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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 Shearon Harris Nuclear Power Plant, Unit 1, Duke Energy Progress, LLC, is providing the enclosed Annual Environmental (Nonradiological) Operating Report for 2021.

This submittal contains no regulatory commitments. Should you have any questions regarding this submittal, please contact Dennis Earp at (984) 229-2673.

Sincerely,

A handwritten signature in black ink, appearing to read 'Richard J. Vandenberg', written over a faint, larger version of the same signature.

Richard J. Vandenberg

Enclosure

cc: J. Zeiler, NRC Senior Resident Inspector, HNP
A. Hon, NRC Project Manager, HNP
L. Dudes, NRC Regional Administrator, Region II

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

ANNUAL ENVIRONMENTAL
(NONRADIOLOGICAL)
OPERATING REPORT

January 1, 2021 through December 31, 2021

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, 2021.

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 previous NPDES permit NC0039586 became effective on September 1, 2016 by NCDEQ. This permit expired on August 31, 2021. The renewal NPDES permit NC0039586 became effective on September 30, 2021 by NCDEQ. This permit expires on August 31, 2026.

HNP submitted a copy of the NPDES Permit Renewal Application to the NRC by letter dated February 24, 2021 (ADAMS Accession No. ML21061A242), as required by Renewed Facility Operating License No. NPF-63 Appendix B.

HNP submitted a copy of the renewed permit to the NRC by letter dated October 14, 2021 (ADAMS Accession No. ML21287A210), as required by Renewed Facility Operating License No. NPF-63 Appendix B.

3.0 UNUSUAL OR IMPORTANT ENVIRONMENTAL EVENTS

[EPP Section 4.1]

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 2021.

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 on either a four year or three cycle frequency, dependent on the associated reservoir, in accordance with Engineering Performance Test (EPT)-168 and Periodic Maintenance Identification Numbers (PMID's) 23528 and 23529 as part of HNP's Generic Letter 89-13 Testing and Inspection Program. Inspection of the ESW screening structure bay ESW Aux Bay 8 ('A' Train) occurred during 2021.

No clogging events of HNP cooling water systems were observed during 2021 because of Asiatic clam infestation.

B. Monitoring aquatic vegetation

Main Reservoir

Prior to 2019, Hydrilla and Creeping Water Primrose were observed throughout the reservoir. Grass Carp were stocked by the State of North Carolina into the reservoir in Fall 2018 and in Spring 2019. During 2021, Duke Energy Progress, LLC (DEP) conducted qualitative aquatic vegetation surveys during routine environmental surveys and did not detect Hydrilla or Creeping Water Primrose. Hydrilla was not observed in the intake embayment or in the intake canal. 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 reservoir, intake canal, or along the shoreline adjacent to the auxiliary intake canal in 2021. There were a few scattered areas of Alligator Weed (*Alternanthera philoxeroides*) and Creeping Water Primrose (*Ludwigia* spp.), but only in very small amounts. No submerged aquatic vegetation was observed in the intake canal and embayment. The scant amount of aquatic vegetation does not pose any operational concerns.

No impacts to HNP operations from aquatic vegetation occurred in 2021.

3.2 Combined Construction and Operating License Application Evaluations

In a letter dated February 18, 2008, Carolina Power & Light Company applied for a combined construction permit and operating license (COL) for two AP1000 advanced pressurized water reactor units to be located at the HNP 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. 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. In a letter dated May 2, 2013 (ADAMS Accession No. ML13123A344), DEP requested that the NRC suspend review of the COL application for the two units at the HNP site. Additionally, requests for exemption from the 10 CFR 50.71(e)(3)(iii) Final Safety Analysis Report updates were submitted by DEP per letters dated August 12, 2015 (ADAMS Accession No. ML15226A353), October 13, 2016 (ADAMS Accession No. ML16288A815), and December 2, 2019 (ADAMS Accession No. ML19337A620), with the most recent receiving approval from the NRC on April 6, 2020 (ADAMS Accession No. ML20029E967), extending the exemption date to December 31, 2024.

No work was performed in 2021 in support of the COL for the two units at the HNP site.

3.3 Harris Land Sales

One sale of property outside of the Owner Controlled Area occurred in 2021.

A. Helix Ventures, LLC

On November 8, 2021, a deed was recorded with the Wake County Register of Deeds for 220.02 acres sold to Helix Ventures, LLC, primarily for a large manufacturing development in the Holly Springs, North Carolina area.

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 30, 2021. 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, 2021, and valid through December 31, 2021. In addition, the Duke Energy Carolinas Laboratory in Huntersville, NC, provided NPDES analytical support for effluent samples.

During 2021, DEP also contracted with three NCDEQ certified private laboratories (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 NCDEQ as required by the NPDES permit. There were no NPDES permit noncompliances or events in 2021.

4.1.2 NPDES Inspections

NCDEQ, Division of Water Resources personnel did not visit HNP nor the HE&EC in 2021.

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 2021.

6.3 Non-routine Reports

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

6.4 Other Reporting Requirements

There were no other EPP reportable events during 2021.