



## North Carolina Department of Environment and Natural Resources

DIVISION OF AIR QUALITY

Beverly Eaves Perdue, Governor

Dee Freeman, Secretary  
B. Keith Overcash, P.E., Director

**DATE**, 2009

**PROPOSED**

Mr. E. Scott Dial  
Combined Cycle Site Manager  
Cleveland County Generating Facility  
5755 North Carolina 801 Highway  
Salisbury, NC 28147

Subject: Air Permit No. 09881R00  
Cleveland County Generating Facility  
Grover, Cleveland County, North Carolina  
Fee Class: Title V  
Site Number: 03/23/00372

Dear Mr. Dial:

In accordance with your completed application received February 14, 2008, we are forwarding herewith Permit No. 09881R00 to Cleveland County Generating Facility, Grover, Cleveland County, North Carolina for the construction and operation of air emissions sources or air cleaning devices and appurtenances. Please note the records retention requirements are contained in General Condition 2 of the General Conditions and Limitations.

If any parts, requirements, or limitations contained in this permit are unacceptable to you, you have the right to request a formal adjudicatory hearing within 30 days following receipt of this permit, identifying the specific issues to be contested. Such a request will stay the effectiveness of the entire permit. This hearing request must be in the form of a written petition, conforming to G.S. 150B-23 of the North Carolina General Statutes, and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27699-6714. The form for requesting a formal adjudicatory hearing may be obtained upon request from the Office of Administrative Hearings. Unless a request for a hearing is made pursuant to G.S. 150B-23, this air permit shall be final and binding.

You may request modification of your air permit through informal means pursuant to G.S. 150B-22. This request must be submitted in writing to the Director and must identify the specific provisions or issues for which the modification is sought. Please note that the permit will become final and binding regardless of a request for informal modification unless a request for a hearing is

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**Raleigh Central Office**

1641 Mail Service Center, 2728 Capital Boulevard, Raleigh, North Carolina 27699-1641

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E. Scott Dial

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also made under G.S. 150B-23.

**Unless exempted by a condition of this permit or the regulations, construction of new air pollution sources or air cleaning devices, or modifications to the sources or air cleaning devices described in this permit must be covered under a permit issued by the Division of Air Quality prior to construction. Failure to do so is a violation of G.S. 143-215.108 and may subject the Permittee to civil or criminal penalties as described in G.S. 143-215.114A and 143-215.114B.**

This permit shall be effective from DATE, 2009 until DATE, 2014, is nontransferable to future owners and operators, and shall be subject to the conditions and limitations as specified therein.

**Changes have been made to the permit stipulations. The Permittee is responsible for carefully reading the entire permit and evaluating the requirements of each permit stipulation. The Permittee shall comply with all terms, conditions, requirements, limitations and restrictions set forth in this permit. Noncompliance with any permit condition is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application.** Should you have any questions concerning this matter, please contact Jenny Kelvington at (919) 715-6254.

Sincerely,

Donald van der Vaart, Ph.D., P.E.  
Chief, Permits Section

Enclosures

c: Central Files  
Mooresville Regional Office

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF AIR QUALITY

**AIR PERMIT NO. 09881R00**

Issue Date: **DATE**, 2009

Effective Date: **DATE**, 2009

Expiration Date: **DATE**, 2014

Replaces Permit: (new)

To construct and operate air emission source(s) and/or air cleaning device(s), and for the discharge of the associated air contaminants into the atmosphere in accordance with the provisions of Article 21B of Chapter 143, General Statutes of North Carolina (NCGS) as amended, and other applicable Laws, Rules and Regulations,

Cleveland County Generating Facility  
 200 Elm Road  
 Grover, Cleveland County, North Carolina  
 Fee Class: Title V  
 Site Number: 03/23/00372

(the Permittee) is hereby authorized to construct and operate the air emissions sources and/or air cleaning devices and appurtenances described below:

<b>Emission Source ID</b>	<b>Emission Source Description</b>	<b>Control System ID</b>	<b>Control System Description</b>
ES1 <b>NSPS, PSD</b>	Six natural gas/ No. 2 fuel oil-fired simple-cycle internal combustion turbines (2,210 million Btu per hour maximum heat input rate each and each equipped with dry Low-NOx combustors when firing natural gas; 2,129 million Btu per hour maximum heat input rate each with each having water injection capability when firing fuel oil)	N/A	N/A
ES7 <b>NSPS, PSD, MACT</b>	One No. 2 fuel oil-fired emergency generator (14 million Btu per hour maximum heat input rate) with ignition timing retard and low NOx engine design	N/A	N/A
ES8 <b>NSPS, PSD, MACT</b>	One No. 2 fuel oil-fired emergency firewater pump engine (1.5 million Btu per hour maximum heat input rate) with ignition timing retard and low NOx engine design	N/A	N/A
ES9 <b>PSD</b>	One natural gas-fired gas heater (4 million Btu per hour maximum heat input rate) with low NOx burners	N/A	N/A
ES10 <b>PSD</b>	One No. 2 fuel oil fixed-roof storage tank (2.2 million gallons capacity)	N/A	N/A
ES11 <b>PSD</b>	One No. 2 fuel oil fixed-roof storage tank (1.1 million gallons capacity) [PSD]	N/A	N/A

in accordance with the completed application 2300372.08A received February 14, 2008 including any plans, specifications, previous applications, and other supporting data, all of which are filed with the Department of Environment and Natural Resources, Division of Air Quality (DAQ) and are incorporated as part of this permit.

This permit is subject to the following specified conditions and limitations including any TESTING, REPORTING, OR MONITORING REQUIREMENTS:

#### **A. SPECIFIC CONDITIONS AND LIMITATIONS**

1. Any air emission sources or control devices authorized to construct and operate above must be operated and maintained in accordance with the provisions contained herein. The Permittee shall comply with applicable Environmental Management Commission Regulations, including Title 15A North Carolina Administrative Code (NCAC), Subchapter 2D .0200, 2D .0202, 2D .0516, 2D .0521, 2D .0524 (40 CFR 60, Subpart A -- General Provisions, Subpart III -- Stationary Compression Ignition Internal Combustion Engines, Subpart KKKK- Stationary Combustion Turbines), 2D .0530, 2D .0535, 2D .0540, 2D .1418 2Q .0402 and 2Q .0504.
2. EMISSION INVENTORY REQUIREMENT - At least 90 days prior to the expiration date of this permit, the Permittee shall submit the air pollution emission inventory report in accordance with 15A NCAC 2D .0202, pursuant to N.C. General Statute 143 215.65. The report shall be submitted to the Regional Supervisor, DAQ. The report shall document air pollutants emitted for the 2012 calendar year. The Regional Office will send information on how to submit the emissions inventory, along with a reminder to renew your permit, about six months prior to your permit expiration. If you do not receive this information, please contact the Regional Supervisor, DAQ.
3. SULFUR DIOXIDE CONTROL REQUIREMENT - As required by 15A NCAC 2D .0516 "Sulfur Dioxide Emissions from Combustion Sources," sulfur dioxide emissions from the combustion sources shall not exceed 2.3 pounds per million Btu heat input.
4. VISIBLE EMISSIONS CONTROL REQUIREMENT - As required by 15A NCAC 2D .0521 "Control of Visible Emissions," visible emissions from the emission sources, manufactured after July 1, 1971, shall not be more than 20 percent opacity when averaged over a six-minute period, except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. However, sources which must comply with 15A NCAC 2D .0524 "New Source Performance Standards" or .1110 "National Emission Standards for Hazardous Air Pollutants" must comply with applicable visible emissions requirements contained therein.
5. 15A NCAC 2D .0524 "NEW SOURCE PERFORMANCE STANDARDS" - For the following equipment, The Permittee shall comply with all applicable provisions, including the notification, testing, reporting, recordkeeping, and monitoring requirements contained in Environmental Management Commission Standard 15A NCAC 2D .0524 "New Source Performance Standards" (NSPS) as promulgated in 40 CFR 60, Subpart indicated below, and including Subpart A "General Provisions."

Emission Source(s)	Regulation
Six simple-cycle internal combustion turbines (ID Nos. ES1 through ES6)	Subpart KKKK -- Stationary Combustion Turbines
Emergency generator (ID Nos. ES7) and emergency firewater pump engine (ID No. ES8)	Subpart IIII – Stationary Compression Ignition Internal Combustion Engines

- a. NSPS Reporting Requirements - In addition to any other notification requirements to the Environmental Protection Agency (EPA), the Permittee is required to NOTIFY the Regional Supervisor, DAQ, in WRITING, of the following:
  - i. The date construction (40 CFR 60.7) or reconstruction (40 CFR 60.15) of an affected source is commenced, postmarked no later than 30 days after such date.
  - ii. The actual date of initial start-up of an affected source, postmarked within 15 days after such date.
- b. NSPS Operation - The Permittee shall operate and maintain the stationary combustion turbines including their low NO<sub>x</sub> burners and water injection systems, the emergency generator, the emergency firewater pump, and all associated monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown and malfunction
- c. NSPS Equipment Specification – The Permittee shall purchase an emergency generator (**ID No. ES7**) for the model year 2007 or later, and a emergency firewater pump engine (**ID No. ES8**), which meet the applicable requirements under NSPS, Subpart IIII. The Permittee shall maintain a record of engine manufacturer data indicating compliance with the standards
- d. NSPS Fuel Specification – The Permittee shall use No. 2 fuel oil for the emergency generator and firewater pump engine (**ID Nos. ES7 and ES8**) with the following specifications:
  - i. a maximum sulfur content of 500 ppm (0.05 percent by weight) through September 30, 2010, and a maximum sulfur content of 15 ppm (0.0015 percent by weight) beginning October 1, 2010,
  - ii. a minimum cetane number of 40, and
  - iii. a maximum aromatic content of 35 percent by volume.
- e. NSPS Emissions Limitations - As required by 15A NCAC 2D .0524, the following permit limits shall not be exceeded:

Affected Source(s)	Pollutant	Emission Limit
Six simple-cycle internal combustion turbines (ID Nos. ES1 through ES6)	NO <sub>x</sub>	15 ppmvd at 15% O <sub>2</sub> while firing natural gas
		42 ppmvd at 15% O <sub>2</sub> while firing fuel oil
	SO <sub>2</sub>	sulfur fuel content limited to 0.06 lb SO <sub>2</sub> /million Btu heat input

Affected Source(s)	Pollutant	Emission Limit
Emergency generator (ID Nos. ES7)	VOC and NO <sub>x</sub> Combined	6.4 g/kW-hr (4.7g/HP-hr)
	CO	3.5 g/kW-hr (2.6 g/HP-hr)
	PM	0.2 g/kW-hr (0.15 g/HP-hr)
Emergency firewater pump engine (ID No. ES8)	VOC and NO <sub>x</sub> Combined	10.5 g/kW-hr (7.8 g/HP-hr) for 2008 and earlier model year
		4.0 g/KW-hr (3.0 g/HP-hr) for 2009 and later
	CO	3.5 g/kW-hr (0.15 g/HP-hr) for 2008 and earlier model year
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	PM	0.54 g/kW-hr (0.4 g/HP-hr) for 2008 and earlier model year
0.20 g/KW-hr (0.15 g/HP-hr) for 2009 and later		

f. NSPS Performance Testing - As required by 15A NCAC 2D .0524, the following performance tests shall be conducted:

Affected Source(s)	Pollutant	Test Method
One of six simple-cycle internal combustion turbines (ID No. ES1, ES2, ES3, ES4, ES5, or ES6)	NO <sub>x</sub>	20 or 7A

- i. The performance testing shall be conducted using one of the test methods specified in the table above in accordance with EPA Reference Method, contained in 40 CFR 60, Appendix A. Use of an alternate test method must be approved in advance by the Division of Air Quality, and must be based on a test protocol that documents the alternate method is at least as accurate as the specified method. The EPA Administrator retains the exclusive right to approve equivalent and alternative test methods, continuous monitoring procedures, and reporting requirements.
- ii. Within 60 days after achieving the maximum production rate at which the equipment will be operated, but not later than 180 days after the initial start-up of the equipment, the Permittee shall conduct the required performance testing on **one** combustion turbine (**ID No. ES1, ES2, ES3, ES4, ES5 or ES6**) for each fuel (natural gas and No. 2 fuel oil) to demonstrate compliance with the NO<sub>x</sub> emission limit.
- iii. The initial performance test for the No. 2 fuel oil-fired combustion turbine shall establish the acceptable fuel consumption rate and water-to-fuel ratio necessary to comply with the applicable NO<sub>x</sub> emission limit. With each test run, the Permittee shall operate a continuous monitoring system, which monitors and records the fuel consumption and the water-to-fuel ratio, and use the collected data to determine acceptable values for both variables.
- iv. The initial NSPS performance testing may be combined with the initial PSD performance testing specified in Permit Condition 6.m.
- v. The Permittee shall perform annual testing on one natural gas-fired combustion turbine (**ID No. ES1, ES2, ES3, ES4, ES5 or ES6**). The initial performance test required by Permit Condition 5.f.ii. may be considered the first annual test. The

- testing frequency may be reduced to once every two years if NO<sub>x</sub> emission results from the most recent DAQ approved performance test are less than or equal to 75 percent of the NO<sub>x</sub> limit. If the results of any subsequent performance test exceed 75 percent of the NO<sub>x</sub> limit, the Permittee shall resume annual performance testing of one natural gas-fired combustion turbine until such time an approved NO<sub>x</sub> emissions result returns to 75 percent or less of the NO<sub>x</sub> limit. As an alternative to annual performance testing, the Permittee may continuously monitor in accordance with §60.4340(b) as specified in Permit Condition 5.g.iv **or** v.
- vi. The Permittee shall be responsible for ensuring, within the limits of practicality, that the combustion turbine being tested is operated at a load condition within 25 percent of 100 percent of peak load or at the highest achievable load point if at least 75 percent peak load cannot be achieved.
  - vii. Three separate test runs must be conducted for each performance test with a minimum time of 20 minutes per run. The ambient temperature for each test run shall be above 0<sup>0</sup>F.
  - viii. All associated testing costs are the responsibility of the Permittee.
  - ix. At least 45 days prior to performing any required emissions testing, the Permittee must submit two copies of a testing protocol to the Regional Supervisor, DAQ for review and approval. All testing protocols must be approved by the Division of Air Quality prior to performing tests.
  - x. To afford the Regional Supervisor, DAQ the opportunity to have an observer present, the Permittee shall PROVIDE the Regional Office, in WRITING, at least 15 days notice of any required performance test(s).
  - xi. The Permittee shall submit two copies of a written report of the results of each performance test, postmarked no later than 60 days following the completion of the test, to the Regional Supervisor, DAQ.
  - xii. The Division of Air Quality retains the right to require additional performance testing for one or more of the combustion turbines if the stack tests results for the tested combustion turbine show a small margin of compliance with the NO<sub>x</sub> emission limit.
- g. NSPS Monitoring for the Combustion Turbines (ID Nos. ES1 through ES6)- As required by 15A NCAC 2D .0524, the following monitoring shall be performed:
- i. In accordance with §60.4335, the Permittee shall install, calibrate, maintain and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbines burning No. 2 fuel oil.
  - ii. The Permittee shall use **one** of the following methods to demonstrate compliance with the sulfur dioxide emission limit:
    - A. Monitor the total sulfur content of the fuel being fired in the turbine using the total sulfur methods described in §60.4415 or the alternative described in §60.4360; or
    - B. Demonstrate that the fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the total sulfur content for oil is 0.05 weight percent (500 ppmw) or less and the

- total sulfur content for natural gas is 20 grains of sulfur or less per 100 standard cubic feet, or
- C. Demonstrate, by using representative fuel sampling to demonstrate that the sulfur content of the fuel does not exceed 0.060 lb SO<sub>2</sub>/mmBtu in accordance with §60.4365(b) and §60.4370.
- iii. As an alternate to the annual performance testing in Permit Condition 5.f.ii. above, the Permittee may continuously monitoring NO<sub>x</sub> emissions as follows:
- A. The Permittee shall install, certify, maintain, and operate a continuous emissions monitoring system (CEMS) consisting of a NO<sub>x</sub> monitor and a diluent gas (oxygen or carbon monoxide) monitor to determine the hourly NO<sub>x</sub> emission rate in parts per million or pound per million Btus, and
- B. For turbines complying with the input-based standard, a fuel flow meter (or meters) to continuously measure the heat input, and
- C. For turbines complying with the output-based standard, a watt meter (or meters) to continuously measure the gross electrical output of the turbine in megawatt-hours; **OR**
- iv. As an alternative to the annual performance testing in Permit Condition 5.f.ii. above, the Permittee may continuously monitor a minimum of four operating parameters, indicative of the turbine's NO<sub>x</sub> formation characteristics at the tested load-heat input point, to assure each natural gas-fired combustion turbine is operating in low-NO<sub>x</sub> mode. The Permittee shall define the acceptable range for each parameter in a Quality Assurance plan and base each range on either documented turbine manufacturer's recommendations, sound engineering judgment, or operating experience.
- h. NSPS Monitoring for the Emergency Internal Combustion Engines (ID Nos. ES7 and ES8) - As required by 15A NCAC 2D .0524, the following monitoring shall be performed:
- i. The emergency generator and firewater pump engine (**ID Nos. ES7 and ES8**) shall each be equipped with a non-resettable hour meter prior to startup.
- ii. For each engine (**ID Nos. ES7 and/or ES8 or none**) equipped with a diesel particulate filter to comply with the emission standards in Condition 5.d. above, the Permittee shall install a backpressure monitor on the diesel particulate filter that signals when the high backpressure limit of the engine is approached.
- iii. The Permittee may operate the emergency generator and firewater pump engine (**ID Nos. ES7 and ES8**) for maintenance checks and readiness testing for up to 100 hours per year each provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, the insurance company associated with these sources, or best operating practices. To exceed the annual hour limit, the Permittee must either maintain records indicating that Federal, State, or local standards require maintenance and testing of these emergency internal combustion engines beyond 100 hours or receive approval from the Administrator for additional hours. All other non-emergency operation is prohibited. Operation during an actual emergency is not limited under NSPS.

- iv. The Permittee shall maintain a current, valid purchase contract, tariff sheet, or transportation contract, which specifies the sulfur and aromatic content and the cetane number for the No. 2 fuel oil, for a period of two years after the date on which the record was made.

6. 15A NCAC 2D .0530 "PREVENTION OF SIGNIFICANT DETERIORATION"

- a. The following Best Available Control Technology (BACT) limits shall not be exceeded:

<b>Emission Source</b>	<b>Pollutant</b>	<b>Fuel</b>	<b>Emission Limit<sup>1 to 4</sup></b>	<b>Control Technology</b>
six natural gas/No. 2 fuel oil-fired simple cycle combustion turbines <b>(ID Nos. ES1 through ES6)</b>	NO <sub>x</sub> (as NO <sub>2</sub> )	natural gas	9 ppmvd <sup>2</sup> at 15% O <sub>2</sub> [24-hour average] <sup>3</sup>	dry-low NO <sub>x</sub> combustors
		fuel oil	42 ppmvd <sup>2</sup> at 15% O <sub>2</sub> [24-hour average] <sup>3</sup>	water injection
	CO	natural gas	4 ppmvd at 15% O <sub>2</sub> at 70 to 100% load	good combustion control practices
			10 ppmvd at 15% O <sub>2</sub> at 60 to <70% load	
		fuel oil	10 ppmvd at 15% O <sub>2</sub> at 90 to 100% load	good combustion control practices
			20 ppmvd at 15% O <sub>2</sub> at 80 to <90% load	
	VOC (as CH <sub>4</sub> )	natural gas	1 ppmvd at 15% O <sub>2</sub> at 70 to 100% load	good combustion control practices
		natural gas	5 ppmvd at 15% O <sub>2</sub> at 60 to <70% load	
		fuel oil	10 ppmvd at 15% O <sub>2</sub>	good combustion control practices
	PM/PM <sub>10</sub> (filterable and condensable)	natural gas	0.0083 lb/million Btu	good combustion control practices and use of pipeline quality natural gas containing a maximum of 0.2 grain per 100 square feet sulfur content
fuel oil		0.0646 lb/million Btu	good combustion control practices and use of ultra-low sulfur No. 2 fuel oil containing a maximum of 0.0015% by weight (15ppm) sulfur content	
emergency generator <b>(ID No. ES7)</b>	NO <sub>x</sub> and VOC combined	fuel oil	4.7 g/hp-hr	ignition timing retard and low NO <sub>x</sub> engine design
	CO	fuel oil	2.5 g/hp-hr	good combustion control practices

<b>Emission Source</b>	<b>Pollutant</b>	<b>Fuel</b>	<b>Emission Limit<sup>1 to 4</sup></b>	<b>Control Technology</b>
emergency generator (ID No. ES7)	VOC (as CH <sub>4</sub> )	fuel oil	0.29 g/hp-hr	good combustion control practices and annual use limits
	PM/PM <sub>10</sub> (filterable and condensable)	fuel oil	0.15 g/hp-hr	use of ultra-low sulfur No. 2 fuel oil containing a maximum of 0.0015% by weight (15ppm) sulfur content and annual use limits
emergency fire water pump engine (ID No. ES8)	NO <sub>x</sub> (as NO <sub>2</sub> )	fuel oil	4.4 g/hp-hr	ignition timing retard, low NO <sub>x</sub> engine design, and good combustion control
	CO	fuel oil	2.6 g/hp-hr	good combustion control practices
	VOC (as CH <sub>4</sub> )	fuel oil	1.1 g/hp-hr	good combustion control practices
	PM/PM <sub>10</sub> (filterable and condensable)	fuel oil	0.23 g/hp-hr	use of ultra-low sulfur No. 2 fuel oil containing a maximum of 0.0015% by weight (15ppm) sulfur content
gas heater (ID Nos. ES9)	NO <sub>x</sub> (as NO <sub>2</sub> )	natural gas	0.10 lb/million Btu	low NO <sub>x</sub> burners and good combustion control practices
	CO	natural gas	0.08 lb/million Btu	good combustion control practices
	VOC (as CH <sub>4</sub> )	natural gas	0.005 lb/million Btu	good combustion control practices
	PM/PM <sub>10</sub> (filterable and condensable)	natural gas	0.0076 lb/million Btu	pipeline quality natural gas
two fuel storage tanks (ID Nos. ES10 and ES11)	VOC	N/A	No limit	No requirement

- BACT emission limits shall apply to each source (ID Nos. ES1 through ES9) at all times except during the following: Emissions resulting from start-up, shutdown or malfunction above those listed in the table above are permitted provided that optimal operational practices are adhered to and periods of excess emissions are minimized. For the simple cycle combustion turbines (ID Nos. ES1 through ES6), periods of excess emissions due to start-up and/or shutdown or operation below 60% load on natural gas / 70% load on fuel oil shall not exceed two hours in any 24-hour block period beginning at midnight. Start-up is defined as the period from initial firing to 60% load on natural gas / 70% load on fuel oil. Shutdown is defined as the period from 60% load on natural gas / 70% load on fuel oil to flame out.
- ppmvd = parts per million by volume on a dry basis at 15% O<sub>2</sub>.
- 24-hour rolling average is calculated using only actual operating hours (periods of zero emissions when not operating are not included).
- Compliance with the BACT limits shall be based on a 3-run average of a stack test. Any use of continuous emission monitoring systems data for demonstrating compliance with BACT for any pollutants will require reevaluation of applicable BACT limits.

- b. The following emission limits apply in order to demonstrate compliance with the National Ambient Air Quality Standards as required by 15A NCAC 2D .0530; 40 CFR 51.166(k):

AFFECTED SOURCES	POLLUTANT	EMISSION LIMIT			
		Annual (tons/yr) <sup>a</sup>	per 24-hour (lb)	per 8-hour (lb)	per 1-hour (lb)
six combustion turbines, one emergency generator, one emergency firewater pump engine, and one natural gas heater (ID Nos. ES1 through ES9)	nitrogen dioxide	1,319			
	carbon monoxide			5,716	715
	particulates/PM <sub>10</sub>	235	3,863		

\* Tons per consecutive 12-month period based on a maximum 2,000 operating hours per each combustion turbine (**ID Nos. ES1 through ES6**) of which No. 2 fuel oil is fired for a maximum of 1,000 hours, and a maximum of 500 operating hours each for the emergency generator and firewater pump engine (**ID Nos. ES7 and ES8**). The operation of the natural gas heater (**ID No. ES9**) is unlimited.

- c. The operation for combustion turbines (**ID Nos. ES1 through ES6**) combined shall not exceed 12,774,000 million BTUs (6,000 full load equivalent hours) per rolling consecutive 12-month period when firing No. 2 fuel oil.
- d. The operation for combustion turbines (**ID Nos. ES1 through ES6**) combined shall not exceed 26,520,000 million BTUs (12,000 full load equivalent hours) total per rolling consecutive 12-month period.
- e. The operation for combustion turbines (**ID Nos. ES1 through ES6**) combined while firing No. 2 fuel oil shall not exceed 114,966 million BTUs (54 full load equivalent hours) total per consecutive 24-hour period, which is an average of 19,161 million BTUs (9 full load equivalent hours) for each turbine per consecutive 24-hour period.
- f. For each 24-hour period that natural gas is fired in one or more of the turbines, the operation during which No. 2 fuel oil is fired in the combustion turbines (**ID Nos. ES1 through ES6**) combined shall not exceed 89,418 million BTUs (42 full load equivalent hours) total per consecutive 24-hour period, which is an average of (14,903 million BTUs) (7 full load equivalent hours) for each turbine per consecutive 24-hour period.
- g. For each consecutive 24-hour period that No. 2 fuel oil is fired in the turbines for more than 89,418 million BTUs (42 full load equivalent hours) total, natural gas may not be fired in the combustion turbines (**ID Nos. ES1 through ES6**).
- h. Except during periods of start-up, shutdown, or malfunction, when firing No. 2 fuel oil, the combustion turbines shall operate over a load range of 70 to 100%.
- i. Except during periods of start-up, shutdown, or malfunction, when firing natural gas, the combustion turbines shall operate over a load range of 60 to 100%.

- j. Water injection shall be used to minimize NO<sub>x</sub> formation when the combustion turbines (**ID Nos. ES1 through ES6**) are firing No. 2 fuel oil.
- k. Dry low NO<sub>x</sub> combustors shall be used to minimize NO<sub>x</sub> formation when the combustion turbines (**ID Nos. ES1 through ES6**) are firing natural gas.
- l. The operation of the No.2 fuel oil-fired emergency generator and firewater pump engine (ID Nos. ES7 and ES8) shall not exceed 500 hours each per year.
- m. PSD Performance Testing - As required by 15A NCAC 2D .0530, the following performance tests shall be conducted:

Affected Source(s)	Pollutant	Test Method
One of six simple-cycle internal combustion turbines (ID No. ES1, ES2, ES3, ES4, ES5, or ES6)	NOx	20
	CO	10
	VOC	25A or 18

- i. The performance test shall be conducted using the test method specified in the table above in accordance with EPA Reference Methods, contained in 40 CFR 60, Appendix A. Use of an alternate test method must be approved in advance by the Division of Air Quality, and must be based on a test protocol that documents the alternate method is at least as accurate as the specified method. The EPA Administrator retains the exclusive right to approve equivalent and alternative test methods, continuous monitoring procedures, and reporting requirements.
- ii. Within 60 days after achieving the maximum production rate at which the combustion turbines will be operated, but not later than 180 days after the initial start-up of the combustion turbines, the Permittee shall conduct the required performance testing on **one** combustion turbine (**ID No. ES1, ES2, ES3, ES4, ES5 or ES6**) for each fuel (natural gas and No. 2 fuel oil).
- iii. The initial performance test for the No. 2 fuel oil-fired combustion turbine shall establish the acceptable fuel consumption rate and water-to-fuel ratio necessary to comply with the applicable NO<sub>x</sub> emission limit. With each test run, the Permittee shall operate a continuous monitoring system, which monitors and records the fuel consumption and the water-to-fuel ratio, and use the collected data to determine acceptable values for both variables.
- iv. The performance test(s) shall be done at **one** load condition within 25 percent of 100 percent of peak load or at the highest achievable load point if at least 75 percent peak load cannot be achieved in practice.
- v. The number of runs and time required for each run for the performance test shall be in accordance with the approved testing protocol. The ambient temperature for each test run shall be above 0<sup>0</sup>F.
- vi. All associated testing costs are the responsibility of the Permittee.
- vii. At least 45 days prior to performing any required emissions testing, the Permittee must submit two copies of a testing protocol to the DAQ Regional Supervisor, for review and approval. All testing protocols must be approved by the DAQ prior to performing tests.

- viii. To afford the DAQ Regional Supervisor the opportunity to have an observer present, the Permittee shall PROVIDE the Regional Office, in WRITING, at least 15 days notice of any required performance test(s).
  - ix. The Permittee shall submit two copies of a written report of the results of each performance test, postmarked no later than 60 days following the completion of the test, to the Regional Supervisor, DAQ.
  - x. The Division of Air Quality retains the right to require additional performance testing for one or more of the combustion turbines if the stack tests results for the tested combustion turbine show a small margin of compliance with a NO<sub>x</sub>, CO, or VOC emission limit.
- n. PSD Monitoring - As required by 15A NCAC 2D .0530, the following monitoring shall be performed:
- i. The Permittee shall record and maintain records of the actual number of hours of operation and the amounts of each fuel burned each day for each combustion turbine (**ID Nos. ES1 through ES6**) in accordance with 40 CFR Part 75.
  - ii. The Permittee shall record and maintain records of the actual number of monthly and 12-month rolling total hours of operation for emergency generator and firewater pump engine (**ID Nos. ES7 and ES8**) in accordance with 40 CFR Part 75.
7. NOTIFICATION REQUIREMENT - As required by 15A NCAC 2D .0535, the Permittee of a source of excess emissions that last for more than four hours and that results from a malfunction, a breakdown of process or control equipment or any other abnormal conditions, shall:
- a. Notify the Director or his designee of any such occurrence by 9:00 a.m. Eastern time of the Division's next business day of becoming aware of the occurrence and describe:
    - i. the name and location of the facility,
    - ii. the nature and cause of the malfunction or breakdown,
    - iii. the time when the malfunction or breakdown is first observed,
    - iv. the expected duration, and
    - v. an estimated rate of emissions.
  - b. Notify the Director or his designee immediately when the corrective measures have been accomplished.

This reporting requirement does not allow the operation of the facility in excess of Environmental Management Commission Regulations.

8. FUGITIVE DUST CONTROL REQUIREMENT - As required by 15A NCAC 2D .0540 "Particulates from Fugitive Dust Emission Sources," the Permittee shall not cause or allow fugitive dust emissions to cause or contribute to substantive complaints or excess visible emissions beyond the property boundary. If substantive complaints or excessive fugitive dust emissions from the facility are observed beyond the property boundaries for six minutes in any one hour (using Reference Method 22 in 40 CFR, Appendix A), the owner or

operator may be required to submit a fugitive dust plan as described in 2D .0540(f).

"Fugitive dust emissions" means particulate matter from process operations that does not pass through a process stack or vent and that is generated within plant property boundaries from activities such as: unloading and loading areas, process areas stockpiles, stock pile working, plant parking lots, and plant roads (including access roads and haul roads).

9. MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY – For the following equipment, the Permittee shall comply with all applicable provisions, including the notification, testing, reporting, recordkeeping, and monitoring requirements contained in Environmental Management Commission Standard 15A NCAC 2D .1111 "Maximum Achievable Control Technology" as promulgated in 40 CFR Part 63, Subpart indicated below, and including Subpart A "General Provisions."

Emission Source(s)	Regulation
Emergency generator (ID Nos. ES7) and emergency firewater pump engine (ID No. ES8)	Subpart ZZZZ– Stationary Reciprocating Internal Combustion Engines (RICE)

The Permittee shall fulfill the requirements of 40 CFR 63 Subpart ZZZZ by meeting all applicable requirements of 40 CFR 60 Subpart III, as specified in Permit Condition 5 above, for the emergency generator and firewater pump engine (ID Nos. ES7 and ES8) located at an area source. In accordance with §63.6590(c), no further requirements under 40 CFR 63 Subpart ZZZZ shall apply to these emissions sources (ID Nos. ES7 and ES8).

10. NITROGEN OXIDE CONTROL REQUIREMENT - As required by 15A NCAC 2D .1418 "New Electric Generation Units, Large Boilers, and Large I/C Engines," the Permittee shall comply with the following requirements regarding NO<sub>x</sub> emissions from combustion turbines **(ID Nos. ES1 through ES6)**:
  - a. NO<sub>x</sub> emissions from combustion turbines **(ID Nos. ES1 through ES6)** shall not exceed 0.15 lb/million Btu on natural gas / 0.18 lb/million Btu on fuel oil or the NO<sub>x</sub> emissions from these turbines shall not exceed BACT limits established under Condition 6.a. above, whichever requires the greater degree of reduction. Since the BACT limits are more stringent, NO<sub>x</sub> emissions from the combustion turbines **(ID Nos. ES1 through ES6)** shall not exceed 9 ppmvd at 15% O<sub>2</sub> while firing natural gas and 42 ppmvd at 15% O<sub>2</sub> while firing No. 2 fuel oil.
  - b. If emission allocations for the combustion turbines **(ID Nos. ES1 through ES6)** are not granted under 15A NCAC 2D .1421 or are not equal to or greater than the NO<sub>x</sub> emissions from these turbines for the ozone season running from May 1<sup>st</sup> through September 30<sup>th</sup>, until revised under 15A NCAC 2D .1420, the Permittee shall acquire emission allocations of NO<sub>x</sub> under 15A NCAC 2D .1419 from other sources sufficient to offset its emissions.
  - c. The Permittee shall comply with the requirements of 15A NCAC 2D .1418 using the NO<sub>x</sub> budget trading program set out in 15A NCAC 2D .1419. The combustion turbines

may not operate during the ozone season until the Permittee has installed and placed into operation a continuous emissions monitoring system that complies with 40 CFR Part 96.

- d. The Permittee shall assure compliance with 15A NCAC 2D .1418 by determining NO<sub>x</sub> emissions in tons per ozone season using a continuous emissions monitoring system (CEMS) that meets the requirements of 40 CFR Part 75 Subpart H, with such exceptions as allowed under 40 CFR Part 75, Subpart H or 40 CFR 96. The Permittee shall comply with the recordkeeping requirements of 40 CFR 96, Budget Trading Program for State Implementation Plans. All instances of deviations from the requirements of this permit must be clearly identified.
  - e. The Permittee shall submit two copies of a written report of the tons of NO<sub>x</sub> emitted during the previous ozone season, postmarked no later than October 30<sup>th</sup> of each calendar year, to the Regional Supervisor, DAQ.
11. ACID RAIN PERMITTING PROCEDURES [40 CFR PART 72] - The Permittee shall submit a complete Acid Rain permit application to the Division of Air Quality at least 24 months before the date on which the combustion turbines (**ID Nos. ES1 through ES6**) commence operation. [15A NCAC 2Q .0402(b) and 40 CFR §72.30(b)(2)(ii)]
12. TITLE V PERMITTING REQUIREMENT – As required by 15A NCAC 2Q .0504(d), within 12 months of beginning operation at the facility, the Permittee shall file an amended permit application, following the requirements of 15A NCAC 2Q .0500, for Title V operating permit.

## **B. GENERAL CONDITIONS AND LIMITATIONS**

1. TWO COPIES OF ALL DOCUMENTS, REPORTS, TEST DATA, MONITORING DATA, NOTIFICATIONS, REQUESTS FOR RENEWAL, AND ANY OTHER INFORMATION REQUIRED BY THIS PERMIT shall be submitted to the:

Regional Air Quality Supervisor  
North Carolina Division of Air Quality  
Mooresville Regional Office  
610 East Center Avenue, Suite 301  
Mooresville, NC 28115  
(704) 663-1699

2. RECORDS RETENTION REQUIREMENT - Any records required by the conditions of this permit shall be kept on site and made available to DAQ personnel for inspection upon request. These records shall be maintained in a form suitable and readily available for expeditious inspection and review. These records must be kept on site for a minimum of 2 years, unless another time period is otherwise specified.
3. PERMIT RENEWAL REQUIREMENT - The Permittee, at least 90 days prior to the expiration date of this permit, shall request permit renewal by letter in accordance with 15A NCAC 2Q .0304(d) and (f). Pursuant to 15A NCAC 2Q .0203(i), no permit application fee is required for renewal of an existing air permit. The renewal request should be submitted to the Regional Supervisor, DAQ.
4. ANNUAL FEE PAYMENT - Pursuant to 15A NCAC 2Q .0203(a), the Permittee shall pay the annual permit fee within 30 days of being billed by the DAQ. Failure to pay the fee in a timely manner will cause the DAQ to initiate action to revoke the permit.
5. EQUIPMENT RELOCATION - A new air permit shall be obtained by the Permittee prior to establishing, building, erecting, using, or operating the emission sources or air cleaning equipment at a site or location not specified in this permit.
6. This permit is subject to revocation or modification by the DAQ upon a determination that information contained in the application or presented in the support thereof is incorrect, conditions under which this permit was granted have changed, or violations of conditions contained in this permit have occurred. The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution. Unless otherwise specified by this permit, no emission source may be operated without the concurrent operation of its associated air cleaning device(s) and appurtenances.
7. REPORTING REQUIREMENT - Any of the following that would result in previously unpermitted, new, or increased emissions must be reported to the Regional Supervisor, DAQ:
  - a. changes in the information submitted in the application regarding facility emissions;
  - b. changes that modify equipment or processes of existing permitted facilities; or

- c. changes in the quantity or quality of materials processed.

If appropriate, modifications to the permit may then be made by the DAQ to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause a violation of the emission limitations specified herein.

8. This permit is nontransferable by the Permittee. Future owners and operators must obtain a new air permit from the DAQ.
9. This issuance of this permit in no way absolves the Permittee of liability for any potential civil penalties which may be assessed for violations of State law which have occurred prior to the effective date of this permit.
10. This permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or Local water quality or land quality control authority.
11. Reports on the operation and maintenance of the facility shall be submitted by the Permittee to the Regional Supervisor, DAQ at such intervals and in such form and detail as may be required by the DAQ. Information required in such reports may include, but is not limited to, process weight rates, firing rates, hours of operation, and preventive maintenance schedules.
12. A violation of any term or condition of this permit shall subject the Permittee to enforcement pursuant to G.S. 143-215.114A, 143-215.114B, and 143-215.114C, including assessment of civil and/or criminal penalties.
13. Pursuant to North Carolina General Statute 143-215.3(a)(2), no person shall refuse entry or access to any authorized representative of the DAQ who requests entry or access for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.
14. The Permittee must comply with any applicable Federal, State, or Local requirements governing the handling, disposal, or incineration of hazardous, solid, or medical wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the Division of Waste Management.
15. PERMIT RETENTION REQUIREMENT - The Permittee shall retain a current copy of the air permit at the site. The Permittee must make available to personnel of the DAQ, upon request, the current copy of the air permit for the site.
16. CLEAN AIR ACT SECTION 112(r) REQUIREMENTS - Pursuant to 40 CFR Part 68 "Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, Section 112(r)," if the Permittee is required to develop and register a risk management plan pursuant to Section 112(r) of the Federal Clean Air Act, then the Permittee is required to register this plan in accordance with 40 CFR Part 68.

17. PREVENTION OF ACCIDENTAL RELEASES - GENERAL DUTY - Pursuant to Title I Part A Section 112(r)(1) of the Clean Air Act "Hazardous Air Pollutants - Prevention of Accidental Releases - Purpose and General Duty," although a risk management plan may not be required, if the Permittee produces, processes, handles, or stores any amount of a listed hazardous substance, the Permittee has a general duty to take such steps as are necessary to prevent the accidental release of such substance and to minimize the consequences of any release. **This condition is federally-enforceable only.**
  
18. GENERAL EMISSIONS TESTING AND REPORTING REQUIREMENTS - If emissions testing is required by this permit, or the DAQ, or if the Permittee submits emissions testing to the DAQ in support of a permit application or to demonstrate compliance, the Permittee shall perform such testing in accordance with 15A NCAC 2D .2600 and follow all DAQ procedures including protocol approval, regional notification, report submittal, and test results approval.

Permit issued this the **DAY** of **MONTH**, 2009.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

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Donald van der Vaart, Ph.D., P.E.

Chief, Permits Section

By Authority of the Environmental Management Commission

Air Permit No. 09881R00