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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 2024.

This submittal contains no regulatory commitments. Should you have any questions regarding this submittal, please contact Sarah McDaniel at (984) 229-2002.

Sincerely,

William D. Gunter

Enclosure

cc: P. Boguszewski, NRC Senior Resident Inspector, HNP
N. Jordan, NRC Project Manager, HNP
NRC Regional Administrator, Region II

Duke Energy Progress, LLC

Shearon Harris Nuclear Power Plant, Unit 1

ANNUAL ENVIRONMENTAL (NONRADIOLOGICAL) OPERATING REPORT

January 1, 2024, through December 31, 2024

Docket No. 50-400/Renewed Facility Operating License No. NPF-63
Appendix B

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 of January 1 through December 31, 2024.

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 current NPDES permit NC0039586 became effective on September 30, 2021, by NCDEQ. This permit will expire on August 31, 2026.

2.3 Reporting Related to the NPDES Industrial Stormwater Permit

NPDES Industrial Stormwater Permit NCS000606 was initially issued on September 27, 2023, with an effective date of November 1, 2023. This permit will expire on October 31, 2028.

With the issuance of this permit, the stormwater requirements of NPDES permit NC0039586 were transferred to the NPDES Industrial Stormwater Permit NCS000606.

Modification to specific pages of the NPDES Industrial Stormwater Permit NCS000606 were issued by the NCDEQ as a Minor Permit Modification on November 8, 2023, without permit revision. Sampling and observation requirements started on January 1, 2024.

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. There were no releases or exceedances of permit conditions that 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 2024.

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 a frequency of no greater than four and a half years in accordance with EPT-168 (Engineering Performance Test) and Periodic Maintenance Identification Numbers (PMID's) 23528 and 23529 as part of HNP's Generic Letter 89-13 Testing and Inspection Program. No bays were inspected in 2024.

No Asiatic clams were observed during downstream heat exchanger inspections. No clogging events of HNP cooling water systems were observed during 2024 because of Asiatic clam infestation.

B. Monitoring aquatic vegetation

Main Reservoir

The North Carolina Division of Water Resources Aquatic Weed Program (NCAWP) conducted an aquatic vegetation survey in the main reservoir in the fall of 2024. The NCWAP did not detect any submerged vegetation (Hydrilla and Black Mat Algae, *Lyngbya sp*.), in the reservoir. Submerged vegetation was not observed in the intake embayment or canal. Emergent vegetation, which roots underwater in shallow shoreline habitat and has most of its stems and leaves growing above the water, was observed in the reservoir, and included Giant Cutgrass, Cattail, Water Willow, Alligator Weed, Creeping Water Primrose, American Lotus, and Fragrant Water Lily, all of which have been found during previous surveys along the shoreline. There is minimal operational risk or concern posed by the aquatic vegetation species observed in the main reservoir. Grass carp were not stocked in the main reservoir in 2024. No Zebra or Quagga Mussels were observed in the main reservoir in 2024.

There were no impacts to HNP operations from aquatic vegetation in 2024.

Auxiliary Reservoir

Hydrilla was not observed in the auxiliary reservoir, intake canal, or the shoreline adjacent to the auxiliary intake canal. There were a few scattered areas of Alligator Weed (*Alternanthera philoxeroides*). No submerged aquatic vegetation was observed in the intake canal and embayment. The scant amount of aquatic vegetation observed does not pose any operational risks. Grass Carp (150 total) were stocked in the auxiliary reservoir in the spring of 2024. No Zebra or Quagga Mussels were observed in the auxiliary reservoir in 2024.

There were no impacts to HNP operations from aquatic vegetation in 2024.

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 obligations. Duke Energy Progress (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 (Agencywide Documents Access and Management Systems (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 (FSAR) 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 FSAR information has been revised, deleted, or added since the October 13, 2016 (ADAMS Accession No. ML16288A815) submittal as stated in the annual FSAR update report letter to the NRC dated November 14, 2024 (ADAMS Accession No. ML24326A233).

No work was performed in 2024 in support of the COL for the two units at the HNP site.

3.3 Harris Land Sales

No sale of property outside of the Owner Controlled Area occurred in 2024.

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, 2024, and valid through December 31, 2024. In addition, the Duke Energy Carolinas Laboratory in Huntersville, NC, provided NPDES analytical support for effluent samples.

During 2024, DEP also contracted with four NCDEQ certified private laboratories (Environmental Testing Solutions, Inc. (ETS), Eurofins Labs (Eurofins), GEL Laboratories, LLC (GEL), and PACE Analytical Services, LLC (PACE)) to perform analyses.

4.1.1 Effluent Monitoring

Routine effluent monitoring was conducted and reported to NCDEQ as required by the NPDES and Industrial Stormwater permits. There were no NPDES permit noncompliances or events in 2024. There were no Industrial Stormwater permit noncompliances or events in 2024.

4.1.2 NPDES Inspections

Whole effluent samples were collected from the HE&EC Lagoon NPDES Outfall 007 on November 5, 2024, by Donald Smith and Jesse Barnes of the NC Division of Water Resources (DWR), Raleigh Regional Office. The sample was for use in an acute 24-hour Pimephales promelas pass-fail toxicity test, which was performed by the staff at the DWR Aquatic Toxicity Branch. This test passed for the toxicity inspection. The toxicity test information obtained is shown below:

- Test Type: Acute 24-hour Pimephales promelas pass-fail
- Test Concentration: 90 %
- Test Result: Pass (for Toxicity Inspection)

The inspection report was issued on December 9, 2024. No issues 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.

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 2024.

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 2024.