



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

January 30, 2024

Thomas Haaf
Site Vice President
Duke Energy Progress, LLC
5413 Shearon Harris Road
Mail Code HNP01
New Hill, NC 27562-9300

SUBJECT: SHEARON HARRIS NUCLEAR PLANT – INTEGRATED INSPECTION REPORT
05000400/2023004

Dear Thomas Haaf:

On December 31, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Shearon Harris Nuclear Plant. On January 17, 2024, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this inspection.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew S. Fannon".

Signed by Fannon, Matthew
on 01/30/24

Matthew S. Fannon, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket No. 05000400
License No. NPF-63

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: SHEARON HARRIS NUCLEAR PLANT – INTEGRATED INSPECTION REPORT
05000400/2023004 – DATED JANUARY 30, 2024

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DATE	1/26/2024	1/29/2024	1/30/2024		

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Number: 05000400

License Number: NPF-63

Report Number: 05000400/2023004

Enterprise Identifier: I-2023-004-0017

Licensee: Duke Energy Progress, LLC

Facility: Shearon Harris Nuclear Plant

Location: New Hill, North Carolina

Inspection Dates: October 1, 2023 to December 31, 2023

Inspectors: P. Boguszewski, Senior Resident Inspector
B. Caballero, Senior Operations Engineer
A. Goldau, Operations Engineer
C. Smith, Resident Inspector
G. Smith, Senior Resident Inspector

Approved By: Matthew S. Fannon, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Shearon Harris Nuclear Plant, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

List of Findings and Violations

No findings or violations of more than minor significance were identified.

Additional Tracking Items

None.

PLANT STATUS

Unit 1 operated at or near rated thermal power for the entire inspection period.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed activities described in IMC 2515, Appendix D, "Plant Status," observed risk significant activities, and completed on-site portions of IPs. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Seasonal Extreme Weather Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of cold weather on November 26 and November 27, 2023.

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (1 Sample)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) 'B' essential services chilled water with 'B' emergency service water leaks on December 20, 2023

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Emergency service water intake screening structure on October 31, 2023
- (2) 'A' and 'B' switchgear rooms on December 28, 2023
- (3) Diesel fuel oil storage building on December 28, 2023
- (4) Reactor building 190' on December 29, 2023

71111.06 - Flood Protection Measures

Flooding Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated external flooding mitigation protections in the waste processing building and turbine building on November 12, 2023.

71111.07A - Heat Exchanger/Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

- (1) 'C' charging safety injection pump oil cooler and gear oil cooler heat exchangers on November 7, 2023

71111.11A - Licensed Operator Requalification Program and Licensed Operator Performance

Requalification Examination Results (IP Section 03.03) (1 Sample)

The licensee completed the annual requalification operating examinations required to be administered to all licensed operators in accordance with Title 10 of the *Code of Federal Regulations* 55.59(a)(2), "Requalification Requirements," of the NRC's "Operator's Licenses." The inspector performed an in-office review of the overall pass/fail results of the individual operating examinations, and the crew simulator operating examinations in accordance with IP 71111.11, "Licensed Operator Requalification Program and Licensed Operator Performance." These results were compared to the thresholds established in Section 3.03, "Requalification Examination Results," of IP 71111.11.

- (1) The inspectors reviewed and evaluated the licensed operator examination failure rates for the requalification annual operating exam completed on October 5, 2023.

71111.11B - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Requalification Program (IP Section 03.04) (1 Sample)

(1) Biennial Requalification Written Examinations

The inspectors evaluated the quality of the licensed operator biennial requalification written examinations administered on 01/21/2022 and 02/04/2022.

Annual Requalification Operating Tests

The inspectors evaluated the adequacy of the facility licensee's annual requalification operating test.

Administration of an Annual Requalification Operating Test

The inspectors evaluated the effectiveness of the facility licensee in administering requalification operating tests required by 10 CFR 55.59(a)(2) and that the facility licensee is effectively evaluating their licensed operators for mastery of training objectives.

Requalification Examination Security

The inspectors evaluated the ability of the facility licensee to safeguard examination material, such that the examination is not compromised.

Remedial Training and Re-examinations

The inspectors evaluated the effectiveness of remedial training conducted by the licensee, and reviewed the adequacy of re-examinations for licensed operators who did not pass a required requalification examination.

Operator License Conditions

The inspectors evaluated the licensee's program for ensuring that licensed operators meet the conditions of their licenses.

Control Room Simulator

The inspectors evaluated the adequacy of the facility licensee's control room simulator in modeling the actual plant, and for meeting the requirements contained in 10 CFR 55.46.

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator performance in the control room during a planned downpower for turbine valve testing on October 20, 2023.

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) The inspectors observed a licensed operator simulator training exercise involving a plant downpower and turbine valve testing on October 19, 2023.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

- (1) 'B' emergency service water auxiliary reservoir intake valve indicates open when shut on November 10, 2023 (Nuclear Condition Report (NCR) 02492192).
- (2) 'B' emergency diesel generator transfer pump local control switch failure on November 10, 2023 (NCR 02491954).

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (1 Sample)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) Elevated risk during planned surveillance testing associated with 'A' train solid state protection system actuation logic and master relay on November 15, 2023

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (4 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) 'B' emergency service water system valve, 1SW-2, limit switch issue reviewed on November 1, 2023 (NCR 02492192)
- (2) Missed surveillance for auxiliary feedwater flow control valve response time testing on November 15, 2023 (NCR 02494704)
- (3) 'A' startup transformer fan not rotating in cooler bank on November 14, 2023 (NCR 02488051)
- (4) Emergency service water flow perturbations associated with 'B' essential services chilled water on December 20, 2023 (NCR 02494798)

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Plant modification, engineering change 422177, use of fixed screens for the 'B' emergency service water main reservoir suction on November 15, 2023
- (2) Temporary modification, engineering change 423226, temporary cubicle cooling for cubicles 1A-1, 1B-3, 1A-3, and 1B-5 on December 29, 2023

71111.24 - Testing and Maintenance of Equipment Important to Risk

The inspectors evaluated the following testing and maintenance activities to verify system operability and/or functionality:

Post-Maintenance Testing (PMT) (IP Section 03.01) (3 Samples)

- (1) OST-1008, "1A-SA RHR Pump Operability Quarterly Test," after planned maintenance on October 10, 2023
- (2) 'B' emergency diesel generator fuel oil transfer pump switch testing after switch failure and replacement on November 13, 2023

- (3) OST-1093, "CVCS/SI Operability Train B, Quarterly Interval," after 'B' charging/safety injection pump (CSIP) seal replacement on December 19, 2023

Surveillance Testing (IP Section 03.01) (4 Samples)

- (1) OST-1073, "1B-SB Emergency Diesel Generator Operability Test," on October 26, 2023
- (2) MST-I0001, "Train A Solid State Protection System Actuation Logic and Master Relay Test," on November 15, 2023
- (3) MST-I0007, "Main Steam Line Pressure, Loop 1 (P-0474) Channel Calibration," on November 29, 2023
- (4) OST-1214, "Emergency Service Water System Operability Train A," on December 28, 2023

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS08: Heat Removal Systems (IP Section 02.07) (1 Sample)

- (1) Unit 1 (October 1, 2022, to September 30, 2023)

MS10: Cooling Water Support Systems (IP Section 02.09) (1 Sample)

- (1) Unit 1 (October 1, 2022, to September 30, 2023)

71152S - Semiannual Trend Problem Identification and Resolution

Semiannual Trend Review (Section 03.02) (1 Sample)

- (1) The inspectors reviewed the licensee’s corrective action program for potential adverse trends that might be indicative of a more significant safety issue. The inspectors observed a trend related to risk awareness during preparation of maintenance activities. The review was completed on December 19, 2023.

INSPECTION RESULTS

Observation: Semiannual Trend Review	71152S
<p>The inspectors reviewed issues entered in the licensee’s corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The licensee is challenged in the preparation of risk assessments prior to maintenance implementation. In some instances, the licensee made the determination the day of implementation to not move forward with the planned maintenance. However, there have been other instances where work commenced without understanding affects the planned maintenance had on plant risk. Furthermore, the licensee failed to consider the implications on plant risk during a change to operational methodology which caused a non-conservative change in plant baseline core damage frequency. Additionally, NRC identified and previously documented a violation with regards to a failure to implement risk management actions associated with maintenance activities (Non-cited Violation</p>	

05000400/2023002-01, Failure to Implement Appropriate Risk Management Actions).

The inspectors identified risk-related issues that were documented in the following recent licensee NCRs:

- NCR 02472408
- NCR 02476806
- NCR 02479615
- NCR 02495720

There is a negative trend in overall risk awareness, specifically in understanding and assessing the risk associated with maintenance prior to implementation. Without an understanding of risk associated with planned maintenance activities; consequently, risk management actions may not be implemented as prescribed per the licensee procedure.

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On January 17, 2024, the inspectors presented the integrated inspection results to Thomas Haaf and other members of the licensee staff.
- On September 28, and October 23, 2023, the inspectors presented the IP 71111.11B inspection results to Dave Hoffman, Plant Manager, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.07A	Miscellaneous	CSIP 3-22	Eddy Current Testing Report for CSIP-GOC-5-20003-02-27, CSIP-GOC-5-20003-02-33, CSIP-POC-5-20008-01-26, CSIP-POC-5-20003-01-30	Revision 0
	Work Orders	20414208		06/28/2022
		20414209		06/28/2022
		20448604		06/28/2022
71111.15	Drawings	5-S-0999 S02	Simplified Flow Diagram HVAC-Essential Services Chilled Water-Condenser	33
	Work Orders	13300853		04/17/2015
		20394114		04/26/2021