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APR 30 2018

Serial: HNP-18-042

ATTN: Document Control Desk
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, LLC, is providing the enclosed Annual Environmental (Nonradiological) Operating Report for 2017.

This submittal contains no regulatory commitments. Should you have any questions regarding this submittal, please contact Jeffrey Robertson, Manager – Regulatory Affairs, at (919) 362-3137.

Sincerely,

A handwritten signature in black ink, appearing to read 'Tanya M. Hamilton', written in a cursive style.

Tanya M. Hamilton

Enclosure

cc: J. Zeiler, NRC Senior Resident Inspector, HNP
M. Barillas, NRC Project Manager, HNP
C. Haney, NRC Regional Administrator, Region II



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Duke Energy Progress, LLC
Shearon Harris Nuclear Power Plant
Unit 1

ANNUAL ENVIRONMENTAL
(NONRADIOLOGICAL)
OPERATING REPORT

January 1, 2017 through December 31, 2017

Renewed Facility Operating License No. NPF-63
Appendix B

Docket No. 50-400

1.0 INTRODUCTION

Duke Energy Progress, LLC (previously known as Duke Energy Progress, Inc., Progress Energy Carolinas, Inc., and 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 (HNP), 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, 2017.

On September 18, 2015, The North Carolina Department of Environment and Natural Resources (NCDENR) officially became the North Carolina Department of Environmental Quality (NCDEQ) when Governor McCrory signed the 2015-2016 state budget into law. NCDEQ will be used in this report.

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 was submitted to the North Carolina Department of Environmental Quality (NCDEQ) via monthly discharge monitoring reports and separate correspondence as warranted.

The renewed National Pollutant Discharge Elimination System (NPDES) permit NC0039586 became effective on September 1, 2016 by NCDEQ. This permit will expire on August 31, 2021. HNP submitted a copy of the renewed permit to the NRC by letter dated September 28, 2016, as required by Renewed Facility Operating License No. NPF-63 Appendix B.

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 the Harris Reservoir are considered important topics worthy of inclusion in this report. No zebra mussels were detected at any location in the Harris Lake or the auxiliary reservoir during 2017.

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 structures are inspected once every four years in accordance with EPT-168, "Emergency Service Water Intake and Screening Structures Inspection," and Periodic Maintenance PMID's 23528 and 23529 as part of HNP's Generic Letter 89-13 Testing and Inspection Program. An inspection of an ESW screening structure bay occurred during June 2017. The inspection indicated a stable Asiatic clam population.

No clogging events of HNP cooling water systems occurred during 2017 as a result of Asiatic clam infestation.

B. Monitoring aquatic vegetation

Main Reservoir

In 2017, Hydrilla was at much lower densities throughout the lake than in previous years. Lyngbya, a filamentous algae, has expanded its distribution from the lower half of the reservoir (Buckhorn Creek and Dam) and was observed in varied densities in the mid-lake area up to the New Hill-Holleman Road causeway. Hydrilla and creeping water primrose that had been abundant in previous years at Transect S upstream of the New Hill-Holleman Road causeway decreased in abundance in 2017. Hydrilla was not observed in Transect V or in the shallow bay adjacent to the mouth of the main intake canal, however Lyngbya was observed at low densities in much of the intake bay. In the mid-lake area (Holleman Boat Ramp), hydrilla was present in variable amounts, but appears much reduced from previous years. Lyngbya was observed throughout the mid-lake area. Prior to 2008, the Buckhorn Creek arm of the lake was primarily Hydrilla, but now primarily supports a large Lyngbya algal population. Lyngbya is also present throughout the embayment near the dam and the Crosspoints Boat launch. 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

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 2017. 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 very small amounts. Grass carp were stocked in 2011, 2013, 2014, 2015, 2016, and 2017.

No impacts to HNP operations from aquatic vegetation occurred in 2017.

3.2 Combined Construction and Operating License Application Evaluations

In a letter dated February 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, Carolina Power & Light Company 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-year 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, LLC (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. DEP requested an additional exemption in a letter dated October 13, 2016, to the NRC. The NRC renewed the exemption through December 31, 2019.

No work was performed in 2017 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 HNP NPDES permit (NC0039586) which took effect on September 1, 2016. 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 NCDEQ as a Wastewater Laboratory, effective January 1, 2017, and valid through December 31, 2017. In addition, the Duke Energy Carolinas Laboratory in Huntersville, NC, provided NPDES analytical support for effluent samples.

In addition, during 2017 Duke Energy Progress, LLC, contracted with four NCDEQ certified private laboratories to perform analyses, including: Environmental Conservation Laboratories, Inc. (ENCO), Environmental Testing Solutions, Inc. (ETS), GEL Laboratories (GEL), and Pace Analytical Laboratories (PACE).

4.1.1 Effluent Monitoring

Routine effluent monitoring was conducted and reported to NCDEQ as required by the NPDES permit. The following NPDES permit noncompliances or events occurred:

- February 2017 Notice of Deficiency Case No. NOD-2017-MV-0014 - On February 6, 2017, Duke Energy Progress, LLC, received a Notice of Deficiency letter dated January 26, 2017, regarding a perceived noncompliance with the HNP permit monitoring frequency.

For the reporting month of October 2016, no discharge occurred from Outfall 007 during the week of October 24, 2016. Since no discharge occurred during this week, the NPDES permit requirement to monitor, collect and analyze flow, temperature, pH, residual chlorine, biochemical oxygen demand, ammonia, total suspended solids, fecal coliform, and dissolved oxygen of Outfall 007 effluent was not required. On February 28, 2017, the October 2016 Discharge Monitoring Report (DMR) for Outfall 007 was revised and submitted to reflect "No Flow" for the week of October 24, 2016.

Duke Energy Progress, LLC, respectfully requested that the NCDEQ Division of Water Resources take into consideration these aspects related to the Notice of Deficiency letter dated January 26, 2017, and retract the Notice of Deficiency.

- February 2017, Fecal Coliform Exceedance - The fecal coliform daily maximum of 400 MPN/100 mL was exceeded on February 08, 2017, for the HNP Sewage Treatment Plant (Outfall 002). The result of 690 MPN/100 mL was recorded on the February 2017 DMR for Outfall 002. On May 11, 2017, Duke Energy Progress, LLC, received a Notice of Violation & Intent to Assess Civil Penalty letter dated May 5, 2017 (Notice of Violation Case No. NOV-2017-LV-0313), regarding the exceedance.

A pH excursion occurred during the week prior to sampling due to the failure of the sodium carbonate chemical feed pump. On January 30, 2017, the pH was 3.04, and the pump was replaced the same day. On January 31, 2017, the pH was 5.59. The pH continued to increase and was 8.10 on February 8, 2017. The pH excursion caused an upset to the AX-MAX waste treatment system due to the chemical feed pump failure. The event caused biological mortality of the media which affected the fecal coliform concentration and turbidity/discoloration of the sanitary treatment plant effluent, which reduced effectiveness of the UV disinfection system.

HNP implemented additional inter-stage process sampling to assess and ensure the efficacy and health of the waste treatment system. The site also placed an additional UV Disinfection Lamp into operation at the sanitary treatment plant and purchased a spare chemical feed pump, providing additional system reliability measures to assure continued compliance with the terms, conditions, and requirements of the NPDES permit.

On May 22, 2017, Duke Energy Progress, LLC, submitted a 10-day follow-up letter to the NCDEQ as required by Notice of Violation Case No. NOV-2017-LV-0313, respectfully requesting that the NCDEQ Division of Water Resources take into consideration these aspects related to the subject Notice of Violation prior to a decision. No additional communications have been received from NCDEQ regarding this item.

No impacts to the environment were observed.

- October 2017 Notice of Violation Case No. NOV-2017-PC-0667 - On October 30, 2017, Duke Energy Progress, LLC received a Notice of Violation & Intent to Assess Civil Penalty letter dated October 17, 2017, pertaining to perceived unpaid fees. Payment of annual fees is required by Part II B. (12) of the Harris NPDES permit as well as 15A NCAC 2H.0105 (b)(2). It was later confirmed by NCDEQ that the payment had been received January 5, 2017, and that their records were updated accordingly. On December 8, 2017, Duke Energy Progress, LLC, received a letter from NCDEQ Division of Water Resources for the rescission of NOV-2017-PC-0667.

4.1.2 NPDES Inspections

On January 18, 2017, NCDEQ Division of Water Resources personnel visited the Harris Plant and Harris Energy & Environmental 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]

Duke Energy Progress, LLC, 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 2017.

6.3 Non-routine Reports

There were no additional non-routine reports submitted in accordance with EPP Section 5.4.2 aside from those mentioned in Section 4.1.1.

6.4 Other Reporting Requirements

There were no other EPP reportable events during 2017.