

**COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Northern Regional Office**

STATEMENT OF LEGAL AND FACTUAL BASIS

Columbia Gas Transmission, LLC
Loudoun Compressor Station
Loudoun County, Virginia
Permit No. NRO72265

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Columbia Gas Transmission, LLC has applied for a renewal of the Title V Operating Permit for its natural gas pipeline compressor station in Loudoun County, Virginia. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact: _____ Date: _____
Jonathan W. Carney
(703) 583-3863

Air Permit Manager: _____ Date: _____
James B. LaFratta

Regional Director: _____ Date: _____
Thomas A. Faha

FACILITY INFORMATION

Permittee

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

Facility

Columbia Gas Transmission, LLC
Loudoun Compressor Station
40800 Compressor Lane
Leesburg, VA 20175

County-Plant Identification Number: 51-107-00125

SOURCE DESCRIPTION

NAICS Code: 486210 - Natural Gas Transmission.

SIC Code: 4922

The Loudoun Compressor Station is one of several pipeline compressor stations along a system of pipelines which transport natural gas from the gulf coast to the northeastern region of the United States. The station provides added compression to the pipeline to compensate for pressure losses along the line downstream of the previous compressor station. The natural gas is compressed using eight Solar Saturn T-1300 turbines, International Standards Organization (ISO) rated at 1,350 horsepower (hp) each, and one Solar Centaur T-4500 turbine, ISO rated at 4,390 hp. All the combustion turbines are fired with natural gas. Both unit types are started and stopped periodically, depending on the natural gas demand. During normal operation each unit runs continuously at the maximum load. Air pollutant emissions from the combustion turbines are controlled by engine design and proper operation and maintenance of the units. There are no post combustion air pollution controls installed on any of the turbines. On-site auxiliary equipment includes a natural gas fired four stroke rich burn (4SRB) emergency engine-generator set rated at 221 hp, a Lube Oil Tank, two Water Mixture Tanks, a Used Oil Tank, a Pipeline Liquid Tank, and a Natural Gas-fired Heating System Boiler.

The facility is a Title V major source of nitrogen oxides and carbon monoxide. This source is located in an area which is nonattainment for ozone. The facility is a Prevention of Significant Deterioration (PSD) minor source.

Columbia Gas originally installed eight turbines, six in 1968 and two in 1971, at the Loudoun Compressor Station. In accordance with the regulations at the time, these original units were not issued a permit. A new source review (NSR) permit was issued August 21, 1990, to allow for the upgrade of the eight Saturn turbines and the installation of the new Centaur turbine. The turbines became subject to 40 CFR Subpart GG with the August 21, 1990 permit issuance due to the heat input at peak load of the turbines being greater than 10 million BTU per hour (21.2 MMBtus for the eight Saturn turbines and 58.4 MMBtus for the Centaur turbine) and due to

being constructed, modified, or reconstructed after October 3, 1977. The August 21, 1990 permit was superseded on February 18, 2000, to include updates and corrections discovered while preparing the original Title V permit. On July 14, 2006, the permit was amended to remove the sulfur monitoring requirements in accordance with the New Source Performance Standard (NSPS) Subpart GG, as amended. On September 24, 2009, the permit was consolidated with the NSR permit for the emergency engine-generator. The NSR permit governing the operation of the emergency engine-generator was initially issued on August 31, 1994. This permit was superseded with an amended permit issued on February 18, 2000, to include updates and corrections discovered while preparing the original Title V permit.

The facility is also subject to reasonably available control technology (RACT) and was issued a RACT state operating permit (SOP) permit on May 23, 2000. The NO_x emission limits and controls established as BACT in the August 21, 1990, permit were proposed and established as RACT for the gas turbines. In accordance with Chapter 40 Article 51, the emergency engine-generator is not required to demonstrate RACT.

The Department of Environmental Quality (DEQ) received a Title V renewal application on April 2, 2014, and deemed such application timely and complete on May 8, 2014, under 9 VAC 5-80-80 and 9 VAC 5-80-90. The facility currently operates under a Title V permit issued December 3, 2009, and will so, until the renewal permit is issued.

Significant changes since the issuance of the Title V permit issued December 3, 2009, include the changes to federal regulations particularly the inclusion of 40 CFR 63 Subpart ZZZZ requirements.

COMPLIANCE STATUS

The facility normally undergoes a full compliance evaluation (FCE) biennially. The most recent FCE, including a site visit, was conducted on September 12, 2013. In addition, all reports, notifications, and other data as required by permit conditions or regulations, which are submitted to the DEQ, are evaluated for compliance. Based on an on-site compliance assistance evaluation performed on February 11, 2014, it was found that the facility was performing stack testing in improper exhaust ports. The facility submitted a plan to change the location of the exhaust ports on February 21, 2014. The overall compliance status of the facility is in compliance.

The EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Table 1. Significant Emission Units at the Loudoun Compressor Station

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Output	Pollution Control Device Description (PCD)	Pollutant Controlled	Applicable Permit Date
06001	E01	Solar Saturn T-1300	21.2 MMBtu/hr ¹	1350 hp ³	---	---	September 24, 2009
06002	E02	Solar Saturn T-1300	21.2 MMBtu/hr ¹	1350 hp ³	---	---	September 24, 2009
06003	E03	Solar Saturn T-1300	21.2 MMBtu/hr ¹	1350 hp ³	---	---	September 24, 2009
06004	E04	Solar Saturn T-1300	21.2 MMBtu/hr ¹	1350 hp ³	---	---	September 24, 2009
06005	E05	Solar Saturn T-1300	21.2 MMBtu/hr ¹	1350 hp ³	---	---	September 24, 2009
06006	E06	Solar Saturn T-1300	21.2 MMBtu/hr ¹	1350 hp ³	---	---	September 24, 2009
06007	E07	Solar Saturn T-1300	21.2 MMBtu/hr ¹	1350 hp ³	---	---	September 24, 2009
06008	E08	Solar Saturn T-1300	21.2 MMBtu/hr ¹	1350 hp ³	---	---	September 24, 2009
06009	E09	Solar Centaur T-4500	58.4 MMBtu/hr ²	4390 hp ⁴	---	---	September 24, 2009
060G1	G1	Waukesha F11GSI – engine-generator	2.4 MMBtu/hr	221 hp ⁵	---	---	September 24, 2009

¹Based on the maximum HHV heat rate and maximum horsepower. The rated input heat capacity based on the LHV heat rate and rated horsepower is 14.46 MMBtu/hr.

²Based on the maximum HHV heat rate and maximum horsepower. The rated input heat capacity based on the LHV heat rate and rated horsepower is 39.72 MMBtu/hr.

³During periods of low ambient temperature, such as during winter months, the maximum output is 1,553 horsepower.

⁴During periods of low ambient temperature, such as during winter months, the maximum output is 5,049 horsepower.

⁵Maximum short-term output is 243 horsepower.

EMISSIONS INVENTORY

A copy of the 2013 annual emission update is attached as Attachment A. Emissions are summarized in the following tables:

Table 2. 2013 Actual Criteria Pollutant Emissions for the Loudoun Compressor Station

Emission Unit	Criteria Pollutant Emission in Tons/Year				
	VOC	CO	SO ₂	PM ₁₀	NO _x
06001	0.08	2.26	0.06	0.12	1.59
06002	0.13	3.53	0.09	0.19	2.48
06003	0.00	0.39	0.01	0.02	0.28
06004	0.07	1.97	0.05	0.11	1.38
06005	0.03	0.79	0.02	0.04	0.56
06006	0.09	2.51	0.07	0.14	1.77
06007	0.03	0.83	0.02	0.04	0.58
06008	0.04	1.22	0.03	0.7	0.86
06009	0.03	0.89	0.1	0.2	5.0
060G1	0	0.09	0	0	0.02
Fugitives ¹	6.2	---	---	---	---
Total	6.7	14.5	0.45	1.6	14.52

¹ Fugitive emissions include those from blowdowns, valves, flanges, fittings, etc. The fugitive emissions are included in the calculation for emission inventory submittal and emission fees purposes and are not subject to any other applicable requirements.

Table 3. 2013 Actual Hazardous Air Pollutant Emissions for the Loudoun Compressor Station

Pollutant	Hazardous Air Pollutant Emission in Tons/Year
Formaldehyde	0.03

EMISSION UNIT APPLICABLE REQUIREMENTS – Fuel Burning Equipment
Combustion Turbines 06001 – 06009
Emergency Engine-generator 060G1

The organization of the permit conditions was changed in accordance with the DEQ boiler plate issued January 2014 that eliminates the use of Roman numerals. Additionally, combined conditions have been separated where deemed necessary for clarity so that matching turbines (Emission Units 06001-06008) have been separated from the single non-matching turbine (Emission Unit 06009) and the emergency engine-generator (Emission Unit 060G1) has been separated from the turbines.

Limitations

The following limitations are state BACT requirements.
The short-term and annual emission limits reflect BACT.

EMISSION UNIT APPLICABLE REQUIREMENTS – Fuel Burning Equipment
Combustion Turbines 06001 – 06008

Title V
Condition #

1. NO_x, CO, and VOC emissions from the turbines shall be controlled by equipment design and operation. BACT for the turbines is established as equipment design and operation, as presented in the engineering evaluation dated June 20, 1990, which determined the NO_x emission standard to be lower than the minimum required by the NSPS Subpart GG.
(Condition 2 of 09/24/09 Permit)
2. Limits the annual operating hours for each turbine.
(Condition 4 of 09/24/09 Permit)
3. Establishes natural gas as the approved fuel for the turbines.
(Condition 7 of 09/24/09 Permit)
4. Lists specifications for the heat content and sulfur content of the natural gas.
(Condition 8 of 09/24/09 Permit)
5. Limits fuel consumption for each of the Solar Saturn T-1300 turbines.
(Condition 9 of 09/24/09 Permit)
6. Sets emission limits for criteria pollutants for each of the Solar Saturn T-1300 turbines. The short term emission limits for the criteria pollutants CO, VOC, and NO_x are based on manufacturer provided emission factors. The manufacturer provided emission factors are based on the turbines operating at maximum capacity at an ambient temperature of 54 °F,

and taking into account the high heat value of the fuel. The annual emission limits for CO, VOCs, and NO_x (as NO₂) are based on 7,000 hours of operation and the same manufacturer provided emission factors for CO, VOCs, and NO_x used to establish the short term limits. These factors when multiplied by the site specific horsepower rating and the hours of operation per year and divided by 2000 lbs per ton provide the annual emissions in tons for each pollutant for each turbine. The SO₂ limits reflect the allowable sulfur content in the fuel and assume that all of the sulfur in the fuel is emitted as SO₂. Short term SO₂ emission limits are based on the maximum heat input rating of each turbine, while the annual SO₂ emission limits are based on the allowable annual fuel throughput (see 47.f below). The September 24, 2009, mNSR Permit (see Attachment B) does not prescribe emission limits for particulate matter from the combustion turbines; however, PM10 and PM2.5 emissions are provided by the facility in the annual emissions statement and included in the emissions inventory.
(Condition 13 of 09/24/09 Permit)

7. Limits visible emissions to five percent opacity for the turbines.
(Condition 16 of 09/24/09 Permit)
8. Requires the turbines to be operated in compliance with 40 CFR 60, Subpart GG unless the state operating permit is more restrictive.
(Condition 12 of 09/24/09 Permit)
9. Conditional waiver of fuel monitoring for sulfur content for the turbines. In accordance with the NSPS Subpart GG in order to waive fuel monitoring for sulfur content, the source must provide gas sampling analytical results for the most recent 12 months that show that the gas meets the definition of pipeline natural gas, or a Federal Energy Regulatory Commission (FERC) document certifying that the natural gas does not contain more than twenty grains of total sulfur (S) per one hundred standard cubic feet (scf) and a current tariff sheet certifying that the delivered gas will not exceed 3 grains S/100 scf. A change in fuel supplier will require new sulfur content with the fuel data or new fuel supplier certification as required in NSPS subpart GG.
10. Requires periodic monitoring of NO_x, CO, and O₂. Periodic emissions monitoring will be conducted on the exhaust from each turbine to verify that the turbine continues to achieve compliance with short term emission limits through proper operation and maintenance. With the effective date of this permit, periodic monitoring is required once every two years for each of the eight Solar Saturn T-1300 turbines starting with an initial test during the first 180 days from the effective date of this permit. The initial testing was included to ensure that frequency of testing was not lessened in any way by the permit re-issuance (i.e. the testing was performed in 2013 and being within a 2 year period from the re-issuance date would not have to be performed until 2016 or 2017 decreasing the frequency to more than once every 2 years). NO_x, CO, and diluent O₂ concentrations will be measured during the periodic testing. The testing will be conducted using procedures approved by the DEQ.

11. Requires monitoring and recording of the combustion turbine operating parameters during the periodic emission testing of the combustion turbines.
12. Requires corrective action for excess emissions. If the periodic testing indicates an exceedance of an emission limit, the permittee is required to take corrective action to correct any equipment which is not operating properly. If corrective action does not eliminate the emissions excursion, the permittee is required to conduct an EPA reference method test in accordance with test methods identified in the permit, or other procedures approved by the DEQ. The reference method testing will be used to determine the compliance status of the turbine(s).

**EMISSION UNIT APPLICABLE REQUIREMENTS – Fuel Burning Equipment
Combustion Turbine 06009**

13. NO_x, CO, and VOC emissions from the turbine shall be controlled by equipment design and operation. BACT for the turbine is established as equipment design and operation, as presented in the engineering evaluation dated June 20, 1990, which determined the NO_x emission standard to be less than the minimum required by the NSPS Subpart GG. (Condition 2 of 09/24/09 Permit)
14. Limits the annual operating hours for the turbine. (Condition 4 of 09/24/09 Permit)
15. Establishes natural gas as the approved fuel for the turbine. (Condition 7 of 09/24/09 Permit)
16. Lists specifications for the heat content and sulfur content of the natural gas. (Condition 8 of 09/24/09 Permit)
17. Limits fuel consumption of the Solar Centaur T-4500 turbine. (Condition 10 of 09/24/09 Permit)
18. Sets emission limits for criteria pollutants for the Solar Saturn T-4500 turbine. The short term emission limits for the criteria pollutants CO, VOC, and NO_x are based on the turbine operating at maximum capacity at an ambient temperature of 54 °F, and taking into account the high heat value of the fuel. The annual emission limits for CO, VOCs, and NO_x (as NO₂) are based on 7,000 hours of operation and the same manufacturer provided emission factors for CO, VOCs, and NO_x used to establish the short term limits. These factors when multiplied by the site specific horsepower rating and the hours of operation per year and divided by 2000 lbs per ton provide the annual emissions in tons for each pollutant. The SO₂ limits reflect the allowable sulfur content in the fuel and assume that all of the sulfur in the fuel is emitted as SO₂. Short term SO₂ emission limits are based on the maximum heat input rating of the turbine, while the annual SO₂ emission limits are based on the allowable annual fuel throughput (see 47.f below). The September 24, 2009, mNSR Permit (see Attachment B) does not prescribe emission limits for particulate matter from the

combustion turbine; however, PM10 and PM2.5 emissions are provided by the facility in the annual emissions statement and included in the emissions inventory.
(Condition 14 of 09/24/09 Permit)

19. Limits visible emissions to five percent opacity for the turbine.
(Condition 16 of 09/24/09 Permit)
20. Requires the turbine to be operated in compliance with 40 CFR 60, Subpart GG unless the state operating permit is more restrictive.
(Condition 12 of 09/24/09 Permit)
21. Conditional waiver of fuel monitoring for sulfur content for the turbines. In accordance with the NSPS Subpart GG in order to waive fuel monitoring for sulfur content, the source must provide gas sampling analytical results for the most recent 12 months that show that the gas meets the definition of pipeline natural gas, or a Federal Energy Regulatory Commission (FERC) document certifying that the natural gas does not contain more than twenty grains of total sulfur per one hundred cubic feet and a current tariff sheet certifying that the delivered gas will not exceed 3 grains/100scf. A change in fuel supplier will require new sulfur content with the fuel data or new fuel supplier certification as required in NSPS subpart GG.
22. Requires periodic monitoring of NO_x, CO, and O₂. Periodic emissions monitoring will be conducted on the exhaust from each turbine to verify that the turbine continues to achieve compliance with short term emission limits through proper operation and maintenance. Emissions monitoring will be conducted at least once each six-month period for the Solar Centaur T-4500 turbine. NO_x, CO, and diluent O₂ concentrations will be measured during the periodic testing. The testing will be conducted using procedures approved by the DEQ.
23. Requires monitoring and recording of the combustion turbine operating parameters during the periodic emission testing of the combustion turbine.
24. Requires corrective action for excess emissions. If the periodic testing indicates an exceedance of an emission limit, the permittee is required to take corrective action to correct any equipment which is not operating properly. If corrective action does not eliminate the emissions excursion, the permittee is required to conduct an EPA reference method test in accordance with test methods identified in the permit, or other procedures approved by the DEQ. The reference method testing will be used to determine the compliance status of the turbine.

**EMISSION UNIT APPLICABLE REQUIREMENTS – Fuel Burning Equipment
Emergency Engine-Generator 060G1**

25. NO_x emissions from the emergency engine-generator shall be controlled by maintaining 'best power' air to fuel ratio. BACT for the emergency engine-generator is determined to be operation of the emergency engine-generator at the 'best power' air to fuel ratio setting

which is achieved by maintaining a pressure differential of 10" to 12" water between the carburetor fuel inlet pipe and the carburetor air horn.
(Condition 3 of 09/24/09 Permit)

26. Limits the annual operating hours of the emergency engine-generator.
(Condition 5 of 09/24/09 Permit)
27. Restricts operation of the emergency engine-generator to emergency use only, except for periodic maintenance, testing, and operational training. Requires emissions from all operations to be included in annual emissions calculations.
(Condition 6 of 09/24/09 Permit)
28. Establishes natural gas as the approved fuel for the emergency engine-generator.
(Condition 7 of 09/24/09 Permit)
29. Lists specifications for the heat content and sulfur content of the natural gas.
(Condition 8 of 09/24/09 Permit)
30. Limits annual fuel consumption of the emergency engine-generator.
(Condition 11 of 09/24/09 Permit)
31. Sets emission limits for NO_x and CO for the emergency engine-generator. The hourly emission limits are based on the emergency engine-generator operating at maximum capacity. The annual emission limits are based on the natural gas throughput limit and operating hours limit contained in the permit.
(Condition 15 of 09/24/09 Permit)
32. Limits visible emissions to five percent opacity for the emergency engine-generator. This does not apply during start-up, shutdown, or malfunction.
(Condition 17 of 09/24/09 Permit)
33. Provides requirements in accordance with 40 CFR 63 subpart ZZZZ under which the emergency engine-generator can be considered an emergency engine-generator. 40 CFR 63.6640(f)(1) (no limit for emergency operations) was removed since the emergency engine-generator has a more stringent operating limit of 1000 hours from the mNSR Permit.
34. Applicable maintenance requirements for the emergency engine-generator from 40 CFR Subpart ZZZZ.
35. Continuous compliance requirements for the emergency engine-generator from 40 CFR Subpart ZZZZ.
36. Monitoring equipment required for the emergency engine-generator from 40 CFR Subpart ZZZZ.

37. Idle time limitation necessary to minimize emission during startup from 40 CFR Subpart ZZZZ applicable to the emergency engine-generator.
38. 40 CFR Subpart ZZZZ notification requirements applicable to the emergency engine-generator.
39. 40 CFR Subpart ZZZZ reporting requirements applicable to the emergency engine-generator.
40. 40 CFR Subpart ZZZZ general requirements referenced from 40 CFR Subpart A and identified in Subpart ZZZZ Table 8 applicable to the emergency engine-generator.
41. 40 CFR Subpart ZZZZ recordkeeping requirements applicable to the emergency engine-generator.
42. Emergency engine-generator monitoring equipment necessary to check the emergency engine-generator carburetor air to fuel ratio.

Facility Wide Conditions

43. Recordkeeping requirements: The permit includes requirements for maintaining records of all emissions data and operating parameters necessary to demonstrate compliance. These records include: monthly operating hours, natural gas consumption (in cubic feet), and energy output for each turbine; monthly emissions calculations, operator training on the proper operation of equipment, all scheduled and unscheduled maintenance, test results, periodic measurements of NO_x, CO, and O₂ concentrations for each turbine, and demonstration of the sulfur content of the natural gas .

43. f. Methods of Emission Calculations:

Pollutant-specific emission factors will be used to calculate annual emissions on a monthly basis for each turbine. The emission factors are the manufacturer guaranteed emission factors for the units. These factors were used to establish permit limits, and provide conservative emission estimates in that the emission factors represent the upper limit of the expected range of emissions. The use of these emission factors provides a reasonable assurance of compliance with emission limitations, and underscores that the operational and fuel restrictions are the controlling parameters limiting emissions from the turbines. The periodic measurement of NO_x and CO emissions will serve as a check on the continued representativeness of the manufacturer supplied emission factors. Emissions from the operation of each turbine will be calculated on a monthly basis using the following equation:

$$E_i = EF_i \times O$$

where:

E_i	=	Emissions of pollutant i, lbs/time period
EF_i	=	Emission factor for pollutant i, lbs/hp-hr (manufacturer factors)
		<u>Solar Saturn T-1300 Factors</u> <u>Solar Centaur T-4500 Factors</u>
		3.44E-03 for NO _x 5.19E-03 for NO _x
		4.89E-03 for CO 9.26E-04 for CO
		1.76E-04 for VOC 3.31E-05 for VOC
O	=	Operation and load of turbine, bhp-hrs for time period

The sulfur content of the fuel is used to estimate the annual SO₂ emissions as follows:

$$\text{ft}^3 \text{ natural gas/yr} \times 1 \text{ lb gas}/23.8 \text{ ft}^3 \times 0.01 \% \text{ S}/100 \times 1.998 \text{ lb SO}_2/\text{lb S} \times 1 \text{ ton}/2000 \text{ lbs}$$

Note: 0.01 % S is the fuel sulfur content limitation in percent by weight (%wt).

44. Maintenance/Operating Requirements: The turbines do not have add-on air pollution control equipment; therefore, the overall compliance strategy for the facility entails proper operation and maintenance of the gas turbines to achieve compliance with applicable requirements.

Reasonable assurance of compliance with the emission limits is achieved through proper operation and maintenance of the equipment, and is demonstrated by the following: (1) maintaining maintenance records; (2) complying with natural gas throughput limits, and maintaining records of fuel throughput and operating hours; (3) periodic emissions monitoring for NO_x and CO for the turbines; and (4) operator training records.

As long as the allowable operating schedule and natural gas throughput limits are not violated, there is very little chance that criteria pollutant annual emission limits will be violated. Therefore, the prescribed periodic emissions monitoring and the recordkeeping (maintenance activities, hours of operation and natural gas throughput limits) will help ensure that the emissions do not exceed the pollutant-specific emission limitations contained in the permit. Compliance with emission limits established for SO₂ is demonstrated by complying with the natural gas sulfur content limit and natural gas throughput limits contained in the permit. PM10 and PM2.5 emissions are provided by the facility in the annual emissions statement and included in the emissions inventory.

The turbines and emergency engine-generator burn pipeline quality natural gas. As long as the equipment is properly maintained and operated, there is very little likelihood that the opacity standards will be violated. This position is supported by the September 15, 1998 EPA memorandum from Eric Schaffer and John Seitz entitled "Periodic Monitoring Guidance for Title V Operating Permits Programs". Therefore, the permit conditions requiring proper operation and maintenance of the equipment, with associated training and recordkeeping, establish a federally enforceable maintenance program which provides a reasonable assurance of compliance with the opacity standards.
(Condition 26 of 09/24/09 Permit)

40 CFR 64, Compliance Assurance Monitoring (CAM)

CAM applies to each emissions unit at a major stationary source required to obtain a Title V permit that meets all of the following: 1) has a point source emission unit with a control device, 2) has emissions subject to an applicable rule, and 3) has uncontrolled emissions that exceed the major source threshold.

The turbines do not have a control device; therefore the units are not subject to CAM.

45 through 48. Testing

Other than the periodic monitoring testing of the turbines, the permit does not require source emission tests. The initial stack test, requiring a compliance test to evaluate NOx emissions from the turbines, was performed on February 21, 1991. The results of the testing demonstrated compliance with the limits contained in the permit. A table of test methods is included in the permit if testing is performed. The DEQ and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

49. Lists insignificant Emission Units

50. Permit Shield And Inapplicable Requirements addresses the Subpart GG standards that were waived for nitrogen. The turbines were manufactured and/or modified prior to February 18, 2005. Therefore, 40 CFR 60 Subpart KKKK (60.4305) does not apply.

Reporting

See General Conditions of the permit for reporting requirements.

Streamlined Requirements

1. NSPS Subpart GG: The combustion turbines have the following applicable requirements established in NSPS Subpart GG, which is included in 9 VAC 5-50-410 by reference:

- a. § 60.332(a)(2): Standard for Nitrogen Oxides

where:

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

- STD = Allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis).
- Y = Manufacturer's rated heat rate at manufacturer's rated peak load (kilojoules per watt hour), or actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.
- F = NO_x emission allowance for fuel-bound nitrogen as defined in § 60.332 (a)(3)

The allowable NO_x emission limit for each of the Solar Saturn T-1300 turbines (76 ppmvd @15% O₂), and the allowable NO_x emission limit for the Solar Centaur T-4500 turbine (142 ppmvd @ 15% O₂) are more stringent than the limit established by NSPS Subpart GG (150 ppmvd @15% O₂). Therefore, only the limits from the minor NSR permit have been included in the Title V permit.

- b. § 60.333: Standard for sulfur dioxide:

SO₂: ≤ 0.015 percent by volume, dry basis, at 15% O₂, OR, fuel sulfur content ≤ 0.8 percent by weight.

The fuel sulfur content requirement 20 grains S/100 dscf fuel (0.068 percent by weight) is more stringent than the standard contained in NSPS Subpart GG; therefore, the NSPS limit is not included in the permit.

Note: Conversion of 20 grains S/100 dscf fuel to weight % performed using 1 lb Natural Gas per 23.8 scf natural gas.

2. RACT:

A State Operating Permit implementing NO_x RACT provisions for the Loudoun Compressor Station was issued May 23, 2000. The permit establishes as RACT the same emission controls and limitations as contained in the State Air Pollution Control Board permit to install, modify, and operate that was initially issued on August 21, 1990. These controls and limitations were determined to represent the required best available control technology in the initial permit review, and therefore, for emissions of NO_x, are no less stringent than RACT. The NO_x RACT emission level from each of the eight Solar, Saturn T-1300 turbines is 76 parts per million, dry volume, corrected to 15 percent oxygen and ISO ambient conditions. The NO_x RACT emission level from the Solar, Centaur T-4500 turbine is 142 parts per million, dry volume, corrected to 15 percent oxygen and ISO ambient conditions. These RACT emission levels are the same as the already established limits for the turbines and are not repeated in the proposed Title V permit as they would be redundant.

GENERAL CONDITIONS

The permit contains general conditions (Conditions 51-91) required by 40 CFR Part 70 and 9 VAC 5-80-110, that apply to all Federal operating permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions, including those caused by upsets, within one business day.

Permit Expiration – Conditions 51 through 57

These conditions refer to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia*, and the “Department of Environmental Quality Agency Policy Statement No. 2-09”.

Failure/Malfunction Reporting – Condition 63

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

This general condition cites the sections that follow:

- 9 VAC 5-40-50. Notification, Records and Reporting (*for existing sources*)
- 9 VAC 5-50-50. Notification, Records and Reporting (*for new sources*)

Permit Modification – Condition 67

This general condition cites the sections that follow:

- 9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources
- 9 VAC 5-80-190. Changes to Permits.
- 9 VAC 5-80-260. Enforcement.
- 9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources
- 9 VAC 5-80-1605. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
- 9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas]

Malfunction as an Affirmative Defense – Conditions 81 through 84

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Conditions 85 through 88 and General Condition 67. For further explanation see the comments on general condition 67.

General Condition 81 cites the sections that follow:

9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction

9 VAC 5-80-110. Permit Content

Asbestos Requirements – Condition 88

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:

40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.

40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.

40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

This general condition cites the regulatory sections that follow:

9 VAC 5-60-70. Designated Emissions Standards

9 VAC 5-80-110. Permit Content

GREENHOUSE GAS (GHG) EMISSIONS

The facility calculated the GHG emissions to be as follows:

Facility Total Potential to Emit:

Total GHG – 16,071 tpy

Total CO₂e mass equivalent – 18,438 tpy

Facility 2012 Annual Emissions:

Total GHG – 6,410 tpy

Total CO₂e mass equivalent – 8,930 tpy

GHG permitting requirements have not been identified for the emissions units at this facility.

(40 CFR 98)

STATE ONLY APPLICABLE REQUIREMENTS

Columbia Gas Transmission, L.L.C. did not identify any state-only requirements in their application, and all requirements in their minor NSR permits are federally enforceable.

Therefore, no state-only requirements have been included in the permit.

FUTURE APPLICABLE REQUIREMENTS

Columbia Gas Transmission, L.L.C. did not identify any future applicable requirements in their application, and staff is unaware of any applicable requirements that the facility could become

subject to during the life of the Title V permit. Therefore, no applicable requirements have been included in the permit.

COMPLIANCE PLAN

Columbia Gas Transmission, L.L.C. is currently in compliance with all applicable requirements. No compliance plan was included in the application or in the permit.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Table 4. Insignificant Emissions Units for the Loudoun Compressor Station

Emission Unit No.	Emission Unit Description	Citation ¹	Pollutant Emitted (9VAC5-80-720 B)	Rated Capacity (9VAC5-80-720 C)
A01	Lube Oil Tank 1,000 gallon	9 VAC 5-80-720 B	VOC	---
A02	Water Mixture Tank #1 1,000 gallon (Wastewater)	9 VAC 5-80-720 B	VOC	---
A03	Used Oil Tank 1,000 gallon	9 VAC 5-80-720 B	VOC	---
A04	Pipeline Liquid Tank 1,000 gallon	9 VAC 5-80-720 B	VOC	---
B01	Water Mixture Tank #2 1,000 gallon (Wastewater)	9 VAC 5-80-720 B	VOC	---
BLR2	Boiler #2, Natural Gas-fired Heating System Boiler	9 VAC 5-80-720 C	---	1 MMBtu/hr

¹The citation criteria for insignificant activities are as follows:
9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application
9 VAC 5-80-720 B - Insignificant due to emission levels
9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. Therefore, all portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

The proposed permit will be placed on public notice in the Loudoun Times Mirror from February 4, 2015 to March 9, 2015

ATTACHMENTS:

The following information is attached:

ATTACHMENT A: 2013 Annual Emissions Update

ATTACHMENT B: New Source Review Permit dated September 24, 2009.

ATTACHMENT A

2013 Annual Emissions Update

Run Date: 03/25/2015 08:23:21 AM

Commonwealth of Virginia
Department of Environmental Quality

Page 1 of 1

Registration Number: 72265

County - Plant ID: 107-00125

Plant Name: Loudoun Compressor Station

POLLUTANT EMISSIONS REPORT (PLANT) (Tons/Year)

Parameter List

Pollutant Type: All Pollutants

Years: 2009-2015

	CO	FORM	NO2	PM 10	PM 2.5	SO2	VOC
2009	35.193	0.075	41.745	2.548	2.548	1.208	7.466
2010	22.045	0.058	34.371	1.909	1.909	0.891	6.993
2011	14.605	0.033	18.038	1.084	1.085	0.513	6.725
2012	13.806	0.030	17.057	1.025	1.025	0.485	6.697
2013	14.481	0.027	14.523	0.944	0.944	0.452	6.699

ATTACHMENT B

New Source Review Permit Issued September 24, 2009



NRO-275-09

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

13901 Crown Court, Woodbridge, Virginia 22193-1453

(703) 583-3800 Fax (703) 583-3821

www.deq.virginia.gov

September 24, 2009

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

Mr. Maverick L. Bentley
Regional Director
Columbia Gas Transmission L.L.C.
1700 MacCorkle Avenue
Charleston, WV 25314

Registration No.: 72265

Dear Mr. Bentley:

Attached is an amended permit to modify and operate a natural gas transmission compressor station in accordance with the provisions of the Commonwealth of Virginia State Air Pollution Control Board's (Board's) Regulations for the Control and Abatement of Air Pollution (Regulations). This amendment revises the natural gas sulfur content limit and consolidates the new source review permits for the turbines and the emergency engine-generator into one permit. This permit supersedes your permits dated July 14, 2006, and February 18, 2000.

This permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation, civil charges, and/or possibly criminal prosecution. Please read all permit conditions carefully.

The Department of Environmental Quality (DEQ) initiated this permit action to correct and update provisions permit while preparing the Title V renewal permit. The action was deemed complete on August 28, 2009.

This permit approval shall not relieve Columbia Gas Transmission L.L.C. of the responsibility to comply with all other local, state, and federal permit regulations. It should be noted that the engine (Ref No. 060G1) is an affected facility under 40 CFR 63, National Emission Standards for Hazardous Air Pollutants for Source Categories (a.k.a. MACT), Subpart ZZZZ. At this time, there are no applicable requirements for this source; however, the regulation is currently undergoing proposed revisions (March 5, 2009, Federal Register Vol. 74) to include existing reciprocating internal combustion

Mr. Bentley
September 24, 2009
Page 2

engines located at area sources. The DEQ advises you, as the owner/operator of the affected engine, to review the MACT to ensure compliance with applicable emission standards, operational limitations, and the monitoring, notification, reporting and recordkeeping requirements. Any applicable notifications shall be sent to EPA, Region III. The source specific MACT (40 CFR 63 Subpart ZZZZ) can be found at <http://www.epa.gov/ttn/atw/rice/ricepg.html>.

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provide that you may request a formal hearing from this case decision by filing a petition with the Board within thirty days after this case decision notice was mailed or delivered to you. 9 VAC 5-170-200 provides that you may request direct consideration of the decision by the Board if the Director of the DEQ made the decision. Please consult the relevant regulations for additional requirements for such requests.

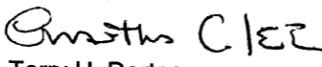
As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

David K. Paylor, Director
Department of Environmental Quality
P. O. Box 1105
Richmond, VA 23218

In the event that this decision is served on you by mail, three days are added to the period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please contact the regional office at (703) 583-3800.

Sincerely,


for Terry H. Darton
Regional Air Permit Manager

TAF/THD/MCL/09-275-nsr

Attachments: Permit

CC: Director, OAPP (electronic file submission)
Manager, Data Analysis (electronic file submission)
Kasey Gabbard, Columbia Gas (electronic file submission)



NRO-275-09

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

13901 Crown Court, Woodbridge, Virginia 22193-1453

(703) 583-3800 Fax (703) 583-3821

www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

**STATIONARY SOURCE PERMIT TO MODIFY AND OPERATE
This permit includes designated equipment subject to New Source Performance
Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants
for Source Categories (a.k.a. MACT)**

This amended permit supersedes your permits dated
July 14, 2006 and February 18, 2000.

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia
Regulations for the Control and Abatement of Air Pollution,

Columbia Gas Transmission L.L.C.
1700 MacCorkle Avenue, SE
Charleston, WV 25314
Registration No.: 72265

is authorized to modify and operate

A natural gas transmission compressor station

located at

Loudoun Compressor Station
40800 Compressor Lane
Leesburg, Virginia 22075

in accordance with the Conditions of this permit.

Approved on September 24, 2009.

Thomas A. Faha
Regional Director

Permit consists of 14 pages.
Permit Conditions 1 to 32.

INTRODUCTION

This permit approval is based on the permitting request dated August 6, 2009, with supplemental information dated August 19, 2009 and August 28, 2009. Additional correspondence regarding this facility includes the following:

- Permit application dated May 25, 2006. (Permit issued 7/14/06)
- Permit applications dated August 9, 1999. (Permits issued 2/18/00)
- Permit application dated May 13, 1994. (Permit issued 7/31/94)
- Permit application dated November 22, 1989. (Permit issued 8/21/90)

Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action.

Words or terms used in this permit shall have meanings as provided in 9 VAC 5-80-1110 (definitions) and 9 VAC 5-10-20 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

PROCESS REQUIREMENTS

1. **Equipment List** - Equipment at this facility consists of the following:

Equipment permitted prior to the date of this permit				
Reference No.	Equipment Description	Rated Capacity	Add-On Control	Federal Requirements
06001	Solar Saturn T - 1300	21.2 MMBtu/hr ¹	N/A	NSPS Subpart GG
06002	Solar Saturn T - 1300	21.2 MMBtu/hr ¹	N/A	NSPS Subpart GG
06003	Solar Saturn T - 1300	21.2 MMBtu/hr ¹	N/A	NSPS Subpart GG
06004	Solar Saturn T - 1300	21.2 MMBtu/hr ¹	N/A	NSPS Subpart GG
06005	Solar Saturn T - 1300	21.2 MMBtu/hr ¹	N/A	NSPS Subpart GG
06006	Solar Saturn T - 1300	21.2 MMBtu/hr ¹	N/A	NSPS Subpart GG
06007	Solar Saturn T - 1300	21.2 MMBtu/hr ¹	N/A	NSPS Subpart GG
06008	Solar Saturn T - 1300	21.2 MMBtu/hr ¹	N/A	NSPS Subpart GG
06009	Solar Centaur T - 4500	58.4 MMBtu/hr ²	N/A	NSPS Subpart GG
060G1	Waukesha – Model F11GSI, natural gas fired emergency engine-generator set	221 hp	N/A	MACT Subpart ZZZZ

1 The listed rating of the Solar Saturn T-1300 turbines is the rating based on the higher heating value (HHV) heat rate of the fuel and maximum horsepower obtained while operating during periods of low ambient temperatures. The rating of each Solar Saturn T-1300 turbine based on the lower heating value (LHV) heat rate of the fuel at ISO standard conditions (288 °Kelvin, 60 percent relative humidity, and 101.3 kilopascals pressure) is 14.46 MMBtu/hr.

2 The listed rating of the Solar Centaur T-4500 turbine is the rating based on the higher heating value (HHV) heat rate of the fuel and maximum horsepower obtained while operating during periods of low ambient temperatures. The rating of the Solar Centaur T-4500 turbine based on LHV heat rate of the fuel at ISO standard conditions (288 °Kelvin, 60 percent relative humidity, and 101.3 kilopascals pressure) is 39.72 MMBtu/hr.

Equipment Exempt from Permitting				
Reference No.	Equipment Description	Rated Capacity	Exemption Citation	Exemption Date
BLR2	Boiler # 2 Heating steam boiler	1 MMBtu/hr	9 VAC 5-80-1320 B.1.d	1997
A01	Lube Oil Tank	1,000 gallons	9 VAC 5-80-1320	1991
A02	Waste water Mixture Tank # 1	1,000 gallons	9 VAC 5-80-1320	1991
A03	Used Oil Tank	1,000 gallons	9 VAC 5-80-1320	2000
A04	Pipeline Liquids (condensate) Tank	1,000 gallons	9 VAC 5-80-1320	2000
BO1	Waste Mixture Tank # 2 (Wastewater)	1,000 gallons	9 VAC 5-80-1320	1992
HTR1	Space Heater # 1	0.2 MMBtu/hr	9 VAC 5-80-1320 B.1.d	2006
HTR2	Space Heater # 2	0.2 MMBtu/hr	9 VAC 5-80-1320 B.1.d	2006

Specifications included in the permit under this Condition 1 are for informational purposes only and do not form enforceable terms or conditions of the permit unless the specifications are needed to form the basis for one or more of the other terms or conditions in the permit.
(9 VAC 80-1180 D 3)

2. **Emission Controls: Saturn Turbines T-1300 & T-4500** - NO_x, CO, and VOC emissions from the turbines (Ref No. 06001 through 06009) shall be controlled by equipment design and operation. The turbines shall be provided with adequate access for inspection.
(9 VAC 5-80-1180)
3. **Emission Controls: Engine-generator** - The NO_x emissions from the engine (Ref No. 060G1) shall be controlled by maintaining and operating the engine under a "best power" air to fuel (A/F) ratio setting. A "best power" A/F ratio setting for the engine shall be defined as proper adjustment of the engine mounted gas regulator, while under full load operation, such that a pressure differential of 10 to 12 inches of water is observed between the carburetor fuel inlet pipe and the carburetor air horn. The "best power" operation of the engine shall be maintained by periodic A/F ratio adjustment of the gas regulator at a frequency of no less than once every spring.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

OPERATING LIMITATIONS

4. **Operating Hours: Turbines** - Each turbine (Ref No. 06001 through 06009) shall not operate more than 7,000 hours per year, calculated monthly as the sum of each consecutive twelve month period. See Condition 22.k for method of determining compliance with this requirement.
(9 VAC 5-80-1180)
5. **Operating Hours: Engine-generator** - The engine-generator (Ref No. 060G1) shall not operate more than 1000 hours per year, calculated as the sum of each consecutive twelve month period. See Condition 22.k for method of determining compliance with this requirement.
(9 VAC 5-170-160)
6. **Operating Scenario for Engine-generator (Ref No. 060G1) -**
 - a. **Emergency / Critical Power Generation:**
 - i. **Emergency:** The engine-generator (Ref No. 060G1) may be operated in emergency situations where immediate action on the part of the facility is

needed due to a failure or loss of electrical power service resulting from a failure of the primary power provider and the failure or loss of power service is beyond the reasonable control of the facility. Operation under these circumstances shall be allowed for the period of time the primary electrical power provider service is unavailable. Once primary electrical power provider service is available the engine-generator (Ref No. 060G1) may be operated in accordance with Critical Power Generation as defined below.

- ii. ISO-Declared Emergency: The engine-generator (Ref No. 060G1) may be operated for participation in an Independent System Operator's (ISO) Emergency Load Response Program (ELRP) during times of an ISO-declared emergency, as defined in the ISO's emergency operations manual. Operations under this scenario shall not exceed 60 hours per generator each calendar year.
 - iii. Critical Power Generation: The engine-generator (Ref No. 060G1) may be operated in situations where immediate action on the part of the facility is needed due to a loss or anticipated loss of acceptable electrical power service from the primary provider and the loss or anticipated loss of power service is beyond the reasonable control of the facility. Operation under these circumstances shall be allowed until such time as acceptable power provider service is restored or the loss of acceptable power provider service is no longer reasonably anticipated.
- b. The engine-generator (Ref No. 060G1) may also be operated for periodic maintenance, testing, and operational training.
 - c. Except as provided in Conditions 6.a and 6.b, a change in the method of operation may require a permit to modify and operate.
 - d. Total emissions for any twelve month period, calculated as the sum of all emissions from operations under scenarios 6.a and 6.b above, shall not exceed the limits stated in Condition 15.
(9 VAC 5-80-1180 D)
7. **Fuel** - The approved fuel for the turbines (Ref No. 06001 through 06009) and the engine-generator (Ref No. 060G1) is natural gas. A change in the fuel may require a permit to modify and operate.
(9 VAC 5-80-1180 and 9 VAC 5-170-160)

8. **Fuel Specifications** - The natural gas shall meet the specifications below:

NATURAL GAS:

Minimum heat content: 950 Btu/cf HHV as determined by ASTM D1826, D2382, or a Department of Environmental Quality (DEQ) approved equivalent method.

Sulfur Content: The maximum sulfur content of the natural gas to be burned in the turbines and the natural gas engine shall not exceed 20 grains per 100 dry standard cubic feet. The annual average sulfur content of the natural gas to be burned in the turbines and the engine shall not exceed 3 grains per 100 dry standard cubic feet per year.

(9 VAC 5-80-1180 and 9 VAC 5-50-260)

9. **Fuel Throughput: Saturn Turbines** - Each Solar Saturn T - 1300 turbines (Ref No. 06001 through 06008) shall consume no more than 101.3×10^6 cubic feet of natural gas per year, calculated monthly as the sum of each consecutive twelve-month period. See Condition 22.k for method of determining compliance with this requirement.
(9 VAC 5-80-1180)
10. **Fuel Throughput: Centaur Turbine** - The Solar Centaur T – 4500 turbine (Ref No. 06009) shall consume no more than 278.4×10^6 cubic feet of natural gas per year, calculated monthly as the sum of each consecutive twelve month period. See Condition 22.k for method of determining compliance with this requirement.
(9 VAC 5-80-1180)
11. **Fuel Throughput: Engine-generator** - The engine-generator (Ref No. 060G1) shall consume no more than 1.91×10^6 cubic feet of natural gas per year, calculated as the sum of each consecutive twelve month period. See Condition 22.k for method of determining compliance with this requirement.
(9 VAC 5-170-160)
12. **Requirements by Reference** - Except where this permit is more restrictive than the applicable requirement, the New Source Performance Standard (NSPS) equipment (Ref No. 06001 through 06009) as described in Condition 1 shall be operated in compliance with the requirements of 40 CFR 60, Subpart GG.
(9 VAC 5-80-1180, 9 VAC 5-50-400 and 9 VAC 5-50-410)

EMISSION LIMITS

13. **Process Emission Limits: Saturn Turbines** - Emissions from the operation of each of the Solar Saturn T - 1300 turbines (Ref No. 06001 through 06008) shall not exceed the limits specified below:

Sulfur Dioxide	0.2 lbs/hr	0.5 tons/yr
Nitrogen Oxides (as NO ₂)	5.4 lbs/hr 76 ppmvd @ 15% O ₂	15.8 tons/yr
Carbon Monoxide	7.6 lbs/hr	22.5 tons/yr
Volatile Organic Compounds	0.3 lbs/hr	0.9 tons/yr

These emissions are derived from the actual turbine energy output in hp-hrs and DEQ approved pollutant-specific emission factors and equations. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition 9.

(9 VAC 5-80-1180 and 9 VAC 5-50-260)

14. **Process Emission Limits: Centaur Turbine** - Emissions from the operation of the Solar Centaur T - 4500 turbine (Ref No. 06009) shall not exceed the limits specified below:

Sulfur Dioxide	0.5 lbs/hr	1.2 tons/yr
Nitrogen Oxides (as NO ₂)	26.2 lbs/hr 142 ppmvd @ 15% O ₂	78.4 tons/yr
Carbon Monoxide	4.7lbs/hr	14.0 tons/yr
Volatile Organic Compounds	0.2 lbs/hr	0.5 tons/yr

These emissions are derived from the actual turbine energy output in hp-hrs and DEQ approved pollutant-specific emission factors and equations. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition 10.

(9 VAC 5-80-1180 and 9 VAC 5-50-260)

15. **Process Emission Limits: Engine-generator** - Emissions from the operation of the engine-generator (Ref No. 060G1) shall not exceed the limits specified below:

Nitrogen Oxides (as NO ₂)	3.9 lbs/hr	2.0 tons/yr
Carbon Monoxide	14.9 lbs/hr	7.5 tons/yr

Annual emissions shall be calculated monthly as the sum of each consecutive twelve month period using actual engine energy output in hp-hrs (derived from hours of operation at maximum rated horsepower) and DEQ approved pollutant-specific emission factors and equations.
(9 VAC 5-50-260)

16. **Visible Emission Limit: Turbines** - Visible emissions from the each turbine stack shall not exceed five percent opacity as determined by the EPA Method 9 (Reference 40 CFR 60, Appendix A).
(9 VAC 5-80-1180, 9 VAC 5-50-260)
17. **Visible Emission Limit: Engine-generator** - Visible emissions from the engine-generator shall not exceed five percent opacity as determined by EPA Method 9 (Reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown and malfunction.
(9 VAC 5-170-160 and 9 VAC 5-50-20)

CONTINUING COMPLIANCE DETERMINATION

18. **Engine-generator** - A differential pressure gage with the appropriate fittings to connect between the engine's carburetor fuel inlet pipe and the carburetor air horn shall be kept onsite at all times.
(9 VAC 5-50-30)
19. **Stack Tests** - Upon request by the DEQ, the permittee shall conduct performance tests to demonstrate compliance with the emission limits contained in this permit. The details of the tests shall be arranged with the Regional Air Compliance Manager of the DEQ's Northern Regional Office (NRO) at the address referenced in Condition 22.
(9 VAC 5-80-1200 and 9 VAC 5-50-30 G)
20. **Visible Emissions Evaluation** - Upon request by the DEQ, the permittee shall conduct visible emission evaluations to demonstrate compliance with the visible emission limits contained in this permit. The details of the tests shall be arranged

with the Regional Air Compliance Manager of the DEQ's NRO at the address referenced in Condition 22.
(9 VAC 5-80-1200 and 9 VAC 5-50-30 G)

21. **Testing/Monitoring Ports** - Upon request by the DEQ, the permitted facility shall be modified so as to allow for emissions testing and monitoring upon reasonable notice at any time, using appropriated methods. Test ports shall be provided when requested at the appropriate locations.
(9 VAC 5-50-30 F)

RECORDS

22. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO at the address below:

Regional Air Compliance Manager
Department of Environmental Quality
13901 Crown Court
Woodbridge, Virginia 22193

These records shall include, but are not limited to:

- a. Annual hours of operation of each turbine (Ref No. 06001 through 06009), calculated monthly as the sum of each consecutive twelve month period.
- b. Annual consumption of natural gas for each turbine (Ref No. 06001 through 06009), calculated monthly as the sum of each consecutive twelve month period.
- c. The annual energy output for each turbine (Ref No. 06001 through 06009) in Hp-hrs, calculated monthly as the sum of each consecutive twelve-month period.
- d. Annual hours of operation of the emergency engine-generator (Ref No. 060G1), calculated monthly as the sum of each consecutive twelve month period.
- e. Annual consumption of natural gas for the emergency engine-generator (Ref No. 060G1), calculated monthly as the sum of each consecutive twelve month period.
- f. Monthly emissions calculations, including equations and emission factors, using calculation methods approved by the Regional Air Compliance Manager of the DEQ's NRO to verify compliance with the emissions limitations in Condition numbers 13, 14, and 15.

- g. Written operating procedures for maintaining the engine at a "best power" A/F ratio setting. Operators shall be trained in the proper operation of all such equipment and shall be familiar with the written operating procedures.
- h. A log of the periodic A/F ratio adjustments and differential pressure readings to demonstrate compliance with Condition 3 of this permit.
- i. One of the following sources of information to demonstrate compliance with the natural gas sulfur content limit:
 - (1) a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying the maximum total sulfur content of the fuel; or
 - (2) Representative fuel sampling data which show the sulfur content of the gaseous fuel.
- j. Scheduled and unscheduled maintenance and operator training in accordance with Condition 26.
- k. Compliance for the consecutive twelve month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding eleven months.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-170-160, 9 VAC 5-80-1180 and 9 VAC 5-50-50)

GENERAL CONDITIONS

23. Certification of Documents

- A. The following documents submitted to the board shall be signed by a responsible official: (i) any emission statement, application, form, report, or compliance certification; (ii) any document required to be signed by any provision of the regulations of the board; or (iii) any other document containing emissions data or compliance information the owner wishes the board to consider in the administration of its air quality programs. A responsible official is defined as follows:
 - 1. For a business entity, such as a corporation, association or cooperative, a responsible official is either:
 - a. The president, secretary, treasurer, or a vice president of the business entity in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the business entity; or

- a. Knowingly makes material misstatements in the permit application or any amendments to it;
- b. Fails to comply with the conditions of this permit;
- c. Fails to comply with any emission standards applicable to a permitted an emissions unit, included in this permit;
- d. Causes emissions from the stationary source which result in violations of , or interfere with the attainment and maintenance of, any ambient air quality standard; or
- e. Fails to operate in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect at the time an application for this permit is submitted.
(9 VAC 5-170-160 and 9 VAC 5-80-1210 F)

25. Right of Entry - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;
- b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
- c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
- d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.
(9 VAC 5-170-160, 9 VAC 5-170-130 and 9 VAC 5-80-1180)

26. Maintenance/Operating Procedures – At all times, including periods of start-up, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate the affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to the turbines (Ref No. 06001 through 06009) and the emergency engine-generator (Ref No. 060G1).

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an inventory of spare parts.
- c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.
(9 VAC 5-170-160, 9 VAC 5-50-20 E and 9 VAC 5-80-1180 D)

- 27. Record of Malfunctions** – The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken and name of person generating the record.
(9VAC 5-20-180 J and 9 VAC 5-80-1180 D)

- 28. Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Regional Air Compliance Manager of the DEQ's NRO (at the address referenced in Condition 22) of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile, email, transmission, telephone or telegraph. Such notification shall be made as soon as practicable but no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within two weeks of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Regional Air Compliance Manager of the DEQ's NRO.
(9 VAC 5-20-180 C and 9 VAC 5-80-1180)

- 29. Notification for Control Equipment Maintenance** - The permittee shall furnish notification to the Air Compliance Manager of the DEQ's NRO (at the address referenced in Condition 22) of the intention to shut down or bypass, or both, air pollution control equipment for necessary scheduled maintenance, which results in excess emissions for more than one hour, at least twenty-four hours prior to the shutdown. The notification shall include, but is not limited to, the following information:
- a. Identification of the air pollution control equipment to be taken out of service, as well as its location, and registration number;
 - b. The expected length of time that the air pollution control equipment will be out of service;
 - c. The nature and quantity of emissions of air pollutants likely to occur during the shutdown period;
 - d. Measures that will be taken to minimize the length of the shutdown or to negate the effect of the outage.
(9 VAC 5-20-180 B)
- 30. Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.
(9 VAC 5-20-180 I and 9 VAC 5-80-1180)
- 31. Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Regional Air Compliance Manager of the DEQ's NRO at the address referenced in Condition 22 of the change of ownership within thirty days of the transfer.
(9 VAC 5-170-160 and 9 VAC 5-80-1240)
- 32. Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.
(9 VAC 5-170-160 and 9 VAC 5-80-1180)