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U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Shearon Harris Nuclear Power Plant, Unit 1  
Docket No. 50-400/Renewed License No. NPF-63

Subject: Annual Environmental (Nonradiological) Operating Report

Ladies and Gentlemen:

In accordance with Section 5.4.1 of the Environmental Protection Plan issued as Appendix B to the Renewed Operating License (NPF-63) for the Harris Nuclear Plant, Duke Energy Progress, Inc., is providing the enclosed Annual Environmental (Nonradiological) Operating Report for 2014.

This submittal contains no regulatory commitments. Please refer any questions regarding this submittal to Dave Corlett, Manager – Regulatory Affairs, at (919) 362-3137.

Sincerely,

A handwritten signature in black ink, appearing to read "Ben C. Waldrep".

Benjamin C. Waldrep

Enclosure

cc: Mr. J. D. Austin, NRC Sr. Resident Inspector, HNP  
Ms. M. Barillas, NRC Project Manager, HNP  
Mr. V. M. McCree, NRC Regional Administrator, Region II

**Duke Energy Progress, Inc.**  
**Shearon Harris Nuclear Power Plant**  
**Unit 1**

**ANNUAL ENVIRONMENTAL**  
**(NONRADIOLOGICAL)**  
**OPERATING REPORT**

**January 1, 2014 through December 31, 2014**

**Renewed Facility Operating License No. NPF-63**  
**Appendix B**

**Docket No. 50-400**

## 1.0 INTRODUCTION

Carolina Power & Light Company received a low-power Facility Operating License (No. NPF-53) and full-power Facility Operating License (No. NPF-63) for the Shearon Harris Nuclear Power Plant, Unit 1, from the U.S. Nuclear Regulatory Commission (NRC) on October 24, 1986, and January 12, 1987, respectively. The NRC issued a Renewed Facility Operating License (No. NPF-63) on December 17, 2008, extending operations until October 24, 2046. Appendix B (the Environmental Protection Plan (EPP) [nonradiological]) of the renewed operating license requires submittal of an Annual Environmental (nonradiological) Operating Report to the NRC describing the implementation of the plan during the previous year. The purpose of this document is to fulfill the requirement for the period January 1 through December 31, 2014.

On January 1, 2003, Carolina Power & Light Company adopted the brand name Progress Energy Carolinas, Inc.

On July 2, 2012, Progress Energy merged with Duke Energy to form the largest regulated utility in the United States.

On March 8, 2013, Carolina Power & Light Company changed its name to Duke Energy Progress, Inc.

On October 21, 2013, the NRC approved a license amendment changing the name of the Licensee in the operating license from Carolina Power & Light Company to Duke Energy Progress, Inc.

## 2.0 PLANT CONSISTENCY REQUIREMENTS

[EPP Section 3.0]

### 2.1 Plant Design and Operation

There were no changes in plant design or operation and there were no tests or experiments performed which involved a potentially significant unreviewed environmental question during the reporting period.

### 2.2 Reporting Related to the NPDES Permit

As required by National Pollutant Discharge Elimination System (NPDES) permit NC0039586, monitoring data were submitted to the North Carolina Department of Environment and Natural Resources (NCDENR) *via* monthly discharge monitoring reports and separate correspondence as warranted.

Harris Nuclear Plant (HNP) submitted an application for renewal of the NPDES Permit to NCDENR on January 26, 2011, and NCDENR received the application on January 27, 2011. HNP submitted a copy of the renewal application to the NRC by letter dated January 31, 2011.

Since the renewal application submittal requirements had been met (i.e., submitted at least 180 days prior to expiration), by regulation, HNP continues to operate under the expired NPDES Permit until NCDENR issues the new permit.

No occurrence of an unusual environmental event that would indicate or could result in a significant environmental impact causally related to plant operations occurred during the reporting period. No releases or exceedances of permit conditions caused any significant environmental impact. The existence of biofouling organisms (Asiatic clams, *Corbicula fluminea*) and the presence of troublesome aquatic vegetation (hydrilla, *Hydrilla verticillata*) in Harris Reservoir are considered important topics worthy of inclusion in this report. No zebra mussels were detected at any location in Harris Lake or the auxiliary reservoir during 2014.

### 3.1 Aquatic Biological Monitoring

#### A. Inspections for Asiatic clams (*Corbicula fluminea*) in the Harris Nuclear Plant Emergency Service Water System (e.g., intake structures)

The Emergency Service Water (ESW) intake structure is inspected once every three years in accordance with the engineering evaluation (Engineering Change 49074) of HNP's Generic Letter 89-13 Testing and Inspection Program. An inspection of an ESW screening structure bay occurred during April 2013. The inspection indicated a stable Asiatic clam population.

No clogging events of HNP cooling water systems occurred during 2014 as a result of Asiatic clam infestation.

#### B. Monitoring aquatic vegetation

##### **Main Reservoir**

Hydrilla was found throughout the entire main reservoir during 2014. Similar to results from 2012 and 2013, biomass in the lower reservoir was relatively less than the biomass during 2011. This condition may be the result of generally lower water levels during the previous two winters. Hydrilla and creeping water primrose were abundant and filled most of the available habitat at Transect S upstream of the New Hill-Holleman Rd. causeway. Hydrilla was present in the shallow bay (Transect V) adjacent to the mouth of the main intake canal but the relative abundance was less than previous years. Hydrilla was only present along the shoreline fringes of the intake canal itself. The abundance of creeping water primrose remained less at Transect V compared to previous years. Other aquatic plant species found in the reservoir include fanwort (*Cabomba* sp.), and typical Atlantic slope Piedmont species such as *Chara* sp., spikerush (*Eleocharis baldwinii*), and native pondweed species in the genera *Potamogeton* and *Najas*. The shoreline aquatic plant community is typical of Piedmont reservoirs including such plants as cattails, pickerelweed, lizard tail, bulrush, and others. No new species of aquatic plants were observed in the main reservoir.

## Auxiliary Reservoir

Some Hydrilla and American elodea was found to be present in the auxiliary reservoir during 2010. However, it is currently under management using sterile Asian grass carp. The most recent grass carp stockings were in 2011, 2013 and 2014. No vegetative hydrilla has been observed following the spring 2014 grass carp stocking but hydrilla tubers remain in bottom sediments. Because aquatic plant root tubers are likely to be present it was recommended that supplemental stocking of grass carp continue during 2015. Also present in 2014 was bladderwort, *Utricularia* spp., southern naiad, *Najas* spp., slender spike rush, *Eleocharis baldwinii*, and some creeping water primrose, *Ludwigia* spp. Of these species, the hydrilla, American elodea, southern naiad, and bladderwort are of potential concern regarding intake fouling. Neither species were present in large amounts.

No hydrilla, American elodea, bladderwort, or southern pond weed was observed in the auxiliary intake canal or along the shoreline adjacent to the auxiliary intake canal in 2014. The dominant vegetation observed along the auxiliary intake canal was *Eleocharis baldwinii*, a small grass-like submerged plant that poses no operational concern. Creeping water primrose (*Ludwigia* spp.) was also present but in small amounts.

No impacts to HNP operations from aquatic vegetation occurred in 2014.

## 3.2 Combined Construction and Operating License Application Evaluations

In a letter dated Feb 18, 2008, Carolina Power & Light Company submitted an application for a combined construction permit and operating license (COL) for two AP1000 advanced pressurized water reactor units to be located at the Shearon Harris Nuclear Power Plant site. In the initial application, CP&L relied on Integrated Resource Plans (IRPs) prepared for the North Carolina Utilities Commission and the Public Service Commission of South Carolina to demonstrate the need for the two units. The IRPs used a 15 yr period for forecasting native load requirements, supply-side and demand side resources and options considered for satisfaction of the load requirements and other system obligation. Duke Energy Progress, Inc. (DEP) continued to evaluate the Need for Power; however the commercial operation dates for the two units no longer fell within the 15 year planning window of the IRP. As a result, in a letter to the NRC dated May 2, 2013, DEP requested suspension of the COL for the two units at the Shearon Harris Nuclear Power Plant site.

No work was performed in 2014 in support of the COL for the two units at the Shearon Harris Nuclear Power Plant site.

No significant environmental impacts have been caused or identified by these activities.

## 4.0 ENVIRONMENTAL MONITORING

[EPP Section 4.2]

### 4.1 Aquatic Monitoring

[EPP Section 4.2.1]

Under the authority of the Clean Water Act, the state of North Carolina renewed the National Pollutant Discharge Elimination System (NPDES) permit (NC0039586) for the HNP on March 1, 2007. The permit includes the Harris Energy & Environmental Center (HE&EC) sewage treatment plant discharge as an outfall (007).

The permit requires that a state-certified laboratory perform the analyses on all non-field parameters analyzed for effluent samples. In accordance with this requirement, the HNP Environmental & Chemistry Laboratory was certified by NCDENR as a Wastewater Laboratory, effective January 1, 2014, and valid through December 31, 2014. In addition, during 2014 Duke Energy Progress contracted with four NCDENR certified private laboratories, Environmental Conservation Laboratories, Inc. (ENCO), Environmental Testing Solutions, Inc. (ETS), GEL Laboratories (GEL), and PACE Analytical Laboratories (PACE), to perform analyses.

#### 4.1.1 Effluent Monitoring

Routine effluent monitoring was conducted and reported to NCDENR as required by the NPDES permit. The following NPDES permit noncompliances occurred.

- June 2014, Treated Wastewater Spill – On June 3, 2014, the NCDENR was notified of a spill of treated domestic waste water at the Harris Wastewater Treatment Plant. The spill was due to the failure of a discharge valve on a temporary storage tank containing treated wastewater. The treated wastewater flowed to the ground through an un-coupled joint in a length of piping downstream of the tank's discharge valve. This wastewater had been processed through a newly installed membrane filter treatment system as part of its testing. Plant staff determined that it was possible that some portion of the spill may have flowed along the ground to a stormwater drainage ditch, permitted under the NPDES permit as stormwater outfall 007. The un-coupled piping joint was corrected and the affected storage tank was tagged and removed from service. Corrective actions were put in place to prevent reoccurrence. Visual inspection of the outlet point from the ditch to the Auxiliary Reservoir revealed no impacts to surface waters.

On June 9, 2014, DEP submitted a 5-day follow-up letter to the NCDENR as required by NPDES Permit Number NC0039586.

- June 2014, Treated Wastewater Spill – On June 6, 2014, the NCDENR was notified of a spill of treated domestic waste water into a stormwater drainage ditch. The spill resulted from a break in the discharge line from the Harris Wastewater Treatment Plant to the permitted discharge outfall. This line conveys final treated wastewater effluent from the sewage treatment plant (internal outfall 002) to the cooling tower blowdown line (outfall 006). The break occurred in the piping as it crosses under the ditch for NPDES permitted stormwater outfall 007. The release was secured and the line was repaired. A visual inspection of the outlet point from the ditch to the Auxiliary Reservoir revealed no impacts to surface waters.

On June 12, 2014, DEP submitted a 5-day follow-up letter to the NCDENR as required by NPDES Permit Number NC0039586.

#### **4.1.2 NPDES Inspections**

- On May 16, 2014, NCDENR, Division of Water Resources personnel visited the Harris Plant and Harris Energy Center to conduct a review of the domestic wastewater treatment plants.

No violations were identified.

#### **4.2 Terrestrial Monitoring** [EPP Section 4.2.2]

Terrestrial monitoring is not required.

#### **4.3 Noise Monitoring** [EPP Section 4.2.3]

Noise monitoring is not required.

#### **5.0 EPP REVIEW and AUDIT** [EPP Section 5.1]

DEP provides for the review and audit of compliance with the EPP on a periodic frequency. The results of these reviews and audits are on file and available for inspection.

#### **6.0 PLANT REPORTING REQUIREMENTS** [EPP Section 5.4]

##### **6.1 EPP Noncompliances**

There were no EPP noncompliances identified during the reporting period.

NPDES permit noncompliances are discussed in Section 4.1.1 of this report.

##### **6.2 Changes in Station Design and Operation**

There were no changes in station design or operation and there were no tests or experiments performed which involved a potentially significant unreviewed environmental question during 2014.

##### **6.3 Non-routine Reports**

There were no non-routine reports submitted in accordance with EPP Section 5.4.2 during 2014.

##### **6.4 Other Reporting Requirements**

There were no other EPP reportable events during 2014.