

Fact Sheet



For Final Significant Modification Permitting Action Under 45CSR30 and Title V of the Clean Air Act

This Fact Sheet serves to address the changes specific to this Significant Modification, and shall be considered a supplement to the Fact Sheet corresponding with the Title V operating permit issued on October 31, 2012.

Permit Number: **R30-09700009-2012**
Application Received: **October 20, 2014**
Plant Identification Number: **03-54-097-00009**
Permittee: **Columbia Gas Transmission, LLC**
Facility Name: **Cleveland Compressor Station**
Mailing Address: **1700 MacCorkle Avenue, SE, Charleston, WV 25314**

Permit Action Number: *SM01* Revised: May 15, 2015

Physical Location: Kanawha Head, Upshur County, West Virginia
UTM Coordinates: 555.4 km Easting • 4,289.1 km Northing • Zone 17
Directions: Travel approximately 9.4 miles south on WV State Rt. 20 from the town of Rock Cave to station.

Facility Description

The Cleveland Station is a natural gas transmission facility covered by Standard Industrial Classification (SIC) 4922. The station has the potential to operate seven (7) days per week, twenty-four (24) hours per day. The station currently consists of six (6) 1,100-hp and four (4) 2,000-hp reciprocating engines, one (1) 3,165-hp turbine engine, one (1) reciprocating engine/emergency generator, a wastewater injection evaporation system (WE1 to E09 & E10) and numerous storage tanks of various sizes. For comfort heating purposes the facility also operates a number of small space heaters (de minimus).

This significant modification incorporates the requirements of the recently issued permit R13-2394A which is to increase the overall reliability of the station. In accordance with R13-2394A Columbia will make the following changes to the station:

- Add two (2) new Solar Taurus 70 combustion turbines;

- Add one new 880-hp Waukesha emergency generator;
- Add two (2) new 0.65 MMBtu/hr ETI indirect-fired heaters;
- Add up to 46 new catalytic space heaters (0.072 MMBtu/hr each);
- Add various small insignificant storage tanks (condensate, waste liquid, lube oil);
- Retire six (6) 1,100-hp Cooper-Bessemer GMVA-8 RICE units;
- Retire one (1) 3,165-hp Allison 501-K13 turbine;
- Retire one (1) 500-hp Waukesha emergency generator; and
- Move four (4) 2,000-hp Cooper-Bessemer GMWA-8 RICE units to standby status.

Emissions Summary

The changes in potential emissions are as follows:

Regulated Pollutants	Change In Potential Emissions (tpy)	Potential Emissions After Modification (tpy)*
Carbon Monoxide (CO)	+18.83 (increase)	98.6
Nitrogen Oxides (NO _x)	-184.83 (decrease)	929.3
Particulate Matter (PM ₁₀)	-7.61 (decrease)	19.2
Total Particulate Matter (TSP)	-7.61 (decrease)	19.2
Sulfur Dioxide (SO ₂)	+0.27 (increase)	0.75
Volatile Organic Compounds (VOC)	-7.92 (decrease)	56.8
Formaldehyde	-12.94 (decrease)	16.9
Total HAPs	-18.61 (decrease)	24.3

* The potential emissions listed above are from those supplied in the application for this significant modification and are slightly different from the previous fact sheet. The differences are due to minor changes in the calculation methodology.

Title V Program Applicability Basis

With the proposed changes associated with this modification, this facility has the potential to emit 929.3 tons/yr of NO_x and 16.9 tons/yr of Formaldehyde. Due to this facility's potential to emit over 100 tons per year of criteria pollutants, and over 10 tons per year of a single HAP, Columbia Gas Transmission, LLC is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

The modification to this facility has been found to be subject to the following applicable rules:

Federal and State:

- | | |
|---------|---|
| 45CSR2 | To Prevent And Control Particulate Air Pollution From Combustion Of Fuel In Indirect Heat Exchangers |
| 45CSR13 | Permits For Construction, Modification, Relocation And Operation Of Stationary Sources Of Air Pollutants, |

	Notification Requirements, Administrative Updates, Temporary Permits, General Permits, And Procedures For Evaluation
45CSR16	Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60
45CSR34	Emission Standards For Hazardous Air Pollutants
45CSR30	Operating permit requirement.
40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
40 CFR Part 60 Subpart KKKK	Standards of Performance for Stationary Combustion Turbines
40 CFR Part 63 Subpart YYYY	National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines
40 CFR Part 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
40 CFR Part 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

State Only: N/A

Each State and Federally-enforceable condition of the Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR34 and 45CSR30.

Active Permits/Consent Orders

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit (<i>if any</i>)
R13-2394A	March 10, 2015	

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table," which may be downloaded from DAQ's website.

Determinations and Justifications

Below are the revisions made to R30-09700009-2012 and a regulatory discussion in association with this modification:

- 1) **Table of Contents** – In item “11.0” the description for 40 CFR 60 Subpart JJJJ was listed as “Compression Ignition” internal combustion engines. Subpart JJJJ is applicable to “Spark Ignition” internal combustion engines. Conversely, in item “12.0” the description for 40 CFR 60 Subpart IIII was listed as “Spark Ignition” internal combustion engines. Subpart IIII is applicable to “Compression Ignition” internal combustion engines. These typographical errors have been corrected.

- 2) **Section 1.0 Table “Emission Units and Listing of Applicable Requirements”** was updated with the following new equipment and corresponding applicable requirements: Combustion Turbines/Compressors 06012 and 06013, Reciprocating Engine/Emergency Generator 060G5, Line Heaters HTR3 and HTR4 and Condensate Storage Tank TK01. Also, applicable requirements from Permit R13-2394A were added to Reciprocating Compressor Engines/Compressors 06001 through 06006 inclusive, Turbine Engine/Compressor 06011 and Reciprocating Engine/Emergency Generator 060G4. A footnote was added for the decommissioning and shut down of compressor engines 06001 through 06006 and compressor turbine 06011. The old footnote for emergency generator 060G4 was deleted since it is obsolete and a new footnote has been added for 060G4 for its retirement and replacement by emergency generator 060G5.
- 3) **Section 17.0.1** – language in the October 31, 2012 permit was limited because it specified requirements of 40 C.F.R. Part 63 Subpart DDDDD only for existing boilers or process heaters, and didn’t cover new affected sources (heaters HTR3 and HTR4). Therefore, it was replaced with the language referencing applicable requirements of the Subpart DDDDD listed in the Emission Units Table 1.0 instead.
- 4) **Section 21.0. and Appendix A** – “Permit R13-2394A (see Appendix A)” was added to section 21.0 and Appendix A was added to the permit to include the recently issued permit R13-2394A.
- 5) **Section 22.0.** – A conditional requirement was added for tank TK01 that would require the tank to comply with 40 CFR 60 Subpart OOOO and submit a Title V permit modification if the potential VOC emissions are determined to be equal to or greater than 6 tpy in accordance with condition 4.2.4. of permit R13-2394A
- 6) **Section 23.2. (non-applicable permit shield)** – The following changes were made to this section:
 - Language was added in 23.2.b. for Subpart GG because of the newly added compressor turbines subject to the requirements of 40 CFR 60 Subpart KKKK.
 - Removed the permit shield for 40 CFR 63 Subpart YYYY (23.2.h.) and 40 CFR 60 Subpart KKKK (23.2.i.) because the newly added compressor turbines are subject to the requirements of these Subparts.
 - The language for 45CSR10 (23.2.j.) has been revised for clarification and to include the line heaters HTR3 and HTR4.
 - Removed the permit shield for 40 CFR 60 Subpart JJJJ (23.2.m.) because the newly added emergency generator 060G5 engine is subject to the requirements of this Subpart.

Regulatory Discussion

- 7) **45CSR2 (Rule 2)** – *(To Prevent And Control Particulate Air Pollution From Combustion Of Fuel In Indirect Heat Exchangers)* Line heaters HTR3 and HTR4 are defined as “fuel burning units” and are subject to Rule 2. In accordance with 45CSR§2-11.1., since each of the heaters has a heat input under 10 mmBtu/hr they are exempt from sections 4, 5, 6, 8 and 9 of this rule. The Rule 2 requirements that apply to the heaters (i.e., 45CSR§§2-3.1. & 3.2.) are contained in Section 4 of the Title V permit.
- 8) **40 CFR Part 60 Subpart JJJJ** - *(Standard of Performance for Stationary Spark Ignition Internal Combustion Engines)* applies to stationary spark ignition engines manufactured after July 1, 2007. The replacement generator set 060G5 will be equipped with a spark ignition engine manufactured after July 1, 2007. Thus, the engine will be subject the standards of this subpart and to the emission limitations of Table 1 to Subpart JJJJ, which includes the following requirements for emergency engines greater than 130 bhp.
 - For NO_x, the limit is 2.0 grams per horsepower-hour (g/hp-hr) or 160 ppmvd at 15 % O₂.

- For CO, the limit is 4.0 g/hp-hr or 540 ppmvd at 15 % O₂.
- For VOC, the limit is 1.0 g/hp-hr or 86 ppmvd at 15 % O₂.

The proposed engine for the generator set is manufactured by Waukesha. According to the manufacturer's data, this engine should be capable of meeting the emission standards of this subpart. However, the manufacturer did not certify the engine as specified under 40 CFR Part 90, 40 CFR Part 1048 or 40 CFR Part 1054. Therefore, permit R13-2394A requires the applicant to conduct an initial performance test and subsequent performance tests every 8,760 hours of operation or once every 3 years, whichever is sooner.

- 9) **40 CFR Part 60 Subpart KKKK** – (*Standards of Performance for Stationary Combustion Turbines*) applies to combustion turbines constructed, modified, or reconstructed after February 18, 2005 with a peak heat input equal to or greater than 10 MMBtu/hr. The proposed Solar Taurus turbines 06012 and 06013 are rated at 86.66 MMBtu/hr (at 0 °F). Therefore, the proposed turbines are affected sources under this subpart.

This subpart establishes emissions standards for NO_x and SO₂. The turbines will be limited to 0.060lb of SO₂ per MMBtu/hr of heat input in accordance with 40 CFR §60.4330(a)(2). They will be burning pipeline quality natural gas with a maximum sulfur content of 20 grains per 100 standard cubic feet of gas. Under 40 CFR §60.4365, a source is exempt from monitoring fuel sulfur content if the source burns natural gas that is covered by a transportation agreement (Federal Energy Regulatory Commission tariff limit) with a maximum of 20 grains of sulfur per 100 standard cubic feet of gas (40 CFR §60.4365(a)).

40 CFR §60.4320 establishes NO_x standards for affected units as specified in Table 1 of Subpart KKKK. The proposed units are new turbines firing natural gas with a heat input of greater than 50 MMBtu/hr and less than 850 MMBtu/hr. In this subcategory, these turbines are limited to a NO_x standard of 25 ppm at 15 percent oxygen (O₂) content or 150 nano gram /Joule of useful output (1.2 lb/MWh). There are alternative standards for units operating at less than 75 percent of peak load or when operating temperatures are less than 0 °F. The alternative limit is 150 ppm at 15% O₂ as listed in Table 1 to Subpart KKKK.

According to the specification sheet submitted by Columbia, the proposed turbines are capable of meeting the SO₂ and NO_x limits.

This subpart requires sources to use one of two options in monitoring compliance with the NO_x standard, which are testing or a continuous emission monitoring system. The applicant has elected to use the testing option at this time. Annual testing will be required with the possibility of reducing subsequent testing to every two years if the NO_x results are less than or equal to 75% of the applicable NO_x limits. Under the subpart, sources electing to conduct testing are only required to submit test reports of the results in lieu of submitting excess emissions and monitor downtime in accordance with 40 CFR §60.7(c).

- 10) **40 CFR Part 63 Subpart YYYY** – (*National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines*) The proposed turbines 06012 and 06013 are classified as affected sources under the NESHAP for stationary combustion turbines promulgated under Subpart YYYY of 40 CFR Part 63. These proposed turbines are classified as new lean premix gas-fired turbines. Pursuant to 40 CFR §63.6095(d), U.S. EPA stayed the standards for new or reconstructed stationary turbines that are either a lean premix gas-fired or diffusion flame gas-fired stationary combustion turbine. The only requirement that the applicant must comply with under this subpart is the Initial Notification requirements until U.S. EPA takes final action to require compliance with the standards under the subpart. The Initial Notification requirements have been satisfied through the R13-2394A permit application (See 40 CFR §63.5(d)(1)).

- 11) **40 CFR Part 63 Subpart ZZZZ** – (*National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*) The internal combustion engine for the emergency generator set 060G5 is classified as an affected source under the NESHAP for Stationary Reciprocating Internal Combustion Engines (Subpart ZZZZ). The proposed engine will have a power output rating of 880 bhp and be operated as an emergency use engine. Columbia Gas does not intend to operate the generator for more than 15 hours per calendar year for emergency demand response as defined in 40 CFR §§63.6640(f)(2)(ii) and (iii). An emergency demand response is determined and declared by the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3 or other authorized entity as determined by the Reliability Coordinator. According to 40 CFR §§63.6590(b)(1)(i), the proposed engine is not required to meet the requirements of Subpart ZZZZ and the general requirements of Part 63 except for the initial notification requirements under §63.6645(f). The submitted application for permit R13-2394A contains the information required under 40 CFR §63.6645(f) and therefore in accordance with 40 CFR §63.5(d)(1) and 40 CFR §63.9(b)(1)(iii), the submitted application for permit R13-2394A fulfills the initial notification requirement of §63.6590(b)(1).
- 12) **40 CFR Part 63 Subpart DDDDD** – (*National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters*) The proposed heaters HTR3 and HTR4 are classified as process heaters under this subpart and therefore each one is an affected source subject to the requirements therein. Each heater is designed to burn natural gas (Gas I Unit) and has a heat input rating of 0.65 MMBtu/hr. Since each heater only burns natural gas and has a design capacity of less than 5 MMBtu/hr heat input, each heater is only subject to the work practice requirements of this subpart. The applicant will be required to conduct tune-ups to each heater once every five years. These requirements and the corresponding reporting are incorporated in Section 4.0 of R13-2394A.

Non-Applicability Determinations

The following requirements have been determined not to be applicable to the subject facility due to the following:

- 1) 45CSR10 (Rule 10) – In accordance with 45CSR§10-10.1., since the line heaters HTR3 and HTR4 have a heat input under 10 mmBtu/hr they are exempt from sections 3, 6, 7 and 8 of this rule. The facility is not defined as a manufacturing process and therefore Section 4 of this rule is not applicable to the heaters, engines or turbines. The facility does not combust refinery or process gas streams and therefore Section 5 of this rule is not applicable.
- 2) 40 CFR Part 60 Subpart Dc - The line heaters are each rated for 0.65 MMBtu/hr. The definition of affected source in Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units) is units between 10 MMBtu/hr and 100 MMBtu/hr. Thus, the proposed line heaters are not affected sources and not subject to the standards under Subpart Dc.
- 3) 40 CFR Part 60 Subpart GG – Pursuant to 40 CFR §60.4305(b), stationary combustion turbines regulated under 40 CFR 60 Subpart KKKK, (i.e., turbines 06012 and 06013) are exempt from the requirements of Subpart GG
- 4) 40 CFR Part 60 Subpart OOOO - Turbines are driving compressors at a transmission station for a natural gas pipeline system. Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution) establishes standards for certain process equipment at oil and natural gas production sites. Affected sources include compressors located between the wellhead and the point of custody transfer to the natural gas transmission and storage

segment. The Cleveland Compressor Station is downstream of the custody transfer point of Columbia's transmission system. Therefore, the proposed compressors are not affected sources and not subject to the performance standards of Subpart OOOO.

- 5) 40 CFR 64 – Proposed emission sources being added to the facility do not have add-on controls; therefore, in accordance with 40 C.F.R § 64.2(a), CAM is not applicable to this facility.
- 6) There are no Greenhouse Gas Clean Air Act requirements for this facility because the facility has not made any changes that triggered a PSD permit modification.
- 7) The 46 proposed natural gas-fired catalytic heaters are for indoor heating and are deemed insignificant pursuant to 45CSR§30-3.2.d.2.

Request for Variances or Alternatives

None.

Insignificant Activities

Insignificant emission unit(s) and activities are identified in the Title V application.

Comment Period

Beginning Date: March 30, 2015
Ending Date: April 29, 2015

Point of Contact

All written comments should be addressed to the following individual and office:

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Division of Air Quality
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Procedure for Requesting Public Hearing

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Response to Comments (Statement of Basis)

Not applicable.