Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Robert J. Weld
Regional Director

****12/16/2020 DRAFT****

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,

Mountain Valley Pipeline, LLC
2200 Energy Drive
Canonsburg, PA 153172
Registration No.: 21652

is authorized to construct and operate

a natural gas compressor station (Lambert Compressor Station)

located at

987 Transco Road in Chatham, Virginia 24531

in accordance with the Conditions of this permit.

Approved on DRAFT.

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Robert J. Weld
Regional Director

Permit consists of 23 pages.
Permit Conditions 1 to 58.
Attachment - Source Testing Report Format, 1 page

INTRODUCTION

This permit approval is based on the permit applications dated November 5, 2018, including supplemental information dated December 12, 2018, April 24, 2019, June 2, 2020, and August 12, 2020 and September 2, 2020. 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 9VAC5-10-20 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 9VAC5-170-60 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 covered by this permit consists of:

Equipment included in the project:

Reference No.	Equipment Description	Rated Capacity	Delegated Federal Requirements
CT-01	Solar Mars Combustion Turbine Model 100	16,610 hp*	40 CFR 60, Subpart KKKK
CT-02	Solar Taurus Combustion Turbine Model 70	11,146 hp*	40 CFR 60, Subpart KKKK
MT-01	Capstone Microturbine Model C200	200 kW	---
MT-02	Capstone Microturbine Model C200	200 kW	---
MT-03	Capstone Microturbine Model C200	200 kW	---
MT-04	Capstone Microturbine Model C200	200 kW	---
MT-05	Capstone Microturbine Model C200	200 kW	---
FUG	Fugitive natural gas leaks from fugitive emission components	---	---

*Based on ambient temperature of 0°F and 100% operating load.

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

PROCESS REQUIREMENTS

1. **Emission Controls** – Nitrogen oxides (NO_x) emissions from the combustion turbines (CT-01, CT-02) shall be controlled by dry low NO_x ($SoLoNO_x^{TM}$) combustion control technology and a selective catalytic reduction (SCR) system. The SCR system shall be designed to reduce NOx emissions to an outlet concentration of 2.70 ppmvd as a 3-hour average when the compressor turbine's inlet air temperature is 0°F or greater. The $SoLoNO_x^{TM}$ technology shall be in operation at all times the respective combustion turbine is operating except during start-up and shutdown, as defined in Condition 4.

   a. When a combustion turbine's inlet air temperature is less than 0ºF, the $SoLoNO_x^{TM}$ technology must be operated to maximum extent possible, following the manufacturer's written protocol or best engineering practices for minimizing emissions. No combustion turbine shall operate below 50% load except during startup and shutdown.

   b. Each combustion turbine shall be equipped with Pilot Active Control Logic (PACL) to minimize emissions when inlet air temperature is less than 0ºF and the PACL shall be in operation when the respective combustion turbine is operating.

   c. Each SCR system shall be in operation at all times the respective combustion turbine is operating, except during start-up and shutdown where operation shall be as described in Condition 4.e.

   (9VAC5-80-1180)

2. **Emission Controls** – Carbon Monoxide (CO) and Volatile Organic Compound (VOC) emissions from the combustion turbines (CT-01, CT-02) 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 combustion turbine is operating, except as outlined in Condition 4.
   (9VAC5-80-1180)

3. **Emission Controls** – Particulate emissions (PM, PM_{10}, $PM_{2.5}$) from the combustion turbines (CT-01, CT-02) and microturbines (MT-01 – MT-05) shall be controlled by inlet air filters. Each filter shall be provided with adequate access for inspection and shall be in operation at all times the respective combustion turbine is operating.
   (9VAC5-50-260[1] and 9VAC5-80-1180)

4. **Emission Controls** – The permittee shall operate and maintain each combustion turbine (CT-01, CT-02), 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.

[1] 9VAC5-50-260 (BACT) applies to $PM_{2.5}$.

a. For the purpose of this permit, start-up is defined as the period beginning with the first fuel fed to the combustion turbine and ending when the combustion turbine reaches 50% load.

b. For the purpose of this permit, shutdown is defined as the period beginning when the combustion 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 600ºF or the minimum combustion chamber temperature derived from the most recent performance test that demonstrates compliance with this permit.

d. The oxidation catalyst system shall be in operation during the shutdown of the respective combustion turbine.

e. During start-up and shutdown, each combustion 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 combustion turbine shall not exceed 17.32 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 combustion turbine shall not exceed 17.32 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 combustion turbine shall operate in “SoLoNOx mode” at all times except for start-up, shutdown, and when a combustion turbine’s inlet air temperature is less than 0ºF. Operation not in “SoLoNOx mode” shall not exceed an annual total of 24.0 hours per combustion 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.

(9VAC5-50-260 and 9VAC5-80-1180)

5. **Emission Controls** – Nitrogen oxides (NO_x) emissions from the microturbines (MT-01 – MT-05) shall be controlled by dry low NO_x (DLN) combustion control technology. The DLN technology shall be in operation at all times the respective microturbine is operating. (9VAC5-80-1180)

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

   a. 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.

   b. Except as provided in Condition 6.f, the permittee shall control emissions from the shutdown of each combustion turbine by maintaining pressurized hold for the combustion turbine. Pressurized hold shall be achieved by maintaining sufficient differential pressure between the seal gas and combustion turbine case such that the dry seal maintains integrity for the entire duration of the shutdown. Sufficient differential pressure shall be determined for each combustion turbine during the tests required in Condition 34.

   c. Pig launching and recovery shall be limited to two events each per 12-month period. 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. The permittee shall install a vent gas reduction system (VGRS) to ensure the sufficient differential pressure required in Condition 6.b 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 combustion turbine case such that the dry seal is maintained for the respective combustion turbine in compliance with Condition 6.f.

   e. The permittee shall continuously monitor and record the seal gas pressure and combustion turbine case pressure for each combustion turbine during pressurized holds.

   f. For each combustion turbine, the permittee shall vent gas no more than twelve (12) times per year, calculated monthly as the sum of each consecutive 12-month period. A combustion turbine may not vent gas unless the combustion turbine case pressure is less than or equal to 44.7 psia (30 psig). The permittee shall ensure isolation valves are closed and record the combustion turbine case pressure at the beginning of each

combustion turbine shutdown venting event. The permittee shall minimize the amount of time for each combustion turbine start-up purge.

(9VAC5-80-1180)

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. Daily AVO should be conducted at least five days per week. 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 3 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. If a leak is found that will emit less natural gas than a facility shutdown, repair may be delayed until the next facility shutdown unless the emissions from the total delayed repairs would exceed the emissions of the required shutdown. 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 Blue Ridge Regional Office for review and approval 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.

   e. A summary of the results of the daily AVO and quarterly LDAR surveys shall be submitted with the reports required in Condition 41 detailing leaks detected, any

corrective actions taken to address and minimize the leaks, and the dates of leak discovery and leak repair.

(9VAC5-80-1180)

8. **Monitoring Devices** – Each microturbine (MT-01 - MT-05) shall be equipped with devices to continuously measure and record combustion turbine inlet air temperature and combustion turbine load. 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 combustion turbine is operating.
(9VAC5-50-20 C and 9VAC5-80-1180)

9. **Monitoring Devices** – Each combustion turbine (CT-01, CT-02) shall be equipped with devices to continuously measure and record combustion turbine inlet air temperature, combustion turbine load, and "SoLoNOx" 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 combustion turbine is operating.
(9VAC5-50-20 C and 9VAC5-80-1180)

10. **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.
(9VAC5-50-20 C and 9VAC5-80-1180)

11. **Monitoring Devices** – Each combustion turbine shall be equipped with devices to continuously measure and record the seal gas supply pressure, the seal gas differential pressure, and the combustion 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.
(9VAC5-50-20 C and 9VAC5-80-1180)

12. **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.
(9VAC5-50-20 C and 9VAC5-80-1180)

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, 10, 11, 12, and 16. The plan shall include ranges for each parameter. The range values shall be established during the initial performance tests required in Condition 30 and revalidated during the subsequent performance tests required in Condition 32. Ranges shall be 3-hour rolling averages. The monitoring plan shall be submitted to the Blue Ridge Regional Office with the test results as required in Condition 30.
(9VAC5-50-20 C and 9VAC5-80-1180)

OPERATING LIMITATIONS

14. **Fuel** – The approved fuel for the combustion turbines (CT-01, CT-02) and microturbines (MT-01 – MT-05) is pipeline natural gas. A change in the fuel shall be considered a change in the method of operation of the combustion turbines and microturbines and may require a new or amended permit. However, if a change in the fuel is not subject to new source review permitting requirements, this condition should not be construed to prohibit such a change.
(9VAC5-50-260 and 9VAC5-80-1180)

15. **Fuel Specification –** The pipeline natural gas shall not exceed a sulfur content of 1.1 grains of sulfur per 100 standard cubic feet.
(9VAC5-80-1180)

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 Blue Ridge 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 Blue Ridge Regional Office no later than 60 days after test completion and shall conform to the test report format enclosed with this permit.
(9VAC5-50-410 and 9VAC5-80-1180)

17. **Requirements by Reference** – Except where this permit is more restrictive than the applicable requirement, the combustion turbines (CT-01, CT-02) as described in the Introduction shall be operated in compliance with the requirements of 40 CFR 60, Subpart KKKK.
(9VAC5-50-400, 9VAC5-50-410, and 9VAC5-80-1180)

EMISSION LIMITS

18. **Emission Limits** – Hourly emissions from the operation of EACH microturbine (MT-01 thru MT-05) shall not exceed the limits specified below:

Nitrogen Oxides (as NO_2)	0.08 lb/hr
Carbon Monoxide	0.22 lb/hr
Volatile Organic Compounds	0.02 lb/hr
$PM_{2.5}$	0.02 lb/hr

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 3, 5, 14, 31, and 40.
(9VAC5-50-260[2] and 9VAC5-80-1180)

19. **Emission Limits** – Annual emissions from the COMBINED operation of the microturbines (MT-01 – MT-05) shall not exceed the limits specified below:

Nitrogen Oxides (as NO_2)	1.81 ton/yr
Carbon Monoxide	4.79 ton/yr

These emissions are derived from the estimated overall emission contribution from operating limits. Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period. 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 3, 5, 14 and 40.
(9VAC5-80-1180)

20. **Emission Limits** – Emissions from the operation of the Solar Mars 100 combustion turbine (CT-01) shall not exceed the limits specified below:

Nitrogen Oxides (as NO_2)	2.70 ppmv @15% O_2*	1.33 lb/hr*	6.09 ton/yr
Carbon Monoxide	2.00 ppmv @15% O_2*	0.60 lb/hr*	6.30 ton/yr
Volatile Organic Compounds	0.50 ppmv @15% O_2*	0.09 lb/hr*	0.63 ton/yr
PM		1.36 lb/hr*	5.95 ton/yr

[2]9VAC5-50-260 applies to PM2.5.

PM_{10}	1.36 lb/hr*	5.95 ton/yr
$PM_{2.5}$	1.36 lb/hr*	5.95 ton/yr
Sulfur Dioxide	0.71 lb/hr*	3.09 ton/yr

*Limits are a 3-hour average and do not apply during periods of start-up, shutdown, or when ambient temperatures are below 0ºF. The NO_x emission rates for startup/shutdown periods and low temperature operating mode (< 0°F and ≥ 50% load) are listed in Condition 22.

These emissions are derived from the estimated overall emission contribution from operating limits. Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period and shall include startup and shutdown periods, and when ambient temperatures are below 0°F as applicable. 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, 3, 4, 30, 32 and 40. (9VAC5-50-260[3] and 9VAC5-80-1180)

21. **Emission Limits** – Emissions from the operation of the Solar Taurus 70 combustion turbine (CT-02) shall not exceed the limits specified below[1]:

Nitrogen Oxides (as NO_2)	2.70 ppmvd @15% O_2*	0.90 lb/hr*	4.16 ton/yr
Carbon Monoxide	2.00 ppmvd @15% O_2*	0.41 lb/hr*	5.93 ton/yr
Volatile Organic Compounds	0.50 ppmvd @15% O_2*	0.06 lb/hr*	0.94 ton/yr
PM		0.93 lb/hr*	4.06 ton/yr
PM_{10}		0.93 lb/hr*	4.06 ton/yr
$PM_{2.5}$		0.93 lb/hr*	4.06 ton/yr
Sulfur Dioxide		0.48 lb/hr*	2.11 ton/yr

*Limits are a 3-hour average and do not apply during periods of start-up, shutdown, or when ambient temperatures are below 0ºF. The NO_x emission rates for startup/shutdown periods and low temperature operating mode (< 0°F and ≥ 50% load) are listed in Condition 23.

These emissions are derived from the estimated overall emission contribution from operating limits. Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period and shall include startup and shutdown periods, and when

[3]9VAC5-50-260 applies to $PM_{2.5}$.

ambient temperatures are below 0°F as applicable. 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, 3, 4, 30, 32 and 40. (9VAC5-50-260[4] and 9VAC5-80-1180)

22. **Emission Limits for Non-Standard Operating Modes** – Emissions during start-up, shutdown, and low temperature mode from the Solar Mars 100 combustion turbine (CT-01) shall not exceed the limits specified below:

	Start-up	Shutdown	Low Temp Mode (<0 °F)
Nitrogen Oxides (as NO_2)	1.00 lb/event	1.00 lb/event	21.28 lb/hr

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 this emission limit may be determined as stated in Conditions 35 and 40.
(9VAC5-80-1180)

23. **Emission Limits for Non-Standard Operating Modes** – Emissions during start-up, shutdown, and low temperature mode from the Solar Taurus 70 combustion turbine (CT-02) shall not exceed the limits specified below:

	Start-up	Shutdown	Low Temp Mode (<0 °F)
Nitrogen Oxides (as NO_2)	1.00 lb/event	1.00 lb/event	14.42 lb/hr

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 this emission limit may be determined as stated in Conditions 35 and 40.
(9VAC5-80-1180)

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

Fugitive Emissions Components	0.75 ton/yr
Combined Combustion Turbine Venting (Start-up and Shutdown)[5]	0.12 ton/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, 34, and 40.
(9VAC5-80-1180)

[4]9VAC5-50-260 applies to $PM_{2.5}$.
[5]Combined venting includes emission activities from turbine startup and shutdowns, pigging and filter maintenance.

25. **Visible Emission Limit** – Visible emissions from each combustion turbine (CT-01, CT-02) shall not exceed 5% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).
(9VAC5-50-260 and 9VAC5-80-1180)

26. **Visible Emission Limit** – Visible emissions from each microturbine (MT-01 – MT-05) shall not exceed 5% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).
(9VAC5-50-260 and 9VAC5-80-1180)

27. **Visible Emission Limit** – Visible emission observations from each combustion turbine (CT-01, CT-02) 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.
(9VAC5-80-1180)

28. **Visible Emission Limit** – Visible emission observations from each microturbines (MT-01 – MT-05) 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.
(9VAC5-80-1180)

TESTING

29. **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.
(9VAC5-50-30 F and 9VAC5-80-1180)

30. **Stack Test** – Initial performance tests shall be conducted for CO, VOC, PM_{10}, and $PM_{2.5}$ from each combustion turbine (CT-01, CT-02) to determine compliance with the emission limits contained in Conditions 20 and 21. The tests shall be performed 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 9VAC5-50-

30, and the test methods and procedures contained in each applicable section or subpart listed in 40CFR Part 51 Appendix M or 9VAC5-50-410. The details of the tests are to be arranged with the Blue Ridge 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 Blue Ridge Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.
(9VAC5-50-30 and 9VAC5-80-1200)

31. **Stack Test** – Initial performance tests shall be conducted for NO_x, CO, VOC, and PM2.5 from each microturbine (MT-01 – MT-05) to determine compliance with the emission limits contained in Condition 18. The tests shall be performed 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 9VAC5-50-30, and the test methods and procedures contained in each applicable section or subpart listed in 9VAC5-50-410. The details of the tests are to be arranged with the Blue Ridge 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 Blue Ridge Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.
(9VAC5-50-30 and 9VAC5-80-1200)

32. **Stack Test** – The permittee shall repeat the performance tests contained in Condition 30 every two years to determine compliance with the emission limits contained in Condition 20. 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 Blue Ridge Regional Office no later than 60 days after test completion and shall conform to the test report format enclosed with this permit.
(9VAC5-50-30 and 9VAC5-80-1200)

33. **Visible Emissions Evaluation** – Concurrently with the initial performance tests in Conditions 30 and 31 and subsequent performance tests in Conditions 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 Blue Ridge Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. The initial test shall be performed 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 Blue Ridge 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 Blue Ridge Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.
(9VAC5-50-30 and 9VAC5-80-1200)

34. **VGRS Evaluation** - The permittee shall ensure proper operation and maintenance of the pressurized hold required in Condition 6.b by performing an evaluation for each combustion 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 combustion 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 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 and demonstrate compliance thereafter at a period not to exceed 13 months from the preceding evaluation. One copy of the test results shall be submitted to the Blue Ridge Regional Office within 60 days after test completion. The test report shall conform to the test report format enclosed with this permit and shall include the established pressure ranges.
(9VAC5-50-30 and 9VAC5-80-1200)

CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS)

35. **CEMS** - Continuous Emission Monitoring Systems, meeting the design specifications of 40 CFR Part 60, Appendix B, shall be installed to measure and record the emissions of nitrogen oxides (NOx) and the oxygen content of the exhaust gas from the combustion turbine (CT-01, CT-02) stack as ppmvd corrected to 15% O_2. Except where otherwise approved by the DEQ, the CEMS shall be installed, calibrated, maintained, audited and operated in accordance with the requirements of 40 CFR 60.13, 40 CFR 60, Subpart KKKK and 40 CFR 60, Appendices B and F. Data shall be reduced to 3-hour rolling averages, using procedures approved by the Blue Ridge Regional Office.
(9VAC5-50-40 and 9VAC5-80-1180)

36. **CEMS Performance Evaluations** - Performance evaluations of the CEMS shall be conducted in accordance with 40 CFR Part 60, Appendix B, and shall take place during the performance tests required by Conditions 30 and 32 or within 30 days thereafter. One copy of the performance evaluations report shall be submitted to the DEQ within 45 days of the evaluation. The CEMS shall be installed and operational prior to conducting initial performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation and calibration of the device. A 30 day notification, prior to the demonstration of the CEMS performance, and subsequent notifications, shall be submitted to the Blue Ridge Regional Office.
(9VAC5-80-1180 and 9VAC5-50-40)

37. **CEMS Quality Control Program** - A CEMS quality control program which is equivalent to the requirements of 40 CFR 60.13 and 40 CFR 60 Appendix F shall be implemented for all continuous emissions monitoring systems.
(9VAC5-80-1180 and 9VAC5-50-40)

38. **CEMS Excess Emissions and Monitor Downtime for NO_x -** For the purpose of this permit, periods of excess emissions and monitor downtime that must be reported under Condition 39 are defined as follows:

    a. An excess emission is any unit operating period in which the 3-hour rolling average NO_x emission rate exceeds the applicable emission limit in Condition 20 and

    b. A period of monitor downtime is any unit operating hour in which the data for any of the following parameters are either missing or invalid: NO_x concentration, O_2 concentration and fuel flow rate.

    (9VAC5-50-50 and 9VAC5-50-410)

39. **CEMS Reports** - The permittee shall furnish written reports to the DEQ of excess emissions from any process monitored by a CEMS with the reports required in Condition 41. These reports shall include, but are not limited to the following information:

    a. The magnitude of excess emissions, any conversion factors used in the calculation of excess emissions, and the date and time of commencement and completion of each period of excess emissions;

    b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the process, the nature and cause of the malfunction (if known), the corrective action taken or preventative measures adopted;

    c. The date(s) and time(s) identifying each period during which the CEMS was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and

    d. When no excess emissions have occurred or the CEMS have not been inoperative, repaired or adjusted, such information shall be stated in that report.

    (9VAC5-80-1180 and 9VAC5-50-50)

RECORDS AND REPORTING

40. **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 Blue Ridge Regional Office. These records shall include, but are not limited to:

    a. Monthly and annual consumption of natural gas for the combustion turbines (CT-01, CT-02) and microturbines (MT-01 – MT-05). 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, 13 and 16.

c. Records for each event when a combustion turbine (CT-01 or CT-02) does not operate in "SoLoNOx 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. Documentation from turbine vendors (Solar) for all parameters and their ranges that are relevant to the "SoLoNOx mode" determination.

e. Records of fuel quality characteristics to demonstrate compliance with Condition 15.

f. Monthly emissions calculations for NO_x, CO, VOC, $PM_{2.5}$, and SO_2 from each unit at the facility using calculation methods approved by the Blue Ridge Regional Office to demonstrate compliance with the annual emission limitations in Conditions 19, 20, 21 and 24.

g. Scheduled and unscheduled maintenance and operator training.

h. 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, combustion turbine start-up purge, and combustion turbine shutdown venting.

i. Records of the time, date, and duration of each combustion turbine start-up and shutdown event.

j. Results of all stack test data, VGRS evaluations, and visible emissions evaluations.

k. CEMS calibrations, calibration checks, percent operating time, and excess emissions.

l. The occurrence and duration of any periods during which a CEMS is inoperative.

m. A summary of any corrective maintenance taken.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.
(9VAC5-80-1180 and 9VAC5-50-50)

41. **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 the Blue Ridge Regional Office no later than March 1 and September 1 of each calendar year. This report must be signed by a responsible official, consistent with 9VAC5-20-230. 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;

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

    d. Summary results of the daily AVO and quarterly LDAR surveys required in Condition 7; and

    e. Excess emission reports required in Condition 39.

    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.
    (9VAC5-80-1180 and 9VAC5-50-50)

NOTIFICATIONS

42. **Initial Notifications** – The permittee shall furnish written notification to the Blue Ridge Regional Office of:

    a. The actual date on which construction of the combustion turbines (CT-01 and CT-02) and the microturbines (MT-01 – MT-05) commenced within 30 days after such date.

    b. The anticipated start-up date of the combustion turbines (CT-01 and CT-02) and the microturbines (MT-01 – MT-05) postmarked not more than 60 days nor less than 30 days prior to such date.

    c. The actual start-up date of the combustion turbines (CT-01 and CT-02) and the microturbines (MT-01 – MT-05) 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 42.a, and 42.b through 42.d above are to be sent to:

Chief, Air Section
Enforcement & Compliance Assurance Division
Air, RCRA and Toxics Branch
US EPA Region 3
1650 Arch Street – 3ED21
Philadelphia, PA 19103

(9VAC5-50-50 and 9VAC5-80-1180)

GENERAL CONDITIONS

43. **Permit Invalidation** – This permit to construct the combustion turbines (CT-01, CT-02) and the microturbines (MT-01 – MT-05) 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.

    (9VAC5-80-1210)

44. **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.

    (9VAC5-80-1210 G)

45. **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.
(9VAC5-170-130 and 9VAC5-80-1180)

46. **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.
(9VAC5-50-20 E and 9VAC5-80-1180 D)

47. **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.
(9VAC5-20-180 J and 9VAC5-80-1180 D)

48. **Notification for Facility or Control Equipment Malfunction** – The permittee shall furnish notification to the Blue Ridge 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 Blue Ridge Regional Office.
(9VAC5-20-180 C and 9VAC5-80-1180)

49. **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.
(9VAC5-20-180 I and 9VAC5-80-1180)

50. **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 Blue Ridge Regional Office of the change of ownership within 30 days of the transfer.
(9VAC5-80-1240)

51. **Permit Copy –** The permittee shall keep a copy of this permit on the premises of the facility to which it applies.
(9VAC5-80-1180)

STATE-ONLY ENFORCEABLE (SOE) REQUIREMENTS

The following terms and conditions are included in this permit to implement the requirements of 9VAC5-40-130 et seq., 9VAC5-50-130 et seq., 9VAC5-60-200 et seq. and/or 9VAC5-60-300 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.

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

CT-01	0.40 lb/hr*	0.35 ton/yr

CT-02	0.27 lb/hr*	0.32 ton/yr
MT-01 – MT-05	0.04 lb/hr	0.15 ton/yr
HT-01	5.7E-05 lb/hr	2.5E-04 ton/yr
Total Facility	0.71 lb/hr	0.82 ton/yr

* Limit applies only when ambient temperatures are greater than or equal to 0ºF and the turbine is operating at greater than or equal to 50% load – not during start-up or shutdown.

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, 6, 55, 56, and 58.
(9VAC5-60-320, 9VAC5-80-1120F, and 9VAC5-80-1180)

53. **(SOE) Emission Limits** – Start-up and shutdown emissions of Formaldehyde (CAS# 50-00-0) from CT-01, shall not exceed the limits specified below:

Start-up	2.4 lb/event	0.27 lb/hr
Shutdown	4.3 lb/event	0.49 lb/hr

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, 55, 56, and 58.
(9VAC5-60-320, 9VAC5-80-1120F, and 9VAC5-80-1180)

54. **(SOE) Emission Limits** – Start-up and shutdown emissions of Formaldehyde (CAS# 50-00-0) from CT-02, shall not exceed the limits specified below:

Start-up	4.6 lb/event	0.53 lb/hr
Shutdown	3.2 lb/event	0.37 lb/hr

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, 55, 56, and 58.
(9VAC5-60-320, 9VAC5-80-1120F, and 9VAC5-80-1180)

55. **(SOE) Stack Test** – Concurrently with the performance tests in Conditions 30 and 32, initial performance tests shall be conducted for formaldehyde from the compressor turbines (CT-01, CT-02) to determine compliance with the emission limits contained in Condition

52. The tests shall be performed 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 9VAC5-60-30, and the test methods and procedures contained in each applicable section or subpart listed in 9VAC5-60-100. The details of the tests are to be arranged with the Blue Ridge 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 Blue Ridge Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.
(9VAC5-60-30, 9VAC5-80-1120F, and 9VAC5-80-1180)

56. **(SOE) Stack Test** – Concurrently with the performance tests in Condition 31, initial performance tests shall be conducted for formaldehyde from the microturbines (MT-01 – MT-05) to determine compliance with the emission limit contained in Condition 52. The tests shall be performed 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 9VAC5-60-30, and the test methods and procedures contained in each applicable section or subpart listed in 9VAC5-60-100. The details of the tests are to be arranged with the Blue Ridge 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 Blue Ridge Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.
(9VAC5-60-30, 9VAC5-80-1180, and 9VAC5-80-1120F)

57. **(SOE) 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 the maximum hexane content for the natural gas being fired at the natural gas compressor station facility. 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 Blue Ridge 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 Blue Ridge Regional Office no later than 60 days after test completion and shall conform to the test report format enclosed with this permit.
(9VAC5-80-1120F and 9VAC5-80-1180)

58. **(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 and approved by the Blue Ridge Regional Office. These records shall include, but are not limited to:

    a. Hourly, monthly, and annual emissions (in pounds and tons) of formaldehyde to demonstrate compliance with the emissions limitations in Conditions 52, 53, and 54. Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period.

b. Results of all stack test data.

c. Hexane content documentation or hexane analysis results to demonstrate compliance with Condition 57.

These records shall be available for inspection by the Blue Ridge Regional Office and shall be current for the most recent five years.
(9VAC5-60-50, 9VAC5-80-1120F and 9VAC5-80-1180)

SOURCE TESTING REPORT FORMAT

Report Cover

1. Plant name and location
2. Units tested at source (indicate Ref. No. used by source in permit or registration)
3. Test Dates.
4. Tester; name, address and report date

Certification

1. Signed by team leader/certified observer (include certification date)
2. Signed by responsible company official
3. *Signed by reviewer

Copy of approved test protocol

Summary

1. Reason for testing
2. Test dates
3. Identification of unit tested & the maximum rated capacity
4. *For each emission unit, a table showing:
    a. Operating rate
    b. Test Methods
    c. Pollutants tested
    d. Test results for each run and the run average
    e. Pollutant standard or limit
5. Summarized process and control equipment data for each run and the average, as required by the test protocol
6. A statement that test was conducted in accordance with the test protocol or identification & discussion of deviations, including the likely impact on results
7. Any other important information

Source Operation

1. Description of process and control devices
2. Process and control equipment flow diagram
3. Sampling port location and dimensioned cross section Attached protocol includes: sketch of stack (elevation view) showing sampling port locations, upstream and downstream flow disturbances and their distances from ports; and a sketch of stack (plan view) showing sampling ports, ducts entering the stack and stack diameter or dimensions

Test Results

1. Detailed test results for each run
2. *Sample calculations
3. *Description of collected samples, to include audits when applicable

Appendix

1. *Raw production data
2. *Raw field data
3. *Laboratory reports
4. *Chain of custody records for lab samples
5. *Calibration procedures and results
6. Project participants and titles
7. Observers' names (industry and agency)
8. Related correspondence
9. Standard procedures

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* Not applicable to visible emission evaluations