



Commonwealth of Virginia
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

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director
(804) 698-4000

James J. Golden
Regional Director

DRAFT

Mr. Robert W. Sauer
Vice President System Operations
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, VA 23060

Location: Brunswick County
Registration No.: 52404

Dear Mr. Sauer:

Attached is a significant amendment to your new source review permit dated March 12, 2013 (as amended January 28, 2015 and May 13, 2015) to construct and operate an electric power generation facility in accordance with the provisions of the Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. This amended permit supersedes your permit dated May 13, 2015.

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 October 17, 2019 and solicited written public comments by placing a newspaper advertisement in the Brunswick Times-Gazette on March 4, 2020. The required comment period, provided by 9 VAC 5-80-1775 F expired on April 21, 2020, however a public hearing was not conducted due to COVID-19 social distancing precautions. An additional comment period was conducted and a newspaper advertisement was placed in the Brunswick Times-Gazette on October 7, 2020. A virtual public hearing was held on November 10, 2020. [No comments were received.]

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 Virginia Electric and Power Company of the responsibility to comply with all other local, state, and federal permit regulations.

Please note that your emergency generator (EG-1) and emergency fire water pump (FWP-1) may be subject to 40 CFR 60, New Source Performance Standard (NSPS), Subpart IIII and the propane emergency generator (EG-2) may be subject to NSPS, Subpart JJJJ. All three emergency units may be

subject to 40 CFR 63, Maximum Achievable Control Technology (MACT), Subpart ZZZZ. In summary, the units may be required to comply with certain federal emission standards and operating limitations. The DEQ advises you to review the referenced NSPS and MACT to ensure compliance with applicable emission and operational limitations. As the owner/ operator you may also be responsible for monitoring, notification, reporting and recordkeeping requirements of the NSPS and MACT. Notifications shall to 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, Title 40, Part 60 and 63}.

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.

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

Sincerely,

Kyle Ivar Winter, P.E.
Deputy Regional Director

KIW/AMS/52404_005_2020_DRAFT clean.docx

Attachments: Permit
Source Testing Report Format

cc: Chief, Office of Air Enforcement and Compliance Assistance, U.S. EPA, Region III (electronic file submission)
Inspector, Air Compliance



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Regional Director

PREVENTION OF SIGNIFICANT DETERIORATION PERMIT
This permit includes designated equipment subject to
New Source Performance Standards (NSPS).

This permit supersedes your permit dated May 13, 2015

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

Virginia Electric and Power Company
5000 Dominion Boulevard
Glen Allen, Virginia 23060
Registration No.: 52404

is authorized to modify and operate

an electric power generation facility

located at

20100 Governor Harrison Parkway, Freeman, VA 23856

in accordance with the Conditions of this permit.

Approved on DRAFT.

Deputy Regional Director
Department of Environmental Quality

Permit consists of 25 pages.
Permit Conditions 1 to 74.

INTRODUCTION

This permit approval is based on the permit applications dated December 20, 2011 and June 30, 2014; including amendment information dated March 7, 2012; September 7, 2012; November 5, 2012; December 21, 2012; November 17, 2014; March 31, 2015; October 7, 2015; December 19, 2016; April 9, 2019; and October 17, 2019. 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 9 VAC 5-10-20 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

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

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

Equipment List - Equipment at this facility consists of:

Three-on-one power block with three natural gas-fired combustion turbine generators, each with a duct-fired heat recovery steam generator (HRSG), providing steam to a common steam turbine generator.

Ref. No.	Equipment Description	Rated Capacity	Federal Requirements
T-1M (Unit A)	Mitsubishi M501 GAC combustion turbine generator with HRSG duct burner (natural gas-fired)	3,442 MMBtu/hr	NSPS Subpart KKKK NOx trading Subparts AA-II, AAA-III, and AAAA-III
T-2M (Unit B)	Mitsubishi M501 GAC combustion turbine generator with HRSG duct burner (natural gas-fired)	3,442 MMBtu/hr	NSPS Subpart KKKK NOx trading Subparts AA-II, AAA-III, and AAAA-III
T-3M (Unit C)	Mitsubishi M501 GAC combustion turbine generator with HRSG duct burner (natural gas-fired)	3,442 MMBtu/hr	NSPS Subpart KKKK NOx trading Subparts AA-II, AAA-III, and AAAA-III

Ancillary Equipment

Ref. No.	Equipment Description	Rated Capacity	Federal Requirements
B-1	Auxiliary boiler (natural gas-fired)	30.6 MMBtu/hr	NSPS Subpart Dc
GH-1, 2, 3	Three Fuel Gas Heaters (natural gas-fired)	8 MMBtu/hr each	None
EG-1	Emergency Generator (diesel)	2200 kW	NSPS Subpart III (non-delegated) MACT Subpart ZZZZ (non-delegated)
EG-2	Emergency Generator (propane)	100 kW	NSPS Subpart JJJJ (non-delegated) MACT Subpart ZZZZ (non-delegated)
FWP-1	Fire Water Pump (diesel)	375 bhp	NSPS Subpart IIII (non-delegated) MACT Subpart ZZZZ (non-delegated)
AEC-1	Delugeable Auxiliary Equipment Cooler	97,200 gallons of water/hr	None
IC-1 through 4	Four Turbine Inlet Air Chillers (mechanical draft cooling towers)	570,000 gallons of water/hr each	None
CB-1 through CB-11	Eleven Electrical Circuit Breakers	18,095 lb SF ₆	None
CB-12 through CB14	Three Generator Circuit Breakers	219 lb SF ₆	None
ST-1	Distillate fuel oil tank	6,000 gallons	None

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

PROCESS REQUIREMENTS**Combined-cycle gas turbine generators and duct-fired HRSG (T-1M, T-2M, T-3M)**

- Emission Controls: Nitrogen Oxides** - Nitrogen oxide (NO_x) emissions from each of the combined cycle gas turbine generators and associated duct-fired heat recovery steam generators (HRSG) (T-1M, T-2M, T-3M) shall be controlled by dry, low NO_x burners and selective catalytic reduction (SCR) with a NO_x performance of 2.0 ppmvd at 15% O₂. The low NO_x burners shall be installed and operated in accordance with manufacturer's specifications. The SCR shall be provided with adequate access for inspection and shall be in operation when the combined cycle gas turbine generators are operating (at all times except during startup and shutdown, as defined in Condition 11.a).
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
- Monitoring Devices: SCR** - Each SCR system shall be equipped with devices to continuously measure, or allow calculation of, and record ammonia feed rate 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.
(9 VAC 5-50-20 C and 9 VAC 5-80-1705 B)

3. **Monitoring Device Observation: SCR** -To ensure good performance of the SCR, the devices used to continuously measure the ammonia feed rate and catalyst bed inlet temperature on the SCR shall be monitored by the permittee.
(9 VAC 5-50-50H and 9 VAC 5-80-1705 B)
4. **Emission Controls: Carbon Monoxide** – Carbon monoxide (CO) emissions from each of the combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M) shall be controlled by an oxidation catalyst and good combustion practices. The oxidation catalyst shall be provided with adequate access for inspection and shall be in operation when the combined cycle gas turbine generators are operating (at all times except during startup and shutdown, as defined in Condition 11.a).
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
5. **Emission Controls: Volatile Organic Compounds** – Volatile organic compound (VOC) emissions from each of the combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M) shall be controlled by an oxidation catalyst and good combustion practices. The oxidation catalyst shall be provided with adequate access for inspection and shall be in operation when the combined cycle gas turbine generators are operating (at all times except during startup and shutdown, as defined in Condition 11.a).
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
6. **Monitoring Devices: Oxidation Catalyst** - Each oxidation catalyst shall be equipped with a device to continuously measure and record temperature at the catalyst bed inlet and outlet. 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 is operating.
(9 VAC 5-50-20 C, 9 VAC 5-50-280, and 9 VAC 5-80-1705 B)
7. **Monitoring Device Observation: Oxidation Catalyst** - To ensure good performance of the oxidation catalyst system, the device used to continuously measure and record the catalyst bed inlet and outlet gas temperature on the oxidation catalyst shall be monitored by the permittee.
(9 VAC 5-50-50 H and 9 VAC 5-80-1705 B)
8. **Emission Controls: Sulfur dioxide and sulfuric acid mist** – Sulfur dioxide (SO₂) and sulfuric acid mist (H₂SO₄) emissions from each of the combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M) shall be controlled by the use of pipeline-quality natural gas with a maximum sulfur content of 0.4 grains per 100 standard cubic feet (scf), on a 12-month rolling average.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
9. **Emission Controls: Particulate Matter** – Particulate Matter (PM₁₀, PM_{2.5}) emissions from each of the combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M) shall be controlled by good combustion practices and the use of pipeline-

quality natural gas with a maximum sulfur content of 0.4 grains per 100 standard cubic feet (scf), on a 12-month rolling average.

(9 VAC 5-80-1705 B and 9 VAC 5-50-280)

10. **Emission Controls: Greenhouse Gases** – Greenhouse gas emissions (including carbon dioxide, methane, and nitrous oxide), as CO_{2e} from the combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M) shall be controlled by the use of low carbon fuel (natural gas) and high efficiency design and operation of the combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M and steam turbine generator). The combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M and steam turbine generator) shall operate at a higher heating value heat rate, at full load and corrected to ISO conditions, not to exceed 7,500 Btu/kWh net (HHV) output. Compliance with this limit shall be demonstrated as contained in Condition 62.
- (9 VAC 5-80-1705 B and 9 VAC 5-50-280)
11. **Startup/Shutdown** – The short-term emission limits contained in Condition 40.a apply at all times except during periods of startup and shutdown.
- a. Startup and shutdown periods are defined as follows:
 - i. Cold Startup – refers to restarts made 72 hours or more after shutdown. Exclusion from the short-term emissions limits for cold startup periods shall not exceed 436 minutes per occurrence.
 - ii. Warm Startup – refers to restarts made more than 8 but less than 72 hours after shutdown. Exclusion from the short-term emissions limits for warm startup periods shall not exceed 166 minutes per occurrence.
 - iii. Hot Startup – refers to restarts made 8 hours or less after shutdown. Exclusion from the short-term emissions limits for hot startup periods shall not exceed 84 minutes per occurrence.
 - iv. Shutdown – refers to the period between the time the turbine load drops below 50 percent operating level and the fuel supply to the turbine is cut. Exclusion from the short-term emissions limits for shutdown shall not exceed 30 minutes per occurrence.
 - b. If the SCR was not engaged during startup of a particular combustion turbine (including ammonia injection), the subsequent startup of that turbine shall be a cold start.
 - c. The permittee shall operate the CEMS during periods of startup and shutdown.
 - d. The permittee shall record the time, date and duration of each startup and shutdown event. The records must include calculations of NO_x and CO emissions during each event based on the CEMS data. These records must be kept for five years following the date of such event.
 - e. During startup, the combustion turbine SCR system, including ammonia injection, shall be operated in a manner to minimize emissions, as technologically feasible, and not later than when the load reaches 50 percent of unit output.

- f. The permittee shall operate the facility so as to minimize the frequency and duration of startup and shutdown events.

(9 VAC 5-50-280 and 9 VAC 5-80-1705)

12. Alternate Operating Scenario – Tuning – The permittee shall comply with the requirements of this permit at all times except where noted by a specific condition. For the purpose of this permit, this condition defines the tuning operating scenario for the combined cycle gas turbine generators and associated HRSG (T-1M, T-2M, T-3M).

- a. For the purpose of this permit, tuning is defined as the manipulation of the units and associated emission controls to ensure optimized operation and minimized emissions.
- b. No tuning event shall last more than 18 consecutive hours.
- c. Annual tuning events shall be limited to 96 hours per CT per 12-month rolling period.
- d. The permittee shall notify the DEQ Piedmont Regional Air Compliance Manager at the address below, or by email, at least 24 hours prior to each declared CT tuning event unless approval for a shorter notice is given by DEQ. The notification shall include, but is not limited to, the following information:
 - i. Identification of the specific CT to be tuned.
 - ii. Reason for the declared tuning event.
 - iii. Measures that will be taken to minimize the length of the tuning event.

DEQ Piedmont Regional Office Air Compliance Manager
4949-A Cox Rd.
Glen Allen, VA 23060

- e. The permittee shall furnish a written report to the DEQ Piedmont Regional Air Compliance Manager at the address above, including all pertinent facts concerning any declared tuning event, as soon as practicable but not less than 14 business days after the retuning event. The notification shall include, but is not limited to, the following information:
 - i. Identification of the CT that was tuned.
 - ii. The date and time of commencement and completion of the declared tuning events.
 - iii. NO_x and CO emissions during the declared tuning events, as measured by CEMS.
- f. NO_x and CO emissions during each declared CT tuning event shall be recorded and included in the associated quarterly excess emission report if the applicable emission limits are exceeded. Emissions during tuning shall be included in the annual facility-wide total.

(9 VAC 5-20-180J and 9 VAC 5-50-20E)

13. Alternate Operating Scenario – On-line Water Wash – The permittee shall comply with the requirements of this permit at all times except where noted by a specific condition. For the purpose of this permit, this condition describes the on-line water wash operating scenario

for the combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M).

- a. On-line water washing is defined as spraying water through the turbine while a unit (T-1M, T-2M, T-3M) is operating for the purpose of cleaning the CT compressor blades.
- b. No on-line water wash event shall last for more than 60 minutes in a calendar day.
- c. Annual on-line water wash events shall not exceed 52 hours per CT per 12-month rolling period.
- d. The permittee shall notify the DEQ Piedmont Regional Air Compliance Manager at the address below, or by email, at least 24 hours prior to each declared on-line CT water wash event unless approval for a shorter notice is given by DEQ. The notification shall include, but is not limited to, the following information:
 - i. Identification of the specific CT to be washed.
 - ii. Reason for the declared washing event

DEQ Piedmont Regional Office, Air Compliance Manager
4949-A Cox Rd.
Glen Allen, VA 23060

- e. The permittee shall furnish a written report to the DEQ Piedmont Regional Air Compliance Manager at the address above, including all pertinent facts concerning the declared on-line water wash event, as soon as practicable but not less than 14 business days after the on-line water wash event. The notification shall include, but is not limited to, the following information:
 - i. Identification of the CT that was washed.
 - ii. The date and time of commencement and completion of the declared on-line water wash event.
 - iii. NO_x and CO emissions during the declared water wash event, as measured by CEMS.
- f. NO_x and CO emissions during each declared CT on-line water wash event shall be recorded and included in the associated quarterly excess emission report (if emission limits are exceeded). Emissions during on-line water wash events shall be included in the annual facility-wide total.

(9 VAC 5-20-180J and 9 VAC 5-50-20E)

Auxiliary boiler (B-1) and fuel gas heaters (GH-1 through GH-3)

14. **Emission Controls: Nitrogen Oxides** – NO_x emissions from the auxiliary boiler (B-1) and three fuel gas heaters (GH-1 through GH-3) shall be controlled by ultra low-NO_x burners with a NO_x performance of 9 ppmvd at 3% O₂. The low NO_x burners shall be installed and operated in accordance with manufacturer's specifications.

(9 VAC 5-50-280 and 9 VAC 5-80-1705 B)

15. **Emission Controls: Carbon Monoxide and Volatile Organic Compounds** – CO and VOC emissions from the auxiliary boiler (B-1) and three fuel gas heaters (GH-1 through GH-3) shall be controlled by good combustion practices, operator training, and proper emissions unit design, construction and maintenance to achieve a maximum CO emission rate of 50 ppmvd at 3% O₂. Boiler and heater operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at a minimum. The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule for the boiler and heater. These procedures shall be based on the manufacturer's recommendations, at a minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ.
(9 VAC 5-50-280 and 9 VAC 5-80-1705 B)
16. **Emission Controls: Sulfur dioxide and sulfuric acid mist** – SO₂ and H₂SO₄ emissions from the auxiliary boiler (B-1) and three fuel gas heaters (GH-1 through GH-3) shall be controlled by the use of pipeline-quality natural gas with a maximum sulfur content of 0.4 grains per 100 standard cubic feet (scf), on a 12-month rolling average.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
17. **Emission Controls: Particulate Matter** – PM₁₀ and PM_{2.5} emissions from the auxiliary boiler (B-1) and three fuel gas heaters (GH-1 through GH-3) shall be controlled by good combustion practices and the use of pipeline-quality natural gas with a maximum sulfur content of 0.4 grains per 100 scf, on a 12-month rolling average.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
18. **Emission Controls: Greenhouse Gases** – CO_{2e} from the auxiliary boiler (B-1) and three fuel gas heaters (GH-1 through GH-3) shall be controlled by the use of natural gas fuel and high efficiency design and operation.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)

Emergency Units (EG-1, EG-2 and FWP-1)

19. **Emission Controls: EG-1, FWP-1** - PM₁₀, PM_{2.5}, NO_x, CO, SO₂, VOC, and H₂SO₄ emissions from the diesel emergency units (EG-1 and FWP-1) shall be controlled by good combustion practices and the use of ultra low sulfur diesel (ULSD/S15) fuel oil with a maximum sulfur content of 15 ppmw.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
20. **Emission Controls: EG-2** - PM₁₀, PM_{2.5}, NO_x, CO, SO₂, VOC, and H₂SO₄ emissions from the propane emergency unit (EG-2) shall be controlled by good combustion practices.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)

21. **Emission Controls: Greenhouse gasses** – CO₂e emissions from the diesel emergency units (EG-1 and FWP-1) shall be controlled by the use of low carbon fuel and high efficiency design and operation.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
22. **Monitoring Devices** – The permittee must install a non-resettable hour meter on the emergency generators (EG-1 and EG-2) and the emergency fire water pump (FWP-1) prior to the startup of each unit. The hour meters shall be provided with adequate access for inspection.
(9 VAC 5-50-280 and 9 VAC 5-80-1705 B)

Miscellaneous Processes

23. **Emission Controls: Inlet Chillers** – Particulate matter emissions from the four, 11,500-gallon/minute inlet chillers (CH-1 through CH-4) shall be controlled to a drift rate of 0.0005 percent of the circulating water flow and a total dissolved solids content of the cooling water of no more than 1000 mg/l. The permittee shall keep a log of weekly testing for total dissolved solids content of the cooling water. Weekly testing for dissolved solids shall be done when the Chiller Package is in service for more than eight consecutive hours during a calendar week.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
24. **Emission Controls: Delugeable Auxiliary Equipment Cooler** – Particulate matter emissions from the 1,620 gallon/minute delugeable auxiliary equipment cooler (AEC-1) shall be controlled to a drift rate of 0.010 percent of the circulating water flow and a total dissolved solids content of the cooling water of no more than 300 mg/l. The permittee shall keep a log of weekly testing for total dissolved solids content of the cooling water. Weekly testing for total dissolved solids shall be done when the Deluge System is in service for more than two consecutive hours during a calendar week.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
25. **Emission Controls: Electrical breakers** – Greenhouse gas emissions (including SF₆) from the electrical circuit breakers and generator breakers (CB-1 through CB-14) shall be controlled by an enclosed-pressure circuit breaker, with a maximum annual leakage rate of 0.5 percent, and a low pressure detection system (with alarm). The low pressure detection system shall be in operation when the circuit breakers are in use.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)

OPERATING LIMITATIONS

26. **Fuel: Gas turbines, fuel gas heaters, and auxiliary boiler** - The approved fuel for the combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M), fuel gas heaters (GH-1 through GH-3) and the auxiliary boiler (B-1) is pipeline quality natural gas with a maximum sulfur content of 0.4 grains per 100 scf. A change in the fuel may require a permit to modify and operate.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)

27. **Fuel Throughput: Gas turbines** -The three combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M) combined shall consume no more than a total of $88,682 \times 10^6$ scf of natural gas 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.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
28. **Fuel Monitoring: Gas turbines** – The permittee shall conduct tests for the total sulfur content of the natural gas being fired at the electric power generation facility to verify that the sulfur content of the natural gas is 0.4 grains of total sulfur per 100 scf on a 12-month rolling average in order to demonstrate that potential sulfur dioxide emissions shall not exceed the limits specified in Condition 40.a. The permittee shall demonstrate compliance with the sulfur content limit in Condition 26 using one of the following:
- Determine and record the total sulfur content of the natural gas each month. A monthly sample is not required for months when the turbines operated for 48 hours or less, or
 - Develop custom schedules for determination of the sulfur content of the natural gas based on the design and operation of the affected facility and the characteristics of the fuel supply. Except as provided in 40 CFR 60.4370(c)(1) and (c)(2), custom schedules shall be substantiated with data and shall receive prior EPA approval.
(9 VAC 5-50-410, 9 VAC 5-50-280, 40 CFR 60.4365(a), 40 CFR 60.4370(b), and 40 CFR 60.4370(c))
29. **Fuel Throughput: Auxiliary boiler** -The auxiliary boiler (B-1) shall consume no more than 263×10^6 scf of natural gas 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.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
30. **Fuel: Diesel fire water pump and emergency diesel generator** - The approved fuel for the emergency diesel fire water pump (FWP-1) and emergency diesel generator (EG-1) is ultra low sulfur diesel [S15 (ULSD)]. A change in the fuel may require a permit to modify and operate.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
31. **Fuel: propane-fired emergency generator** - The approved fuel for the emergency generator (EG-2) is liquid petroleum gas (LPG)(as propane). A change in the fuel may require a permit to modify and operate.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
32. **Fuel: Fire water pump and emergency generators**- The fuels for the fire pump (FWP-1) and generators (EG-1 and EG-2) shall meet the specifications below:
DIESEL FUEL which meets the ASTM D975 specification for S15 fuel oil:

Maximum sulfur content per shipment: 0.0015%

LPG, including butane and propane, which meets ASTM specification D1835.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)

33. **Operating Hours: Fire water pump** - The emergency fire water pump (FWP-1) 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.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
34. **Operating Hours: Emergency generators** - The emergency generators (EG-1 and EG-2) shall not operate more than 500 hours each 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.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
35. **Emergency Operation: Generators and fire water pump** – The operation of the emergency generators (EG-1 and EG-2) and fire water pump (FWP-1) is limited to emergency situations. Emergency situations include a) emergency generator use to produce power for critical networks or equipment (including power supplied to portions of the facility) when electric power from the local utility (or the normal source, if the facility runs on its own power production) is interrupted and b) emergency engine use to pump water in the case of fire or flood, etc. The emergency generators (EG-1 and EG-2) and fire water pump (FWP-1) may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per calendar year for each unit.
(9 VAC 5-80-1705 B and 9 VAC 5-50-280)
36. **Fuel Certification** - The permittee shall obtain a certification from the fuel supplier with each shipment of S15 (ULSD) oil. Each fuel supplier certification shall include the following:
- a. The name of the fuel supplier;
 - b. The date on which the S15 (ULSD) oil was received;
 - c. The quantity of S15 (ULSD) oil delivered in the shipment;
 - d. A statement from the supplier that the fuel oil is S15 (ULSD) oil

Fuel sampling and analysis, independent of that used for certification, as may be periodically required or conducted by DEQ may be used to determine compliance with the fuel

specifications stipulated in Condition 32. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.

(9 VAC 5-50-280)

37. Maintenance and Operation: Fire water pump and emergency generators – The permittee must maintain and operate the emergency fire pump (FWP-1) and emergency generators (EG-1 and EG-2) according to the manufacturer’s written instruction, 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 or DEQ.

(9 VAC 5-50-280 and 9 VAC 5-80-1705 B)

38. Fuel Throughput: Fuel gas heaters -The three fuel gas heaters (GH-1 through GH-3) combined shall consume no more than a total of 206×10^6 scf of natural gas 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.

(9 VAC 5-50-280)

39. Requirements by Reference - Except where this permit is more restrictive than the applicable requirement, the NSPS equipment as described in the Equipment List shall be operated in compliance with the requirements of 40 CFR 60, Subparts Dc and KKKK, as applicable.

(9 VAC 5-50-400 and 9 VAC 5-50-410)

EMISSION LIMITS

40. Short-Term Emission Limits: Gas Turbines - Emissions from the operation of each combined-cycle gas turbine generator and associated HRSG duct burner (T-1M, T-2M, T-3M) shall not exceed the limits specified below:

a. Normal operation - Unless otherwise specified, the limits in this paragraph apply during all operation except for periods considered startup and shutdown as defined in Condition 11 of this permit, and alternate operating scenarios as defined in Conditions 12 and 13 of this permit.

Pollutant	Short term emission limits
PM ₁₀ (including condensable PM)	0.0033 lb/MMBtu and 9.7 lb/hr as a three-hour average without duct burner firing 0.0047 lb/MMBtu and 16.3 lb/hr as a three-hour average with duct burner firing.
PM _{2.5} (including condensable PM)	0.0033 lb/MMBtu and 9.7 lb/hr as a three-hour average without duct burner firing 0.0047 lb/MMBtu and 16.3 lb/hr as a three-hour average with duct burner firing.
Sulfur dioxide	0.00112 lb/MMBtu

Pollutant	Short term emission limits
Nitrogen Oxides (as NO ₂)	2.0 ppmvd @ 15% O ₂ as a one-hour average
Carbon monoxide	1.5 ppmvd @ 15% O ₂ as a three-hour average without duct burning 2.4 ppmvd @ 15% O ₂ as a three-hour average with duct burning
Volatile organic compounds	0.7 ppmvd @ 15% O ₂ without duct burner firing 1.6 ppmvd @ 15% O ₂ with duct burner firing
Sulfuric acid mist	0.00058 lb/MMBtu without duct burner firing 0.00067 lb/MMBtu with duct burner firing

Where:

ppmvd = parts per million by volume on a dry gas basis, corrected to 15 percent O₂.

Short-term emission limits represent averages for a three-hour sampling period except for nitrogen oxides, which shall be calculated as a one-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 limits may be determined as stated in Conditions 1, 4, 5, 26, 28, 49, 52, and 61.

- b. During each declared CT (T-1M, T-2M, T-3M) tuning event or on-line water wash event, emissions shall not exceed the following limits. Operating periods considered tuning are defined in Condition 12. Operating periods considered on-line water washes are defined in Condition 13.

Pollutant	Emission Limits (lbs/turbine/calendar day)
Nitrogen Oxides (as NO ₂)	604
Carbon Monoxide	416

The emissions limits for tuning and on-line water wash events do not include emissions from startup and/or shutdown that may occur on the same calendar day.

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 limits may be determined as stated in Conditions 12 or 13, as applicable, and Condition 52.

(9 VAC 5-50-280, 9 VAC 5-80-1705, 9 VAC 5-80-1715)

- 41. **Emission Limits: Gas Turbines** – CO₂e emissions from the combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M) shall not exceed 920 lbs/MWh (net HHV) calculated monthly on a 12-operating month annual average basis. Compliance may be determined each month by summing the CO₂e emissions for all hours in which power is being generated to the grid during the previous 12 months and dividing that value by the sum of the electrical energy output over that same period.

(9 VAC 5-50-280, 9 VAC 5-80-1705, and 9 VAC 5-80-1715)

42. **Annual Process Emission Limits** – Emissions from the operation of each of the three combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M) shall not exceed the limits specified below:

PM ₁₀ (including condensable)		71.4 tons/yr (on a 12-month, rolling total)
PM _{2.5} (including condensable)		71.4 tons/yr (on a 12-month, rolling total)
Sulfur Dioxide		16.9 tons/yr (on a 12-month, rolling total)
Nitrogen Oxides (as NO ₂)		110.3 tons/yr (on a 12-month, rolling total)
Carbon Monoxide		195.0 tons/yr (on a 12-month, rolling total)
Volatile Organic Compounds		108.9 tons/yr (on a 12-month, rolling total)
Sulfuric Acid Mist		10.2 tons/yr (on a 12-month, rolling total)
Lead		0.0074 tons/yr (on a 12-month, rolling total)
CO _{2e}	1,765,324	tons/yr (on a 12-month, rolling total)

These emissions are derived from the estimated overall emission contribution from operating limits, including periods of startup and shutdown. 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, 4, 5, 8, 9, 10, 27, 28, 49, 52, 55, and 61.

(9 VAC 5-50-280, 9 VAC 5-80-1705, and 9 VAC 5-80-1715)

43. **Process Emission Limits** – Emissions from the operation of the auxiliary boiler (B-1) shall not exceed the limits specified below:

PM ₁₀ (including condensable)	0.3 lbs/hr	1.0 tons/yr (on a 12-month, rolling total)
PM _{2.5} (including condensable)	0.3 lbs/hr	1.0 tons/yr (on a 12-month, rolling total)
Nitrogen Oxides (as NO ₂)	0.4 lb/hr	1.5 tons/yr (on a 12-month, rolling total)
Carbon Monoxide	1.2 lbs/hr	5.0 tons/yr (on a 12-month, rolling total)
Volatile Organic Compounds	0.2 lbs/hr	0.7 tons/yr (on a 12-month, rolling total)
CO _{2e}		15,682 tons/yr (on a 12-month, rolling total)

These emissions are derived from the estimated overall emission contribution from operating limits, including periods of startup and shutdown. 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 14, 15, 16, 17, 18, 26, 29, and 50. (9 VAC 5-50-280, 9 VAC 5-80-1705, and 9 VAC 5-80-1715)

44. **Process Emission Limits** - Emissions from the operation of the electrical circuit breakers and generator breakers (CB-1 through CB-14) shall not exceed the limits specified below:

Circuit Breakers CB1-CB11 93.8 tons of CO₂-e/year each (12-month rolling average)

Circuit Breakers CB12-CB14 4.2 tons of CO₂-e/year each (12-month rolling 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 Condition 25.

(9 VAC 5-50-280, 9 VAC 5-80-1705, and 9 VAC 5-80-1715)

45. **Process Emission Limits** - Emissions from the operation of the fire water pump (FWP-1) shall not exceed the limits specified below:

PM (filterable only) 0.13 g/kW-hr

PM₁₀(including condensable) 0.26 g/kW-hr

PM_{2.5}(including condensable) 0.26 g/kW-hr

Sulfur Dioxide 0.00156 lb/MMBtu

Nitrogen Oxides (as NO₂) 3.9 g/kW-hr (NO_x plus NMHC = (3.8+0.1)
+ Non-methane hydrocarbons

Carbon Monoxide 0.9 g/kW-hr

CO₂e 103.9 tons/yr (on a 12-month rolling total)

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 30, 32, 33, 35, 36, 37, and 51.

(9 VAC 5-50-280, 9 VAC 5-80-1705, and 9 VAC 5-80-1715)

46. **Process Emission Limits** - Emissions from the operation of the diesel emergency generator (EG-1) shall not exceed the limits specified below:

PM (including condensable) 0.2 g/kW-hr

PM₁₀ (including condensable) 0.4 g/kW-hr

PM_{2.5} (including condensable) 0.4 g/kW-hr

Sulfur Dioxide 0.00154 lb/MMBtu

Nitrogen Oxides (as NO₂) 6.4 g/kW-hr 7.8 tons/yr (on a 12-month rolling total)
+ Non-methane hydrocarbons

Carbon Monoxide 3.5 g/kW-hr 4.3 tons/yr (on a 12-month rolling total)

CO₂e 814.0 tons/yr (on a 12-month rolling total)

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 30, 32, 34, 35, 36, 37, and 51.

(9 VAC 5-50-280, 9 VAC 5-80-1705, and 9 VAC 5-80-1715)

47. **Process Emission Limits** - Emissions from the operation of the propane emergency generator (EG-2) shall not exceed the limits specified below:

PM ₁₀ (including condensable)	0.019	g/hp-hr	
PM _{2.5} (including condensable)	0.019	g/hp-hr	
Sulfur Dioxide	0.00059	lb/MMBtu	
Nitrogen Oxides (as NO ₂)	2.0	g/hp-hr	
Carbon Monoxide	4.0	g/hp-hr	0.4 tons/yr (on a 12-month rolling total)
CO _{2e}			46.0 tons/yr (on a 12-month rolling total)

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 31, 32, 34, 35, 37, and 51.

(9 VAC 5-50-280, 9 VAC 5-80-1705, and 9 VAC 5-80-1715)

48. **Process Emission Limits** – Emissions from the operation of the fuel gas heaters (GH-1 through GH-3) combined shall not exceed the limits specified below:

PM ₁₀ (including condensable)	0.007	lb/MMBtu	0.8 tons/yr (on a 12-month, rolling total)
PM _{2.5} (including condensable)	0.007	lb/MMBtu	0.8 tons/yr (on a 12-month, rolling total)
Nitrogen Oxides (as NO ₂)	0.011	lb/MMBtu	1.2 tons/yr (on a 12-month, rolling total)
Carbon Monoxide	0.037	lb/MMBtu	3.9 tons/yr (on a 12-month, rolling total)
Volatile Organic Compounds	0.005	lb/MMBtu	0.6 tons/yr (on a 12-month, rolling total)
CO _{2e}			12,299 tons/yr (on a 12-month, rolling total)

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 14, 15, 16, 17, 18, 26, 38, and 50.

(9 VAC 5-50-280, 9 VAC 5-80-1705, and 9 VAC 5-80-1715)

49. **Visible Emission Limit** - Visible emissions from the combined cycle gas turbine generators and associated duct-fired HRSG (T-1M, T-2M, T-3M) shall not exceed 10 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 20 percent opacity as determined by the EPA Method 9 (reference 40 CFR 60,

Appendix A). This condition applies at all times except during startup, shutdown (as defined in Condition 11.a), and malfunction.

(9 VAC 5-50-80 and 9 VAC 5-50-280)

50. **Visible Emission Limit** - Visible emissions from the fuel gas heaters (GH-1 through GH-3) and auxiliary boiler (B-1) shall not exceed 10 percent opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A).

(9 VAC 5-50-80 and 9 VAC 5-50-280)

51. **Visible Emission Limit** - Visible emissions from the emergency fire water pump (FWP-1) and emergency generators (EG-1 and EG-2) shall not exceed 10 percent opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.

(9 VAC 5-50-80 and 9 VAC 5-50-280)

CEMS/

52. **CEMS** - Continuous Emission Monitoring Systems (CEMS) shall be installed to measure and record the emissions of NO_x (measured as NO₂), CO₂ and CO from each combined cycle combustion turbine and associated duct-fired HRSG (T-1M, T-2M, T-3M) in ppmvd, corrected to 15 percent O₂. CEMS for NO_x shall be installed, calibrated, maintained, audited and operated in accordance with the requirements of 40 CFR Part 75 whereas CEMS for CO shall be installed, calibrated, maintained, audited, and operated in accordance with the requirements of 40 CFR 60.13. The CEMS shall also measure and record the oxygen content of the flue gas at each location where NO_x and CO emissions are monitored and measure heat input and power output. An alternative method, as allowed by Appendix G to 40 CFR 75, may be used to calculate CO₂ emissions to comply with the emission limits contained in Condition 41. A CEMS or alternative method as allowed by 40 CFR 75 shall be used to measure sulfur dioxide emissions to comply with the requirements of 40 CFR 75 (acid rain program monitoring). For compliance with the emission limits contained in Condition 40.a, NO_x data shall be reduced to 1-hour block averages and CO data shall be reduced to 3-hour block averages, using procedures approved by the Piedmont Regional Office. The relative accuracy test audit (RATA) of the NO_x CEMS shall be performed on a lb/MMBtu basis.

(9 VAC 5-50-350 and 9 VAC 5-50-40)

53. **CEMS Performance Evaluations** - Performance evaluations of the NO_x and, if applicable, SO₂ CEMS shall be conducted in accordance with 40 CFR Part 75, Appendix A. Performance evaluations of the CO CEMS shall be conducted in accordance with 40 CFR Part 60, Appendix B. Two copies of the performance evaluations report shall be submitted to the Piedmont Regional Office within 45 days of the evaluation. The continuous monitoring systems 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 continuous

monitoring system's performance, and subsequent notifications shall be submitted to the Piedmont Regional Office.

(9 VAC 5-50-350 and 9 VAC 5-50-40)

54. **CEMS Quality Control Program** - A CEMS quality control program which is equivalent to the requirements of 40 CFR 75 Appendix B shall be implemented for all continuous monitoring systems.

(9 VAC 5-50-350 and 9 VAC 5-50-40)

55. **CEMS Emissions Data** – CEMS data shall be used to report annual emissions of NO_x, CO and CO₂ from the stack of each combined cycle combustion turbine and associated duct-fired HRSG (T-1M, T-2M, T-3M) in tons/yr for the purpose of emission inventory. An alternative method, as allowed by Appendix G to 40 CFR 75, may be used to calculate CO₂ emissions to report annual emissions.

(9 VAC 5-50-50)

56. **Excess Emissions and Monitor Downtime for NO_x and CO - Continuous Monitoring Systems** - For the purpose of this permit, periods of excess emissions and monitor downtime that must be reported under Condition 58 are defined as follows:

- a. An excess emission period is any unit operating period in which the average one-hour NO_x emission rate, or the average 3-hour CO emission rate, exceeds the applicable emission limit in Condition 40; 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, CO concentration, O₂ concentration, fuel flow rate, steam pressure, or megawatts. The steam flow rate is only required if the permittee uses this information for compliance purposes.

(9 VAC 5-50-50, 9 VAC 5-50-410, 40 CFR 60.7(c), and 40 CFR 60.4380)

57. **Excess Emissions and Monitor Downtime for SO₂ - Continuous Monitoring Systems**
Excess emissions and monitoring downtime are defined, for the purpose of this permit, as follows:

- a. For samples of gaseous fuel obtained using daily sampling or for proportional sampling, an excess emission occurs each unit operating hour included in the period beginning on the date and hour of any sample for which the sulfur content of the fuel being fired in the combustion turbine exceeds the applicable limit and ending on the date and hour that a subsequent sample is taken that demonstrates compliance with the sulfur limit; and
- b. A period of monitor downtime begins when a required sample is not taken by its due date. A period of monitor downtime also begins on the date and hour of a required sample, if invalid results are obtained. The period of monitor downtime ends on the date and hour of the next valid sample.

(9 VAC 5-50-50, 9 VAC 5-50-410, 40 CFR 60.7(c), and 40 CFR 60.4385)

- 58. Reports for Continuous Monitoring Systems** - The permittee shall furnish written reports to the Piedmont Regional Office of excess emissions from any process monitored by a continuous monitoring system (CEMS) on a quarterly basis, postmarked no later than the 30th day following the end of the calendar quarter. These reports shall include, but are not limited to the following information:
- 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;
 - 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;
 - The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and
 - When no excess emissions have occurred or the continuous monitoring systems have not been inoperative, repaired or adjusted, such information shall be stated in that report.
 - Excess emission reports for sulfur dioxide and nitrogen dioxide as required in 40 CFR 60.4395.
(9 VAC 5-50-50)

- 59. Excess Emissions for Continuous Monitoring Systems** – For purposes of identifying excess emissions:
- All CEMS data must be reduced to hourly averages as specified in 40 CFR 60.13(h);
 - For each operating hour in which a valid hourly average, as described in 40 CFR 60.4345(b), is obtained for both NO_x and diluent monitors, the data acquisition and handling system must calculate and record the hourly NO_x emission rate in units of ppm, using the appropriate equation in 40 CFR Part 60, Appendix A, Method 19. For any hour in which the hourly average O₂ concentration exceeds 19.0 percent O₂, a diluent cap value of 19.0 percent O₂ may be used in the emission calculations; and
 - Only quality assured data from the CEMS shall be used to identify excess emissions. Periods where the missing data substitution procedures in 40 CFR 75, Subpart D are applied are to be reported as monitor downtime in the excess emissions and monitoring performance report required under 40 CFR 60.7(c).
(9 VAC 5-50-50, 9 VAC 5-50-410, 40 CFR 60.7(c), and 40 CFR 60.4350)

INITIAL COMPLIANCE DETERMINATION

- 60. Emissions Testing** - The permitted facility shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. This includes constructing the facility/equipment such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing a stack or duct

that is free from excessive cyclonic flow as defined in 40 CFR 60 Appendix A. Sampling ports shall be provided at the appropriate locations (in accordance with the applicable performance specification in 40 CFR Part 60, Appendix B) and safe sampling platforms and access shall be provided.

(9 VAC 5-50-30 F and 9 VAC 5-80-1675)

CONTINUING COMPLIANCE DETERMINATION

61. Annual Performance Test – Combustion Turbines – Annual performance tests shall be conducted on each combustion turbine and associated duct burner (T-1M, T-2M, and T-3M) for SO₂ to determine compliance with the limits contained in Condition 40.a. The permittee may use one of the following three methods (a., b. or c. below) to conduct the performance test:

- a. If the permittee chooses to periodically determine the sulfur content of the fuel combusted in the turbine, a representative fuel sample would be collected following ASTM D5287 (incorporated by reference, see 40 CFR 60.17 or by manual sampling using the Gas Process Association Standard 2166) for natural gas. The fuel analyses may be performed either by the permittee, a service contractor retained by the permittee, the fuel vendor, or any other qualified agency. The samples for the total sulfur content of the fuel shall be analyzed using ASTM D1072, or alternatively D3246, D4084, D4468, D4810, D5504, D6228, D6667, or Gas Processors Association Standard 2377 (all of which are incorporated by reference, see 40 CFR 60.17).
- b. 40 CFR 60, Appendix A, Methods 6, 6C, 8, or 20 shall be used to measure the SO₂ concentration (in parts per million (ppm)). In addition, the American Society of Mechanical Engineers (ASME) standard, ASME PTC 19–10–1981–Part 10, “Flue and Exhaust Gas Analyses,” manual methods for sulfur dioxide (incorporated by reference, see 40 CFR 60.17) can be used instead of EPA Methods 6 or 20.
- c. 40 CFR 60, Appendix A, Methods 6, 6C, or 8 and 3A, or 20 shall be used to measure the SO₂ and diluent gas concentrations. In addition, the permittee may use the manual methods for sulfur dioxide ASME PTC 19–10–1981–Part 10 (incorporated by reference, see 40 CFR 60.17).

The tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test). 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 45 days after test completion and shall conform to the test report format enclosed with this permit. If fuel sampling is used, as described in 61.a above, no test protocol or test report is required, however the permittee shall notify the Piedmont Regional Office as to which method was used to determine the total sulfur content of the fuel sample. (9 VAC 5-50-30, 9 VAC 5-50-410)

62. **Periodic Testing: Heat Rate Limit** –The permittee shall conduct additional heat rate evaluations of the power blocks to show compliance with the heat rate limit contained in Condition 10. The evaluations shall occur no less than 54 months and no later than 66 months after the previous evaluation. The details of the evaluation are to be arranged with the Piedmont Regional Office.

(9 VAC 5-50-30 and 9 VAC 5-80-1675)

63. **Stack Tests** – Upon request by DEQ, the permittee shall conduct additional performance tests to determine compliance with the emission limits contained in this permit. The details of the tests shall be arranged with the Piedmont Regional Office.

(9 VAC 5-50-30 G)

RECORDS

64. **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. Annual hours of operation of the emergency fire water pump (FWP-1) and emergency generators (EG-1 and EG-2) for emergency purposes and for maintenance checks and readiness testing, 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. All fuel supplier certifications for the S15 (ULSD) fuel used in the emergency units (EG-1 and FWP-1);
- c. Monthly and annual throughput of natural gas to the three combustion turbines and associated duct burners (T-1M, T-2M, and T-3M), 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. Time, date and duration of each startup, shutdown, and malfunction period for each combustion turbine and associated duct burner (T-1M, T-2M, and T-3M);
- e. Monthly and annual throughput of natural gas to the auxiliary boiler (B-1) and the fuel gas heaters (GH-1 through GH-3), 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;
- f. Fuel quality records for natural gas combusted in the combustion turbine and associated duct burner (T-1M, T-2M, and T-3M), auxiliary boiler (B-1), and fuel gas heaters (GH-1 through GH-3);
- g. Continuous monitoring system emissions data, calibrations and calibration checks, percent operating time, and excess emissions;

- h. Operation and control device monitoring records for each SCR system and oxidation catalyst as required in Conditions 2 and 6;
- i. Instances of alternative operating scenarios (tuning and water washing) and resulting emissions;
- j. Weekly logs of dissolved solids content of cooling water to the four inlet coolers (IC-1 through IC-4) and the auxiliary equipment chiller (AEC-1);
- k. Scheduled and unscheduled maintenance and operator training;
- l. Results of all stack tests, visible emission evaluations, and performance evaluations;
- m. Manufacturer's instructions for proper operation of equipment; and
- n. Records showing the circuit breakers are operating in accordance with the manufacturer's specifications (see Condition 25).

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

(9 VAC 5-50-50)

GENERAL CONDITIONS

65. 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 emission limitations, in the State Implementation Plan in effect at the time an application for this permit is submitted.

(9 VAC 5-80-1985 F)

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

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

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.

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

67. **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.

(9 VAC 5-50-20 E)

68. **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)

69. **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, by facsimile transmission, telephone, email, or telegraph. Such notification shall be made as soon as practicable but no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within two weeks of discovery of the malfunction. When the condition causing the failure or malfunction has

been corrected and the equipment is again in operation, the permittee shall notify the Piedmont Regional Office.

(9 VAC 5-20-180 C)

70. Violation of Ambient Air Quality Standard - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.

(9 VAC 5-20-180 I)

71. Change of Ownership - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Piedmont Regional Office of the change of ownership within 30 days of the transfer.

(9 VAC 5-80-1985 E)

72. Permit Copy - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.

(9 VAC 5-80-1985 E)

STATE-ONLY ENFORCEABLE REQUIREMENTS

The following terms and conditions are included in this permit to implement the requirements of 9 VAC 5-40-130 et seq., 9 VAC 5-50-130 et seq., 9 VAC 5-60-200 et seq. and/or 9 VAC 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.

73. Emission Limits – Emissions from the electric power generation facility shall not exceed the limits specified below:

<u>Pollutant</u>	<u>CAS#</u>	<u>Lb/hr</u>	<u>Tons/yr</u>
Acrolein	107-02-8	0.041 lb/hr	0.162 tons/yr
Formaldehyde	50-00-0	1.370 lb/hr	5.870 tons/yr
Beryllium*	7440-41-7	--	0.00054 tons/yr
Cadmium*	7440-43-9	--	0.049 tons/yr
Chromium	7440-47-3	0.014 lb/hr	0.063 tons/yr
Lead*	7439-92-1	--	0.023 tons/yr
Mercury*	7439-97-6	--	0.012 tons/yr
Nickel	7440-02-0	0.023 lb/hr	0.094 tons/yr

*Hourly emissions of these pollutants are exempt

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 5, 9, 15, 17, 19, 20, 27, 29, 33, 34, 37, and 38. (9 VAC 5-60-320 and 9 VAC 5-80-1625G)

74. **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 average hourly (in pounds), monthly (in tons), and annual emissions (in tons) of each toxic compound listed in Condition 73. Hourly emissions shall be calculated monthly. Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period. These records shall be available for inspection by DEQ and current for at least the most recent five years. (9 VAC 5-50-50, and 9 VAC 5-80-1625G)

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

* Not applicable to visible emission evaluations