Enclosed Combustion Device F Flare
TO Thermal Oxidization or Incineration
- 5 EPA EPA Emission Factor in AP-42 MB Material Balance
TM Test Measurement based upon test data submittal O Other (describe)

ATTACHMENT M

AIR POLLUTION CONTROL DEVICE SHEET(S)

NOT APPLICABLE

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

ATTACHMENT N

SUPPORTING EMISSIONS CALCULATIONS

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

**Table 1. Annual Potential To Emit (PTE) Summary
Cranberry Pipeline Corporation - Danville Compressor Station**

Criteria Pollutants

Proposed Rule 13 Permit Modification Application Allowables - Criteria Pollutants

Source	PM	PM10	PM2.5	SO2	NOx	CO	VOC	CO2e
Tanks (ton/yr)	-	-	-	-	-	-	0.007	-
Truck Loading (ton/yr)	-	-	-	-	-	-	0.001	-
Total Emissions (ton/yr)	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000
Total Emissions (lb/hr)	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000

Hazardous Air Pollutants (HAPs)

Proposed Rule 13 Permit Modification Application Allowables - HAPs

Source	Acetaldehyde	Benzene	Toluene	Ethylbenzene	Xylene	n-Hexane	Formaldehyde	Total HAPs
Tanks (ton/yr)	-	-	-	-	-	-	-	-
Truck Loading (ton/yr)	-	-	-	-	-	-	-	-
Total Emissions (ton/yr)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Emissions (lb/hr)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Criteria Pollutants

Current Rule 13 Permit Allowables (R13-2585D) - Criteria Pollutants

Source	PM	PM10	PM2.5	SO2	NOx	CO	VOC	CO2e
Engines (ton/yr)	0.516	0.516	0.516	0.030	31.258	5.520	6.086	6149.702
Dehydration Unit/Flare (ton/yr)	-	-	-	0.164	0.270	1.470	1.311	565.601
Tanks (ton/yr)	-	-	-	-	-	-	0.950	-
Truck Loading (ton/yr)	-	-	-	-	-	-	0.087	-
Fugitives (ton/yr)	-	-	-	-	-	-	0.556	45.800
Total Emissions (ton/yr)	0.516	0.516	0.516	0.194	31.528	6.990	8.990	6761.103
Total Emissions (lb/hr)	0.118	0.118	0.118	0.044	7.198	1.596	2.053	1543.631

Hazardous Air Pollutants (HAPs)

Current Rule 13 Permit Allowables (R13-2585D) - HAPs

Source	Acetaldehyde	Benzene	Toluene	Ethylbenzene	Xylene	n-Hexane	Formaldehyde	Total HAPs
Engines (ton/yr)	-	0.022	0.020	0.002	0.010	0.056	2.724	2.832
Dehydration Unit/Flare (ton/yr)	-	0.036	0.033	0.060	0.082	0.022	-	0.232
Tanks (ton/yr)	-	-	-	-	-	-	-	-
Truck Loading (ton/yr)	-	-	-	-	-	-	-	-
Fugitives (ton/yr)	-	0.004	0.006	-	0.002	-	-	0.012
Total Emissions (ton/yr)	0.000	0.062	0.059	0.062	0.094	0.078	2.724	3.076
Total Emissions (lb/hr)	0.000	0.014	0.013	0.014	0.021	0.018	0.622	0.702

Table 2. Tank Emissions
Cranberry Pipeline Corporation - Danville Compressor Station

Emission Unit ID	Tank Capacity (gal)	Tank Contents	Control Devices	Tank Throughput (bbls/day)	VOC Emission Factor (lbs/bbls)		VOC Emissions (lbs/yr) ^(a)	VOC Emissions (lb/hr) ^(b)	VOC Emissions (tons/yr) ^(c)
TKO-1	4200	Pipeline Fluids	None	7.94	2.40E-03	(1)	6.958	0.001	0.003
TKO-2	4200	Pipeline Fluids	None	7.94	2.40E-03	(1)	6.958	0.001	0.003
Totals							13.92	0.002	0.007

Calculations:

(a) VOC Emissions (lb/yr) = Tank Throughput (bbls/day) * VOC Emission Factor (lbs/bbls) * (365days/yr)

(b) VOC Emissions (lb/hr) = VOC Emissions (lbs/yr) * (yr/8760hr)

(c) VOC Emissions (ton/yr) = VOC Emissions (lbs/yr) * (1ton/2000lbs)

Notes:

(1) VOC emission factor includes Flashing/Working/Breathing losses as calculated from the Promax Model Simulation report

**Table 3. Truck Loading (TL-01) VOC Emissions
Cranberry Pipeline Corporation - Danville Compressor Station**

Contents	Volume Transferred ³	PTE VOC Emissions (lb/hr)	PTE VOC Emissions (ton/yr) ^(a)
Pipeline Liquids	243,355 gal/yr	1.70E-04	7.43E-04
Total		1.70E-04	7.43E-04

Calculations:

(a) PTE VOC Emissions (ton/yr) given as calculated in the Promax Model simulation report

	<u>Pipeline liquids</u>	
Saturation factor	0.60	Note ⁽¹⁾
Pvap (psia)	0.32	Note ⁽²⁾
Bulk Liquid Temperature (F)	58.06	Note ⁽²⁾

Notes:

- (1) AP-42 Section 5.2, Table 5.2-1 Saturation Factors for Calculating Petroleum Liquid Loading Losses, Submerged loading - dedicated normal service
- (2) Input parameters as defined by the Promax Model simulation report
- (3) Annual rates based on maximum throughput of 5,794 bbls/yr



Bryan Research & Engineering, Inc.

ProMax[®] 4.0

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Simulation Report

Project: Dehy Example with Danville Inputs.pmx

Licensed to SLR International Corporation and Affiliates

Client Name: Cabot/Cranberry Pipeline
Location: Danville, WV
Job: Danville Dehydration Tank Eval

ProMax Filename: N:\West Virginia\Cabot\Projects\2016\Air Permits\R13 Permits\Danville Station\Danville Station 2016 Tank Mod\Dehy Example with Danville Inputs.pmx
ProMax Version: 4.0.16071.0
Simulation Initiated: 4/7/2017 11:32:07 AM

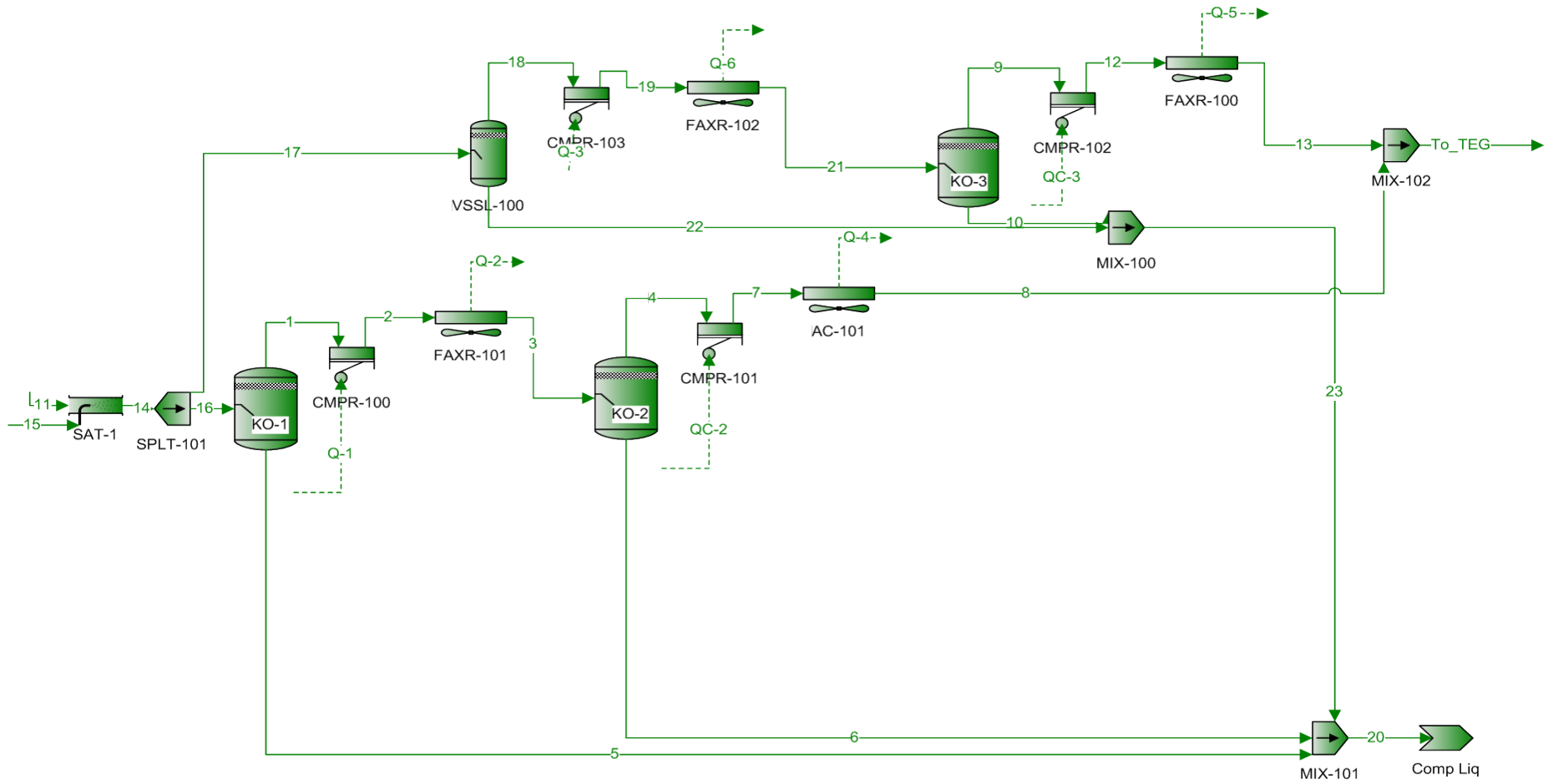
Bryan Research & Engineering, Inc.

Chemical Engineering Consultants
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Report Navigator can be activated via the ProMax Navigator Toolbar.

An asterisk (*), throughout the report, denotes a user specified value.

A question mark (?) after a value, throughout the report, denotes an extrapolated or approximate value.



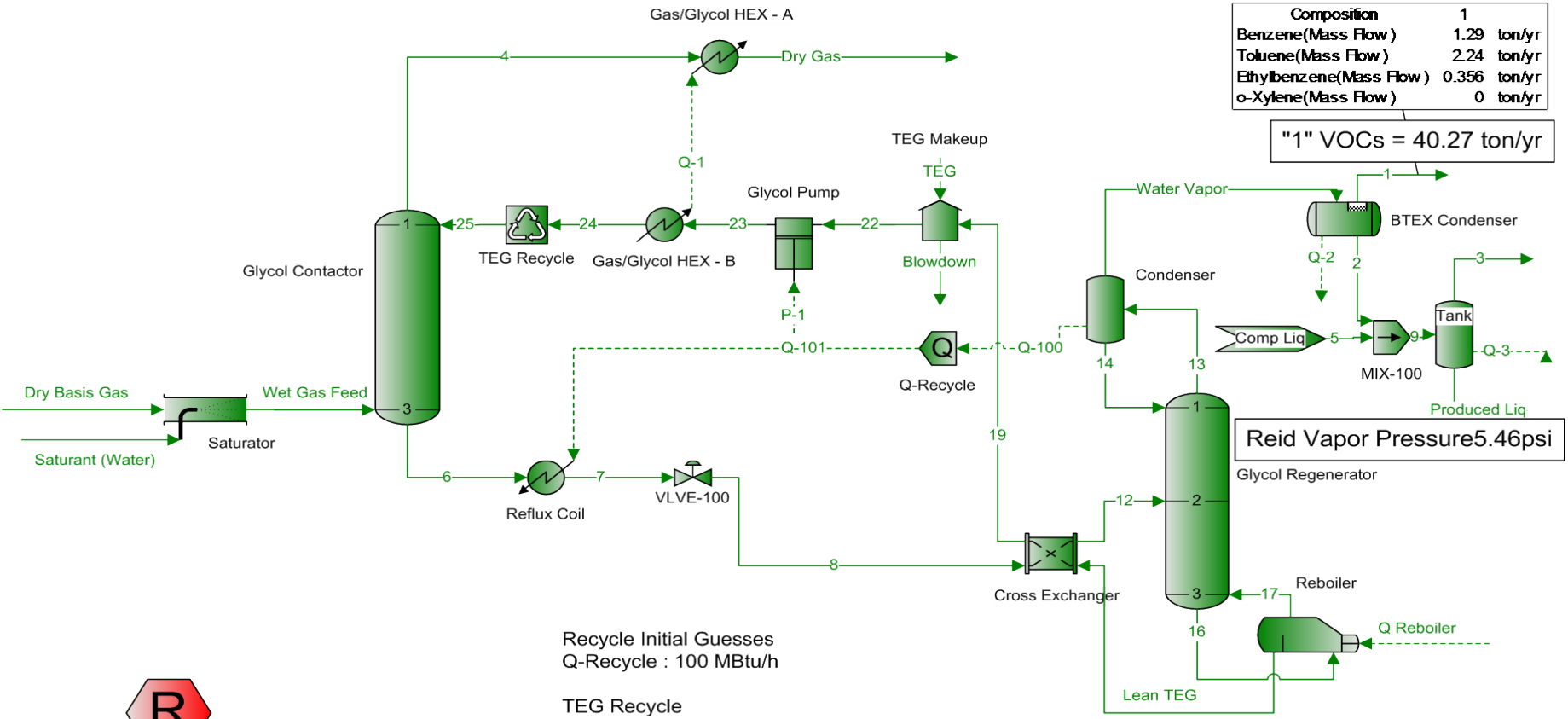
Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
N2	1417.53	0	8.72397E-05	1057.13	0	1417.53*	360.394	1057.13	360.394	8.72397E-05	0	0
Oxygen	0	0	0	0	0	0*	0	0	0	0	0	0
CO2	174.132	0	0.000492758	129.860	0	174.132*	44.2716	129.860	44.2716	0.000492758	0	0
Methane	27411.0	0	0.00343300	20442.0	0	27411.0*	6969.02	20442.0	6969.02	0.00343300	0	0
Ethane	8009.59	0	0.00166601	5973.22	0	8009.59*	2036.37	5973.22	2036.37	0.00166601	0	0
Propane	4700.10	0	0.000697894	3505.14	0	4700.10*	1194.96	3505.14	1194.96	0.000697894	0	0
i-Butane	634.977	0	7.64678E-05	473.540	0	634.977*	161.438	473.540	161.438	7.64678E-05	0	0
n-Butane	1576.58	0	0.000210404	1175.75	0	1576.58*	400.833	1175.75	400.833	0.000210404	0	0
2,2-Dimethylpropane	28.5471	0	2.06946E-06	21.2892	0	28.5471*	7.25785	21.2892	7.25785	2.06946E-06	0	0
i-Pentane	482.128	0	5.04329E-05	359.551	0	482.128*	122.577	359.551	122.577	5.04329E-05	0	0
n-Pentane	445.651	0	1.48465E-05	332.348	0	445.651*	113.303	332.348	113.303	1.48465E-05	0	0
Neohexane	20.8370	0	7.83414E-07	15.5394	0	20.8370*	5.29763	15.5394	5.29763	7.83414E-07	0	0
Cyclopentane	0	0	0	0	0	0*	0	0	0	0	0	0
2,3-Dimethylbutane	45.4626	0	4.22738E-06	33.9041	0	45.4626*	11.5585	33.9041	11.5585	4.22738E-06	0	0
Isohexane	151.542	0	7.79070E-06	113.014	0	151.542*	38.5283	113.014	38.5283	7.79070E-06	0	0
3-Methylpentane	85.2423	0	1.13797E-05	63.5702	0	85.2424*	21.6721	63.5702	21.6721	1.13797E-05	0	0
Methylcyclopentane	42.5491	0	9.82536E-06	31.7314	0	42.5491*	10.8178	31.7314	10.8178	9.82536E-06	0	0
Benzene	6.86794	0	0.000161407	5.12178	0	6.86810*	1.74616	5.12195	1.74616	0.000161407	0	0
Cyclohexane	40.6991	0	2.34293E-05	30.3517	0	40.6992*	10.3474	30.3518	10.3474	2.34293E-05	0	0
2-Methylhexane	41.8494	0	1.88512E-06	31.2096	0	41.8494*	10.6399	31.2096	10.6399	1.88512E-06	0	0
3-Methylhexane	39.6468	0	2.24429E-06	29.5670	0	39.6468*	10.0799	29.5670	10.0799	2.24429E-06	0	0
2,2,4-Trimethylpentane	0	0	0	0	0	0*	0	0	0	0	0	0
2,3-Dimethylpentane	0	0	0	0	0	0*	0	0	0	0	0	0
n-Heptane	63.8754	0	1.24697E-06	47.6357	0	63.8755*	16.2398	47.6357	16.2398	1.24697E-06	0	0
Methylcyclohexane	60.4321	0	1.47210E-05	45.0677	0	60.4321*	15.3643	45.0678	15.3643	1.47210E-05	0	0
Toluene	10.1266	0	0.000174562	7.55194	0	10.1268*	2.57464	7.55212	2.57464	0.000174562	0	0
2-Methylheptane	0	0	0	0	0	0*	0	0	0	0	0	0
n-Octane	22.5984	0	1.68541E-07	16.8529	0	22.5984*	5.74544	16.8529	5.74544	1.68541E-07	0	0
Ethylbenzene	0	0	0	0	0	0*	0	0	0	0	0	0
m-Xylene	2.33366	0	2.24879E-05	1.74034	0	2.33368*	0.593318	1.74036	0.593318	2.24879E-05	0	0
o-Xylene	2.33362	0	5.71475E-05	1.74030	0	2.33368*	0.593318	1.74036	0.593318	5.71475E-05	0	0
2,2-Dimethylheptane	0	0	0	0	0	0*	0	0	0	0	0	0
n-Nonane	8.45777	0	9.12422E-08	6.30745	0	8.45777*	2.15032	6.30745	2.15032	9.12422E-08	0	0
2-Methylnonane	0	0	0	0	0	0*	0	0	0	0	0	0
n-Decane	3.12758	0	8.90642E-09	2.33242	0	3.12758*	0.795161	2.33242	0.795161	8.90642E-09	0	0
Undecane	0	0	0	0	0	0*	0	0	0	0	0	0
Water	173.240	0	51.7595	116.036	0	0*	57.2043	167.796	57.2043	51.7595	0	0
TEG	0	0	0	0	0	0*	0	0	0	0	0	0
Argon	0	0	0	0	0	0*	0	0	0	0	0	0
CO	0	0	0	0	0	0*	0	0	0	0	0	0
C07s Others_x1	57.2677	0	6.17229E-06	42.7079	0	57.2677*	14.5598	42.7079	14.5598	6.17229E-06	0	0
C08s Others_x1	70.3063	0	1.35528E-05	52.4315	0	70.3063*	17.8748	52.4315	17.8748	1.35528E-05	0	0
C09s Others_x1	25.3733	0	7.35382E-06	18.9223	0	25.3733*	6.45094	18.9223	6.45094	7.35382E-06	0	0
C10s Others_x1	0	0	0	0	0	0*	0	0	0	0	0	0
Volumetric Flow	ft^3/h	ft^3/h	gpm	ft^3/h	ft^3/h	ft^3/h	ft^3/h	ft^3/h	ft^3/h	gpm	ft^3/h	ft^3/h
N2	1244.00		2.29454E-07	922.405		15842.2	310.842	11814.3	4027.70	2.29454E-07		
Oxygen	0		0	0		0	0	0	0	0		
CO2	88.4699		7.61442E-07	65.6284		1229.89	21.9977	917.149	312.671	7.61442E-07		
Methane	39828.6		1.65536E-05	29538.5		532749	9926.45	397301	135447	1.65536E-05		
Ethane	5620.53		5.51061E-06	4171.21		82442.9	1392.56	61483.4	20960.7	5.51061E-06		
Propane	2065.93		1.97783E-06	1534.41		32795.1	508.781	24457.6	8338.0	1.97783E-06		
i-Butane	195.391		1.98301E-07	145.245		3343.82	47.8088	2493.74	850.156	1.98301E-07		
n-Butane	476.756		5.38894E-07	354.439		8294.01	116.489	6185.45	2108.72	5.38894E-07		
2,2-Dimethylpropane	6.63316		5.03360E-09	4.93417		120.627	1.61396	89.9596	30.6687	5.03360E-09		
i-Pentane	104.607		1.20316E-07	77.8691		2029.69	25.2853	1513.69	516.043	1.20316E-07		
n-Pentane	97.2685		3.54907E-08	72.4048		1876.64	23.5110	1399.54	477.125	3.54907E-08		
Neohexane	3.67372		1.77518E-09	2.73556		73.3177	0.884490	54.6756	18.6398	1.77518E-09		
Cyclopentane	0		0	0		0	0	0	0	0		
2,3-Dimethylbutane	7.84618		9.49675E-09	5.84392		159.791	1.88344	119.162	40.6241	9.49675E-09		
Isohexane	25.8233		1.77319E-08	19.2397		532.244	6.18580	396.932	135.321	1.77319E-08		
3-Methylpentane	14.4771		2.56367E-08	10.7858		299.352	3.46586	223.247	76.1087	2.56367E-08		
Methylcyclopentane	7.54136		2.02593E-08	5.61557		153.189	1.80755	114.242	38.9469	2.02593E-08		
Benzene	1.34848		2.99007E-07	1.00355		26.6877	0.324034	19.9008	6.78451	2.99007E-07		
Cyclohexane	7.00077		4.70123E-08	5.21440		146.320	1.67043	109.121	37.2011	4.70123E-08		
2-Methylhexane	5.40126		4.13493E-09	4.03135		125.625	1.26738	93.6819	31.9377	4.13493E-09		
3-Methylhexane	5.10961		4.87879E-09	3.81374		119.009	1.19718	88.7478	30.2556	4.87879E-09		
2,2,4-Trimethylpentane	0		0	0		0	0	0	0	0		
2,3-Dimethylpentane	0		0	0		0	0	0	0	0		
n-Heptane	7.86739		2.74280E-09	5.87642		191.347	1.82690	142.697	48.6477	2.74280E-09		
Methylcyclohexane	8.10753		2.92259E-08	6.04715		185.351	1.89660	138.222	47.1223	2.92259E-08		
Toluene	1.50575		3.20190E-07	1.12218		33.1668	0.352894	24.7319	8.43152	3.20190E-07		
2-Methylheptane	0		0	0		0	0	0	0	0		
n-Octane	2.13249		3.59091E-10	1.59660		59.0487	0.473096	44.0362	15.0127	3.59091E-10		
Ethylbenzene	0		0	0		0	0	0	0	0		
m-Xylene	0.252683		4.09194E-08	0.188780		6.58202	0.0560254	4.90808	1.67324	4.09194E-08		
o-Xylene	0.252487		1.02455E-07	0.188618		6.58230	0.0554404	4.90828	1.67331	1.02455E-07		
2,2-Dimethylheptane	0		0	0		0	0	0	0	0		
n-Nonane	0.580076		1.89820E-10	0.436088		19.5430	0.116810	14.5742	4.96858	1.89820E-10		
2-Methylnonane	0		0	0		0	0	0	0	0		
n-Decane	0.144321		1.82367E-11	0.109307		6.46208	0.0257973	4.81916	1.64293	1.82367E-11		
Undecane	0		0	0		0	0	0	0	0		
Water	119.365		0.103360	97.3802		0	22.1395	2900.49	988.825	0.103360		
TEG	0		0	0		0	0	0	0	0		
Argon	0		0	0		0	0	0	0	0		
CO	0		0	0		0	0	0	0	0		
C07s Others_x1	7.28483		1.32947E-08	5.43744		171.812	1.70291	128.123	43.6791	1.32947E-08		
C08s Others_x1	6.89460		2.82507E-08	5.15672		184.012	1.54981	137.216	46.7793	2.82507E-08		
C09s Others_x1	1.90319		1.49341E-08	1.42745		58.8112	0.396413	43.8540	14.9506	1.49341E-08		
C10s Others_x1	0		0	0		0	0	0	0	0		

Names	Units	Wet Gas Feed	Dry Gas
Water Content	lbm/MMSCF	200	32.36

Annual tank loss calculations for "Produced Liq".
 Total working and breathing losses from the Vertical Cylinder are 0.002433 ton/yr.
 Flashing losses are 0.004525 ton/yr.
 Loading losses are 0.0007434 ton/yr of loaded liquid.
 * Only Non-Exempt VOCs are reported.

Tank-1

Basic Glycol Dehydration Unit



Composition	1
Benzene(Mass Flow)	1.29 ton/yr
Toluene(Mass Flow)	2.24 ton/yr
Ethylbenzene(Mass Flow)	0.356 ton/yr
o-Xylene(Mass Flow)	0 ton/yr

"1" VOCs = 40.27 ton/yr

Reid Vapor Pressure 5.46psi

Recycle Initial Guesses
 Q-Recycle : 100 MBtu/h
 TEG Recycle
 100°F, 225 psia, 3.33 sgpm
 99% TEG, 1% Water



Names	Units	Q Reboiler	Q-100
Energy Rate	MBTU/h	192.3	18.17

Process Streams	Dry Basis Gas	Dry Gas	Lean TEG	Produced Liq	Water Vapor	1	3	9	25
Properties	Status: Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block: --	Gas/Glycol HEX - A	Reboiler	Tank	Condenser	BTEX Condenser	Tank	MIX-100	TEG Recycle
	To Block: Saturator	--	Cross Exchanger	--	BTEX Condenser	--	--	Tank	Glycol Contactor
Property	Units								
Temperature	°F	106*	111.109	400.000	31.9400	210.271	112.671	98.8962	101.341
Pressure	psig	210.304*	195.304	0.504051	0.00405122	0.00405122	0.00405122	0.00405122	200.304
Mole Fraction Vapor	%	100	100	0	0	100	100	0.00229576	0
Molecular Weight	lb/lbmol	21.0432	21.0376	140.806	18.3056	19.1078	39.8478	18.3056	140.807
Mass Flow	lb/h	57762.7	57779.5	1959.41	230.276	191.869	13.3603	0	230.276
Std Vapor Volumetric Flow	MMSCFD	25*	25.0139	0.126739	0.114569	0.0914531	0.00305362	0	0.114569
Std Liquid Volumetric Flow	sgpm	330.342	330.348	3.47171	0.463003	0.411135	0.0516417	0	0.463003
Specific Gravity		0.726565	0.726373	0.931101	0.997776	0.659742	1.37584		1.11100
API Gravity				-6.71755	10.7755				-6.74582
Net Ideal Gas Heating Value	Btu/ft³	1121.29	1120.35	3503.76	17.2744	87.0637	1960.44		3503.80

Process Streams	Dry Basis Gas	Dry Gas	Lean TEG	Produced Liq	Water Vapor	1	3	9	25
Composition	Status: Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block: --	Gas/Glycol HEX - A	Reboiler	Tank	Condenser	BTEX Condenser	Tank	MIX-100	TEG Recycle
	To Block: Saturator	--	Cross Exchanger	--	BTEX Condenser	--	--	Tank	Glycol Contactor
Mole Fraction	%	%	%	%	%	%	%	%	%
Methane	77.5117*	77.4648	5.03751E-09	0.00260737	1.07255	32.0879		0.00260737	0
Ethane	12.0838*	12.0750	3.22881E-08	0.00206308	0.576193	17.1956		0.00206308	0
Propane	4.83532*	4.83104	8.95472E-08	0.00333996	0.435411	12.9196		0.00333996	0
i-Butane	0.495598*	0.495131	1.84844E-08	0.000859908	0.0525978	1.54339		0.000859908	0
n-Butane	1.24847*	1.24705	1.37242E-07	0.00460544	0.197327	5.73804		0.00460544	0
i-Pentane	0.303142*	0.302675	1.85514E-07	0.00423953	0.0818512	2.29251		0.00423953	0
n-Pentane	0.280207*	0.279732	2.72589E-07	0.00574317	0.0873350	2.40019		0.00574317	0
Hexane	0.0987207*	0.0984616	4.82909E-07	0.00950954	0.0558880	1.31700		0.00950954	0
n-Heptane	0*	0	0	9.89271E-08	0	0		9.89271E-08	0
Benzene	0.00398872*	0.00379085	7.53105E-05	0.0128750	0.0535147	1.12027		0.0128750	7.52535E-05
o-Xylene	0*	0	0	4.27910E-06	0	0		4.27910E-06	0
Ethylbenzene	0.000897461*	0.000783294	0.000215900	0.0187334	0.0310902	0.228261		0.0187334	0.000215748
Toluene	0.00498589*	0.00454441	0.000440012	0.0517253	0.119996	1.65363		0.0517253	0.000439685
Water	0*	0.0681242	7.08749	99.6452	96.5330	9.38727		99.6452	7.08665
TEG	0*	6.94327E-05	92.9109	0.000104287	0.000130647	9.97097E-10		0.000104287	92.9117
N2	2.29551*	2.29420	2.61661E-12	2.74080E-05	0.00792798	0.237336		2.74080E-05	0
CO2	0.179492*	0.179294	6.62269E-09	0.000326882	0.0269530	0.798292		0.000326882	0
2,2-Dimethylpropane	0.0179492*	0.0179299	1.92328E-09	7.43492E-05	0.00256714	0.0741024		7.43492E-05	0
Neohexane	0.303142*	0.302578	4.88516E-07	0.0104883	0.108467	2.85497		0.0104883	0
2,3-Dimethylbutane	0.0239323*	0.0238758	8.48733E-08	0.00144890	0.0118046	0.299190		0.00144890	0
Isohexane	0.0797743*	0.0795921	2.39440E-07	0.00495340	0.0377366	0.944357		0.00495340	0
3-Methylpentane	0.0448731*	0.0447480	2.63903E-07	0.00393321	0.0273985	0.673028		0.00393321	0
Methylcyclopentane	0.0229351*	0.0227589	3.62756E-06	0.00814261	0.0447194	1.03384		0.00814261	3.62430E-06
Cyclohexane	0.0219379*	0.0217747	5.08768E-06	0.00944215	0.0413168	0.883221		0.00944215	5.08327E-06
2-Methylhexane	0.0189464*	0.0188772	2.80348E-07	0.00436349	0.0160424	0.316747		0.00436349	0
3-Methylhexane	0.0179492*	0.0178716	4.37657E-07	0.00537191	0.0184943	0.352345		0.00537191	0
Methylcyclohexane	0.0279210*	0.0276641	1.16727E-05	0.0234796	0.0660229	1.09643		0.0234796	1.16622E-05
n-Octane	0.00897461*	0.00891360	1.14330E-06	0.00860100	0.0153249	0.136266		0.00860100	1.14218E-06
m-Xylene	0.00299154*	0.00260545	0.000810321	0.0647478	0.105145	0.719783		0.00260545	0.000809723
n-Nonane	0.00299154*	0.00295701	1.71176E-06	0.00625232	0.00899002	0.0346614		0.00625232	1.71003E-06
n-Decane	0.000997179*	0.000978839	2.68638E-06	0.00368422	0.00486483	0.00746821		0.00368422	2.68354E-06
C07s Others_x1	0.0259267*	0.0257818	1.42905E-06	0.0111422	0.0356722	0.650323		0.0111422	1.42778E-06
C08s Others_x1	0.0279210*	0.0276267	1.03346E-05	0.0399594	0.0762662	0.784894		0.0399594	1.03255E-05
C09s Others_x1	0.00897461*	0.00879637	2.08301E-05	0.0319894	0.0473902	0.219094		0.0319894	2.08121E-05

Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Methane	34132.9*	34131.2	1.12459E-08	0.00526184	1.72776	1.72593	0	0.00526184	0
Ethane	9973.76*	9972.02	1.35104E-07	0.00780367	1.73973	1.73359	0	0.00780367	0
Propane	5852.70*	5850.77	5.49483E-07	0.0185268	1.92792	1.91009	0	0.0185268	0
i-Butane	790.691*	790.384	1.49505E-07	0.00628721	0.306976	0.300765	0	0.00628721	0
n-Butane	1991.84*	1990.69	1.11003E-06	0.0336727	1.15165	1.11819	0	0.0336727	0
i-Pentane	600.359*	599.766	1.86256E-06	0.0384779	0.592991	0.554563	0	0.0384779	0
n-Pentane	554.937*	554.304	2.73681E-06	0.0521248	0.632720	0.580610	0	0.0521248	0
Hexane	233.521*	233.038	5.79101E-06	0.103088	0.483610	0.380523	0	0.103088	0
n-Heptane	0*	0	0	1.24697E-06	0	0	0	1.24697E-06	0
Benzene	8.55235*	8.13260	0.000818614	0.126511	0.419744	0.293394	0	0.126511	0.000818108
o-Xylene	0*	0	0	5.71475E-05	0	0	0	5.71475E-05	0
Ethylbenzene	2.61537*	2.28393	0.00318964	0.250185	0.331435	0.0812499	0	0.250185	0.00318783
Toluene	12.6101*	11.4999	0.00564172	0.599526	1.11020	0.510845	0	0.599526	0.00563831
Water	0*	33.7069	17.7681	225.819	174.627	0.567010	0	225.819	17.7684
TEG	0*	0.286373	1941.62	0.00197009	0.00197009	5.02042E-10	0	0.00197009	1941.91
N2	1765.14*	1765.12	1.02003E-11	9.65844E-05	0.0223009	0.0222915	0	9.65844E-05	0
CO2	216.834*	216.715	4.05590E-08	0.00180968	0.119110	0.117793	0	0.00180968	0
2,2-Dimethylpropane	35.5476*	35.5290	1.93098E-08	0.000674790	0.0185982	0.0179255	0	0.000674790	0
Neohexane	717.076*	716.137	5.85826E-06	0.113698	0.938586	0.824889	0	0.113698	0
2,3-Dimethylbutane	56.6113*	56.5091	1.01780E-06	0.0157067	0.102148	0.0864451	0	0.0157067	0
Isohexane	188.704*	188.378	2.87135E-06	0.0536970	0.326543	0.272854	0	0.0536970	0
3-Methylpentane	106.146*	105.909	3.16471E-06	0.0426377	0.237085	0.194459	0	0.0426377	0
Methylcyclopentane	52.9833*	52.6054	4.24838E-05	0.0862046	0.377914	0.291719	0	0.0862046	4.24516E-05
Cyclohexane	50.6797*	50.3306	5.95839E-05	0.0999627	0.349159	0.249220	0	0.0999627	5.95406E-05
2-Methylhexane	52.1121*	51.9506	3.90912E-06	0.0550014	0.161414	0.106414	0	0.0550014	0
3-Methylhexane	49.3693*	49.1832	6.10263E-06	0.0677125	0.186084	0.118374	0	0.0677125	0
Methylcyclohexane	75.2517*	74.6008	0.000159488	0.290004	0.650936	0.360946	0	0.290004	0.000159367
n-Octane	28.1401*	27.9643	1.81736E-05	0.123591	0.175779	0.0521881	0	0.123591	1.81583E-05
m-Xylene	8.71788*	7.59698	0.0119714	0.864710	1.12090	0.256208	0	0.864710	0.0119642
n-Nonane	10.5318*	10.4161	3.05509E-05	0.100874	0.115779	0.0149050	0	0.100874	3.05244E-05
n-Decane	3.89455*	3.82505	5.31892E-05	0.0659414	0.0695041	0.00356267	0	0.0659414	5.31402E-05
C07s Others_x1	71.3113*	70.9524	1.99264E-05	0.140446	0.358922	0.218482	0	0.140446	1.99115E-05
C08s Others_x1	87.5473*	86.6725	0.000164276	0.574195	0.874788	0.300606	0	0.574195	0.000164156
C09s Others_x1	31.5955*	30.9852	0.000371768	0.516112	0.610319	0.0942140	0	0.516112	0.000371499
Volumetric Flow	ft^3/h	ft^3/h	gpm	gpm	ft^3/h	ft^3/h	ft^3/h	ft^3/h	gpm
Methane	56070.0	60753.4	1.35613E-10	2.58108E-05	52.9877	45.0527	0	0.0535539	0
Ethane	8060.04	8802.03	9.77532E-10	2.84166E-05	28.3928	23.9348	0	0.0181947	0
Propane	3016.03	3316.72	3.15517E-09	6.33018E-05	21.4128	17.8560	0	0.0128250	0
i-Butane	290.479	321.674	7.49983E-10	2.06608E-05	2.58260	2.12018	0	0.00162230	0
n-Butane	721.853	800.476	5.43485E-09	0.000108105	9.68377	7.87240	0	0.00624079	0
i-Pentane	160.671	179.998	8.18519E-09	0.000117942	4.00690	3.12509	0	0.00306394	0
n-Pentane	149.174	167.000	1.19273E-08	0.000159006	4.27250	3.26876	0	0.00348161	0
Hexane	48.5206	54.8391	2.30867E-08	0.000301705	2.72782	1.77991	0	0.00365653	0
n-Heptane	0	0	0	3.55170E-09	0	0	0	3.89399E-08	0
Benzene	2.07953	2.22145	2.68806E-06	0.000273377	2.59745	1.52182	0	0.00320241	2.19715E-06
o-Xylene	0	0	0	1.26215E-07	0	0	0	1.07861E-06	0
Ethylbenzene	0.385252	0.388323	9.57912E-06	0.000562079	1.50001	0.305377	0	0.00484433	7.94597E-06
Toluene	2.39423	2.47969	1.76659E-05	0.00133696	5.80522	2.22934	0	0.0124403	1.45598E-05
Water	0	52.6554	0.0351940	0.450070	4699.63	13.1247	0	3.65165	0.0382598
TEG	0	0.0370167	4.17143	3.29703E-06	0.00598077	1.31326E-09	0	2.70066E-05	3.48773
N2	1736.00	1873.47	7.00270E-14	2.53504E-07	0.392122	0.334830	0	0.000879661	0
CO2	125.544	136.400	1.33883E-10	2.70755E-06	1.32488	1.11640	0	0.000882352	0
2,2-Dimethylpropane	10.0142	11.1524	8.81764E-11	2.14843E-06	0.125720	0.101284	0	8.66805E-05	0
Neohexane	157.069	176.381	2.38403E-08	0.000337734	5.28413	3.87185	0	0.00537144	0
2,3-Dimethylbutane	12.2067	13.7289	4.07348E-09	4.58885E-05	0.574790	0.405235	0	0.000647813	0
Isohexane	40.3228	45.4159	1.15684E-08	0.000158497	1.84349	1.27869	0	0.00215251	0
3-Methylpentane	22.6185	25.4708	1.26011E-08	0.000124181	1.33832	0.911167	0	0.00162674	0
Methylcyclopentane	11.7116	13.0996	1.55174E-07	0.000224009	2.18198	1.40162	0	0.00276601	1.25523E-07
Cyclohexane	10.9572	12.2947	2.10888E-07	0.000250569	2.01678	1.19692	0	0.00284369	1.72035E-07
2-Methylhexane	8.74728	9.96116	1.46758E-08	0.000157095	0.778368	0.425461	0	0.00158173	0
3-Methylhexane	8.27921	9.42332	2.26926E-08	0.000191339	0.897325	0.473294	0	0.00189593	0
Methylcyclohexane	13.0396	14.7406	5.45042E-07	0.000737044	3.21220	1.47593	0	0.00705123	4.46867E-07
n-Octane	3.65840	4.23221	6.38761E-08	0.000341647	0.743265	0.181411	0	0.00296542	5.18174E-08
m-Xylene	1.27068	1.28011	3.59562E-05	0.00194787	5.07043	0.962232	0	0.0167371	2.97857E-05
n-Nonane	1.07111	1.26037	1.02310E-07	0.000272506	0.434908	0.0457537	0	0.00230241	8.34363E-08
n-Decane	0.301234	0.363565	1.71673E-07	0.000175479	0.234788	0.00977877	0	0.00146924	1.40594E-07
C07s Others_x1	11.8444	13.4808	7.32150E-08	0.000391735	1.72851	0.872921	0	0.00382230	5.90834E-08
C08s Others_x1	11.6743	13.3968	5.67830E-07	0.00155320	3.67999	1.04594	0	0.0136142	4.61421E-07
C09s Others_x1	3.39668	3.92376	1.22120E-06	0.00136100	2.27756	0.289817	0	0.0115306	9.97905E-07

User Value Sets Report

Client Name:	Danville Dehydration Tank Eval	Job:	N:\West Virginia\Cabot\Proje
Location:	0		
Flowsheet:	Dehydration		

Sum Component Flow/Frac

User Value [CompSum]

Parameter	40.2682* ton/yr	Upper Bour	ton/yr
Lower Bound	ton/yr	Enforce Boi	FALSE

Notes:

This User Value Set was programmatically generated. GUID={64738DB4-761B-442F-9319-29D235371EC0}

Tank-1

User Value [BlockReady]

Parameter	1*	Upper Bour	
Lower Bound		Enforce Boi	FALSE

User Value [ShellLength]

Parameter	10* ft	Upper Bour	ft
Lower Bound	0* ft	Enforce Boi	FALSE

User Value [ShellDiam]

Parameter	8.5* ft	Upper Bour	ft
Lower Bound	0* ft	Enforce Boi	FALSE

User Value [BreatherVP]

Parameter	0.0300000* psig	Upper Bour	psig
Lower Bound	psig	Enforce Boi	FALSE

User Value [BreatherVacP]

Parameter	-0.0300000* psig	Upper Bour	psig
Lower Bound	psig	Enforce Boi	FALSE

User Value [DomeRadius]

Parameter	4.75* ft	Upper Bour	ft
Lower Bound	ft	Enforce Boi	FALSE

User Value [OpPress]

Parameter	0* psig	Upper Bour	psig
Lower Bound	psig	Enforce Boi	FALSE

User Value [AvgPercentLiq]

Parameter	50* %	Upper Bour	%
Lower Bound	%	Enforce Boi	FALSE

User Value [MaxPercentLiq]

Parameter	90* %	Upper Bour	%
Lower Bound	%	Enforce Boi	FALSE

User Value [AnnNetTP]

Parameter	15.8777* bbl/day	Upper Bour	bbl/day
Lower Bound	0* bbl/day	Enforce Boi	FALSE

User Value [OREff]

Parameter	0* %	Upper Bour	%
Lower Bound	%	Enforce Boi	FALSE

User Value [MaxAvgT]			
Parameter	65.75* °F	Upper Bour	°F
Lower Bound	°F	Enforce Boi	FALSE
User Value [MinAvgT]			
Parameter	44.2167* °F	Upper Bour	°F
Lower Bound	°F	Enforce Boi	FALSE
User Value [BulkLiqT]			
Parameter	58.0633* °F	Upper Bour	°F
Lower Bound	°F	Enforce Boi	FALSE
User Value [AvgP]			
Parameter	14.2535* psia	Upper Bour	psia
Lower Bound	psia	Enforce Boi	FALSE
User Value [ThermI]			
Parameter	1250.57* Btu/ft^2/day	Upper Bour	Btu/ft^2/day
Lower Bound	Btu/ft^2/day	Enforce Boi	FALSE
User Value [AvgWindSpeed]			
Parameter	6.05* mi/h	Upper Bour	mi/h
Lower Bound	mi/h	Enforce Boi	FALSE
User Value [MaxHourlyLoadingRate]			
Parameter	0.661572* bbl/hr	Upper Bour	bbl/hr
Lower Bound	0* bbl/hr	Enforce Boi	FALSE
User Value [EntrainedOilFrac]			
Parameter	1* %	Upper Bour	%
Lower Bound	%	Enforce Boi	FALSE
User Value [TurnoverRate]			
Parameter	31.8532*	Upper Bour	
Lower Bound		Enforce Boi	FALSE
User Value [LLossSatFactor]			
Parameter	0.5*	Upper Bour	
Lower Bound		Enforce Boi	FALSE
User Value [AtmPressure]			
Parameter	14.2535* psia	Upper Bour	psia
Lower Bound	psia	Enforce Boi	FALSE
User Value [TVP]			
Parameter	0.324556* psia	Upper Bour	psia
Lower Bound	psia	Enforce Boi	FALSE
User Value [MaxVP]			
Parameter	0.443843* psia	Upper Bour	psia
Lower Bound	psia	Enforce Boi	FALSE
User Value [MinVP]			
Parameter	0.235899* psia	Upper Bour	psia
Lower Bound	psia	Enforce Boi	FALSE
User Value [AvgLiqSurfaceT]			
Parameter	63.4262* °F	Upper Bour	°F
Lower Bound	°F	Enforce Boi	FALSE

User Value [MaxLiqSurfaceT]			
Parameter	73.2549* °F	Upper Bour	°F
Lower Bound	°F	Enforce Boi	FALSE
User Value [TotalLosses]			
Parameter	0.00243269* ton/yr	Upper Bour	ton/yr
Lower Bound	ton/yr	Enforce Boi	FALSE
User Value [WorkingLosses]			
Parameter	0.000743056* ton/yr	Upper Bour	ton/yr
Lower Bound	ton/yr	Enforce Boi	FALSE
User Value [StandingLosses]			
Parameter	0.000473288* ton/yr	Upper Bour	ton/yr
Lower Bound	ton/yr	Enforce Boi	FALSE
User Value [RimSealLosses]			
Parameter	0* ton/yr	Upper Bour	ton/yr
Lower Bound	ton/yr	Enforce Boi	FALSE
User Value [WithdrawalLoss]			
Parameter	0* ton/yr	Upper Bour	ton/yr
Lower Bound	ton/yr	Enforce Boi	FALSE
User Value [LoadingLosses]			
Parameter	0.000743374* ton/yr	Upper Bour	ton/yr
Lower Bound	ton/yr	Enforce Boi	FALSE
User Value [MaxHourlyLoadingLoss]			
Parameter	0.000169720* lb/hr	Upper Bour	lb/hr
Lower Bound	lb/hr	Enforce Boi	FALSE
User Value [PStar]			
Parameter		Upper Bour	
Lower Bound		Enforce Boi	FALSE
User Value [AllCTotalLosses]			
Parameter	0.0302140* ton/yr	Upper Bour	ton/yr
Lower Bound	ton/yr	Enforce Boi	FALSE
User Value [AllCLoadingLosses]			
Parameter	0.00923270* ton/yr	Upper Bour	ton/yr
Lower Bound	ton/yr	Enforce Boi	FALSE
User Value [AllCMaxHLoadingLoss]			
Parameter	0.00210792* lb/hr	Upper Bour	lb/hr
Lower Bound	lb/hr	Enforce Boi	FALSE
User Value [AllCFlashingLosses]			
Parameter	0.00950884* ton/yr	Upper Bour	ton/yr
Lower Bound	ton/yr	Enforce Boi	FALSE
User Value [DeckFittingLosses]			
Parameter	0* ton/yr	Upper Bour	ton/yr
Lower Bound	ton/yr	Enforce Boi	FALSE
User Value [DeckSeamLosses]			
Parameter	0* ton/yr	Upper Bour	ton/yr
Lower Bound	ton/yr	Enforce Boi	FALSE
User Value [FlashingLosses]			

Parameter	0.00452468*	ton/yr	Upper Bour	ton/yr
Lower Bound		ton/yr	Enforce Boi	FALSE
User Value [TotalResidual]				
Parameter	1008.57*	ton/yr	Upper Bour	ton/yr
Lower Bound		ton/yr	Enforce Boi	FALSE
User Value [GasMoleWeight]				
Parameter	0.0196260*	kg/mol	Upper Bour	kg/mol
Lower Bound		kg/mol	Enforce Boi	FALSE
User Value [VapReportableFrac]				
Parameter	8.05153*	%	Upper Bour	%
Lower Bound		%	Enforce Boi	FALSE
User Value [LiqReportableFrac]				
Parameter	1.92839*	%	Upper Bour	%
Lower Bound		%	Enforce Boi	FALSE
User Value [FlashReportableFrac]				
Parameter	47.5839*	%	Upper Bour	%
Lower Bound		%	Enforce Boi	FALSE
Notes:				
This User Value Set was programmatically generated. GUID={2AA1C2EB-1629-4D68-BA3D-FC4DE9908BE6}				
RVS-100				
User Value [BlockReady]				
Parameter	1*		Upper Bour	
Lower Bound			Enforce Boi	FALSE
User Value [TDew]				
Parameter		°F	Upper Bour	°F
Lower Bound		°F	Enforce Boi	FALSE
User Value [VaporMolarFlow]				
Parameter		mol/s	Upper Bour	mol/s
Lower Bound		mol/s	Enforce Boi	FALSE
User Value [InletMolarFlow]				
Parameter		mol/s	Upper Bour	mol/s
Lower Bound		mol/s	Enforce Boi	FALSE
User Value [TError]				
Parameter		%	Upper Bour	%
Lower Bound		%	Enforce Boi	FALSE
Notes:				
This User Value Set was programmatically generated. GUID={9C5E450E-C7B8-4685-8BF8-9F4C21704F03}				

ATTACHMENT O

**MONITORING/RECORDKEEPING/REPORTING/
TESTING PLANS**

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

MONITORING, RECORD KEEPING, REPORTING, TESTING PLANS

Monitoring

Cranberry Pipeline Corporation (Cranberry) will monitor the throughput of the two 100 bbl pipeline fluids storage tanks (TKO-1 and TKO-2) and the amount of pipeline fluids transferred via Truck Loading (TL-01) on a monthly basis to determine compliance with the limit. Compliance shall be demonstrated using a twelve month rolling total.

Recordkeeping

The company will maintain records of the aggregate throughputs for the storage tanks (TKO-1 & TKO-2) and material loaded (TL-01) on a monthly and rolling twelve month total. Records shall be kept for a period of five (5) years, two (2) years on site and certified by a company official at such time that the DAQ may request said records.

Reporting

Upon request by the Director, the company will report any equipment malfunctions or deviations from the permitted limits.

Testing

There are not testing requirements for the equipment associated with this permit application.

ATTACHMENT P

PUBLIC NOTICE

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Cranberry Pipeline Corporation has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Modification Permit, for a natural gas compressor station located off Lick Creek Rd. near Danville, in Boone County, West Virginia. The latitude and longitude coordinates are 38.07266 and -81.88848.

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

Pollutant	Tons/yr
VOCs	-1.03

Modification of operation is after the fact due to increased liquids throughputs. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

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

Dated this the XX day of April, 2017.

By: Cranberry Pipeline Corporation
Brody Webster
Manager, Safety & Environmental
900 Lee St. East, Suite 1500
Charleston, WV 25301

ATTACHMENT Q
BUSINESS CONFIDENTIAL CLAIMS
NOT APPLICABLE

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

ATTACHMENT R

AUTHORITY FORMS

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

Attachment R
AUTHORITY OF CORPORATION
OR OTHER BUSINESS ENTITY (DOMESTIC OR FOREIGN)

TO: The West Virginia Department of Environmental Protection,
Division of Air Quality

DATE: October 8, 2015

ATTN.: Director

Corporation's / other business entity's Federal Employer I.D. Number 042989934

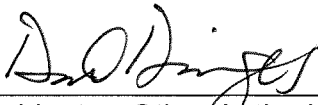
The undersigned hereby files with the West Virginia Department of Environmental Protection, Division of Air Quality, a permit application and hereby certifies that the said name is a trade name which is used in the conduct of an incorporated business or other business entity.

Further, the corporation or the business entity certifies as follows:

(1) BRODY WEBSTER (is/are) the authorized representative(s) and in that capacity may represent the interest of the corporation or the business entity and may obligate and legally bind the corporation or the business entity.

(2) The corporation or the business entity is authorized to do business in the State of West Virginia.

(3) If the corporation or the business entity changes its authorized representative(s), the corporation or the business entity shall notify the Director of the West Virginia Department of Environmental Protection, Division of Air Quality, immediately upon such change.



President or Other Authorized Officer
(Vice President, Secretary, Treasurer or other
official in charge of a principal business function
of the corporation or the business entity)

66

(If not the President, then the corporation or the business entity must submit certified minutes or bylaws stating legal authority of other authorized officer to bind the corporation or the business entity).

Secretary

CABOT OIL & GAS CORPORATION
CRANBERRY PIPELINE CORPORATION

Name of Corporation or business entity

ATTACHMENT S

TITLE V PERMIT REVISION INFORMATION

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East, Suite 1500
Charleston, West Virginia

April 2017

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 type="checkbox"/> Section 112(d) MACT standards (Subpart(s) _____)
<input type="checkbox"/> Section 112(g) Case-by-case MACT	<input type="checkbox"/> 112(r) RMP
<input type="checkbox"/> Section 112(i) Early reduction of HAP	<input type="checkbox"/> Consumer/commercial prod. reqts., section 183(e)
<input type="checkbox"/> Section 129 Standards/Reqs.	<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 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). If this box is not checked, please explain why Compliance Assurance Monitoring is not applicable:	

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.
<input type="checkbox"/> Permit Shield Requested <i>(not applicable to Minor Modifications)</i>

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
	MM/DD/YYYY	
R13-2585D	07/02/2014	
	/ /	

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
	MM/DD/YYYY	
	/ /	
	/ /	

6. Change in Potential Emissions

Pollutant	Change in Potential Emissions (+ or -), TPY
VOC	-1.03

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

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

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

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

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

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

(Signed): _____ <i>(Please use blue ink)</i>	Date: ____/____/____ <i>(Please use blue ink)</i>
Named (typed): _____	Title: _____

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

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

APPLICATION FEE

Rule 13 Permit Modification Application

**Danville Compressor Station,
Danville, West Virginia**

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April 2017