

Jim Alexander  
 Air Permitting  
 NiSource  
 801 E. 86<sup>th</sup> Avenue  
 Merrillville, IN 46410  
 Phone: 219-647-5924  
 jamesalexander@nisource.com

*John*  
*13-207E*  
*039-00049*

February 3, 2015

Mr. William F. Durham, Director  
 WVDEP - Division of Air Quality  
 601 57th Street SE  
 Charleston, West Virginia 25304

RE: Construction/Modification Application (45CSR13) and  
 Significant Modification Application (Revision to Title V)  
 Columbia Gas Transmission LLC  
 Coco Compressor Station (Facility ID#039-00049)

Dear Mr. Durham,

Attached is an application for the use of significant modification procedures to revise Title V permit R30-03900049-2012 for the Columbia Gas Transmission – Coco Compressor Station, located in Kanawha County, West Virginia. This application consists of a Regulation 13 application package requesting the installation of one new emergency generator to replace two existing emergency generators which will be retired.

Based on this change, the Station will continue to be classified as a major source under Title V regulations (annual potential emissions of NOx are more than 100 tons per year). The potential to emit from the proposed emergency generator is less than Prevention of Significant Deterioration (PSD) significant emission levels. This application package includes:

1. Description of changes, and any new specific applicable requirements;
2. Certification for the use of significant modification procedures; and
3. Check in the amount of \$2,000 for application fees (Application and NSPS fees).

Should you have any questions or need additional information, please feel free to contact the undersigned at (219) 647-5924 or via email at jamesalexander@nisource.com.

Sincerely,

Jim Alexander  
 Air Permitting

Attachments

APPLICATION FOR 45 CSR 13  
CONSTRUCTION PERMIT  
AND  
TITLE V PERMIT MODIFICATION

Columbia Gas Transmission LLC  
Coco Compressor Station  
Kanawha County, West Virginia  
Title V Permit No. R30-03900049-2012

December 2014

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NSR Application Form

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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):<br>Columbia Gas  |  | 2. Federal Employer ID No. (FEIN):<br>310802435  |  |
| 3. Name of facility (if different from above):<br>Coco Compressor Station  |  | 4. The applicant is the:<br><input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH                |  |
| 5A. Applicant's mailing address:<br>Columbia Gas Transmission LLC<br>1700 MacCorkle Ave, SE<br>Charleston, WV 25314  |  | 5B. Facility's present physical address:<br>7 Coco Road<br>Elkview, WV 25071   |  |
| 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<br>- 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.<br>- 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: Columbia Energy Group, Inc.  |  |  |  |
| 8. Does the applicant own, lease, have an option to buy or otherwise have control of the proposed site? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO<br>- If YES, please explain: Application is for modification of existing natural gas compressor station which Columbia Gas owns and operates<br>- 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:<br>486210   |  |
| 11A. DAQ Plant ID No. (for existing facilities only):<br>039-00049   |  | 11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):<br>R30-03900049-2012 |  |
| 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 or 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 or Relocation permits</b>, please provide directions to the <i>proposed new site location</i> from the nearest state road. Include a <b>MAP as Attachment B</b>.</li> </ul> <p>Traveling from the intersection of State Route 114 and secondary Route 49, proceed 3.4 miles and bear right on Route 49. Go 3.6 miles from the intersection of Routes 47 and 49 and turn left onto secondary County Route 7/1 (Coco Road). Travel approximately 1.5 miles, the station is located on the right side of the road.</p> |   |                         |               |               |                |  |  |  |
|--|---|-------------------------|---------------|---------------|----------------|--|--|--|
| 12.B. New site address (if applicable):  | 12C. Nearest city or town:<br>Elkview                                   | 12D. County:<br>Kanawha |               |               |                |  |  |  |
| 12.E. UTM Northing (KM): 4,250.5   | 12F. UTM Easting (KM): 463.5  | 12G. UTM Zone: 17       |               |               |                |  |  |  |
| <p>13. Briefly describe the proposed change(s) at the facility:<br/>Installation of one emergency generator, retiring of two emergency generators.</p>   |   |                         |               |               |                |  |  |  |
| 14A. Provide the date of anticipated installation or change: 06/01/2016  | 14B. Date of anticipated Start-Up if a permit is granted:<br>06/01/2016 |                         |               |               |                |  |  |  |
| <p>– If this is an <b>After-The-Fact</b> permit application, provide the date upon which the proposed change did happen: / /</p>   |   |                         |               |               |                |  |  |  |
| <p>14C. Provide a <b>Schedule</b> of the planned <b>Installation of/Change to and 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: 500 hours/year</p> <table border="1"> <thead> <tr> <th>Hours Per Day</th> <th>Days Per Week</th> <th>Weeks Per Year</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>   |   |                         | Hours Per Day | Days Per Week | Weeks Per Year |  |  |  |
| Hours Per Day  | Days Per Week   | Weeks Per Year          |               |               |                |  |  |  |
|  |   |                         |               |               |                |  |  |  |
| <p>16. Is demolition or physical renovation at an existing facility involved? <input checked="" type="checkbox"/> <b>YES</b> <input 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>  |   |                         |               |               |                |  |  |  |

**Section II. Additional attachments and supporting documents.**

|  |
|--|
| 19. Include a check payable to WVDEP – Division of Air Quality with the appropriate <b>application fee</b> (per 45CSR22 and 45CSR13).  |
| 20. Include a <b>Table of Contents</b> as the first page of your application package.  |
| 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> ) . |
| – Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).  |
| 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> .   |
| 23. Provide a <b>Process Description</b> as <b>Attachment G</b> .  |
| – Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).   |
| <b>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</b>   |

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: One (1) emergency generator

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: Delegation of Authority Letter provided in lieu of Authority Form

|  |   |
|--|---|
| <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 **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: 1-19-2015  
(Please use blue ink) (Please use blue ink)

|  |                          |                                   |
|--|--------------------------|-----------------------------------|
| 35B. Printed name of signee: Timothy L. Sweeney                              |                          | 35C. Title: Manager of Operations |
| 35D. E-mail: tsweeney@nisource.com   | 36E. Phone: 304-722-8486 | 36F. FAX:                         |
| 36A. Printed name of contact person (if different from above): Jim Alexander |                          | 36B. Title: Air Permitting        |
| 36C. E-mail: jamesalexander@nisource.com                                     | 36D. Phone: 219-647-5924 | 36E. FAX: 219-647-5271            |

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

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Attachment A: Business Certificate</li> <li><input checked="" type="checkbox"/> Attachment B: Map(s)</li> <li><input checked="" type="checkbox"/> Attachment C: Installation and Start Up Schedule</li> <li><input checked="" type="checkbox"/> Attachment D: Regulatory Discussion</li> <li><input checked="" type="checkbox"/> Attachment E: Plot Plan</li> <li><input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s)</li> <li><input checked="" type="checkbox"/> Attachment G: Process Description</li> <li><input checked="" type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS)</li> <li><input checked="" type="checkbox"/> Attachment I: Emission Units Table</li> <li><input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet</li> </ul> | <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet</li> <li><input checked="" type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s)</li> <li><input type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s)</li> <li><input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations</li> <li><input checked="" type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans</li> <li><input checked="" type="checkbox"/> Attachment P: Public Notice</li> <li><input type="checkbox"/> Attachment Q: Business Confidential Claims</li> <li><input checked="" type="checkbox"/> Attachment R: Authority Forms</li> <li><input checked="" type="checkbox"/> Attachment S: Title V Permit Revision Information</li> <li><input checked="" type="checkbox"/> Application Fee</li> </ul> |
|---|---|

*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**

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

ISSUED TO:  
**COLUMBIA GAS TRANSMISSION LLC  
5151 SAN FELIPE ST 2500  
HOUSTON, TX 77056-3639**

**BUSINESS REGISTRATION ACCOUNT NUMBER: 1025-1555**

This certificate is issued on: 07/1/2011

*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.*

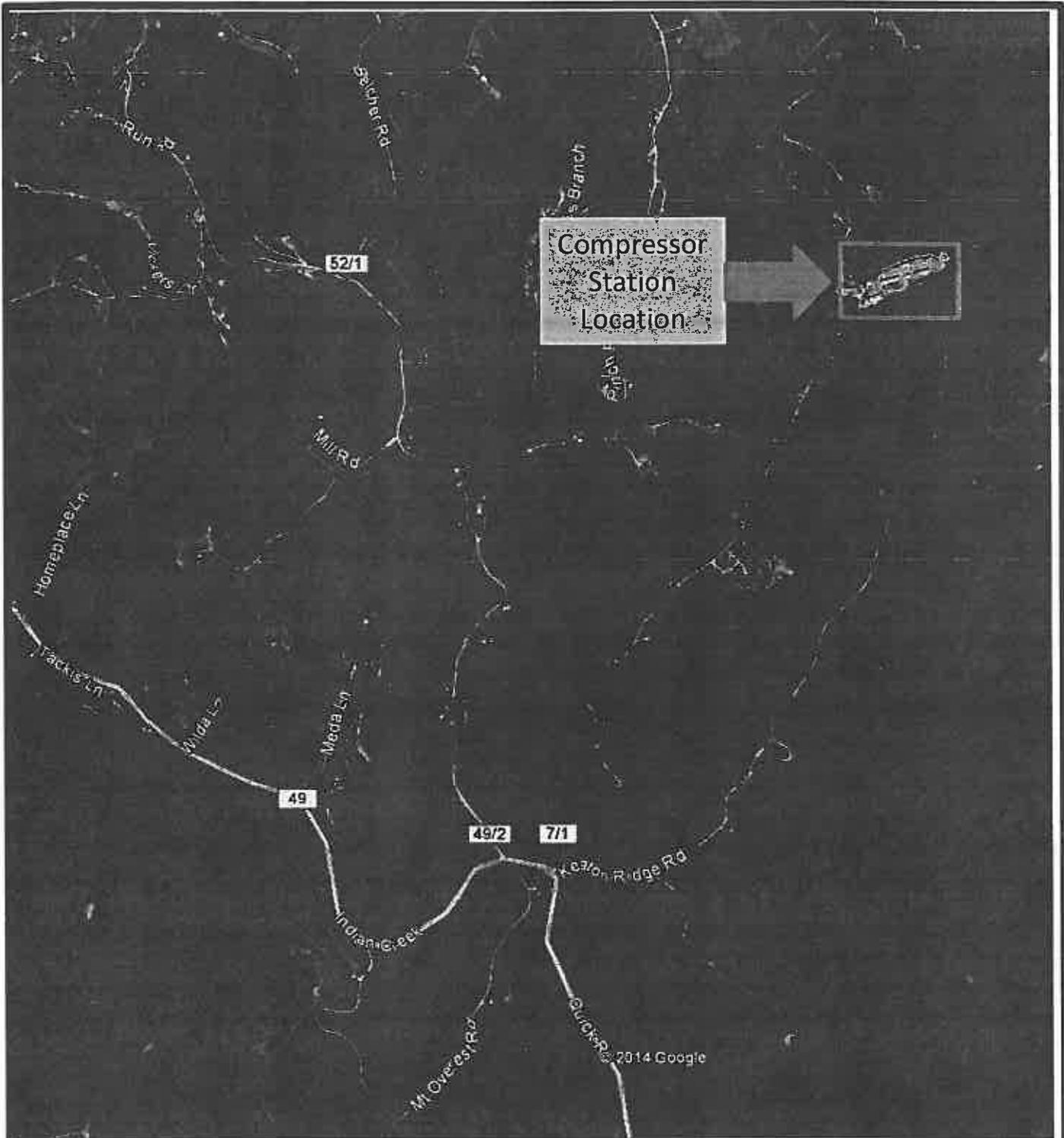
This certificate is not transferrable and must be displayed at the location for which issued.  
This certificate shall be permanent until cessation of the business for which the certificate of registration  
was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

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



Traveling from the intersection of State Route 114 and secondary Route 49, proceed 3.4 miles and bear right on Route 49. Go 3.6 miles from the intersection of Routes 47 and 49 and turn left onto secondary County Route 7/1 (Coco Road). Travel approximately 1.5 miles, the station is located on the right side of the road.

**Attachment B**

Date: December 2014

Facility Map  
Coco Compressor Station

# Attachment C

## **Installation and Start Up Schedule**

## Installation and Start Up Schedule

| Emission Unit           | Change       | Effective date of change | Start Up Date |
|-------------------------|--------------|--------------------------|---------------|
| G1 Ingersoll-Rand PVG-6 | Retirement   | June 2016                |               |
| G2 Ingersoll-Rand PVG-6 | Retirement   | June 2016                |               |
| G3 Waukesha VGF-P48GL   | Installation | June 2016                | June 2016     |

# Attachment D

## **Regulatory Discussion**

## **1.0 INTRODUCTION**

### **1.1 Summary and Conclusions**

Columbia Gas Transmission, LLC (Columbia) operates the Coco Compressor Station (the "Station") under Title V Permit No. R30-03900049-2012. This application package contains Columbia's application to:

- Add one (1) new emergency generator;
- Retire two (2) existing emergency generators; and
- Modify the Station's Title V permit to reflect these changes.

An analysis of federal and state regulations was performed to identify applicable air quality regulations. Federal and state regulations potentially applying to the proposed turbines include:

- The Station is a major source under Prevention of Significant Deterioration (PSD) rules. However, the proposed modification is not subject to PSD regulations because the proposed emergency generator does not have emissions of any regulated pollutants above PSD Significance Levels.
- New Source Performance Standards (NSPS) for stationary spark-ignition internal combustion engines (40 CFR 60 Subpart JJJJ) are applicable. The proposed emergency generator will comply with the NSPS emission limits.
- National Emission Standard for Hazardous Air Pollutants (NESHAP) for stationary reciprocating internal combustion engines (40 CFR 63 Subpart ZZZZ) are applicable. The proposed emergency generator is greater than 500 hp, is located at a major source, and is not utilized for emergency demand response or voltage deviations. As such, the engine does not have to meet the requirements of Subpart ZZZZ and Subpart A except for the initial notification requirements.
- Prevention and Control of Smoke and Particulate Matter (45 CSR 2) is applicable. The proposed equipment is inherently compliant with these rules by combusting only natural gas.
- Prevention and Control of Sulfur Dioxide (45 CSR 10) is applicable. The proposed equipment is inherently compliant with these rules by combusting only natural gas.
- Permits for Construction or Modification of Stationary Sources of Air Pollutants (45 CSR 13) is applicable. A permit application is being submitted to WVDAQ as part of this application package.
- Requirements for Operating Permits (45 CSR 30) is applicable. A significant modification application is being submitted to WVDAQ as part of this application package.

### **1.2 Report Organization**

The proposed project is described in Section 2.0. An analysis of applicable regulations and proposed compliance procedures is presented in Section 3.0. Completed permit application forms, including emissions estimating basis, emission calculations and supporting data are contained within this application package.

## 2.0 PROJECT DESCRIPTION

### 2.1 Description of Existing Facility

Columbia's Coco Station is located in Kanawha County, West Virginia, near the town of Elkview. The Station receives natural gas via pipeline from an upstream compressor station, compresses it using reciprocating internal combustion engines, and transmits it via pipeline to a downstream station. The Station is covered by Standard Industrial Classification (SIC) 4922 and operates under Title V Permit No. R30-03900049-2012. The Station has the potential to operate seven (7) days per week, twenty-four (24) hours per day. The Station currently operates seven (7) reciprocating internal combustion engines (RICE) for compression, including:

- Five (5) 880-hp natural gas-fired, Cooper-Bessemer GMV-8-TF, two-cycle lean-burn RICE installed in 1951 (Emission Point IDs E01 through E05);
- One (1) 1,100-hp natural gas-fired Cooper-Bessemer GMVA-8, two-cycle lean-burn RICE installed in 1960 (Emission Point ID E06); and
- One (1) 4,000-hp natural gas-fired Cooper-Bessemer 8W-330, two-cycle lean-burn RICE installed in 1979 (Emission Point ID E07).

Auxiliary equipment at the Station includes one (1) 4.2 MMBtu/hr natural gas-fired boiler, two (2) natural gas-fired heaters (9.38 MMBtu/hr and 0.09 MMBtu/hr), and two (2) natural gas-fired emergency power generators (275 hp and 306 hp). Various insignificant storage tanks are also located at the station. A plot plan of the Station is provided as Attachment E.

Based on potential annual emissions (shown below in Table 2-1), the existing station is classified as a major source of NO<sub>x</sub> under new source review (NSR) regulations.

Table 2-1. Existing Station Potential Annual Emissions (tpy)

| Source        | NO <sub>x</sub> | CO   | VOC  | SO <sub>2</sub> | PM <sub>10</sub> /<br>PM <sub>2.5</sub> | CH <sub>2</sub> O | Total HAP |
|---------------|-----------------|------|------|-----------------|---|-------------------|-----------|
| Facility-Wide | 927.5           | 75.9 | 44.1 | 0.29            | 17.2                                    | 19.2              | 27.7      |

Kanawha County is classified as nonattainment of the 24-hour average and annual average National Ambient Air Quality Standards (NAAQS) for particulate matter with an aerodynamic diameter of less than or equal to 2.5 microns (PM<sub>2.5</sub>). In addition, Kanawha County is designated as not meeting the secondary standard for total suspended particulate (TSP), although there is no NAAQS for TSP. Kanawha County is classified as attainment or unclassifiable for all other NAAQS. The Station is not located within 62 miles (100 kilometers) of any Class I Areas.

### 2.2 Proposed Modification

The 275-hp and 306-hp emergency generators currently located at the facility will be retired and replaced by a 1,175-hp Waukesha (or equivalent) emergency generator. Emissions from the new unit are based on vendor specifications and AP-42 emission factors. Emission estimates are presented in Attachment N.

No other changes in station equipment are currently being proposed. The target date for starting construction is June 2016. Initial commercial operation is scheduled for June 2016.

### 3.0 REGULATORY ANALYSIS AND COMPLIANCE METHODS

This section reviews the applicability of state and federal regulations potentially affecting the new emergency generator and proposed compliance procedures. Supporting calculations are included in Attachment N.

#### 3.1 Prevention of Significant Deterioration

Prevention of Significant Deterioration requirements apply to projects that have the potential to increase annual emissions beyond defined significance levels. This potential is evaluated as a two-step process. First any emission increase associated with the project itself is evaluated. If the project will result in a significant emission increase (as defined at 40 CFR 52.21(b)(23)) then the net emission increase, considering all contemporaneous equipment changes must be evaluated.

Potential annual emissions associated with the Project are summarized in Table 3-1. Because facility total NO<sub>x</sub> emissions exceed 250 tpy, the Station is an existing major source for PSD applicability purposes. Therefore, the PSD significance thresholds are provided at the bottom of the table. The NNSR threshold for PM<sub>2.5</sub> is 100 tpy.

**Table 3-1. Potential Emissions from Proposed New Equipment (tpy)**

| Source           | Operating Mode         | Hr/Yr | NO <sub>x</sub> | CO   | CO <sub>2</sub> e | PM <sub>10</sub> | PM <sub>2.5</sub> | VOC  | SO <sub>2</sub> <sup>1</sup> |
|------------------|------------------------|-------|-----------------|------|-------------------|------------------|-------------------|------|------------------------------|
| G3 – Emerg. Gen. | Normal                 | 500   | 1.30            | 0.84 | 266               | 0.02             | 0.02              | 0.03 | 0.002                        |
|                  | Grand Total            |       | 1.30            | 0.84 | 266               | 0.02             | 0.02              | 0.03 | 0.002                        |
|                  | PSD Significance Level |       | 40              | 100  |                   | 15               |                   | 40   | 40                           |

<sup>1</sup> Based on typical U.S. gas quality of 0.25 gr/100 scf.

As shown in Table 3-1, potential emissions increases from the proposed emergency generator are not above the PSD Significance Levels for any pollutants. Therefore, the proposed project is not subject to PSD requirements, and no net emission change calculations are necessary.

#### 3.2 New Source Performance Standards

NSPS apply to new, modified or reconstructed stationary sources meeting criteria established in 40 CFR Part 60. NSPS Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines) applies to stationary spark ignition engine manufacturers and owners/operators. For natural gas-fired emergency engines manufactured after January 1, 2009, the applicable emission limits for engines greater than 130 hp rated capacity are:

- For NO<sub>x</sub>, the limit is 2.0 grams per horsepower-hour (g/hp-hr) or 160 ppmvd at 15 percent O<sub>2</sub>;
- For CO, the limit is 4.0 g/hp-hr or 540 ppmvd at 15 percent O<sub>2</sub>; and
- For VOC, the limit is 1.0 g/hp-hr or 86 ppmvd at 15 percent O<sub>2</sub>.

The proposed emergency engine will be subject to the Subpart JJJJ emission limits for engines greater than 130 hp. Based on manufacturer data, as supplied in Appendix N, the engine will comply with these emission limits.

#### 3.3 National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants (NESHAPs) are promulgated under 40 CFR Part 63 for specific processes and HAP emissions. The Station is classified as a major source of HAP emissions and will remain so after the Project (Individual HAP with potential emissions greater than 10 tons per year). The proposed emergency generator is subject to the NESHAP for stationary RICE. The proposed

engine is a 1,175-hp emergency generator which will not, and is not contractually obligated to, be available for more than 15 hours per calendar year for emergency demand response programs and voltage deviation as described in 40 CFR 63.6640(f)(2)(ii) and (iii). As a new emergency stationary RICE with a site rating great than 500 brake horsepower at a major source of HAPs which does not operate for these purposes, the proposed engine does not have to meet the requirements of Subpart ZZZZ and Subpart A except for the initial notification requirements in 40 CFR 63.6645(f).

### **3.4 Compliance Assurance Monitoring (40 CFR 64)**

Compliance Assurance Monitoring (CAM) requirements in 40 CFR Part 64 are intended to assure that emission control equipment is properly operated and maintained. CAM applies to emissions units that:

1. have an emission limitation,
2. use a control device to comply with the emissions limit, and
3. have sufficient emissions to be classified as a major emission source under 40 CFR Parts 70.

As defined in Part 64, "control device" means add-on control equipment other than inherent process equipment that is used to destroy or remove air pollutant(s) prior to discharge to the atmosphere. The definition also states that "a control device does not include use of combustion or other process design features or characteristics."

Emissions from the proposed engine are less than the Part 70 major source threshold, do not use any add-on emission controls, and are subject to a federal NSPS promulgated after the 1990. As such, the proposed emergency generator is exempt from CAM requirements.

### **3.5 Prevention and Control of Emission of Smoke and Particulate Matter (45 CSR 2)**

West Virginia Regulation 45 CSR 2 requires that smoke and particulate matter emissions from the proposed engine not exceed opacity levels of 10 percent based on a six-minute block average. The proposed engine is inherently compliant with this requirement by combusting only pipeline quality natural gas.

### **3.6 Prevention and Control of Emission of Sulfur Dioxide (45 CSR 10)**

West Virginia Regulation 45 CSR 10 requires that the in-stack SO<sub>2</sub> concentration from the proposed source not exceed 2,000 ppm by volume (45 CSR 10-4.1). The combustion of natural gas produces inherently low SO<sub>2</sub> emissions, which ensure that the emergency generator will be in compliance with this regulation.

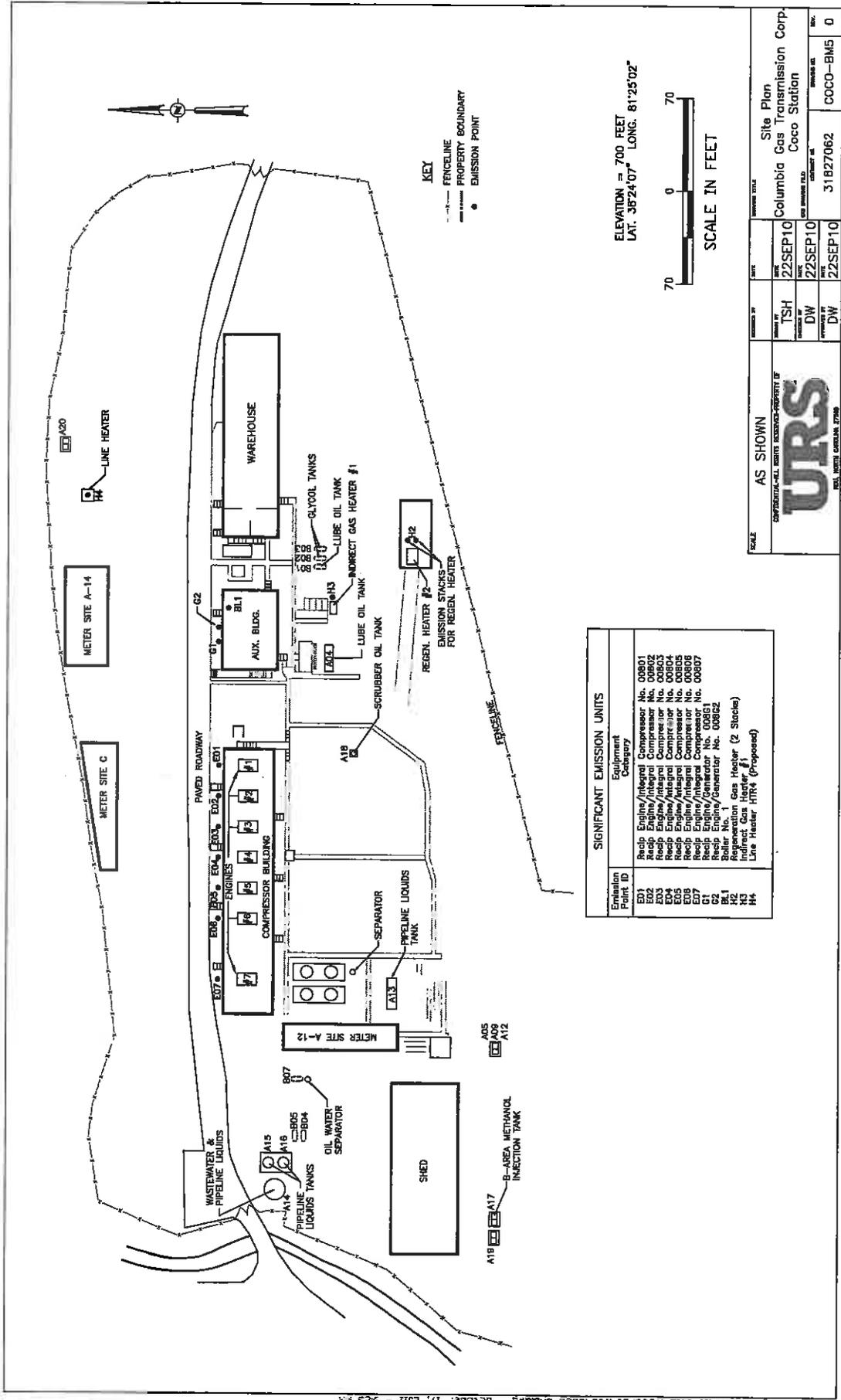
Also, 45 CSR 10-5.1 requires that any combusted process gas stream contains hydrogen sulfide of less than 50 grains per 100 cubic feet of gas. Proof of compliance with the FERC limit of 20 grains sulfur per 100 scf is sufficient to document compliance with both of the 45 CSR 10 limitations.

### **3.7 Pre-construction Permitting under West Virginia Air Regulation 13 (45 CSR 13)**

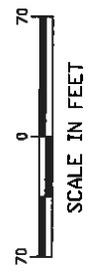
Because the potential increase in emissions from the proposed Project does not exceed PSD significance levels, the Project is classified as a minor modification to the existing Station for PSD purposes and is subject to the permitting requirements in 45 CSR 13. This document contains the information required by this permitting program.

# Attachment E

## **Plot Plan**



ELEVATION = 700 FEET  
 LAT. 36°24'07" LONG. 81°25'02"



|  |  |         |     |                |              |
|--|--|---------|-----|----------------|--------------|
| AS SHOWN                                   |  | DATE    |     | REVISION TITLE |              |
| CONTRACT NO. 14-10-0112-008-COCO-000001-01 |  | DATE    | BY  | DATE           | DESCRIPTION  |
|  |  | 22SEP10 | TSH | 22SEP10        | Site Plan    |
|  |  | 22SEP10 | DW  | 22SEP10        | Coco Station |
|  |  | 22SEP10 | DW  | 22SEP10        | COCO-BMS 0   |

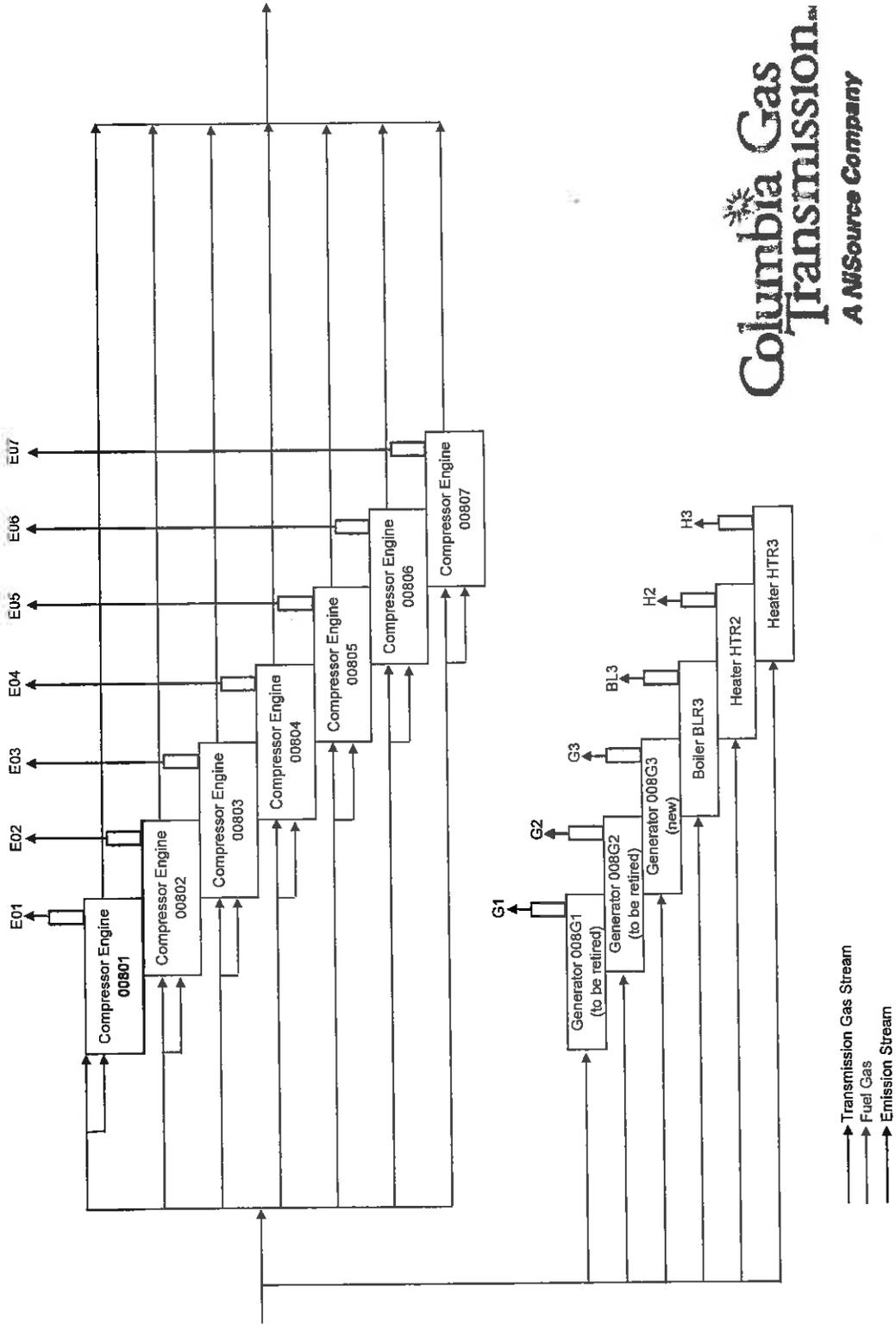
Figure 2-2. Plot Plan

| Emission Point ID | Equipment Category                         |
|-------------------|--|
| E01               | Recip Engine/Integral Compressor No. 00801 |
| E02               | Recip Engine/Integral Compressor No. 00802 |
| E03               | Recip Engine/Integral Compressor No. 00803 |
| E04               | Recip Engine/Integral Compressor No. 00804 |
| E05               | Recip Engine/Integral Compressor No. 00805 |
| E06               | Recip Engine/Integral Compressor No. 00806 |
| E07               | Recip Engine/Integral Compressor No. 00807 |
| G1                | Regen. Heater/Generator No. 00861          |
| G2                | Regen. Heater/Generator No. 00862          |
| A15               | Regeneration Gas Heater (2 Stacks)         |
| A16               | Indirect Gas Heater                        |
| A17               | Line Heater R10V (Proposed)                |

# Attachment F

## **Detailed Process Flow Diagram**

**ATTACHMENT F  
COCO COMPRESSOR STATION PROCESS FLOW DIAGRAM**



# Attachment G

## **Process Description**

## Process Description

The Coco Station is a natural gas storage facility covered by Standard Industrial Classification (SIC) 4922. The Station has the potential to operate seven (7) days per week, twenty-four (24) hours per day. The Station currently consists of five (5) 880-hp, one (1) 1,100-hp and one (1) 4,000-hp natural gas-fired reciprocating engines, one (1) 275-hp and one (1) 306-hp emergency generators, one (1) heating system boiler, two (2) heaters, and numerous storage tanks of various sizes.

Through this modification, the 275-hp and 306-hp Ingersoll-Rand PVG-6 emergency generators currently located at the facility will be retired and replaced by one 1,175-hp Waukesha VGF-P48GL emergency generator (or equivalent). Emissions from the new unit are based on vendor specifications and AP-42 emission factors. Emission estimates are presented in Attachment N.

No other changes in station equipment are currently being proposed. The target date for starting construction is June 2016. Initial commercial operation is scheduled for June 2016.

# Attachment H

## **MSDSs**

No new processes or chemicals will be added to the compressor station as a result of this project. Therefore, the Department can continue to rely on the MSDS package submitted with the prior application.

# Attachment I

## **Emission Units Table**

## 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 <sup>1</sup> | Emission Point ID <sup>2</sup> | Emission Unit Description  | Year Installed/<br>Modified | Design Capacity | Type <sup>3</sup> and Date of Change | Control Device <sup>4</sup> |
|-------------------------------|--------------------------------|--|-----------------------------|-----------------|--------------------------------------|-----------------------------|
| BLR3                          | BL3                            | Gas-fired Boiler; Burnham V1117  | 2012                        | 4.2 MMBtu/hr    | Existing, remains in service         | -                           |
| 00801                         | E01                            | Reciprocating Engine/Integral Compressor; Cooper-Bessemer GMV-8-TF; 2-cycle, lean burn | 1951                        | 880 hp          | Existing, remains in service         | -                           |
| 00802                         | E02                            | Reciprocating Engine/Integral Compressor; Cooper-Bessemer GMV-8-TF; 2-cycle, lean burn | 1951                        | 880 hp          | Existing, remains in service         | -                           |
| 00803                         | E03                            | Reciprocating Engine/Integral Compressor; Cooper-Bessemer GMV-8-TF; 2-cycle, lean burn | 1951                        | 880 hp          | Existing, remains in service         | -                           |
| 00804                         | E04                            | Reciprocating Engine/Integral Compressor; Cooper-Bessemer GMV-8-TF; 2-cycle, lean burn | 1951                        | 880 hp          | Existing, remains in service         | -                           |
| 00805                         | E05                            | Reciprocating Engine/Integral Compressor; Cooper-Bessemer GMV-8-TF; 2-cycle, lean burn | 1951                        | 880 hp          | Existing, remains in service         | -                           |
| 00806                         | E06                            | Reciprocating Engine/Integral Compressor; Cooper-Bessemer GMVA-8; 2-cycle, lean burn   | 1960                        | 1,100 hp        | Existing, remains in service         | -                           |
| 00807                         | E07                            | Reciprocating Engine/Integral Compressor; Cooper-Bessemer 8W-330; 2-cycle, lean burn   | 1979                        | 4,000 hp        | Existing, remains in service         | -                           |
| 008G1                         | G1                             | Reciprocating Engine/Generator; Ingersoll-Rand PVG-6; 4-cycle, rich burn; emergency    | 1951                        | 275 hp          | To be retired                        | -                           |
| 008G2                         | G2                             | Reciprocating Engine/Generator; Ingersoll-Rand PVG-6; 4-cycle, rich burn; emergency    | 1951                        | 306 hp          | To be retired                        | -                           |
| 008G3                         | G3                             | Waukesha VGF-P48GL Emergency Generator #3  | 2016                        | 1,175 hp        | New, 2016                            | -                           |
| HTR2                          | H2                             | Regeneration Gas Heater Heatec Model # HCL-610-40G                                     | 2005                        | 9.38 MMBtu/hr   | Existing, remains in service         | -                           |
| HTR3                          | H3                             | Indirect Gas Heater BS&B   | 1999                        | 0.09 MMBtu/hr   | Existing, remains in service         | -                           |

<sup>1</sup> For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S,... or other appropriate designation.

<sup>2</sup> For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.

<sup>3</sup> New, modification, removal

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

# Attachment J

## **Emission Points Data Summary Sheet**

**Attachment J  
EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

| Emission Point ID No.<br>(Must match Emission Units Table & Plot Plan) | Emission Point Type <sup>1</sup> | Emission Unit Vented Through This Point<br>(Must match Emission Units Table & Plot Plan) |        | Air Pollution Control Device<br>(Must match Emission Units Table & Plot Plan) |             | Vent Time for Emission Unit<br>(chemical processes only) |             | All Regulated Pollutants - Chemical Name/CAS <sup>3</sup><br>(Speciate VOCs & HAPS) | Maximum Potential Uncontrolled Emissions <sup>4</sup> |        | Maximum Potential Controlled Emissions <sup>5</sup> |        | Emission Form or Phase<br>(At exit conditions, Solid, Liquid or Gas/Vapor) | Est. Method Used <sup>6</sup> | Emission Concentration <sup>7</sup><br>(ppmv or mg/m <sup>3</sup> ) |
|--|----------------------------------|--|--------|---|-------------|--|-------------|---|---|--------|---|--------|--|-------------------------------|---|
|  |                                  | ID No.   | Source | ID No.  | Device Type | Short Term <sup>2</sup>                                  | Max (hr/yr) |   | lb/hr   | ton/yr | lb/hr   | ton/yr |  |                               |   |
| E01  |                                  | 00801  |        |   |             |  |             | NO <sub>x</sub>   | 57.98   | 115.63 |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CO  | 3.92  | 7.82   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | VOC   | 1.02  | 4.07   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>   | 0.49  | 0.02   | -   | -      | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | PM  | 0.41  | 1.64   |   |        | Solid  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O   | 0.47  | 1.87   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             |   |   |        |   |        |  | EE                            |   |
| E02  |                                  | 00802  |        |   |             |  |             | NO <sub>x</sub>   | 57.98   | 115.63 |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CO  | 3.92  | 7.82   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | VOC   | 1.02  | 4.07   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>   | 0.49  | 0.02   | -   | -      | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | PM  | 0.41  | 1.64   |   |        | Solid  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O   | 0.47  | 1.87   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             |   |   |        |   |        |  | EE                            |   |
| E03  |                                  | 00803  |        |   |             |  |             | NO <sub>x</sub>   | 57.98   | 115.63 |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CO  | 3.92  | 7.82   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | VOC   | 1.02  | 4.07   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>   | 0.49  | 0.02   | -   | -      | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | PM  | 0.41  | 1.64   |   |        | Solid  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O   | 0.47  | 1.87   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             |   |   |        |   |        |  | EE                            |   |
| E04  |                                  | 00804  |        |   |             |  |             | NO <sub>x</sub>   | 57.98   | 115.63 |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CO  | 3.92  | 7.82   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | VOC   | 1.02  | 4.07   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>   | 0.49  | 0.02   | -   | -      | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | PM  | 0.41  | 1.64   |   |        | Solid  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O   | 0.47  | 1.87   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             |   |   |        |   |        |  | EE                            |   |

**Attachment J  
EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

| Emission Point ID No.<br>(Must match Emission Units Table & Plot Plan) | Emission Point Type <sup>1</sup> | Emission Unit Vented Through This Point<br>(Must match Emission Units Table & Plot Plan) |        | Air Pollution Control Device<br>(Must match Emission Units Table & Plot Plan) |             | Vent Time for Emission Unit<br>(chemical processes only) |             | All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> & HAPS<br>(Speciate VOCs & HAPS) | Maximum Potential Uncontrolled Emissions <sup>4</sup> |        | Maximum Potential Controlled Emissions <sup>5</sup> |        | Emission Form or Phase<br>(At exit conditions, Solid, Liquid or Gas/Vapor) | Est. Method Used <sup>6</sup> | Emission Concentration <sup>7</sup><br>(ppmv or mg/m <sup>3</sup> ) |
|--|----------------------------------|--|--------|---|-------------|--|-------------|--|---|--------|---|--------|--|-------------------------------|---|
|  |                                  | ID No.   | Source | ID No.  | Device Type | Short Term <sup>2</sup>                                  | Max (hr/yr) |  | lb/hr   | ton/yr | lb/hr   | ton/yr |  |                               |   |
| E05  |                                  | 00805  |        |   |             |  |             | NO <sub>x</sub>  | 57.98   | 115.63 |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CO   | 3.92  | 7.82   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | VOC  | 1.02  | 4.07   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>  | 0.49  | 0.02   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | PM   | 0.41  | 1.64   |   |        | Solid  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O  | 0.47  | 1.87   |   |        | Gas  | EE                            |   |
| E06  |                                  | 00806  |        |   |             |  |             | NO <sub>x</sub>  | 11.19   | 30.79  |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CO   | 1.57  | 4.87   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | VOC  | 1.22  | 4.86   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>  | 0.58  | 0.03   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | PM   | 0.49  | 1.96   |   |        | Solid  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O  | 0.56  | 2.23   |   |        | Gas  | EE                            |   |
| E07  |                                  | 00807  |        |   |             |  |             | NO <sub>x</sub>  | 163.33  | 308.35 |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CO   | 12.25   | 23.13  |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | VOC  | 4.34  | 16.40  |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>  | 2.07  | 0.10   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | PM   | 1.75  | 6.60   |   |        | Solid  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O  | 2.00  | 7.54   |   |        | Gas  | EE                            |   |
| G1   |                                  | 008G1  |        |   |             |  |             | NO <sub>x</sub>  | 7.09  | 1.61   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CO   | 11.93   | 2.71   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | VOC  | 0.09  | 0.02   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>  | 0.18  | 0.001  |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | PM   | 0.06  | 0.01   |   |        | Solid  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O  | 0.07  | 0.01   |   |        | Gas  | EE                            |   |

**Attachment J  
EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

| Emission Point ID No.<br>(Must match Emission Units Table & Plot Plan) | Emission Point Type <sup>1</sup> | Emission Unit Vented Through This Point<br>(Must match Emission Units Table & Plot Plan) |        | Air Pollution Control Device<br>(Must match Emission Units Table & Plot Plan) |             | Vent Time for Emission Unit<br>(chemical processes only) |             | All Regulated Pollutants - Chemical Name/CAS <sup>3</sup><br>(Speciate VOCs & HAPS) | Maximum Potential Uncontrolled Emissions <sup>4</sup> |         | Maximum Potential Controlled Emissions <sup>5</sup> |        | Emission Form or Phase<br>(At exit conditions, Solid, Liquid or Gas/Vapor) | Est. Method Used <sup>6</sup> | Emission Concentration<br>(ppmv or mg/m <sup>3</sup> ) |
|--|----------------------------------|--|--------|---|-------------|--|-------------|---|---|---------|---|--------|--|-------------------------------|--|
|  |                                  | ID No.   | Source | ID No.  | Device Type | Short Term <sup>2</sup>                                  | Max (hr/yr) |   | lb/hr   | ton/yr  | lb/hr   | ton/yr |  |                               |  |
| G2   |                                  | 008G2  |        |   |             |  |             | NO <sub>x</sub>   | 7.89  | 1.79    |   |        | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | CO  | 13.27   | 3.02    |   |        | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | VOC   | 0.11  | 0.02    | -   | -      | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>   | 0.20  | 0.001   |   |        | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | PM  | 0.07  | 0.02    |   |        | Solid  | EE                            |  |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O   | 0.07  | 0.02    |   |        | Gas  | EE                            |  |
| BL3  |                                  | BLR3   |        |   |             |  |             | NO <sub>x</sub>   | 0.41  | 1.80    |   |        | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | CO  | 0.35  | 1.51    |   |        | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | VOC   | 0.02  | 0.10    | -   | -      | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>   | 0.24  | 0.01    |   |        | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | PM  | 0.03  | 0.14    |   |        | Solid  | EE                            |  |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O   | 0.0003  | 0.001   |   |        | Gas  | EE                            |  |
| H2   |                                  | HTR2   |        |   |             |  |             | NO <sub>x</sub>   | 1.13  | 4.93    |   |        | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | CO  | 0.35  | 1.52    |   |        | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | VOC   | 0.05  | 0.22    |   |        | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>   | 0.54  | 0.03    | -   | -      | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | PM  | 0.07  | 0.31    |   |        | Solid  | EE                            |  |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O   | 0.001   | 0.003   |   |        | Gas  | EE                            |  |
| H3   |                                  | HTR3   |        |   |             |  |             | NO <sub>x</sub>   | 0.01  | 0.04    |   |        | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | CO  | 0.01  | 0.03    |   |        | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | VOC   | 0.0005  | 0.002   |   |        | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>   | 0.005   | 0.0003  | -   | -      | Gas  | EE                            |  |
|  |                                  |  |        |   |             |  |             | PM  | 0.0007  | 0.003   |   |        | Solid  | EE                            |  |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O   | 6.62E-6   | 2.90E-5 |   |        | Gas  | EE                            |  |

**Attachment J  
EMISSION POINTS DATA SUMMARY SHEET**

| Table 1: Emissions Data  |                                  |  |        |   |             |  |             |   |   |        |   |        |  |                               |   |
|--|----------------------------------|--|--------|---|-------------|--|-------------|---|---|--------|---|--------|--|-------------------------------|---|
| Emission Point ID No.<br>(Must match Emission Units Table & Plot Plan) | Emission Point Type <sup>1</sup> | Emission Unit Vented Through This Point<br>(Must match Emission Units Table & Plot Plan) |        | Air Pollution Control Device<br>(Must match Emission Units Table & Plot Plan) |             | Vent Time for Emission Unit<br>(chemical processes only) |             | All Regulated Pollutants - Chemical Name/CAS <sup>3</sup><br><br>(Speciate VOCs & HAPS) | Maximum Potential Uncontrolled Emissions <sup>4</sup> |        | Maximum Potential Controlled Emissions <sup>5</sup> |        | Emission Form or Phase<br><br>(At exit conditions, Solid, Liquid or Gas/Vapor) | Est. Method Used <sup>6</sup> | Emission Concentration <sup>7</sup><br>(ppmv or mg/m <sup>3</sup> ) |
|  |                                  | ID No.   | Source | ID No.  | Device Type | Short Term <sup>2</sup>                                  | Max (hr/yr) |   | lb/hr   | ton/yr | lb/hr   | ton/yr |  |                               |   |
| G3   | Rain cap                         | 008G3  |        |   |             |  |             | NO <sub>x</sub>   | 5.18  | 1.30   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CO  | 3.37  | 0.84   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | VOC   | 0.10  | 0.03   |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | SO <sub>2</sub>   | 0.52  | 0.002  |   |        | Gas  | EE                            |   |
|  |                                  |  |        |   |             |  |             | PM  | 0.09  | 0.02   |   |        | Solid  | EE                            |   |
|  |                                  |  |        |   |             |  |             | CH <sub>2</sub> O   | 0.48  | 0.12   |   |        | Gas  | EE                            |   |

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 (i.e., 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 ppmw (See 45CSR10).

**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET**

**Table 2: Release Parameter Data**

| Emission Point ID No.<br>(Must match Emission Units Table) | Inner Diameter (ft.) | Exit Gas   |   |                | Emission Point Elevation (ft)              |  | UTM Coordinates (km) |         |
|--|----------------------|------------|---|----------------|--|--|----------------------|---------|
|  |                      | Temp. (°F) | Volumetric Flow <sup>1</sup> (acfm) at operating conditions | Velocity (fps) | Ground Level (Height above mean sea level) | Stack Height <sup>2</sup> (Release height of emissions above ground level) | Northing             | Easting |
| BL3  | 1.2                  | 350        |   |                | 657  |  | 4,250.5              | 463.5   |
| E01  | 1.0                  | 600        | 7,257   | 154.1          | 657  | 25   | 4,250.5              | 463.5   |
| E02  | 1.0                  | 600        | 7,257   | 154.1          | 657  | 25   | 4,250.5              | 463.5   |
| E03  | 1.0                  | 600        | 7,257   | 154.1          | 657  | 25   | 4,250.5              | 463.5   |
| E04  | 1.0                  | 600        | 7,257   | 154.1          | 657  | 25   | 4,250.5              | 463.5   |
| E05  | 1.0                  | 600        | 7,257   | 154.1          | 657  | 25   | 4,250.5              | 463.5   |
| E06  | 1.0                  | 600        | 8,659   | 183.8          | 657  | 25   | 4,250.5              | 463.5   |
| E07  | 3.0                  | 600        | 29,337  | 69.0           | 657  | 28   | 4,250.5              | 463.5   |
| G1   | 0.67                 | 600        | 1,475   | 69.8           | 657  | 25   | 4,250.5              | 463.5   |
| G2   | 0.67                 | 600        | 1,642   | 77.6           | 657  | 25   | 4,250.5              | 463.5   |
| G3   | 0.83                 | 839        | 6,171   | 188.6          | 657  | 20   | 4,250.5              | 463.5   |
| H2   | 0.67                 | 350        | 8,295   | 395            | 657  | 20   | 4,250.5              | 463.5   |
| H3   | 0.33                 | 350        | 5,641   | 1106           | 657  | 16   | 4,250.5              | 463.5   |
|  |                      |            |   |                |  |  |                      |         |
|  |                      |            |   |                |  |  |                      |         |
|  |                      |            |   |                |  |  |                      |         |
|  |                      |            |   |                |  |  |                      |         |
|  |                      |            |   |                |  |  |                      |         |
|  |                      |            |   |                |  |  |                      |         |
|  |                      |            |   |                |  |  |                      |         |

<sup>1</sup> Give at operating conditions. Include inerts.  
<sup>2</sup> Release height of emissions above ground level.

# Attachment K

## **Fugitive Emissions Data Summary Sheet**

## Attachment K

### FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

| APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS  |
|---|
| 1.) Will there be haul road activities?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br><input type="checkbox"/> If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.   |
| 2.) Will there be Storage Piles?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br><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?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br><input 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?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br><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.)?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET. |
| 6.) Will there be General Clean-up VOC Operations?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br><input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.   |
| 7.) Will there be any other activities that generate fugitive emissions?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br><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<br>Chemical Name/CAS <sup>1</sup> | Maximum Potential<br>Uncontrolled Emissions <sup>2</sup> |        | Maximum Potential<br>Controlled Emissions <sup>3</sup> |        | Est.<br>Method<br>Used <sup>4</sup> |
|---|--|--|--------|--|--------|-------------------------------------|
|   |  | lb/hr  | ton/yr | lb/hr  | ton/yr |                                     |
| Haul Road/Road Dust Emissions<br>Paved Haul Roads |  |  |        |  |        |                                     |
| Unpaved Haul Roads                                |  |  |        |  |        |                                     |
| Storage Pile Emissions                            |  |  |        |  |        |                                     |
| Loading/Unloading Operations                      | (Existing sources only)                                    |  |        |  |        |                                     |
| Wastewater Treatment Evaporation & Operations     |  |  |        |  |        |                                     |
| Equipment Leaks                                   | (Existing sources only)                                    | Does not apply   |        | Does not apply   |        |                                     |
| General Clean-up VOC Emissions                    |  |  |        |  |        |                                     |
| Other   |  |  |        |  |        |                                     |

<sup>1</sup> 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.

<sup>2</sup> 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).

<sup>3</sup> 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).

<sup>4</sup> 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

## **Emissions Unit Data Sheets**

**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*): 008G3

|  |
|--|
| <p>1. Name or type and model of proposed affected source:</p> <p>Natural gas-fired emergency generator. Proposed emission point ID G3.</p>   |
| <p>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.</p> |
| <p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>N/A</p>  |
| <p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>N/A</p>   |
| <p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p>Natural gas combustion products.</p>   |

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



8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

| @                   | °F and | 14.7  | psia       |
|---------------------|--------|-------|------------|
| a. NO <sub>x</sub>  | 5.18   | lb/hr | grains/ACF |
| b. SO <sub>2</sub>  | 0.52   | lb/hr | grains/ACF |
| c. CO               | 3.37   | lb/hr | grains/ACF |
| d. PM <sub>10</sub> | 0.09   | lb/hr | grains/ACF |
| e. Hydrocarbons     |        | lb/hr | grains/ACF |
| f. VOCs             | 0.10   | lb/hr | grains/ACF |
| g. Pb               | 0      | lb/hr | grains/ACF |
| h. Specify other(s) |        |       |            |
| CO <sub>2</sub> e   | 1,064  | lb/hr | grains/ACF |
| Formaldehyde        | 0.48   | lb/hr | grains/ACF |
|                     |        | 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.

|  |   |
|--|---|
| <p>9. Proposed Monitoring, Recordkeeping, Reporting, and Testing<br/> 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>   |   |
| <p><b>MONITORING</b><br/> To demonstrate compliance, Columbia proposes to maintain monthly operating hours.<br/> This monthly record will be used to track 12-month rolling operating hours.</p>   | <p><b>RECORDKEEPING</b><br/> Maintain records of monitored parameters</p>                       |
| <p><b>REPORTING</b><br/> The 12-month rolling operating hours will be reported to the state as part of the station's semi-annual monitoring report. Performance test report will be submitted before the close of business on the 60<sup>th</sup> day following the completion of testing.</p>   | <p><b>TESTING</b><br/> Initial and subsequent performance tests per 40 CFR 60 Subpart JJJJ.</p> |
| <p><b>MONITORING.</b> 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.</p> <p><b>RECORDKEEPING.</b> PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.</p> <p><b>REPORTING.</b> PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.</p> <p><b>TESTING.</b> PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.</p> |   |
| <p>10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty<br/> N/A</p>   |   |

# Attachment N

## **Supporting Emissions Calculations**

Columbia Gas Transmission, LLC  
Coco Compressor Station

Facility Total PTE

| Source                               | Annual Emissions (tpy) |       |                   |                                     |          |                 |                   |           |  |  |
|--------------------------------------|------------------------|-------|-------------------|-------------------------------------|----------|-----------------|-------------------|-----------|--|--|
|                                      | NO <sub>x</sub>        | CO    | CO <sub>2</sub> e | PM <sub>10</sub> /PM <sub>2.5</sub> | VOC      | SO <sub>2</sub> | CH <sub>2</sub> O | Total HAP |  |  |
| <b>New Sources PTE</b>               | 1.30                   | 0.84  | 266               | 0.02                                | 0.03     | 0.002           | 0.12              | 0.16      |  |  |
| Emergency Generator (G3)             | 1.30                   | 0.84  | 266               | 0.02                                | 0.03     | 1.62E-03        | 0.12              | 0.16      |  |  |
| <b>Current PTE</b>                   | 927.47                 | 75.91 | 47,794            | 17.23                               | 44.1     | 0.29            | 19.17             | 27.74     |  |  |
| Boiler (BLR3)                        | 1.80                   | 1.51  | 2,154             | 0.14                                | 0.10     | 0.01            | 1.35E-03          | 0.03      |  |  |
| Reciprocating Engines (E01-E05)      | 578.16                 | 39.12 | 19,860            | 8.19                                | 20.35    | 0.12            | 9.36              | 13.49     |  |  |
| Reciprocating Engines (E06)          | 30.79                  | 4.87  | 4,739             | 1.96                                | 4.86     | 0.03            | 2.23              | 3.22      |  |  |
| Reciprocating Engines (E07)          | 308.35                 | 23.13 | 16,003            | 6.60                                | 16.40    | 0.10            | 7.54              | 10.87     |  |  |
| Emergency Generator (G1)             | 1.61                   | 2.71  | 85                | 0.01                                | 0.02     | 5.20E-04        | 0.01              | 0.02      |  |  |
| Emergency Generator (G2)             | 1.79                   | 3.02  | 95                | 0.02                                | 0.02     | 5.79E-04        | 0.02              | 0.03      |  |  |
| Heater (HTR2)                        | 4.93                   | 1.52  | 4,811             | 0.31                                | 0.22     | 2.93E-02        | 3.02E-03          | 7.61E-02  |  |  |
| Heater (HTR3)                        | 0.04                   | 0.03  | 46                | 2.94E-03                            | 2.13E-03 | 2.81E-04        | 2.90E-05          | 7.30E-04  |  |  |
| Various Tanks & Blowdowns            |                        |       |                   |                                     | 2.17     |                 |                   |           |  |  |
| <b>Changes to Current PTE</b>        | -3.40                  | -5.73 | -180.30           | -0.03                               | -0.05    | 0.00            | -0.03             | -0.05     |  |  |
| Emerg. Gen. - To Be Removed (G1)     | -1.61                  | -2.71 | -85.34            | -0.01                               | -0.02    | 0.00            | -0.01             | -0.02     |  |  |
| Emerg. Gen. - To Be Removed (G2)     | -1.79                  | -3.02 | -94.96            | -0.02                               | -0.02    | 0.00            | -0.02             | -0.03     |  |  |
| <b>Change in PTE (new + changes)</b> | -2.11                  | -4.89 | 86                | -0.01                               | -0.02    | 0.001           | 0.09              | 0.11      |  |  |
| <b>Proposed PTE</b>                  | 925.37                 | 71.02 | 47,880            | 17.22                               | 44.13    | 0.29            | 19.26             | 27.85     |  |  |

Columbia Gas Transmission, LLC  
Coco Compressor Station

Waukesha VGF-P48GL Emergency Generator

|                                 |                 |
|---------------------------------|-----------------|
| Horsepower                      | 1175 HP         |
| Brake Specific Fuel Consumption | 7733 Btu/Bhp-hr |
| Total Heat Input                | 9.09 MMBtu/hr   |
| Operating Hours                 | 500 hr/yr       |
| Natural Gas Heat Content        | 1020 Btu/scf    |
| Fuel Consumption                | 4.45 MMscf/yr   |
|                                 | 8,908 scf/hr    |

| Pollutant                        | Emission Factor |          | Emission Rate |          | Emission Factor Reference       |
|----------------------------------|-----------------|----------|---------------|----------|---------------------------------|
|                                  | g/bhp-hr        | lb/MMBtu | lb/hr         | ton/yr   |                                 |
| NO <sub>x</sub>                  | 2.00            |          | 5.18          | 1.30     | Vendor Data                     |
| CO                               | 1.30            |          | 3.37          | 0.84     | Vendor Data                     |
| CO <sub>2</sub> e                |                 | 117.1    | 1,064         | 266      | 40 CFR 98 Subpart C             |
| PM <sub>10</sub>                 |                 | 0.010    | 0.09          | 0.02     | AP-42 Table 3.2-2 (7/00) - 4SLB |
| PM <sub>2.5</sub>                |                 | 0.010    | 0.09          | 0.02     | AP-42 Table 3.2-2 (7/00) - 4SLB |
| VOC                              | 0.04            |          | 0.10          | 0.03     | Vendor Data                     |
| SO <sub>2</sub> (Maximum Hourly) |                 | 0.0571   | 0.52          |          | 20 grains S / 100 scf           |
| SO <sub>2</sub> (Average Annual) |                 | 0.000714 |               | 1.62E-03 | 0.25 grains S / 100 scf         |
| Formaldehyde                     |                 | 0.05280  | 0.48          | 0.12     | AP-42 Table 3.2-2 (7/00) - 4SLB |
| Total HAPs                       |                 | 0.07220  | 0.66          | 0.16     | AP-42 Table 3.2-2 (7/00) - 4SLB |

**Columbia Gas Transmission, LLC  
Coco Compressor Station**

**Burnham V1117 Boiler**

Heat Input 4.20 MMBtu/hr  
 Operating Hours 8760 hr/yr  
 Natural Gas Heat Content 1020 Btu/scf  
 Fuel Consumption 36.07 MMscf/yr  
 4117.6 scf/hr

| Pollutant                        | Emission Factor |          | Emission Rate |          | Emission Factor Reference    |
|----------------------------------|-----------------|----------|---------------|----------|------------------------------|
|                                  | lb/MMscf        | lb/MMBtu | lb/hr         | ton/yr   |                              |
| NO <sub>x</sub>                  | 100             | 0.098    | 0.41          | 1.80     | AP-42 Table 1.4-1 (7/98)     |
| CO                               | 84              | 0.082    | 0.35          | 1.51     | AP-42 Table 1.4-1 (7/98)     |
| CO <sub>2</sub> e                |                 | 117.1    | 492           | 2,154    | 40 CFR 98 Subpart C          |
| PM <sub>10</sub>                 | 7.6             | 0.007    | 0.03          | 0.14     | AP-42 Table 1.4-2 (7/98)     |
| PM <sub>2.5</sub>                | 7.6             | 0.007    | 0.03          | 0.14     | AP-42 Table 1.4-2 (7/98)     |
| VOC                              | 5.5             | 0.005    | 0.02          | 0.10     | AP-42 Table 1.4-2 (7/98)     |
| SO <sub>2</sub> (Maximum Hourly) |                 | 0.0571   | 0.24          |          | 20 grains S / 100 scf        |
| SO <sub>2</sub> (Average Annual) |                 | 0.000714 |               | 1.31E-02 | 0.25 grains S / 100 scf      |
| Formaldehyde                     | 0.075           | 0.00007  | 3.09E-04      | 1.35E-03 | AP-42 Table 1.4-3 (7/98)     |
| Total HAPs                       | 1.89            | 0.00185  | 7.78E-03      | 3.41E-02 | AP-42 Table 1.4-3 & 4 (7/98) |

**Columbia Gas Transmission, LLC  
Coco Compressor Station**

**Cooper-Bessemer GMV-8-TF 2SLB Reciprocating Engines**

Horsepower 880 HP  
 Maximum Horsepower 968 HP  
 Brake Specific Fuel Consumption 8800 Btu/Bhp-hr  
 Total Heat Input 7.74 MMBtu/hr  
 Operating Hours 8760 hr/yr  
 Natural Gas Heat Content 1020 Btu/scf  
 Fuel Consumption 66.51 MMscf/yr  
 7,592 scf/hr  
 Quantity 5

| Pollutant                        | Emission Factor |          | Emission Rate |                   |                    | Emission Factor Reference        |
|----------------------------------|-----------------|----------|---------------|-------------------|--------------------|----------------------------------|
|                                  | lb/bhp-hr       | lb/MMBtu | lb/hr         | ton/yr (1 engine) | ton/yr (5 engines) |                                  |
| NO <sub>x</sub> (Maximum Hourly) | 5.99E-02        |          | 57.98         |                   |                    | Stack Test-Based Emission Factor |
| NO <sub>x</sub> (Average Annual) | 3.00E-02        |          |               | 115.63            | 578.16             | Stack Test-Based Emission Factor |
| CO (Maximum Hourly)              | 4.05E-03        |          | 3.92          |                   |                    | Stack Test-Based Emission Factor |
| CO (Average Annual)              | 2.03E-03        |          |               | 7.82              | 39.12              | Stack Test-Based Emission Factor |
| CO <sub>2e</sub>                 |                 | 117.1    | 998           | 3,972             | 19,860             | 40 CFR 98 Subpart C              |
| PM <sub>10</sub>                 |                 | 0.048    | 0.41          | 1.64              | 8.19               | AP-42 Table 3.2-1 (7/00) - 2SLB  |
| PM <sub>2.5</sub>                |                 | 0.048    | 0.41          | 1.64              | 8.19               | AP-42 Table 3.2-1 (7/00) - 2SLB  |
| VOC                              |                 | 0.120    | 1.02          | 4.07              | 20.35              | AP-42 Table 3.2-1 (7/00) - 2SLB  |
| SO <sub>2</sub> (Maximum Hourly) |                 | 0.0571   | 0.49          |                   |                    | 20 grains S / 100 scf            |
| SO <sub>2</sub> (Average Annual) |                 | 0.000714 |               | 0.02              | 0.12               | 0.25 grains S / 100 scf          |
| Formaldehyde                     |                 | 0.055    | 0.47          | 1.87              | 9.36               | AP-42 Table 3.2-1 (7/00) - 2SLB  |
| Total HAPs                       |                 | 0.080    | 0.68          | 2.70              | 13.49              | AP-42 Table 3.2-1 (7/00) - 2SLB  |

**Columbia Gas Transmission, LLC  
Coco Compressor Station**

**Cooper-Bessemer GMVA-8 2SLB Reciprocating Engine**

Horsepower 1100 HP  
 Maximum Horsepower 1210 HP  
 Brake Specific Fuel Consumption 8400 Btu/Bhp-hr  
 Total Heat Input 9.24 MMBtu/hr  
 Operating Hours 8760 hr/yr  
 Natural Gas Heat Content 1020 Btu/scf  
 Fuel Consumption 79.36 MMscf/yr  
 9,059 scf/hr

1

Quantity

| Pollutant                        | Emission Factor |          | Emission Rate |        | Emission Factor Reference        |
|----------------------------------|-----------------|----------|---------------|--------|----------------------------------|
|                                  | lb/bhp-hr       | lb/MMBtu | lb/hr         | ton/yr |                                  |
| NO <sub>x</sub> (Maximum Hourly) | 9.25E-03        |          | 11.19         |        | Stack Test-Based Emission Factor |
| NO <sub>x</sub> (Average Annual) | 6.39E-03        |          |               | 30.79  | Stack Test-Based Emission Factor |
| CO (Maximum Hourly)              | 1.30E-03        |          | 1.57          |        | Stack Test-Based Emission Factor |
| CO (Average Annual)              | 1.01E-03        |          |               | 4.87   | Stack Test-Based Emission Factor |
| CO <sub>2</sub> e                |                 | 117.1    | 1,190         | 4,739  | 40 CFR 98 Subpart C              |
| PM <sub>10</sub>                 |                 | 0.048    | 0.49          | 1.96   | AP-42 Table 3.2-1 (7/00) - 2SLB  |
| PM <sub>2.5</sub>                |                 | 0.048    | 0.49          | 1.96   | AP-42 Table 3.2-1 (7/00) - 2SLB  |
| VOC                              |                 | 0.120    | 1.22          | 4.86   | AP-42 Table 3.2-1 (7/00) - 2SLB  |
| SO <sub>2</sub> (Maximum Hourly) |                 | 0.0571   | 0.58          |        | 20 grains S / 100 scf            |
| SO <sub>2</sub> (Average Annual) |                 | 0.000714 |               | 0.03   | 0.25 grains S / 100 scf          |
| Formaldehyde                     |                 | 0.055    | 0.56          | 2.23   | AP-42 Table 3.2-1 (7/00) - 2SLB  |
| Total HAPs                       |                 | 0.080    | 0.81          | 3.22   | AP-42 Table 3.2-1 (7/00) - 2SLB  |

Columbia Gas Transmission, LLC  
Coco Compressor Station

Cooper-Bessemer 8W-330 2SLB Reciprocating Engine

Horsepower 4000 HP  
Maximum Horsepower 4640 HP  
Brake Specific Fuel Consumption 7800 Btu/Bhp-hr  
Total Heat Input 31.20 MMBtu/hr  
Operating Hours 8760 hr/yr  
Natural Gas Heat Content 1020 Btu/scf  
Fuel Consumption 267.95 MMscf/yr  
30,588 scf/hr

Quantity 1

| Pollutant                        | Emission Factor |          | Emission Rate |        | Emission Factor Reference        |
|----------------------------------|-----------------|----------|---------------|--------|----------------------------------|
|                                  | lb/bhp-hr       | lb/MMBtu | lb/hr         | ton/yr |                                  |
| NO <sub>x</sub> (Maximum Hourly) | 3.52E-02        |          | 163.33        |        | Stack Test-Based Emission Factor |
| NO <sub>x</sub> (Average Annual) | 1.76E-02        |          |               | 308.35 | Stack Test-Based Emission Factor |
| CO (Maximum Hourly)              | 2.64E-03        |          | 12.25         |        | Stack Test-Based Emission Factor |
| CO (Average Annual)              | 1.32E-03        |          |               | 23.13  | Stack Test-Based Emission Factor |
| CO <sub>2</sub> e                |                 | 117.1    | 4,238         | 16,003 | 40 CFR 98 Subpart C              |
| PM <sub>10</sub>                 |                 | 0.048    | 1.75          | 6.60   | AP-42 Table 3.2-1 (7/00) - 2SLB  |
| PM <sub>2.5</sub>                |                 | 0.048    | 1.75          | 6.60   | AP-42 Table 3.2-1 (7/00) - 2SLB  |
| VOC                              |                 | 0.120    | 4.34          | 16.40  | AP-42 Table 3.2-1 (7/00) - 2SLB  |
| SO <sub>2</sub> (Maximum Hourly) |                 | 0.0571   | 2.07          |        | 20 grains S / 100 scf            |
| SO <sub>2</sub> (Average Annual) |                 | 0.000714 |               | 0.10   | 0.25 grains S / 100 scf          |
| Formaldehyde                     |                 | 0.055    | 2.00          | 7.54   | AP-42 Table 3.2-1 (7/00) - 2SLB  |
| Total HAPs                       |                 | 0.080    | 2.88          | 10.87  | AP-42 Table 3.2-1 (7/00) - 2SLB  |

**Columbia Gas Transmission, LLC  
Coco Compressor Station**

**Ingersoll-Rand PVG-6 Emergency Generator - To Be Removed**

|                                 |                  |
|---------------------------------|------------------|
| Horsepower                      | 275 HP           |
| Maximum Horsepower              | 303 HP           |
| Brake Specific Fuel Consumption | 10600 Btu/Bhp-hr |
| Total Heat Input                | 2.92 MMBtu/hr    |
| Operating Hours                 | 500 hr/yr        |
| Natural Gas Heat Content        | 1020 Btu/scf     |
| Fuel Consumption                | 1.43 MMscf/yr    |
|                                 | 2857.8 scf/hr    |

| Pollutant                        | Emission Factor |          | Emission Rate      |          | Emission Factor Reference       |
|----------------------------------|-----------------|----------|--------------------|----------|---------------------------------|
|                                  | g/bhp-hr        | lb/MMBtu | lb/hr <sup>1</sup> | ton/yr   |                                 |
| NO <sub>x</sub>                  |                 | 2.21     | 7.09               | 1.61     | AP-42 Table 3.2-3 (7/00) - 4SRB |
| CO                               |                 | 3.72     | 11.93              | 2.71     | AP-42 Table 3.2-3 (7/00) - 4SRB |
| CO <sub>2</sub> e                |                 | 117.1    | 375                | 85       | 40 CFR 98 Subpart C             |
| PM <sub>10</sub>                 |                 | 0.019    | 0.06               | 0.01     | AP-42 Table 3.2-3 (7/00) - 4SRB |
| PM <sub>2.5</sub>                |                 | 0.019    | 0.06               | 0.01     | AP-42 Table 3.2-3 (7/00) - 4SRB |
| VOC                              |                 | 0.0296   | 0.09               | 0.02     | AP-42 Table 3.2-3 (7/00) - 4SRB |
| SO <sub>2</sub> (Maximum Hourly) |                 | 0.0571   | 0.18               |          | 20 grains S / 100 scf           |
| SO <sub>2</sub> (Average Annual) |                 | 0.000714 |                    | 5.20E-04 | 0.25 grains S / 100 scf         |
| Formaldehyde                     |                 | 0.02050  | 0.07               | 0.01     | AP-42 Table 3.2-3 (7/00) - 4SRB |
| Total HAPs                       |                 | 0.03242  | 0.10               | 0.02     | AP-42 Table 3.2-3 (7/00) - 4SRB |

1. Maximum hourly emission rate based on maximum horsepower under optimum conditions (10% greater than site rating).

Columbia Gas Transmission, LLC  
Coco Compressor Station

Ingersoll-Rand PVG-6 Emergency Generator - To Be Removed

Horsepower 306 HP  
Maximum Horsepower 337 HP  
Brake Specific Fuel Consumption 10600 Btu/Bhp-hr  
Total Heat Input 3.24 MMBtu/hr  
Operating Hours 500 hr/yr  
Natural Gas Heat Content 1020 Btu/scf  
Fuel Consumption 1.59 MMscf/yr  
3180.0 scf/hr

| Pollutant                        | Emission Factor |          | Emission Rate      |          | Emission Factor Reference       |
|----------------------------------|-----------------|----------|--------------------|----------|---------------------------------|
|                                  | g/bhp-hr        | lb/MMBtu | lb/hr <sup>1</sup> | ton/yr   |                                 |
| NO <sub>x</sub>                  |                 | 2.21     | 7.89               | 1.79     | AP-42 Table 3.2-3 (7/00) - 4SRB |
| CO                               |                 | 3.72     | 13.27              | 3.02     | AP-42 Table 3.2-3 (7/00) - 4SRB |
| CO <sub>2</sub> e                |                 | 117.1    | 418                | 95       | 40 CFR 98 Subpart C             |
| PM <sub>10</sub>                 |                 | 0.019    | 0.07               | 0.02     | AP-42 Table 3.2-3 (7/00) - 4SRB |
| PM <sub>2.5</sub>                |                 | 0.019    | 0.07               | 0.02     | AP-42 Table 3.2-3 (7/00) - 4SRB |
| VOC                              |                 | 0.0296   | 0.11               | 0.02     | AP-42 Table 3.2-3 (7/00) - 4SRB |
| SO <sub>2</sub> (Maximum Hourly) |                 | 0.0571   | 0.20               |          | 20 grains S / 100 scf           |
| SO <sub>2</sub> (Average Annual) |                 | 0.000714 |                    | 5.79E-04 | 0.25 grains S / 100 scf         |
| Formaldehyde                     |                 | 0.02050  | 0.07               | 0.02     | AP-42 Table 3.2-3 (7/00) - 4SRB |
| Total HAPs                       |                 | 0.03242  | 0.12               | 0.03     | AP-42 Table 3.2-3 (7/00) - 4SRB |

1. Maximum hourly emission rate based on maximum horsepower under optimum conditions (10% greater than site rating).

**Columbia Gas Transmission, LLC  
Coco Compressor Station**

**Heatec HCL-610-40G Regeneration Heater**

Heat Input 9.38 MMBtu/hr  
 Operating Hours 8760 hr/yr  
 Natural Gas Heat Content 1020 Btu/scf  
 Fuel Consumption 80.56 MMscf/yr  
 9196.1 scf/hr

| Pollutant                        | Emission Factor |          | Emission Rate |          | Emission Factor Reference    |
|----------------------------------|-----------------|----------|---------------|----------|------------------------------|
|                                  | lb/MMscf        | lb/MMBtu | lb/hr         | ton/yr   |                              |
| NO <sub>x</sub>                  |                 | 0.120    | 1.13          | 4.93     | Vendor Data                  |
| CO                               |                 | 0.037    | 0.35          | 1.52     | Vendor Data                  |
| CO <sub>2</sub> e                |                 | 117.1    | 1,098         | 4,811    | 40 CFR 98 Subpart C          |
| PM <sub>10</sub>                 | 7.6             | 0.007    | 0.07          | 0.31     | AP-42 Table 1.4-2 (7/98)     |
| PM <sub>2.5</sub>                | 7.6             | 0.007    | 0.07          | 0.31     | AP-42 Table 1.4-2 (7/98)     |
| VOC                              | 5.5             | 0.005    | 0.05          | 0.22     | AP-42 Table 1.4-2 (7/98)     |
| SO <sub>2</sub> (Maximum Hourly) |                 | 0.0571   | 0.54          |          | 20 grains S / 100 scf        |
| SO <sub>2</sub> (Average Annual) |                 | 0.000714 |               | 2.93E-02 | 0.25 grains S / 100 scf      |
| Formaldehyde                     | 0.075           | 0.00007  | 6.90E-04      | 3.02E-03 | AP-42 Table 1.4-3 (7/98)     |
| Total HAPs                       | 1.89            | 0.00185  | 1.74E-02      | 7.61E-02 | AP-42 Table 1.4-3 & 4 (7/98) |

**Columbia Gas Transmission, LLC  
Coco Compressor Station**

**BS&B Gas Heater**

Heat Input 0.09 MMBtu/hr  
 Operating Hours 8760 hr/yr  
 Natural Gas Heat Content 1020 Btu/scf  
 Fuel Consumption 0.77 MMscf/yr  
 88.2 scf/hr

| Pollutant                        | Emission Factor |          | Emission Rate |          | Emission Factor Reference    |
|----------------------------------|-----------------|----------|---------------|----------|------------------------------|
|                                  | lb/MMscf        | lb/MMBtu | lb/hr         | ton/yr   |                              |
| NO <sub>x</sub>                  | 100             | 0.098    | 0.01          | 0.04     | AP-42 Table 1.4-1 (7/98)     |
| CO                               | 84              | 0.082    | 0.01          | 0.03     | AP-42 Table 1.4-1 (7/98)     |
| CO <sub>2</sub> e                |                 | 117.1    | 11            | 46       | 40 CFR 98 Subpart C          |
| PM <sub>10</sub>                 | 7.6             | 0.007    | 6.71E-04      | 2.94E-03 | AP-42 Table 1.4-2 (7/98)     |
| PM <sub>2.5</sub>                | 7.6             | 0.007    | 6.71E-04      | 2.94E-03 | AP-42 Table 1.4-2 (7/98)     |
| VOC                              | 5.5             | 0.005    | 4.85E-04      | 2.13E-03 | AP-42 Table 1.4-2 (7/98)     |
| SO <sub>2</sub> (Maximum Hourly) |                 | 0.0571   | 5.14E-03      |          | 20 grains S / 100 scf        |
| SO <sub>2</sub> (Average Annual) |                 | 0.000714 |               | 2.81E-04 | 0.25 grains S / 100 scf      |
| Formaldehyde                     | 0.075           | 0.00007  | 6.62E-06      | 2.90E-05 | AP-42 Table 1.4-3 (7/98)     |
| Total HAPs                       | 1.89            | 0.00185  | 1.67E-04      | 7.30E-04 | AP-42 Table 1.4-3 & 4 (7/98) |



**VGf - P48GL**

Power Generation - Standby

|                          |                         |                                       |             |
|--------------------------|-------------------------|---------------------------------------|-------------|
| ENGINE SPEED (rpm):      | 1800                    | COOLING SYSTEM:                       | JW, IC + OC |
| DISPLACEMENT (in3):      | 2924                    | INTERCOOLER WATER INLET (°F):         | 130         |
| COMPRESSION RATIO:       | 11:1                    | JACKET WATER OUTLET (°F):             | 180         |
| IGNITION SYSTEM:         | CEC                     | JACKET WATER CAPACITY (gal):          | 58          |
| EXHAUST MANIFOLD:        | Water Cooled            | AUXILIARY WATER CAPACITY (gal):       | 14          |
| COMBUSTION:              | Lean Burn, Open Chamber | LUBE OIL CAPACITY (gal):              | 113         |
| ENGINE DRY WEIGHT (lbs): | 14900                   | MAX. EXHAUST BACKPRESSURE (in. H2O):  | 15          |
| AIR/FUEL RATIO SETTING:  | 7.8% O2                 | MAX. AIR INLET RESTRICTION (in. H2O): | 15          |
| ENGINE SOUND LEVEL (dBA) | 101                     | EXHAUST SOUND LEVEL (dBA)             | 112         |
| IGNITION TIMING:         | 13° BTDC                | PHASE:                                | 3           |
| FREQUENCY (Hz):          | 60                      | PHASE ROTATION:                       | T1-T2-T3    |
| GENERATOR TYPE:          | Synchronous             |                                       |             |
| VOLTAGE:                 | 480                     |                                       |             |

**SITE CONDITIONS:**

|                             |                                |                                     |      |
|-----------------------------|--------------------------------|-------------------------------------|------|
| FUEL:                       | Commercial Quality Natural Gas | ALTITUDE (ft):                      | 1500 |
| FUEL PRESSURE RANGE (psig): | 26 - 50                        | MAXIMUM INLET AIR TEMPERATURE (°F): | 90   |
| FUEL HHV (BTU/R3):          | 1,035.2                        | FUEL WKI:                           | 91.8 |
| FUEL LHV (BTU/R3):          | 935.8                          |                                     |      |

**SITE SPECIFIC TECHNICAL DATA**

| POWER RATING                | UNITS     | MAX RATING AT 100 °F AIR TEMP | SITE RATING AT MAXIMUM INLET AIR TEMPERATURE OF 90 °F |      |      |
|-----------------------------|-----------|-------------------------------|---|------|------|
|                             |           |                               | 100%  | 75%  | 50%  |
| CONTINUOUS ENGINE POWER     | BHP       | 1175                          | 1174  | 881  | 585  |
| OVERLOAD                    | % 2/24 hr | 5                             | 5   | -    | -    |
| ELECTRICAL EFFICIENCY (LHV) | %         | 34.6                          | 34.5  | 33.0 | 30.3 |
| GENERATOR OUTPUT            | kWe       | 831                           | 830   | 623  | 413  |
| GENERATOR KVA               | kVA       | 1039                          | 1038  | 779  | 516  |
| GENERATOR CURRENT           | Amps      | 1251                          | 1250  | 938  | 621  |

*based on 94.8% generator efficiency at 0.8 PF, no auxiliary engine driven equipment*

**FUEL CONSUMPTION**

|                        | UNITS      | 100% | 75%  | 50%  |
|------------------------|------------|------|------|------|
| FUEL CONSUMPTION (LHV) | BTU/BHP-hr | 6991 | 6991 | 7314 |
| FUEL CONSUMPTION (HHV) | BTU/BHP-hr | 7733 | 7734 | 8090 |
| FUEL FLOW              | SCFM       | 146  | 146  | 115  |

*based on fuel analysis LHV*

**HEAT REJECTION**

|                   | UNITS         | 100% | 75%  | 50%  |
|-------------------|---------------|------|------|------|
| JACKET WATER (JW) | BTU/hr x 1000 | 2133 | 2119 | 1848 |
| LUBE OIL (OC)     | BTU/hr x 1000 | 260  | 259  | 238  |
| INTERCOOLER (IC)  | BTU/hr x 1000 | 595  | 569  | 367  |
| EXHAUST           | BTU/hr x 1000 | 2277 | 2303 | 1746 |
| RADIATION         | BTU/hr x 1000 | 118  | 130  | 128  |

**EMISSIONS**

|                | UNITS    | 100% | 75%  | 50%  |
|----------------|----------|------|------|------|
| NOx (NO + NO2) | g/bhp-hr | 2.0  | 2.0  | 2.0  |
| CO             | g/bhp-hr | 1.3  | 1.3  | 1.4  |
| THC            | g/bhp-hr | 1.6  | 1.6  | 1.9  |
| NMHC           | g/bhp-hr | 0.24 | 0.24 | 0.28 |
| NM, NEHC       | g/bhp-hr | 0.04 | 0.04 | 0.05 |
| CH4            | g/bhp-hr | 1.36 | 1.36 | 1.60 |
| CO2            | g/bhp-hr | 433  | 433  | 453  |
| CO2e           | g/bhp-hr | 463  | 463  | 489  |
| CH2O           | g/bhp-hr | 0.19 | 0.19 | 0.22 |

**AIR INTAKE / EXHAUST GAS**

|                       | UNITS | 100%  | 75%   | 50%  |
|-----------------------|-------|-------|-------|------|
| INDUCTION AIR FLOW    | SCFM  | 2479  | 2477  | 1945 |
| EXHAUST GAS MASS FLOW | lb/hr | 10805 | 10798 | 8478 |
| EXHAUST GAS FLOW      | ACFM  | 6171  | 6166  | 4807 |
| EXHAUST TEMPERATURE   | °F    | 839   | 839   | 830  |

*at exhaust temp, 14.5 psia*

**HEAT EXCHANGER SIZING**

|   | UNITS         | VALUE |
|---|---------------|-------|
| TOTAL JACKET WATER CIRCUIT (JW)         | BTU/hr x 1000 | 2419  |
| TOTAL AUXILIARY WATER CIRCUIT (IC + OC) | BTU/hr x 1000 | 970   |

**COOLING SYSTEM WITH ENGINE MOUNTED WATER PUMPS**

|   | UNITS | VALUE |
|---|-------|-------|
| JACKET WATER PUMP MIN. DESIGN FLOW          | GPM   | 280   |
| JACKET WATER PUMP MAX. EXTERNAL RESTRICTION | psig  | 27    |
| AUX WATER PUMP MIN. DESIGN FLOW             | GPM   | 87    |
| AUX WATER PUMP MAX. EXTERNAL RESTRICTION    | psig  | 8     |



**VGf - P48GL**

Power Generation - Standby

**FUEL COMPOSITION**

| <u>HYDROCARBONS:</u>         |                         | <u>Mole or Volume %</u> |
|------------------------------|-------------------------|-------------------------|
| Methane                      | CH4                     | 93                      |
| Ethane                       | C2H6                    | 4                       |
| Propane                      | C3H8                    | 1                       |
| Iso-Butane                   | I-C4H10                 | 0                       |
| Normal Butane                | N-C4H10                 | 0                       |
| Iso-Pentane                  | I-C5H12                 | 0                       |
| Normal Pentane               | N-C5H12                 | 0                       |
| Hexane                       | C6H14                   | 0                       |
| Heptane                      | C7H16                   | 0                       |
| Ethene                       | C2H4                    | 0                       |
| Propene                      | C3H6                    | 0                       |
|                              | <b>SUM HYDROCARBONS</b> | <b>98</b>               |
| <br><u>NON-HYDROCARBONS:</u> |                         |                         |
| Nitrogen                     | N2                      | 0                       |
| Oxygen                       | O2                      | 0                       |
| Helium                       | He                      | 0                       |
| Carbon Dioxide               | CO2                     | 2                       |
| Carbon Monoxide              | CO                      | 0                       |
| Hydrogen                     | H2                      | 0                       |
| Water Vapor                  | H2O                     | 0                       |
|                              | <b>TOTAL FUEL</b>       | <b>100</b>              |

| <u>FUEL:</u>                | <u>Commercial Quality Natural Gas</u> |
|-----------------------------|---------------------------------------|
| FUEL PRESSURE RANGE (psig): | 26 - 50                               |
| FUEL WKI:                   | 91.8                                  |
| FUEL SLHV (BTU/ft3):        | 919.50                                |
| FUEL SLHV (MJ/Nm3):         | 36.16                                 |
| FUEL LHV (BTU/ft3):         | 935.78                                |
| FUEL LHV (MJ/Nm3):          | 36.80                                 |
| FUEL HHV (BTU/ft3):         | 1035.15                               |
| FUEL HHV (MJ/Nm3):          | 40.71                                 |
| FUEL DENSITY (SG):          | 0.60                                  |

Standard Conditions per ASTM D3588-91 [60°F and 14.696psia] and ISO 6978:1996-02-01[25, V(0;101.325)].  
 Based on the fuel composition, supply pressure and temperature, liquid hydrocarbons may be present in the fuel. No liquid hydrocarbons are allowed in the fuel. The fuel must not contain any liquid water.  
 Waukesha recommends both of the following:  
 1) Dew point of the fuel gas to be at least 20°F (11°C) below the measured temperature of the gas at the Inlet of the engine fuel regulator.  
 2) A fuel filter separator to be used on all fuels except commercial quality natural gas.  
 Refer to the 'Fuel and Lubrication' section of 'Technical Data' or contact the Waukesha Application Engineering Department for additional information on fuels, or LHV and WKI\* calculations.  
 \* Trademark of General Electric Company

**FUEL CONTAMINANTS**

|                                    |            |
|------------------------------------|------------|
| Total Sulfur Compounds             | 0 % volume |
| Total Halogen as Chloride          | 0 % volume |
| Total Ammonia                      | 0 % volume |
| <br><u>Siloxanes</u>               |            |
| Tetramethyl silane                 | 0 % volume |
| Trimethyl silanol                  | 0 % volume |
| Hexamethyldisiloxane (L2)          | 0 % volume |
| Hexamethylcyclotrisiloxane (D3)    | 0 % volume |
| Octamethyltrisiloxane (L3)         | 0 % volume |
| Octamethylcyclotetrasiloxane (D4)  | 0 % volume |
| Decamethyltetrasiloxane (L4)       | 0 % volume |
| Decamethylcyclopentasiloxane (D5)  | 0 % volume |
| Dodecamethylpentasiloxane (L5)     | 0 % volume |
| Dodecamethylcyclohexasiloxane (D6) | 0 % volume |
| Others                             | 0 % volume |

|                           |          |
|---------------------------|----------|
| Total Sulfur Compounds    | 0 µg/BTU |
| Total Halogen as Chloride | 0 µg/BTU |
| Total Ammonia             | 0 µg/BTU |
| Total Siloxanes (as Si)   | 0 µg/BTU |

*Calculated fuel contaminant analysis will depend on the entered fuel composition and selected engine model.*



## NOTES

1. All data is based on engines with standard configurations unless noted otherwise.
2. Power rating is adjusted for fuel, site altitude, and site air inlet temperature, in accordance with ISO 3048/1 with tolerance of  $\pm 3\%$ .
3. Fuel consumption is presented in accordance with ISO 3048/1 with a tolerance of  $-0 / +5\%$  at maximum rating. Fuel flow calculation based on fuel LHV and fuel consumption with a tolerance of  $-0/+5\%$ . For sizing piping and fuel equipment, it is recommended to include the 5% tolerance.
4. Heat rejection tolerances are  $\pm 30\%$  for radiation, and  $\pm 8\%$  for jacket water, lube oil, intercooler, and exhaust energy.
5. Emission levels are given at engine exhaust outlet flange prior to any after treatment. Values are based on a new engine operating at indicated site conditions, and adjusted to the specified timing and air/fuel ratio at rated load. Emissions are at an absolute humidity of 75 grains H<sub>2</sub>O/lb (10.71 g H<sub>2</sub>O/kg) of dry air. Emission levels may vary subject to instrumentation, measurement, ambient conditions, fuel quality, and engine variation. Engine may require adjustment on-site to meet emission values, which may affect engine performance and heat output. NO<sub>x</sub>, CO, THC, and NMHC emission levels are listed as a not to exceed limit, all other emission levels are estimated. CO<sub>2</sub> emissions based on EPA Federal Register/Vol. 74, No. 209/Friday, October 30, 2009 Rules and Regulations 56398, 56399 (3) Tier 3 Calculation Methodology, Equation C-5.
6. Air flow is based on undried air with a tolerance of  $\pm 7\%$ .
7. Exhaust temperature given at engine exhaust outlet flange with a tolerance of  $\pm 75^{\circ}\text{F}$  ( $42^{\circ}\text{C}$ ).
8. Exhaust gas mass flow value is based on a "wet basis" with a tolerance of  $\pm 7\%$ .
9. Inlet air restrictions based on full rated engine load. Exhaust backpressure based on 176 PSI BMEP and 1800 RPM. Refer to the engine specification section of Waukesha's standard technical data for more information.
10. Cooling circuit capacity, lube oil capacity, and engine dry weight values are typical.
11. Fuel must conform to Waukesha's "Gaseous Fuel Specification" S7884-7 or most current version. Fuel may require treatment to meet current fuel specification.
12. Heat exchanger sizing values given as the maximum heat rejection of the circuit, with applied tolerances and an additional 5% reserve factor.
13. Fuel volume flow calculation in english units is based on 100% relative humidity of the fuel gas at standard conditions of 60°F and 14.696 psia (29.92 inches of mercury; 101.325 kPa).
14. Fuel volume flow calculation in metric units is based on 100% relative humidity of the fuel gas at a combustion temperature of 25°C and metering conditions of 0°C and 101.325 kPa (14.696 psia; 29.92 inches of mercury). This is expressed as  $[25, V(0;101.325)]$ .
15. Engine sound data taken with the microphone at 1 m (3.3 ft) from the side of the engine at the approximate front-to-back centerline. Microphone height was at intake manifold level. Engine sound pressure data may be different at front, back and opposite side locations. Exhaust sound data taken with microphone 1 meter (3.3 ft) away and 1 meter (3.3 ft) to the side of the exhaust outlet.
16. Due to variation between test conditions and final site conditions, such as exhaust configuration and background sound level, sound pressure levels under site conditions may be different than those tabulated above.
17. Cooling system design flow is based on minimum allowable cooling system flow. Cooling system maximum external restriction is defined as the allowable restriction at the minimum cooling system flow. Refer to technical data sheets S-7788 and S-7788-1 (or latest version) for more information.
18. Generator Standby Power Rating (kWe): This rating applies to those systems used as a secondary source of electrical power. This rating is the output the system will produce continuously 24 hours per day for the duration of the prime power source outage. No overload is allowed. This rating may reduce the lifecycle intervals.

## REQUIRED OPTION CODES

Requires option code 1100 for continuous operation up to 176 psi (12.1 bar) BMEP.

# Attachment O

**Monitoring / Recordkeeping / Reporting /  
Testing Plans**

## Monitoring/Recordkeeping/Reporting/Testing Plans

### Emergency Generator G3

The engine will be operated in such a manner as to be considered an emergency stationary engine under 40 CFR 60 Subpart JJJJ. To demonstrate compliance, Columbia proposes to maintain monthly operating hours. This monthly record will be used to track 12-month rolling operating hours. The 12-month rolling operating hours will be reported to the state as part of the Station's semi-annual monitoring report. Records for the emergency generator will include the hours and reason for operation, a maintenance plan and records of maintenance, and records of performance testing to demonstrate compliance with 40 CFR 60 Subpart JJJJ. The engine will be maintained and operated in a manner consistent with good air pollution control practices for minimizing emissions.

Because G3 will not be a certified engine, performance testing per 40 CFR 60.4244 will be conducted initially and every 8,760 hours of operation or 3 years, whichever comes first.

Columbia will submit an initial notification and performance test results as required by 40 CFR 60.4245.

G3 will be subject to limited requirements under 40 CFR 63 Subpart ZZZZ. Columbia will comply with this subpart by submitting the initial notification per 40 CFR Part 63.6645(f).

# Attachment P

## **Public Notice**

## **AIR QUALITY PERMIT NOTICE Notice of Application**

Notice is given that Columbia Gas Transmission LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Permit Modification for its existing natural gas compression station located on 7 Coco Road, Elkview in Kanawha County, West Virginia. The latitude and longitude coordinates are: 38.401773 Degrees N and -81.417764 Degrees E.

The applicant estimates the changes, if modification application is approved, potential to discharge the following Regulated Air Pollutants will be: Carbon Monoxide will decrease 4.89 tons per year, Nitrogen Oxides will decrease 2.11 tons per year, PM10 will decrease 0.01 tons per year, Sulfur Dioxide will increase 0.001 tons per year, Volatile Organic Compounds (VOC) will decrease 0.02 tons per year, Carbon Dioxide Equivalents (CO<sub>2e</sub>) will increase 86 tons per year, and Formaldehyde will increase 0.09 tons per year.

Startup of operation is planned to begin on or about the 1<sup>st</sup> day of June, 2016. 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 19<sup>th</sup> day of December, 2014.

By: Columbia Gas Transmission LLC  
Steven A. Nelson  
Manager of Operations  
485 Industrial Road  
St. Albans, WV 25177-1831

# Attachment R

## **Delegation of Authority**



west virginia department of environmental protection

Division of Air Quality  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304  
Phone: 304 926 0475 • FAX: 304 926 0479

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
www.dep.wv.gov

July 27, 2011

**CERTIFIED MAIL**  
91 7108 2133 3936 1583 6144

Mr. Victor M. Gaglio  
Senior Vice-President of Operations  
Columbia Gas Transmission  
1700 MacCorkle Avenue, S.E.  
Charleston, WV 25314

Re: Delegation of Authority Confirmation

Dear Mr. Gaglio:

Based on your letter, dated July 22, 2011, the Division of Air Quality (DAQ) hereby acknowledges the titles of Regional Director and Manager of Operations as delegated authorized representatives for the facilities listed below.

| Company Name                          | Facility            | Facility ID No. |
|---------------------------------------|---------------------|-----------------|
| Columbia Gas Transmission, LLC        | Horse Creek Station | 005-00039       |
| Columbia Gas Transmission, LLC        | Frametown Station   | 007-00100       |
| Columbia Gas Transmission, LLC        | Glenville Station   | 021-00001       |
| Columbia Gas Transmission, LLC        | Lost River Station  | 031-00002       |
| Columbia Gas Transmission, LLC        | Hardy Station       | 031-00031       |
| Columbia Gas Transmission, LLC        | Ripley Station      | 035-00003       |
| Columbia Gas Transmission, LLC        | Lanham Station      | 039-00047       |
| Columbia Gas Transmission, LLC        | Clendenin Station   | 039-00048       |
| Columbia Gas Transmission, LLC        | Coco Station        | 039-00049       |
| Columbia Gas Transmission Corporation | Walgrove Station    | 039-00074       |
| Columbia Gas Transmission Corporation | Cobb Station        | 039-00100       |
| Columbia Gas Transmission Corporation | Hunt Station        | 039-00101       |
| Columbia Gas Transmission Corporation | Charleston Office   | 039-00154       |
| Columbia Gas Transmission Corporation | Clendenin Office    | 039-00546       |
| Columbia Gas Transmission, LLC        | Hubball Station     | 043-00002       |
| Columbia Gas Transmission Corporation | Nye Station         | 043-00011       |
| Columbia Gas Transmission, LLC        | Hamlin Station      | 043-00027       |
| Columbia Gas Transmission, LLC        | Majorsville Station | 051-00025       |
| Columbia Gas Transmission, LLC        | Adaline Station     | 051-00100       |

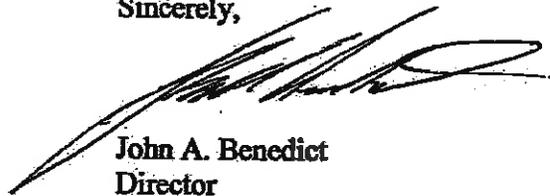
Promoting a healthy environment

Letter to Victor M. Gaglio  
July 27, 2011  
Page 2

| <b>Company Name</b>            | <b>Facility</b>     | <b>Facility ID No.</b> |
|--------------------------------|---------------------|------------------------|
| Columbia Gas Transmission, LLC | Seneca Station      | 071-00008              |
| Columbia Gas Transmission, LLC | Terra Alta Station  | 077-00017              |
| Columbia Gas Transmission, LLC | Glady Station       | 083-00017              |
| Columbia Gas Transmission, LLC | Files Creek Station | 083-00019              |
| Columbia Gas Transmission, LLC | Flat Top Station    | 089-00004              |
| Columbia Gas Transmission, LLC | Cleveland Station   | 097-00009              |
| Columbia Gas Transmission, LLC | Ceredo Station      | 099-00013              |
| Columbia Gas Transmission, LLC | Kenova Station      | 099-00014              |
| Columbia Gas Transmission, LLC | Smithfield Station  | 103-00010              |
| Columbia Gas Transmission, LLC | Rockport Station    | 107-00100              |
| Columbia Gas Transmission, LLC | Huff Creek Station  | 109-00021              |

Should you have any questions or comments, please feel free to contact our office at the address or telephone number listed above.

Sincerely,



John A. Benedict  
Director

JAB/seh

c: **Joe Morgan**  
Megan Murphy  
File Room

# Attachment S

## **Title V Permit Revision Information**

**Attachment S**

**Title V Permit Revision Information**

|  |  |
|--|--|
| <b>1. New Applicable Requirements Summary</b>  |  |
| 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 checked="" type="checkbox"/> Section 111 NSPS<br>(Subpart(s) <u>JJJJ</u> )  | <input checked="" type="checkbox"/> Section 112(d) MACT standards<br>(Subpart(s) <u>ZZZZ</u> ) |
| <input type="checkbox"/> Section 112(g) Case-by-case MACT  | <input type="checkbox"/> 112(r) RMP  |
| <input type="checkbox"/> Section 112(i) Early reduction of HAP   | <input type="checkbox"/> Consumer/commercial prod. reqts., section 183(e)                      |
| <input type="checkbox"/> Section 129 Standards/Reqts.  | <input type="checkbox"/> Stratospheric ozone (Title VI)  |
| <input type="checkbox"/> Tank vessel reqt., section 183(f)   | <input type="checkbox"/> Emissions cap 45CSR§30-2.6.1  |
| <input type="checkbox"/> NAAQS, increments or visibility (temp. sources)   | <input type="checkbox"/> 45CSR27 State enforceable only rule                                   |
| <input 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) <sup>(1)</sup>              |
| <input type="checkbox"/> NO <sub>x</sub> Budget Trading Program Non-EGUs (45CSR1)  | <input type="checkbox"/> NO <sub>x</sub> Budget Trading Program EGUs (45CSR26)                 |
| <p><sup>(1)</sup> If this box is checked, please include <b>Compliance Assurance Monitoring (CAM) Form(s)</b> for each Pollutants Specific Emission Unit (PSEU) (See Attachment H to Title V Application). If this box is not checked, please explain why <b>Compliance Assurance Monitoring</b> is not applicable:</p> <p style="padding-left: 40px;">This regulation does not apply because none of the proposed equipment use add-on emission controls.</p> |  |
| <b>2. Non Applicability Determinations</b>   |  |
| <p>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.</p> <p>N/A</p>  |  |
| <input checked="" type="checkbox"/> <b>Permit Shield Requested</b> <i>(not applicable to Minor Modifications)</i>  |  |
| <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>   |  |

**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       |                                       |
|                                | / /              |                                       |
|                                | / /              |                                       |

**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 |
|------------------|---|
| NO <sub>x</sub>  | -2.11                                       |
| CO               | -4.89                                       |
| VOC              | -0.02                                       |
| PM <sub>10</sub> | -0.01                                       |
| SO <sub>2</sub>  | 0.001                                       |
| Formaldehyde     | 0.09  |

*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.

|                      |                              |              |                              |
|----------------------|------------------------------|--------------|------------------------------|
| <b>(Signed)</b>      |                              | <b>Date</b>  |                              |
|                      | <i>(Please use blue ink)</i> |              | <i>(Please use blue ink)</i> |
| <b>Named (typed)</b> | <b>Steven A. Nelson</b>      | <b>Title</b> | <b>Manager of Operations</b> |

**Note: Please check if the following included (if applicable):**

- Compliance Assurance Monitoring Form(s)
- 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