

Engineer	Jerry Williams, P.E.
Email Address	jerry.williams@wv.gov
Company Name	Columbia Gas Transmission, LLC
Company ID	097-00009
Facility Name	Cleveland Compressor Station
Permit Number	R13-2394B
County	Upshur
Newspaper	<i>The Record Delta</i> pneuharth @ the record delta.com 472-2800
Company Email and "Attention To:"	Steven A. Nelson snelson@cpg.com
Environmental Contact Email Address	Lacey Ivey livey@cpg.com
Regional Office (if applicable)	NA
New or Modified Source?	modified
Construction, Modification, or Relocation?	modification
Type of Facility	natural gas compressor station
"Located" or "To Be Located"?	located
Place where I can find electronic versions of your notice, engineering evaluation, and draft permit	Q:\AIR_QUALITY\Willi\Permit Applications Under Review\Columbia Gas Transmission\R13-2394B Cleveland Compressor Station

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verbal
approved
by Joy
3/31
pm

INTERNAL PERMITTING DOCUMENT TRACKING MANIFEST

Company Name Columbia Gas Transmission, LLC

Permitting Action Number R13-2394B Total Days 57 DAQ Days 30

Permitting Action:

- | | | |
|---|------------------------------------|---|
| <input type="radio"/> Permit Determination | <input type="radio"/> Temporary | <input checked="" type="radio"/> Modification |
| <input type="radio"/> General Permit | <input type="radio"/> Relocation | <input type="radio"/> PSD (Rule 14) |
| <input type="radio"/> Administrative Update | <input type="radio"/> Construction | <input type="radio"/> NNSR (Rule 19) |

Documents Attached:

- | | |
|--|--|
| <input checked="" type="radio"/> Engineering Evaluation/Memo | <input type="radio"/> Completed Database Sheet |
| <input checked="" type="radio"/> Draft Permit | <input type="radio"/> Withdrawal |
| <input checked="" type="radio"/> Notice | <input type="radio"/> Letter |
| <input type="radio"/> Denial | <input type="radio"/> Other (specify) _____ |
| <input type="radio"/> Final Permit/General Permit Registration | _____ |

Date	From	To	Action Requested
3/25/2016	Jerry <i>gn</i>	Bev	Please review and approve to go to public notice.
<i>3/29</i>	<i>BW</i>	<i>Jerry</i>	<i>See comments Addition to notice</i>
<i>3/30</i>	<i>JERRY</i>	<i>SANDIE</i>	<i>APPROVED FOR NOTICE</i>

NOTE: Retain a copy of this manifest for your records when transmitting your document(s).

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AIR QUALITY PERMIT NOTICE

Notice of Intent to Approve

On January 28, 2016, Columbia Gas Transmission LLC applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a permit to modify a natural gas transmission facility located on Odell Road/Main Street/State Route 20, near Kanawha Head, Upshur County, WV at latitude 38.7501 and longitude -80.3624. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed facility. The DAQ is providing notice to the public of its preliminary determination to issue the permit as R13-2394B.

The following increase in potential emissions will be authorized by this permit action: Particulate Matter less than 10 microns, 7.38 tons per year (TPY); Sulfur Dioxide, 0.80 TPY; Oxides of Nitrogen, 63.74 TPY; Carbon Monoxide, 97.08 TPY; Volatile Organic Compounds, 22.04 TPY; Total Hazardous Air Pollutants, 1.16 TPY.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on (Day of Week, Month, Day, Year). A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed modification will meet all state and federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

Jerry Williams, P.E.
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Telephone: 304/926-0499, ext. 1223
FAX: 304/926-0478

Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above. The draft permit and engineering evaluation can be downloaded at:

www.dep.wv.gov/daq/Pages/NSRPermitsforReview.aspx



west virginia department of environmental protection

Division of Air Quality
601 57th Street, SE
Charleston, WV 25304-2345
Phone: 304 926 0475 • Fax: 304 926 0479

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

ENGINEERING EVALUATION/FACT SHEET

B BACKGROUND INFORMATION

Application No.:	R13-2394B
Plant ID No.:	097-00009
Applicant:	Columbia Gas Transmission LLC (Columbia)
Facility Name:	Cleveland Station
Location:	Kanawha Head, Upshur County
NAICS Code:	486210
Application Type:	Modification
Received Date:	January 28, 2016
Engineer Assigned:	Jerry Williams, P.E.
Fee Amount:	\$2,000.00
Fee Received:	January 28, 2016
Complete Date:	February 24, 2016
Due Date:	May 24, 2016
Applicant Ad Date:	January 29, 2016
Newspaper:	<i>The Record Delta</i>
UTM's:	Easting: 555.4 km Northing: 4,289.1 km Zone: 17
Description:	Installation of two (2) new natural gas-fired turbines, one (1) fuel gas heater and twenty (20) catalytic heaters.

PROCESS DESCRIPTION

Columbia's Cleveland Station is located in Upshur County, West Virginia, between the towns of Cleveland and Kanawha Head. The Cleveland Station is a transmission compressor station that services a natural gas pipeline system. The station receives natural gas via pipeline from an upstream compressor station, compresses it using reciprocating internal combustion engines and a natural gas-fired turbine, and then transmits it via pipeline to a downstream station. Currently the station operates ten (10) reciprocating internal combustion engines (RICE) and one combustion turbine (CT), including:

Existing Facility Description

Columbia's Cleveland Station is located near Kanawha Head, Upshur County, WV. The station receives natural gas via pipeline from an upstream compressor station, compresses it using natural gas fired turbines and then transmits it via pipeline to a downstream station. The station currently has two (2) natural gas-fired turbines installed in 2015 and four (4) reciprocating internal combustion engines (RICE) to drive centrifugal compressors.

Proposed Modifications

This project includes the installation of two (2) additional Mars 100 turbine-driven compressors, one (1) fuel gas heater, and 20 catalytic heaters. The power output from a natural gas-fired turbine is directly related to the fuel input rate and to the ratio of combustion air to fuel. As ambient temperatures decrease, a turbine's maximum power output will increase due to the increased density of inlet air. The Solar dry-low-NO_x (DLN) combustion system (known as SoLoNO_x) limits formation of NO_x, CO, and VOC by pre-mixing air and fuel prior to combustion. When operating a Solar Mars 100 turbine at ambient temperatures $\geq 0^{\circ}$ F and at loads $\geq 50\%$, this DLN system is able to limit the exhaust gas concentration of these pollutants (corrected to 15% O₂) to 15 ppm NO_x, 25 ppm CO, and 25 ppm unburned hydrocarbons (UHC, containing at least 80% non-VOC methane and ethane; therefore, 5 ppm VOC). At ambient temperatures less than or equal to 0^o F, additional pilot fuel is required by the turbine to maintain flame stability, which increases estimated emission concentrations to 42 ppm NO_x, 100 ppm CO, and 50 ppm UHC (10 ppm VOC). At turbine loads < 50%, additional pilot fuel and air flow are required to maintain flame stability and turbine responsiveness. These changes increase estimated emission concentrations to 66 ppm NO_x, 4,400 ppm CO, and 440 ppm UHC (88 ppm VOC). Should loads drop below 50%, Columbia will make every effort to either bring the load back above 50% or shut a turbine down (e.g. shut down other units and move that volume to the turbine, or shift the turbine volume to other units and shut down the turbine).

In addition, there are changes in NO_x, CO, and VOC emissions during the initial fuel light-off, turbine loading, and flame stabilization steps associated with turbine startup. There are also changes in emissions during the normal turbine shutdown sequence. The turbine will be limited to 200 startup/shutdown cycles per year. For a Solar Mars 100 turbine, the startup sequence takes less than 10 minutes to complete prior to engaging the DLN system. The shutdown sequence for a Solar Mars 100 turbine requires approximately 10 minutes.

SITE INSPECTION

A full on-site inspection was last performed by the WVDAQ on March 19, 2014. On that date Mike Kolb found the facility to be "in compliance." with all applicable rules and regulations, which includes the facility Title V Operating Permit. This action only proposes the installation of new equipment that is scheduled for 2015. Thus, no site inspection for the proposed action is required.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Columbia provided detailed calculations of the facility-wide pre-modification PTE and the calculations of the PTE of the new emission units added under R13-2394B in Attachment N of the permit application. This information is substantively the same as previously submitted and reviewed in previous permit applications. This section will discuss the emissions from the Solar Mars 100 turbines, fuel gas heater, and catalytic heaters which are the only emission units being substantively modified as part of this permitting action.

Solar Saturn Mars 100 Turbines (E14, E15)

Potential emissions from the 14,766 hp (@ 32° F), 126.33 MMBtu/hr (HHV @ 32° F) natural gas-fired Solar Mars 100 combustion turbines are based on emission factors provided from the vendor, based on the emission factors provided for natural gas combustion as given in AP-42 Section 3.1. (AP-42 is a database of emission factors maintained by USEPA), material balance, and on emission factors from 40 CFR 98, Subpart C. Emissions were based on the MDHI of the engine and annual emissions were based on the combination of potential operating modes (normal load @ 32° F, low temp (<0° F), low load (<50 %), startup/shutdown). The following table details the emission factor source and the PTE of each combustion turbine:

Pollutant	Emission Factor	Source	Hourly (lb/hr)¹	Annual (ton/yr)²
NO _x	0.060 lb/MMBTU LHV	Vendor Data	6.83	31.38
CO	0.061 lb/MMBTU LHV	Vendor Data	6.93	48.12
PM _{2.5}	0.0066 lb/MMBTU HHV ⁴	AP-42 Table 3.1-2a (4/00)	0.83	3.65
PM ₁₀	0.0066 lb/MMBTU HHV ⁴	AP-42 Table 3.1-2a (4/00)	0.83	3.65
SO ₂	0.0571 lb/MMBTU HHV ⁴ (hourly) 0.000714 lb/MMBTU HHV ⁴ (annual)	20 grains S/100 scf (hourly) 0.25 grains S/100 scf (yearly)	7.21	0.40
VOC	0.007 lb/MMBTU LHV	Vendor Data (20% of UHC) ³	0.79	3.73
Formaldehyde	0.00071 lb/MMBTU HHV ⁴	AP-42, Table 3.1-3 (4/00)	0.09	0.39
Total HAPs	0.00103 lb/MMBTU HHV ⁴	AP-42, Table 3.1-3 (4/00)	0.13	0.57

- 1 Maximum hourly emission rate based on normal operation at 32° F. Heat input, fuel consumption, and emissions increase as temperature decrease. For the purposes of this permit, hourly emissions are characterized at 32° F.
- 2 Annual emission rate based on combination of potential operating modes for NO_x, CO and VOC. All other pollutants based on horsepower and brake specific fuel consumption at 32° F.
- 3 VOC based on 20% of vendor data for unburned hydrocarbons (UHC).
- 4 HHV heat input based on HHV=1.1*LHV.

Fuel Gas Heater (H6)

Potential emissions from the 1.0 MMBTU/hr natural gas-fired process heater is based on the emission factors provided for natural gas combustion as given in AP-42 Section 1.4. (AP-42 is a database of emission factors maintained by USEPA), and on emission factors from 40 CFR 98, Subpart C. Emissions were based on the MDHI of the heater. The following table details the emission factor source and the PTE of the fuel gas heater:

Pollutant	Emission Factor		Source	Hourly (lb/hr) ¹	Annual (ton/yr) ²
	lb/MMscf	lb/MMBTU			
NO _x	100	0.098	AP-42, Table 1.4-1 (7/98)	0.10	0.43
CO	84	0.082	AP-42, Table 1.4-1 (7/98)	0.08	0.36
PM _{2.5}	7.6	0.007	AP-42, Table 1.4-2 (7/98)	<0.01	0.03
PM ₁₀	7.6	0.007	AP-42, Table 1.4-2 (7/98)	<0.01	0.03
SO ₂	-	0.0571 (hourly) 0.000714 (annual)	20 grains S/100 scf (hourly) 0.25 grains S/100 scf (annually)	0.06	<0.01
VOC	5.5	0.005	AP-42, Table 1.4-2 (7/98)	<0.01	0.02
Formaldehyde	0.075	0.00007	AP-42, Table 1.4-3 (7/98)	<0.01	<0.01
Total HAPs	1.89	0.00185	AP-42, Table 1.4-3&4 (7/98)	<0.01	<0.01

20 Catalytic Heaters (SH2)

Potential emissions from the 23 natural gas-fired catalytic heaters (2 – 0.005 MMBTU/hr, 18 – 0.072 MMBTU/hr) are based on the emission factors provided for natural gas combustion as given in AP-42 Section 1.4. (AP-42 is a database of emission factors maintained by USEPA), and on emission factors from 40 CFR 98, Subpart C. Emissions were based on the MDHI of the heaters. The following table details the emission factor source and the PTE of the 20 catalytic heaters:

Pollutant	Emission Factor		Source	Hourly (lb/hr)	Annual (ton/yr)
	lb/MMscf	lb/MMBTU			
NO _x	100	0.098	AP-42, Table 1.4-1 (7/98)	0.13	0.56
CO	84	0.082	AP-42, Table 1.4-1 (7/98)	0.11	0.47
PM _{2.5}	7.6	0.007	AP-42, Table 1.4-2 (7/98)	0.01	0.04
PM ₁₀	7.6	0.007	AP-42, Table 1.4-2 (7/98)	0.01	0.04
SO ₂	-	0.0571 (hourly) 0.000714 (annual)	20 grains S/100 scf (hourly) 0.25 grains S/100 scf (annually)	0.07	<0.01

Pollutant	Emission Factor		Source	Hourly (lb/hr)	Annual (ton/yr)
	lb/MMscf	lb/MMBTU			
VOC	5.5	0.005	AP-42, Table 1.4-2 (7/98)	0.01	0.03
Formaldehyde	0.075	0.00007	AP-42, Table 1.4-3 (7/98)	<0.01	<0.01
Total HAPs	1.89	0.00185	AP-42, Table 1.4-3&4 (7/98)	<0.01	0.01

Existing Facility-Wide PTE (Post R13-2394B Modification)

The following table details the proposed post-modification facility-wide PTE of the Cleveland Compressor Station.

Facility-Wide Post-Modification Annual (ton/yr) PTE

Source	CO	NO _x	PM ¹	SO ₂	VOCs	CO _{2e}	HAPs
Solar Mars Turbine (E14)	48.12	31.38	3.65	0.40	3.73	64,793	0.57
Solar Mars Turbine (E15)	48.12	31.38	3.65	0.40	3.73	64,793	0.57
Fuel Gas Heater (H6)	0.36	0.43	0.03	<0.01	0.02	613	<0.01
Catalytic Heaters (SH2)	0.47	0.56	0.04	<0.01	0.03	670	0.01
Equipment Leaks	0	0	0	0	0.80	516	0
Venting	0	0	0	0	27.44	17,768	0
Engines (E07-E10)	39.24	886.51	14.22	0.21	35.32	34,466	23.41
Turbines (E12, E13)	57.00	39.81	4.84	0.52	4.79	85,829	0.75
Emergency Generator (G5)	0.63	0.97	0.02	<0.01	0.02	200	0.12
Line Heater (H3)	0.18	0.21	0.02	<0.01	0.01	256	<0.01
Catalytic Heaters (SH1)	0.97	1.16	0.09	0.01	0.06	1,385	0.02
Facility Wide Total	195.12	992.41	26.56	1.54	78.84	273,048	25.47

1 - All particulate matter emissions are assumed to be less than 2.5 microns. Includes condensables.

Facility-Wide Emissions Increase

Based on this changes described above, the following table lists the increase in facility-wide emissions at the Cleveland Compressor Station:

Change in Facility-Wide Post-Modification Annual (ton/yr) PTE

Source	CO	NO _x	PM ¹	SO ₂	VOCs	CO _{2e}	HAP
R13-2394A	98.03	928.67	19.18	0.74	56.80	132,879	24.31
R13-2394B	195.12	992.41	26.56	1.54	78.84	273,048	25.47
<i>Change in Emissions →</i>	97.08	63.74	7.38	0.80	22.04	140,169	1.16

1 - All particulate matter emissions are assumed to be less than 2.5 microns. Includes condensables.

REGULATORY APPLICABILITY

The following rules apply to this permitting action:

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units. 45CSR2 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the heaters (H6, SH2) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR2.

Columbia would also be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

45CSR10 (To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides)

The purpose of 45CSR10 is to establish emission limitations for sulfur dioxide which are discharged from fuel burning units. 45CSR10 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 3 (weight emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the heaters (H6, SH2) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR10.

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)

The proposed installation and operation of the Solar Mars 100 turbines have the potential to increase the PTE of the Cleveland Compressor Station in excess of six (6) lbs/hour and ten (10) TPY of a regulated pollutant and, therefore, pursuant to §45-13-2.17, the change is defined as a “modification” under 45CSR13. Pursuant to §45-13-5.1, “[n]o person shall cause, suffer, allow or permit the construction, modification, relocation and operation of any stationary source to be commenced without . . . obtaining a permit to construct.” Therefore, Columbia is required to obtain a permit under 45CSR13 for the modification of the facility.

As required under §45-13-8.3 (“Notice Level A”), Columbia placed a Class I legal advertisement in a “newspaper of general circulation in the area where the source is . . . located.” Additionally, Columbia paid the appropriate application fee.

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of 40CFR60 Subpart KKKK. These requirements are discussed under that rule below.

45CSR30 (Requirements for Operating Permits)

Columbia is subject to 45CSR30. The Cleveland Compressor Station has the potential to emit more than major regulatory threshold for NO_x, CO and total HAPs. Due to this facility's potential to emit over 100 tons per year of criteria pollutants, Columbia is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Columbia is required to pay the appropriate annual fees and submit an annual Certified Emissions Statement.

40CFR60 Subpart KKKK (Standards of Performance for Stationary Combustion Turbines)

Per §60.4305, Subpart KKKK applies to combustion turbines with a peak heat input of 10 MMBTU/hr or greater. Since the new Solar Mars 100 turbines are rated at 126.33 MMBTU/hr each, they will be subject to the rule. §60.4320 requires the turbines to meet the NO_x requirement in Table 1 of the rule. Since the Mars 100 turbines are new, natural gas fired turbines between 50 and 850 MMBTU/hr, Table 1 requires it to meet a NO_x limit of 25 ppm at 15% O₂ or 150 ng/J of useful output. To demonstrate compliance with the limit, §60.4400(a) requires both an initial (within 180 days of startup or 60 days of achieving full load operation) and annual (not to exceed 14 months from previous test) performance test. However, §60.4340 allows the permittee to be exempted from the annual testing if continuous emission monitors or continuous parameter monitoring systems are installed that meet the requirements of the section. Additionally, if the NO_x testing results show emissions less than 75% of the limit, testing frequency can be reduced to once every 2 years (with no more than 26 months after the previous test.)

The rule also limits SO₂ emissions from the turbines. §60.4330(a)(2) allows the facility to meet this limit by burning fuel with a total potential SO₂ emissions of less than 0.06 lb/MMBTU. Additionally, §60.4365(a) exempts the permittee from monitoring fuel sulfur content if a source burns only natural gas that is covered by a purchase or transportation contract that limits sulfur to no more than 20 grains per 100 scf. Columbia qualifies for this exemption.

40CFR63 Subpart DDDDD (NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters)

This rule applies to existing and new applicable units at major sources of HAPs. The new fuel has heater is a new affected source (gas 1 subcategory) and is less than 5 MMBTU/hr heat input. Therefore, it is not subject to Subpart DDDDD emissions limitations but is subject to tune-ups every five (5) years.

45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

The Cleveland Compressor Station is located in Upshur County, which is an unclassified county for all criteria pollutants, therefore the Cleveland Compressor Station is not applicable to 45CSR19. The Cleveland Compressor Station is a major source under PSD rules (§45-14-2.43). In order for a project to become subject to PSD review, the major stationary source must have a significant emissions increase from the project and a significant net emissions increase as calculated over the 5 year contemporaneous period. The first step is to determine if the proposed project results in a significant emissions increase utilizing the calculation procedures in 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources for the Prevention of Significant Deterioration of Air Quality) Section 3.4. The procedure for calculating whether a significant emissions increase will occur depends on the type of emissions units being modified. The procedure for calculating whether a significant net emissions increase will occur at the major stationary source, which is the second step in the process, is contained in 45CSR14 Section 2.46. Regardless of any such preconstruction projections, a major modification results if the project causes a significant emissions increase and a significant net emissions increase.

It is important to note that the emission rate of CO₂e (in excess of 100,000 tons/year) does not define the source as a major stationary source for the purposes of triggering use of the “significant” emissions increase thresholds under §45-14-2.74(a) to determine major modification classification. This has been the case since GHGs began to be regulated from “non-anyway” sources on July 1, 2011 (see EPA’s Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule) and is not a result (although it was reinforced) of the June 23, 2014 Supreme Court of the United States ruling in *Utility Air Regulatory Group v. Environmental Protection Agency*.

The Cleveland Station as configured at the time of submittal of this application is classified as a Major Source under Prevention of Significant Deterioration (PSD), which is regulated under 45 CSR 14.

In determining whether a significant emissions increase occurs, 45CSR14 provides two (2) ways to make that determination. These calculations are based on whether or not it is an existing emissions unit or a new emissions unit.

45CSR14 Section 2.27 defines an 'emissions unit' as any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant and includes an electric utility steam generating unit as defined in subsection 2.25. For the purposes of this rule, there are two types of emissions units as described in subdivisions 2.27.a and 2.27.b.

2.27.a. A new emissions unit is any emissions unit that is (or will be) newly constructed and that has existed for less than 2 years from the date such emissions unit first operated.

2.27.b. An existing emissions unit is any emissions unit that does not meet the requirements in subdivision 2.27.a. A replacement unit, as defined in subsection 2.68, is an existing emissions unit.

Because the turbines, fuel gas heater and catalytic heaters at the Cleveland Station would be new emissions units, they would fall under 2.27.a.

Therefore, since emissions units at Cleveland Compressor Station would be considered new units, 45CSR14 Section 3.4.d states that an Actual-to-Potential test would be utilized. A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the potential to emit (as defined in subsection 2.58) and the baseline actual emissions (as defined in subdivisions 2.8.a and 2.8.b), for each existing emissions unit, equals or exceeds the significant amount of that pollutant (as defined in subsection 2.74).

The first step is to determine whether or not the proposed project results in a significant emissions increase utilizing the Actual-to-Potential test. The result of that test will be compared to PSD Significant Emission Rates (SER) to determine PSD applicability. If the resultant emissions are below the PSD SER then the project is not subject to PSD review. If the project's emissions are greater than the PSD SER then all contemporaneous increases and decreases must be examined to determine if the project is subject to PSD Review. The potential to emit from the emissions units associated with this project were based on the proposed engines.

The following table indicates what Cleveland Station's potential emissions increase would be with the installation of the New Emissions Units (turbines, line heater, emergency generator engine and catalytic heaters).

Emission Increase Due to This Modification vs. PSD SER

Pollutant	New Emissions Unit Increase (tpy)	PSD SER (tpy)
NO _x	63.74	40
CO	97.08	100
SO ₂	0.80	40
PM _{2.5}	7.38	10
VOC	21.24	100

The NO_x emissions increase associated with the new equipment exceeds the PSD SER. Therefore, it is necessary to calculate the net emissions increase over a 5 year contemporaneous period.

Columbia began construction in 2015 of two (2) natural gas-fired turbines, one (1) emergency generator, one (1) line heater, 54 catalytic heaters and venting emissions from a previous permitting action. The NO_x emissions associated with these contemporaneous changes was 42.16 tons per year. Additionally, one (1) emergency generator, six (6) RICE compressors and one (1) turbine were retired. The NO_x emissions associated with these removals was 80.76 tons per year.

The baseline (past actual) emissions are based on June 2010 through May 2012 operating records.

The following table indicates the net change in NO_x emissions by comparing the new equipment emissions the contemporaneous emission increases and the decrease in emissions associated with the retired engines (E01-E06).

Emissions PSD Comparison

Total Potential Emissions from Project	63.74
Contemporaneous Emissions Increase	42.16
Baseline Emissions (past actual) 6/2010 – 5/2012	80.76
Net Change (project+CE-baseline)	25.14
PSD Significance Level	40

Final Conclusion

Because there was not an emissions increase above the PSD SER and a significant net emissions increase as calculated over any consecutive 24 month period during the 5 year contemporaneous period, PSD review is not required.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

This section provides general toxicity information for those regulated pollutants that may be increased from the proposed changes in substantive amounts and that are not classified as “criteria pollutants.” Criteria pollutants are defined as Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NO_x), Ozone, Particulate Matter (PM), Particulate Matter less than 10 microns (PM₁₀), Particulate Matter less than 2.5 microns (PM_{2.5}), and Sulfur Dioxide (SO₂). These pollutants have National Ambient Air Quality Standards (NAAQS) set for each that are designed to protect the public health and welfare. Other pollutants of concern, although designated as non-criteria and without national concentration standards, are regulated through various federal and programs designed to limit their emissions and public exposure. These programs include federal source-specific HAPs regulations promulgated under 40 CFR 61 (NESHAPS) and 40 CFR 63 (MACT). Any potential applicability to these programs to the modified emission unit were discussed above under REGULATORY APPLICABILITY.

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. The requested change evaluated herein will result in a small increase of annual formaldehyde emissions (0.79 ton/year) and only small amounts of other individual HAPs. The following table lists each formaldehyde’s general carcinogenic risk as based on analysis provided in the Integrated Risk Information System. EPA’s Integrated Risk Information System (IRIS) is a human health assessment program that evaluates information on health effects that may result from exposure to environmental contaminants. For a complete discussion of the known health effects of each compound, and the underlying studies supporting these assessments, refer to the IRIS database located at www.epa.gov/iris.

Potential HAPs - Carcinogenic Risk

HAPs	Type	Known/Suspected Carcinogen	Classification
Formaldehyde	VOC	Yes	B1 - Probable Human Carcinogen

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health affects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle (e.g., smoking). As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals.*

AIR QUALITY IMPACT ANALYSIS

The proposed modification does not meet the definition of a “major modification” pursuant to 45CSR14 and, therefore, an air quality impact (computer modeling) analysis was not required. Additionally, based on the nature of the proposed modification, modeling was not required under 45CSR13, Section 7.

MONITORING OF OPERATIONS

Columbia proposed to monitor the different operating modes (i.e. normal, low load, low temperature, etc.) in terms of hours per month. This monitoring will be used to determine actual emissions to show compliance with the annual limits. These sources are required to conduct compliance testing.

PERFORMANCE TESTING OF OPERATIONS

The following performance testing requirements shall be required for the new equipment:

- In addition to the NO_x performance testing as required under 40 CFR 60, Subpart KKKK, within 60 days after achieving full load, but not later than 180 days after initial startup, and at such times thereafter as may be required by the Director, CGT shall be required to conduct, or have conducted, a performance test on each turbine to determine compliance with the "normal load" CO emission limit specified under the permit.
- In addition to the NO_x performance testing as required under 40 CFR 60, Subpart KKKK, within 60 days after achieving full load, but not later than 180 days after initial startup, and at such times thereafter as may be required by the Director, CGT shall be required to conduct, or have conducted, a performance test on each turbine to determine compliance with the particulate matter emission limit (including condensables) specified under the permit. The testing shall take place while the turbines are operating at 100% of load or, if this is not practicable, the results of the test shall scaled up by an appropriate ration to represent operation at 100% load.
- CGT shall be required to meet all applicable testing requirements as given under 40 CFR 60, Subpart KKKK and 40 CFR 63, Subpart ZZZZ.

CHANGES TO PERMIT R13-2394A

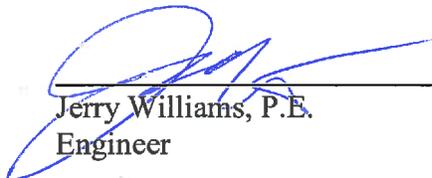
The following substantive changes were made to Permit Number R13-2394A:

- The Emissions Units Table 1.0 was revised to reflect the changes evaluated herein;
- Requirement 4.1.6 was removed due to the turbines already undergoing 180 day shakedown period;
- Regulatory language was added for the two (2) turbines and one (1) heater.
- All permit conditions regarding 060G4 were removed since emergency generator is no longer operating.

Due to the restructuring of the permit, some existing requirements were moved to other places in the permit and, therefore, the previous permit requirement numbers changed.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that Columbia meets all the requirements of applicable regulations. It is recommended that Columbia Gas Transmission, LLC be granted a 45CSR13 modification permit for the proposed modification to the Cleveland Station.



Jerry Williams, P.E.
Engineer

MAR 30, 2016

Date

This permit will supercede and replace Permit R13-2394A issued on March 10, 2015.

Facility Location: State Route 20, Kanawha Head, Upshur County, West Virginia
Mailing Address: 1700 MacCorkle Avenue, SE
Charleston, WV 25314
Facility Description: Transmission station for a natural gas pipeline system
NAICS Codes: 486210
UTM Coordinates: 555.4 km Easting • 4,289.1 km Northing • Zone 17
Permit Type: Modification
Description of Change: This project includes the installation of two (2) new natural gas-fired turbines, one (1) fuel gas heater and twenty (20) catalytic heaters.

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.

The source is subject to 45CSR30. Changes authorized by this permit must also be incorporated into the facility's Title V operating permit. Commencement of the operations authorized by this permit shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

Table of Contents

1.0. Emission Units.....4

 2.1. Definitions5

 2.2. Acronyms5

 2.3. Authority6

 2.4. Term and Renewal.....6

 2.5. Duty to Comply6

 2.6. Duty to Provide Information.....6

 2.7. Duty to Supplement and Correct Information7

 2.8. Administrative Update.....7

 2.9. Permit Modification.....7

 2.10 Major Permit Modification.....7

 2.11. Inspection and Entry7

 2.12. Emergency.....7

 2.13. Need to Halt or Reduce Activity Not a Defense8

 2.14. Suspension of Activities8

 2.15. Property Rights8

 2.16. Severability.....9

 2.17. Transferability9

 2.18. Notification Requirements.....9

 2.19. Credible Evidence9

3.0. Facility-Wide Requirements10

 3.1. Limitations and Standards10

 3.2. Monitoring Requirements10

 3.3. Testing Requirements10

 3.4. Recordkeeping Requirements11

 3.5. Reporting Requirements12

4.0. Source-Specific Requirements14

 4.1. Limitations and Standards14

 4.2. Monitoring Requirements18

 4.3. Testing Requirements19

 4.4. Recordkeeping Requirements19

 4.5. Reporting Requirements21

CERTIFICATION OF DATA ACCURACY23

1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
06007	E07	Cooper-Bessemer GMWA-8 Compressor Engine	1955	2,000 hp	None
06008	E08	Cooper-Bessemer GMWA-8 Compressor Engine	1957	2,000 hp	None
06009	E09	Cooper-Bessemer GMWA-8 Compressor Engine	1969	2,000 hp	None
06010	E10	Cooper-Bessemer GMWA-8 Compressor Engine	1969	2,000 hp	None
06012	E12	Solar Taurus 70 Combustion Turbine #2/Compressor	2016	10,381 hp*	Combustion Controls
06013	E13	Solar Taurus 70 Combustion Turbine #3/Compressor	2016	10,381 hp*	Combustion Controls
HTR3	H3	Line Heater #1 (Fuel Preheater)	2016	0.50 MMBtu/hr	None
060G5	G5	Waukesha VGF-L36GL reciprocating, SI, 4SLB engine/generator set (Emergency Generator #5)	2016	880 bhp	None
TK01	A24	Condensate (Pipeline Fluids) Storage Tank	2016	2,000 gal	None
HTR5	SH1	54 Catalytic Heaters	2016	<u>30@0.072</u> <u>2@0.036</u> <u>14@0.03</u> <u>8@0.006</u> MMBTU/hr	None
06014	E14	Solar Mars 100 Turbine #4	2017	14,766 hp @32 °F	Combustion Controls
06015	E15	Solar Mars 100 Turbine #5	2017	14,766 hp @32 °F	Combustion Controls
HTR6	H6	Fuel Gas Heater	2017	1.0 MMBTU/hr	None
HTR7	SH2	20 Catalytic Heaters	2017	<u>18@0.072</u> <u>2@0.005</u> MMBTU/hr	None

* Power output at 0°F.

SI – Spark-ignition.

4SLB – 4 stroke, lean burn.

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.

2.2. Acronyms

CAAA	Clean Air Act Amendments	NO_x	Nitrogen Oxides
CBI	Confidential Business Information	NSPS	New Source Performance Standards
CEM	Continuous Emission Monitor	PM	Particulate Matter
CES	Certified Emission Statement	PM_{2.5}	Particulate Matter less than 2.5 μm in diameter
C.F.R. or CFR	Code of Federal Regulations	PM₁₀	Particulate Matter less than 10μm in diameter
CO	Carbon Monoxide	Ppb	Pounds per Batch
C.S.R. or CSR	Codes of State Rules	Pph	Pounds per Hour
DAQ	Division of Air Quality	Ppm	Parts per Million
DEP	Department of Environmental Protection	Ppm_v or ppmv	Parts per Million by Volume
dscm	Dry Standard Cubic Meter	PSD	Prevention of Significant Deterioration
FOIA	Freedom of Information Act	Psi	Pounds per Square Inch
HAP	Hazardous Air Pollutant	SIC	Standard Industrial Classification
HON	Hazardous Organic NESHAP	SIP	State Implementation Plan
HP	Horsepower	SO₂	Sulfur Dioxide
lbs/hr	Pounds per Hour	TAP	Toxic Air Pollutant
LDAR	Leak Detection and Repair	TPY	Tons per Year
M	Thousand	TRS	Total Reduced Sulfur
MACT	Maximum Achievable Control Technology	TSP	Total Suspended Particulate
MDHI	Maximum Design Heat Input	USEPA	United States Environmental Protection Agency
MM	Million	UTM	Universal Transverse Mercator
MMBtu/hr or mmbtu/hr	Million British Thermal Units per Hour	VEE	Visual Emissions Evaluation
MMCF/hr or mmcf/hr	Million Cubic Feet per Hour	VOC	Volatile Organic Compounds
NA	Not Applicable	VOL	Volatile Organic Liquids
NAAQS	National Ambient Air Quality Standards		
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		

2.3. Authority

This permit is issued in accordance with West Virginia Air Pollution Control Act W.Va. Code §§ 22-5-1. et seq. and the following Legislative Rules promulgated thereunder:

- 2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation;*
- 2.3.2. 45CSR14 – *Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration;*

2.4. Term and Renewal

- 2.4.1. This permit supersedes and replaces previously issued Permit R13-2394A. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

2.5. Duty to Comply

- 2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R13-2394 - R13-2394B, and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.11 and 10.3.]
- 2.5.2. 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;
- 2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;
- 2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

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 administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records 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.

2.7. Duty to Supplement and Correct Information

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.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-4.]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-5.4.]

2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.
[45CSR§13-5.1]

2.11. Inspection and Entry

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; and
- 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.

2.12. Emergency

- 2.12.1. An "emergency" means any situation arising from sudden and reasonable 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.

- 2.12.2. 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 Section 2.12.3 are met.
- 2.12.3. 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. 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 must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.
- 2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
- 2.12.5 The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should 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.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

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

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. [45CSR§13-10.1.]

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

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 defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

- 3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency 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, suffer, allow or permit 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 require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]
- 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. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]
- 3.1.6. **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.]

3.2. Monitoring Requirements

[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 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as 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. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- 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 sixty (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; and,
 3. A statement of compliance or noncompliance with each permit or rule condition.

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

3.4. Recordkeeping Requirements

- 3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded

in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.

- 3.4.2. **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§4. 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.
- 3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.
- 3.5.3. **Correspondence.** 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, or mailed first class 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 57th Street
Charleston, WV 25304-2345

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. Operating Fee

- 3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, 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. A receipt for the appropriate fee shall be maintained on the premises for which the receipt has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

- 3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

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4.0. Source-Specific Requirements

4.1. Limitations and Standards

4.1.1. The following conditions and requirements are specific to Solar Taurus 70 Turbines #2 and #3 (ID 06012 & 06013):

- a. Emissions from each combustion turbine shall not exceed the following:
 - i. Emissions of nitrogen oxides (NO_x) shall be controlled with the combustion controls. Each turbine shall not discharge nitrogen oxides (NO_x) emissions in excess of 25 ppm at 15 percent O₂ when operating at load conditions at or above 75 percent of peak load and/or when operating temperatures are at or above 0°F. For when the operating loads of the turbine are less than 75% of peak load and/or operating temperatures are less than 0°F, NO_x emissions rate from the turbine shall not exceed 150 ppm at 15 percent O₂. Annual NO_x emissions from each turbine shall not exceed 19.91 tpy on a 12-month rolling total. This limit applies at all times, including periods of startup, shutdown, or malfunction.
[40CFR§§60.4320(a), Table 1 to Subpart KKKK of Part 60 – Nitrogen Oxides Emission Limits for New Stationary Combustion Turbines]
 - ii. Emissions of CO shall not exceed 28.5 tons, on a rolling 12 month total basis.
 - iii. Emissions of VOC shall not exceed 2.40 tons, on a rolling 12 month total basis.
- b. Each turbine shall only be fired with pipeline-quality natural gas.
- c. The permittee must operate and maintain each turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.
[40 CFR §60.4333(a)]

4.1.2. The following conditions and requirements are specific to Solar Mars 100 Turbines #4 and #5 (ID 06014 & 06015):

- a. Emissions from each combustion turbine shall not exceed the following:
 - i. Emissions of nitrogen oxides (NO_x) shall be controlled with the combustion controls. Each turbine shall not discharge nitrogen oxides (NO_x) emissions in excess of 25 ppm at 15 percent O₂ when operating at load conditions at or above 75 percent of peak load and/or when operating temperatures are at or above 0°F. For when the operating loads of the turbine are less than 75% of peak load and/or operating temperatures are less than 0°F, NO_x emissions rate from the turbine shall not exceed 150 ppm at 15 percent O₂. Annual NO_x emissions from each turbine shall not exceed 31.38 tpy on a 12-month rolling total. This limit applies at all times, including periods of startup, shutdown, or malfunction.
[40CFR§§60.4320(a), Table 1 to Subpart KKKK of Part 60 – Nitrogen Oxides Emission Limits for New Stationary Combustion Turbines]
 - ii. Emissions of CO shall not exceed 48.12 tons, on a rolling 12 month total basis.
 - iii. Emissions of SO₂ shall not exceed 0.060 lb of SO₂/MMBtu heat input. For purpose of demonstrating compliance with this limit, the permittee shall maintain the Federal Energy Regulatory Commission (FERC) tariff limit on total sulfur content of 20 grains of sulfur per 100 standard cubic feet of natural gas combusted in the turbines.

[40 CFR §§60.4330(a)(2) & 60.4365(a)]

iv. Emissions of VOC shall not exceed 3.73 tons, on a rolling 12 month total basis.

b. Each turbine shall only be fired with pipeline-quality natural gas.

c. The permittee must operate and maintain each turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.

[40 CFR §60.4333(a)]

4.1.3. The following conditions and requirements are specific to Line Heater #1 (ID HTR3):

a. NO_x emissions emitted to the atmosphere from heater HTR3 shall not exceed 0.21 tons per year on a rolling yearly total basis.

b. CO emissions emitted to the atmosphere from heater HTR3 shall not exceed 0.18 tons per year on a rolling yearly total basis.

c. Heater HTR3 shall be designed and constructed with a maximum design heat input of 0.50 MMBtu/hr. The condition satisfies compliance with the limitation of 45 CSR §2-3.1

[45 CSR 2A-3.1.a.]

d. For the purpose of complying with Subpart DDDDD of Part 63 as Gas 1 units, the permittee shall perform a tune-up on each heater in accordance with 40 CFR §63.7540(a)(12). The first tune-up shall be completed no later than 61 months after initial start-up of the heater, and thereafter once every 61 months. If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup. Such tune-ups shall consist of the following:

i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (permittee may delay the burner inspection until the next scheduled unit shutdown, but inspected at least once every 72 months). At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;

ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;

iii. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (permittee may delay the inspection until the next scheduled unit shutdown);

iv. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NO_x requirement to which the unit is subject; and

v. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer;

[40 CFR §§63.7540(a)(10), (12), and (13)]

- 4.1.4. The following conditions and requirements are specific to Fuel Gas Heater (ID HTR6):
- a. NO_x emissions emitted to the atmosphere from heater HTR6 shall not exceed 0.43 tons per year on a rolling yearly total basis.
 - b. CO emissions emitted to the atmosphere from heater HTR6 shall not exceed 0.36 tons per year on a rolling yearly total basis.
 - c. Heater HTR6 shall be designed and constructed with a maximum design heat input of 1.0 MMBtu/hr. The condition satisfies compliance with the limitation of 45 CSR §2-3.1 [45 CSR 2A-3.1.a.]
 - d. For the purpose of complying with Subpart DDDDD of Part 63 as Gas 1 units, the permittee shall perform a tune-up on each heater in accordance with 40 CFR §63.7540(a)(12). The first tune-up shall be completed no later than 61 months after initial start-up of the heater, and thereafter once every 61 months. If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup. Such tune-ups shall consist of the following:
 - i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (permittee may delay the burner inspection until the next scheduled unit shutdown, but inspected at least once every 72 months). At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;
 - ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;
 - iii. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (permittee may delay the inspection until the next scheduled unit shutdown);
 - iv. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NO_x requirement to which the unit is subject; and
 - v. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer; [40 CFR §§63.7540(a)(10), (12), and (13)]

- 4.1.5. The following conditions and requirements are specific to the internal combustion engine for the Emergency Generator #5) (ID 060G5):
- a. Emissions from emergency generator shall not exceed the following:
 - i. NO_x emissions from the engine shall not exceed 2.0 grams of NO_x per horsepower-hour (g/hp-hr) or 160 ppmvd at 15 percent O₂;
 - ii. CO emissions from engine shall not exceed 4.0 g/hp-hr or 540 ppmvd at 15 percent O₂;
 - iii. VOC emissions from the engine shall not exceed 1.0 g/hp-hr or 86 ppmvd at 15 percent O₂. Emission of formaldehyde shall be excluded when determining compliance with this VOC limit.
[40 CFR §60.4233(e), Table 1 to Subpart JJJJ of Part 60 - NO_x, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥ 100 HP, Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines > 25 HP]
 - b. Compliance with the limits in Item a. shall be determined using the appropriate equations listed in 40 CFR §60.4244.
 - c. There is no time limit on the use of the engine in emergency situations. The engine can operate for combined non-emergency purposes, which include emergency demand response, maintenance and testing, and other non-emergency use for a maximum of 100 hours per year. Within the 100 hours per year, the engine can only operate:
 - i. 15 hours per year for emergency demand response. Emergency demand response is determined 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; and
 - ii. 50 hours per year for non-emergency use. The non-emergency situations cannot be used for peak shaving or to generate income for the facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

The operating limits imposed in this condition are on a calendar year basis.
[40 CFR §60.4243(d)]
 - d. The engine shall be equipped with a non-resettable hour-meter prior to start-up.
[40 CFR §60.4237(a)]
 - e. The permittee shall keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engines in a manner consistent with good air pollution control practice for minimizing emissions.
[40 CFR §60.4243(b)(2)(ii)]
 - f. The engine shall only be fired with pipeline quality natural gas.
- 4.1.6. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11.]

4.2. Monitoring Requirements

- 4.2.1. For the purpose of determining compliance with the annual limits for each combustion turbine (#06012, 06013, 06014, 06015), the permittee shall monitor and record the following for each calendar month:
- Hours the turbine operated at normal conditions, which is when the turbine is at or above 50% load, and the ambient temperature is above 0°F.
 - Hours the turbine operated at low-load conditions, which is when the turbine load is less than 50% load.
 - Hours the turbine operated at low temperature conditions, which is when the ambient temperature is less than 0°F but at or above -20°F.
 - Hours the turbine operated at very-low temperature conditions, which is when the ambient temperature is less than -20°F.
 - The number of startup and shutdown cycles that occurred during the month.

Such records shall be maintained in accordance with Condition 3.4.1. of this permit.

- 4.2.2. The permittee shall keep records of the hours of operation for the engine identified as 060G5. The records must document how many hours are spent for emergency operation, including what classified the operation as an emergency, and how many hours spent for non-emergency operation with corresponding reason for the non-emergency. Such records shall be maintained in accordance with Condition 3.4.1. and must be in a manner to demonstrate compliance with the operating limits of Condition 4.1.5.c.
[40 CFR §60.4245(b)]

- 4.2.3. The permittee shall collect production data of condensate collected from the pipeline segment that the permitted facility support for the first 30 days that TK01 was placed into service. The permittee must calculate the potential VOC emissions from TK01, which includes flash emissions, breathing losses, and working losses from the vessel, using a generally accepted model or calculation methodology, based on the maximum average daily throughput determined for a 30-day period of production. If the potential VOC emissions from TK01 are at or greater than 6 tpy, TK01 is an affected source subject to Subpart OOOO of 40 CFR 60 and the permittee shall comply with the following:

- Determine the potential VOC emission rate as specified in 40 CFR §60.5365(e).
- Reduce the VOC emissions in accordance with 40 CFR §60.5395(d).
- Submit the information required for TK01 as specified in 40 CFR §60.5420(b) to the Director within 60 days from placing TK01 within service.
- Maintain records in accordance with Condition 3.4.1.
[40 CFR §60.5410(h)]

4.3. Testing Requirements

- 4.3.1. For the purposes of demonstrating compliance with the NO_x emission standards in Condition 4.1.1.(a)(i), 4.1.2.(a)(1) and 40 CFR §60.4320(a), the permittee shall conduct an initial performance test within 60 days after achieving maximum output of each turbine, but no later than 180 days after initial startup. After the initial test, subsequent performance testing shall be conducted annually (no more than 14 months following the previous test) unless the previous results demonstrate that the affected units achieved compliance of less than or equal to 75 percent of the NO_x emission limit, then the permittee may reduce the frequency of subsequent tests to once every two years (no more than 26 calendar months following the previous test) as allowed under 40 CFR §60.4340(a). If the results of any subsequent performance test exceed 75 percent of the NO_x emission limit, then the permittee must resume annual performance tests. Such testing shall be conducted in accordance with Condition 3.3.1. and 40 CFR §60.4400. Records of such testing shall be maintained in accordance with Condition 3.4.1.
[40 CFR §60.8(a), §60.4340(a), §60.4375(b), and §60.4400]
- 4.3.2. For the purposes of demonstrating compliance with the emission standards in Condition 4.1.5. and 40 CFR §60.4233(e), the permittee shall conduct an initial performance test within one year after initial startup. After the initial test, subsequent performance testing shall be conducted every 8,760 hours of operation or 3 years, whichever comes first. If the engine is not operational, the permittee must conduct the performance test immediately upon startup of the engine. These tests must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements of §60.8, under the specific conditions that are specified by Table 2 to Subpart JJJJ of Part 60 – Requirements for Performance Test, and in accordance with Condition 3.3.1. of this permit. Records of such testing shall be maintained in accordance with Condition 3.4.1. of this permit.
[40 CFR §60.8(a), 60.4243(b)(2)(ii), and 60.4244]

4.4. Recordkeeping Requirements

- 4.4.1. **Record of Monitoring.** 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.
- 4.4.2. **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.
- 4.4.3. **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 emissions occur. For each such case, the following information shall be recorded:



Permit / Application Information Sheet
Division of Environmental Protection
West Virginia Office of Air Quality

Company:	Columbia Gas Transmission, LLC	Facility:	Cleveland
Region:	8	Plant ID:	097-00009
Application #:	13-2394B		
Engineer:	Williams, Jerry	Category:	Gas Comp
Physical Address:	HC 32, BOX 12 KANAWHA HEAD WV 26228	SIC: [4922] ELECTRIC, GAS AND SANITARY SERVICES - NATURAL GAS TRANSMISSION NAICS: [486210] Pipeline Transportation of Natural Gas	
County:	Upshur		
Other Parties:	ENV_CONT - Ivey, Lacey 337-241-0686 OPER_MGR - Nelson, Steven 304-548-1630		

Information Needed for Database and AIRS
 No required information is missing.

Regulated Pollutants

Summary from this Permit 13-2394B		
Air Programs	Fee	Applicable Regulations
Fee Program	\$2,000.00	Application Type MODIFICATION

Notes from Database

Activity Dates

APPLICATION RECIEVED	01/28/2016
APPLICATION FEE PAID	01/29/2016
ASSIGNED DATE	01/29/2016

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Please note, this information sheet is not a substitute for file research and is limited to data entered into the AIRTRAX database.

Company ID: 097-00009
 Company: Columbia Gas Transmission, LLC
 Printed: 01/29/2016
 Engineer: Williams, Jerry

Williams, Jerry

From: livey@cpg.com
Sent: Friday, February 19, 2016 10:09 AM
To: Williams, Jerry
Subject: columbia permit application information Part 2
Attachments: Affidavit of Publication - Files Creek Compressor Station.pdf; Affidavit of Publication - Cleveland Compressor Station.pdf; Affidavit of Publication - Seneca Compressor Station.pdf; Affidavit of Publication - Lost River Compressor Station.pdf; Solar Data - Cleveland - Mars 100_2080 ft_15 ppm_150226.pdf

Jerry,

This should be all of the information you requested. If there is anything else you need, please do not hesitate to ask.

We will be sending the hard copies of the affidavit once we receive the last one. We spoke to the paper last week, so hopefully we should have it next week.

Thank you,

Lacey A. Ivey
Principal Air
Columbia Pipeline Group
337-241-0686



NON-CONFIDENTIAL

ID # 097-00009
Reg R13-23948
Company COLUMBIA CAS
Facility CLEVELAND Initials JV

Solar Turbines

A Caterpillar Company

PREDICTED EMISSION PERFORMANCE

Customer Columbia Pipeline Group	
Job ID Permitting	
Inquiry Number	
Run By Trevor T Keeney	Date Run 26-Feb-15

Engine Model MARS 100-16000S CS/MD STANDARD	
Fuel Type CHOICE GAS	Water Injection NO
Engine Emissions Data REV. 1.0	

NOx EMISSIONS

CO EMISSIONS

UHC EMISSIONS

2	15630 HP 100.0% Load	Elev. 2080 ft	Rel. Humidity 60.0%	Temperature 0 Deg. F
PPMvd at 15% O2	15.00	25.00	25.00	
ton/yr	31.63	32.10	18.39	
lbm/MMBtu (Fuel LHV)	0.060	0.061	0.035	
lbm/(MW-hr)	0.62	0.63	0.36	
(gas turbine shaft pwr) lbm/hr	7.22	7.33	4.20	

3	14766 HP 100.0% Load	Elev. 2080 ft	Rel. Humidity 60.0%	Temperature 32.0 Deg. F
PPMvd at 15% O2	15.00	25.00	25.00	
ton/yr	29.91	30.35	17.38	
lbm/MMBtu (Fuel LHV)	0.060	0.061	0.035	
lbm/(MW-hr)	0.62	0.63	0.36	
(gas turbine shaft pwr) lbm/hr	6.83	6.93	3.97	

4	13789 HP 100.0% Load	Elev. 2080 ft	Rel. Humidity 60.0%	Temperature 59.0 Deg. F
PPMvd at 15% O2	15.00	25.00	25.00	
ton/yr	28.23	28.64	16.41	
lbm/MMBtu (Fuel LHV)	0.060	0.061	0.035	
lbm/(MW-hr)	0.63	0.64	0.36	
(gas turbine shaft pwr) lbm/hr	6.45	6.54	3.75	

Notes

- For short-term emission limits such as lbs/hr., Solar recommends using "worst case" anticipated operating conditions specific to the application and the site conditions. Worst case for one pollutant is not necessarily the same for another.
- Solar's typical SoLoNOx warranty, for ppm values, is available for greater than 0 deg F or -20 deg C, and between 50% and 100% load for gas, fuel, and between 65% and 100% load for liquid fuel (except for the Centaur 40). An emission warranty for non-SoLoNOx equipment is available for greater than 0 deg F or -20 deg C and between
- Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.
- If needed, Solar can provide Product Information Letters to address turbine operation outside typical warranty ranges, as well as non-warranted emissions of SO2, PM10/2.5, VOC, and formaldehyde.
- Solar can provide factory testing in San Diego to ensure the actual unit(s) meet the above values within the tolerances quoted. Pricing and schedule impact will be provided upon request.
- Any emissions warranty is applicable only for steady-state conditions and does not apply during start-up, shut-down, malfunction, or transient event.

Solar Turbines

A Caterpillar Company

PREDICTED ENGINE PERFORMANCE

Customer Columbia Pipeline Group	
Job ID Permitting	
Run By Trevor T Keeney	Date Run 26-Feb-15
Engine Performance Code REV. 4.15.1.17.10	Engine Performance Data REV. 1.0

Model MARS 100-16000S
Package Type CS/MD
Match STANDARD
Fuel System GAS
Fuel Type CHOICE GAS

DATA FOR MINIMUM PERFORMANCE

Elevation	feet	2080			
Inlet Loss	in H2O	4.0			
Exhaust Loss	in H2O	10.0			
Accessory on GP Shaft	HP	27.8			
			1	2	3
Engine Inlet Temperature	deg F	-20.0	0	32.0	59.0
Relative Humidity	%	60.0	60.0	60.0	60.0
Driven Equipment Speed	RPM	9397	9341	9200	9016
Specified Load	HP	FULL	FULL	FULL	FULL
Net Output Power	HP	15888	15630	14766	13789
Fuel Flow	mmBtu/hr	123.25	120.14	113.81	107.88
Heat Rate	Btu/HP-hr	7757	7686	7707	7824
Therm Eff	%	32.800	33.104	33.013	32.522
Engine Exhaust Flow	lbm/hr	347598	339929	325667	309545
PT Exit Temperature	deg F	859	869	890	913
Exhaust Temperature	deg F	858	869	890	913

Fuel Gas Composition (Volume Percent)	Methane (CH4)	93.26
	Ethane (C2H6)	3.68
	Propane (C3H8)	0.88
	I-Butane (C4H10)	0.07
	N-Butane (C4H10)	0.19
	I-Pentane (C5H12)	0.03
	N-Pentane (C5H12)	0.03
	Hexane (C6H14)	0.01
	Carbon Dioxide (CO2)	0.99
	Nitrogen (N2)	0.86
Sulfur Dioxide (SO2)	0.0001	

Fuel Gas Properties	LHV (Btu/Scf)	938.5	Specific Gravity	0.5985	Wobbe Index at 60F	1213.1
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This performance was calculated with a basic inlet and exhaust system. Special equipment such as low noise silencers, special filters, heat recovery systems or cooling devices will affect engine performance. Performance shown is "Expected" performance at the pressure drops stated, not guaranteed.

**Affidavit of Publication for Attachment P of Application for
Cleveland Compressor Station (Facility ID #097-00009)**

Application submitted January 27, 2016

AIR QUALITY PERMIT
NCTV.22
Notice of Application

Notice is given that Columbia Gas Transmission LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Permit Modification for its existing natural gas compression station located on State Route 20, near the intersection of State Route 20 and US Route 19, in Upshur County, West Virginia. The latitude and longitude coordinates are 38° 45' 1.60" N and 80° 21' 48.03" W.

The applicant estimates the increases in modification application is approved. The applicant requests to discharge the following Regulated Air Pollutants will be Carbon Monoxide by 97.06 tons per year, Nitrogen Dioxide by 25.74 tons per year, PM10 and PM2.5 by 7.28 tons per year, Sulfur Dioxide by 0.80 tons per year, Volatile Organic Compounds (VOC) by 21.24 tons per year, Chloroform Equivalent (CO2e) by 1,80,652 tons per year, and Formic Acid by 0.79 tons per year.

Startup of operation is planned to begin on or about the 1st day of January 2018. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0485 extension 1227, during normal business hours.

Dated this 27th day of January 2016

By: Columbia Gas Transmission LLC
Steven A. Nisour
Manager of Operations
107 Spencer Road Bldg #1
Clendenin, WV 26045

(1-29-16)

AFFIDAVIT

STATE OF WEST VIRGINIA, COUNTY OF UPSHUR,
Joy Mullins, Legal Clerk of the Record Delta,
a Newspaper Published in Buckhannon in said county,
do hereby certify that the annexed

AIR QUALITY PERMIT NOTICE/ NOTICE OF APPLICATION
Was published once a week for one
week in said Record Delta Newspaper as aforesaid,
commencing on the 29th day of January, 2015.

Legal Clerk: Joy Mullins

WEST VIRGINIA, UPSHUR COUNTY, TO WIT,
Subscribed and sworn before me this 29th
day of January 2016.

Notary Public: Phyllis J. Neidhardt
My commission expires: May 26, 2023



THE RECORD DELTA
P.O. BOX 550
BUCKHANNON, WV 26201
(304) 472-2800
FEIN NO. 363672215

* **AECOM**
510 Carnegie Center
Princeton, NJ 08540
Attn: Jennifer Ehrhardt

LEGAL ADVERTISEMENT INVOICE

ACCT. 5690 LEGAL #

DESCRIPTION AIR QUALITY PERMIT NOTICE/ NOTICE OF APPLICATION

PUBLICATION DATES	PUBLICATION COST
1/29/2016	\$ 42.61
	\$ -
	\$ -
	\$ -
	\$ -
	\$ -
	\$ -
AFFIDAVIT FEE	\$ 2.00
TOTAL	\$ 44.61

Legal Rate: .11 1/2 cents per word space for first publication
75% of the first cost for each additional publication

Williams, Jerry

From: Ward, Beth A
Sent: Monday, February 01, 2016 10:11 AM
To: Williams, Jerry
Subject: COLUMGIA GAS TRANSMISSION LLC CLEVELAND & FILES CREEK PERMIT APPLICATION FEE

This is the receipt for payment received from:

COLUMBIA GAS TRANSMISSION LLC, CLEVELAND, CHECK NUMBER 0351153024, CHECK DATE 01/15/2016, \$2,000.00
R13-2394B ID# 097-00009

COLUMBIA GAS TRANSMISSION LLC, FILES CREEK, CHECK NUMBER 0351153025, CHECK DATE 01/15/2016, \$2,000.00
R13-3164B ID# 083-00019

OASIS Deposit CR 1600082273

Thank You!

Beth Ward

**WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
BTO FISCAL
601 57TH STREET SE
CHARLESTON, WV 25304
(304) 926-0499 EXT 1846
beth.a.ward@wv.gov**

NON-CONFIDENTIAL

Adkins, Sandra K

From: Adkins, Sandra K
Sent: Friday, January 29, 2016 12:59 PM
To: 'snelson@cpq.com'; 'livey@cpq.com'
Cc: McKeone, Beverly D; Williams, Jerry
Subject: WV DAQ Permit Application Status for Columbia Gas Transmission, LLC; Cleveland

**RE: Application Status
Columbia Gas Transmission, LLC
Cleveland
Plant ID No. 097-00009
Application No. R13-2394B**

Mr. Nelson,

Your application for a modification permit for the Cleveland Compressor Station was received by this Division on January 28, 2016, and was assigned to Jerry Williams. The following item was not included in the initial application submittal:

Original affidavit for Class I legal advertisement not submitted.

This item is necessary for the assigned permit writer to continue the 30-day completeness review.

Within 30 days, you should receive a letter from Jerry stating the status of the permit application and, if complete, given an estimated time frame for the agency's final action on the permit.

Any determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit decision.

Should you have any questions, please contact the assigned engineer, Jerry Williams, at 304-926-0499, extension 1223.

NON-CONFIDENTIAL

*Title V
Attachment S*

097-00009

R13-2394B

Modification

Jerry

**45CSR13 Administrative Update, Construction, Modification, Relocation,
Temporary Permit or General Permit Registration Incomplete Application**

A complete application is demonstrated when all of the information required below is properly prepared, completed and attached. The items listed below are required information which must be submitted with a 45CSR13 permit application. Any submittal will be considered incomplete if the required information is not included. The applicant must submit a complete application in order to receive a 45CSR13 permit.

- Class I legal advertisement not published in a newspaper certified to accept legal advertisements and original affidavit submitted.
- Application fee AND/OR additional application fees not included:
 - \$250 Class I General Permit
 - \$300 Class II Administrative Update
 - \$1,000 Construction, Modification, Relocation or Temporary Permit
 - \$500 Class II General Permit
 - \$1,000 NSPS
 - \$2,500 NESHAP
 - \$2,500 45CSR27 Pollutant
 - \$5,000 Major Modification
 - \$10,000 Major Construction
- Original and two (2) copies of the application not submitted.
- File organization – application pages are not numbered or in correct order, application is not bound in some way, etc.
- Confidential Business Information is not properly identified.
- General application forms not completed and signed by a responsible official.
- Authority of Corporation form not included – required if application is signed by someone other than a responsible official.
- Applicant is not registered with the West Virginia Secretary of State's Office.
- Copy of current Business Registration Certificate not included.
- Process description, including equipment and emission point identification numbers, not submitted.
- Process flow diagram, including equipment and emission point identification numbers, not submitted.
- Plot plan, including equipment and emission point identification numbers, not submitted.
- Applicable technical forms not completed and submitted:
 - Emission Point Data Summary Sheets
 - Air Pollution Control Device Sheets
 - Emission Unit Data Sheets
 - Equipment List Form
- Emission calculations not included – emission factors, references, source identification numbers, etc.
- Electronic submittal diskette not included.