

**STATE OF NORTH CAROLINA  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
DIVISION OF WATER QUALITY**

**PERMIT**

**TO DISCHARGE WASTEWATER UNDER THE  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of North Carolina General Statute 143-215.1, other lawful standards and regulations promulgated and adopted by the North Carolina Environmental Management Commission, and the Federal Water Pollution Control Act, as amended,

**Carolina Power and Light d/b/a/ Progress Energy Carolinas, Inc.**

is hereby authorized to discharge wastewater from a facility located at the

**Cape Fear Steam Electric Generating Plant  
500 CP&L Road  
Moncure  
Chatham County**

to receiving waters designated as an unnamed tributary to the Cape Fear River (outfalls 001, 003, 005, 007) in the Cape Fear River Basin in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II and III hereof.

This permit shall become effective September 1, 2011.

This permit and authorization to discharge shall expire at midnight on July 31, 2016.

Signed this day July 22, 2011.

\_\_\_\_\_  
*[Original Signed by Tom Belnick]*

Coleen H. Sulins, Director  
Division of Water Quality  
By Authority of the Environmental Management Commission

## SUPPLEMENT TO PERMIT COVER SHEET

All previous NPDES Permits issued to this facility, whether for operation or discharge are hereby revoked, and as of this issuance, any previously issued permit bearing this number is no longer effective. Therefore, the exclusive authority to operate and discharge from this facility arises under the permit conditions, requirements, terms, and provisions included herein.

### **Progress Energy Carolinas, Inc. is hereby authorized to:**

1. Continue to operate the following systems located at the **Cape Fear Steam Electric Generating Plant** at 500 CP&L Road near Moncure in Chatham County:
  - **West Ash Pond (Internal Outfall 001).** This outfall discharges the following treated wastewaters to outfall 007; ash sluice waters (bottom and fly), coal pile runoff, No. 2 fuel oil tank runoff, settling basin drains, sand bed filter backwash, parking lot drains, equipment cooling tower blowdown and drain, boiler blowdown, metal cleaning waste, oil unloading area drains, softener regenerate, demineralizer regenerate, acid/caustic sump wastewater, yard and floor drains, and ash trench drain wastewater.
  - **Once-Through Cooling Water and Stormwater (Internal Outfall 003).**
  - **East Ash Pond (Internal Outfall 005).** This outfall discharges the following wastewaters to outfall 007; ash sluice waters (bottom and fly), runoff from yard drains, air preheater washes, electrostatic precipitator washes, metal cleaning wastes, spent sandblast material, and treated sanitary wastewater.
  - **Combined Wastewater to the Cape Fear River (Outfall 007).** This outfall is a combination of all internal outfalls.
2. Discharge from said treatment works and/or outfalls into an unnamed tributary to the Cape Fear River classified WS-IV waters in the Cape Fear River Basin.

### A. 1. Effluent Limitations and Monitoring Requirements (Outfall 001)

During the period beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge from **Internal Outfall 001 (Ash Sluice, low volume wastewater, stormwater, metal cleaning waste, and coal pile runoff from the West Ash Pond to Outfall 007)**. Such discharges shall be limited and monitored by the Permittee as specified below:

PARAMETER	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location
Flow, MGD			Weekly	Pump Logs	Influent or Effluent
Oil and Grease	15.0 mg/L	20.0 mg/L	Semi-annually	Grab	Effluent
Total Suspended Solids	30.0 mg/L	100.0 mg/L	Semi-annually	Grab	Effluent
Total Arsenic			Semi-annually	Grab	Effluent
Total Selenium			Semi-annually	Grab	Effluent
Ammonia-Nitrogen			Semi-annually	Grab	Effluent
Total Iron	1.0 mg/L	1.0 mg/L	Once per discharge of metal cleaning waste	Grab	Effluent
Total Copper	1.0 mg/L	1.0 mg/L	Once per discharge of metal cleaning waste	Grab	Effluent

**NOTES:**

1. Metal Cleaning Waste means any wastewater resulting from cleaning (with or without chemical cleaning compounds) any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning, and air preheater cleaning.

Samples taken in compliance with the monitoring requirements listed above shall be taken prior to mixing with other sources of wastewater.

Sampling during the discharge of metal cleaning wastes will be determined based on the time the metal cleaning wastes enter the ash pond and the detention time of the ash pond.

There shall be no discharge of polychlorinated biphenyls.

### A. 2. Effluent Limitations and Monitoring Requirements (Outfall 003)

During the period beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge from **Internal Outfall 003 (Once-Through Cooling Water and Stormwater to Outfall 007)**. Such discharges shall be limited and monitored by the Permittee as specified below:

PARAMETER	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location
Flow, MGD			Daily	Pump Logs or similar readings	Influent or Effluent

**NOTES:**

Samples taken in compliance with the monitoring requirements listed above shall be taken prior to mixing with other sources of wastewater.

There shall be no discharge of polychlorinated biphenyls.

This permit prohibits the use of any chemicals used for maintenance of the once-through cooling system that contain chromium, zinc, or copper.

This permit prohibits the use of chlorine, or chlorine-containing compounds, in the once-through cooling system.

There shall be no detectable amounts of the 126 priority pollutants in the discharge due to the addition of chemicals added for maintenance.

### A. 3. Effluent Limitations and Monitoring Requirements (Outfall 005)

During the period beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge from **Internal Outfall 005 (Ash Sluice, Sanitary Wastewater, Low Volume Wastewater, Stormwater, and Metal Cleaning Waste<sup>1</sup> from the East Ash Pond to Outfall 007)**. Such discharges shall be limited and monitored by the Permittee as specified below:

PARAMETER	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location
Flow, MGD			Weekly	Pump Logs	Influent or Effluent
Oil and Grease	15.0 mg/L	20.0 mg/L	Semi-annually	Grab	Effluent
Total Suspended Solids	30.0 mg/L	100.0 mg/L	Semi-annually	Grab	Effluent
Total Arsenic			Semi-annually	Grab	Effluent
Total Selenium			Semi-annually	Grab	Effluent
Fecal Coliform			Semi-annually	Grab	Effluent
Ammonia-Nitrogen			Semi-annually	Grab	Effluent
Total Iron	1.0 mg/L	1.0 mg/L	Once per discharge of metal cleaning waste	Grab	Effluent
Total Copper	1.0 mg/L	1.0 mg/L	Once per discharge of metal cleaning waste	Grab	Effluent

**NOTES:**

1. Metal Cleaning Waste means any wastewater resulting from cleaning (with or without chemical cleaning compounds) any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning, and air preheater cleaning.

Samples taken in compliance with the monitoring requirements listed above shall be taken prior to mixing with other sources of wastewater.

Sampling during the discharge of metal cleaning wastes will be determined based on the time the metal cleaning wastes enter the ash pond and the detention time of the ash pond.

There shall be no discharge of polychlorinated biphenyls.

#### A. 4. Effluent Limitations and Monitoring Requirements (Outfall 007)

During the period beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge from **Outfall 007 (Combined Wastewaters and Stormwater from Outfalls 001, 003, and 005)**. Such discharges shall be limited and monitored by the Permittee as specified below:

PARAMETER	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Weekly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location <sup>1</sup>
Flow, MGD			Daily	Instantaneous	Effluent
Total Chromium (µg/L)			Quarterly	Composite	Effluent
Total Arsenic (µg/L)			Quarterly	Composite	Effluent
Total Selenium (µg/L)			Quarterly	Composite	Effluent
Total Mercury (µg/L) <sup>2</sup>			Quarterly	Composite	Effluent
Total Nickel (µg/L)			Quarterly	Composite	Effluent
Total Copper (µg/L)			Quarterly	Composite	Effluent
Total Nitrogen (NO <sub>2</sub> +NO <sub>3</sub> +TKN) (mg/L)			Quarterly	Composite	Effluent
Total Phosphorus (mg/L)			Quarterly	Composite	Effluent
Fecal Coliform (geometric mean)			Quarterly	Grab	Effluent
Temperature		32°C	Daily	Grab	Effluent
pH	Between 6.0 and 9.0 Standard Units		Daily	Grab	Effluent
Chronic Toxicity <sup>3</sup>			Quarterly	Composite	Effluent

#### **NOTES:**

1. Effluent sampling point shall be located on the discharge canal at the point of discharge into the unnamed tributary to the Cape Fear River.
2. Effluent samples must be analyzed by an EPA-approved low level mercury analysis method (1631).
3. Chronic Toxicity (*Ceriodaphnia*) Pass/Fail at 90%; February, May, August, November. See condition A. 5. of this permit.

There shall be no discharge of polychlorinated biphenyls.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

### A. 5. Chronic Toxicity Permit Limit (Quarterly)

The effluent discharge shall at no time exhibit observable inhibition of reproduction or significant mortality to *Ceriodaphnia dubia* at an effluent concentration of 90 %.

The permit holder shall perform at a minimum, *quarterly* monitoring using test procedures outlined in the “North Carolina *Ceriodaphnia* Chronic Effluent Bioassay Procedure,” Revised February 1998, or subsequent versions or “North Carolina Phase II Chronic Whole Effluent Toxicity Test Procedure” (Revised-February 1998) or subsequent versions. The tests will be performed *during the months of* February, May, August, and November. Effluent sampling for this testing shall be performed at the NPDES permitted final effluent discharge below all treatment processes.

If the test procedure performed as the first test of any single quarter results in a failure or ChV below the permit limit, then multiple-concentration testing shall be performed at a minimum, in each of the two following months as described in “North Carolina Phase II Chronic Whole Effluent Toxicity Test Procedure” (Revised-February 1998) or subsequent versions.

The chronic value for multiple concentration tests will be determined using the geometric mean of the highest concentration having no detectable impairment of reproduction or survival and the lowest concentration that does have a detectable impairment of reproduction or survival. The definition of “detectable impairment,” collection methods, exposure regimes, and further statistical methods are specified in the “North Carolina Phase II Chronic Whole Effluent Toxicity Test Procedure” (Revised-February 1998) or subsequent versions.

All toxicity testing results required as part of this permit condition will be entered on the Effluent Discharge Monitoring Form (MR-1) for the months in which tests were performed, using the parameter code TGP3B for the pass/fail results and THP3B for the Chronic Value. Additionally, DWQ Form AT-3 (original) is to be sent to the following address:

Attention: Environmental Sciences Section  
North Carolina Division of Water Quality  
1621 Mail Service Center  
Raleigh, North Carolina 27699-1621

Completed Aquatic Toxicity Test Forms shall be filed with the Environmental Sciences Section no later than 30 days after the end of the reporting period for which the report is made.

Test data shall be complete, accurate, include all supporting chemical/physical measurements and all concentration/response data, and be certified by laboratory supervisor and ORC or approved designate signature. Total residual chlorine of the effluent toxicity sample must be measured and reported if chlorine is employed for disinfection of the waste stream.

Should there be no discharge of flow from the facility during a month in which toxicity monitoring is required, the permittee will complete the information located at the top of the aquatic toxicity (AT) test form indicating the facility name, permit number, pipe number, county, and the month/year of the report with the notation of “No Flow” in the comment area of the form. The report shall be submitted to the Environmental Sciences Section at the address cited above. Should the permittee fail to monitor during a month in which toxicity monitoring is required, monitoring will be required during the following month. Should any test data from this monitoring requirement or tests performed by the North Carolina Division of Water Quality indicate potential impacts to the receiving stream, this permit may be re-opened and modified to include alternate monitoring requirements or limits.

NOTE: Failure to achieve test conditions as specified in the cited document, such as minimum control organism survival, minimum control organism reproduction, and appropriate environmental controls, shall constitute an invalid test and will require immediate follow-up testing to be completed no later than the last day of the month following the month of the initial monitoring.

**A. 6. Intake Screen Backwash**

The discharge of intake screen backwash is permitted without limitations or monitoring requirements.

**A. 7. Biocide Condition**

The permittee shall not use any biocides except those approved in conjunction with the permit application. The permittee shall notify the Director in writing not later than ninety (90) days prior to instituting use of any additional biocide used in cooling systems which may be toxic to aquatic life other than those previously reported to the Division of Water Quality. Such notification shall include completion of Biocide Worksheet Form 101 and a map locating the discharge point and receiving stream. Completion of a Biocide Worksheet 101 is not necessary for the introduction of a new biocide into an outfall currently being tested for toxicity.

**A. 8. Domestic Wastewater Treatment Plant**

The domestic wastewater treatment plant shall be properly operated and maintained to ensure treatment of sanitary effluent to secondary standards.

**A. 9. Groundwater Monitoring Well Construction and Sampling**

The permittee shall conduct groundwater monitoring to determine the compliance of this NPDES permitted facility with the current groundwater Standards found under 15A NCAC 2L .0200. The monitoring shall be conducted in accordance with the Sampling Plan approved by the Division.

**A. 10. Section 316 (b) of CWA**

The permittee shall comply with the Cooling Water Intake Structure Rule per 40 CFR 125.95.

**A. 11. Structural Integrity Inspections of Ash Pond Dam**

The facility shall meet the dam design and dam safety requirements per 15A NCAC 2K.

**A. 12. Ash Pond Closure**

The facility shall prepare an Ash Pond Closure Plan in anticipation of the facility closure. This Plan shall be submitted to the Division one year prior to the closure of the facility.

**A. 13. Fish Tissue Monitoring Near Ash Pond Discharge**

The facility shall conduct fish tissue monitoring once during the permit term and submit the results with the NPDES permit renewal application. The objective of the monitoring is to evaluate potential uptake of pollutants by fish tissue near the Ash Pond discharge. The parameters analyzed in fish tissue shall be arsenic, selenium, and mercury. The monitoring shall be conducted in accordance with the Sampling Plan approved by the Division.