



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### PIEDMONT REGIONAL OFFICE

4949-A Cox Road, Glen Allen, Virginia 23060

(804) 527-5020 Fax (804) 527-5106

[www.deq.virginia.gov](http://www.deq.virginia.gov)

Matthew J. Strickler  
Secretary of Natural Resources

David K. Paylor  
Director

James J. Golden  
Regional Director

DRAFT, 2018

Ms. Leslie Hartz  
VP Pipeline Construction  
Atlantic Coast Pipeline, LLC  
707 E. Main Street  
Richmond, VA 23219

Location: Buckingham County  
Registration No.: 21599

Dear Ms. Hartz:

Attached is a permit to construct and operate a natural gas compressor station in accordance with the provisions of the Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution.

In the course of evaluating the application and arriving at a final decision to approve the project, the Department of Environmental Quality (DEQ) deemed the application complete on July 13, 2018 and solicited written public comments by placing a newspaper advertisement in the Farmville Herald on August 8, 2018. A public hearing was held on September 11, 2018. The required comment period, provided by 9VAC 5-80-1170 D expired on September 11, 2018.

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

This permit approval to construct and operate shall not relieve Atlantic Coast Pipeline, LLC of the responsibility to comply with all other local, state, and federal permit regulations.

Certain emission units authorized by this permit are subject to 40 CFR 60, New Source Performance Standard (NSPS), Subparts Dc and KKKK. Virginia has accepted delegation of these rules. In summary, the unit is required to comply with certain federal emission standards and operating limitations. The Department of Environmental Quality (DEQ) advises you to review the referenced NSPS to ensure compliance with applicable emission and operational limitations. As the owner/operator you are also responsible for any monitoring, notification, reporting and recordkeeping requirements of the NSPS. Notifications shall be sent to both EPA, Region III and Virginia DEQ.

The facility has certain emission units that appear to be subject to the following regulations: 40 CFR 60, Subparts JJJJ and OOOOa and 40 CFR 63, Subpart ZZZZ. Virginia has not accepted delegation of these federal regulations from EPA. DEQ advises you to review these regulations to ensure compliance with applicable emission and operational limitations. As the owner/operator, you are responsible for complying with the monitoring, notification, reporting, and recordkeeping requirements of these regulations. Notifications shall be sent to EPA, Region III.

To review any federal rules referenced in the above paragraph or in the attached permit, the US Government Publishing Office maintains the text of these rules at [www.ecfr.gov](http://www.ecfr.gov), Title 40, Part 60 or Part 63, as applicable.

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 30 days after this case decision notice was mailed or delivered to you. 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 30 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

If this permit was delivered to you by mail, three days are added to the thirty-day 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.

A copy of the results of performance test(s) required by 40 CFR 60, Subpart KKKK to be sent to:

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

If you have any questions concerning this permit, please contact the regional office at (804)527-5020.

Sincerely,

James E. Kyle, P.E.  
Air Permits Manager

CLM/21599-1

Attachments: Permit  
Source Testing Report Format

cc: Manager, Air Compliance



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## **STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE**

**This permit includes designated equipment subject to  
New Source Performance Standards (NSPS).**

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

Atlantic Coast Pipeline, LLC  
707 E. Main Street  
Richmond, VA 23219  
Registration No.: 21599

is authorized to construct and operate

a natural gas compressor station

located at

5297 S James River Hwy  
Wingina, VA 24599

in accordance with the Conditions of this permit.

Approved on DRAFT, 2018.

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James E. Kyle, P.E.  
Air Permit Manager

Permit consists of 21 pages.  
Permit Conditions 1 to 51

**INTRODUCTION**

This permit approval is based on the permit application dated May 25, 2018, including supplemental information dated June 29, 2018, July 3, 2018, July 10, 2018, and July 13, 2018. 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. In addition, this facility may be subject to additional applicable requirements not listed in this permit.

Words or terms used in this permit shall have meanings as provided in 9VAC 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 9VAC 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.

**Equipment List** – Equipment at this facility consists of:

Equipment to be Constructed:

Ref. No.	Equipment Description	Rated Capacity	Delegated Federal Requirements
CT-01	Solar Mars Compressor turbine Model 100-16000 S	15,900 hp*	40 CFR 60, Subpart KKKK
CT-02	Solar Taurus Compressor turbine Model 70-10802 S	11,107 hp*	40 CFR 60, Subpart KKKK
CT-03	Solar Titan Compressor turbine Model 130-20502 S	20,500 hp*	40 CFR 60, Subpart KKKK
CT-04	Solar Centaur Compressor turbine Model 50-6200 LS	6,276 hp*	40 CFR 60, Subpart KKKK
EG-01	Caterpillar Emergency Engine G3516C	2,175 bhp	
FUG-01	Fugitive natural gas leaks from fugitive emission components	N/A	
VENT-01	Natural gas venting from the facility including compressor turbine start-up and shutdowns, emergency shutdown (ESD) testing, pig launching and receiving events	N/A	

\*Based on ISO conditions and fuel lower heating value (LHV)

Specifications included in the above tables are for informational purposes only and do not form enforceable terms or conditions of the permit.

## PROCESS REQUIREMENTS

1. **Emission Controls** – Nitrogen oxides (NO<sub>x</sub>) emissions from the compressor turbines (CT-01 – CT-04) shall be controlled by dry low NO<sub>x</sub> (SoLoNO<sub>x</sub>) combustion control technology and selective catalytic reduction (SCR). The SoLoNO<sub>x</sub> technology shall be in operation at all times the respective compressor turbine is operating except during start-up and shutdown. When a compressor turbine's inlet air temperature is less than 0°F, the SoLoNO<sub>x</sub> technology must be operated to maximum extent possible, following the manufacturer's written protocol or best engineering practices for minimizing emissions. Each compressor turbine shall be equipped with Cold Weather Control Logic to minimize emissions when inlet air temperature is less than 0°F and shall be in operation when the respective compressor turbine is operating. Each SCR shall be in operation at all times the respective compressor turbine is operating, except during start-up and shutdown where operation shall be as described in Condition 4.e .  
(9VAC 5-80-1180 and 9VAC 5-50-260)
2. **Emission Controls** – Carbon Monoxide (CO) and Volatile Organic Compound (VOC) emissions from the compressor turbines (CT-01 – CT-04) shall be controlled by an oxidation catalyst system. Each oxidation catalyst system shall be provided with adequate access for inspection and shall be in operation at all times the respective compressor turbine is operating, except during each unit start-up. An oxidation catalyst system shall be considered in operation when the catalyst bed inlet gas temperature is above 490°F.  
(9VAC 5-80-1180 and 9VAC 5-50-260)
3. **Emission Controls** – Particulate emissions (PM, PM<sub>10</sub>, PM<sub>2.5</sub>) from the compressor turbines (CT-01 – CT-04) shall be controlled by inlet air filtering. Each filter shall be provided with adequate access for inspection and shall be in operation at all times the respective compressor turbine is operating.  
(9VAC 5-80-1180 and 9VAC 5-50-260)
4. **Emission Controls** – The permittee shall operate and maintain each compressor turbine, all air pollution control equipment, and all monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times, including during start-up, shutdown, and malfunction.
  - a. For the purpose of this permit, start-up is defined as the period beginning with the first fuel fed to the compressor turbine and ending when the compressor turbine reaches 50% load.
  - b. For the purpose of this permit, shutdown is defined as the period beginning when the compressor turbine drops below 50% load for the purpose of ceasing operation and ends when fuel feeding stops.
  - c. For the purpose of this permit, an oxidation catalyst system shall be considered in operation when the catalyst bed inlet gas temperature is above 490°F.

- d. The oxidation catalyst system shall be in operation during the shutdown of the respective compressor turbine.
- e. During start-up and shutdown, the compressor turbine SCR system (including ammonia injection) and oxidation catalyst system shall be operated in a manner to minimize emissions following the manufacturer's written protocol or best engineering practices for minimizing emissions. Written documentation shall be maintained explaining the sufficiency of the practices. If such practices are used in lieu of the manufacturer's protocol, the documentation shall justify why the practices are at least equivalent to manufacturer's protocols with respect to minimizing emissions.
- f. Annual time in start-up of each compressor turbine shall not exceed 16.7 hours per year. Annual hours of start-up shall be calculated as the sum of each consecutive 12-month period. Compliance for the consecutive 12-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 11 months.
- g. Annual time in shutdown of each compressor turbine shall not exceed 16.7 hours per year. Annual hours of shutdown shall be calculated as the sum of each consecutive 12-month period. Compliance for the consecutive 12-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 11 months.
- h. Each compressor turbine shall operate in "minimum pilot mode" at all times except for start-up, shutdown, and when a compressor turbine's inlet air temperature is less than 0°F. Operation not in "minimum pilot mode" shall not exceed an annual total of 38.4 hours per compressor turbine, calculated as the sum of each consecutive 12-month period. Compliance for the consecutive 12-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 11 months.

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

- 5. **Emission Controls** – Emissions from the emergency engine (EG-01) shall be controlled by proper engine operation in accordance with the manufacturer's written instructions, or procedures developed by the permittee that are approved by the manufacturer, over the entire life of the engine. In addition, the permittee may only change those settings that are approved by the manufacturer in a manner consistent with good air pollution control practices for minimizing emissions.  
(9VAC 5-80-1180 and 9VAC 5-50-260)
- 6. **Emission Controls** – The permittee shall implement the following work practices to reduce emissions from venting of natural gas from the facility.

- a. Except to achieve the start-up or shutdown of a compressor turbine, the permittee shall not purposefully vent gases from piping at the facility except between the hours of 9:00 AM and 3:00 PM.
- b. Emissions from each emergency shutdown (ESD) test shall be controlled by installation of a block valve directly following each ESD blowdown valve. The block valve shall be closed prior to initiating any ESD test and shall be opened only after the ESD blowdown valve has closed.
- c. Pig launching and recovery events shall be limited to fifteen events per 12-month period, each. Emissions from these events shall be limited to the gas contained in the pig launching or recovery chambers. The permittee shall have available written operating procedures to minimize emissions from pig launching and recovery. Compliance for the consecutive 12-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 11 months.
- d. Except as provided in Condition 6.g, the permittee shall control emissions from the shutdown of each compressor turbine by maintaining pressurized hold for the compressor turbine. Pressurized hold shall be achieved by maintaining sufficient differential pressure between the seal gas and compressor turbine case such that the dry seal maintains integrity for the entire duration of the shutdown. Sufficient differential pressure shall be determined for each compressor turbine during the tests required in Condition 34.
- e. The permittee shall install a vent gas reduction system (VGRS) to ensure the sufficient differential pressure required in Condition 6.d is maintained. The VGRS shall be provided with adequate access for inspection and shall be in operation as necessary to ensure sufficient differential pressure between the seal gas and compressor turbine case such that the dry seal is maintained for the respective compressor turbine in compliance with Condition 6.g.
- f. The permittee shall continuously monitor and record the seal gas pressure and compressor turbine case pressure for each compressor turbine.
- g. For each compressor turbine, the permittee shall vent gas from no more than ten start-ups and ten shutdowns per year, calculated monthly as the sum of each consecutive 12-month period. A compressor turbine may not vent gas unless the compressor turbine case pressure is less than or equal to 44.7 psia. The permittee shall ensure isolation valves are closed and record the compressor turbine case pressure at the beginning of each compressor turbine shutdown venting event. The permittee shall minimize the amount of time for each compressor turbine start-up purge.

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

7. **Emission Controls** – The permittee shall implement the following work practices to reduce emissions from leaks of natural gas from the facility.

- a. The permittee shall develop, maintain, and implement a fugitive emission component monitoring and repair plan. In developing this plan, the definition of “fugitive emissions component” shall be the same as contained in 40 CFR 60.5430a. This plan shall consist of a daily auditory/visual/olfactory (AVO) inspection program for all fugitive emissions components. The plan shall also consist of a quarterly leak detection survey. A leaking fugitive emissions component for the purpose of the quarterly survey shall be an instrument reading of 500 ppm or more using Method 21 or an optical gas imaging camera. The instrument utilized must be maintained, calibrated, and operated in accordance with Method 21 and the manufacturer’s specifications. The initial survey shall be conducted no later than 60 days after the facility start-up with subsequent surveys conducted no less frequently than every calendar quarter. Consecutive surveys shall be no less than 60 days apart.
- b. The first attempt to repair any fugitive emissions component found to be leaking during an AVO inspection or a quarterly survey shall be made as soon as practicable but no later than 5 days after discovery. The leaking fugitive emissions component shall be repaired within 15 days of discovery. The permittee shall maintain a list of difficult to repair fugitive emissions components, which when leaking, the repair requires facility shutdown or cannot otherwise be completed within 15 days of discovery; documentation justifying the inclusion of a fugitive emissions component on the list shall be included. If a leak is found that will emit more natural gas than the required shutdown, the shutdown shall occur and the leak be repaired. Records of the daily AVO inspection results, repair attempts, and the list of long-term leaking fugitive emissions components and reason for each delay shall be maintained on site.
- c. The monitoring plan shall be submitted to the Piedmont Regional Office for review no later than 60 days prior to start-up of the facility.
- d. The fugitive emissions components on the VGRS shall be part of the daily AVO and quarterly leak detection survey.

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

8. **Monitoring Devices** – Each compressor turbine (CT-01 – CT-04) shall be equipped with devices to continuously measure and record compressor turbine inlet air temperature, compressor turbine load, and pilot operating mode. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures that shall include, as a minimum, the manufacturer’s written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the compressor turbine is operating.

(9VAC 50-80-1180 and 9VAC 5-50-20 C)

9. **Monitoring Devices** – Each SCR system shall be equipped with devices to continuously measure and record ammonia injection rate, catalyst bed differential pressure, and catalyst bed inlet gas temperature. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures that shall include, as a minimum, the manufacturer’s written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the SCR system is operating.

(9VAC 50-80-1180 and 9VAC 5-50-20 C)

10. **Monitoring Devices** – Each compressor turbine shall be equipped with devices to continuously measure and record the seal gas pressure and the compressor turbine case pressure. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures that shall include, as a minimum, the manufacturer’s written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation at all times.  
(9VAC 50-80-1180 and 9VAC 5-50-20 C)
11. **Monitoring Devices** – Each oxidation catalyst system shall be equipped with a device to continuously measure and record the gas temperature at the catalyst bed inlet and the catalyst bed differential pressure. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures that shall include, at a minimum, the manufacturer’s written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the oxidation catalyst system is operating.  
(9VAC 5-80-1180 and 9VAC 5-50-20 C)
12. **Monitoring Device** – The emergency engine (EG-01) shall be equipped with a non-resettable hour meter to continuously measure hours of operation. The monitoring device shall be installed, maintained, calibrated, and operated in accordance with approved procedures, which shall include, as a minimum, the manufacturer’s written requirements or recommendations. The monitoring device shall be provided with adequate access for inspection and shall be in operation when the emergency engine is operating.  
(9VAC 5-80-1180 and 9VAC 5-50-20 C)
13. **Monitoring Plan** – The permittee shall develop and operate in accordance with an approved monitoring plan for the monitoring devices identified in Conditions 8, 9, and 11. The plan shall include ranges for each parameter. The range values shall be established during the initial performance tests required in Condition 29 and revalidated during the subsequent performance tests required in Condition 31. Ranges shall be 3-hour rolling averages. The monitoring plan shall be submitted to the Piedmont Regional Office with the test results as required in Condition 29.  
(9VAC 5-80-1180 and 9VAC 5-50-20 C)

## **OPERATING LIMITATIONS**

14. **Fuel** – The approved fuel for the four compressor turbines (CT-01, CT-02, CT-03, and CT-04) and emergency engine (EG-01) is pipeline natural gas. A change in the fuel shall be considered a change in the method of operation of the four compressor turbines (CT-01, CT-02, CT-03, and CT-04) and emergency engine (EG-01) and may require a new or amended permit.  
(9VAC 5-80-1180)
15. **Fuel** – The pipeline natural gas shall not exceed a sulfur content of 1.1 grains of sulfur per 100 standard cubic feet at any time.  
(9VAC 5-80-1180)

16. **Fuel Monitoring** – The permittee shall use the fuel quality characteristics in a current, valid purchase contract, tariff sheet, or transportation contract for the fuel, specifying that the maximum total sulfur content for the natural gas being fired at the natural gas compressor station facility is 1.1 grains of sulfur or less per 100 standard cubic feet. In the alternative, the permittee may perform annual fuel analysis of on-site natural gas. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office no later than 60 days after test completion and shall conform to the test report format enclosed with this permit. (9VAC 5-80-1180 and 9VAC 5-50-410)
  
17. **Operating Hours** – The emergency engine (EG-01) shall be operated for the purposes of maintenance, testing, and emergencies (as defined in 9VAC5-80-1110C) only. The emergency engine (EG-01) shall not operate more than 500 hours per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-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 11 months. (9VAC 5-80-1180 and 9VAC 5-50-260)
  
18. **Requirements by Reference** – Except where this permit is more restrictive than the applicable requirement, the compressor turbines (CT-01 through CT-04) as described in the Introduction shall be operated in compliance with the requirements of 40 CFR 60, Subpart KKKK. (9VAC 5-80-1180, 9VAC 5-50-400 and 9VAC 5-50-410)

**EMISSION LIMITS**

19. **Emission Limits** – Emissions from the operation of the emergency engine (EG-01) shall not exceed the limits specified below:

Nitrogen Oxides (as NO <sub>2</sub> )	2.0 g/hp-hr	0.60 tons/yr
Carbon Monoxide	4.0 g/hp-hr	2.40 tons/yr
Volatile Organic Compounds	1.0 g/hp-hr	0.60 tons/yr

These emissions are derived from the estimated overall emission contribution from operating limits. 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 Conditions 5, 17, 30, and 32 .  
 (9VAC 5-80-1180 and 9VAC 5-50-260)

20. **Emission Limits** – Emissions from the operation of the Mars compressor turbine (CT-01) shall not exceed the limits specified below:

Nitrogen Oxides (as NO <sub>2</sub> )	3.75 ppm@15% O <sub>2</sub> *	9.09 lb/hr**	8.62 tons/yr
Carbon Monoxide	2.00 ppm@15% O <sub>2</sub> *	2.53 lb/hr**	5.39 tons/yr

Volatile Organic Compounds	1.25 ppm@15% O <sub>2</sub> *	0.46 lb/hr**	1.31 tons/yr
PM		0.83 lb/hr**	3.59 tons/yr
PM10		2.86 lb/hr**	12.45 tons/yr
PM2.5		2.86 lb/hr**	12.45 tons/yr
Sulfur Dioxide		0.49 lb/hr**	2.12 tons/yr

\* Limit does not apply during periods of start-up, shutdown, or when ambient temperatures are below 0°F. Limits are a 3-hour average.

\*\* Limit does not apply during periods of start-up and shutdown. Limits are a 3-hour average.

These emissions are derived from the estimated overall emission contribution from operating limits. 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 Conditions 1, 2, 4, 13, 29, and 31.  
 (9VAC 5-80-1180 and 9VAC 5-50-260)

21. **Emission Limits** – Emissions from the operation of the Taurus compressor turbine (CT-02) shall not exceed the limits specified below:

Nitrogen Oxides (as NO <sub>2</sub> )	3.75 ppm@15% O <sub>2</sub> *	6.01 lb/hr**	5.73 tons/yr
Carbon Monoxide	2.00 ppm@15% O <sub>2</sub> *	1.67 lb/hr**	6.47tons/yr
Volatile Organic Compounds	1.25 ppm@15% O <sub>2</sub> *	0.30 lb/hr**	1.75 tons/yr
PM		0.56 lb/hr**	2.37 tons/yr
PM10		1.92 lb/hr**	8.22 tons/yr
PM2.5		1.92 lb/hr**	8.22 tons/yr
Sulfur Dioxide		0.33 lb/hr**	1.40 tons/yr

\* Limit does not apply during periods of start-up, shutdown, or when ambient temperatures are below 0°F. Limits are a 3-hour average.

\*\* Limit does not apply during periods of start-up and shutdown. Limits are a 3-hour average.

These emissions are derived from the estimated overall emission contribution from operating limits. 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 Conditions 1, 2, 4, 13, 29, and 31.

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

22. **Emission Limits** – Emissions from the operation of the Titan compressor turbine (CT-03) shall not exceed the limits specified below:

Nitrogen Oxides (as NO <sub>2</sub> )	3.75 ppm@15% O <sub>2</sub> *	11.03 lb/hr**	10.48 tons/yr
Carbon Monoxide	2.00 ppm@15% O <sub>2</sub> *	3.07 lb/hr**	6.46 tons/yr
Volatile Organic Compounds	1.25 ppm@15% O <sub>2</sub> *	0.55 lb/hr**	1.77 tons/yr
PM		1.0 lb/hr**	4.35 tons/yr
PM10		3.47 lb/hr**	15.10 tons/yr
PM2.5		3.47 lb/hr**	15.10 tons/yr
Sulfur Dioxide		0.59 lb/hr**	2.57 tons/yr

\* Limit does not apply during periods of start-up, shutdown, or when ambient temperatures are below 0°F. Limits are a 3-hour average.

\*\* Limit does not apply during periods of start-up and shutdown. Limits are a 3-hour average.

These emissions are derived from the estimated overall emission contribution from operating limits. 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 Conditions 1, 2, 4, 13, 29, and 31.

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

23. **Emission Limits** – Emissions from the operation of the Centaur compressor turbine (CT-04) shall not exceed the limits specified below:

Nitrogen Oxides (as NO <sub>2</sub> )	3.75 ppm@15% O <sub>2</sub> *	3.86 lb/hr**	3.68 tons/yr
Carbon Monoxide	2.00 ppm@15% O <sub>2</sub> *	1.07 lb/hr**	2.37 tons/yr
Volatile Organic Compounds	1.25 ppm@15% O <sub>2</sub> *	0.20 lb/hr**	0.69 tons/yr
PM		0.35 lb/hr**	1.52 tons/yr
PM10		1.20 lb/hr**	5.28 tons/yr
PM2.5		1.20 lb/hr**	5.28 tons/yr
Sulfur Dioxide		0.21 lb/hr**	0.90 tons/yr

\* Limit does not apply during periods of start-up, shutdown, or when ambient temperatures are below 0°F. Limits are a 3-hour average.

\*\* Limit does not apply during periods of start-up and shutdown. Limits are a 3-hour average.

These emissions are derived from the estimated overall emission contribution from operating limits. 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 Conditions 1, 2, 4, 13, 29, and 31.  
(9VAC 5-80-1180 and 9VAC 5-50-260)

24. **Emission Limits** – Volatile organic compounds emissions shall not exceed the limits specified below:

Fugitive Emissions Components	0.91 tons/yr
Pig Receiving	0.32 tons/yr
Pig Launching	0.31 tons/yr
Combined Compressor Turbine Venting (Start-up and Shutdown)	0.26 tons/yr

These emissions are derived from the estimated overall emission contribution from operating limits. 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 Conditions 6, 7, and 35.  
(9VAC 5-80-1180)

25. **Visible Emission Limit** – Visible emissions from the each compressor turbine (CT-01 – CT-04) shall not exceed 5% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).  
(9VAC 5-80-1180 and 9VAC 5-50-260)
26. **Visible Emission Limit** – Visible emissions from the emergency engine (EG-01) shall not exceed 5% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).  
(9VAC 5-80-1180 and 9VAC 5-50-260)
27. **Visible Emission Limit** – Visible emission observations from compressor turbines (CT-01, CT-02, CT-03, and CT-04) shall be conducted at least once a week. If visible emissions are observed, the permittee shall take timely corrective action such that the equipment resumes operation with no visible emissions or perform a visible emission evaluation (VEE) in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions from the emission unit is less than five (5) percent opacity. A record of the date, time, observer, cause and corrective measures taken shall be made. If no visible emissions were observed, a record of the date, time and observer shall be made. These records shall be maintained on site by the permittee for the most recent 5-year period.  
(9VAC 5-80-1180)

## TESTING

28. **Emissions Testing** – The facility shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. Sampling ports, safe sampling platforms, and access shall be provided when requested.  
(9VAC 5-50-30 F and 9VAC 5-80-1180)
29. **Stack Test** – Initial performance tests shall be conducted for NO<sub>x</sub>, CO, VOC, PM<sub>10</sub>, and PM<sub>2.5</sub> from each compressor turbine (CT-01 – CT-04) to determine compliance with the emission limits contained in Conditions 20, 21, 22, and 23. The tests shall be performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30, and the test methods and procedures contained in each applicable section or subpart listed in 40CFR Part 51 Appendix M or 9 VAC 5-50-410. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-50-30 and 9 VAC 5-80-1200)
30. **Stack Test** – Initial performance tests shall be conducted for NO<sub>x</sub>, CO, and VOC from the emergency engine (EG-01) to determine compliance with the emission limits contained in Condition 19. The tests shall be performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30, and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-50-410. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-50-30 and 9 VAC 5-80-1200)
31. **Stack Test** – The permittee shall repeat the performance tests contained in Condition 29 every two years. Subsequent tests shall be performed no later than 26 months after the previous test. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office no later than 60 days after test completion and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-50-30 and 9 VAC 5-80-1200)
32. **Stack Test** – The permittee shall repeat the performance tests contained in Condition 30 every 8,760 hours of operation or 36 months, whichever is earlier. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office no later than 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-50-30 and 9 VAC 5-80-1200)

33. **Visible Emissions Evaluation** – Concurrently with the initial performance tests in Conditions 29 and 30 and subsequent performance tests in Conditions 31 and 32, Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted by the permittee. Each test shall consist of 30 sets of 24 consecutive observations (at 15 second intervals) to yield a six minute average. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. The initial test shall be performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Should conditions prevent concurrent opacity observations, the Piedmont Regional Office shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility and shall conform to the test report format enclosed with this permit.

(9 VAC 5-50-30 and 9 VAC 5-80-1200)

34. **VGRS Evaluation** - The permittee shall ensure proper operation and maintenance of the pressurized hold required in Condition 6.d by performing an evaluation for each compressor turbine by quantitative analysis of leaks during a pressurized hold using Method 21 or an optical gas imaging camera. The seal gas pressure and the compressor turbine case pressure shall be monitored during this evaluation to ensure continued proper operation of the VGRS and shall form acceptable ranges for on-going operation. The initial evaluation shall be performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Subsequent annual evaluations shall be performed, reported, and demonstrate compliance thereafter at a period not to exceed 13 months from the preceding evaluation. The test report shall conform to the test report format enclosed with this permit and shall include the established pressure ranges.

(9 VAC 5-50-30 and 9 VAC 5-80-1200)

## RECORDS AND REPORTING

35. **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 Piedmont Regional Office. These records shall include, but are not limited to:
- a. Monthly and annual consumption of natural gas for each unit at the facility. Annual throughput shall be calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-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 11 months.

- b. Operation and control device monitoring records as required in Conditions 6, 7, 8, 9, 10, 11, 12, and 16.
- c. Records for each event when a compressor turbine does not operate in “minimum pilot mode” shall include event duration, event reason, and annual hours. Annual hours shall be calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-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 11 months.
- d. Records of fuel quality characteristics to demonstrate compliance with Condition 16.
- e. Monthly emissions calculations for NO<sub>x</sub>, CO, VOC, PM<sub>10</sub>, and PM<sub>2.5</sub> from each unit at the facility using calculation methods approved by the Piedmont Regional Office to demonstrate compliance with the annual emission limitations in Conditions 19, 20, 21, 22, 23, and 24.
- f. Scheduled and unscheduled maintenance and operator training.
- g. Records of actual piping pressure prior to venting gas from that section of piping, the clock time for the opening and closing of any vent valve, the amount of gas vented during the event, and any mitigation measures used. These records include the ESD testing, venting of natural gas due to pigging events, compressor turbine start-up purge, and compressor turbine shutdown venting.
- h. Records of the time, date, and duration of each compressor turbine start-up and shutdown event.
- i. Records of the operating time and reason for each operation of the emergency engine (EG-01)
- j. Results of all stack test data, VGRS evaluations, and visible emissions evaluations.

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

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

36. **Reporting** - The permittee shall submit a certification of compliance with all terms and conditions of this permit, including emission limitation standards or work practices, as well as any other applicable requirement to DEQ no later than March 1 and September 1 of each calendar year. This report must be signed by a responsible official, consistent with 9VAC5-20-220. The time periods to be addressed are January 1 to June 30 and July 1 to December 31. Each report shall include the following information:
- a. Exceedances of emissions limitations or operational restrictions;
  - b. Excursions from control device operating parameter requirements, as documented by continuous emission monitoring; and

- c. Failure to meet monitoring, recordkeeping, or reporting requirements contained in this permit.

If there were no deviations from permit conditions during the time period, the permittee shall include a statement in the report that "no deviations from permit requirements occurred during this semi-annual reporting period." These reports shall be maintained and shall be current for the most recent five years.

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

## NOTIFICATIONS

37. **Initial Notifications** – The permittee shall furnish written notification to the Piedmont Regional Office of:
- a. The actual date on which construction of the natural gas compressor station commenced within 30 days after such date.
  - b. The anticipated start-up date of the natural gas compressor station postmarked not more than 60 days nor less than 30 days prior to such date.
  - c. The actual start-up date of the natural gas compressor station within 15 days after such date.
  - d. The anticipated date of performance tests postmarked at least 30 days prior to such date.
  - e. Copies of the written notification referenced in items 37.a through 37.d above are to be sent to:

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

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

## GENERAL CONDITIONS

38. **Permit Invalidation** – This permit to construct the new stationary source shall become invalid, unless an extension is granted by the DEQ, if:
- a. A program of continuous construction is not commenced within 18 months from {the date of this permit.

- b. A program of construction is discontinued for a period of 18 months or more, or is not completed within a reasonable time, except for a DEQ approved period between phases of the phased construction of a new stationary source or project.

(9VAC 5-80-1210)

39. **Permit Suspension/Revocation** – This permit may be suspended or revoked if the permittee:

- 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 emissions unit;
- 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 emissions limitations, in the State Implementation Plan in effect at the time an application for this permit is submitted.

(9VAC 5-80-1210 G)

40. **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.

(9VAC 5-170-130 and 9VAC 5-80-1180)

41. **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 air pollution control equipment and process equipment which affect such emissions:

- 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.  
(9VAC 5-50-20 E and 9VAC 5-80-1180 D)

42. **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 9VAC 5-80-1180 D)
43. **Notification for Facility or Control Equipment Malfunction** – The permittee shall furnish notification to the Piedmont Regional Office of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour. Such notification shall be made 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 14 days 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 Piedmont Regional Office.  
(9VAC 5-20-180 C and 9VAC 5-80-1180)
44. **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.  
(9VAC 5-20-180 I and 9VAC 5-80-1180)

45. **Change of Ownership** – In the case of a transfer of ownership of the stationary source, the new owner shall abide by any current minor NSR permit issued to the previous owner. The new owner shall notify the Piedmont Regional Office of the change of ownership within 30 days of the transfer. (9VAC 5-80-1240)
46. **Permit Copy** – The permittee shall keep a copy of this permit on the premises of the facility to which it applies. (9VAC 5-80-1180)

**STATE-ONLY ENFORCEABLE (SOE) REQUIREMENTS**

The following terms and conditions are included in this permit to implement the requirements of 9VAC 5-40-130 et seq., 9VAC 5-50-130 et seq., 9VAC 5-60-200 et seq. and/or 9VAC 5-60-300 et seq. and are enforceable only by the Virginia Air Pollution Control Board. Neither their inclusion in this permit nor any resulting public comment period make these terms federally enforceable.

47. **(SOE) Emission Limits** – Formaldehyde (CAS# 50-00-0) emissions from the facility shall not exceed the limits specified below:

CT-01	2.56 lb/hr	0.19 lb/hr*	1.04 tons/yr
CT-02	4.70 lb/hr	0.13 lb/hr*	0.85 tons/yr
CT-03	3.09 lb/hr	0.23 lb/hr*	1.26 tons/yr
CT-04	1.17 lb/hr	0.08 lb/hr*	0.45 tons/yr
EG-01	2.50 lb/hr		0.63 tons/yr
Total Facility	14.02 lb/hr		4.25 tons/yr

\* Limit does not apply during periods of start-up, shutdown, or when ambient temperatures are below 0°F

Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period. These emissions are derived from the estimated overall emission contribution from operating limits. 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 Conditions 2, 4, 5, 7, 17, 49, 50, and 51. (9VAC 5-60-320, 9VAC 5-80-1180, and 9VAC 5-80-1120F)

48. **(SOE) Emission Limits** – Hexane (CAS# 110-54-3) emissions from venting events at the facility shall not exceed the limits specified below:

CT-01	0.87 lb/hr
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CT-02	0.37 lb/hr
CT-03	0.97 lb/hr
CT-04	0.19 lb/hr
Pig Receiving	2.62 lb/event
Pig Launching	2.51 lb/event

Compliance with these limits may be determined as stated in Conditions 6, 7, and 51.  
(9VAC 5-60-320, 9VAC 5-80-1180, and 9VAC 5-80-1120F)

49. **Stack Test** – Concurrently with the performance tests in Condition 29 and 31, initial performance tests shall be conducted for formaldehyde from each compressor turbine (CT-01 – CT-04) to determine compliance with the emission limits contained in Conditions 47. The tests shall be performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-60-30, and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-60-100. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility and shall conform to the test report format enclosed with this permit.  
(9VAC 5-60-30, 9VAC 5-80-1180, and 9VAC 5-80-1120F)
50. **Stack Test** – Concurrently with the performance tests in Conditions 30 and 32, initial performance tests shall be conducted for formaldehyde from the emergency engine (EG-01) to determine compliance with the emission limit contained in Condition 47. The tests shall be performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-60-30, and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-60-100. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility and shall conform to the test report format enclosed with this permit.  
(9VAC 5-60-30, 9VAC 5-80-1180, and 9VAC 5-80-1120F)
51. **(SOE) 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 Piedmont Regional Office. These records shall include, but are

not limited to the hourly, monthly, and annual emissions (in pounds and tons) of formaldehyde and hexane. The permittee shall calculate the amount of hexane exhausted during any venting event. Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period. Records of performance test results shall be maintained. These records shall be available for inspection by DEQ and current for at least the most recent five years.  
(9VAC 5-60-50, 9VAC 5-80-1180, and 9VAC 5-80-1120F)