



Summit Midstream Partners, LLC  
999 18<sup>th</sup> Street, Suite 3400S  
Denver, CO 80202  
Phone: 720.452.6220  
[www.summitmidstream.com](http://www.summitmidstream.com)

February 12, 2015

West Virginia Department of Environmental Protection  
Division of Air Quality, Permitting Section  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304

**RE: Class II Administrative Update – Change in TEG Dehydration Unit and Flare Emissions  
Zinnia Compressor Station  
Plant ID # 033-00207  
R13-2968A**

Ladies/Gentlemen,

Summit Midstream Partners, LLC (Summit Midstream), on behalf of Mountaineer Midstream Company, LLC (Mountaineer Midstream), submits this letter and application as a Class II Administrative Update to the 45CSR13 NSR construction permit R13-2968 for the Zinnia Compressor Station located in Harrison County. Permit R13-2968A was issued on January 28, 2015.

Per Section 6.3.3 of Permit R13-2968A, Summit Midstream collected an inlet wet natural gas sample in December 2014. The results of the gas analysis showed a change in the natural gas composition received by Zinnia Compressor Station. As a result of this gas composition change, Summit Midstream respectfully requests that the following change be made to the permitted emissions for the TEG Dehydration Unit (DH- 001) and the Flare (FL-1):

- **Section 6.1.2:** Increase the permitted emission limits for Volatile Organic Compounds (VOCs), Nitrogen Oxides (NOx) and Carbon Monoxide (CO) to reflect actual conditions at the facility.

Please find all necessary forms, emission calculations and documentation required to complete this request. If you have any questions or need any further information please contact Andrew Parisi at (303) 626-8269 or via email at [aparisi@summitmidstream.com](mailto:aparisi@summitmidstream.com).

Sincerely,

Megan C. Davis  
Vice President of Regulatory and Senior Counsel  
Summit Midstream Partners, LLC.  
(214) 462-7704  
[mdavis@summitmidstream.com](mailto:mdavis@summitmidstream.com)

January 2015

**45CSR13 PERMIT MODIFICATION  
APPLICATION  
R13-2968 A**

ZINNIA COMPRESSOR STATION  
PLANT ID #033-00207

MOUNTAINEER MIDSTREAM COMPANY, LLC.

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# LIST OF ATTACHMENTS

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I	Equipment List Form
J	Emission Points Data Summary
L	Sheet Emission Unit Data Sheet
M	Air Pollution Control Device
N	Detailed Emissions Calculations
P	Public Notice



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

601 57<sup>th</sup> Street, SE  
Charleston, WV 25304  
(304) 926-0475  
[www.dep.wv.gov/daq](http://www.dep.wv.gov/daq)

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

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

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

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

- ADMINISTRATIVE AMENDMENT     MINOR MODIFICATION  
 SIGNIFICANT MODIFICATION

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):  
**Mountaineer Midstream Company, LLC**

2. Federal Employer ID No. (FEIN):  
**27-0770380**

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

4. The applicant is the:  
 OWNER     OPERATOR     BOTH

5A. Applicant's mailing address:  
**999 18<sup>th</sup> Street, Suite 3400S  
Denver, CO 80202**

5B. Facility's present physical address:  
Off of County Route 30/5, west of County Road 48, south of Salem,  
Harrison County, WV

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

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: **Summit Midstream Partners, LLC**

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site*?     YES     NO
- If YES, please explain:    **Applicant has contract to lease this property.**
  - If NO, you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.):  
**Natural gas compressor station**

10. North American Industry Classification System (NAICS) code for the facility:  
**211111**

11A. DAQ Plant ID No. (for existing facilities only): **033-00207**

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only): **R13-2968A issued on January 28, 2015**

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

<p>12A.</p> <ul style="list-style-type: none"> <li>- For <b>Modifications, Administrative Updates</b> or <b>Temporary permits</b> at an existing facility, please provide directions to the <i>present location</i> of the facility from the nearest state road;</li> <li>- For <b>Construction</b> or <b>Relocation permits</b>, please provide directions to the <i>proposed new site location</i> from the nearest state road. Include a <b>MAP</b> as <b>Attachment B</b>.</li> <li>• From Salem, WV take County Route 29/Patterson Fork Road south, turn left onto Traugh Fork Road, continue onto County Route 30/Turtletree Fork Road, turn right onto County Route 30/5, and the facility will be on the right.</li> </ul>		
12.B. New site address (if applicable): <b>NA</b>	12C. Nearest city or town: <b>Salem</b>	12D. County: <b>Harrison</b>
12.E. UTM Northing (KM): <b>4341.917</b>	12F. UTM Easting (KM): <b>538.559</b>	12G. UTM Zone: <b>17S</b>
<p>13. Briefly describe the proposed change(s) at the facility: <b>Increase HAP and VOC emissions for existing Dehydration Unit (DH-001)/Flare (FL-01)</b></p>		
<p>14A. Provide the date of anticipated installation or change:</p> <ul style="list-style-type: none"> <li>- If this is an <b>After-The-Fact</b> permit application, provide the date upon which the proposed change did happen: <b>November 1, 2013</b></li> </ul>		<p>14B. Date of anticipated Start-Up if a permit is granted: <b>Existing Emission Source</b></p>
<p>14C. Provide a <b>Schedule</b> of the planned <b>Installation</b> of/<b>Change</b> to and <b>Start-Up</b> of each of the units proposed in this permit application as <b>Attachment C</b> (if more than one unit is involved).</p>		
<p>15. Provide maximum projected <b>Operating Schedule</b> of activity/activities outlined in this application: Hours Per Day <b>24</b>      Days Per Week <b>7</b>      Weeks Per Year <b>24</b></p>		
<p>16. Is demolition or physical renovation at an existing facility involved?    <input type="checkbox"/> <b>YES</b>      <input checked="" type="checkbox"/> <b>NO</b></p>		
<p>17. <b>Risk Management Plans.</b> If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see <a href="http://www.epa.gov/ceppo">www.epa.gov/ceppo</a>), submit your <b>Risk Management Plan (RMP)</b> to U. S. EPA Region III.</p>		
<p>18. <b>Regulatory Discussion.</b> List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (<i>if known</i>). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (<i>if known</i>). Provide this information as <b>Attachment D</b>.</p>		
<p><b>Section II. Additional attachments and supporting documents.</b></p>		
<p>19. Include a check payable to WVDEP – Division of Air Quality with the appropriate <b>application fee</b> (per 45CSR22 and 45CSR13).</p>		
<p>20. Include a <b>Table of Contents</b> as the first page of your application package.</p>		
<p>21. Provide a <b>Plot Plan</b>, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as <b>Attachment E</b> (Refer to <b>Plot Plan Guidance</b>) .</p> <ul style="list-style-type: none"> <li>- Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).</li> </ul>		
<p>22. Provide a <b>Detailed Process Flow Diagram(s)</b> showing each proposed or modified emissions unit, emission point and control device as <b>Attachment F</b>.</p>		
<p>23. Provide a <b>Process Description</b> as <b>Attachment G</b>.</p> <ul style="list-style-type: none"> <li>- Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).</li> </ul>		
<p><i>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</i></p>		

24. Provide <b>Material Safety Data Sheets (MSDS)</b> for all materials processed, used or produced as <b>Attachment H</b> . - For chemical processes, provide a MSDS for each compound emitted to the air.
25. Fill out the <b>Emission Units Table</b> and provide it as <b>Attachment I</b> .
26. Fill out the <b>Emission Points Data Summary Sheet (Table 1 and Table 2)</b> and provide it as <b>Attachment J</b> .
27. Fill out the <b>Fugitive Emissions Data Summary Sheet</b> and provide it as <b>Attachment K</b> .
28. Check all applicable <b>Emissions Unit Data Sheets</b> listed below: <input type="checkbox"/> Bulk Liquid Transfer Operations <input type="checkbox"/> Haul Road Emissions <input type="checkbox"/> Quarry <input type="checkbox"/> Chemical Processes <input type="checkbox"/> Hot Mix Asphalt Plant <input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities <input type="checkbox"/> Concrete Batch Plant <input type="checkbox"/> Incinerator <input type="checkbox"/> Storage Tanks <input type="checkbox"/> Grey Iron and Steel Foundry <input type="checkbox"/> Indirect Heat Exchanger <input checked="" type="checkbox"/> General Emission Unit, specify: <b>TEG Dehydration Unit</b> Fill out and provide the <b>Emissions Unit Data Sheet(s)</b> as <b>Attachment L</b> .
29. Check all applicable <b>Air Pollution Control Device Sheets</b> listed below: <input type="checkbox"/> Absorption Systems <input type="checkbox"/> Baghouse <input checked="" type="checkbox"/> Flare <input type="checkbox"/> Adsorption Systems <input type="checkbox"/> Condenser <input type="checkbox"/> Mechanical Collector <input type="checkbox"/> Afterburner <input type="checkbox"/> Electrostatic Precipitator <input type="checkbox"/> Wet Collecting System <input type="checkbox"/> Other Collectors, specify Fill out and provide the <b>Air Pollution Control Device Sheet(s)</b> as <b>Attachment M</b> .
30. Provide all <b>Supporting Emissions Calculations</b> as <b>Attachment N</b> , or attach the calculations directly to the forms listed in Items 28 through 31.
31. <b>Monitoring, Recordkeeping, Reporting and Testing Plans.</b> 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 <b>Attachment O</b> . ➤ 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. <b>Public Notice.</b> At the time that the application is submitted, place a <b>Class I Legal Advertisement</b> 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 <b>Example Legal Advertisement</b> for details). Please submit the <b>Affidavit of Publication</b> as <b>Attachment P</b> immediately upon receipt.
33. <b>Business Confidentiality Claims.</b> Does this application include confidential information (per 45CSR31)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO ➤ If <b>YES</b> , 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 " <b>Precautionary Notice – Claims of Confidentiality</b> " guidance found in the <b>General Instructions</b> as <b>Attachment Q</b> .
<b>Section III. Certification of Information</b>
34. <b>Authority/Delegation of Authority.</b> Only required when someone other than the responsible official signs the application. Check applicable <b>Authority Form</b> below: <input type="checkbox"/> Authority of Corporation or Other Business Entity <input type="checkbox"/> Authority of Partnership <input type="checkbox"/> Authority of Governmental Agency <input type="checkbox"/> Authority of Limited Partnership Submit completed and signed <b>Authority Form</b> as <b>Attachment R</b> .
<i>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</i>

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 Megan C. Davis DATE: 2-17-15  
(Please use blue ink) (Please use blue ink)

35B. Printed name of signee: <b>Megan C. Davis</b>		35C. Title: <b>VP of Regulatory and Senior Counsel</b>
35D. E-mail: <u>mdavis@summitmidstream.com</u>	36E. Phone: <b>(214) 462-7704</b>	36F. FAX:
36A. Printed name of contact person (if different from above): <b>Andrew Parisi</b>		36B. Title: <b>Director of Environmental</b>
36C. E-mail: <u>aparisi@summitmidstream.com</u>	36D. Phone: <b>(303) 626-8269</b>	36E. FAX:

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

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

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

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

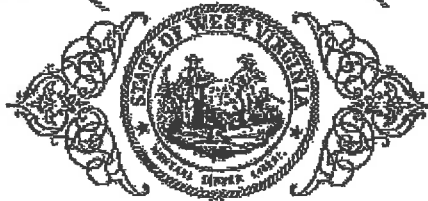
- Forward 1 copy of the application to the Title V Permitting Group and:
- For Title V Administrative Amendments:
  - NSR permit writer should notify Title V permit writer of draft permit,
- For Title V Minor Modifications:
  - Title V permit writer should send appropriate notification to EPA and affected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

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



ATTACHMENT A  
Business Certificate

# State of West Virginia



## Certificate

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

**SUMMIT MIDSTREAM PARTNERS, LLC**

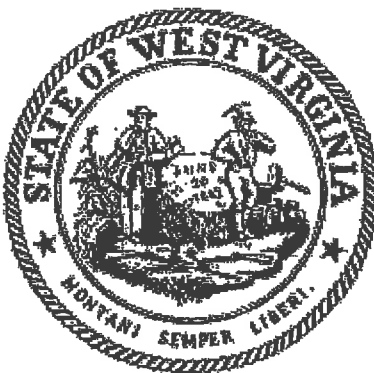
Control Number: 9A107

a limited liability company, organized under the laws of the State of Delaware  
has filed its "Application for Certificate of Authority" in my office according to the provisions  
of West Virginia Code §31B-10-1002. I hereby declare the organization to be registered as a  
foreign limited liability company from its effective date of June 21, 2013, until a certificate of  
cancellation is filed with our office.

Therefore, I hereby issue this

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

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



*Given under my hand and the  
Great Seal of the State of  
West Virginia on this day of  
June 21, 2013*

*Natalie E. Tennant*

Secretary of State

# State of West Virginia



## Certificate

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

**MOUNTAINEER MIDSTREAM COMPANY, LLC**

**Control Number: 9A0PN**

a limited liability company, organized under the laws of the State of Delaware  
has filed its "Application for Certificate of Authority" in my office according to the provisions  
of West Virginia Code §31B-10-1002. I hereby declare the organization to be registered as a  
foreign limited liability company from its effective date of May 31, 2013, until a certificate of  
cancellation is filed with our office.

Therefore, I hereby issue this

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

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

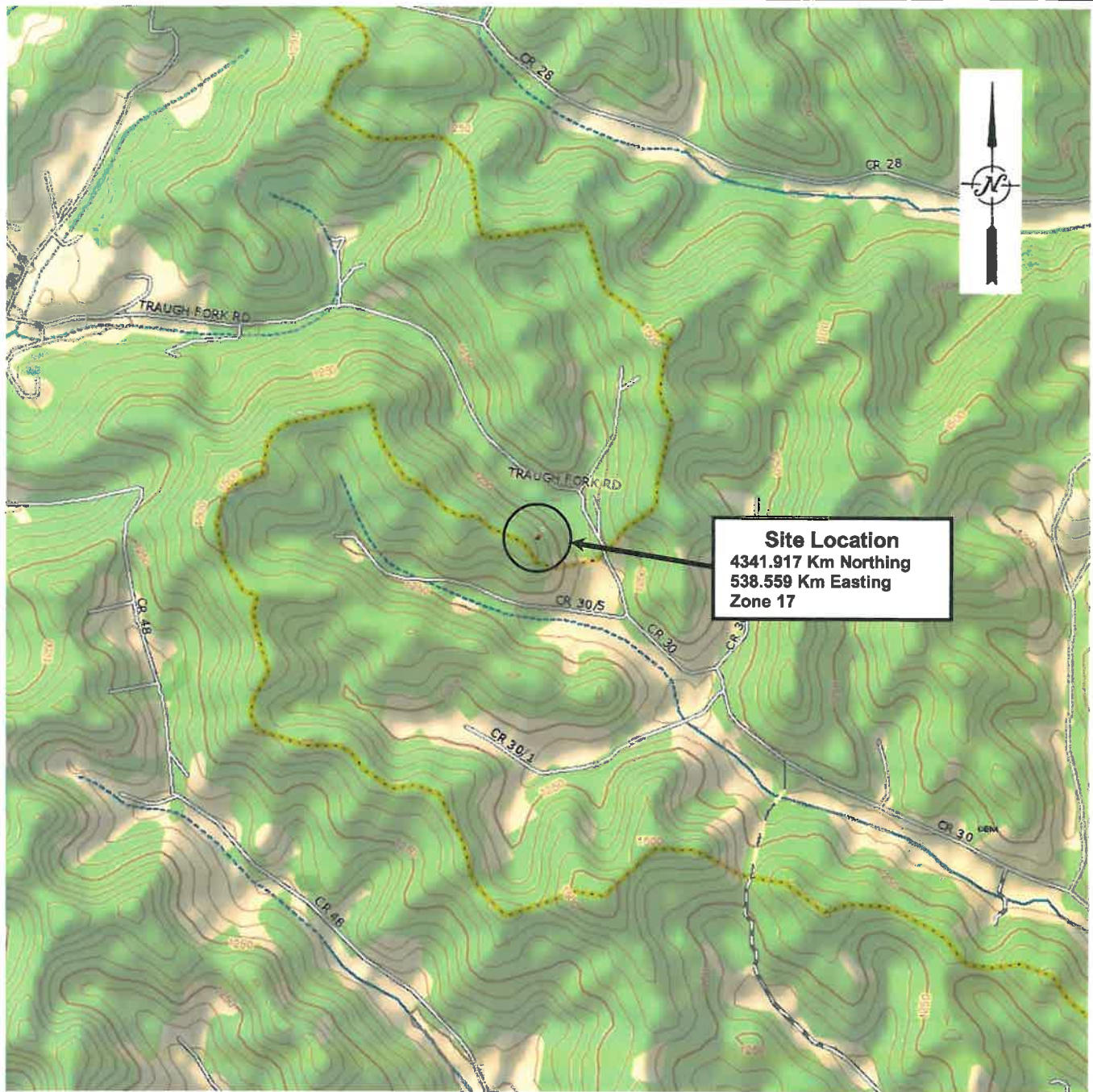


*Given under my hand and the  
Great Seal of the State of  
West Virginia on this day of  
May 31, 2013*

*Natalie E. Tennant*

*Secretary of State*

ATTACHMENT B  
Map(s)



Reference:  
 XMap® 6 © DeLorme,  
 Yarmouth, Me 04096  
 Source Data: Delorme  
 North America  
 Topographic Data 2011  
 USGS Quadrangle  
 Big Isaac, WV

## Vicinity Map

Scale 1" = 2000'

*MSES Consultants, Inc.*  
 Clarksburg, West Virginia

**Summit Midstream  
 Partners, LLC**

**Zinnia Compressor Station**

Project No. 14-162

**Attachment B  
 Air Permit Application**

ATTACHMENT E  
Plot Plan



ATTACHMENT I  
Emission Units Table





ATTACHMENT J  
Emission Points Data Summary Sheet

**Attachment J  
EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (ppmv or mg/m <sup>4</sup> )
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
DH-001	Horizontal Stack	DH-001	TEG Dehy Unit	FL-1	Flare	N/A	N/A	VOC	92.29	404.22	5.02	2199		Gly Calc	
								Benzene	0.80	3.48	0.04	0.18			
								Toluene	5.14	22.51	0.26	1.14			
								Ethylbenzene	0.69	3.02	0.03	0.15			
FL-1	Horizontal Stack	FL-1	Flare	N/A	N/A	N/A	N/A	Xylene	8.75	38.32	0.44	1.93		AP-42 Emission Factors	
								n-Hexane	0.65	2.85	0.04	0.19			
								NOx	0.67	2.92	0.67	2.92			
								CO	3.63	15.88	3.63	15.88			

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.

- Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
- 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).
- List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, all applicable Greenhouse Gases (including CO<sub>2</sub> and methane), etc. **DO NOT LIST** H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.
- 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).
- 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).
- 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).
- Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m<sup>3</sup>) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO<sub>2</sub>, use units of ppmv (See 45CSR10).



ATTACHMENT L  
Emission Unit Data Sheet(s)

**Attachment L  
EMISSIONS UNIT DATA SHEET  
GENERAL**

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

Identification Number (as assigned on *Equipment List Form*): **DH-001**

1. Name or type and model of proposed affected source:

**TEG Dehydration Unit , 120 MMscfd**

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

**Emissions provided in Question 8. Unit will operate a maximum of 8,760 per year.**

4. Name(s) and maximum amount of proposed material(s) produced per hour:

**Emissions provided in Question 8.**

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

**Emissions from the dehydration of natural gas using tri-ethylene glycol.**

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

6. Combustion Data (if applicable):		
(a) Type and amount in appropriate units of fuel(s) to be burned:		
<b>N/A</b>		
(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:		
<b>Sulfur and ash are insignificant</b>		
(c) Theoretical combustion air requirement (ACF/unit of fuel):		
<b>unknown</b>	@	°F and psia.
(d) Percent excess air:		
(e) Type and BTU/hr of burners and all other firing equipment planned to be used:		
<b>N/A</b>		
(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:		
<b>N/A</b>		
(g) Proposed maximum design heat input:		
		<b>N/A</b> × 10 <sup>6</sup> BTU/hr.
7. Projected operating schedule:		
Hours/Day <b>24</b>	Days/Week <b>7</b>	Weeks/Year <b>52</b>

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:		
@	°F and	psia
a. NO <sub>x</sub>	lb/hr	grains/ACF
b. SO <sub>2</sub>	lb/hr	grains/ACF
c. CO	lb/hr	grains/ACF
d. PM <sub>10</sub>	lb/hr	grains/ACF
e. Hydrocarbons	lb/hr	grains/ACF
f. VOCs	<b>92.29</b> lb/hr	grains/ACF
g. Pb	lb/hr	grains/ACF
h. Specify other(s)		
<b>Total HAPs</b>	<b>16.05</b> lb/hr	grains/ACF
Note: Speciated HAPs are presented in attachment J.	lb/hr	grains/ACF
Note: A 40% percent buffer was included to the emissions to account for potential changes in gas composition.	lb/hr	grains/ACF
	lb/hr	grains/ACF

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

(2) Complete the Emission Points Data Sheet.



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

<p><b>MONITORING</b></p> <p>Per Air Permit R13-2968 - the applicant shall monitor the wet natural gas fed to the dehydration system on a monthly basis.</p>	<p><b>RECORDKEEPING</b></p> <p>Per Air Permit R13-2968 - The applicant will maintain and document the following:          1. records of testing conducted (GLYCalc and sampling - see below), 2. record of all PTE HAP calculations for the entire facility, and 3. wet natural gas throughput .</p>
---	--

<p><b>REPORTING</b></p> <p>As required by Air Permit R13-2968, Section 6.5.1 - Submit Testing protocol, notification of testing, and testing results, as appropriate.</p>	<p><b>TESTING</b></p> <p>Per Air Permit R13-2968 - the applicant shall demonstrate compliance with the HAP emission threshold using GLYCalc Version 3.0 or higher. The applicant shall sampling in accordance with GPA Method 2166 and analyze the samples utilizing the extended GPA Method 2286 as specified in teh GRI-GLYCalc V4 Technical Reference User Manual and Handbook.</p>
---	--

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

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

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

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

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

- The following maintenance procedures are performed for the dehydration unit:
- The particulate filters are changed accordin to the differential psi.
  - The charcoal canister filters are changed twice per year.



### Steam Injection

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

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

29. Name	Quantity Grains of H <sub>2</sub> S/100 ft <sup>3</sup>	Quantity (LB/hr, ft <sup>3</sup> /hr, etc)	Source of Material
Regenerator Overheads		5,860 scf/hr	TEG Dehy
30. Estimate total combustible to flare: (Maximum mass flow rate of waste gas)		5,860 scf/hr	LB/hr or ACF/hr scfm
31. Estimated total flow rate to flare including materials to be burned, carrier gases, auxiliary fuel, etc.: <span style="float: right;">LB/hr or ACF/hr</span>			
32. Give composition of carrier gases: Purge gas rate: 3000 scfh @ 19 MW			
33. Temperature of emission stream: <span style="float: right;">212 °F</span> Heating value of emission stream: <span style="float: right;">1195 BTU/ft<sup>3</sup></span> Mean molecular weight of emission stream: MW = <span style="float: right;">20.56 lb/lb-mole</span>	34. Identify and describe all auxiliary fuels to be burned.  Natural Gas <span style="float: right;">1,124 BTU/scf</span> <span style="float: right;">BTU/scf</span> <span style="float: right;">BTU/scf</span> <span style="float: right;">BTU/scf</span>		
35. Temperature of flare gas: <span style="float: right;">1000 °F</span>	36. Flare gas flow rate: <span style="float: right;">9,350 scf/min</span>		
37. Flare gas heat content: <span style="float: right;">BTU/ft<sup>3</sup></span>	38. Flare gas exit velocity: <span style="float: right;">10 ft/s</span>		
39. Maximum rate during emergency for one major piece of equipment or process unit:			scf/min
40. Maximum rate during emergency for one major piece of equipment or process unit:			BTU/min
41. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification): The Dehydration unit will regenerate glycol and send the water vapor and hydrocarbons to the flare.			
42. Describe the collection material disposal system:			
43. Have you included <b>Flare Control Device</b> in the Emissions Points Data Summary Sheet? Yes			

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

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

**MONITORING:**

Per Air Permit R13-2929B - the applicant shall monitor the presence or absence of a flare pilot flame using a thermocouple or any other equivalent device.

**RECORDKEEPING:**

Per Air Permit R13-2929B - The applicant will maintain and document the following:  
- the times and duration in which the pilot flame was absent  
- flare design evaluation  
- testing  
- on-going monitoring requirements  
- visible emission opacity tests  
- emission calculations

**REPORTING:**

As required by Air Permit R13-2929B, Section 7.5.1  
- Submit Testing protocol, notification of testing, and testing results, as appropriate.  
- Any deviations from flare design or visible emission requirements.

**TESTING:**

Per Air Permit R13-2929B - the applicant shall conduct a Method 22 opacity test for at least two hours within one (1) year of permit issuance.  
- The Applicant may also be required to conduct a flare compliance assessment by the director in accordance with Test Method 18 (organics) and Test Method 2, 2A, 2C, or 2D in Appendix A, 40 CFR part 60.

**MONITORING:**

Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.

**RECORDKEEPING:**

Please describe the proposed recordkeeping that will accompany the monitoring.

**REPORTING:**

Please describe any proposed emissions testing for this process equipment on air pollution control device.

**TESTING:**

Please describe any proposed emissions testing for this process equipment on air pollution control device.

45. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.  
98% VOC

46. Manufacturer's Guaranteed Control Efficiency for each air pollutant.  
98% VOC

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

ATTACHMENT N  
Supporting Emissions Calculations

**Zinnia Permitted Emission Limits**

Emission Source	Description	Emissions (Controlled) tpy						
		CO	NOx	VOC	Formaldehyde	PM-10	SO2	Total HAPs <sup>1</sup>
CM-1001	Caterpillar G3608LE Compressor Engine	3.2	11.44	7.09	0.69			
CM-1002	Caterpillar G3608LE Compressor Engine	3.2	11.44	7.09	0.69			
CM-1003	Caterpillar G3608LE Compressor Engine	3.2	11.44	7.09	0.69			
CM-1004	Caterpillar G3608LE Compressor Engine	3.2	11.44	7.09	0.69			
CM-1005	Caterpillar G3608LE Compressor Engine	3.2	11.44	7.09	0.69			
CM_1006	Caterpillar G3608LE Compressor Engine	3.2	11.44	7.09	0.69			
G-1001	Caterpillar C15 ATAAC Emergency Generator Engine	0.33	7.69	0.09	0.01		2.75	
GE-1	Caterpillar G3516LE	13.1	10.48	3.14	1.92			
Original DH-001	TEG Dehydration unit (120 mmscf/day)			8.98				1.37
RB-001	Reboiler (Dehydration Unit)	0.62	0.74	0.04		0.06		
FL-1 <sup>3</sup>	Flare (Dehydration Unit)	15.88	2.92			0.19	0.02	
Fugitive Emissions <sup>2</sup>	Fugitive Emissions			1.81				0.153
T01-T05 <sup>2</sup>	Condensate/Water Tanks			8.8				0.86
Updated DH-001 <sup>3</sup>	TEG Dehydration unit (120 mmscf/day)			22.37				5.98
Total proposed Emissions <sup>4</sup>		49.13	90.47	76.98	6.07	0.25	2.77	6.84
Total Title V Emissions <sup>5</sup>		49.13	90.47	78.79	6.07	0.25	2.77	6.99

**Notes:**

<sup>1</sup>Total HAPs from application (does not include Formaldehyde)

<sup>2</sup>From original application

<sup>3</sup>Same dehy unit and flare, emissions have been updated to reflect change in gas composition. A 40% buffer is included to account for changes in gas composition in the future.

<sup>4</sup>Total proposed Emissions = Total - DH-001 (old Dehy) + New DH-001 - Fugitive Emissions

<sup>5</sup>Total Title V Emissions = Total proposed emissions + Fugitives

**Net Change:**

Emission Source	Description	Emissions (Controlled)							
		VOC (pph)	VOC (ppd)	VOC (tpy)	Total HAPs (pph)	Total HAPs (tpy)	Benzene (pph)	Benzene (ppd)	Benzene (tpy)
Original DH-001	TEG Dehydration unit (120 mmscf/day)	2.05	49.2	8.98	0.32	1.37	0.03	0.72	0.15
Updated DH-001 <sup>3</sup>	TEG Dehydration unit (120 mmscf/day)	5.02	122.58	21.99	0.82	3.59	0.04	0.96	0.18
Net Change <sup>6</sup>		2.97	73.38	13.01	0.50	2.22	0.01	0.24	0.03

Emission Source	Description	Emissions (Controlled)					
		NOx (pph)	NOx (ppd)	NOx (tpy)	CO (pph)	CO (ppd)	CO (tpy)
Original FL-1	Flare (Dehydration Unit)	0.583	14.03	2.56	0.49	11.78	2.15
Updated FL-1 <sup>3</sup>	Flare (Dehydration Unit)	0.67	16.00	2.92	3.63	87.01	15.88
Net Change <sup>6</sup>		0.08	1.97	0.36	3.14	75.23	13.73

<sup>6</sup>For the regulated air pollutants, the net change is less than 10 tpy AND 6 pph OR 144 ppd. For aggregated HAPs, the net change is less than 2 pph or 5 tpy; therefore, this modification request is an Administrative Update (Class II). The net change for NOx and CO is driven by a change in emission factors used and not a result of an

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: 2014.12-Zinnia CS-Zinnia CS  
 File Name: N:\deptHSE\Environmental\Facilities - Mountaineer\WV\_Zinnia CS\Record Keeping\Monthly\GLYCalc\2014annual. - Zinnia CS- DH-001 GLYCalc.ddf  
 Date: January 26, 2015

DESCRIPTION:

-----  
 Description: Summit Midstream Partners - Zinnia CS  
 120mmscf/day TEG Dehydration Unit  
 wet gas sample: 12.09.2014  
 Electric Pump

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

-----  
 Temperature: 89.00 deg. F  
 Pressure: 926.00 psig  
 Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	0.1219
Nitrogen	0.3723
Methane	84.6383
Ethane	10.6824
Propane	2.1804
Isobutane	0.2969
n-Butane	0.3891
Isopentane	0.1364
n-Pentane	0.0930
n-Hexane	0.0589
Cyclohexane	0.0117
Other Hexanes	0.1092
Heptanes	0.1131
Methylcyclohexane	0.0357
2,2,4-Trimethylpentane	0.0027
Benzene	0.0019
Toluene	0.0075
Ethylbenzene	0.0007
Xylenes	0.0061
C8+ Heavies	0.7419

DRY GAS:

-----  
 Flow Rate: 120.0 MMSCF/day  
 Water Content: 5.0 lbs. H2O/MMSCF

LEAN GLYCOL:

-----  
 Glycol Type: TEG  
 Water Content: 1.5 wt% H2O  
 Flow Rate: 5.3 gpm

PUMP:

-----  
Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

-----  
Flash Control: Combustion device  
Flash Control Efficiency: 95.00 %  
Temperature: 150.0 deg. F  
Pressure: 65.0 psig

STRIPPING GAS:

-----  
Source of Gas: Dry Gas  
Gas Flow Rate: 20.000 scfm

REGENERATOR OVERHEADS CONTROL DEVICE:

-----  
Control Device: Combustion Device  
Destruction Efficiency: 95.0 %  
Excess Oxygen: 30.0 %  
Ambient Air Temperature: 70.0 deg. F



Case Name: 2014.12-Zinnia CS-Zinnia CS

File Name: N:\deptHSE\Environmental\Facilities - Mountaineer\WV\_Zinnia CS\Record Keeping\Monthly\GLYCalc\2014annual. - Zinnia CS- DH-001 GLYCalc.ddf

Date: January 26, 2015

## CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	2.1740	52.177	9.5222
Ethane	0.5575	13.379	2.4417
Propane	0.1981	4.754	0.8676
Isobutane	0.0405	0.973	0.1776
n-Butane	0.0618	1.484	0.2707
Isopentane	0.0268	0.643	0.1174
n-Pentane	0.0214	0.515	0.0939
n-Hexane	0.0233	0.558	0.1019
Cyclohexane	0.0184	0.441	0.0804
Other Hexanes	0.0348	0.834	0.1522
Heptanes	0.0858	2.059	0.3757
Methylcyclohexane	0.0685	1.644	0.3001
2,2,4-Trimethylpentane	0.0011	0.027	0.0050
Benzene	0.0284	0.681	0.1244
Toluene	0.1835	4.404	0.8038
Ethylbenzene	0.0246	0.591	0.1079
Xylenes	0.3124	7.499	1.3685
C8+ Heavies	2.1665	51.997	9.4894
Total Emissions	6.0275	144.660	26.4004
Total Hydrocarbon Emissions	6.0275	144.660	26.4004
Total VOC Emissions	3.2960	79.104	14.4365
Total HAP Emissions	0.5734	13.761	2.5114
Total BTEX Emissions	0.5490	13.176	2.4045

## UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	43.4805	1043.533	190.4447
Ethane	11.1492	267.580	48.8333
Propane	3.9619	95.085	17.3530
Isobutane	0.8110	19.464	3.5521
n-Butane	1.2363	29.671	5.4150
Isopentane	0.5360	12.863	2.3475
n-Pentane	0.4288	10.291	1.8782
n-Hexane	0.4652	11.164	2.0375
Cyclohexane	0.3672	8.813	1.6083
Other Hexanes	0.6950	16.681	3.0442
Heptanes	1.7157	41.177	7.5148
Methylcyclohexane	1.3701	32.883	6.0011
2,2,4-Trimethylpentane	0.0226	0.543	0.0992
Benzene	0.5679	13.629	2.4873
Toluene	3.6703	88.087	16.0760
Ethylbenzene	0.4925	11.819	2.1570
Xylenes	6.2490	149.975	27.3705
C8+ Heavies	43.3306	1039.936	189.7882

			Page: 2
Total Emissions	120.5497	2893.194	528.0079
Total Hydrocarbon Emissions	120.5497	2893.194	528.0079
Total VOC Emissions	65.9200	1582.081	288.7298
Total HAP Emissions	11.4674	275.219	50.2274
Total BTEX Emissions	10.9796	263.511	48.0908

FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3743	8.984	1.6396
Ethane	0.2248	5.394	0.9845
Propane	0.0869	2.086	0.3808
Isobutane	0.0180	0.433	0.0790
n-Butane	0.0277	0.665	0.1213
Isopentane	0.0110	0.263	0.0480
n-Pentane	0.0087	0.208	0.0379
n-Hexane	0.0074	0.177	0.0323
Cyclohexane	0.0023	0.055	0.0101
Other Hexanes	0.0124	0.298	0.0544
Heptanes	0.0179	0.430	0.0785
Methylcyclohexane	0.0071	0.171	0.0312
2,2,4-Trimethylpentane	0.0003	0.008	0.0014
Benzene	0.0005	0.013	0.0024
Toluene	0.0025	0.059	0.0107
Ethylbenzene	0.0002	0.005	0.0009
Xylenes	0.0017	0.042	0.0077
C8+ Heavies	0.0851	2.042	0.3726
<b>Total Emissions</b>	<b>0.8889</b>	<b>21.333</b>	<b>3.8934</b>
<b>Total Hydrocarbon Emissions</b>	<b>0.8889</b>	<b>21.333</b>	<b>3.8934</b>
Total VOC Emissions	0.2898	6.955	1.2692
Total HAP Emissions	0.0126	0.303	0.0554
Total BTEX Emissions	0.0049	0.119	0.0217

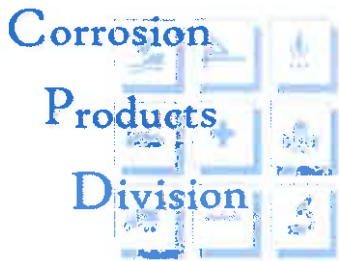
FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	7.4869	179.686	32.7927
Ethane	4.4953	107.888	19.6895
Propane	1.7387	41.729	7.6156
Isobutane	0.3607	8.657	1.5799
n-Butane	0.5538	13.291	2.4256
Isopentane	0.2192	5.262	0.9603
n-Pentane	0.1732	4.157	0.7586
n-Hexane	0.1474	3.539	0.6458
Cyclohexane	0.0462	1.110	0.2025
Other Hexanes	0.2486	5.966	1.0888
Heptanes	0.3584	8.601	1.5696
Methylcyclohexane	0.1425	3.420	0.6241
2,2,4-Trimethylpentane	0.0065	0.156	0.0285
Benzene	0.0108	0.259	0.0473
Toluene	0.0490	1.177	0.2148
Ethylbenzene	0.0041	0.098	0.0179
Xylenes	0.0350	0.839	0.1532
C8+ Heavies	1.7014	40.835	7.4523

Total Emissions	17.7779	426.669	77.8671
Total Hydrocarbon Emissions	17.7779	426.669	77.8671
Total VOC Emissions	5.7957	139.096	25.3850
Total HAP Emissions	0.2528	6.068	1.1074
Total BTEX Emissions	0.0989	2.374	0.4332

## COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	2.5484	61.161	11.1619
Ethane	0.7822	18.773	3.4261
Propane	0.2850	6.841	1.2484
Isobutane	0.0586	1.406	0.2566
n-Butane	0.0895	2.148	0.3920
Isopentane	0.0378	0.906	0.1654
n-Pentane	0.0301	0.722	0.1318
n-Hexane	0.0306	0.735	0.1342
Cyclohexane	0.0207	0.496	0.0905
Other Hexanes	0.0472	1.132	0.2066
Heptanes	0.1037	2.489	0.4542
Methylcyclohexane	0.0756	1.815	0.3313
2,2,4-Trimethylpentane	0.0015	0.035	0.0064
Benzene	0.0289	0.694	0.1267
Toluene	0.1860	4.463	0.8145
Ethylbenzene	0.0248	0.596	0.1087
Xylenes	0.3142	7.541	1.3762
C8+ Heavies	2.2516	54.039	9.8620
Total Emissions	6.9164	165.993	30.2938
Total Hydrocarbon Emissions	6.9164	165.993	30.2938
Total VOC Emissions	3.5858	86.059	15.7057
Total HAP Emissions	0.5860	14.064	2.5667
Total BTEX Emissions	0.5539	13.294	2.4262



**Corrosion Products Division - *MSES consultants, inc.***

609 West Main Street ■ P. O. Drawer 190  
Clarksburg, West Virginia 26301  
304-624-9700 Main ■ 304-622-0981 Fax ■ E-mail cpd@msesinc.com

**FIELD COLLECTION REPORT  
GAS SAMPLE**

Company Name Summit Midstream  
Sample Name Zinnia Station  
Sample Number S-4-12-CP-14  
Sample Date 12-AP-14  
Sample Time 2:50 P  
Sampled By JBL

**SAMPLE COLLECTED FROM:**

- Well \_\_\_\_\_
- Pipeline \_\_\_\_\_
- Storage \_\_\_\_\_
- Fuel Gas \_\_\_\_\_
- Other \_\_\_\_\_

**SAMPLE INFORMATION:**

Sample Description Inlet to TEG  
Sample Temperature \_\_\_\_\_ Sample Pressure 850 psig  
Sample Odor \_\_\_\_\_ Purge Time 8 mins  
Sample Source \_\_\_\_\_

**GAS ANALYSIS PROGRAM REQUESTED:**

Company to Specify: \_\_\_\_\_  
GPA-2286  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

LOCATION SKETCH

Sample Location: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Sampler Remarks Bottle 073  
\_\_\_\_\_  
\_\_\_\_\_

**WEATHER:**

Air Temperature 41.0  
Conditions overcast  
\_\_\_\_\_

**CONTACT INFORMATION:**

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Telephone: \_\_\_\_\_ Fax \_\_\_\_\_  
E-mail: \_\_\_\_\_

DEC 09 2014  
JBL

MSES consultants, inc.

CORROSION PREVENTION DIVISION

# Extended Fractional Analysis Summit Midstream

PO Drawer 190 - Clarksburg, WV 26302-0190  
Telephone: 304.624.9700 - Fax: 304.622.0981  
Website: www.msesinc.com/analysis

Analysis No: 1  
Analysis Date: 12/12/2014  
MSES Project No.: 14-040

## SAMPLE COLLECTION INFORMATION

Client:	Summit Midstream	Sample Date:	12/9/2014
Sample Location:	Zinnia Station	Sample Time:	2:50 PM
Sample Collection Source:	Inlet to TEG	Collected By:	JNR
MSES Sample Number:	S-4-12-9-14	Sample Pressure:	850
Date Received at Lab:	12/9/2014	Sample Temp. (°F):	N/A
Collection Remarks:	N/A	Sample Container Type:	Cylinder
		MSES/CPD ID#	73.0
		Client ID #:	N/A

## ANALYSIS REPORT

### FRACTIONAL ANALYSIS

### ANALYTICAL RESULTS

COMPONENTS	MOLE PERCENT	GPM	REAL VALUES ARE CALCULATED AT 14.696 PSI AND 60° F	
OXYGEN	0.0020		BTU/SCF (DRY):	1195.62
NITROGEN	0.3723		BTU/SCF (WET):	1186.83
CARBON DIOXIDE	0.1219		SUM. FACTOR (DRY):	0.9969
METHANE	84.6383		SUM. FACTOR (WET):	0.9964
ETHANE	10.6824	2.85	ETHANE + GPM:	4.2843
PROPANE	2.1804	0.60	REAL DENSITY:	0.6801
I-BUTANE	0.2969	0.10		
N-BUTANE	0.3891	0.12		
I-PENTANE	0.1364	0.05		
N-PENTANE	0.0930	0.03		
CYCLOPENTANE	<0.0001	0.00		
I-HEXANES	0.1092	0.05		
N-HEXANE	0.0589	0.02		
CYCLOHEXANE	0.0117	0.00		
I-HEPTANES	0.0175	0.02		
N-HEPTANE	0.0956	0.04		
METHYLCYCLOHEXANE	0.0357	0.01		
2,2,4-TRIMETHYLPENTANE	0.0027	0.00		
BENZENE	0.0019	0.00		
TOLUENE	0.0075	0.00		
ETHYLBENZENE	0.0007	0.00		
XYLENE	0.0061	0.01		
OCTANES+	0.7419	0.37		
<b>TOTAL</b>	<b>100.0000</b>	<b>4.29</b>		

### COMMENTS

(1) Extended analysis and reporting performed following procedures outlined in GPA 2286-95: Tentative Method of Extended Analysis for Natural Gas and Similar Mixtures by Temperature Programmed Gas Chromatography

(2) Physical properties and values used in calculations were acquired from GPA 2145-09: Table of Physical properties for Hydrocarbons and Other Compounds of Interest to the Natural Gas Industry

(3) Limit of Detection = 0.0001 Mole Percent

## Zinnia Compressor Station

### Potential to Emit:

#### Flare (FL-991)

#### Inputs

Parameters	Units	Value
Manufacturer	--	Superior Fabrication
Year Installed	--	2012
Operating Hours	hrs	8760
Flare Heat Input Rating	MMBtu/hr	7.00
Annual Fuel Use	mmscf/yr	56.45
Fuel consumption	mmscf/hr	0.00586
Fuel HHV	Btu/scf	1195
CF (lbs to tons)	ton/lbs	0.0005

#### Pollutant Emissions

Pollutant	Emission Factors <sup>e,f,g</sup>		Potential Emissions <sup>d</sup>	
	Value	Units	lb/hr	tons/year
NOx <sup>a,c</sup>	0.068	lb/mmmbtu	0.67	2.92
CO <sup>a,c</sup>	0.37	lb/mmmbtu	3.63	15.88
SO <sub>2</sub> <sup>b,c</sup>	0.6	lb/MMscf	0.005	0.02
PM Total <sup>b,c</sup>	7.6	lb/MMscf	0.062	0.27
PM Condensate <sup>b,c</sup>	1.9	lb/MMscf	0.016	0.07
PM <sub>10</sub> (Filterable) <sup>b,c</sup>	5.7	lb/MMscf	0.047	0.20
PM <sub>2.5</sub> (Filterable) <sup>b,c</sup>	5.7	lb/MMscf	0.047	0.20

#### Notes

<sup>a</sup>Emission Rate (lb/hr) = Emission Factor (lb/mmmbtu)\*Fuel HHV (Btu/scf)\*Fuel Consumption (mmscf/hr)

<sup>b</sup>Emission Rate (lb/hr) = Fuel Consumption (MMscf/hr)\*Emission Factor (lb/MMscf)

<sup>c</sup>Annual Emissions (tons/yr) = Emission Rate (lb/hr)\*Operating Hours (hr/yr)\* CF (ton/lb)

<sup>d</sup>A 40% buffer has been included to account for variations in throughput to the flare

<sup>e</sup>Emission Factors for NOx and CO are from AP-42, Table 13.5-1 Emissions Factors for Flare Operations

<sup>f</sup>Emission Factors for the remaining pollutants are from AP-42, Table 1.4-1 Natural Gas Combustion

<sup>g</sup>Emission factors for CO and NOx have been updated from the original application which used emission factors for natural gas combustion only. As a result of this change in emission factors, the potential emissions have increased - this does not reflect an operational change in the flare.

ATTACHMENT P  
Public Notice

# AIR QUALITY PERMIT NOTICE

## Notice of Application

Notice is given that Summit Midstream Partners, LLC d/b/a Mountaineer Midstream Company, LLC, has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for an after-the-fact Class II Administrative Update Application for an increase in emissions for the permitted TEG Dehydration Unit at the Zinnia Compressor Station located off County Road 30/5, west of County Road 48, south of Salem, in Harrison County, West Virginia. The latitude and longitude coordinates are: 39.227222°N and 80.553056°W.

The applicant estimates a net change in the potential to discharge for the following regulated air pollutants will be:

Volatile Organic Compounds (VOC): +13.01 tpy

Hazardous Organic Compounds (HAPs): +2.22 tpy

Benzene: +0.03 tpy

Toluene: +0.60 tpy

Xylenes: +1.63 tpy

n-Hexane: -0.19 tpy

Nitrogen Oxides; +0.36 tpy

Carbon Monoxide: +13.73 tpy

This change in emissions started in December 2014. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57<sup>th</sup> Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1227, during normal business hours.

Dated this the 12<sup>th</sup> of February, 2015.



By: Summit Midstream Partners, LLC d/b/a  
Mountaineer Midstream Company, LLC

Megan C. Davis

Vice President of Regulatory and Senior Counsel

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