

April 18, 2017

Mr. William F. Durham  
Director  
WVDEP, Division of Air Quality  
601 – 57<sup>th</sup> Street SE  
Charleston, West Virginia 25304

**Re: Columbia Gas Transmission, LLC (CGT), Title V Renewal Application,  
R30-08900004-2017**

Dear Mr. Durham,

Columbia Gas Transmission, LLC (CGT) and SLR International Corporation have prepared the attached 45CSR30 Title V Renewal Application for the Flat Top Compressor Station located in Summers County, West Virginia (Facility ID 089-00004). The facility is currently operating under Title V operating permit number R30-08900004-2017.

In preparation for this renewal the existing terms and conditions of the Title V permit were reviewed and evaluated. As a result of this evaluation, suggested Title V permit language has been developed that moves away from the old natural gas General Permit format. This is in an effort to enhance compliance clarity and bring the permit up to EPA's current expectations. These suggested changes to permit content and format have been compiled within a proposed permit document submitted for consideration within this application. The proposed permit has also been supplied in Microsoft Word format within the electronic submittal in hopes of being a useful tool for the reviewing Engineer's convenience.

SLR would be more than happy to discuss the details of the proposed permit language or the Title V Renewal Application at your convenience. If any additional information is needed, please feel free to contact me by telephone at (304) 545-8563 or by e-mail at [jhanshaw@slrconsulting.com](mailto:jhanshaw@slrconsulting.com)

Sincerely,  
**SLR International Corporation**



Jesse Hanshaw  
Principal Engineer

Cc: Mr. Mitch Lagerstrom, CGT Air Compliance Manager



Columbia Gas Transmission, LLC

Flat Top Compressor Station

Facility ID No. 089-00004

Flat Top, West Virginia

Title V Operating Permit Renewal Application

SLR Ref: 116.01272.00020

April 2017





## Title V Operating Permit Renewal Application

Prepared for:

**Columbia Gas Transmission, LLC**  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia 25314

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

A handwritten signature in blue ink, appearing to read "Chris Boggess", written over a horizontal line.

Chris Boggess  
Associate Engineer

A handwritten signature in blue ink, appearing to read "Jesse Hanshaw", written over a horizontal line.

Jesse Hanshaw, P.E.  
Principal Engineer

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#### Notes:

- ATTACHMENT F – N/A – Source is in compliance with all facility wide requirements  
ATTACHMENT G – N/A – No control devices utilized at the facility  
ATTACHMENT H – N/A – No CAM plan requirements at the facility

# **APPLICATION FOR PERMIT**

## **Title V Operating Permit Renewal Application**

**Flat Top Compressor Station, Facility ID No. 089-00004  
Flat Top, West Virginia**

Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia

April 2017



**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL  
PROTECTION**

**DIVISION OF AIR QUALITY**

601 57<sup>th</sup> Street SE

Charleston, WV 25304

Phone: (304) 926-0475

[www.dep.wv.gov/daq](http://www.dep.wv.gov/daq)

**INITIAL/RENEWAL TITLE V PERMIT APPLICATION - GENERAL FORMS**

**Section 1: General Information**

<b>1. Name of Applicant (As registered with the WV Secretary of State's Office):</b> Columbia Gas Transmission, LLC	<b>2. Facility Name or Location:</b> Flat Top Compressor Station
<b>3. DAQ Plant ID No.:</b>  089-00004	<b>4. Federal Employer ID No. (FEIN):</b>  31-0802435-30
<b>5. Permit Application Type:</b>  <input type="checkbox"/> Initial Permit <input checked="" type="checkbox"/> Permit Renewal <input type="checkbox"/> Update to Initial/Renewal Permit Application  When did operations commence? 1947 What is the expiration date of the existing permit? 10/31/2017	
<b>6. Type of Business Entity:</b>  <input type="checkbox"/> Corporation <input type="checkbox"/> Governmental Agency <input checked="" type="checkbox"/> LLC <input type="checkbox"/> Partnership <input type="checkbox"/> Limited Partnership	<b>7. Is the Applicant the:</b>  <input type="checkbox"/> Owner <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Both  If the Applicant is not both the owner and operator, please provide the name and address of the other party. _____ _____ _____
<b>8. Number of onsite employees:</b>  Less than ten (10) employees	
<b>9. Governmental Code:</b>  <input checked="" type="checkbox"/> Privately owned and operated; 0 <input type="checkbox"/> County government owned and operated; 3 <input type="checkbox"/> Federally owned and operated; 1 <input type="checkbox"/> Municipality government owned and operated; 4 <input type="checkbox"/> State government owned and operated; 2 <input type="checkbox"/> District government owned and operated; 5	
<b>10. Business Confidentiality Claims</b>  Does this application include confidential information (per 45CSR31)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.	

<b>11. Mailing Address</b>		
<b>Street or P.O. Box:</b> 5151 San Felipe St., Suite 2400		
<b>City:</b> Houston	<b>State:</b> TX	<b>Zip:</b> 77056
<b>Telephone Number:</b> (713) 386 3701	<b>Fax Number:</b> (713) 386 3456	

<b>12. Facility Location</b>			
<b>Street:</b> 450 Ellison Ridge Rd		<b>City:</b> Flat Top	
		<b>County:</b> Summers	
<b>UTM Easting:</b> 491.094      km	<b>UTM Northing:</b> 4,160.159      km	<b>Zone:</b> <input checked="" type="checkbox"/> 17    or <input type="checkbox"/> 18	
<b>Directions:</b> From I-77 take Exit 28 (County Route 48 (Ghent, Flat Top)). Turn Left at the end of the ramp. Go 0.35 miles and turn right onto U.S. 19 South. Travel approximately 2.2 miles to County Route 19/1. Turn Left onto 19/1 and proceed 0.65 miles. Turn Left onto Country Route 31 and station is on the right.			
<b>Portable Source?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<b>Is facility located within a nonattainment area?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<b>If yes, for what air pollutants?</b>	
<b>Is facility located within 50 miles of another state?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>If yes, name the affected state(s).</b> Virginia	
<b>Is facility located within 100 km of a Class I Area<sup>1</sup>?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<b>If yes, name the area(s).</b>	
<b>If no, do emissions impact a Class I Area<sup>1</sup>?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<sup>1</sup> Class I areas include Dolly Sods and Otter Creek Wilderness Areas in West Virginia, and Shenandoah National Park and James River Face Wilderness Area in Virginia.			

<b>13. Contact Information</b>		
<b>Responsible Official:</b> Jeffery Hill		<b>Title:</b> Manager of Operations
<b>Street or P.O. Box:</b> 1639 R A West Highway		
<b>City:</b> Delbarton	<b>State:</b> WV	<b>Zip:</b> 25670
<b>Telephone Number:</b> (304) 787 5401	<b>Fax Number:</b> (304) 357-2770	
<b>E-mail address:</b> Jeffery_hill@transcanada.com		
<b>Environmental Contact:</b> Mili Patel		<b>Title:</b> Senior Air Quality Engineer
<b>Street or P.O. Box:</b> 5151 San Felipe St., Suite 2400		
<b>City:</b> Houston	<b>State:</b> TX	<b>Zip:</b> 77056
<b>Telephone Number:</b> (713) 386 3692	<b>Fax Number:</b> (713) 386 3456	
<b>E-mail address:</b> mili_patel@transcanada.com		
<b>Application Preparer:</b> Jesse Hanshaw		<b>Title:</b> Principal Engineer
<b>Company:</b> SLR International Corporation		
<b>Street or P.O. Box:</b> 8 Capitol St., Suite 300		
<b>City:</b> Charleston	<b>State:</b> WV	<b>Zip:</b> 25301
<b>Telephone Number:</b> (681) 205-8949	<b>Fax Number:</b> (681) 205-8969	
<b>E-mail address:</b> jhanshaw@slrconsulting.com		



**14. Facility Description**

List all processes, products, NAICS and SIC codes for normal operation, in order of priority. Also list any process, products, NAICS and SIC codes associated with any alternative operating scenarios if different from those listed for normal operation.

Process	Products	NAICS	SIC
Natural Gas Transmission	Natural Gas	486210	4922

**Provide a general description of operations.**

Flat Top Compressor Station is a natural gas transmission facility covered by Standard Industrial Classification (SIC) Code 4922. The station has the potential to operate twenty-four (24) hours per day, seven (7) days per week, fifty-two (52) weeks per year. The station consists of one (1) 6,089 hp Solar Taurus 60-7302S turbine engine, one (1) 544 hp, Ingersoll-Rand PSVG-8, 4SRB reciprocating engine/generator, one (1) 16 hp gasoline fired Kohler K341S air compressor, one (1) 2.0 mmBtu/hr Ajax WNG-2000-W hot water boiler, one (1) 1.0 mmBtu/hr NATCO MB30-8-8B line heater and one (1) 1.25 mmBtu/hr Ajax WNG1250W heating system boiler.

15. Provide an **Area Map** showing plant location as **ATTACHMENT A**.

16. Provide a **Plot Plan(s)**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is located as **ATTACHMENT B**. For instructions, refer to "Plot Plan - Guidelines."

17. Provide a detailed **Process Flow Diagram(s)** showing each process or emissions unit as **ATTACHMENT C**. Process Flow Diagrams should show all emission units, control equipment, emission points, and their relationships.

## Section 2: Applicable Requirements

18. Applicable Requirements Summary	
Instructions: Mark all applicable requirements.	
<input checked="" type="checkbox"/> SIP	<input type="checkbox"/> FIP
<input checked="" type="checkbox"/> Minor source NSR (45CSR13)	<input type="checkbox"/> PSD (45CSR14)
<input checked="" type="checkbox"/> NESHAP (45CSR34)	<input type="checkbox"/> Nonattainment NSR (45CSR19)
<input type="checkbox"/> Section 111 NSPS	<input type="checkbox"/> Section 112(d) MACT standards
<input type="checkbox"/> Section 112(g) Case-by-case MACT	<input type="checkbox"/> 112(r) RMP
<input type="checkbox"/> Section 112(i) Early reduction of HAP	<input type="checkbox"/> Consumer/commercial prod. reqts., section 183(e)
<input type="checkbox"/> Section 129 Standards/Reqts.	<input type="checkbox"/> Stratospheric ozone (Title VI)
<input type="checkbox"/> Tank vessel reqt., section 183(f)	<input type="checkbox"/> Emissions cap 45CSR§30-2.6.1
<input type="checkbox"/> NAAQS, increments or visibility (temp. sources)	<input type="checkbox"/> 45CSR27 State enforceable only rule
<input checked="" type="checkbox"/> 45CSR4 State enforceable only rule	<input type="checkbox"/> Acid Rain (Title IV, 45CSR33)
<input type="checkbox"/> Emissions Trading and Banking (45CSR28)	<input type="checkbox"/> Compliance Assurance Monitoring (40CFR64)
<input type="checkbox"/> CAIR NO <sub>x</sub> Annual Trading Program (45CSR39)	<input type="checkbox"/> CAIR NO <sub>x</sub> Ozone Season Trading Program (45CSR40)
<input type="checkbox"/> CAIR SO <sub>2</sub> Trading Program (45CSR41)	

19. Non Applicability Determinations
<p><b>List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies.</b></p> <p>45CSR4 – <i>To Prevent and Control the Discharge of Air Pollutants into the Open Air Which Causes or Contributes to an Objectionable Odor or Odors</i>: According to 45CSR§4-7.1, this rule shall not apply to the following sources of objectionable odor until such time as feasible control methods are developed: Internal Combustion Engines</p> <p>45CSR10 – <i>To Prevent and Control Air Pollution from the Emission of Sulfur Oxides</i>: 45CSR10 is not applicable to the facility's boilers and line heater because its maximum design heat input (DHI) is less than 10 MMBtu/hr</p> <p>45CSR21 – <i>To Prevent and Control Air Pollution from the Emission of Volatile Organic Compounds</i>: All storage tanks at the station, which are listed as insignificant sources, are below 40,000 gallons in capacity which exempts the facility from 45CSR§21-28. The compressor station is not engaged in the extraction or fractionation of natural gas which exempts the facility from 45CSR§21-29. Additionally this site is not located within one of the five designated VOC maintenance counties (Cabell, Kanawha, Putnam, Wayne &amp; Wood)</p> <p>45CSR27 – <i>To Prevent and Control the Emissions of Toxic Air Pollutants</i>: Natural gas is included as a petroleum product and contains less than 5% benzene by weight. 45CSR§27-2.4 exempts equipment "used in the production and distribution of petroleum products providing that such equipment does not produce or contact materials containing more than 5% benzene by weight."</p>
<input checked="" type="checkbox"/> Permit Shield

**19. Non Applicability Determinations (Continued)** - Attach additional pages as necessary.

**List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies.**

40 CFR 60 Subpart Dc – *Standards of Performance for Steam Generating Units*: The boilers and line heater at this facility are less than 10 mmBtu/hr; Hence Subpart Dc is not applicable in accordance with 60.40c(a)

40 CFR 60 Subparts K,Ka – *Standards of Performance for Storage Vessels for Petroleum Liquids*: All tanks at the facility are below 40,000 gallons in capacity as specified in 60.110a(a)

40 CFR 60 Subpart Kb – *Standards of Performance for Volatile Organic Liquid Storage Vessels*: All tanks at the facility are below 75m<sup>3</sup> (19,813 gallons) in capacity as specified in 60.110b(a)

40 CFR 60 Subpart KKK – *Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plant*: This compressor station is not engaged in the extraction or fractionation of natural gas liquids from field gas, the fractionation of mixed natural gas liquids to natural gas products, or both.

40 CFR 60 Subpart IIII – *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*: There are no compression ignition engines at this facility.

40 CFR 60 Subpart KKKK – *Standards of Performance for Stationary Combustion Turbines* – The turbine on site was installed in 1998, which predates this NSPS's applicability date of February 18, 2005 as specified in §60.4305(a).

40 CFR 60 Subpart OOOO – *Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution*: The Storage Vessel requirements defined for transmission sources is not applicable to this site because all vessels commenced construction, prior to August 23, 2011 as stated in accordance with [40CFR§60.5365(e)]. No other affected sources were identified at this site.

40 CFR 60 Subpart OOOOa – *Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015*. The GHG and VOC requirements defined by this NSPS are not applicable to this site because all affected sources commenced constructed prior to September 18, 2015 in accordance with [40CFR§60.5365a]

40 CFR 63 Subpart HHH – *National Emission Standards for Hazardous Air Pollutants from Natural gas Transmission and Storage Facilities*: This subpart does not apply to the facility since it is not a major source of HAPs as defined in 40CFR§63.1270(a) and does not operate a dehydration process.

40 CFR 63 Subpart YYYY – *Turbine MACT*: The turbine on site, which was installed in 1998, was constructed prior to the applicability trigger date of January 14, 2003 for newly constructed or reconstructed sources and is therefore considered an exempt existing source in accordance with §63.6090(b)(4).

40 C.F.R. 63 Subpart DDDDD; *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters*: This subpart does not apply to the facility since it not a major source of HAPs as defined in 40CFR§63.7575.

40 C.F.R. 63 Subpart JJJJJJ; *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*: This subpart does not apply to the facility since the boilers and line heater are fueled by natural gas as defined in 40CFR§63.11195(e).

40 CFR 64 – *Compliance Assurance Monitoring (CAM)*: There are no add-on controls at this facility; therefore, in accordance with 40CFR§64.2(b)(1), CAM is not applicable to this facility.

☒ Permit Shield

## 20. Facility-Wide Applicable Requirements

**List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements).**

T5 – 3.1.1 – 45 CSR 6-3.1 – Open burning prohibited  
T5 – 3.1.2 – 45 CSR 6-3.2 – Open burning exemption stipulations  
T5 – 3.1.3 – 40 CFR Part 61 and 45 CSR 34 – Asbestos inspection and removal  
T5 – 3.1.4 – 45 CSR 4 – No objectionable odors  
T5 – 3.1.5 – 45 CSR 11-5.2 – Standby plans for emergency episodes  
T5 – 3.1.6 – WV Code 22-5-4 (a) (14) – Annual emission inventory reporting  
T5 – 3.1.7 – 40 CFR Part 82 Subpart F – Ozone depleting substances  
T5 – 3.1.8 – 40 CFR Part 68 – Risk Management Plan  
T5 – 3.1.9 – 45 CSR 30-12.7 – Odor Control for Mercaptan  
T5 – 3.1.10 – 45 CSR 30-12.7 – Emergency Operating Conditions / unit replacement  
T5 – 3.3.1 – 45 CSR 22-5-4(a)(14-15) & 45CSR13 - Stack Testing - Conduct stack testing as required  
T5 – 3.4.1 – 45 CSR 30-5.1 - Monitoring information – general monitoring requirements  
T5 – 3.4.2 – 45 CSR 30-5.1 - Retention of records - Maintain records for a period of 5 years  
T5 – 3.4.3 – 45 CSR 30-5.1 - Odors - Maintain records of odor complaints and corrective actions  
T5 – 3.4.4 – 45 CSR 17.3 – Fugitive PM shall not cause statutory Air Pollution  
T5 – 3.5.1 – 45 CSR 30-4.4. and 5.1.c.3.D – All documents required by permit shall be certified by a Responsible Official  
T5 – 3.5.2 – 45 CSR 30-5.1.c.3.E. - A permittee may request confidential treatment  
T5 – 3.5.3 – 45 CSR 30-5 - Communication required or permitted to be made to the DEP and/or USEPA  
T5 – 3.5.4 – 45 CSR 30-8 - Certified emissions statement – Operator will Submit a certified emissions statement and pay fees on an annual basis  
T5 – 3.5.5 – 45 CSR 30-5.3.e. - Compliance certification. The permittee shall certify compliance with the conditions of this permit on the forms provided by the DAQ  
T5 – 3.5.6 – 45 SR§30-5.1.c.3.A - Semi-annual monitoring reports.  
T5 – 3.5.7 – 45 CSR 30-5.7.a through e. - Emergencies  
T5 – 3.5.8 – 45 CSR 30-5.1.c.3.B. and C. - Deviations  
T5 – 3.5.9 – 45 CSR 30-4.3.h.1.B. New applicable requirements. If any requirement is promulgated, the permittee will meet such requirements on a timely basis  
T5 – 3.5.10 – 45 CSR 30-5.1.c.3.C. Natural Gas Use certification during Compliance Certification

☒ Permit Shield

**For all facility-wide applicable requirements listed above, provide monitoring/testing / recordkeeping / reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)**

T5 – 3.1.3 – 40 CFR Part 61 and 45 CSR 34 – Prior to demolition/construction buildings will be inspected for asbestos and documented accordingly

T5 – 3.1.4 – 45 CSR 4 – Permittee shall maintain records of all odor complaints received

T5 – 3.1.5 – 45 CSR 11 – Upon request by the Secretary, the permittee shall prepare a standby plan

T5 – 3.1.6 – WV 22-5-4 – The permittee shall submit annual emission inventory reports

T5 – 3.1.7 – 40 CFR Part 82 Subpart F – The permittee will prohibit maintenance, service, or repair of appliances containing ozone depleting substances without persons certified pursuant to 40 CFR 82.161

T5 – 3.1.8 – 40 CFR Part 68 – Should the permittee become subject to 40 CFR Part 68, a RMP shall be submitted

T5 – 3.1.10 – 45CSR§30-12.7 For emergency situations which interrupt the critical supply of natural gas to the public, and which pose a life threatening circumstance to the customer, the permittee is allowed to temporarily replace failed engine(s). Proper notice will be provided to the WVDAQ

T5 – 3.3.1 – 45 CSR 22-5-4 Stack Testing – All protocols and reports will be submitted to the WVDAQ

T5 – 3.4.1 & 3.4.2 – 45 CSR 30-5.1 Retention of Records - Maintain records of all information required by permit for 5 yrs.

T5 – 3.4.3 – 45 CSR 30-5.1 Odors - Maintain records of all odor complaints and responses.

T5 – 3.5.1 – 45 CSR 30-4.4 and 5.1 Responsible Official - Reports, certifications, etc. shall contain a certification by the responsible official.

T5 – 3.5.4 – 45 CSR 30-8 Certified emissions statement – Operator will Submit a certified emissions statement and pay fees on an annual basis

T5 – 3.5.5 – 45 SR§30-5.3.e Compliance Certification - Prepare and submit an emission inventory as requested

T5 – 3.5.6 – 45 CSR§30-5.1.c.3.A. Semi-annual monitoring reports.

T5 – 3.5.7 – 45 CSR30-5.7.a through e. - For reporting emergency situations, refer to Section 2.17 of this permit

T5 – 3.5.8 – 45 CSR 30-5.1.c.3.B. and C. – Deviations, In addition to required monitoring reports, the permittee shall promptly submit supplemental reports and notices of deviations / include upset conditions, cause of deviation(s) and corrective actions.

T5 – 3.5.9 – 45 CSR 30-4.3.h.1.B. New applicable requirements. If any requirement is promulgated, the permittee will meet such requirements on a timely basis

T5 – 3.5.10 – 45 CSR 30-5.1.c.3.C. During compliance certification, the facility shall certify that the facility burns natural gas in all stationary equipment except, when applicable, for emergency equipment.

**Are you in compliance with all facility-wide applicable requirements?** ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

## 21. Active Permits/Consent Orders

[illegible]

## 22. Inactive Permits/Obsolete Permit Conditions

[illegible]

**Section 3: Facility-Wide Emissions**

<b>23. Facility-Wide Emissions Summary [Tons per Year]</b>	
Criteria Pollutants	Potential Emissions
Carbon Monoxide (CO)	105.92
Nitrogen Oxides (NO <sub>x</sub> )	44.06
Lead (Pb)	-
Particulate Matter (PM <sub>2.5</sub> ) <sup>1</sup>	0.53
Particulate Matter (PM <sub>10</sub> ) <sup>1</sup>	0.53
Total Particulate Matter (TSP)	0.53
Sulfur Dioxide (SO <sub>2</sub> )	0.19
Volatile Organic Compounds (VOC)	2.79
Hazardous Air Pollutants <sup>2</sup>	Potential Emissions
Benzene	0.01
Toluene	0.03
Ethylbenzene	0.01
Xylene	0.02
n-Hexane	0.03
Formaldehyde	0.21
Acetaldehyde	0.01
Total HAPs	0.33
Regulated Pollutants other than Criteria and HAP	Potential Emissions
CO <sub>2e</sub>	31,083.4
<sup>1</sup> PM <sub>2.5</sub> and PM <sub>10</sub> are components of TSP. <sup>2</sup> For HAPs that are also considered PM or VOCs, emissions should be included in both the HAPs section and the Criteria Pollutants section.	



**Section 4: Insignificant Activities**

<b>24. Insignificant Activities (Check all that apply)</b>	
<input checked="" type="checkbox"/>	1. Air compressors and pneumatically operated equipment, including hand tools.
<input type="checkbox"/>	2. Air contaminant detectors or recorders, combustion controllers or shutoffs.
<input checked="" type="checkbox"/>	3. Any consumer product used in the same manner as in normal consumer use, provided the use results in a duration and frequency of exposure which are not greater than those experienced by consumer, and which may include, but not be limited to, personal use items; janitorial cleaning supplies, office supplies and supplies to maintain copying equipment.
<input checked="" type="checkbox"/>	4. Bathroom/toilet vent emissions.
<input checked="" type="checkbox"/>	5. Batteries and battery charging stations, except at battery manufacturing plants.
<input type="checkbox"/>	6. Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents. Many lab fume hoods or vents might qualify for treatment as insignificant (depending on the applicable SIP) or be grouped together for purposes of description.
<input type="checkbox"/>	7. Blacksmith forges.
<input type="checkbox"/>	8. Boiler water treatment operations, not including cooling towers.
<input checked="" type="checkbox"/>	9. Brazing, soldering or welding equipment used as an auxiliary to the principal equipment at the source.
<input type="checkbox"/>	10. CO <sub>2</sub> lasers, used only on metals and other materials which do not emit HAP in the process.
<input checked="" type="checkbox"/>	11. Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources.
<input checked="" type="checkbox"/>	12. Combustion units designed and used exclusively for comfort heating that use liquid petroleum gas or natural gas as fuel.
<input checked="" type="checkbox"/>	13. Comfort air conditioning or ventilation systems not used to remove air contaminants generated by or released from specific units of equipment.
<input type="checkbox"/>	14. Demineralized water tanks and demineralizer vents.
<input type="checkbox"/>	15. Drop hammers or hydraulic presses for forging or metalworking.
<input type="checkbox"/>	16. Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.
<input type="checkbox"/>	17. Emergency (backup) electrical generators at residential locations.

24. Insignificant Activities (Check all that apply)																															
<input type="checkbox"/>	18. Emergency road flares.																														
<input checked="" type="checkbox"/>	<p>19. Emission units which do not have any applicable requirements and which emit criteria pollutants (CO, NO<sub>x</sub>, SO<sub>2</sub>, VOC and PM) into the atmosphere at a rate of less than 1 pound per hour and less than 10,000 pounds per year aggregate total for each criteria pollutant from all emission units.</p> <p>Please specify all emission units for which this exemption applies along with the quantity of criteria pollutants emitted on an hourly and annual basis:</p> <table border="1"> <thead> <tr> <th><i>Emission Point</i></th> <th><i>VOC Emissions (lb/hr)</i></th> <th><i>VOC Emissions (lb/yr)</i></th> </tr> </thead> <tbody> <tr> <td>A07</td> <td>0.000</td> <td>0.13</td> </tr> <tr> <td>A11</td> <td>0.000</td> <td>0.58</td> </tr> <tr> <td>A12</td> <td>0.000</td> <td>0.58</td> </tr> <tr> <td>A15</td> <td>0.058</td> <td>504.72</td> </tr> <tr> <td>A21</td> <td>0.042</td> <td>370.86</td> </tr> <tr> <td>A23</td> <td>0.091</td> <td>796.80</td> </tr> <tr> <td>C05</td> <td>0.000</td> <td>0.09</td> </tr> <tr> <td>C06</td> <td>0.000</td> <td>0.10</td> </tr> <tr> <td><b>Totals</b></td> <td><b>0.19</b></td> <td><b>1673.86</b></td> </tr> </tbody> </table>	<i>Emission Point</i>	<i>VOC Emissions (lb/hr)</i>	<i>VOC Emissions (lb/yr)</i>	A07	0.000	0.13	A11	0.000	0.58	A12	0.000	0.58	A15	0.058	504.72	A21	0.042	370.86	A23	0.091	796.80	C05	0.000	0.09	C06	0.000	0.10	<b>Totals</b>	<b>0.19</b>	<b>1673.86</b>
<i>Emission Point</i>	<i>VOC Emissions (lb/hr)</i>	<i>VOC Emissions (lb/yr)</i>																													
A07	0.000	0.13																													
A11	0.000	0.58																													
A12	0.000	0.58																													
A15	0.058	504.72																													
A21	0.042	370.86																													
A23	0.091	796.80																													
C05	0.000	0.09																													
C06	0.000	0.10																													
<b>Totals</b>	<b>0.19</b>	<b>1673.86</b>																													
<input type="checkbox"/>	<p>20. Emission units which do not have any applicable requirements and which emit hazardous air pollutants into the atmosphere at a rate of less than 0.1 pounds per hour and less than 1,000 pounds per year aggregate total for all HAPs from all emission sources. This limitation cannot be used for any source which emits dioxin/furans nor for toxic air pollutants as per 45CSR27.</p> <p>Please specify all emission units for which this exemption applies along with the quantity of hazardous air pollutants emitted on an hourly and annual basis:</p>																														
<input type="checkbox"/>	21. Environmental chambers not using hazardous air pollutant (HAP) gases.																														
<input checked="" type="checkbox"/>	22. Equipment on the premises of industrial and manufacturing operations used solely for the purpose of preparing food for human consumption.																														
<input type="checkbox"/>	23. Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.																														
<input checked="" type="checkbox"/>	24. Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.																														
<input type="checkbox"/>	25. Equipment used for surface coating, painting, dipping or spray operations, except those that will emit VOC or HAP.																														
<input checked="" type="checkbox"/>	26. Fire suppression systems.																														
<input checked="" type="checkbox"/>	27. Firefighting equipment and the equipment used to train firefighters.																														
<input checked="" type="checkbox"/>	28. Flares used solely to indicate danger to the public.																														
<input checked="" type="checkbox"/>	29. Fugitive emission related to movement of passenger vehicle provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.																														
<input type="checkbox"/>	30. Hand-held applicator equipment for hot melt adhesives with no VOC in the adhesive formulation.																														
<input checked="" type="checkbox"/>	31. Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning or machining wood, metal or plastic.																														
<input type="checkbox"/>	32. Humidity chambers.																														

24. Insignificant Activities (Check all that apply)	
<input type="checkbox"/>	33. Hydraulic and hydrostatic testing equipment.
<input checked="" type="checkbox"/>	34. Indoor or outdoor kerosene heaters.
<input checked="" type="checkbox"/>	35. Internal combustion engines used for landscaping purposes.
<input type="checkbox"/>	36. Laser trimmers using dust collection to prevent fugitive emissions.
<input type="checkbox"/>	37. Laundry activities, except for dry-cleaning and steam boilers.
<input checked="" type="checkbox"/>	38. Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.
<input type="checkbox"/>	39. Oxygen scavenging (de-aeration) of water.
<input type="checkbox"/>	40. Ozone generators.
<input checked="" type="checkbox"/>	41. Plant maintenance and upkeep activities (e.g., grounds-keeping, general repairs, cleaning, painting, welding, plumbing, re-tarring roofs, installing insulation, and paving parking lots) provided these activities are not conducted as part of a manufacturing process, are not related to the source's primary business activity, and not otherwise triggering a permit modification. (Cleaning and painting activities qualify if they are not subject to VOC or HAP control requirements. Asphalt batch plant owners/operators must still get a permit if otherwise requested.)
<input checked="" type="checkbox"/>	42. Portable electrical generators that can be moved by hand from one location to another. "Moved by Hand" means that it can be moved without the assistance of any motorized or non-motorized vehicle, conveyance, or device.
<input type="checkbox"/>	43. Process water filtration systems and demineralizers.
<input checked="" type="checkbox"/>	44. Repair or maintenance shop activities not related to the source's primary business activity, not including emissions from surface coating or de-greasing (solvent metal cleaning) activities, and not otherwise triggering a permit modification.
<input type="checkbox"/>	45. Repairs or maintenance where no structural repairs are made and where no new air pollutant emitting facilities are installed or modified.
<input type="checkbox"/>	46. Routing calibration and maintenance of laboratory equipment or other analytical instruments.
<input type="checkbox"/>	47. Salt baths using nonvolatile salts that do not result in emissions of any regulated air pollutants. Shock chambers.
<input type="checkbox"/>	48. Shock chambers.
<input type="checkbox"/>	49. Solar simulators.
<input checked="" type="checkbox"/>	50. Space heaters operating by direct heat transfer.
<input type="checkbox"/>	51. Steam cleaning operations.
<input type="checkbox"/>	52. Steam leaks.
<input type="checkbox"/>	53. Steam sterilizers.
<input checked="" type="checkbox"/>	54. Steam vents and safety relief valves.
<input type="checkbox"/>	55. Storage tanks, reservoirs, and pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized.
<input type="checkbox"/>	56. Storage tanks, vessels, and containers holding or storing liquid substances that will not emit any VOC or HAP. Exemptions for storage tanks containing petroleum liquids or other volatile organic liquids should be based on size limits such as storage tank capacity and vapor pressure of liquids stored and are not appropriate for this list.
<input type="checkbox"/>	57. Such other sources or activities as the Director may determine.
<input checked="" type="checkbox"/>	58. Tobacco smoking rooms and areas.
<input checked="" type="checkbox"/>	59. Vents from continuous emissions monitors and other analyzers.

*Section 5: Emission Units, Control Devices, and Emission Points*

<b>25. Equipment Table</b>
Fill out the <b>Title V Equipment Table</b> and provide it as <b>ATTACHMENT D</b> .
<b>26. Emission Units</b>
For each emission unit listed in the <b>Title V Equipment Table</b> , fill out and provide an <b>Emission Unit Form</b> as <b>ATTACHMENT E</b> .
For each emission unit not in compliance with an applicable requirement, fill out a <b>Schedule of Compliance Form</b> as <b>ATTACHMENT F</b> .
<b>27. Control Devices</b>
For each control device listed in the <b>Title V Equipment Table</b> , fill out and provide an <b>Air Pollution Control Device Form</b> as <b>ATTACHMENT G</b> .
For any control device that is required on an emission unit in order to meet a standard or limitation for which the potential pre-control device emissions of an applicable regulated air pollutant is greater than or equal to the Title V Major Source Threshold Level, refer to the <b>Compliance Assurance Monitoring (CAM) Form(s)</b> for CAM applicability. Fill out and provide these forms, if applicable, for each Pollutant Specific Emission Unit (PSEU) as <b>ATTACHMENT H</b> .

**Section 6: Certification of Information**

**28. Certification of Truth, Accuracy and Completeness and Certification of Compliance**

*Note: This Certification must be signed by a responsible official. The **original**, signed in **blue ink**, must be submitted with the application. Applications without an **original** signed certification will be considered as incomplete.*

**a. Certification of Truth, Accuracy and Completeness**

I certify that I am a responsible official (as defined at 45CSR§30-2.38) and am accordingly authorized to make this submission on behalf of the owners or operators of the source described in this document and its attachments. I certify under penalty of law that I have personally examined and am familiar with the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine and/or imprisonment.

**b. 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.

**Responsible official (type or print)**

Name: Jeffery Hill

Title: Manager of Operations

**Responsible official's signature:**

Signature: Jeffery Hill

Signature Date: 4-10-17

(Must be signed and dated in blue ink)

**Note: Please check all applicable attachments included with this permit application:**

☒ ATTACHMENT A: Area Map

☒ ATTACHMENT B: Plot Plan(s)

☒ ATTACHMENT C: Process Flow Diagram(s)

☒ ATTACHMENT D: Equipment Table

☒ ATTACHMENT E: Emission Unit Form(s)

☐ ATTACHMENT F: Schedule of Compliance Form(s)

☐ ATTACHMENT G: Air Pollution Control Device Form(s)

☐ ATTACHMENT H: Compliance Assurance Monitoring (CAM) Form(s)

*All of the required forms and additional information can be found and downloaded from, the DEP website at [www.dep.wv.gov/dag](http://www.dep.wv.gov/dag), requested by phone (304) 926-0475, and/or obtained through the mail.*

# **ATTACHMENT A**

## **AREA MAP**

### **Title V Operating Permit Renewal Application**

**Flat Top Compressor Station, Facility ID No. 089-00004  
Flat Top, West Virginia**

Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia

April 2017





**GPS Coordinates of Sites:**

Lat: 37.58846, Long: -81.09170

**UTM Coordinates of Sites:**

Easting: 491.094 km, Northing: 4,160.159 km, Zone: 17

Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, WV 25314

**Report**

Title V Operating Permit Renewal Application  
Flat Top Compressor Station (ID No. 089-00004)

**Drawing**

Attachment A - Area Map

Date: May 2016

Drawn By: CLB

Project: 116,01272,00020

## **ATTACHMENT B**

### **PLOT PLAN**

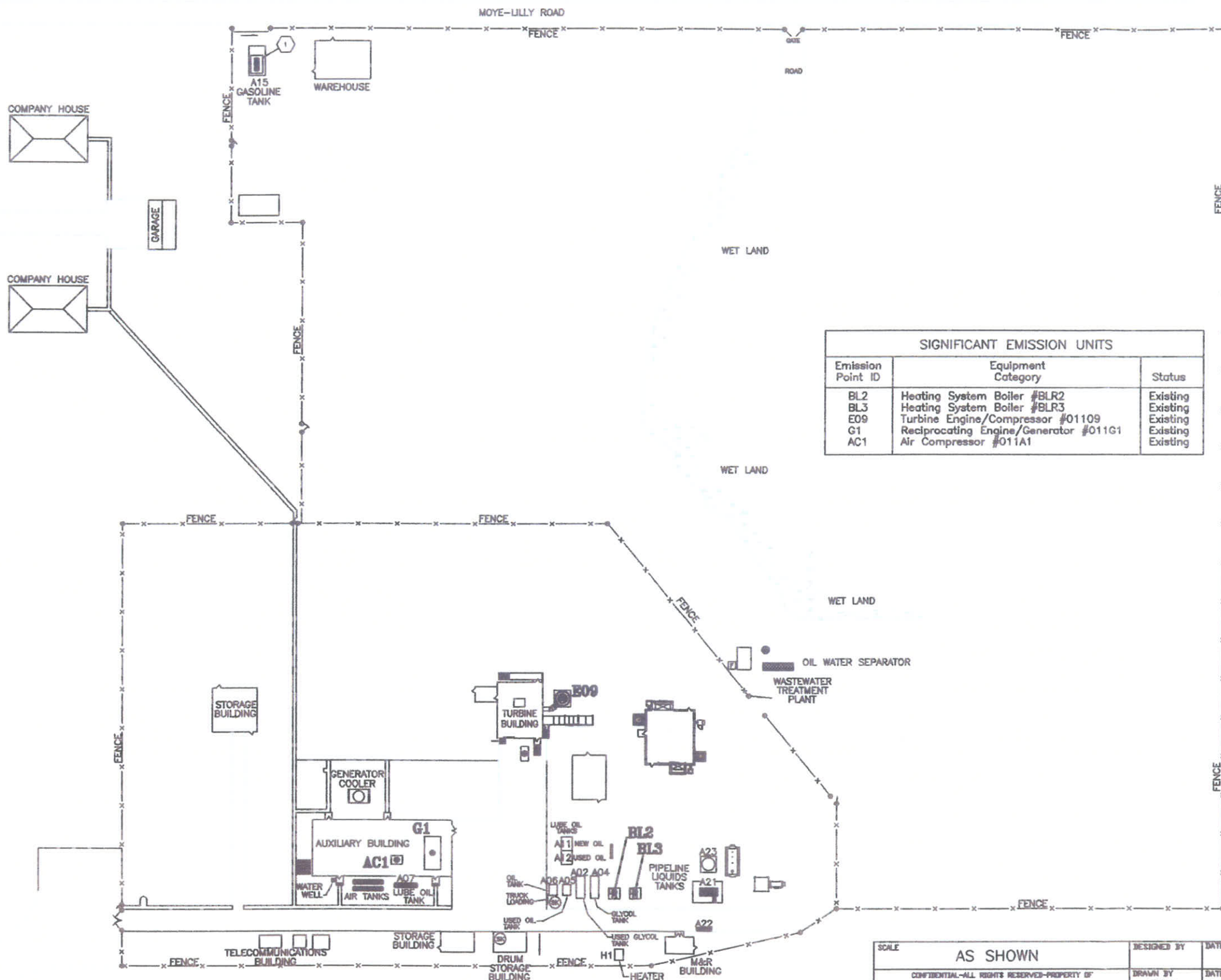
#### **Title V Operating Permit Renewal Application**

**Flat Top Compressor Station, Facility ID No. 089-00004  
Flat Top, West Virginia**

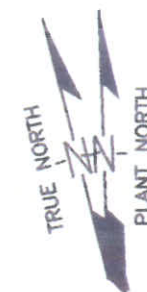
Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia

April 2017



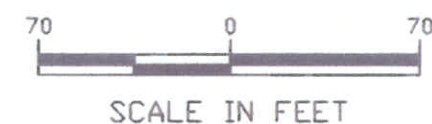



SIGNIFICANT EMISSION UNITS		
Emission Point ID	Equipment Category	Status
BL2	Heating System Boiler #BLR2	Existing
BL3	Heating System Boiler #BLR3	Existing
E09	Turbine Engine/Compressor #01109	Existing
G1	Reciprocating Engine/Generator #011G1	Existing
AC1	Air Compressor #011A1	Existing



# KEY

- FENCELINE
- PROPERTY BOUNDARY
- NATURAL GAS PIPELINE
- EMISSION POINT



SCALE	AS SHOWN	DESIGNED BY	DATE	DRAWING TITLE		
CONFIDENTIAL-ALL RIGHTS RESERVED-PROPERTY OF  URS NORTH CAROLINA STUDIO		DRAWN BY	DATE	Site Plan Columbia Gas Transmission Corp Flat Top Station		
		TSH	07JUN05			
		CHECKED BY	DATE	CONTRACT NO.		
		MAZ	07JUN05	31827062		
		APPROVED BY	DATE	DRAWING NO.		REV.
		MAZ	07JUN05	FLAT-TOP		1

**ATTACHMENT C**

**PROCESS FLOW DIAGRAM**

**Title V Operating Permit Renewal Application**

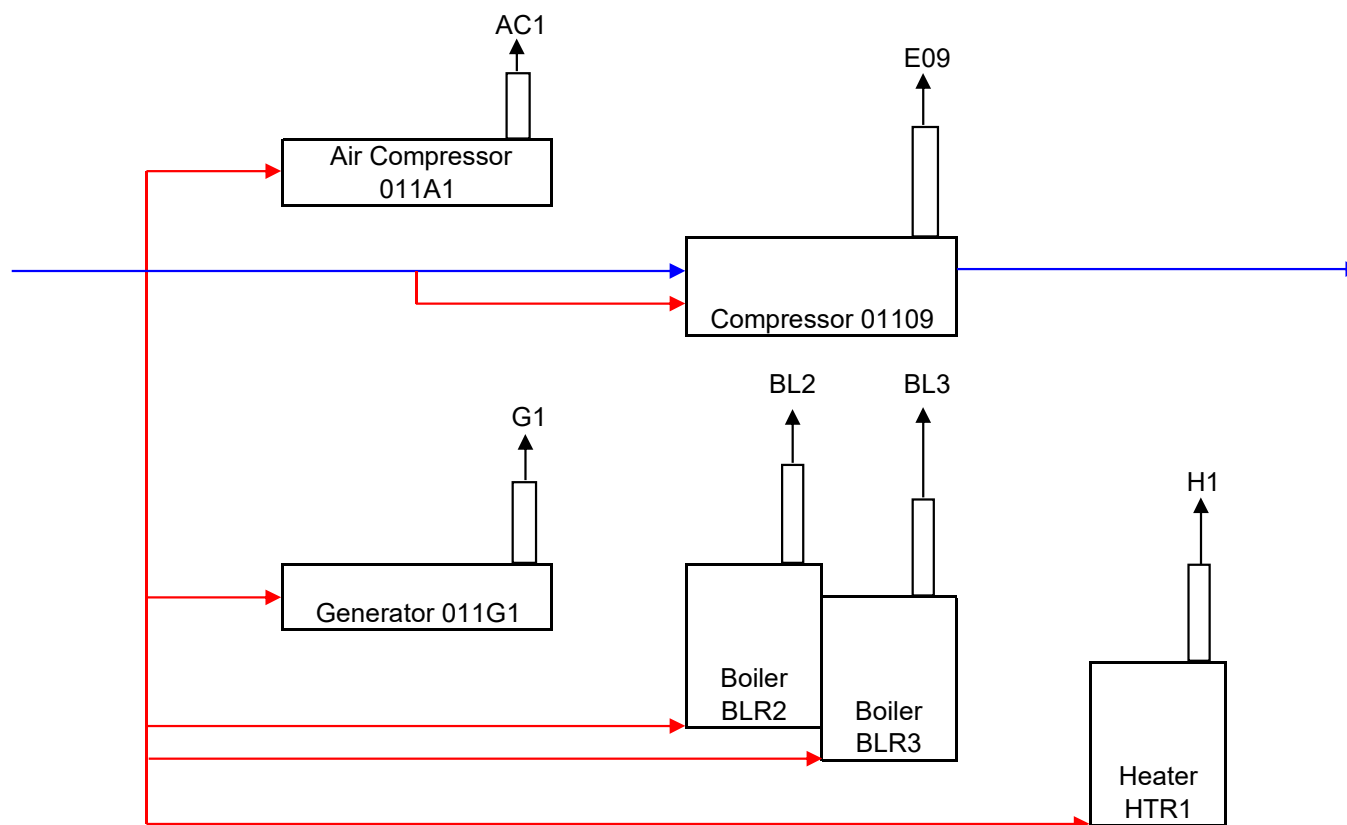
**Flat Top Compressor Station, Facility ID No. 089-00004**  
**Flat Top, West Virginia**

Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia

April 2017

# ATTACHMENT C

## FLAT TOP COMPRESSOR STATION PROCESS FLOW DIAGRAM



— Transmission Gas Stream  
— Fuel Gas  
— Emissions Stream

**ATTACHMENT D**

**EQUIPMENT TABLE**

**Title V Operating Permit Renewal Application**

**Flat Top Compressor Station, Facility ID No. 089-00004**  
**Flat Top, West Virginia**

Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia

April 2017

**ATTACHMENT D - Title V Equipment Table**  
(includes all emission units at the facility except those designated as  
insignificant activities in Section 4, Item 19 of the General Forms)

Emission Point ID <sup>1</sup>	Control Device <sup>1</sup>	Emission Unit ID <sup>1</sup>	Emission Unit Description	Design Capacity	Year Installed/Modified
E09	N/A	01109*	Turbine Engine/Compressor; Solar Taurus 60-7302S	6,089 hp	1998
G1	N/A	011G1*	Reciprocating Engine/Generator; Ingersoll-Rand PSVG-8; 4 Cycle, Rich Burn	544 hp	1989
AC1	N/A	011A1	Reciprocating Engine/Air Compressor; (Gasoline Fired) Kohler K341S	16 hp	2000
BL2	N/A	BLR2*	Heating System Boiler; Ajax; Model # WNG1250W	1.25 mmBtu/hr	1998
BL3	N/A	BLR3*	Hot Water Boiler; Ajax; Model # WNG-2000-W	2.0 mmBtu/hr	2000
H1	N/A	HTR1*	Indirect Line Heater; NATCO; Model # MB30-8-8B	1.0 mmBtu/hr	1997

<sup>1</sup>For 45CSR13 permitted sources, the numbering system used for the emission points, control devices, and emission units should be consistent with the numbering system used in the 45CSR13 permit. For grandfathered sources, the numbering system should be consistent with registrations or emissions inventory previously submitted to DAQ. For emission points, control devices, and emissions units which have not been previously labeled, use the following 45CSR13 numbering system: 1S, 2S, 3S,... or other appropriate description for emission units; 1C, 2C, 3C,... or other appropriate designation for control devices; 1E, 2E, 3E, ... or other appropriate designation for emission points.

\*This equipment burns pipeline quality natural gas only.

**ATTACHMENT E**

**EMISSION UNIT FORM(S)**

**Title V Operating Permit Renewal Application**

**Flat Top Compressor Station, Facility ID No. 089-00004**  
**Flat Top, West Virginia**

Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia

April 2017

## ATTACHMENT E - Emission Unit Form

### *Emission Unit Description*

<b>Emission unit ID number:</b> BLR2	<b>Emission unit name:</b> Heating System Boiler	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
 Heating System Boiler

<b>Manufacturer:</b> Ajax	<b>Model number:</b> WNG1250W	<b>Serial number:</b> NA
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<b>Construction date:</b> NA	<b>Installation date:</b> 1998	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 1.25 mmBtu/hr

<b>Maximum Hourly Throughput:</b> NA	<b>Maximum Annual Throughput:</b> NA	<b>Maximum Operating Schedule:</b> 8,760
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### *Fuel Usage Data (fill out all applicable fields)*

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b>  <input checked="" type="checkbox"/> Indirect Fired <input type="checkbox"/> Direct Fired
--	---

<b>Maximum design heat input and/or maximum horsepower rating:</b>  1.25 mmBtu/hr	<b>Type and Btu/hr rating of burners:</b>  1.25 mmBtu/hr
---	--

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
 1,221 scf/hr / 10,700,000 scf/yr

### **Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	Pipeline Quality		1,020 Btu/scf

<b><i>Emissions Data</i></b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Appendix A	
Nitrogen Oxides (NO <sub>x</sub> )		
Lead (Pb)		
Particulate Matter (PM <sub>2.5</sub> )		
Particulate Matter (PM <sub>10</sub> )		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO <sub>2</sub> )		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
	See Appendix A	
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
<b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b>  See Appendix A		



***Applicable Requirements***

**List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.**

**45 C.S.R. 2**

45 CSR§2-3.1. – Opacity Limit; shall not exceed ten (10) percent opacity

☒ Permit Shield

**For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)**

**45 C.S.R. 2**

45 CSR§2-3.2. – Compliance shall be determined using Method 9

**45 C.S.R 13, Permit R13-2065G**

Condition 5.1.2 – At such reasonable times as the Secretary may designate, the permittee shall conduct Method 9 emission observations for the purpose of demonstrating compliance with 45 CSR§2-3. Method 9 shall be conducted in accordance with 40 CFR 60 Appendix A

**Are you in compliance with all applicable requirements for this emission unit?** ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

## ATTACHMENT E - Emission Unit Form

### *Emission Unit Description*

<b>Emission unit ID number:</b> BLR3	<b>Emission unit name:</b> Hot Water Boiler	<b>List any control devices associated with this emission unit:</b> NA
---	--	---

**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
Hot Water Boiler.

<b>Manufacturer:</b> Ajax	<b>Model number:</b> WNG-2000-W	<b>Serial number:</b> NA
------------------------------	------------------------------------	-----------------------------

<b>Construction date:</b> NA	<b>Installation date:</b> 2000	<b>Modification date(s):</b> NA
---------------------------------	-----------------------------------	------------------------------------

**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 2.0 mmBtu/hr

<b>Maximum Hourly Throughput:</b> NA	<b>Maximum Annual Throughput:</b> NA	<b>Maximum Operating Schedule:</b> 8,760
---	---	---

### *Fuel Usage Data (fill out all applicable fields)*

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b>  <input checked="" type="checkbox"/> Indirect Fired <input type="checkbox"/> Direct Fired
--	---

<b>Maximum design heat input and/or maximum horsepower rating:</b>  2.0 mmBtu/hr	<b>Type and Btu/hr rating of burners:</b>  2.0 mmBtu/hr
--	---

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
1,963 scf/hr / 17,200,000 scf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	Pipeline Quality		1,020 Btu/scf

<b><i>Emissions Data</i></b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Appendix A	
Nitrogen Oxides (NO <sub>x</sub> )		
Lead (Pb)		
Particulate Matter (PM <sub>2.5</sub> )		
Particulate Matter (PM <sub>10</sub> )		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO <sub>2</sub> )		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
	See Appendix A	
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
<b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b>  See Appendix A		

***Applicable Requirements***

**List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.**

**45 C.S.R. 2**

45 CSR§2-3.1. – Opacity Limit; shall not exceed ten (10) percent opacity

☒ Permit Shield

**For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)**

**45 C.S.R. 2**

45 CSR§2-3.2. – Compliance shall be determined using Method 9

**45 C.S.R 13, Permit R13-2065G**

Condition 5.1.2 – At such reasonable times as the Secretary may designate, the permittee shall conduct Method 9 emission observations for the purpose of demonstrating compliance with 45 CSR§2-3. Method 9 shall be conducted in accordance with 40 CFR 60 Appendix A

**Are you in compliance with all applicable requirements for this emission unit?** ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

### *Emission Unit Description*

<b>Emission unit ID number:</b>  HTR1	<b>Emission unit name:</b>  Line Heater	<b>List any control devices associated with this emission unit:</b>  NA
---	---	---

**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
Line Heater.

<b>Manufacturer:</b> Natco	<b>Model number:</b> MB30-8-8B	<b>Serial number:</b> NA
-------------------------------	-----------------------------------	-----------------------------

<b>Construction date:</b> NA	<b>Installation date:</b> 1997	<b>Modification date(s):</b> NA
---------------------------------	-----------------------------------	------------------------------------

**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 1.0 mmBtu/hr

<b>Maximum Hourly Throughput:</b> NA	<b>Maximum Annual Throughput:</b> NA	<b>Maximum Operating Schedule:</b> 8,760
---	---	---

### *Fuel Usage Data (fill out all applicable fields)*

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b>  <input checked="" type="checkbox"/> Indirect Fired <input type="checkbox"/> Direct Fired
--	---

<b>Maximum design heat input and/or maximum horsepower rating:</b>  1.0 mmBtu/hr	<b>Type and Btu/hr rating of burners:</b>  1.0 mmBtu/hr
--	---

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
980.6 scf/hr / 8,590,000 scf/yr

### **Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	Pipeline Quality		1,020 Btu/scf

<b>Emissions Data</b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Appendix A	
Nitrogen Oxides (NO <sub>x</sub> )		
Lead (Pb)		
Particulate Matter (PM <sub>2.5</sub> )		
Particulate Matter (PM <sub>10</sub> )		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO <sub>2</sub> )		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
	See Appendix A	
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>See Appendix A</p>		

***Applicable Requirements***

**List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.**

**45 C.S.R. 2**

45 CSR§2-3.1. – Opacity Limit; shall not exceed ten (10) percent opacity

☒ Permit Shield

**For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)**

**45 C.S.R. 2**

45 CSR§2-3.2. – Compliance shall be determined using Method 9

**45 C.S.R 13, Permit R13-2065G**

Condition 5.1.2 – At such reasonable times as the Secretary may designate, the permittee shall conduct Method 9 emission observations for the purpose of demonstrating compliance with 45 CSR§2-3. Method 9 shall be conducted in accordance with 40 CFR 60 Appendix A

**Are you in compliance with all applicable requirements for this emission unit?** ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

## ATTACHMENT E - Emission Unit Form

### *Emission Unit Description*

<b>Emission unit ID number:</b> 011G1	<b>Emission unit name:</b> Reciprocating Engine/Generator	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
 4-cycle rich burn.

<b>Manufacturer:</b> Ingersoll-Rand	<b>Model number:</b> PSVG-8	<b>Serial number:</b> NA
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<b>Construction date:</b> NA	<b>Installation date:</b> 1989	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 544 hp

<b>Maximum Hourly Throughput:</b> NA	<b>Maximum Annual Throughput:</b> NA	<b>Maximum Operating Schedule:</b> 8,760
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### *Fuel Usage Data (fill out all applicable fields)*

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
--	---

<b>Maximum design heat input and/or maximum horsepower rating:</b> 544 hp	<b>Type and Btu/hr rating of burners:</b> 10,600 Btu/hp-hr
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
 5,653 scf/hr / 49,520,280 scf/yr

### **Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	Pipeline Quality		1,020 Btu/scf



<b><i>Emissions Data</i></b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Appendix A	
Nitrogen Oxides (NO <sub>x</sub> )		
Lead (Pb)		
Particulate Matter (PM <sub>2.5</sub> )		
Particulate Matter (PM <sub>10</sub> )		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO <sub>2</sub> )		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
	See Appendix A	
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
<b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b>  See Appendix A		

### ***Applicable Requirements***

**List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.**

#### **40 C.F.R. 63 Subpart ZZZZ**

40 C.F.R. § 63.6603 (a) and Table 2d (Line 5) – Maintenance Requirements

40 C.F.R. § 63.6605 – Operating Requirements

40 C.F.R. § 63.6625 (e)(3), (f), (h), and (j) – Monitoring Requirements

40 C.F.R. § 63.6640 and Table 6 (Line 9) – Continuous Compliance Requirements

40 C.F.R. § 63.6660 – Recordkeeping Requirements

40 C.F.R. § 63.6665 – General Requirements/Provisions

#### **X Permit Shield**

**For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)**

#### **40 C.F.R. 63 Subpart ZZZZ**

40 C.F.R. § 63.6603(a) and Table 2d (Line 5) – Change oil and filter every 500 hours of operation, or annually whichever comes first; inspect spark plugs every 1000 hours of operation, or annually, whichever occurs first; inspect hoses every 500 hours of operation, or annually, whichever occurs first and replace as necessary

40 C.F.R. § 63.6605, 63.6625(e)(3), 63.6640 and Table 6 (Line 9) – Work or Management Practices: Operate and Maintain the RICE according to the manufacturer's instructions OR develop and follow your own maintenance plan

40 C.F.R. § 63.6625 (f) – Install and monitor hours of operation

40 C.F.R. § 63.6625 (h) – Minimize Idle Time during Startup to not exceed 30 Minutes

40 C.F.R. § 63.6625 (j) – Oil Analysis Program in lieu of Oil change requirement in Table 2d (Line 5)

40 C.F.R. § 63.6655 (except b & c) – Keep records of maintenance conducted and operating schedule on the RICE

40 C.F.R. § 63.6660 – Records retained for five (5) years and readily available for expeditious review

#### **45 C.S.R 13, Permit R13-2065G**

Condition 5.3.1 – In the event that the Secretary requests emission tests to be conducted to determine CO, NO<sub>x</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and VOC from emission points, the methods listed below from Appendix A of 40 CFR 60 shall be utilized for purposes of conducting performance tests unless the Secretary approves an alternative or equivalent method

<i>Pollutant</i>	<i>Method</i>
CO	10, 10A or 10B
NO <sub>x</sub>	40 CFR 60 Subpart GG
Formaldehyde	18
SO <sub>2</sub>	40 CFR 60 Subpart GG
VOC	25 or 25A

**Are you in compliance with all applicable requirements for this emission unit? X Yes    \_\_\_ No**

**If no, complete the Schedule of Compliance Form as ATTACHMENT F.**

## ATTACHMENT E - Emission Unit Form

### *Emission Unit Description*

<b>Emission unit ID number:</b> 011A1	<b>Emission unit name:</b> Reciprocating Engine/Air Compressor	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**

Gasoline Fired Reciprocating Engine/Air Compressor

<b>Manufacturer:</b> Kohler	<b>Model number:</b> K341S	<b>Serial number:</b> NA
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<b>Construction date:</b> NA	<b>Installation date:</b> 2000	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 16 hp

<b>Maximum Hourly Throughput:</b> NA	<b>Maximum Annual Throughput:</b> NA	<b>Maximum Operating Schedule:</b> 500
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### *Fuel Usage Data (fill out all applicable fields)*

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b>  <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
--	---

<b>Maximum design heat input and/or maximum horsepower rating:</b>  16 hp	<b>Type and Btu/hr rating of burners:</b>  NA
---	---

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**  
 Gasoline

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Gasoline	Typical	Typical	~115,000 Btu/gal

<b><i>Emissions Data</i></b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Appendix A	
Nitrogen Oxides (NO <sub>x</sub> )		
Lead (Pb)		
Particulate Matter (PM <sub>2.5</sub> )		
Particulate Matter (PM <sub>10</sub> )		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO <sub>2</sub> )		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
	See Appendix A	
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
<b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b>  See Appendix A		

### ***Applicable Requirements***

**List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.**

#### **40 C.F.R. 63 Subpart ZZZZ**

40 C.F.R. § 63.6603 (a) and Table 2d (Line 5) – Maintenance Requirements

40 C.F.R. § 63.6605 – Operating Requirements

40 C.F.R. § 63.6625 (e)(3), (f), (h), and (j) – Monitoring Requirements

40 C.F.R. § 63.6640 and Table 6 (Line 9) – Continuous Compliance Requirements

40 C.F.R. § 63.6660 – Recordkeeping Requirements

40 C.F.R. § 63.6665 – General Requirements/Provisions

#### **45 C.S.R 13, Permit R13-2065G**

Condition 5.1.4 – Unit shall not be operated in excess of 500 hours per year

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**For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)**

#### **40 C.F.R. 63 Subpart ZZZZ**

40 C.F.R. § 63.6603(a) and Table 2d (Line 5) – Change oil and filter every 500 hours of operation, or annually whichever comes first; inspect spark plugs every 1000 hours of operation, or annually, whichever occurs first; inspect hoses every 500 hours of operation, or annually, whichever occurs first and replace as necessary

40 C.F.R. § 63.6605, 63.6625(e)(3), 63.6640 and Table 6 (Line 9) – Work or Management Practices: Operate and Maintain the RICE according to the manufacturer's instructions OR develop and follow your own maintenance plan

40 C.F.R. § 63.6625 (f) – Install and monitor hours of operation

40 C.F.R. § 63.6625 (h) – Minimize Idle Time during Startup to not exceed 30 Minutes

40 C.F.R. § 63.6625 (j) – Oil Analysis Program in lieu of Oil change requirement in Table 2d (Line 5)

40 C.F.R. § 63.6655 (except b & c) – Keep records of maintenance conducted and operating schedule on the RICE

40 C.F.R. § 63.6660 – Records retained for five (5) years and readily available for expeditious review

#### **45 C.S.R 13, Permit R13-2065G**

Condition 5.3.1 – In the event that the Secretary requests emission tests to be conducted to determine CO, NO<sub>x</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and VOC from emission points, the methods listed below from Appendix A of 40 CFR 60 shall be utilized for purposes of conducting performance tests unless the Secretary approves an alternative or equivalent method

<i>Pollutant</i>	<i>Method</i>
CO	10, 10A or 10B
NO <sub>x</sub>	40 CFR 60 Subpart GG
Formaldehyde	18
SO <sub>2</sub>	40 CFR 60 Subpart GG
VOC	25 or 25A

Condition 5.4.4 – Permittee shall maintain records of the hours of operation in the unit. Said records shall be maintained on site for a period of five (5) years. Said records shall be made available to the director of the DAQ or his/her duly authorized representative upon request and shall be certified by a responsible official upon submittal

**Are you in compliance with all applicable requirements for this emission unit?** ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

## ATTACHMENT E - Emission Unit Form

### *Emission Unit Description*

<b>Emission unit ID number:</b> 01109	<b>Emission unit name:</b> Turbine Engine / Compressor	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
 Turbine Engine

<b>Manufacturer:</b> Solar	<b>Model number:</b> Taurus 60-7302S	<b>Serial number:</b> NA
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<b>Construction date:</b> NA	<b>Installation date:</b> 1998	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 6,089 hp

<b>Maximum Hourly Throughput:</b> NA	<b>Maximum Annual Throughput:</b> NA	<b>Maximum Operating Schedule:</b> 8,760
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### *Fuel Usage Data (fill out all applicable fields)*

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
--	---

<b>Maximum design heat input and/or maximum horsepower rating:</b> 6,089 hp	<b>Type and Btu/hr rating of burners:</b> 9,200 Btu/hp-hr
--	--

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
 54,920 scf/hr / 481,099,200 scf/yr

### **Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	Pipeline Quality		1,020 Btu/scf

<b><i>Emissions Data</i></b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	See Appendix A	
Nitrogen Oxides (NO <sub>x</sub> )		
Lead (Pb)		
Particulate Matter (PM <sub>2.5</sub> )		
Particulate Matter (PM <sub>10</sub> )		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO <sub>2</sub> )		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
	See Appendix A	
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
<b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b>  See Appendix A		

### Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or **construction permit** with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

#### 40 C.F.R. 60 Subpart GG

40 C.F.R. § 60.330 – Applicability

40 C.F.R. § 60.332(a)(2), and 60.332(c) – NO<sub>x</sub> Operating Requirements

40 C.F.R. § 60.333 – SO<sub>2</sub> Operating Requirements

40 C.F.R. § 60.334(c), (h)(1), (h)(2), (h)(3)(i), (h)(3)(ii), (i)(2), and (j) – Monitoring Requirements

40 C.F.R. § 60.335 – Testing Requirements

#### 45 C.S.R 13, Permit R13-2065G

Condition 5.1.1 – Maximum hourly emission rates from emission unit 01109 shall not exceed the following;

Operating Mode	Emissions (lb/hr)	
	NO <sub>x</sub>	CO
Full Load (> 0 F)	5.36	6.52
Low Load Operations (<50%)	9.92	189.79
Low-Temp Operations (< 0 F)	26.74	20.34
Startup/Shutdown	3.86	72.00

Condition 5.1.2 – Maximum annual emission rates from emission unit 01109 shall not exceed the following;

	Emissions (ton/yr)
NO <sub>x</sub>	39.00
CO	99.00

Condition 5.1.3 – Emission unit 01109 shall not consume no more than 59,495 scf of natural gas per hour or 5.13 x 10<sup>8</sup> scf of natural gas per year.

Condition 5.1.5 – Facility shall comply with all applicable provisions of 40 CFR 60.332, 60.333, 60.334, and 60.335 provided that compliance with any more stringent limitation set forth in this permit shall also be demonstrated. The permittee must notify the Director of the DAQ of excess emissions as required.

☒ Permit Shield

**For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)**

#### 40 C.F.R. 60 Subpart GG

40 C.F.R. § 60.332(a)(2) and 60.332(c) – No owner/operator shall cause to be discharged into the atmosphere from any stationary gas turbine, any gases that contain NO<sub>x</sub> in excess of;

$$STD = 0.0150 \frac{(14.4)}{Y} + F$$

where:

STD = the allowable ISO corrected NO<sub>x</sub> emission concentration (percent by volume @ 15% O<sub>2</sub> on a dry basis),  
Y = manufacturer's rated heat rate at rated peak load (kilojoules per watt hour), or actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of U shall not exceed 14.4 kJ/W-hr, and  
F = NO<sub>x</sub> emission allowance for fuel bound nitrogen

40 C.F.R. § 60.333 – No owner/operator shall cause to be discharged into the atmosphere from any stationary gas turbine gases which contain SO<sub>2</sub> in excess of 0.015 percent by volume at 15% O<sub>2</sub> and on a dry basis or any fuel which contains total sulfur in



excess of 0.8 percent by weight (8000 ppmw)

40 C.F.R. § 60.334(c) – For any turbine that commenced construction, reconstruction or modification after October 3, 1977, but before July 8, 2004, and which does not use steam or water injection to control NO<sub>x</sub> emissions, the owner or operator may, but is not required to, for purposes of determining excess emissions, use a CEMS that meets the requirements of paragraph (b) of this section. Also, if the owner or operator has previously submitted and received EPA, State, or local permitting authority approval of a procedure for monitoring compliance with the applicable NO<sub>x</sub> emission limit under §60.332, that approved procedure may continue to be used

40 C.F.R. § 60.334(h)(1) – Owner/operators shall monitor the total sulfur content of the fuel being fired in the turbine

40 C.F.R. § 60.334(h)(2) – Owner/operators shall monitor the nitrogen content of the fuel combusted in the turbine, if the owner or operator claims an allowance for fuel bound nitrogen (*i.e.*, if an F-value greater than zero is being or will be used by the owner or operator to calculate STD in §60.332)

40 C.F.R. § 60.334(h)(3)(i) and 60.334(h)(3)(ii) – Owner/operators may elect not to monitor the total sulfur content of the gases fuel combusted in the turbine, if the fuel is demonstrated to meet the definition of natural gas in 60.331(u) by demonstrating the gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel specifying the maximum total sulfur content to be 20 grains/100 scf or less or by representative fuel sampling data showing the sulfur content of the gaseous fuel does not exceed 20 grains/100 scf

40 C.F.R. § 60.334(i)(2) – Any applicable nitrogen content value of the gaseous fuel shall be determined and recorded once daily. For owners/operators that elect not to demonstrate sulfur content using options in paragraph (h)(3) of this section, and for which the fuel is supplied without intermediate bulk storage, the sulfur content value of the gaseous fuel shall also be determined and recorded once daily.

40 C.F.R. § 60.334(j) – For each affected unit that elects to continuously monitor parameters or emissions, or to periodically determine the fuel sulfur content or nitrogen fuel content, the owner/operator shall submit reports of excess emissions and monitor downtime

40 C.F.R. § 60.335 – Owner/operators shall conduct the performance tests required in §60.8

#### **45 C.S.R 13, Permit R13-2065G**

Condition 5.3.1 – In the event that the Secretary requests emission tests to be conducted to determine CO, NO<sub>x</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and VOC from emission points, the methods listed below form Appendix A of 40 CFR 60 shall be utilized for purposes of conducting performance tests unless the Secretary approves an alternative or equivalent method

<i>Pollutant</i>	<i>Method</i>
CO	10, 10A or 10B
NO <sub>x</sub>	40 CFR 60 Subpart GG
Formaldehyde	18
SO <sub>2</sub>	40 CFR 60 Subpart GG
VOC	25 or 25A

Condition 5.4.1 – To demonstrate compliance with section 5.1.2, the permittee shall maintain monthly operating hours at normal dry low NO<sub>x</sub> (DLN) conditions, non-dry low NO<sub>x</sub> (non-DLN) conditions and low ambient temperature conditions as well as the monthly number of startup and shutdown cycles

Condition 5.4.2 – To demonstrate compliance with section 5.1.1, the permittee shall keep records of operation

Condition 5.4.3 – To demonstrate compliance with section 5.1.3, the permittee shall maintain records of the amount of natural gas consumed. Said records shall be maintained on site for a period of five (5) years and shall be made available to the Director of the DAQ or his/her duly authorized representative upon request and shall be certified by a responsible official upon submittal

Condition 5.5.1 – All required under 40 CFR 60 Subpart GG shall be maintained by the owner or operator of the affected facility for a period of two (2) years following the date of such record

Condition 5.5.2 – The permitted facility shall comply with all applicable provisions of 40 CFR 60 Subpart GG. The permittee must also notify the Director of excess emissions as required

**Are you in compliance with all applicable requirements for this emission unit?** ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

## **ATTACHMENT F**

### **SCHEDULE OF COMPLIANCE FORM (NOT APPLICABLE)**

#### **Title V Operating Permit Renewal Application**

**Flat Top Compressor Station, Facility ID No. 089-00004  
Flat Top, West Virginia**

Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia

April 2017

## **ATTACHMENT G**

### **AIR POLLUTION CONTROL DEVICE FORM (NOT APPLICABLE)**

#### **Title V Operating Permit Renewal Application**

**Flat Top Compressor Station, Facility ID No. 089-00004  
Flat Top, West Virginia**

Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia

April 2017

**ATTACHMENT H**

**COMPLIANCE ASSURANCE MONITORING FORM (NOT  
APPLICABLE)**

**Title V Operating Permit Renewal Application**

**Flat Top Compressor Station, Facility ID No. 089-00004  
Flat Top, West Virginia**

Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia

April 2017

**APPENDIX A**

**SUPPORTING CALCULATIONS**

**Title V Operating Permit Renewal Application**

**Flat Top Compressor Station, Facility ID No. 089-00004**  
**Flat Top, West Virginia**

Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia

April 2017

**Table 1. Annual Potential To Emit (PTE) Summary  
Columbia Gas Transmission - Flat Top Compressor Station**

***Criteria Pollutants***

**Proposed PTE - Criteria Pollutants**

Source	PM	PM10	PM2.5	SO2	NOx	CO	VOC	CO2e
Engines (ton/yr)	0.497	0.497	0.497	0.175	42.232	104.390	0.846	28881.782
Heaters/Boilers/Reboilers (ton/yr)	0.035	0.035	0.035	0.013	1.825	1.533	0.100	2178.139
Storage Tanks (ton/yr)	-	-	-	-	-	-	0.837	-
Fugitives (ton/yr)	-	-	-	-	-	-	1.010	23.476
<b>Total Emissions (ton/yr)</b>	<b>0.532</b>	<b>0.532</b>	<b>0.532</b>	<b>0.188</b>	<b>44.057</b>	<b>105.923</b>	<b>2.793</b>	<b>31083.398</b>
<b>Total Emissions (lb/hr)</b>	<b>0.121</b>	<b>0.121</b>	<b>0.121</b>	<b>0.043</b>	<b>10.059</b>	<b>24.183</b>	<b>0.638</b>	<b>7096.666</b>

***Hazardous Air Pollutants (HAPs)***

**Proposed PTE - HAPs**

Source	Acetaldehyde	Benzene	Toluene	Ethylbenzene	Xylene	n-Hexane	Formaldehyde	Total HAPs
Engines (ton/yr)	0.0139	0.0052	0.0327	0.0079	0.0160	-	0.204	0.299
Heaters/Boilers/Reboilers (ton/yr)	-	0.0000	0.0001	-	-	0.0329	0.001	0.034
Storage Tanks (ton/yr)	-	-	-	-	-	-	-	0.000
Fugitives (ton/yr)	-	-	-	-	-	-	-	0.000
<b>Total Emissions (ton/yr)</b>	<b>0.014</b>	<b>0.005</b>	<b>0.033</b>	<b>0.008</b>	<b>0.016</b>	<b>0.033</b>	<b>0.205</b>	<b>0.333</b>
<b>Total Emissions (lb/hr)</b>	<b>0.003</b>	<b>0.001</b>	<b>0.007</b>	<b>0.002</b>	<b>0.004</b>	<b>0.008</b>	<b>0.047</b>	<b>0.076</b>

**Table 2. Turbine Engine / Centrifugal Compressor Emissions (E09)**  
**Solar Taurus 60-7302S**  
**Columbia Gas Transmission - Flat Top Compressor Station**

Pollutant	Maximum Hourly Emissions				Annual Emissions			
	Emission Factor		PTE per Engine (lb/hr)		Emission Factor		PTE per Engine (tons/yr)	
Criteria Pollutants								
PM/PM10/PM2.5	1.90E-03 lb/MMBtu	(1)	0.11	(a)	1.90E-03 lb/MMBtu	(1)	0.47	(c)
SO <sub>2</sub>	0.25 grains S / 100 ft <sup>3</sup>	(2)	0.04	(e)	0.25 grains S / 100 ft <sup>3</sup>	(2)	0.17	(f)
NOx	8.80E-04 lb/hp-hr	(3)	5.36	(b)	1.46E-03 lb/hp-hr	(4)	39.00	(d)
CO	1.07E-03 lb/hp-hr	(3)	6.52	(b)	3.71E-03 lb/hp-hr	(4)	99.00	(d)
VOC	2.79E-05 lb/MMBtu	(1)	0.17	(a)	2.79E-05 lb/MMBtu	(1)	0.74	(c)
Hazardous Air Pollutants								
1,3-Butadiene	4.30E-07 lb/MMBtu	(5)	0.000	(a)	4.30E-07 lb/MMBtu	(5)	0.000	(c)
Acetaldehyde	4.00E-05 lb/MMBtu	(5)	0.0022	(a)	4.00E-05 lb/MMBtu	(5)	0.010	(c)
Acrolein	6.40E-06 lb/MMBtu	(5)	0.000	(a)	6.40E-06 lb/MMBtu	(5)	0.002	(c)
Benzene	1.20E-05 lb/MMBtu	(5)	0.0007	(a)	1.20E-05 lb/MMBtu	(5)	0.003	(c)
Ethylbenzene	3.20E-05 lb/MMBtu	(5)	0.0018	(a)	3.20E-05 lb/MMBtu	(5)	0.008	(c)
Formaldehyde	7.10E-04 lb/MMBtu	(5)	0.040	(a)	7.10E-04 lb/MMBtu	(5)	0.174	(c)
Naphthalene	1.30E-06 lb/MMBtu	(5)	0.000	(a)	1.30E-06 lb/MMBtu	(5)	0.000	(c)
PAH (POM)	2.20E-06 lb/MMBtu	(5)	0.000	(a)	2.20E-06 lb/MMBtu	(5)	0.001	(c)
Phenol	2.90E-05 lb/MMBtu	(5)	0.002	(a)	2.90E-05 lb/MMBtu	(5)	0.007	(c)
Toluene	1.30E-04 lb/MMBtu	(5)	0.007	(a)	1.30E-04 lb/MMBtu	(5)	0.032	(c)
Xylenes	6.40E-05 lb/MMBtu	(5)	0.004	(a)	6.40E-05 lb/MMBtu	(5)	0.016	(c)
Total HAP	0.058				0.252			
Greenhouse Gas Emissions								
CO <sub>2</sub>	116.89 lb/MMBtu	(6)	6547.99	(a)	116.89 lb/MMBtu	(6)	28680.18	(c)
CH <sub>4</sub>	2.2E-03 lb/MMBtu	(6)	0.12	(a)	2.2E-03 lb/MMBtu	(6)	0.54	(c)
N <sub>2</sub> O	2.2E-04 lb/MMBtu	(6)	0.01	(a)	2.2E-04 lb/MMBtu	(6)	0.05	(c)
CO <sub>2</sub> e <sup>(g)</sup>	-	-	6554.75				28709.82	

**Calculations:**

**Maximum Hourly Emissions - If emission factor note 1, 5 or 6 is used, use calculation (a). If emission factor note 3 is used, use calculation (b).**

(a) Maximum Hourly Emissions (lb/hr) = Emission factor (lb/MMBtu) \* (1MMBtu/1000000 Btu) \* Engine Power Output (hp) \* Average BSFC (Btu/hp-hr)

(b) Maximum Hourly Emissions (lb/hr) = Emission factor (lb/hp-hr) \* Engine Power Output (hp)

**Annual Emissions - If emission factor note 1, 5 or 6 is used, use calculation (c). If emission factor note 4 is used, use calculation (d).**

(c) Annual emissions (tons/yr) = Emission factor (lb/MMBtu) \* (1MMBtu/1000000Btu) \* Engine Power Output (hp) \* Average BSFC (Btu/hp-hr) \* Annual Hours of operation (hr/yr) \* (1ton/2000lbs)

(d) Annual emissions (tons/yr) = Emission factor (lb/hp-hr) \* Engine Power Output (hp) \* Annual Hours of operation (hr/yr) \* (1ton/2000lbs)

**SO<sub>2</sub> Emissions - If emission factor note 2 is used, use calculations (e) and (f) for hourly and annual emissions, respectively.**

(e) Maximum Hourly Emissions SO<sub>2</sub> Calculation (lb/hr) = (0.25 grain S/100ft<sup>3</sup>) \* Fuel throughput (ft<sup>3</sup>/hr) \* (1lb/7000 grains) \* (lbmol S/32.06 lb S) \* (lbmol SO<sub>2</sub>/lbmol S) \* (64.07 lb SO<sub>2</sub>/lbmol SO<sub>2</sub>)

(f) Annual Emissions SO<sub>2</sub> Calculation (ton/yr) = (0.25 grain S/100ft<sup>3</sup>) \* Fuel throughput (ft<sup>3</sup>/hr) \* (1lb/7000 grains) \* (lbmol S/32.06 lb S) \* (lbmol SO<sub>2</sub>/lbmol S) \* (64.07 lb SO<sub>2</sub>/lbmol SO<sub>2</sub>) \* Annual hours of operation (hr/yr) \* (1ton/2000lbs)

MAXIMUM HOURLY EMISSION INPUTS			
Engine Power Output (kW) =	4541		
Engine Power Output (hp) =	6,089		
Number of Engines =	1		
Average BSFC (BTU/HP-hr) =	9,200	(7)	
Heat Content Natural Gas(Btu/scf) =	1,020.0	(8)	
Fuel Throughput (ft <sup>3</sup> /hr) =	54,920.4	(9)	
PTE Hours of Operation =	1		

ANNUAL EMISSION INPUTS			
Engine Power Output (kW) =	4541		
Engine Power Output (hp) =	6,089		
Number of Engines =	1		
Average BSFC (BTU/HP-hr) =	9,200	(7)	
Heat Content Natural Gas(Btu/scf) =	1,020.0	(8)	
Fuel Throughput (ft <sup>3</sup> /hr) =	54,920.4	(9)	
PTE Hours of Operation =	8,760		

(g) CO<sub>2</sub> equivalent = [(CO<sub>2</sub> emissions)\*(GWP<sub>CO2</sub>)]+[(CH<sub>4</sub> emissions)\*(GWP<sub>CH4</sub>)]+[(N<sub>2</sub>O emissions)\*(GWP<sub>N2O</sub>)]  
Global Warming Potential (GWP)

CO <sub>2</sub>	1	(10)
CH <sub>4</sub>	25	(10)
N <sub>2</sub> O	298	(10)

**Notes:**

(1) AP-42, Chapter 3.1, Table 3.1-2a - Emission Factors for Criteria Pollutants and Greenhouse Gases from Stationary Gas Turbines (4/00)

(2) AP-42, Chapter 5.3, Section 5.3.1

(3) 45 CSR 13, Permit R13-2065G, Condition 5.1.1

(4) 45 CSR 13, Permit R13-2065G, Condition 5.1.2

(5) AP-42, Chapter 3.1, Table 3.1-3 - Emission Factors for Hazardous Air Pollutants from Natural Gas-Fired Stationary Gas Turbines (4/00)

(6) Emission factors are from 40 CFR 98, Subpart C, Table C-1 and C-2.

(7) Fuel consumption from manufacturer's specification sheet.

(8) Value obtained from AP-42, Chapter 3.1, Table 3.1-2a, footnote c

(9) Fuel throughput = BSFC (BTU/HP-hr) x Power (HP) / Heat Content (BTU/scf)

(10) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

**Table 3. Reciprocating Engine / Generator Emissions (G1)**  
**Ingersoll-Rand PSVG-8; 4SRB**  
**Columbia Gas Transmission - Flat Top Compressor Station**

Pollutant	Maximum Hourly Emissions		Annual Emissions	
	Emission Factor	PTE per Engine (lb/hr)	Emission Factor	PTE per Engine (tons/yr)
<b>Criteria Pollutants</b>				
PM/PM10/PM2.5	1.94E-02 lb/MMBtu (1)	0.112 (a)	1.94E-02 lb/MMBtu (1)	0.03 (c)
SO <sub>2</sub>	0.25 grains S / 100 ft <sup>3</sup> (2)	0.004 (e)	0.25 grains S / 100 ft <sup>3</sup> (2)	0.001 (f)
NO <sub>x</sub>	2.21E+00 lb/MMBtu (1)	12.74 (a)	2.21E+00 lb/MMBtu (1)	3.19 (c)
CO	3.72E+00 lb/MMBtu (1)	21.45 (a)	3.72E+00 lb/MMBtu (1)	5.36 (c)
VOC	2.96E-02 lb/MMBtu (1)	0.17 (a)	2.96E-02 lb/MMBtu (1)	0.04 (c)
<b>Hazardous Air Pollutants</b>				
1,1,2,2-Tetrachloroethane	2.53E-05 lb/MMBtu (1)	0.000 (a)	2.53E-05 lb/MMBtu (1)	0.000 (c)
1,1,2-Trichloroethane	1.53E-05 lb/MMBtu (1)	0.000 (a)	1.53E-05 lb/MMBtu (1)	0.000 (c)
1,3-Butadiene	6.63E-04 lb/MMBtu (1)	0.004 (a)	6.63E-04 lb/MMBtu (1)	0.001 (c)
1,3-Dichloropropene	1.27E-05 lb/MMBtu (1)	0.000 (a)	1.27E-05 lb/MMBtu (1)	0.000 (c)
Acetaldehyde	2.79E-03 lb/MMBtu (1)	0.016 (a)	2.79E-03 lb/MMBtu (1)	0.004 (c)
Acrolein	2.63E-03 lb/MMBtu (1)	0.015 (a)	2.63E-03 lb/MMBtu (1)	0.004 (c)
Benzene	1.58E-03 lb/MMBtu (1)	0.009 (a)	1.58E-03 lb/MMBtu (1)	0.002 (c)
Carbon Tetrachloride	1.77E-05 lb/MMBtu (1)	0.000 (a)	1.77E-05 lb/MMBtu (1)	0.000 (c)
Chlorobenzene	1.29E-05 lb/MMBtu (1)	0.000 (a)	1.29E-05 lb/MMBtu (1)	0.000 (c)
Chloroform	1.37E-05 lb/MMBtu (1)	0.000 (a)	1.37E-05 lb/MMBtu (1)	0.000 (c)
Ethylbenzene	2.48E-05 lb/MMBtu (1)	0.000 (a)	2.48E-05 lb/MMBtu (1)	0.000 (c)
Ethylene Dibromide	2.13E-05 lb/MMBtu (1)	0.000 (a)	2.13E-05 lb/MMBtu (1)	0.000 (c)
Formaldehyde	2.05E-02 lb/MMBtu (1)	0.118 (a)	2.05E-02 lb/MMBtu (1)	0.030 (c)
Methanol	3.06E-03 lb/MMBtu (1)	0.018 (a)	3.06E-03 lb/MMBtu (1)	0.004 (c)
Methylene Chloride	4.12E-05 lb/MMBtu (1)	0.000 (a)	4.12E-05 lb/MMBtu (1)	0.000 (c)
Naphthalene	9.71E-05 lb/MMBtu (1)	0.001 (a)	9.71E-05 lb/MMBtu (1)	0.000 (c)
PAH (POM)	1.41E-04 lb/MMBtu (1)	0.001 (a)	1.41E-04 lb/MMBtu (1)	0.000 (c)
Styrene	1.19E-05 lb/MMBtu (1)	0.000 (a)	1.19E-05 lb/MMBtu (1)	0.000 (c)
Toluene	5.58E-04 lb/MMBtu (1)	0.003 (a)	5.58E-04 lb/MMBtu (1)	0.001 (c)
Vinyl Chloride	7.16E-06 lb/MMBtu (1)	0.000 (a)	7.16E-06 lb/MMBtu (1)	0.000 (c)
Xylenes	1.95E-04 lb/MMBtu (1)	0.001 (a)	1.95E-04 lb/MMBtu (1)	0.000 (c)
<b>Total HAP</b>		<b>0.187</b>		<b>0.047</b>
<b>Greenhouse Gas Emissions</b>				
CO <sub>2</sub>	116.89 lb/MMBtu (4)	674.03 (a)	116.89 lb/MMBtu (4)	168.51 (c)
CH <sub>4</sub>	2.2E-03 lb/MMBtu (4)	0.01 (a)	2.2E-03 lb/MMBtu (4)	0.00 (c)
N <sub>2</sub> O	2.2E-04 lb/MMBtu (4)	0.00 (a)	2.2E-04 lb/MMBtu (4)	0.00 (c)
CO <sub>2</sub> e <sup>(g)</sup>	-	674.73		168.68

**Calculations:**

**Maximum Hourly Emissions - If emission factor note 1 or 4 is used, use calculation (a). If emission factor note 3 is used, use calculation (b).**

(a) Maximum Hourly Emissions (lb/hr) = Emission factor (lb/MMBtu) \* (1MMBtu/1000000 Btu) \* Engine Power Output (hp) \* Average BSFC (Btu/hp-hr)

(b) Maximum Hourly Emissions (lb/hr) = Emission factor (lb/hp-hr) \* Engine Power Output (hp)

**Annual Emissions - If emission factor note 1 or 4 is used, use calculation (c). If emission factor note 3 is used, use calculation (d).**

(c) Annual emissions (tons/yr) = Emission factor (lb/MMBtu) \* (1MMBtu/1000000 Btu) \* Engine Power Output (hp) \* Average BSFC (Btu/hp-hr) \* Annual Hours of operation (hr/yr) \* (1ton/2000lbs)

(d) Annual emissions (tons/yr) = Emission factor (lb/hp-hr) \* Engine Power Output (hp) \* Annual Hours of operation (hr/yr) \* (1ton/2000lbs)

**SO<sub>2</sub> Emissions - If emission factor note 2 is used, use calculations (e) and (f) for hourly and annual emissions, respectively.**

(e) Maximum Hourly Emissions SO<sub>2</sub> Calculation (lb/hr) = (0.25 grain S/100ft<sup>3</sup>) \* Fuel throughput (ft<sup>3</sup>/hr) \* (1lb/7000 grains) \* (lbmol S/32.06 lb S) \* (lbmol SO<sub>2</sub>/lbmol S) \* (64.07 lb SO<sub>2</sub>/lbmol SO<sub>2</sub>)

(f) Annual Emissions SO<sub>2</sub> Calculation (ton/yr) = (0.25 grain S/100ft<sup>3</sup>) \* Fuel throughput (ft<sup>3</sup>/hr) \* (1lb/7000 grains) \* (lbmol S/32.06 lb S) \* (lbmol SO<sub>2</sub>/lbmol S) \* (64.07 lb SO<sub>2</sub>/lbmol SO<sub>2</sub>) \* Annual hours of operation (hr/yr) \* (1ton/2000lbs)

MAXIMUM HOURLY EMISSION INPUTS	
Engine Power Output (kW) =	406
Engine Power Output (hp) =	544
Number of Engines =	1
Average BSFC (BTU/HP-hr) =	10,600 (5)
Heat Content Natural Gas(Btu/scf) =	1,020.0 (6)
Fuel Throughput (ft <sup>3</sup> /hr) =	5,653.3 (7)
PTE Hours of Operation =	1

ANNUAL EMISSION INPUTS	
Engine Power Output (kW) =	406
Engine Power Output (hp) =	544
Number of Engines =	1
Average BSFC (BTU/HP-hr) =	10,600 (5)
Heat Content Natural Gas(Btu/scf) =	1,020.0 (6)
Fuel Throughput (ft <sup>3</sup> /hr) =	5,653.3 (7)
PTE Hours of Operation =	500

(g) CO<sub>2</sub> equivalent = [(CO<sub>2</sub> emissions)\*(GWP<sub>CO2</sub>)]+[(CH<sub>4</sub> emissions)\*(GWP<sub>CH4</sub>)]+[(N<sub>2</sub>O emissions)\*(GWP<sub>N2O</sub>)]  
Global Warming Potential (GWP)

CO <sub>2</sub>	1	(8)
CH <sub>4</sub>	25	(8)
N <sub>2</sub> O	298	(8)

**Notes:**

(1) AP-42, Chapter 3.2, Table 3.2-3. *Natural Gas-fired Reciprocating Engines* (7/00). Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines.

(2) AP-42, Chapter 5.3, Section 5.3.1

(3) Emission Factors derived from Stack Test Data

(4) Emission factors are from 40 CFR 98, Subpart C, Table C-1 and C-2.

(5) Fuel consumption from manufacturer's specification sheet.

(6) Value obtained from AP-42, Chapter 3.2, Table 3.2-1, footnote b

(7) Fuel throughput = BSFC (BTU/HP-hr) x Power (HP) / Heat Content (BTU/scf)

(8) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1



**Table 4. Reciprocating Engine / Air Compressor Emissions (AC1)**  
**Kohler K341S**  
**Columbia Gas Transmission - Flat Top Compressor Station**

Pollutant	Emission Factor	PTE (lb/hr)	PTE (ton/yr)
<b>Criteria Pollutants</b>			
PM/PM10/PM2.5	1.00E-01 lb/MMBtu (1)	0.011 (a)	0.00 (b)
SO <sub>2</sub>	8.40E-02 lb/MMBtu (1)	0.009 (a)	0.00 (b)
NO <sub>x</sub>	1.63E+00 lb/MMBtu (1)	0.18 (a)	0.05 (b)
CO	9.90E-01 lb/MMBtu (1)	0.11 (a)	0.03 (b)
VOC	2.10E+00 lb/MMBtu (1)	0.24 (a)	0.06 (b)
<b>Hazardous Air Pollutants</b>			
1,3-Butadiene	3.91E-05 lb/MMBtu (2)	0.000 (a)	0.000 (b)
Acetaldehyde	7.67E-04 lb/MMBtu (2)	0.000 (a)	0.000 (b)
Acrolein	9.25E-05 lb/MMBtu (2)	0.000 (a)	0.000 (b)
Benzene	9.33E-04 lb/MMBtu (2)	0.000 (a)	0.000 (b)
Formaldehyde	1.18E-03 lb/MMBtu (2)	0.000 (a)	0.000 (b)
Naphthalene	9.71E-05 lb/MMBtu (2)	0.000 (a)	0.000 (b)
Toluene	4.09E-04 lb/MMBtu (2)	0.000 (a)	0.000 (b)
Xylenes	2.85E-04 lb/MMBtu (2)	0.000 (a)	0.000 (b)
<b>Total HAPs</b>		<b>0.000</b>	<b>0.000</b>
<b>Greenhouse Gas Emissions</b>			
CO <sub>2</sub>	116.89 lb/MMBtu (3)	13.09 (a)	3.27 (b)
CH <sub>4</sub>	2.2E-03 lb/MMBtu (3)	0.00 (a)	0.00 (b)
N <sub>2</sub> O	2.2E-04 lb/MMBtu (3)	0.00 (a)	0.00 (b)
CO <sub>2</sub> e <sup>(c)</sup>	- -	13.11	3.28

**Calculations:**

(a) Maximum Hourly Emissions (lb/hr) = Emission factor (lb/MMBtu) \* (1MMBtu/1000000 Btu) \* Engine Power Output (hp) \* Average BSFC (Btu/hp-hr)

(b) Annual emissions (tons/yr) = Emission factor (lb/MMBtu) \* (1MMBtu/1000000Btu) \* Engine Power Output (hp) \* Average BSFC (Btu/hp-hr) \* Annual Hours of operation (hr/yr) \* (1ton/2000lbs)

EMISSION INPUTS TABLE	
Engine Power Output (kW) =	12
Engine Power Output (hp) =	16
Number of Engines Operating at a Time =	1
Average BSFC (BTU/HP-hr) =	7,000 (4)
Heat Content Natural Gas(Btu/scf) =	1,020.0 (5)
Fuel Throughput (ft3/hr) =	109.8 (6)
PTE Hours of Operation =	500

(c) CO<sub>2</sub> equivalent = [(CO<sub>2</sub> emissions)\*(GWP<sub>CO2</sub>)]+[(CH<sub>4</sub> emissions)\*(GWP<sub>CH4</sub>)]+[(N<sub>2</sub>O emissions)\*(GWP<sub>N2O</sub>)]  
Global Warming Potential (GWP)

CO <sub>2</sub>	1	(7)
CH <sub>4</sub>	25	(7)
N <sub>2</sub> O	298	(7)

**Notes:**

(1) AP-42, Chapter 3.3, Table 3.3-1. - *Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines* (10/96)

(1) AP-42, Chapter 3.3, Table 3.3-2. - *Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engines* (10/96)

(3) Emission factors are from 40 CFR 98, Subpart C, Table C-1 and C-2.

(4) Fuel consumption from manufacturer's specification sheet.

(5) Value obtained from AP-42, Chapter 3.2, Table 3.2-3, footnote b

(6) Fuel throughput = BSFC (BTU/HP-hr) x Power (HP) / Heat Content (BTU/scf)

(7) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

**Table 5. Heating System Boiler Emissions (BL2)**  
**Ajax; Model # WNG1250W**  
**Columbia Gas Transmission - Flat Top Compressor Station**

Pollutant	Emission Factor	PTE (lb/hr)	PTE (ton/yr)
<b>Criteria Pollutants</b>			
PM/PM10/PM2.5	1.9 lb/MMcf (1)	0.00 (a)	0.01 (b)
SO <sub>2</sub>	0.25 grains S / 100ft <sup>3</sup> (5)	0.00 (e)	0.00 (f)
NO <sub>x</sub>	100 lb/MMcf (2)	0.12 (a)	0.54 (b)
CO	84 lb/MMcf (2)	0.10 (a)	0.45 (b)
VOC	5.5 lb/MMcf (1)	0.01 (a)	0.03 (b)
<b>Hazardous Air Pollutants</b>			
Arsenic	2.00E-04 lb/MMcf (3)	0.00 (a)	0.000 (b)
Benzene	2.10E-03 lb/MMcf (4)	0.00 (a)	0.000 (b)
Beryllium	1.20E-05 lb/MMcf (3)	0.00 (a)	0.000 (b)
Cadmium	1.10E-03 lb/MMcf (3)	0.00 (a)	0.000 (b)
Chromium	1.40E-03 lb/MMcf (3)	0.00 (a)	0.000 (b)
Cobalt	8.40E-05 lb/MMcf (3)	0.00 (a)	0.000 (b)
Dichlorobenzene	1.20E-03 lb/MMcf (4)	0.00 (a)	0.000 (b)
Formaldehyde	7.50E-02 lb/MMcf (4)	0.00 (a)	0.000 (b)
Hexane	1.80E+00 lb/MMcf (4)	0.00 (a)	0.010 (b)
Lead	5.00E-04 lb/MMcf (3)	0.00 (a)	0.000 (b)
Manganese	3.80E-04 lb/MMcf (3)	0.00 (a)	0.000 (b)
Mercury	2.60E-04 lb/MMcf (3)	0.00 (a)	0.000 (b)
Naphthalene	6.10E-04 lb/MMcf (4)	0.00 (a)	0.000 (b)
Nickel	2.10E-03 lb/MMcf (3)	0.00 (a)	0.000 (b)
PAH/POM	1.29E-03 lb/MMcf (4)	0.00 (a)	0.000 (b)
Selenium	2.40E-05 lb/MMcf (3)	0.00 (a)	0.000 (b)
Toluene	3.40E-03 lb/MMcf (4)	0.00 (a)	0.000 (b)
<b>Total HAP</b>		0.00	0.010
<b>Greenhouse Gas Emissions</b>			
CO <sub>2</sub>	116.89 lb/MMBtu (6)	146.11 (c)	639.97 (d)
CH <sub>4</sub>	2.2E-03 lb/MMBtu (6)	0.00 (c)	0.01 (d)
N <sub>2</sub> O	2.2E-04 lb/MMBtu (6)	0.00 (c)	0.00 (d)
CO <sub>2</sub> e <sup>(g)</sup>	- -	146.26	640.63

**Calculations:**

**LB/MMCF**

(a) Hourly emissions (lb/hr) = Emission Factor (lb/MMcf) \* Fuel Use (MMCF/yr) / Annual hours of operation (hr/yr)

(b) Annual emissions (ton/yr) = Emission Factor (lb/MMcf) \* Fuel Use (MMcf/yr) \* (1ton/2000lbs)

**LB/MMBTU**

(c) Hourly Emissions (lb/hr) = Emission Factor (lb/MMBtu) \* Fuel Use (MMBtu/hr)

(d) Annual Emissions (ton/yr) = Emission Factor (lb/MMBtu) \* Fuel Use (MMBtu/yr) \* Hours of operation (hr/yr) \* (1ton/2000lbs)

**SO<sub>2</sub>**

(e) Hourly Emissions SO<sub>2</sub> Caclulation (lb/hr) = (0.25 grain S/100ft<sup>3</sup>) \* Fuel throughput (MMft<sup>3</sup>/yr) \* (1000000ft<sup>3</sup>/1MMft<sup>3</sup>) / annual hours of operation (hr/yr) \* (1lb/7000 grains) \* (lbmol S/32.06 lb S) \* (lbmol SO<sub>2</sub>/ lbmol S) \* (64.07 lb SO<sub>2</sub>/lbmol SO<sub>2</sub>)

(f) Annual Emissions SO<sub>2</sub> Caclulation (ton/yr) = (0.25 grain S/100ft<sup>3</sup>) \* Fuel throughput (MMft<sup>3</sup>/yr) \* (1000000ft<sup>3</sup>/1MMft<sup>3</sup>) \* (1lb/7000 grains) \* (lbmol S/32.06 lb S) \* (lbmol SO<sub>2</sub>/ lbmol S) \* (64.07 lb SO<sub>2</sub>/lbmol SO<sub>2</sub>) \* (1ton/2000lbs)

EMISSION INPUTS TABLE	
Fuel Use (MMBtu/hr) =	1.25
Hours of Operation (hr/yr)=	8760
MMBtu/MMcf=	1020
PTE Fuel Use (MMft <sup>3</sup> /yr) =	10.7

(g) CO<sub>2</sub> equivalent = [(CO<sub>2</sub> emissions)\*(GWP<sub>CO2</sub>)]+[(CH<sub>4</sub> emissions)\*(GWP<sub>CH4</sub>)]+[(N<sub>2</sub>O emissions)\*(GWP<sub>N2O</sub>)]  
Global Warming Potential (GWP)

CO <sub>2</sub>	1	(7)
CH <sub>4</sub>	25	(7)
N <sub>2</sub> O	298	(7)

**Notes:**

(1) AP-42, Chapter 1.4, Table 1.4-2. Emission Factors For Criteria Pollutants and Greenhouse Gases From Natural Gas Combustion, July 1998.

(2) AP-42, Chapter 1.4, Table 1.4-1. Emission Factors For Nitrogen Oxides (Nox) and Carbon Monoxide(CO) From Natural Gas Combustion, July 1998.

(3) AP-42, Chapter 1.4, Table 1.4-4. Emission Factors For Metals From Natural Gas Combustion, July 1998.

(4) AP-42, Chapter 1.4, Table 1.4-3. Emission Factors for Speciated Organic Compounds from Natural Gas Combustion, July 1998.

(5) AP-42, Chapter 5.3, Section 5.3.1

(6) Emission factors are from 40 CFR 98, Subpart C, Table C-1 and C-2.

(7) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

**Table 5. Hot Water Boiler Emissions (BL3)**  
**Ajax; Model # WNG-2000-W**  
**Columbia Gas Transmission - Flat Top Compressor Station**

Pollutant	Emission Factor	PTE (lb/hr)	PTE (ton/yr)
<b>Criteria Pollutants</b>			
PM/PM10/PM2.5	1.9 lb/MMcf (1)	0.00 (a)	0.02 (b)
SO <sub>2</sub>	0.25 grains S / 100ft <sup>3</sup> (5)	0.00 (e)	0.01 (f)
NOx	100 lb/MMcf (2)	0.20 (a)	0.86 (b)
CO	84 lb/MMcf (2)	0.16 (a)	0.72 (b)
VOC	5.5 lb/MMcf (1)	0.01 (a)	0.05 (b)
<b>Hazardous Air Pollutants</b>			
Arsenic	2.00E-04 lb/MMcf (3)	0.00 (a)	0.000 (b)
Benzene	2.10E-03 lb/MMcf (4)	0.00 (a)	0.000 (b)
Beryllium	1.20E-05 lb/MMcf (3)	0.00 (a)	0.000 (b)
Cadmium	1.10E-03 lb/MMcf (3)	0.00 (a)	0.000 (b)
Chromium	1.40E-03 lb/MMcf (3)	0.00 (a)	0.000 (b)
Cobalt	8.40E-05 lb/MMcf (3)	0.00 (a)	0.000 (b)
Dichlorobenzene	1.20E-03 lb/MMcf (4)	0.00 (a)	0.000 (b)
Formaldehyde	7.50E-02 lb/MMcf (4)	0.00 (a)	0.001 (b)
Hexane	1.80E+00 lb/MMcf (4)	0.00 (a)	0.015 (b)
Lead	5.00E-04 lb/MMcf (3)	0.00 (a)	0.000 (b)
Manganese	3.80E-04 lb/MMcf (3)	0.00 (a)	0.000 (b)
Mercury	2.60E-04 lb/MMcf (3)	0.00 (a)	0.000 (b)
Naphthalene	6.10E-04 lb/MMcf (4)	0.00 (a)	0.000 (b)
Nickel	2.10E-03 lb/MMcf (3)	0.00 (a)	0.000 (b)
PAH/POM	1.29E-03 lb/MMcf (4)	0.00 (a)	0.000 (b)
Selenium	2.40E-05 lb/MMcf (3)	0.00 (a)	0.000 (b)
Toluene	3.40E-03 lb/MMcf (4)	0.00 (a)	0.000 (b)
<b>Total HAP</b>		0.00	0.016
<b>Greenhouse Gas Emissions</b>			
CO <sub>2</sub>	116.89 lb/MMBtu (6)	233.78 (c)	1023.95 (d)
CH <sub>4</sub>	2.2E-03 lb/MMBtu (6)	0.00 (c)	0.02 (d)
N <sub>2</sub> O	2.2E-04 lb/MMBtu (6)	0.00 (c)	0.00 (d)
CO <sub>2</sub> e <sup>(g)</sup>	- -	234.02	1025.01

**Calculations:**

**LB/MMCF**

(a) Hourly emissions (lb/hr) = Emission Factor (lb/MMcf) \* Fuel Use (MMCF/yr) / Annual hours of operation (hr/yr)

(b) Annual emissions (ton/yr) = Emission Factor (lb/MMcf) \* Fuel Use (MMcf/yr) \* (1ton/2000lbs)

**LB/MMBTU**

(c) Hourly Emissions (lb/hr) = Emission Factor (lb/MMBtu) \* Fuel Use (MMBtu/hr)

(d) Annual Emissions (ton/yr) = Emission Factor (lb/MMBtu) \* Fuel Use (MMBtu/hr) \* Hours of operation (hr/yr) \* (1ton/2000lbs)

**SO<sub>2</sub>**

(e) Hourly Emissions SO<sub>2</sub> Caclulation (lb/hr) = (0.25 grain S/100ft<sup>3</sup>) \* Fuel throughput (MMft<sup>3</sup>/yr) \* (1000000ft<sup>3</sup>/1MMft<sup>3</sup>) / annual hours of operation (hr/yr) \* (1lb/7000 grains) \* (lbmol S/32.06 lb S) \* (lbmol SO<sub>2</sub>/ lbmol S) \* (64.07 lb SO<sub>2</sub>/lbmol SO<sub>2</sub>)

(f) Annual Emissions SO<sub>2</sub> Caclulation (ton/yr) = (0.25 grain S/100ft<sup>3</sup>) \* Fuel throughput (MMft<sup>3</sup>/yr) \* (1000000ft<sup>3</sup>/1MMft<sup>3</sup>) \* (1lb/7000 grains) \* (lbmol S/32.06 lb S) \* (lbmol SO<sub>2</sub>/ lbmol S) \* (64.07 lb SO<sub>2</sub>/lbmol SO<sub>2</sub>) \* (1ton/2000lbs)

EMISSION INPUTS TABLE	
Fuel Use (MMBtu/hr) =	2
Hours of Operation (hr/yr)=	8760
MMBtu/MMcf=	1020
PTE Fuel Use (MMft <sup>3</sup> /yr) =	17.2

(g) CO<sub>2</sub> equivalent = [(CO<sub>2</sub> emissions)\*(GWP<sub>CO2</sub>)]+[(CH<sub>4</sub> emissions)\*(GWP<sub>CH4</sub>)]+[(N<sub>2</sub>O emissions)\*(GWP<sub>N2O</sub>)]  
Global Warming Potential (GWP)

CO <sub>2</sub>	1	(7)
CH <sub>4</sub>	25	(7)
N <sub>2</sub> O	298	(7)

**Notes:**

- AP-42, Chapter 1.4, Table 1.4-2. Emission Factors For Criteria Pollutants and Greenhouse Gases From Natural Gas Combustion, July 1998.
- AP-42, Chapter 1.4, Table 1.4-1. Emission Factors For Nitrogen Oxides (Nox) and Carbon Monoxide(CO) From Natural Gas Combustion, July 1998.
- AP-42, Chapter 1.4, Table 1.4-4. Emission Factors For Metals From Natural Gas Combustion, July 1998.
- AP-42, Chapter 1.4, Table 1.4-3. Emission Factors for Speciated Organic Compounds from Natural Gas Combustion, July 1998.
- AP-42, Chapter 5.3, Section 5.3.1
- Emission factors are from 40 CFR 98, Subpart C, Table C-1 and C-2.
- Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

**Table 7. Indirect Line Heater Emissions (H1)**  
**NATCO MB30-8-8B**  
**Columbia Gas Transmission - Flat Top Compressor Station**

Pollutant	Emission Factor	PTE (lb/hr)	PTE (ton/yr)
<b>Criteria Pollutants</b>			
PM/PM10/PM2.5	1.9 lb/MMcf (1)	0.00 (a)	0.01 (b)
SO <sub>2</sub>	0.25 grains S / 100ft <sup>3</sup> (5)	0.00 (e)	0.00 (f)
NO <sub>x</sub>	100 lb/MMcf (2)	0.10 (a)	0.43 (b)
CO	84 lb/MMcf (2)	0.08 (a)	0.36 (b)
VOC	5.5 lb/MMcf (1)	0.01 (a)	0.02 (b)
<b>Hazardous Air Pollutants</b>			
Arsenic	2.00E-04 lb/MMcf (3)	0.00 (a)	0.000 (b)
Benzene	2.10E-03 lb/MMcf (4)	0.00 (a)	0.000 (b)
Beryllium	1.20E-05 lb/MMcf (3)	0.00 (a)	0.000 (b)
Cadmium	1.10E-03 lb/MMcf (3)	0.00 (a)	0.000 (b)
Chromium	1.40E-03 lb/MMcf (3)	0.00 (a)	0.000 (b)
Cobalt	8.40E-05 lb/MMcf (3)	0.00 (a)	0.000 (b)
Dichlorobenzene	1.20E-03 lb/MMcf (4)	0.00 (a)	0.000 (b)
Formaldehyde	7.50E-02 lb/MMcf (4)	0.00 (a)	0.000 (b)
Hexane	1.80E+00 lb/MMcf (4)	0.00 (a)	0.008 (b)
Lead	5.00E-04 lb/MMcf (3)	0.00 (a)	0.000 (b)
Manganese	3.80E-04 lb/MMcf (3)	0.00 (a)	0.000 (b)
Mercury	2.60E-04 lb/MMcf (3)	0.00 (a)	0.000 (b)
Naphthalene	6.10E-04 lb/MMcf (4)	0.00 (a)	0.000 (b)
Nickel	2.10E-03 lb/MMcf (3)	0.00 (a)	0.000 (b)
PAH/POM	1.29E-03 lb/MMcf (4)	0.00 (a)	0.000 (b)
Selenium	2.40E-05 lb/MMcf (3)	0.00 (a)	0.000 (b)
Toluene	3.40E-03 lb/MMcf (4)	0.00 (a)	0.000 (b)
<b>Total HAP</b>		0.00	0.008
<b>Greenhouse Gas Emissions</b>			
CO <sub>2</sub>	116.89 lb/MMBtu (6)	116.89 (c)	511.97 (d)
CH <sub>4</sub>	2.2E-03 lb/MMBtu (6)	0.00 (c)	0.01 (d)
N <sub>2</sub> O	2.2E-04 lb/MMBtu (6)	0.00 (c)	0.00 (d)
CO <sub>2</sub> e <sup>(g)</sup>	- -	117.01	512.50

**Calculations:**

**LB/MMCF**

(a) Hourly emissions (lb/hr) = Emission Factor (lb/MMcf) \* Fuel Use (MMCF/yr) / Annual hours of operation (hr/yr)

(b) Annual emissions (ton/yr) = Emission Factor (lb/MMcf) \* Fuel Use (MMcf/yr) \* (1ton/2000lbs)

**LB/MMBTU**

(c) Hourly Emissions (lb/hr) = Emission Factor (lb/MMBtu) \* Fuel Use (MMBtu/hr)

(d) Annual Emissions (ton/yr) = Emission Factor (lb/MMBtu) \* Fuel Use (MMBtu/hr) \* Hours of operation (hr/yr) \* (1ton/2000lbs)

**SO<sub>2</sub>**

(e) Hourly Emissions SO<sub>2</sub> Caclulation (lb/hr) = (0.25 grain S/100ft<sup>3</sup>) \* Fuel throughput (MMft<sup>3</sup>/yr) \* (1000000ft<sup>3</sup>/1MMft<sup>3</sup>) / annual hours of operation (hr/yr) \* (1lb/7000 grains) \* (lbmol S/32.06 lb S) \* (lbmol SO<sub>2</sub>/ lbmol S) \* (64.07 lb SO<sub>2</sub>/lbmol SO<sub>2</sub>)

(f) Annual Emissions SO<sub>2</sub> Caclulation (ton/yr) = (0.25 grain S/100ft<sup>3</sup>) \* Fuel throughput (MMft<sup>3</sup>/yr) \* (1000000ft<sup>3</sup>/1MMft<sup>3</sup>) \* (1lb/7000 grains) \* (lbmol S/32.06 lb S) \* (lbmol SO<sub>2</sub>/ lbmol S) \* (64.07 lb SO<sub>2</sub>/lbmol SO<sub>2</sub>) \* (1ton/2000lbs)

EMISSION INPUTS TABLE	
Fuel Use (MMBtu/hr) =	1
Hours of Operation (hr/yr)=	8760
MMBtu/MMcf=	1020
PTE Fuel Use (MMft <sup>3</sup> /yr) =	8.59

(g) CO<sub>2</sub> equivalent = [(CO<sub>2</sub> emissions)\*(GWP<sub>CO2</sub>)]+[(CH<sub>4</sub> emissions)\*(GWP<sub>CH4</sub>)]+[(N<sub>2</sub>O emissions)\*(GWP<sub>N2O</sub>)]  
Global Warming Potential (GWP)

CO <sub>2</sub>	1	(7)
CH <sub>4</sub>	25	(7)
N <sub>2</sub> O	298	(7)

**Notes:**

- AP-42, Chapter 1.4, Table 1.4-2. Emission Factors For Criteria Pollutants and Greenhouse Gases From Natural Gas Combustion, July 1998.
- AP-42, Chapter 1.4, Table 1.4-1. Emission Factors For Nitrogen Oxides (Nox) and Carbon Monoxide(CO) From Natural Gas Combustion, July 1998.
- AP-42, Chapter 1.4, Table 1.4-4. Emission Factors For Metals From Natural Gas Combustion, July 1998.
- AP-42, Chapter 1.4, Table 1.4-3. Emission Factors for Speciated Organic Compounds from Natural Gas Combustion, July 1998.
- AP-42, Chapter 5.3, Section 5.3.1
- Emission factors are from 40 CFR 98, Subpart C, Table C-1 and C-2.
- Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

**Table 8. Tank Emissions**  
**Columbia Gas Transmission - Flat Top Compressor Station**

Emission Point	Tank Capacity (gal)	Tank Contents	Control Devices	Tank Throughput (bbls/day)	VOC Emission Factor (lbs/bbls)		VOC Emissions (lbs/yr) <sup>(a)</sup>	VOC Emissions (lb/hr) <sup>(b)</sup>	VOC Emissions (tons/yr) <sup>(c)</sup>
A07	294	Lube Oil	None	0.23	1.55E-03	(1)	0.13	0.000	0.000
A11	1250	Turbine Oil	None	0.98	1.62E-03	(1)	0.58	0.000	0.000
A12	1250	Used Turbine Oil	None	0.98	1.62E-03	(1)	0.58	0.000	0.000
A15	1500	Gasoline	None	1.17	1.18E+00	(1)	504.72	0.058	0.252
A21	1000	Pipeline Liquids	None	0.78	1.30E+00	(2)	370.86	0.042	0.185
A23	3000	Pipeline Liquids	None	2.35	9.30E-01	(2)	796.80	0.091	0.398
C05	140	New Lube Oil	None	0.11	2.25E-03	(1)	0.09	0.000	0.000
C06	150	Used Oil	None	0.12	2.33E-03	(1)	0.10	0.000	0.000
<b>Totals</b>							<b>1673.86</b>	<b>0.19</b>	<b>0.84</b>

**Calculations:**

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

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

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

**Notes:**

(1) VOC emission factor includes Working/Breathing losses as calculated from TANKS 4.0.9.d

(2) VOC emission factor includes Flashing/Working/Breathing losses calculated from pressurized liquid sample (GOR= 0.059 lb VOC/bbl) direct flash measurement added to working and breathing losses calculated using EPA Tanks 4.09. The pressurized liquid sample was taken from a high pressure separator at a similar site and is considered to be worst case representative with respect to gas composition and pressure at the Station

**Table 9. Fugitive Leak Emissions  
Columbia Gas Transmission - Flat Top Compressor Station**

Pollutant	Emission Factor	PTE <sup>(a)</sup> Gas Service (tons/yr)
Valves	9.9E-03 lb/hr/source (1)	28.11
Low Bleed Pneumatic Valves	9.9E-03 lb/hr/source (1)	0.48
Flanges	8.6E-04 lb/hr/source (1)	8.53
Connector	4.4E-04 lb/hr/source (1)	4.38
Other Points in Gas Service	1.9E-02 lb/hr/source (1)	8.99
<b>Total Gas Released</b>	- -	50.49
<b>Total VOC Released (gas service)</b>	(b)	<b>1.01</b>
<b>Calculations:</b>	<b>CO2e</b>	<b>23.48</b>

(a) Annual emissions (tons/yr) = [Emission Factor (lb/hr/source)] x [Number of Sources] x [Hours of Operation per Year] x [0.0005 tons/ lb]

(b) Gas sample for station assumed to be worst case at 2 wt % VOC<sup>(3)</sup>

Number of Components in Gas Service

Valves=	647	(2)
Low Bleed Pneumatic Valves=	11	(2)
Connectors=	2,265	(2)
Other Points in Gas Service =	48	(2)

Maximum Hour of Operation = 8,760

(1) Emission factors from 1995 EPA Protocol for Equipment Leak Emission Estimates, Table 2-4 Oil and Gas Production

(2) *Default Average Component Counts for Major Onshore Natural Gas Production Equipment* from 40 CFR 98, Subpart W, Table W-1B

(3) Worst case VOC wt % assumption for station based on gas sample analysis from compressor stations located in close proximity to the site

(4) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

**APPENDIX B**

**PROPOSED PERMIT LANGUAGE**

**Title V Operating Permit Renewal Application**

**Flat Top Compressor Station, Facility ID No. 089-00004**  
**Flat Top, West Virginia**

Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia

April 2017

**West Virginia Department of Environmental Protection  
Division of Air Quality**

*Jim Justice*  
Governor

*Austin Caperton*  
Cabinet Secretary

# Permit to Operate



*Pursuant to*  
**Title V**  
*of the Clean Air Act*

*Issued to:*  
**Columbia Gas Transmission, LLC**  
**Flat Top Compressor Station**  
**R30-08900004-2017**

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*William F. Durham*  
Director

*Issued:* • *Effective:* Draft  
*Expiration:* • *Renewal Application Due:*



Permit Number: **R30-08900004-2017**  
Permittee: **Columbia Gas Transmission, LLC**  
Facility Name: **Flat Top Compressor Station**  
Permittee Mailing Address: **5151 San Felipe St., Suite 2400, Houston, TX 77056**

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*This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§ 22-5-1 et seq.) and 45CSR30 C Requirements for Operating Permits. The permittee identified at the above-referenced facility is authorized to operate the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.*

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Facility Location:	Flat Top, Summers County, West Virginia
Facility Mailing Address:	450 Ellison Ridge Rd., Flat Top, WV 25841
Telephone Number:	(304) 787 5401
Type of Business Entity:	LLC
Facility Description:	Natural Gas Transmission Facility
SIC Codes:	4922
UTM Coordinates:	491.094 km Easting   \$   4,160.159 km Northing   \$   Zone 17

Permit Writer: **Engineer's Name**

*Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§ 22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §22-5-14.*

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*Issuance of this Title V Operating Permit does not supersede or invalidate any existing permits under 45CSR13, 14 or 19, although all applicable requirements from such permits governing the facility's operation and compliance have been incorporated into the Title V Operating Permit.*

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**1.0 Emission Units and Active R13, R14, and R19 Permits****1.1 Emission Units**

<b>Emission Unit ID</b>	<b>Emission Point ID</b>	<b>Emission Unit Description (Make, Model, Serial No.)</b>	<b>Year Installed</b>	<b>Design Capacity</b>	<b>Control Device</b>
BLR2*	BL2	Heating System Boiler; Ajax; Model # WNG1250W	1998	1.25 mmBtu/hr	N/A
BLR3*	BL3	Hot Water Boiler; Ajax; Model # WNG-2000-W	2000	2.0 mmBtu/hr	N/A
HTR1*	H1	Indirect Line Heater; NATCO; Model # MB30-8-8B	1997	1.0 mmBtu/hr	N/A
01109*	E09	Turbine Engine/Compressor; Solar Taurus 60-7302S	1998	6,089 hp	N/A
011G1*	G1	Reciprocating Engine/Generator; Ingersoll-Rand PSVG-8; 4 Cycle, Rich Burn	1989	544 hp	N/A
011A1	AC1	Reciprocating Engine/Air Compressor; (Gasoline Fired) Kohler K341S	2000	16 hp	N/A

**1.2 Active R13, R14, and R19 Permits**

The underlying authority for any conditions from R13, R14, and/or R19 permits contained in this operating permit is cited using the original permit number (e.g. R13-1234). The current applicable version of such permit(s) is listed below.

<b>Permit Number</b>	<b>Date of Issuance</b>
<a href="#">R13-2065G</a>	<a href="#">07/03/2014</a>

## 2.0 General Conditions

### 2.1. Definitions

- 2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.
- 2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.
- 2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.
- 2.1.4. Unless otherwise specified in a permit condition or underlying rule or regulation, all references to a "rolling yearly total" shall mean the sum of the monthly data, values or parameters being measured, monitored, or recorded, at any given time for the previous twelve (12) consecutive calendar months.

### 2.2. Acronyms

<b>CAAA</b>	Clean Air Act Amendments	<b>PM</b>	Particulate Matter
<b>CBI</b>	Confidential Business Information	<b>PM<sub>10</sub></b>	Particulate Matter less than 10µm in diameter
<b>CEM</b>	Continuous Emission Monitor		
<b>CES</b>	Certified Emission Statement	<b>pph</b>	Pounds per Hour
<b>C.F.R. or CFR</b>	Code of Federal Regulations	<b>ppm</b>	Parts per Million
<b>CO</b>	Carbon Monoxide	<b>PSD</b>	Prevention of Significant Deterioration
<b>C.S.R. or CSR</b>	Codes of State Rules		
<b>DAQ</b>	Division of Air Quality	<b>psi</b>	Pounds per Square Inch
<b>DEP</b>	Department of Environmental Protection	<b>SIC</b>	Standard Industrial Classification
<b>FOIA</b>	Freedom of Information Act	<b>SIP</b>	State Implementation Plan
<b>HAP</b>	Hazardous Air Pollutant	<b>SO<sub>2</sub></b>	Sulfur Dioxide
<b>HON</b>	Hazardous Organic NESHAP	<b>TAP</b>	Toxic Air Pollutant
<b>HP</b>	Horsepower	<b>TPY</b>	Tons per Year
<b>lbs/hr or lb/hr</b>	Pounds per Hour	<b>TRS</b>	Total Reduced Sulfur
<b>LDAR</b>	Leak Detection and Repair	<b>TSP</b>	Total Suspended Particulate
<b>m</b>	Thousand	<b>USEPA</b>	United States Environmental Protection Agency
<b>MACT</b>	Maximum Achievable Control Technology		
<b>mm</b>	Million	<b>UTM</b>	Universal Transverse Mercator
<b>mmBtu/hr</b>	Million British Thermal Units per Hour	<b>VEE</b>	Visual Emissions Evaluation
<b>mmft<sup>3</sup>/hr or mmcf/hr</b>	Million Cubic Feet Burned per Hour	<b>VOC</b>	Volatile Organic Compounds
<b>NA or N/A</b>	Not Applicable		
<b>NAAQS</b>	National Ambient Air Quality Standards		
<b>NESHAPS</b>	National Emissions Standards for Hazardous Air Pollutants		
<b>NO<sub>x</sub></b>	Nitrogen Oxides		
<b>NSPS</b>	New Source Performance Standards		

### **2.3. Permit Expiration and Renewal**

- 2.3.1. Permit duration. This permit is issued for a fixed term of five (5) years and shall expire on the date specified on the cover of this permit, except as provided in 45CSR§30-6.3.b. and 45CSR§30-6.3.c.  
[45CSR§30-5.1.b.]
- 2.3.2. A permit renewal application is timely if it is submitted at least six (6) months prior to the date of permit expiration.  
[45CSR§30-4.1.a.3.]
- 2.3.3. Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted consistent with 45CSR§30-6.2. and 45CSR§30-4.1.a.3.  
[45CSR§30-6.3.b.]
- 2.3.4. If the Secretary fails to take final action to deny or approve a timely and complete permit application before the end of the term of the previous permit, the permit shall not expire until the renewal permit has been issued or denied, and any permit shield granted for the permit shall continue in effect during that time.  
[45CSR§30-6.3.c.]

### **2.4. Permit Actions**

- 2.4.1. This permit may be modified, revoked, reopened and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.  
[45CSR§30-5.1.f.3.]

### **2.5. Reopening for Cause**

- 2.5.1. This permit shall be reopened and revised under any of the following circumstances:
  - a. Additional applicable requirements under the Clean Air Act or the Secretary's legislative rules become applicable to a major source with a remaining permit term of three (3) or more years. Such a reopening shall be completed not later than eighteen (18) months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to 45CSR§§30-6.6.a.1.A. or B.
  - b. Additional requirements (including excess emissions requirements) become applicable to an affected source under Title IV of the Clean Air Act (Acid Deposition Control) or other legislative rules of the Secretary. Upon approval by U.S. EPA, excess emissions offset plans shall be incorporated into the permit.
  - c. The Secretary or U.S. EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
  - d. The Secretary or U.S. EPA determines that the permit must be revised or revoked and reissued to assure compliance with the applicable requirements.  
[45CSR§30-6.6.a.]

## **2.6. Administrative Permit Amendments**

- 2.6.1. The permittee may request an administrative permit amendment as defined in and according to the procedures specified in 45CSR§30-6.4.  
[45CSR§30-6.4.]

## **2.7. Minor Permit Modifications**

- 2.7.1. The permittee may request a minor permit modification as defined in and according to the procedures specified in 45CSR§30-6.5.a.  
[45CSR§30-6.5.a.]

## **2.8. Significant Permit Modification**

- 2.8.1. The permittee may request a significant permit modification, in accordance with 45CSR§30-6.5.b., for permit modifications that do not qualify for minor permit modifications or as administrative amendments.  
[45CSR§30-6.5.b.]

## **2.9. Emissions Trading**

- 2.9.1. No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit and that are in accordance with all applicable requirements.  
[45CSR§30-5.1.h.]

## **2.10. Off-Permit Changes**

- 2.10.1. Except as provided below, a facility may make any change in its operations or emissions that is not addressed nor prohibited in its permit and which is not considered to be construction nor modification under any rule promulgated by the Secretary without obtaining an amendment or modification of its permit. Such changes shall be subject to the following requirements and restrictions:
- a. The change must meet all applicable requirements and may not violate any existing permit term or condition.
  - b. The permittee must provide a written notice of the change to the Secretary and to U.S. EPA within two (2) business days following the date of the change. Such written notice shall describe each such change, including the date, any change in emissions, pollutants emitted and any applicable requirement that would apply as a result of the change.
  - c. The change shall not qualify for the permit shield.
  - d. The permittee shall keep records describing all changes made at the source that result in emissions of regulated air pollutants, but not otherwise regulated under the permit, and the emissions resulting from those changes.
  - e. No permittee may make any change subject to any requirement under Title IV of the Clean Air Act (Acid Deposition Control) pursuant to the provisions of 45CSR§30-5.9.

- f. No permittee may make any changes which would require preconstruction review under any provision of Title I of the Clean Air Act (including 45CSR14 and 45CSR19) pursuant to the provisions of 45CSR§30-5.9.

**[45CSR § 30-5.9.]**

## **2.11. Operational Flexibility**

- 2.11.1. The permittee may make changes within the facility as provided by § 502(b)(10) of the Clean Air Act. Such operational flexibility shall be provided in the permit in conformance with the permit application and applicable requirements. No such changes shall be a modification under any rule or any provision of Title I of the Clean Air Act (including 45CSR14 and 45CSR19) promulgated by the Secretary in accordance with Title I of the Clean Air Act and the change shall not result in a level of emissions exceeding the emissions allowable under the permit.

**[45CSR§30-5.8]**

- 2.11.2. Before making a change under 45CSR§30-5.8., the permittee shall provide advance written notice to the Secretary and to U.S. EPA, describing the change to be made, the date on which the change will occur, any changes in emissions, and any permit terms and conditions that are affected. The permittee shall thereafter maintain a copy of the notice with the permit, and the Secretary shall place a copy with the permit in the public file. The written notice shall be provided to the Secretary and U.S. EPA at least seven (7) days prior to the date that the change is to be made, except that this period may be shortened or eliminated as necessary for a change that must be implemented more quickly to address unanticipated conditions posing a significant health, safety, or environmental hazard. If less than seven (7) days' notice is provided because of a need to respond more quickly to such unanticipated conditions, the permittee shall provide notice to the Secretary and U.S. EPA as soon as possible after learning of the need to make the change.

**[45CSR§30-5.8.a.]**

- 2.11.3. The permit shield shall not apply to changes made under 45CSR§30-5.8., except those provided for in 45CSR§30-5.8.d. However, the protection of the permit shield will continue to apply to operations and emissions that are not affected by the change, provided that the permittee complies with the terms and conditions of the permit applicable to such operations and emissions. The permit shield may be reinstated for emissions and operations affected by the change:

- a. If subsequent changes cause the facility's operations and emissions to revert to those authorized in the permit and the permittee resumes compliance with the terms and conditions of the permit, or
- b. If the permittee obtains final approval of a significant modification to the permit to incorporate the change in the permit.

**[45CSR§30-5.8.c.]**

- 2.11.4. "Section 502(b)(10) changes" are changes that contravene an express permit term. Such changes do not include changes that would violate applicable requirements or contravene enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.

**[45CSR§30-2.39]**

## **2.12. Reasonably Anticipated Operating Scenarios**

2.12.1. The following are terms and conditions for reasonably anticipated operating scenarios identified in this permit.

- a. Contemporaneously with making a change from one operating scenario to another, the permittee shall record in a log at the permitted facility a record of the scenario under which it is operating and to document the change in reports submitted pursuant to the terms of this permit and 45CSR30.
- b. The permit shield shall extend to all terms and conditions under each such operating scenario; and
- c. The terms and conditions of each such alternative scenario shall meet all applicable requirements and the requirements of 45CSR30.

[45CSR§30-5.1.i.]

## **2.13. Duty to Comply**

2.13.1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

[45CSR§30-5.1.f.1.]

## **2.14. Inspection and Entry**

2.14.1. The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

- a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
- d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

[45CSR§30-5.3.b.]



## **2.15. Schedule of Compliance**

- 2.15.1. For sources subject to a compliance schedule, certified progress reports shall be submitted consistent with the applicable schedule of compliance set forth in this permit and 45CSR§30-4.3.h., but at least every six (6) months, and no greater than once a month, and shall include the following:
- a. Dates for achieving the activities, milestones, or compliance required in the schedule of compliance, and dates when such activities, milestones or compliance were achieved; and
  - b. An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventative or corrective measure adopted.

**[45CSR§30-5.3.d.]**

## **2.16. Need to Halt or Reduce Activity not a Defense**

- 2.16.1. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

**[45CSR§30-5.1.f.2.]**

## **2.17. Emergency**

- 2.17.1. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

**[45CSR§30-5.7.a.]**

- 2.17.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of 45CSR§30-5.7.c. are met.

**[45CSR§30-5.7.b.]**

- 2.17.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

- a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
- b. The permitted facility was at the time being properly operated;
- c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and

- d. Subject to the requirements of 45CSR§30-5.1.c.3.C.1, the permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice, report, and variance request fulfills the requirement of 45CSR§30-5.1.c.3.B. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

**[45CSR§30-5.7.c.]**

- 2.17.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

**[45CSR§30-5.7.d.]**

- 2.17.5. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

**[45CSR§30-5.7.e.]**

## **2.18. Federally-Enforceable Requirements**

- 2.18.1. All terms and conditions in this permit, including any provisions designed to limit a source's potential to emit and excepting those provisions that are specifically designated in the permit as "State-enforceable only", are enforceable by the Secretary, USEPA, and citizens under the Clean Air Act.

**[45CSR§30-5.2.a.]**

- 2.18.2. Those provisions specifically designated in the permit as "State-enforceable only" shall become "Federally-enforceable" requirements upon SIP approval by the USEPA.

## **2.19. Duty to Provide Information**

- 2.19.1. The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records required to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

**[45CSR§30-5.1.f.5.]**

## **2.20. Duty to Supplement and Correct Information**

- 2.20.1. Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

**[45CSR§30-4.2.]**

## **2.21. Permit Shield**

- 2.21.1. Compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance provided that such applicable requirements are included and are specifically identified in this permit or the Secretary has determined that other requirements specifically identified are not applicable to the source and this permit includes such a determination or a concise summary thereof.

**[45CSR§30-5.6.a.]**

- 2.21.2. Nothing in this permit shall alter or affect the following:

- a. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance; or
- b. The applicable requirements of the Code of West Virginia and Title IV of the Clean Air Act (Acid Deposition Control), consistent with § 408 (a) of the Clean Air Act.
- c. The authority of the Administrator of U.S. EPA to require information under § 114 of the Clean Air Act or to issue emergency orders under § 303 of the Clean Air Act.

**[45CSR§30-5.6.c.]**

## **2.22. Credible Evidence**

- 2.22.1. Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defenses otherwise available to the permittee including but not limited to any challenge to the credible evidence rule in the context of any future proceeding.

**[45CSR§30-5.3.e.3.B. and 45CSR38]**

## **2.23. Severability**

- 2.23.1. The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid by a court of competent jurisdiction, the remaining permit terms and conditions or their application to other circumstances shall remain in full force and effect.

**[45CSR§30-5.1.e.]**

## **2.24. Property Rights**

- 2.24.1. This permit does not convey any property rights of any sort or any exclusive privilege.

**[45CSR§30-5.1.f.4]**

## **2.25. Acid Deposition Control**

- 2.25.1. Emissions shall not exceed any allowances that the source lawfully holds under Title IV of the Clean Air Act (Acid Deposition Control) or rules of the Secretary promulgated thereunder.

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Columbia Gas Transmission, LLC • Flat Top Compressor Station

- a. No permit revision shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid deposition control program, provided that such increases do not require a permit revision under any other applicable requirement.
- b. No limit shall be placed on the number of allowances held by the source. The source may not, however, use allowances as a defense to noncompliance with any other applicable requirement.
- c. Any such allowance shall be accounted for according to the procedures established in rules promulgated under Title IV of the Clean Air Act.

**[45CSR§30-5.1.d.]**

- 2.25.2. Where applicable requirements of the Clean Air Act are more stringent than any applicable requirement of regulations promulgated under Title IV of the Clean Air Act (Acid Deposition Control), both provisions shall be incorporated into the permit and shall be enforceable by the Secretary and U. S. EPA.

**[45CSR§30-5.1.a.2.]**

### 3.0 Facility-Wide Requirements

#### 3.1 Limitations and Standards

- 3.1.1. **Open burning.** The open burning of refuse by any person is prohibited except as noted in 45CSR§6-3.1. [45CSR§6-3.1.]
- 3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause or allow any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible. [45CSR§6-3.2.]
- 3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management and the Bureau for Public Health - Environmental Health requires a copy of this notice to be sent to them. [40 C.F.R. §61.145(b) and 45CSR34]
- 3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public. [45CSR§4-3.1 State-Enforceable only.]
- 3.1.5. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11. [45CSR§11-5.2]
- 3.1.6. **Emission inventory.** The permittee is responsible for submitting, on an annual basis, an emission inventory in accordance with the submittal requirements of the Division of Air Quality. [W.Va. Code § 22-5-4(a)(14)]
- 3.1.7. **Ozone-depleting substances.** For those facilities performing maintenance, service, repair or disposal of appliances, the permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 C.F.R. Part 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B:
- a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the prohibitions and required practices pursuant to 40 C.F.R. §§ 82.154 and 82.156.
  - b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 C.F.R. § 82.158.
  - c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 C.F.R. § 82.161.

**[40 C.F.R. 82, Subpart F]**

- 3.1.8. **Risk Management Plan.** Should this stationary source, as defined in 40 C.F.R. § 68.3, become subject to Part 68, then the owner or operator shall submit a risk management plan (RMP) by the date specified in 40 C.F.R. § 68.10 and shall certify compliance with the requirements of Part 68 as part of the annual compliance certification as required by 40 C.F.R. Part 70 or 71.

**[40 C.F.R. 68]**

- 3.1.9. No person shall cause, suffer, allow or permit fugitive particulate matter to be discharged beyond the boundary lines of the property on which the discharge originates or at any public or residential location, which causes or contributes to statutory air pollution.

**[45CSR§17-3.1; State Enforceable Only]**

### **3.2. Monitoring Requirements**

- 3.2.1. Reserved

### **3.3. Testing Requirements**

- 3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

- a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63, if applicable, in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable.
- b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit.
- c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.

- d. The permittee shall submit a report of the results of the stack test within 60 days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:
  1. The permit or rule evaluated, with the citation number and language.
  2. The result of the test for each permit or rule condition.
  3. A statement of compliance or non-compliance with each permit or rule condition.

[WV Code §§ 22-5-4(a)(14-15) and 45CSR13]

### 3.4. Recordkeeping Requirements

- 3.4.1. **Monitoring information.** The permittee shall keep records of monitoring information that include the following:
  - a. The date, place as defined in this permit and time of sampling or measurements;
  - b. The date(s) analyses were performed;
  - c. The company or entity that performed the analyses;
  - d. The analytical techniques or methods used;
  - e. The results of the analyses; and
  - f. The operating conditions existing at the time of sampling or measurement.

[45CSR§30-5.1.c.2.A.]

- 3.4.2. **Retention of records.** The permittee shall retain records of all required monitoring data and support information for a period of at least five (5) years from the date of monitoring sample, measurement, report, application, or record creation date. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Where appropriate, records may be maintained in computerized form in lieu of the above records.

[45CSR§30-5.1.c.2.B.]

- 3.4.3. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.

[45CSR§30-5.1.c. State-Enforceable only.]

### 3.5. Reporting Requirements

- 3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.  
[45CSR§§30-4.4. and 5.1.c.3.D.]
- 3.5.2. A permittee may request confidential treatment for the submission of reporting required under 45CSR§30-5.1.c.3. pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.  
[45CSR§30-5.1.c.3.E.]
- 3.5.3. Except for the electronic submittal of the annual certification to the USEPA as required in 3.5.5 below, all notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, mailed first class or by private carrier with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

**If to the DAQ:**

Director  
WVDEP  
Division of Air Quality  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304  
  
Phone: 304/926-0475  
FAX: 304/926-0478

**If to the US EPA:**

Associate Director  
Office of Air Enforcement and Compliance  
Assistance (3AP20)  
U. S. Environmental Protection Agency  
Region III  
1650 Arch Street  
Philadelphia, PA 19103-2029

- 3.5.4. **Certified emissions statement.** The permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality.  
[45CSR§30-8.]
- 3.5.5. **Compliance certification.** The permittee shall certify compliance with the conditions of this permit on the forms provided by the DAQ. In addition to the annual compliance certification, the permittee may be required to submit certifications more frequently under an applicable requirement of this permit. The annual certification shall be submitted to the DAQ and USEPA on or before March 15 of each year, and shall certify compliance for the period ending December 31. The annual certification to the USEPA shall be submitted in electronic format only. It shall be submitted by e-mail to the following address: [R3-APD-Permits@epa.gov](mailto:R3-APD-Permits@epa.gov). The permittee shall maintain a copy of the certification on site for five (5) years from submittal of the certification.  
[45CSR§30-5.3.e.]
- 3.5.6. **Semi-annual monitoring reports.** The permittee shall submit reports of any required monitoring on or before September 15 for the reporting period January 1 to June 30 and on or before March 15 for the reporting period July 1 to December 31. All instances of deviation from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official consistent with 45CSR§30-4.4.  
[45CSR§30-5.1.c.3.A.]



3.5.7. **Emergencies.** For reporting emergency situations, refer to Section 2.17 of this permit.

3.5.8. **Deviations.**

- a. In addition to monitoring reports required by this permit, the permittee shall promptly submit supplemental reports and notices in accordance with the following:
  1. Any deviation resulting from an emergency or upset condition, as defined in 45CSR§30-5.7., shall be reported by telephone or telefax within one (1) working day of the date on which the permittee becomes aware of the deviation, if the permittee desires to assert the affirmative defense in accordance with 45CSR§30-5.7. A written report of such deviation, which shall include the probable cause of such deviations, and any corrective actions or preventative measures taken, shall be submitted and certified by a responsible official within ten (10) days of the deviation.
  2. Any deviation that poses an imminent and substantial danger to public health, safety, or the environment shall be reported to the Secretary immediately by telephone or telefax. A written report of such deviation, which shall include the probable cause of such deviation, and any corrective actions or preventative measures taken, shall be submitted by the responsible official within ten (10) days of the deviation.
  3. Deviations for which more frequent reporting is required under this permit shall be reported on the more frequent basis.
  4. All reports of deviations shall identify the probable cause of the deviation and any corrective actions or preventative measures taken.

**[45CSR§30-5.1.c.3.C.]**

- b. The permittee shall, in the reporting of deviations from permit requirements, including those attributable to upset conditions as defined in this permit, report the probable cause of such deviations and any corrective actions or preventive measures taken in accordance with any rules of the Secretary.

**[45CSR§30-5.1.c.3.B.]**

3.5.9. **New applicable requirements.** If any applicable requirement is promulgated during the term of this permit, the permittee will meet such requirements on a timely basis, or in accordance with a more detailed schedule if required by the applicable requirement.

**[45CSR§30-4.3.h.1.B.]**

### **3.6. Compliance Plan**

3.6.1. None

### **3.7. Permit Shield**

3.7.1. The permittee is hereby granted a permit shield in accordance with 45CSR§30-5.6. The permit shield applies provided the permittee operates in accordance with the information contained within this permit.

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- 3.7.2. The following requirements specifically identified are not applicable to the source based on the determinations set forth below. The permit shield shall apply to the following requirements provided the conditions of the determinations are met.

<b>45CSR4</b>	<i>To Prevent and Control the Discharge of Air Pollutants into the Open Air Which Cause or Contributes to an Objectionable Odor or Odors:</i> This State Rule shall not apply to the following source of objectionable odor until such time as feasible control methods are developed: Internal combustion engines.
<b>45CSR10</b>	<i>To Prevent and Control Air Pollution from the Emission of Sulfur Dioxide</i> – This State Rule is not applicable to the facility's boiler and heaters because the maximum design heat input (MDHI) is less than 10 mmBtu/hr
<b>45CSR21</b>	<i>To Prevent and Control Air Pollution from the Emission of Volatile Organic Compounds:</i> All storage tanks at the station, are listed as insignificant sources and are below 40,000 gallons in capacity, which exempts the facility from 45CSR§21-28. The compressor station is not engaged in the extraction or fractionation of natural gas which exempts the facility from 45CSR§21-29. Additionally this site is not located within one of the five designated VOC maintenance counties (Cabell, Kanawha, Putnam, Wayne & Wood)
<b>45CSR27</b>	<i>To Prevent and Control the Emissions of Toxic Air Pollutants:</i> Natural gas is included as a petroleum product and contains less than 5% benzene by weight. 45CSR§27-2.4 exempts equipment "used in the production and distribution of petroleum products providing that such equipment does not produce or contact materials containing more than 5% benzene by weight."
<b>40 C.F.R. Part 60 Subpart Dc</b>	<i>Standards of Performance for Steam Generating Units:</i> There are no fuel burning steam generating units operated at this facility and therefore the site has not affected sources that would meet applicability threshold defined within [40CFR§60.40c (a)].
<b>40 C.F.R. Part 60 Subpart OOOO</b>	<i>Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which Construction, Modification, or Reconstruction Commenced after August 23, 2011 and on or before September 18, 2015.</i> The Storage Vessel requirements defined for transmission sources is not applicable to this site because all vessels commenced construction, prior to August 23, 2011 as stated in accordance with [40CFR§60.5365(e)]. No other affected sources were identified at this site.
<b>40 C.F.R. Part 60 Subpart OOOOa</b>	<i>Standards of Performance for Crude Oil and Natural Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015.</i> The GHG and VOC requirements defined by this NSPS are not applicable to this site because all affected sources commenced constructed prior to September 18, 2015 in accordance with the applicability criteria defined within [40CFR§60.5365a]
<b>40 C.F.R. Part 60 Subpart K and Ka</b>	<i>Standards of Performance for Petroleum Liquid Storage Vessels.</i> All storage vessel tanks at the station are below the applicability criteria of 40,000 gallons in capacity as stated in [40CFR§60.110a(a)]
<b>40 C.F.R. Part 60 Subpart Kb</b>	<i>Standards of Performance for Petroleum Liquid Storage Vessels.</i> All tanks at the station are below the applicability criteria of 19,813 gallons in capacity as stated in [40CFR60.110b(a)]
<b>40 C.F.R. Part 60 Subpart KKK</b>	<i>Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plant(s).</i> The station is not engaged in the

	extraction or fractionation of natural gas liquids from field gas, the fractionation of mixed natural gas liquids from field gas, the fractionation of mixed natural gas liquids to natural gas products, or both. As a result, the station has no affected sources operating within this source category.
<b>40 C.F.R. Part 60 Subpart IIII</b>	<i>Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.</i> The station does not utilize compression ignition internal combustion engines.
<b>40 C.F.R. Part 60 Subpart KKKK</b>	<i>Standards of Performance for Stationary Gas Turbines:</i> The provisions of this subpart are not applicable to this facility's turbine because it predates the NSPS applicability date of February 18, 2005 defined by §60.4305(a)
<b>40 C.F.R. Part 63 Subpart HHH</b>	<i>National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities.</i> The station is not subject to Subpart HHH since the station does not utilize dehydration and is not a major source of HAPs.
<b>40 C.F.R. Part 63 Subpart YYYY</b>	<i>National Emission Standards for Hazardous Air Pollutants from Stationary Combustion Turbines:</i> The provisions of this subpart are not applicable because although turbines have been installed at this minor HAP source the control requirements of this regulation for natural gas fired units was stayed by USEPA. Initial Notification Requirements are all that apply.
<b>40 C.F.R. Part 63 Subpart DDDDD</b>	<i>National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters.</i> The provisions of this subpart do not apply to this Station since it does not exceed major source HAP thresholds as defined in 40CFR§63.7575.
<b>40 C.F.R. Part 63 Subpart JJJJJ</b>	<i>National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources.</i> The facility is not subject to 40 C.F.R. Part 63 Subpart JJJJJ since the line heaters and boiler are fueled by natural gas as defined in 40CFR§63.11195(e)
<b>40 C.F.R. Part 64</b>	<i>Compliance Assurance Monitoring.</i> The compliance assurance monitoring provisions of Part 64 are not applicable due there being no add-on controls at this facility. [40CFR§64.2(a)(2)]

### 3.8. Emergency Operating Scenario

For emergency situations which interrupt the critical supply of natural gas to the public, and which pose a life threatening circumstance to the customer, the permittee is allowed to temporarily replace failed engine(s) as long as all of the following conditions are met:

- The replacement engine(s) is only allowed to operate until repair of the failed engine(s) is complete, but under no circumstance may the replacement engine(s) operate in excess of sixty (60) days;
- Both the replacement engine(s) and the repaired failed engine(s) shall not operate at the same time with the exception of any necessary testing of the repaired engine(s) and this testing may not exceed five (5) hours;
- Potential hourly emissions from the replacement engine(s) are less than or equal to the potential hourly emissions from the engine(s) being replaced;
- Credible performance emission test data verifying the emission rates associated with the operation of the substitute engine shall be submitted to the Director within five (5) days;

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- e. The permittee must provide written notification to the Director within five (5) days of the replacement. This notification must contain:
  - i. Information to support the claim of life threatening circumstances to justify applicability of this emergency provision;
  - ii. Identification of the engine(s) being temporarily replaced;
  - iii. The design parameters of the replacement engine(s) including, but not limited to, the design horsepower and emission factors;
  - iv. Projected duration of the replacement engine(s); and
  - v. The appropriate certification by a responsible official.

**[45CSR§30-12.7]**

#### **4.0 Miscellaneous Indirect Natural Gas Heaters and Boilers less than 10 MMBtu/hr [Emission Unit ID(s): (BLR2, BLR3 & HTR1)]**

##### **4.1. Limitations and Standards**

- 4.1.1. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any fuel burning unit which is greater than ten (10) percent opacity based on a six minute block average.

**[45CSR§2-3.1.]**

- 4.1.2. Compliance with the visible emission requirements of 45CSR§2-3.1 (Section 4.1.1 of this permit) shall be determined in accordance with 40 C.F.R. Part 60, Appendix A, Method 9 or by using measurements from continuous opacity monitoring systems approved by the Director. The Director may require the installation, calibration, maintenance and operation of continuous opacity monitoring systems and may establish policies for the evaluation of continuous opacity monitoring results and the determination of compliance with the visible emission requirements of 45CSR§2-3.1 (Section 4.1.1 of this permit). Continuous opacity monitors shall not be required on fuel burning units which employ wet scrubbing systems for emission control.

**[45CSR§2-3.2.]**

##### **4.2. Monitoring Requirements**

- 4.2.1. At such reasonable times as the Secretary may designate, the permittee shall conduct visible emissions observations using Method 22 for the purpose of demonstrating compliance with Section 4.1.1. If visible emissions are observed, the permittee shall conduct a Method 9 reading unless the cause for visible emissions is corrected within 24 hours. Records of observation will be kept for at least 5 years from the date of observation.

**[45CSR§30-5.1.c. & 45CSR13, Permit R13-2065G, Condition 5.2.1]**

##### **4.3. Testing Requirements**

- 4.3.1. N/A

##### **4.4. Recordkeeping Requirements**

- 4.4.1. N/A

##### **4.5. Reporting Requirements**

- 4.5.1. N/A

**5.0 40 C.F.R. 63, Subpart ZZZZ GACT Requirements for Emergency Reciprocating Internal Combustion Engine(s) RICE [Emission Unit IDs: (011G1 & 011A1)]**

**5.1 Limitations and Standards**

- 5.1.1. As stated in 40 C.F.R. §§63.6603, the permittee must comply with the following requirements from Table 2d for existing stationary RICE located at area sources of HAP emissions:

For each . . .	The permittee must meet the following requirements, except during periods of startup . . .
Emergency stationary SI RICE and black start stationary SI RICE	Change oil and filter every 500 hours of operation or annually, whichever comes first; <sup>2</sup>
	Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first; and
	Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. <sup>3</sup>

<sup>2</sup> Sources have the option to utilize an oil analysis program as described in 40 C.F.R. §63.6625(i) or (j) in order to extend the specified oil change requirement in Table 2c of this subpart.

<sup>3</sup> Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

**[40 C.F.R. 63.6603, and Table 2d, Item 5]**

- 5.1.2. The permittee must comply with the applicable operating limitations in this section no later than October 19, 2013.

**[40 C.F.R. §63.6595(a)]**

- 5.1.3. The permittee shall comply with the following general requirements:

- a. The permittee must be in compliance with the operating limitations in this subpart that apply to the permittee at all times.
- b. At all times the permittee must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the permittee to make any further efforts to reduce emissions if required levels have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

**[40 C.F.R. § 63.6605]**

- 5.1.4. The permittee shall demonstrate continuous compliance by doing the following:

- a. The permittee must demonstrate continuous compliance with each emission limitation and operating limitation in Table 2d to 40 C.F.R. 63, Subpart ZZZZ that apply to the permittee according to methods specified in Table 6 to 40 C.F.R. 63, Subpart ZZZZ.

Table 6 states that for work or management practices the permittee shall operate and maintain the stationary RICE according to the manufacturer's emission related operation and maintenance instructions; or develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air

pollution control practice for minimizing emissions.

**[40 C.F.R. § 63.6640(a)]**

5.1.5. If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1) through (4) of this section. In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (4) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

(ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

**[40 C.F.R. § 63.6640(f)]**

5.1.6. The permittee shall comply with all General Provisions which apply according to Table 8 to 40 C.F.R., Part 63, Subpart ZZZZ.

**[40 C.F.R. § 63.6665]**



## 5.2. Monitoring Requirements

5.2.1. This facility is subject to the following requirements:

- a. The permittee must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

**[40 C.F.R. §63.6625(e)(3)]**

- b. If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing emergency stationary RICE located at an area source of HAP emissions, you must install a non-resettable hour meter if one is not already installed.

**[40 C.F.R. §63.6625(f)]**

- c. If you operate a new, reconstructed, or existing stationary engine, you must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.

**[40 C.F.R. §63.6625(h)]**

- d. If you own or operate a stationary SI engine that is subject to the work, operation or management practices in items 6, 7, or 8 of Table 2c to this subpart or in items 5, 6, 7, 9, or 11 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

**[40 C.F.R. §63.6625(j)]**

## 5.3. Testing Requirements

5.3.1. Reserved

## 5.4. Recordkeeping Requirements

- 5.4.1. The permittee shall keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applied.

**[40 CFR §63.6655(d), Table 6 (Item 9)]**

- 5.4.2. The permittee must keep records of the maintenance conducted on each stationary RICE in order to



demonstrate that the permittee operated and maintained each stationary RICE and after-treatment control device (if any) according to the permittee's own maintenance plan.

[40 CFR §63.6655(e)(2)]

- 5.4.3. If you own or operate any of the stationary RICE in paragraphs (f)(1) through (2) of this section, you must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engine is used for the purposes specified in §63.6640(f)(2)(ii) or (iii) or §63.6640(f)(4)(ii), the owner or operator must keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.

- a. An existing emergency stationary RICE located at an area source of HAP emissions that does not meet the standards applicable to non-emergency engines.

[40 CFR §63.6655(f)(2)]

## **5.5. Reporting Requirements**

- 5.5.1. N/A

## **5.6. Compliance Plan**

- 5.6.1 N/A

**6.0 40 C.F.R. 60, Subpart GG Requirements for Stationary Gas Turbines [Emission Unit ID: (01109)]**

**6.1 Limitations and Standards**

- 6.1.1. No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides (NO<sub>x</sub>) in excess of:

$$STD = 0.0150 \frac{(14.4)}{Y} + F$$

where:

STD = the allowable ISO corrected (if required as given in §60.335(b)(1)) NO<sub>x</sub> emission concentration (percent by volume @ 15% O<sub>2</sub> on a dry basis),

Y = manufacturer's rated heat rate at rated peak load (kilojoules per watt hour), or actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of U shall not exceed 14.4 kJ/W-hr, and

F = NO<sub>x</sub> emission allowance for fuel bound nitrogen

**[40 CFR §60.332(a)(2)]**

- 6.1.2. Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hr) but less than or equal to 107.2 gigajoules per hour (100 million Btu/hr) based on the lower heating value of the fuel fired, shall comply with the provision in paragraph (a)(2) [Condition 6.1.1] of this section.

**[40 CFR §60.332(c)]**

- 6.1.3. No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine gases which contain SO<sub>2</sub> in excess of 0.015 percent by volume at 15% O<sub>2</sub> and on a dry basis or shall burn any fuel which contains total sulfur in excess of 0.8 percent by weight (8000 ppmw).

**[40 CFR §60.4333]**

**6.2. Monitoring Requirements**

- 6.2.1. For any turbine that commenced construction, reconstruction or modification after October 3, 1977, but before July 8, 2004, and which does not use steam or water injection to control NO<sub>x</sub> emissions, the owner or operator may, but is not required to, for purposes of determining excess emissions, use a CEMS that meets the requirements of paragraph (b) of this section. Also, if the owner or operator has previously submitted and received EPA, State, or local permitting authority approval of a procedure for monitoring compliance with the applicable NO<sub>x</sub> emission limit under §60.332, that approved procedure may continue to be used.

**[40 CFR § 60.334(c)]**

- 6.2.2. The owner or operator of any stationary gas turbine subject to the provisions of this subpart;

(1) Shall monitor the total sulfur content of the fuel being fired in the turbine, except as provided in paragraph (h)(3) of this section. The sulfur content of the fuel must be determined using total sulfur methods described in §60.335(b)(10). Alternatively, if the total sulfur content of the gaseous fuel during the most recent performance test was less than 0.4 weight percent (4000 ppmw), ASTM D4084-82, 94, D5504-01, D6228-98, or Gas Processors Association Standard 2377-86 (all of which are incorporated by reference-see §60.17), which measure the major sulfur compounds may be used; and

(2) Shall monitor the nitrogen content of the fuel combusted in the turbine, if the owner or operator claims an allowance for fuel bound nitrogen (i.e., if an F-value greater than zero is being or will be used by the owner or operator to calculate STD in §60.332). The nitrogen content of the fuel shall be determined using methods described in §60.335(b)(9) or an approved alternative.

(3) Notwithstanding the provisions of paragraph (h)(1) of this section, the owner or operator may elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine, if the gaseous fuel is demonstrated to meet the definition of natural gas in §60.331(u), regardless of whether an existing custom schedule approved by the administrator for subpart GG requires such monitoring. The owner or operator shall use one of the following sources of information to make the required demonstration:

(i) The gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less; or

(ii) Representative fuel sampling data which show that the sulfur content of the gaseous fuel does not exceed 20 grains/100 scf. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of appendix D to part 75 of this chapter is required.

**[40 CFR § 60.334(h)]**

6.2.3. The frequency of determining the sulfur and nitrogen content of the fuel shall be as follows;

(2) Gaseous fuel. Any applicable nitrogen content value of the gaseous fuel shall be determined and recorded once per unit operating day. For owners and operators that elect not to demonstrate sulfur content using options in paragraph (h)(3) of this section, and for which the fuel is supplied without intermediate bulk storage, the sulfur content value of the gaseous fuel shall be determined and recorded once per unit operating day.

**[40 CFR § 60.334(i)(2)]**

6.2.4. For each affected unit that elects to continuously monitor parameters or emissions, or to periodically determine the fuel sulfur content or fuel nitrogen content under this subpart, the owner or operator shall submit reports of excess emissions and monitor downtime, in accordance with §60.7(c). Excess emissions shall be reported for all periods of unit operation, including startup, shutdown and malfunction.

**[40 CFR § 60.334(j)]**

**6.3. Testing Requirements**

6.3.1. The owner or operator shall conduct the performance testes required in §60.8, using either (1) EPA Method 20; (2) ASTM D6522-00 (incorporated by reference, see §60.17), or (3) EPA Method 7E and either EPA Method 3 or 3A in appendix A to this part to determine NO<sub>x</sub> and the diluent concentration.

**[40 CFR§ 60.335]**

**6.4. Recordkeeping Requirements**

6.4.1. N/A

## **6.5. Reporting Requirements**

- 6.5.1. All records required under 40CFR60 Subpart GG shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.  
**[45CSR13, Permit R13-2065G, Condition 5.5.1]**
- 6.5.2. The permitted facility shall comply with all applicable provisions of 40CFR60 Subpart GG. The permittee must also notify the Director of excess emissions as required.

40CFR60 Subpart GG Applicable Requirements
40 CFR 60 Subpart GG, specifically 40 CFR §60.332(a)(2); §60.332(c); §60.333; §60.334(c); §60.334(h)(1); §60.334(h)(2); §60.334(h)(3)(i); §60.334(h)(3)(ii); §60.334(i)(2); §60.334(j); §60.335.

**[40 CFR §60.330-335 & 45CSR13, Permit R13-2065G, Condition 5.5.2]**

## **6.6. Compliance Plan**

- 6.6.1 N/A

## 7.0 45 CSR 13, NSR Permit Requirements, R13-2065G [Emission Unit IDs: (01109 & 011A1)]

### 7.1 Limitations and Standards

- 7.1.1. Maximum hourly emission rates from Emission Unit 01109 shall not exceed the following limits;

Operating Mode	Emissions (lb/hr)	
	NO <sub>x</sub>	CO
Full Load (@ 0°F)	5.36	6.52
Low Load Operations (<50%)	9.92	189.79
Low-Temp Operations (< -0°F)	26.74	20.34
Startup/Shutdown	3.86	72.00

#### [45CSR13, Permit R13-2065G, Condition 5.1.1]

- 7.1.2. Maximum annual emission rates from Emission Unit 01109 shall not exceed the following limits;

	Emissions (ton/yr)
NO <sub>x</sub>	39.00
CO	99.00

#### [45CSR13, Permit R13-2065G, Condition 5.1.2]

- 7.1.3. Emission Unit 01109 shall consume no more than 58,495 standard cubic feet (scf) of natural gas per hour of  $5.13 \times 10^8$  scf of natural gas per year.

#### [45CSR13, Permit R13-2065G, Condition 5.1.3)]

- 7.1.4. The 16 hp Curtis, Model CWG9711EG reciprocating engine/air compressor (011A1) shall not be operated in excess of 500 hours per year.

#### [45CSR13, Permit R13-2065G, Condition 5.1.4)]

- 7.1.5. The permitted facility shall comply with all applicable provisions of 40 CFR §§ 60.332, 60.333, 60.334, 60.335, provided that compliance with any more stringent limitation set forth in this permit shall also be demonstrated. The permittee must notify the Director of the DAQ of excess emissions as required.

#### [45CSR13, Permit R13-2065G, Condition 5.1.5]

### 7.2. Monitoring Requirements

- 7.2.1. At such reasonable times as the Secretary may designate, the permittee shall conduct Method 9 emission observations for the purpose of demonstrating compliance with §45-2-3.. Method 9 shall be conducted in accordance with 40 CFR 60 Appendix A.

#### [45CSR13, Permit R13-2065G, Condition 5.2.1]

### 7.3. Testing Requirements

- 7.3.1. In the event that the secretary requests emissions test to be conducted to determine the carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), particulate matter (PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), and volatile organic compounds (VOC) from emission points, the methods listed below from Appendix A of 40CFR60 shall be utilized for purposes of conducting performance tests, unless the Secretary approves an alternate or

equivalent method. Submission of test protocol and notification of testing is required as described in Section 3.3.1 of this permit.

<i>Pollutant</i>	<i>Method</i>
CO	10, 10A or 10B
NO <sub>x</sub>	40 CFR 60 Subpart GG
Formaldehyde	18
SO <sub>2</sub>	40 CFR 60 Subpart GG
VOC	25 or 25A

**[45CSR13, Permit R13-2065G, Condition 5.3.1]**

## **7.4. Recordkeeping Requirements**

7.4.1. *Monitoring Information.* The permittee shall keep records of monitoring information that include the following:

- a. The date, place as defined in this permit and time of sampling or measurements;
- b. The date(s) analyses were performed;
- c. The company or entity that performed the analyses;
- d. The analytical techniques or methods used;
- e. The results of the analyses; and
- f. The operating conditions existing at the time of sampling or measurement.

**[45CSR13, Permit R13-2065G, Conditions 4.1.1 & 4.2.1]**

7.4.2. *Record of Maintenance of Air Pollution Control Equipment.* For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures specifically required in this permit.

**[45CSR13, Permit R13-2065G, Condition 4.2.2]**

7.4.3. *Record of Malfunctions of Air Pollution Control Equipment.* For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emission occur. For each such case, the following information shall be recorded;

- a. The equipment involved;
- b. Steps taken to minimize emissions during the event;
- c. The duration of the event;
- d. The estimated increase in emissions during the event;

For each such case associated with an equipment malfunction, the additional information shall also be record:

- e. The cause of the malfunction;
- f. Steps taken to correct the malfunction;
- g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of malfunction.

**[45CSR13, Permit R13-2065G, Condition 4.2.3]**

7.4.4. To demonstrate compliance with Condition 7.1.2, the permittee shall maintain monthly operating hours at normal dry low NO<sub>x</sub> (DLN) conditions, non-dry low NO<sub>x</sub> (non-DLN) conditions and low ambient

temperature conditions as well as the monthly number of startup and shutdown cycles. These monthly records will be used to calculate monthly emissions (ME) for each regulated pollutant ( $P_X$ ) using the following equation;

$$ME P_X = DLN P_X * DLN \text{ hrs} + \text{non DLN } P_X * \text{non DLN hrs} + LT P_X * LT \text{ hrs} + SSP_X * SS \text{ cycles}$$

**Where:**  $DLN P_X$ ,  $\text{non DLN } P_X$ ,  $LT P_X$  and  $SS P_X$  are the unit emission rates (lb/hr or lb/cycle) for pollutant X during normal DLN, non dry Low  $NO_X$ , low temperature, and startup/shutdown operation, respectively.

**[45CSR13, Permit R13-2065G, Condition 5.4.1]**

- 7.4.5. To demonstrate compliance with Condition 7.1.1. the permittee shall utilize the monthly emission formula listed Condition 9.4.1 and keep records of operation of the Emission Unit 01109.

**[45CSR13, Permit R13-2065G, Condition 5.4.2]**

- 7.4.6. To demonstrate compliance with Condition 7.1.3. the permittee shall maintain records of the amount of natural gas consumed in Emission Unit 01109. Said records shall be maintained on site for a period of five (5) years and shall be made available to the Director of the DAQ or his/her duly authorized representative upon request and shall be certified by a responsible official upon submittal.

**[45CSR13, Permit R13-2065G, Condition 5.4.3]**

- 7.4.7. To demonstrate compliance with Condition 7.1.4, the permittee shall maintain records of the hours of operation in Emission Unit 011A1. Said records shall be maintained on site for a period of five (5) years and shall be made available to the Director of the DAQ or his/her duly authorized representative upon request and shall be certified by a responsible official upon submittal.

**[45CSR13, Permit R13-2065G, Condition 5.4.4]**

## **7.5. Reporting Requirements**

- 7.5.1 N/A

## **7.6. Compliance Plan**

- 7.6.1 N/A

**APPENDIX C**

**ELECTRONIC SUBMITTAL**

**Title V Operating Permit Renewal Application**

**Flat Top Compressor Station, Facility ID No. 089-00004**  
**Flat Top, West Virginia**

Columbia Gas Transmission, LLC  
1700 MacCorkle Avenue, SE  
Charleston, West Virginia

April 2017



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification:	Flat Top - A07 - Lube Oil Tank
City:	Flat Top
State:	West Virginia
Company:	Columbia Pipeline Group
Type of Tank:	Horizontal Tank
Description:	Flat Top Compressor Station

**Tank Dimensions**

Shell Length (ft):	5.50
Diameter (ft):	3.00
Volume (gallons):	294.00
Turnovers:	0.00
Net Throughput(gal/yr):	3,528.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	Gray/Light
Shell Condition	Good

**Breather Vent Settings**

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Beckley, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**Flat Top - A07 - Lube Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	All	56.95	49.23	64.66	53.14	0.0059	0.0044	0.0077	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0065

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**Flat Top - A07 - Lube Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	0.0696
Vapor Space Volume (cu ft):	24.7626
Vapor Density (lb/cu ft):	0.0001
Vapor Space Expansion Factor:	0.0558
Vented Vapor Saturation Factor:	0.9995
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	24.7626
Tank Diameter (ft):	3.0000
Effective Diameter (ft):	4.5847
Vapor Space Outage (ft):	1.5000
Tank Shell Length (ft):	5.5000
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0001
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Daily Avg. Liquid Surface Temp. (deg. R):	516.6165
Daily Average Ambient Temp. (deg. F):	50.9000
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	512.8100
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,123.3333
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.0558
Daily Vapor Temperature Range (deg. R):	30.8688
Daily Vapor Pressure Range (psia):	0.0033
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0044
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0077
Daily Avg. Liquid Surface Temp. (deg R):	516.6165
Daily Min. Liquid Surface Temp. (deg R):	508.8993
Daily Max. Liquid Surface Temp. (deg R):	524.3337
Daily Ambient Temp. Range (deg. R):	19.2833
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.9995
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Vapor Space Outage (ft):	1.5000
<b>Working Losses (lb):</b>	
Working Losses (lb):	0.0643
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Annual Net Throughput (gal/yr.):	3,528.0000
Annual Turnovers:	0.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	3.0000
Working Loss Product Factor:	1.0000
<b>Total Losses (lb):</b>	
Total Losses (lb):	0.1339



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**Flat Top - A07 - Lube Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	0.06	0.07	0.13



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification:	Flat Top - A11 - Turbine Oil Tank
City:	Flat Top
State:	West Virginia
Company:	Columbia Pipeline Group
Type of Tank:	Horizontal Tank
Description:	Flat Top Compressor Station

**Tank Dimensions**

Shell Length (ft):	10.00
Diameter (ft):	4.67
Volume (gallons):	1,250.00
Turnovers:	0.00
Net Throughput(gal/yr):	15,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	Gray/Light
Shell Condition	Good

**Breather Vent Settings**

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Beckley, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**Flat Top - A11 - Turbine Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	All	56.95	49.23	64.66	53.14	0.0059	0.0044	0.0077	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0065



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**Flat Top - A11 - Turbine Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	0.3065
Vapor Space Volume (cu ft):	109.0998
Vapor Density (lb/cu ft):	0.0001
Vapor Space Expansion Factor:	0.0558
Vented Vapor Saturation Factor:	0.9993
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	109.0998
Tank Diameter (ft):	4.6700
Effective Diameter (ft):	7.7130
Vapor Space Outage (ft):	2.3350
Tank Shell Length (ft):	10.0000
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0001
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Daily Avg. Liquid Surface Temp. (deg. R):	516.6165
Daily Average Ambient Temp. (deg. F):	50.9000
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	512.8100
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,123.3333
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.0558
Daily Vapor Temperature Range (deg. R):	30.8688
Daily Vapor Pressure Range (psia):	0.0033
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0044
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0077
Daily Avg. Liquid Surface Temp. (deg R):	516.6165
Daily Min. Liquid Surface Temp. (deg R):	508.8993
Daily Max. Liquid Surface Temp. (deg R):	524.3337
Daily Ambient Temp. Range (deg. R):	19.2833
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.9993
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Vapor Space Outage (ft):	2.3350
<b>Working Losses (lb):</b>	
Working Losses (lb):	0.2734
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Annual Net Throughput (gal/yr.):	15,000.0000
Annual Turnovers:	0.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	4.6700
Working Loss Product Factor:	1.0000
<b>Total Losses (lb):</b>	
Total Losses (lb):	0.5799



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**Flat Top - A11 - Turbine Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	0.27	0.31	0.58



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification:	Flat Top - A12 - Used Turbine Oil Tank
City:	Flat Top
State:	West Virginia
Company:	Columbia Pipeline Group
Type of Tank:	Horizontal Tank
Description:	Flat Top Compressor Station

**Tank Dimensions**

Shell Length (ft):	10.00
Diameter (ft):	4.67
Volume (gallons):	1,250.00
Turnovers:	0.00
Net Throughput(gal/yr):	15,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	Gray/Light
Shell Condition	Good

**Breather Vent Settings**

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Beckley, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**Flat Top - A12 - Used Turbine Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	All	56.95	49.23	64.66	53.14	0.0059	0.0044	0.0077	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0065

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**Flat Top - A12 - Used Turbine Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	0.3065
Vapor Space Volume (cu ft):	109.0998
Vapor Density (lb/cu ft):	0.0001
Vapor Space Expansion Factor:	0.0558
Vented Vapor Saturation Factor:	0.9993
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	109.0998
Tank Diameter (ft):	4.6700
Effective Diameter (ft):	7.7130
Vapor Space Outage (ft):	2.3350
Tank Shell Length (ft):	10.0000
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0001
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Daily Avg. Liquid Surface Temp. (deg. R):	516.6165
Daily Average Ambient Temp. (deg. F):	50.9000
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	512.8100
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,123.3333
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.0558
Daily Vapor Temperature Range (deg. R):	30.8688
Daily Vapor Pressure Range (psia):	0.0033
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0044
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0077
Daily Avg. Liquid Surface Temp. (deg R):	516.6165
Daily Min. Liquid Surface Temp. (deg R):	508.8993
Daily Max. Liquid Surface Temp. (deg R):	524.3337
Daily Ambient Temp. Range (deg. R):	19.2833
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.9993
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Vapor Space Outage (ft):	2.3350
<b>Working Losses (lb):</b>	
Working Losses (lb):	0.2734
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Annual Net Throughput (gal/yr.):	15,000.0000
Annual Turnovers:	0.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	4.6700
Working Loss Product Factor:	1.0000
<b>Total Losses (lb):</b>	
Total Losses (lb):	0.5799





**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**Flat Top - A12 - Used Turbine Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	0.27	0.31	0.58



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification:	Flat Top - A15 - Gasoline Tank
City:	Flat Top
State:	West Virginia
Company:	Columbia Pipeline Group
Type of Tank:	Horizontal Tank
Description:	Flat Top Compressor Station

**Tank Dimensions**

Shell Length (ft):	12.00
Diameter (ft):	4.67
Volume (gallons):	1,500.00
Turnovers:	0.00
Net Throughput(gal/yr):	18,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	Gray/Light
Shell Condition	Good

**Breather Vent Settings**

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Beckley, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**Flat Top - A15 - Gasoline Tank - Horizontal Tank**  
**Flat Top, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	All	56.95	49.23	64.66	53.14	4.8859	4.1896	5.6721	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**Flat Top - A15 - Gasoline Tank - Horizontal Tank**  
**Flat Top, West Virginia**

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	366.5235
Vapor Space Volume (cu ft):	130.9198
Vapor Density (lb/cu ft):	0.0582
Vapor Space Expansion Factor:	0.2116
Vented Vapor Saturation Factor:	0.6232
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	130.9198
Tank Diameter (ft):	4.6700
Effective Diameter (ft):	8.4492
Vapor Space Outage (ft):	2.3350
Tank Shell Length (ft):	12.0000
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0582
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.8859
Daily Avg. Liquid Surface Temp. (deg. R):	516.6165
Daily Average Ambient Temp. (deg. F):	50.9000
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	512.8100
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,123.3333
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.2116
Daily Vapor Temperature Range (deg. R):	30.8688
Daily Vapor Pressure Range (psia):	1.4824
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.8859
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.1896
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	5.6721
Daily Avg. Liquid Surface Temp. (deg R):	516.6165
Daily Min. Liquid Surface Temp. (deg R):	508.8993
Daily Max. Liquid Surface Temp. (deg R):	524.3337
Daily Ambient Temp. Range (deg. R):	19.2833
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.6232
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.8859
Vapor Space Outage (ft):	2.3350
<b>Working Losses (lb):</b>	
Working Losses (lb):	138.1999
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.8859
Annual Net Throughput (gal/yr.):	18,000.0000
Annual Turnovers:	0.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	4.6700
Working Loss Product Factor:	1.0000
<b>Total Losses (lb):</b>	
Total Losses (lb):	504.7234



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**Flat Top - A15 - Gasoline Tank - Horizontal Tank**  
**Flat Top, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	138.20	366.52	504.72





**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification:	Flat Top - A21 - Pipeline Liquids Tank
City:	Flat Top
State:	West Virginia
Company:	Columbia Pipeline Group
Type of Tank:	Horizontal Tank
Description:	Flat Top Compressor Station

**Tank Dimensions**

Shell Length (ft):	10.00
Diameter (ft):	4.25
Volume (gallons):	1,000.00
Turnovers:	0.00
Net Throughput(gal/yr):	12,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	Gray/Light
Shell Condition	Good

**Breather Vent Settings**

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Beckley, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**Flat Top - A21 - Pipeline Liquids Tank - Horizontal Tank**  
**Flat Top, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	All	56.95	49.23	64.66	53.14	4.8859	4.1896	5.6721	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**Flat Top - A21 - Pipeline Liquids Tank - Horizontal Tank**  
**Flat Top, West Virginia**

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	261.8410
Vapor Space Volume (cu ft):	90.3583
Vapor Density (lb/cu ft):	0.0582
Vapor Space Expansion Factor:	0.2116
Vented Vapor Saturation Factor:	0.6450
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	90.3583
Tank Diameter (ft):	4.2500
Effective Diameter (ft):	7.3580
Vapor Space Outage (ft):	2.1250
Tank Shell Length (ft):	10.0000
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0582
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.8859
Daily Avg. Liquid Surface Temp. (deg. R):	516.6165
Daily Average Ambient Temp. (deg. F):	50.9000
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	512.8100
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,123.3333
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.2116
Daily Vapor Temperature Range (deg. R):	30.8688
Daily Vapor Pressure Range (psia):	1.4824
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.8859
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.1896
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	5.6721
Daily Avg. Liquid Surface Temp. (deg R):	516.6165
Daily Min. Liquid Surface Temp. (deg R):	508.8993
Daily Max. Liquid Surface Temp. (deg R):	524.3337
Daily Ambient Temp. Range (deg. R):	19.2833
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.6450
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.8859
Vapor Space Outage (ft):	2.1250
<b>Working Losses (lb):</b>	
Working Losses (lb):	92.1332
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.8859
Annual Net Throughput (gal/yr.):	12,000.0000
Annual Turnovers:	0.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	4.2500
Working Loss Product Factor:	1.0000
<b>Total Losses (lb):</b>	<b>353.9742</b>



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**Flat Top - A21 - Pipeline Liquids Tank - Horizontal Tank**  
**Flat Top, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	92.13	261.84	353.97



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification:	Flat Top - A23 - Pipeline Liquids Tank
City:	Flat Top
State:	West Virginia
Company:	Columbia Pipeline Group
Type of Tank:	Vertical Fixed Roof Tank
Description:	Flat Top Compressor Station

**Tank Dimensions**

Shell Height (ft):	8.00
Diameter (ft):	8.00
Liquid Height (ft) :	8.00
Avg. Liquid Height (ft):	4.00
Volume (gallons):	3,000.00
Turnovers:	12.00
Net Throughput(gal/yr):	36,000.00
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	Gray/Light
Shell Condition	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

**Roof Characteristics**

Type:	Dome
Height (ft)	1.00
Radius (ft) (Dome Roof)	8.00

**Breather Vent Settings**

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Beckley, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**Flat Top - A23 - Pipeline Liquids Tank - Vertical Fixed Roof Tank**  
**Flat Top, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	All	56.95	49.23	64.66	53.14	4.8859	4.1896	5.6721	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**Flat Top - A23 - Pipeline Liquids Tank - Vertical Fixed Roof Tank**  
**Flat Top, West Virginia**

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	469.7959
Vapor Space Volume (cu ft):	226.7183
Vapor Density (lb/cu ft):	0.0582
Vapor Space Expansion Factor:	0.2116
Vented Vapor Saturation Factor:	0.4613
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	226.7183
Tank Diameter (ft):	8.0000
Vapor Space Outage (ft):	4.5104
Tank Shell Height (ft):	8.0000
Average Liquid Height (ft):	4.0000
Roof Outage (ft):	0.5104
<b>Roof Outage (Dome Roof)</b>	
Roof Outage (ft):	0.5104
Dome Radius (ft):	8.0000
Shell Radius (ft):	4.0000
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0582
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.8859
Daily Avg. Liquid Surface Temp. (deg. R):	516.6165
Daily Average Ambient Temp. (deg. F):	50.9000
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	512.8100
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,123.3333
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.2116
Daily Vapor Temperature Range (deg. R):	30.8688
Daily Vapor Pressure Range (psia):	1.4824
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.8859
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.1896
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	5.6721
Daily Min. Liquid Surface Temp. (deg R):	508.8993
Daily Max. Liquid Surface Temp. (deg R):	524.3337
Daily Ambient Temp. Range (deg. R):	19.2833
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.4613
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.8859
Vapor Space Outage (ft):	4.5104
<b>Working Losses (lb):</b>	
Vapor Molecular Weight (lb/lb-mole):	276.3997
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	66.0000
Annual Net Throughput (gal/yr.):	4.8859
Annual Turnovers:	36,000.0000
Turnover Factor:	12.0000
Maximum Liquid Volume (gal):	1.0000
Maximum Liquid Height (ft):	3,000.0000
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	8.0000
	1.0000
<b>Total Losses (lb):</b>	<b>746.1956</b>



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**Flat Top - A23 - Pipeline Liquids Tank - Vertical Fixed Roof Tank**  
**Flat Top, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	276.40	469.80	746.20



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification:	Flat Top - C05 - New Lube Oil Tank
City:	Flat Top
State:	West Virginia
Company:	Columbia Pipeline Group
Type of Tank:	Horizontal Tank
Description:	Flat Top Compressor Station

**Tank Dimensions**

Shell Length (ft):	5.00
Diameter (ft):	3.00
Volume (gallons):	140.00
Turnovers:	0.00
Net Throughput(gal/yr):	1,680.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	Gray/Light
Shell Condition	Good

**Breather Vent Settings**

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Beckley, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**Flat Top - C05 - New Lube Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	All	56.95	49.23	64.66	53.14	0.0059	0.0044	0.0077	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0065

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**Flat Top - C05 - New Lube Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	0.0633
Vapor Space Volume (cu ft):	22.5114
Vapor Density (lb/cu ft):	0.0001
Vapor Space Expansion Factor:	0.0558
Vented Vapor Saturation Factor:	0.9995
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	22.5114
Tank Diameter (ft):	3.0000
Effective Diameter (ft):	4.3713
Vapor Space Outage (ft):	1.5000
Tank Shell Length (ft):	5.0000
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0001
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Daily Avg. Liquid Surface Temp. (deg. R):	516.6165
Daily Average Ambient Temp. (deg. F):	50.9000
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	512.8100
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,123.3333
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.0558
Daily Vapor Temperature Range (deg. R):	30.8688
Daily Vapor Pressure Range (psia):	0.0033
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0044
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0077
Daily Avg. Liquid Surface Temp. (deg R):	516.6165
Daily Min. Liquid Surface Temp. (deg R):	508.8993
Daily Max. Liquid Surface Temp. (deg R):	524.3337
Daily Ambient Temp. Range (deg. R):	19.2833
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.9995
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Vapor Space Outage (ft):	1.5000
<b>Working Losses (lb):</b>	
Working Losses (lb):	0.0306
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Annual Net Throughput (gal/yr.):	1,680.0000
Annual Turnovers:	0.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	3.0000
Working Loss Product Factor:	1.0000
<b>Total Losses (lb):</b>	
Total Losses (lb):	0.0939





**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**Flat Top - C05 - New Lube Oil Tank - Horizontal Tank**

**Flat Top, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	0.03	0.06	0.09



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification:	Flat Top - C06 - Used Oil Tank
City:	Flat Top
State:	West Virginia
Company:	Columbia Pipeline Group
Type of Tank:	Horizontal Tank
Description:	Flat Top Compressor Station

**Tank Dimensions**

Shell Length (ft):	5.00
Diameter (ft):	3.00
Volume (gallons):	150.00
Turnovers:	0.00
Net Throughput(gal/yr):	1,800.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	Gray/Light
Shell Condition	Good

**Breather Vent Settings**

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Beckley, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**Flat Top - C06 - Used Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	All	56.95	49.23	64.66	53.14	0.0059	0.0044	0.0077	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0065

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**Flat Top - C06 - Used Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	0.0633
Vapor Space Volume (cu ft):	22.5114
Vapor Density (lb/cu ft):	0.0001
Vapor Space Expansion Factor:	0.0558
Vented Vapor Saturation Factor:	0.9995
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	22.5114
Tank Diameter (ft):	3.0000
Effective Diameter (ft):	4.3713
Vapor Space Outage (ft):	1.5000
Tank Shell Length (ft):	5.0000
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0001
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Daily Avg. Liquid Surface Temp. (deg. R):	516.6165
Daily Average Ambient Temp. (deg. F):	50.9000
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	512.8100
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,123.3333
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.0558
Daily Vapor Temperature Range (deg. R):	30.8688
Daily Vapor Pressure Range (psia):	0.0033
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0044
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0077
Daily Avg. Liquid Surface Temp. (deg R):	516.6165
Daily Min. Liquid Surface Temp. (deg R):	508.8993
Daily Max. Liquid Surface Temp. (deg R):	524.3337
Daily Ambient Temp. Range (deg. R):	19.2833
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.9995
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Vapor Space Outage (ft):	1.5000
<b>Working Losses (lb):</b>	
Working Losses (lb):	0.0328
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0059
Annual Net Throughput (gal/yr.):	1,800.0000
Annual Turnovers:	0.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	3.0000
Working Loss Product Factor:	1.0000
<b>Total Losses (lb):</b>	
Total Losses (lb):	0.0961



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**Flat Top - C06 - Used Oil Tank - Horizontal Tank**  
**Flat Top, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	0.03	0.06	0.10

