



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### PIEDMONT REGIONAL OFFICE

4949A Cox Road, Glen Allen, Virginia 23060

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

Matthew J. Strickler  
Secretary of Natural Resources

David K. Paylor  
Director

James J. Golden  
Regional Director

April 26, 2018

Mr. Anand Gangadharan  
President/CEO NOVI Energy for  
C4GT, LLC  
23955 Novi Rd  
Novi, MI 48375

Location: Charles City County  
Registration No.: 52588

Dear Mr. Gangadharan:

Attached is a permit 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.

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 November 15, 2017 and solicited written public comments by placing a newspaper advertisement in the Charles City/New Kent Chronicle on March 8, 2018. A public hearing was held on April 9, 2018. The required comment period, provided by 9 VAC 5-80-1775 F expired on April 24, 2018.

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

This permit approval to construct and operate shall not relieve C4GT, LLC of the responsibility to comply with all other local, state, and federal permit regulations.

Please note that the combustion turbines are affected facilities under 40 CFR 60, New Source Performance Standard (NSPS), Subpart TTTT. The proposed diesel emergency generator (EG-1) and diesel emergency fire water pump (FWP-1) may be subject to 40 CFR 60, New Source Performance Standard (NSPS), Subpart IIII and 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 are also responsible for monitoring, notification, reporting and recordkeeping requirements of the NSPS and MACT. Notifications shall be sent to both EPA Region III and Virginia DEQ.

To review any federal rules referenced in the above paragraph or in the attached permit, the US Government Publishing Office maintains the text of these rules at [www.ecfr.gov](http://www.ecfr.gov), Title 40, Parts 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/52588\_001\_18\_PSD Final.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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### **PREVENTION OF SIGNIFICANT DETERIORATION PERMIT 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,

C4GT, LLC  
c/o NOVI Energy  
23955 Novi Rd.  
Novi, MI 48375  
Registration No.: 52588

is authorized to construct and operate

an electric power generation facility

located at

3001 Roxbury Rd, Charles City VA

in accordance with the Conditions of this permit.

Approved on April 26, 2018.

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Deputy Regional Director  
Department of Environmental Quality

Permit consists of 32 pages.  
Permit Conditions 1 to 85.

**INTRODUCTION**

This permit approval is based on the permit applications dated June 21, 2016; February 7, 2017; April 21, 2017; and November 15, 2017; and including amendment information dated August 3, 2017. 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:

<b>Equipment to be Constructed</b>			
<b>Ref. No.</b>	<b>Equipment Description</b>	<b>Rated Capacity</b>	<b>Federal Requirements</b>
<b>Two on one power block with two natural gas-fired combustion turbine generators, each with a duct-fired heat recovery steam generator (HRSG), providing steam to a common steam turbine generator</b>			
CT-1	<b>Option 1:</b> GE 7HA.02 combustion turbine generator with duct burner (natural gas-fired)	3,482 MMBtu/hr CT (HHV) 475 MMBtu/hr DB (HHV)	NSPS, Subpart KKKK
	<b>Option 2:</b> Siemens SGT6-8000H combustion turbine generator with duct burner (natural gas-fired)	3,116 MMBtu/hr CT (HHV) 991 MMBtu/hr DB (HHV)	NSPS, Subpart KKKK
CT-2	<b>Option 1:</b> GE 7HA.02 combustion turbine generator with duct burner (natural gas-fired)	3,482 MMBtu/hr CT (HHV) 475 MMBtu/hr DB (HHV)	NSPS, Subpart KKKK
	<b>Option 2:</b> Siemens SGT6-8000H combustion turbine generator with duct burner (natural gas-fired)	3,116 MMBtu/hr CT (HHV) 991 MMBtu/hr DB (HHV)	NSPS, Subpart KKKK
STG (no emissions)	<b>Option 1:</b> GE steam turbine generator	356 MW at ISO with DB	None
	<b>Option 2:</b> Siemens steam turbine generator	473 MW at ISO with DB	None

<b>Equipment to be Constructed</b>			
<b>Ref. No.</b>	<b>Equipment Description</b>	<b>Rated Capacity</b>	<b>Federal Requirements</b>
<b>Ancillary Equipment</b>			
B-1	Auxiliary Boiler (natural gas-fired)	105 MMBtu/hr (HHV)	NSPS, Subpart Db
DPH-1	Dew Point Heater (natural gas-fired)	16 MMBtu/hr (HHV)	NSPS, Subpart Dc
EG-1	Emergency Generator (S15 ULSD)	2500 kW	NSPS III, MACT ZZZZ
FWP-1	Fire Water Pump (S15 ULSD)	315 bhp	NSPS III, MACT ZZZZ
CWT-1	Mechanical draft cooling tower (18 cell)	348,500 gallons of water/min	None
CB-1 thru CB-4	Four Electrical Circuit Breakers	1,900 lbs SF <sub>6</sub> per breaker	None
CB-5 and CB-6	Two Generator Breakers	30 lbs SF <sub>6</sub> per breaker	None
T-1	ULSD storage tank	3,000 gallons	None
T-2	ULSD storage tank	400 gallons	None
FUG-1	Fugitive equipment leaks	--	None

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

## **PROCESS REQUIREMENTS**

### **Combustion turbine generators and duct-fired HRSG (CT-1, CT-2)**

- 1. Emission Controls: Turbine Generators** - Nitrogen oxide (NO<sub>x</sub>) emissions from each of the combustion turbine generators and associated duct-fired heat recovery steam generators (HRSG) (CT-1, CT-2) shall be controlled by dry, low NO<sub>x</sub> burners and selective catalytic reduction (SCR) with a NO<sub>x</sub> performance of 2.0 ppmvd at 15% O<sub>2</sub>. The low NO<sub>x</sub> 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 combustion turbine generators are operating (at all times except during startup and shutdown, as defined in Condition 9).  
 (9 VAC 5-80-1705B and 9 VAC 5-50-280)
- 2. Monitoring Devices: Turbine Generators - 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. 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 daily by the permittee when the SCR is in operation.  
 (9 VAC 5-50-20 C, 9 VAC 5-50-50H and 9 VAC 5-80-1705B)
- 3. Emission Controls: Turbine Generators** – Carbon monoxide (CO) emissions from each of the combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2) shall be controlled by an oxidation catalyst and good combustion practices (e.g., controlled fuel/air

mixing, adequate temperature, and gas residence time). The oxidation catalyst shall be provided with adequate access for inspection and shall be in operation when the combustion turbine generators are operating (at all times except during startup and shutdown, as defined in Condition 9).

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

4. **Emission Controls: Turbine Generators** – Volatile organic compound (VOC) emissions from each of the combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2) shall be controlled by an oxidation catalyst and good combustion practices (e.g., controlled fuel/air mixing, adequate temperature, and gas residence time). The oxidation catalyst shall be provided with adequate access for inspection and shall be in operation when the combustion turbine generators are operating (at all times except during startup and shutdown, as defined in Condition 9).  
(9 VAC 5-80-1705B and 9 VAC 5-50-280)
5. **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. 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 5-50-20 C, 9 VAC 5-50-50H and 9 VAC 5-80-1705B)
6. **Emission Controls: Turbine Generators** – Sulfur dioxide (SO<sub>2</sub>) and sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) emissions from each of the combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2) 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. Compliance will be based on fuel monitoring results as required by Condition 24.  
(9 VAC 5-80-1705B, 9 VAC 5-50-280, 9 VAC 5-80-1180, and 9 VAC 5-50-260)
7. **Emission Controls: Turbine Generators** – Particulate Matter (PM, PM<sub>10</sub>, PM<sub>2.5</sub>) emissions from each of the combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2) shall be controlled by good combustion practices (e.g., controlled fuel/air mixing, adequate temperature, and gas residence time) 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 5-80-1705B and 9 VAC 5-50-280)
8. **Emission Controls: Greenhouse Gases** – Greenhouse gas emissions (including carbon dioxide, methane, and nitrous oxide), as CO<sub>2</sub>e from the combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2) shall be controlled by the use of low carbon fuel

(natural gas) and high efficiency design and operation of the combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2, and steam turbine generator). **Option 1:** the initial heat rate of the GE combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2, and steam turbine generator) at full load without duct burning, corrected to ISO conditions, shall not exceed 6,745 Btu/kWh net HHV output. Compliance with this limit shall be demonstrated as contained in Condition 68. **Option 2:** the initial heat rate of the Siemens combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2 and steam turbine generator) at full load without duct burning, corrected to ISO conditions, shall not exceed 6,625 Btu/kWh net HHV output. Compliance with this limit shall be demonstrated as contained in Condition 68.  
(9 VAC 5-80-1705B and 9 VAC 5-50-280)

9. **Startup/Shutdown: Turbine Generators** –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 startup and shutdown operating scenarios for the combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2).
- a. Startup periods are defined as follows:
- i. For the purpose of this permit, startup is defined as the time from gas turbine ignition to the HRSG stack NO<sub>x</sub> and CO steady state emission compliance (see Condition 34.a for the GE turbines and Condition 35.a for the Siemens turbines) or the duration of the applicable exclusion periods indicated in items ii through iv below, whichever is shorter:
  - ii. Cold Startup: **Option 1:** For the GE turbines, cold startup is defined as restarts made 48 hours or more after shutdown. Cold startup periods for the GE turbines shall not exceed 60 minutes per occurrence; **Option 2:** For the Siemens turbines, cold startup is defined as restarts made 64 hours or more after shutdown. Cold startup periods for the Siemens turbines shall not exceed 55 minutes per occurrence.
  - iii. Warm Startup: **Option 1:** For the GE turbines, warm startup is defined as restarts made more than 8 but less than 48 hours after shutdown. Warm startup periods for the GE turbines shall not exceed 50 minutes per occurrence; **Option 2:** For the Siemens turbines, warm startup is defined as restarts made more than 16 but less than 64 hours after shutdown. Warm startup periods for the Siemens turbines shall not exceed 55 minutes per occurrence.
  - iv. Hot Startup: **Option 1:** For the GE turbines, hot startup is defined as restarts made 8 hours or less after shutdown. Hot startup for the GE turbines shall not exceed 30 minutes per occurrence; **Option 2:** For the Siemens turbines, hot startup is defined as restarts made 16 hours or less after shutdown. Hot startup for the Siemens turbines shall not exceed 50 minutes per occurrence.
  - v. 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.

- b. For the purpose of this permit, shutdown is defined as the point that either the HRSG stack NO<sub>x</sub> or CO emissions exceed steady state compliance (see Condition 34.a for the GE turbines and Condition 35.a for the Siemens turbines) following a normal stop signal to the termination of fuel flow to the gas turbine. **Option 1:** Shutdown shall not exceed 30 minutes per occurrence for the GE turbines. **Option 2:** Shutdown shall not exceed 38 minutes per occurrence for the Siemens turbines.
- c. The permittee shall operate the Continuous Emission Monitoring System (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<sub>x</sub> 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 and shutdown, the combustion turbine SCR system, including ammonia injection and oxidation catalyst shall be operated in a manner to minimize emissions, as technologically feasible, and following the SCR manufacturer's written protocol or best engineering practices for minimizing emissions. Where best practices are used, the permittee shall maintain written documentation explaining the sufficiency of such 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.

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

**10. Alternate Operating Scenarios: Turbine Generators – Tuning and On-line Water Washing Events** – As part of the regularly scheduled procedures conducted on the CTs to maintain the high-efficiency operation of those units, the permittee shall perform periodic burner tuning and on-line water washing of the turbine blades. The following conditions apply to these alternative operating scenarios:

- a. No tuning event shall last more than 18 consecutive hours.
- b. No on-line water wash event shall last for more than 60 minutes in a calendar day.
- c. NO<sub>x</sub> and CO emissions during these events shall be recorded and included in the associated quarterly excess emission report if the applicable emission limits in **Option 1**, Condition 34.b or **Option 2**, Condition 35.b are exceeded. Emissions associated with these 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 dew point heater (DPH-1)**

**11. Emission Controls: Dew point heater and Auxiliary Boiler** – NO<sub>x</sub> emissions from the auxiliary boiler (B-1) and dew point heater (DPH-1) shall be controlled by low-NO<sub>x</sub> burners with a NO<sub>x</sub> performance of 0.011 lbs/MMBtu (corrected to 3 percent O<sub>2</sub>). The low NO<sub>x</sub> burners shall be installed and operated in accordance with manufacturer's specifications.

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



12. **Emission Controls: Dew point heater and Auxiliary Boiler** – CO and VOC emissions from the auxiliary boiler (B-1) and dew point heater (DPH-1) 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 0.037 lb/MMBtu and a maximum VOC emission rate of 0.005 lb/MMBtu. 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 and/or best engineering practices, 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 5-80-1705B)
13. **Emission Controls: Dew point heater and Auxiliary Boiler** – SO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub> emissions from the auxiliary boiler (B-1) and dew point heater (DPH-1) shall be controlled by 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. Compliance will be based on fuel monitoring results required by Condition 24 for the combustion turbines.  
(9 VAC 5-80-1705B, 9 VAC 5-50-280, 9 VAC 5-80-1180, and 9 VAC 5-50-260)
14. **Emission Controls: Dew point heater and Auxiliary Boiler** – PM, PM<sub>10</sub> and PM<sub>2.5</sub> emissions from the auxiliary boiler (B-1) and dew point heater (DPH-1) 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 5-80-1705B and 9 VAC 5-50-280)
15. **Emission Controls: Dew point heater and Auxiliary Boiler** – CO<sub>2e</sub> emissions from the auxiliary boiler (B-1) and dew point heater (DPH-1) shall be controlled by the use of natural gas fuel and high efficiency design and operation.  
(9 VAC 5-80-1705B and 9 VAC 5-50-280)

**Emergency Units (EG-1 and FWP-1)**

16. **Emission Controls: EG-1, FWP-1** – PM, PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, and H<sub>2</sub>SO<sub>4</sub> 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 (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.  
(9 VAC 5-80-1705B, 9 VAC 5-50-280, 9 VAC 5-80-1180 and 9 VAC 5-50-260)
17. **Emission Controls: EG-1, FWP-1** – CO<sub>2e</sub> emissions from the diesel emergency units (EG-1 and FWP-1) shall be controlled by the use of S15 ULSD and high efficiency design and operation.  
(9 VAC 5-80-1705B and 9 VAC 5-50-280)

18. **Monitoring Devices: EG-1, FWP-1** – The permittee must install a non-resettable hour meter on the emergency generator (EG-1) 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 5-80-1705B)

### **Miscellaneous Processes**

19. **Emission Controls: Cooling Tower** – Particulate matter emissions from the cooling tower (CWT-1) shall be controlled to a drift rate of 0.00050 percent of the circulating water flow with mist eliminators and a total dissolved solids content of the cooling water effluent shall not exceed 6250 mg/l. The permittee shall keep a log of monthly testing for total dissolved solids content of the cooling water effluent. Monthly testing for total dissolved solids shall be done when the cooling tower is in service for 48 hours or more during a calendar month. (9 VAC 5-80-1705B and 9 VAC 5-50-280)
20. **Emission Controls: Equipment Leaks** - Fugitive emissions from gas piping components (valves and flanges) located on the power plant property (FUG-1) shall be minimized by using best management practices. The permittee shall implement a daily auditory/visual/olfactory (AVO) inspection program for detecting leaking in natural gas piping components. Records of AVO inspection results, repair attempts, and repair results shall be maintained on site. The AVO plan shall be submitted for review no later than 60 days prior to commercial startup of the facility. (9 VAC 5-80-1705B and 9 VAC 5-50-280)
21. **Emission Controls: Electrical breakers** – Greenhouse gas emissions (including SF<sub>6</sub>) from the six circuit breakers (CB-1 through CB-6) 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. The permittee shall develop a maintenance plan for the circuit breakers that includes procedures for minimizing emissions and corrective action to be taken in the event of a low pressure alarm. The permittee shall keep records of the total quantity of SF<sub>6</sub> gas added to the circuit breakers in a calendar year. (9 VAC 5-80-1705B and 9 VAC 5-50-280)

### **OPERATING LIMITATIONS**

22. **Fuel: Gas turbines, Dew Point Heater, and Auxiliary boiler** - The approved fuel for the combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2), dew point heater (DPH-1), and the auxiliary boiler (B-1) is pipeline quality natural gas. A change in the fuel may require a permit to modify and operate. (9 VAC 5-80-1705B, 9 VAC 5-50-280, 9 VAC 5-80-1180, and 9 VAC 5-50-260)

23. **Fuel Throughput: Turbine Generators – Option 1:** each GE combustion turbine generator and associated duct-fired HRSG (CT-1, CT-2) shall consume no more than a total of  $3.4 \times 10^{10}$  scf of natural gas per year, calculated monthly as the sum of each consecutive 12-month period. **Option 2:** each Siemens combustion turbine generator and associated duct-fired HRSG (CT-1, CT-2) shall consume no more than a total of  $3.5 \times 10^{10}$  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 5-80-1705B and 9 VAC 5-50-280)
24. **Fuel Monitoring: Turbine Generators** – 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 or less on a 12-month rolling average in order to demonstrate that potential sulfuric acid mist emissions shall not exceed the limits specified in **Option 1**, Condition 34.a or **Option 2**, Condition 35.a, and that potential sulfur dioxide emissions shall not exceed the limits specified in **Option 1**, Condition 36 or **Option 2**, Condition 38. The permittee shall demonstrate compliance with the sulfur content limit in Condition 6 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 5-50-260, 9 VAC 5-50-280, 40 CFR 60.4365(a), 40 CFR 60.4370(b), and 40 CFR 60.4370(c))
25. **Fuel Throughput: Auxiliary Boiler** -The auxiliary boiler (B-1) shall consume no more than  $9.02 \times 10^8$  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 5-80-1705B and 9 VAC 5-50-280)
26. **Fuel: EG-1 and FWP-1** - 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 5-80-1705B, 9 VAC 5-50-280, 9 VAC 5-80-1180, and 9 VAC 5-50-260)
27. **Fuel: EG-1 and FWP-1**- The fuel for the fire pump (FWP-1) and generator (EG-1) shall meet the specifications below:

ULTRA-LOW SULFUR DIESEL FUEL (S15 ULSD) which meets the ASTM D975-10b specification for S15 fuel oil: Maximum sulfur content per shipment: 0.0015%

(9 VAC 5-80-1705B, 9 VAC 5-50-280, 9 VAC 5-80-1180, and 9 VAC 5-50-260)

**28. Operating Hours: EG-1 and FWP-1** - The emergency generator (EG-1) and 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 5-80-1705B and 9 VAC 5-50-280)

**29. Emergency Operation: EG-1 and FWP-1** – The operation of the emergency generator (EG-1) and emergency 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 generator (EG-1) and emergency 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 5-80-1705B)

**30. Fuel Certification: EG-1 and FWP-1** - 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 27. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.

(9 VAC 5-80-1180)

**31. Maintenance and Operation: EG-1 and FWP-1** – The permittee must maintain and operate the emergency fire pump (FWP-1) and emergency generator (EG-1) according to the manufacturer's recommendations and/or procedures developed by the permittee using best engineering practices, over the entire life of the engine.

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

32. **Fuel Throughput: Dew point heater**-The dew point heater (DPH-1) shall consume no more than a total of  $1.4 \times 10^8$  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)
33. **Requirements by Reference: NSPS** - Except where this permit is more restrictive than the applicable requirement, the NSPS equipment as described in the equipment table in the Introduction on page 2 of this permit shall be operated in compliance with the requirements of 40 CFR 60, Subparts Db, Dc and KKKK.  
 (9 VAC 5-50-400 and 9 VAC 5-50-410)

**EMISSION LIMITS**

34. **Short-Term Emission Limits: Option 1, GE Turbine Generators** -Emissions from the operation of each of the two GE combustion turbine generators and associated HRSG duct burners (CT-1, CT-2), 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 9 of this permit, and alternate operating scenarios as defined in Condition 10.

Pollutant	Short term emission limits
Particulate Matter (filterable only)	0.0046 lb/MMBtu without duct burner firing 0.0038 lb/MMBtu with duct burner firing. (These limits apply at all times)
PM <sub>10</sub>	0.0069 lb/MMBtu; 12.2 lb/hr without duct burner firing 0.0049 lb/MMBtu; 17.3 lb/hr with duct burner firing. (These limits apply at all times)
PM <sub>2.5</sub>	0.0069 lb/MMBtu; 12.2 lb/hr without duct burner firing 0.0049 lb/MMBtu; 17.3 lb/hr with duct burner firing. (These limits apply at all times)
Nitrogen Oxides (as NO <sub>2</sub> )	2.0 ppmvd @ 15% O <sub>2</sub> as a one-hour average with or without duct firing
Carbon monoxide	1.0 ppmvd @ 15% O <sub>2</sub> without duct burner firing 1.6 ppmvd @ 15% O <sub>2</sub> with duct burner firing
Volatile organic compounds (as CH <sub>4</sub> )	0.7 ppmvd @ 15% O <sub>2</sub> without duct burner firing 1.4 ppmvd @ 15% O <sub>2</sub> with duct burner firing
Sulfuric acid mist	2.5 lb/hr without duct burner firing 2.7 lb/hr with duct burner firing (These limits apply at all times)

Where:

ppmvd = parts per million by volume on a dry gas basis, corrected to 15 percent O<sub>2</sub>.

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, 3, 4, 6, 7, 22, 46, 49, 61, and 62.

- b. During each CT tuning event or on-line water wash event, as described in Condition 10, emissions shall not exceed the following limits.

Pollutant	Limitations for Maintenance Activities (Tuning/On-line Water Washing)
Nitrogen Oxides (as NO <sub>2</sub> )	Tuning or on-line water washing: 638 lb/turbine/calendar day
Carbon monoxide	Tuning or on-line water washing: 194 lb/turbine/calendar day

- c. NO<sub>x</sub> emission concentrations shall not exceed the NO<sub>x</sub> standards of the NSPS Subpart KKKK of 15 ppm at loads > 75% or 96 ppm at loads ≤ 75% corrected to 15% O<sub>2</sub> (on a rolling 30-day average basis).
- d. During each startup or shutdown event, emissions shall not exceed the following:

Pollutant	Startup/Shutdown Limitations
Nitrogen Oxides (as NO <sub>2</sub> )	cold start event - 273 lb/turbine warm start event - 163 lb/turbine hot start event - 105 lb/turbine shutdown event - 18 lb/turbine
Carbon monoxide	cold start event - 840 lb/turbine warm start event - 188 lb/turbine hot start event - 180 lb/turbine shutdown event - 100 lb/turbine
Volatile organic compounds (as CH <sub>4</sub> )	cold start event - 60 lb/turbine warm start event - 13 lb/turbine hot start event - 14 lb/turbine shutdown event - 65 lb/turbine

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 NO<sub>x</sub> and CO limits may be determined as stated in Conditions 9 and 49. Compliance with the VOC limits may be determined by demonstrating correlation of VOC emissions to CO emissions, using CO and VOC stack testing and CO CEM data.

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

**35. Short-Term Emission Limits: Option 2, Siemens Turbine Generators** -Emissions from the operation of each of the two Siemens combustion turbine generators and associated HRSG duct burners (CT-1, CT-2), 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 9 of this permit, and alternate operating scenarios as defined in Condition 10.

Pollutant	Short term emission limits
Particulate Matter (filterable only)	0.0049 lb/MMBtu without duct burner firing 0.0056 lb/MMBtu with duct burner firing. (These limits apply at all times)
PM <sub>10</sub>	0.0065 lb/MMBtu; 13.7 lb/hr without duct burner firing 0.0065 lb/MMBtu; 24.2 lb/hr with duct burner firing. (These limits apply at all times)
PM <sub>2.5</sub>	0.0065 lb/MMBtu; 13.7 lb/hr without duct burner firing 0.0065 lb/MMBtu; 24.2 lb/hr with duct burner firing. (These limits apply at all times)
Nitrogen Oxides (as NO <sub>2</sub> )	2.0 ppmvd @ 15% O <sub>2</sub> as a one-hour average with or without duct burner firing
Carbon monoxide	1.8 ppmvd @ 15% O <sub>2</sub> with or without duct burner firing
Volatile organic compounds (as CH <sub>4</sub> )	1.0 ppmvd @ 15% O <sub>2</sub> without duct burner firing 2.0 ppmvd @ 15% O <sub>2</sub> with duct burner firing
Sulfuric acid mist	2.2 lb/hr without duct burner firing 2.7 lb/hr with duct burner firing (These limits apply at all times)

Where:

ppmvd = parts per million by volume on a dry gas basis, corrected to 15 percent O<sub>2</sub>.

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, 3, 4, 6, 7, 22, 46, 49, 61, and 62.

- b. During each CT tuning event or on-line water wash event, as described in Condition 10, emissions shall not exceed the following limits:

Pollutant	Limitations for Maintenance Activities (Tuning/Water Washing)
Nitrogen Oxides (as NO <sub>2</sub> )	Tuning or water washing: 564 lb/turbine/calendar day
Carbon monoxide	Tuning or water washing: 309 lb/turbine/calendar day





Nitrogen Oxides (as NO <sub>2</sub> )	141.3 tons/yr (on a 12-month, rolling total)
Carbon Monoxide	98.7 tons/yr (on a 12-month, rolling total)
Volatile Organic Compounds	40.3 tons/yr (on a 12-month, rolling total)
Sulfuric Acid Mist	11.8 tons/yr (on a 12-month, rolling total)
CO <sub>2</sub> e	2,029,949 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, 3, 4, 6, 7, 8, 23, 24, 48, 49, 50 and 55.  
 (9 VAC 5-50-280, 9 VAC 5-80-1705, and 9 VAC 5-80-1715)

**38. Process Emission Limits: Option 2, Siemens Turbine Generators** - Emissions from the operation of each of the two Siemens combustion turbine generators and associated HRSG duct burners (CT-1, CT-2), shall not exceed the limits specified below:

Sulfur Dioxide	0.00114 lb/MMBtu	19.3 tons/yr (on a 12-month, rolling total)
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Compliance with these limits may be determined as stated in Conditions 6 and 23.  
 (9 VAC 5-80-1180 and 9 VAC 5-50-260)

**39. Annual Process Emission Limits: Option 2, Siemens Turbine Generators** – Emissions from the operation of each of the two Siemens combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2), including emissions from startups and shutdowns, shall not exceed the limits specified below:

PM (filterable only)	94.5 tons/yr (on a 12-month, rolling total)
PM <sub>10</sub>	105.8 tons/yr (on a 12-month, rolling total)
PM <sub>2.5</sub>	105.8 tons/yr (on a 12-month, rolling total)
Nitrogen Oxides (as NO <sub>2</sub> )	141.4 tons/yr (on a 12-month, rolling total)
Carbon Monoxide	134.1 tons/yr (on a 12-month, rolling total)
Volatile Organic Compounds	54.1 tons/yr (on a 12-month, rolling total)
Sulfuric Acid Mist	11.9 tons/yr (on a 12-month, rolling total)
CO <sub>2</sub> e	2,106,802 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, 3, 4, 6, 7, 8, 23, 24, 48, 49, 50 and 55.

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

**40. Emission Limits: Turbine Generators** – The following limit includes all operating conditions over the lifetime of the units: CO<sub>2</sub>e emissions from the combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2) shall not exceed 883 lbs/MWh net calculated monthly on a 12-month rolling basis. This limit applies at all times. Compliance may be determined each month by summing the CO<sub>2</sub>e emissions for all hours in which power is being generated to the grid during the previous 12 months (Condition 50) and dividing that value by the sum of the electrical energy output over that same period (Condition 51).

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

**41. Emission Limits: Turbine Generators** – In the event that conditions make it impossible for the permittee to comply with the Condition 40 emission limit, the permittee may request that DEQ adjust the Condition 40 CO<sub>2</sub>e emission limit to a level not to exceed 915 lbs/MWh net (calculated monthly on a 12-month rolling basis). In order for DEQ to consider and approve such a request, the permittee shall provide at least 12 months of representative CO<sub>2</sub>e emission and operating (load) data demonstrating that it is unable to comply with the Condition 40 emission limit and a demonstration that the proposed revised emission limit is representative of the BACT measures specified in Condition 8. The demonstration shall include a description of the ongoing operational and maintenance measures employed by the permittee to minimize CO<sub>2</sub>e emissions. If DEQ approves the request, the revision of the Condition 40 CO<sub>2</sub>e emission limit shall be accomplished administratively. During the period of time beginning on the date that the permittee submits the information required by this condition for DEQ to evaluate the request and ending on the date that DEQ acts on the request, failure to meet the Condition 40 emission limit shall not be a violation of this permit so long as the CO<sub>2</sub>e emission rate does not exceed 915 lbs/MWh net (calculated monthly on a 12-month rolling basis).

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

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

PM (filterable only)	0.8 lbs/hr	3.3 tons/yr (on a 12-month, rolling total)
PM <sub>10</sub>	0.8 lbs/hr	3.3 tons/yr (on a 12-month, rolling total)
PM <sub>2.5</sub>	0.8 lbs/hr	3.3 tons/yr (on a 12-month, rolling total)
Sulfur Dioxide	0.00118 lb/MMBtu	0.6 tons/yr (on a 12-month rolling total)
Nitrogen Oxides (as NO <sub>2</sub> )	1.2 lb/hr	5.1 tons/yr (on a 12-month, rolling total)

Carbon Monoxide	3.9 lbs/hr	17.1 tons/yr (on a 12-month, rolling total)
Volatile Organic Compounds	0.005 lbs/MMBtu	2.3 tons/yr (on a 12-month, rolling total)
CO <sub>2</sub> e		53,863 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 11, 12, 13, 22, and 25. (9 VAC 5-80-1705, 9 VAC 5-50-280, 9 VAC 5-80-1180 and 9 VAC 5-50-260)

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

PM (filterable only)	0.15 g/hp-hr	
PM <sub>10</sub>	0.15 g/hp-hr	
PM <sub>2.5</sub>	0.15 g/hp-hr	
Nitrogen Oxides (as NO <sub>2</sub> ) + Non-methane hydrocarbons	3.0 g/hp-hr	
Carbon Monoxide	2.6 g/hp-hr	
Sulfuric Acid Mist	0.00016 lb/hp-hr	
CO <sub>2</sub> e		90 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 26, 27, 28, 29, 31 and 48. (9 VAC 5-50-280, 9 VAC 5-80-1705)

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

PM (filterable only)	0.15 g/hp-hr	
PM <sub>10</sub>	0.15 g/hp-hr	
PM <sub>2.5</sub>	0.15 g/hp-hr	
Nitrogen Oxides (as NO <sub>2</sub> ) + Non-methane hydrocarbons	4.8 g/hp-hr	9.6 tons/yr (on a 12-month rolling total)
Carbon Monoxide	2.6 g/hp-hr	5.2 tons/yr (on a 12-month rolling total)
CO <sub>2</sub> e		1040 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 26, 27, 29, 31, and 48.  
(9 VAC 5-50-280 and 9 VAC 5-80-1705)

45. **Process Emission Limits: Dew point heater**– Emissions from the operation of the dew point heater (DPH-1) shall not exceed the limits specified below:

PM (filterable only)	0.5 tons/yr (on a 12-month rolling total)
PM <sub>10</sub>	0.5 tons/yr (on a 12-month rolling total)
PM <sub>2.5</sub>	0.5 tons/yr (on a 12-month rolling total)
Nitrogen Oxides (as NO <sub>2</sub> )	0.8 tons/yr (on a 12-month rolling total)
Carbon Monoxide	2.6 tons/yr (on a 12-month rolling total)
CO <sub>2</sub> e	8,208 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 11, 12, 13, 14, 15, 22, 32, and 47.  
(9 VAC 5-50-280 and 9 VAC 5-80-1705)

46. **Visible Emission Limit: Turbine Generators** - Visible emissions from the combustion turbine generators and associated duct-fired HRSG (CT-1, CT-2) 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).  
(9 VAC 5-50-80 and 9 VAC 5-50-280)

47. **Visible Emission Limit: Dew point heater and Auxiliary boiler**- Visible emissions from the dew point heater (DPH-1) 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)

48. **Visible Emission Limit: EG-1 and FWP-1** - Visible emissions from the emergency fire water pump (FWP-1) and emergency generator (EG-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)

## **CONTINUOUS MONITORING SYSTEMS**

49. **CEMS: Turbine Generators** - Continuous Emission Monitoring Systems (CEMS) shall be installed to measure and record the emissions of NO<sub>x</sub> (measured as NO<sub>2</sub>) and CO from each combustion turbine generator and associated duct-fired HRSG (CT-1, CT-2) in ppmvd, corrected to 15 percent O<sub>2</sub>. CEMS for NO<sub>x</sub> shall meet the design specifications of 40 CFR Part 75, whereas CEMS for CO shall be installed, evaluated, and operated according to the monitoring requirements in 40 CFR 60.13. The CEMS shall also measure and record the oxygen content of the flue gas at each location where NO<sub>x</sub> and CO emissions are monitored and measure heat input and power output. A CEMS or alternative method as allowed by 40 CFR 75.11 (d) and (e) 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 **Option 1**, Condition 34.a or **Option 2**, Condition 35.a, NO<sub>x</sub> data shall be reduced to 1-hour block averages using procedures approved by the Piedmont Regional Office.  
(9 VAC 5-50-350 and 9 VAC 5-50-40)
50. **Continuous Monitoring: Turbine Generators – Greenhouse gases** – CO<sub>2</sub> emissions from each combustion turbine generator and associated duct-fired HRSG (CT-1, CT-2) shall be monitored using one of the methods in 40 CFR Part 75.13. The permittee shall notify the Piedmont Regional Office as to which method was used to determine the emissions of CO<sub>2</sub> from the turbines and associated duct-fired HRSGs. The methods in Appendix G to 40 CFR Part 75, shall be used to report annual CO<sub>2</sub> emissions. CH<sub>4</sub> and N<sub>2</sub>O emissions shall be calculated using fuel heat value data and the emission factors found in 40 CFR Part 98, Subpart C, Table C-2. Annual CO<sub>2</sub>e emissions shall be calculated using the global warming potential factors found in 40 CFR Part 98, Subpart A, Table A-1 for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.  
(9 VAC 5-50-50)
51. **Continuous Metering: Net Power Output and Fuel Flow** – The permittee shall continuously monitor the net electrical output of the combustion turbine generator and associated steam turbine (CT-1, CT-2) and the fuel flow to the turbines and duct burners to show compliance with the emission factor in Condition 40 or Condition 41, as applicable, on a 12-month rolling basis.  
(9 VAC 5-50-40F)
52. **CEMS: Auxiliary Boiler** – Compliance with the Auxiliary Boiler (B-1) NO<sub>x</sub> emission limits in Condition 42 shall be determined by one of the following methods:
- a. CEMS shall be installed to measure and record the emissions of NO<sub>x</sub> (measured as NO<sub>2</sub>) from the auxiliary boiler (B-1) in lb/MMBtu as described in 40 CFR 60.48b(b). The CEMS shall also measure and record the oxygen content (or CO<sub>2</sub> emissions) of the flue gas. The CEMS shall be installed, calibrated, maintained, audited and operated in accordance with the requirements of 40 CFR 60.13.

- b. If Virginia DEQ approves an operational monitoring plan for the Auxiliary Boiler (B-1), as provided by 40 CFR 60.48b (g) (2) and 60.49b (c), rather than using a continuous emissions monitoring system for NO<sub>x</sub>, the permittee shall conduct performance tests for NO<sub>x</sub> and monitor the operating conditions during testing to develop a plan to predict NO<sub>x</sub> emissions from the boiler.

For compliance with the emission limit contained in Condition 42, NO<sub>x</sub> data shall be reduced to a 30-day rolling average basis using procedures approved by the Piedmont Regional Office.

(9 VAC 5-50-350 and 9 VAC 5-50-410)

53. **CEMS Performance Evaluations** - Performance evaluations of the NO<sub>x</sub> and, if applicable, SO<sub>2</sub> CEMS shall be conducted in accordance with 40 CFR Part 75, Appendix A, and shall take place during the performance tests under 9 VAC 5-50-30 or within 30 days thereafter. Two copies of the performance evaluations report shall be submitted to the Piedmont Region 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 Region.  
(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<sub>x</sub> and CO from the stack of each combustion turbine generator and associated duct-fired HRSG (CT-1, CT-2) in tons/yr for the purpose of emission inventory.  
(9 VAC 5-50-50)
56. **CEMS: Excess Emissions and Monitor Downtime for NO<sub>x</sub>** - 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 a normal unit operating period (does not apply to startup, shutdown, malfunction, or alternative operating scenarios) in which the average one-hour NO<sub>x</sub> emission rate exceeds the applicable emission limit in **Option 1**, Condition 34.a or **Option 2**, Condition 35.a; 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<sub>x</sub> concentration, O<sub>2</sub> 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 Monitoring Downtime for SO<sub>2</sub>** - Excess emissions and monitoring downtime are defined, for the purpose of this permit, as follows:

- a. Excess emissions of SO<sub>2</sub> from the combustion turbine generators occurs when the 12-month rolling average sulfur content of the fuel being fired in the combustion turbine generators and associated duct burners (CT-,1 CT-2) exceeds the applicable limit in Condition 6 based on monthly fuel testing in Condition 24. The excess emission period ends on the date that 12-month rolling average sulfur content of the fuel demonstrates compliance with the sulfur limit; and
- b. A period of monitoring downtime begins when a required sample is not taken by its due date. A period of monitoring downtime also begins on the date of a required sample, if invalid results are obtained. The period of monitor downtime ends on the date of the next valid sample.

(9 VAC 5-50-50, 9 VAC 5-50-260)

**58. Continuous Monitoring Excess Emissions Reports** - The permittee shall furnish written reports to the Piedmont Region of excess emissions from any process monitored by a continuous monitoring system 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:

- 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 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
- d. 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.
- e. Excess emission reports for sulfur dioxide and nitrogen dioxide as required in 40 CFR 60.4395.

(9 VAC 5-50-50)

**59. CEMS: Excess Emissions** – For purposes of identifying excess emissions:

- a. All CEMS data must be reduced to hourly averages as specified in 40 CFR 60.13(h);
- b. For each operating hour in which a valid hourly average, as described in 40 CFR 60.4345(b), is obtained for both NO<sub>x</sub> and diluent monitors, the data acquisition and handling system must calculate and record the hourly NO<sub>x</sub> 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 O<sub>2</sub> concentration exceeds 19.0 percent O<sub>2</sub>, a diluent cap value of 19.0 percent O<sub>2</sub> may be used in the emission calculations; and

- c. 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, Appendix 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: Facility** - 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 5-50-30F and 9 VAC 5-80-1675)

61. **Stack Test: Turbine Generators** - Initial performance tests shall be conducted for CO, PM (filterable), PM<sub>10</sub>, PM<sub>2.5</sub>, and total VOC from each combustion turbine generator and associated duct burner (CT-1, CT-2) to determine compliance with the emission limits contained in **Option 1**, Condition 34.a or **Option 2**, Condition 35.a. 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 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. Tests shall be conducted for the following operating scenarios: natural gas firing at full load with the duct burners off; and natural gas firing at full load with the duct burners on. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days of test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-50-30, 9 VAC 5-80-1675, and 9 VAC 5-50-410)

62. **Stack Test: Turbine Generators** - Initial performance tests shall be conducted for CO and total VOC from each combustion turbine generator (CT-1, CT-2) for startup and shutdown periods as defined in Condition 9 to determine compliance with the emission limits contained in **Option 1**, Condition 34.d or **Option 2**, Condition 35.d. The tests shall be performed and demonstrate compliance within the first 12 months of turbine operation. 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. The protocol shall include procedures for development of the required CO and VOC correlation for the combustion turbine generators and associated duct burners (CT-1, CT-2). One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days of test completion and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-50-30, 9 VAC 5-80-1675)

63. **Initial Performance Test: Turbine Generators** – Initial performance tests shall be conducted on each combustion turbine generator and associated duct burner (CT-1, CT-2) for NO<sub>x</sub> (as NO<sub>2</sub>) to determine compliance with the limits contained in **Option 1**, Condition 34.a or **Option 2**, Condition 35.a using 40 CFR 60, Appendix A, Methods 7E or 20 to measure the NO<sub>x</sub> concentration (in ppm) and following the performance test specifications found in 40 CFR 60.4400.

The tests shall be performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the unit will be operated but in no event later than 180 days after start-up of the permitted unit. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30 and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-50-410. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office, within 60 days after test completion and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-50-30, 9 VAC 5-50-410, and 9 VAC 5-80-1675)

64. **Initial Performance Test: Turbine Generators** – Initial performance tests shall be conducted on each combustion turbine generator and associated duct burner (CT-1, CT-2) for SO<sub>2</sub> to determine compliance with the limits contained in **Option 1**, Condition 36 or **Option 2**, Condition 38. 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 manually sampling using 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, 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 SO<sub>2</sub> concentration (in parts per million (ppm)). In addition, the American Society of

Mechanical Engineers (ASME) standard, ASME PTC 9–10–1981–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 SO<sub>2</sub> 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 performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the unit will be operated but in no event later than 180 days after start-up of the permitted unit. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30 and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-50-410. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office, within 60 days after test completion and shall conform to the test report format enclosed with this permit. If fuel sampling is used, as described in 64.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 and 9 VAC 5-80-1675)

65. **Stack Test: Auxiliary Boiler and Dew Point Heater** - Initial performance tests shall be conducted for NO<sub>x</sub> and CO from the auxiliary boiler (B-1) and the dew point heater (DPH-1) to determine compliance with the emission limits contained in Conditions 42 and 45, as applicable. The tests shall be performed, reported and demonstrate compliance within 60 days after the boiler or dew point heater, as applicable, reach the maximum load level at which the unit will be operated but in no event later than 180 days after its initial start-up. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30 and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-50-410. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days of test completion and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-50-30, 9 VAC 5-80-1985E, and 9 VAC 5-50-410)

66. **Visible Emissions Evaluation: Turbine Generators** - Concurrently with the initial performance tests, Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall be conducted by the permittee on each combustion turbine generator and associated duct burner (CT-1, CT-2). Each test shall consist of 30 sets of 24 consecutive observations (at 15 second intervals) to yield a six-minute average. At least one VEE shall be conducted for each of the operating conditions and loads for which emissions tests are required for the stack tests contained in Condition 61. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at

least 30 days prior to testing. The evaluation shall be performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the unit will be operated but in no event later than 180 days after start-up of the permitted unit.

Should conditions prevent concurrent opacity observations, the Piedmont Regional Office shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests. One copy of the test result shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.

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

- 67. Visible Emissions Evaluation: Auxiliary Boiler and Dew point heater** - Concurrently with the initial performance tests in Condition 65, Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall be conducted by the permittee on the auxiliary boiler (B-1) and dew point heater (DPH-1). Each test shall consist of 10 sets of 24 consecutive observations (at 15 second intervals) to yield a six-minute average. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. The evaluation shall be performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the boiler will be operated but in no event later than 180 days after start-up of the boiler.

Should conditions prevent concurrent opacity observations, the Piedmont Regional Office shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests. One copy of the test result shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.

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

- 68. Initial Performance Testing: Power Block Heat Rate Limit** - Initial compliance testing, using ASME Performance Test Code on Overall Plant Performance (ASME PTC 46-1996) or equivalent method approved by the Piedmont Regional Office, shall be conducted for the heat rate limit of the power blocks (i.e., a combination of CT-1 and CT-2 and the steam turbine generator) to show compliance with the heat rate limit contained in Condition 8. The testing shall be performed, reported and demonstrate compliance within 90 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after commencement of commercial operation of the permitted facility. Testing shall be conducted when combusting natural gas. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days of test completion and shall conform to the test report format enclosed with this permit.

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

## **CONTINUING COMPLIANCE DETERMINATION**

69. **Annual Performance Test: Turbine Generators** – Annual performance tests shall be conducted on each combustion turbine generator and associated duct burner (CT-1, CT-2) for SO<sub>2</sub> to determine compliance with the limits contained in **Option 1**, Condition 36 or **Option 2**, Condition 38. 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 SO<sub>2</sub> concentration (in parts per million (ppm)). In addition, the American Society of Mechanical Engineers (ASME) standard, ASME PTC 9–10–1981–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 SO<sub>2</sub> 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 60 days after test completion and shall conform to the test report format enclosed with this permit. If fuel sampling is used, as described in 69.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)

70. **Compliance with NSPS CO<sub>2</sub> Standard** – The permittee shall demonstrate compliance with the applicable CO<sub>2</sub> emission standard by following the procedures in 40 CFR 60.5520(d)(1) for maintaining fuel purchase records.  
(9 VAC 5-80-1675 and 9 VAC 5-50-20)

71. **Stack Tests: Continuing Compliance** – 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 5-50-30G)

## **RECORDS**

72. **On Site Records: Facility** - 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 Region. These records shall include, but are not limited to:

- a. Annual hours of operation of the emergency fire water pump (FWP-1) and emergency generator (EG-1) 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 diesel emergency units (EG-1 and FWP-1);
- c. Monthly and annual throughput of natural gas to the two combustion turbine generators and associated duct burners (CT-1, CT-2), 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. Monthly and annual throughput of natural gas to the auxiliary boiler (B-1) and the dew point heater (DPH-1), 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;
- e. Fuel sulfur monitoring records for the natural gas combusted in the combustion turbine generators and associated duct burners (CT-1, CT-2), auxiliary boiler (B-1), and dew point heater (DPH-1);
- f. Net power output of the combined cycle combustion turbine generators and associated steam turbine (CT-1, CT-2).
- 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 5;
- i. Records of alternative operating scenarios as required by Condition 10;

- j. The occurrence and duration of any startup, shutdown, or malfunction of the affected facility, any malfunction of the air pollution control equipment, or any periods during which a continuous emission monitoring system is inoperative;
- k. Monthly log of dissolved solids content of cooling water to the cooling tower (CWT-1).
- l. Results of daily AVO inspections of piping and components.
- m. Scheduled and unscheduled maintenance and operator training.
- n. Results of all stack tests, visible emission evaluations, performance evaluations, and initial power block heat rate test.
- o. Manufacturer's instructions for proper operation of equipment.
- p. Records showing the circuit breakers are operating in accordance with the manufacturer's specifications (see Condition 21).

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 and 9 VAC 5-50-410)

### **NOTIFICATIONS**

73. **Initial Notifications** - The permittee shall furnish written notification to the Piedmont Regional Office of:

- a. The actual date on which construction of the electric power generation facility commenced within 30 days after such date.
- b. The anticipated start-up date of the electric power generation facility postmarked not more than 60 days nor less than 30 days prior to such date.
- c. The actual start-up date of the electric power generation facility within 15 days after such date.
- d. The anticipated date of continuous monitoring system performance evaluations postmarked not less than 30 days prior to such date.
- e. The anticipated date of performance tests of the combustion turbine generators (CT-1, CT-2), auxiliary boiler (B-1), and dew point heater (DPH-1), postmarked at least 30 days prior to such date.

Copies of the written notification referenced in items a through e above are to be sent to:

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

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

## **GENERAL CONDITIONS**

74. **Permit Invalidation** –This permit to construct the electric power generation facility shall become invalid, unless an extension is granted by the DEQ, if:

- a. A program of continuous construction or modification is not commenced within 18 months from the date of this permit.
- b. A program of construction or modification 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.  
(9 VAC 5-80-1985)

75. **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 5-80-1985F)

76. **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)

77. **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 5-50-20E)

**78. 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.

(9 VAC 5-20-180J)

**79. 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 5-20-180C)

**80. 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 5-20-180I)



81. **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 5-80-1985E)

82. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.  
 (9 VAC 5-80-1985E)

**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.

83. **(SOE) Emission Limits: Toxic Air Pollutants** – Emissions from the electric power generation facility shall not exceed the limits specified below:

<u>Pollutant</u>	<u>CAS#</u>	<u>Option 1 GE turbines</u>		<u>Option 2 Siemens turbines</u>	
		<u>Lb/hr</u>	<u>Tons/yr</u>	<u>Lb/hr</u>	<u>Tons/yr</u>
Acrolein	107-02-8	0.045	0.20	0.040	0.18
Formaldehyde	50-00-0	1.7	7.1	1.7	7.3
Cadmium	7440-43-9	exempt	exempt	exempt	0.010
Chromium	7440-47-3	exempt	exempt	exempt	0.013
Nickel	7440-02-0	exempt	exempt	exempt	0.019

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 4, 7, 9, and 23.  
 (9 VAC 5-60-320 and 9 VAC 5-80-1625G)

84. **(SOE) Stack Test: Toxic Air Pollutants** – An initial performance test shall be conducted for formaldehyde from each combustion turbine generator and associated duct burner (CT-1, CT-2) to determine compliance with the emission limits contained in Condition 83. 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 9 VAC 5-50-30 and the test shall be conducted in accordance with applicable EPA reference test methods that must be approved through the test protocol review process. Tests shall be conducted at full load with the duct burners on. The details of the tests are to

be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days of test completion.

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

85. **(SOE) On Site Records: Toxic Air Pollutants** – 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 83. Hourly emissions shall be calculated as a monthly average. 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