



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

September 10, 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 NRC FIRE PROTECTION TEAM  
INSPECTION (FPTI) INSPECTION REPORT 05000400/2024011

Dear Thomas Haaf:

On August 14, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Shearon Harris Nuclear Plant and discussed the results of this inspection with David Hoffman, Plant Manager and other members of your staff. The results of this inspection are documented in the enclosed report.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violation or the significance or severity of the violation documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement; and the NRC Resident Inspector at Shearon Harris Nuclear Plant.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; and the NRC Resident Inspector at Shearon Harris Nuclear Plant.

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,



Signed by Bacon, Daniel  
on 09/10/24

Daniel M. Bacon, Chief  
Engineering Branch 2  
Division of Reactor Safety

Docket No. 05000400  
License No. NPF-63

Enclosure:  
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: SHEARON HARRIS NUCLEAR PLANT – NRC FIRE PROTECTION TEAM INSPECTION (FPTI) INSPECTION REPORT 05000400/2024011 DATED SEPTEMBER 10, 2024

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DATE	9/6/2024	9/6/2024	9/8/2024	9/10/2024	9/10/2024

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

Docket Number: 05000400

License Number: NPF-63

Report Number: 05000400/2024011

Enterprise Identifier: I-2024-011-0019

Licensee: Duke Energy Progress, LLC

Facility: Shearon Harris Nuclear Plant

Location: New Hill, North Carolina

Inspection Dates: July 22, 2024 to August 14, 2024

Inspectors: J. Alamudun, Reactor Inspector  
E. Coffman, Reactor Inspector  
L. Jones, Senior Reactor Inspector (Team Lead)  
W. Monk, Senior Reactor Inspector

Approved By: Daniel M. Bacon, Chief  
Engineering Branch 2  
Division of Reactor Safety

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a NRC 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

Fire Confinement 18-Month Surveillance Requirements Not Performed			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000400/2024011-01 Open/Closed	[H.12] - Avoid Complacency	71111.21N.05
The NRC identified a Green Non-Cited Violation (NCV) of Shearon Harris Nuclear Power Plant Unit 1 RFOL, 2.F, Fire Protection Program, for the licensee's failure to complete required surveillance requirements (SRs) associated with required barriers. Specifically, the licensee failed to inspect 189 fire wraps and four thermal shields across 5 fire areas (FA) in the Reactor Auxiliary Building (RAB).			

### Additional Tracking Items

None.

## 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 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 industry standards.

## REACTOR SAFETY

### 71111.21N.05 - Fire Protection Team Inspection (FPTI)

#### Structures, Systems, and Components (SSCs) Credited for Fire Prevention, Detection, Suppression, or Post-Fire Safe Shutdown Review (IP Section 03.01) (3 Samples)

The inspectors verified that components and/or systems will function as required to support the credited functions stated for each sample. Additional inspection considerations are located in the fire hazards analysis (FHA) or safe shutdown analysis (SSA).

- a. Review deficiencies or open fire protection impairments for the selected system, including any temporary modifications, operator workarounds, or compensatory measures.
- b. Verify that operator actions can be accomplished as assumed in the licensee's FHA, or as assumed in the licensee's fire probabilistic risk assessment (FPRA) analysis and SSA.
- c. Review repetitive or similar maintenance work requests which could be an indicator of a design deficiency and could affect the ability of the components to perform their functions, when needed.
- d. Ensure that post maintenance and/or surveillance activities are performed as scheduled.
- e. Perform a walkdown inspection to identify equipment alignment discrepancies. Inspect for deficient conditions such as corrosion, missing fasteners, cracks, and degraded insulation.
- f. Ensure the selected SSCs that are subject to aging management review (AMR) pursuant to 10 CFR Part 54 are being managed for aging (e.g., loss of material, cracking, reduction of heat transfer) in accordance with appropriate aging management programs. Verify that the licensee's aging management program activities (such as, Fuel Oil Analysis or Selective Leaching Aging Management Program) associated with FP equipment are being implemented.
- g. If a review of operating experience issues will be completed for the selected inspection sample, verify that the licensee adequately reviewed and dispositioned the operating experience in accordance with their processes.

- (1) (Detection/Suppression) U1 EDG A & B Fire Water Suppression System
- (2) (SSD) U1 125V DC Electrical Distribution System & Aux Shutdown Panel
- (3) (SSD) U1 Emergency Service Water and Normal Service Water Systems

### Fire Protection Program Administrative Controls (IP Section 03.02) (2 Samples)

The inspectors verified that the selected control or process is implemented in accordance with the licensee’s current licensing basis. If applicable, ensure that the licensee’s FPP contains adequate procedures to implement the selected administrative control. Verify that the selected administrative control meets the requirements of all committed industry standards.

- (1) FP Admin Program #1 NFPA 805 Monitoring Program (including FP Equipment SRs)
- (2) FP Admin Program #2 Fire Brigade Drills and Training Program

Fire Protection Program Changes/Modifications (IP Section 03.03) (1 Sample)

The inspectors verified the following:

- a. Changes to the approved FPP do not constitute an adverse effect on the ability to safely shutdown.
- b. The adequacy of the design modification, if applicable.
- c. Assumptions and performance capability stated in the SSA have not been degraded through changes or modifications.
- d. The FPP documents, such as the Updated Final Safety Analysis Report, fire protection report, FHA, and SSA were updated consistent with the FPP or design change.
- e. Post-fire SSD operating procedures, such as abnormal operating procedures, affected by the modification were updated.

- (1) FPP Change EC 419161 – Abandonment of Obsolete Duct Detectors

**INSPECTION RESULTS**

Fire Confinement 18-Month Surveillance Requirements Not Performed			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000400/2024011-01 Open/Closed	[H.12] - Avoid Complacency	71111.21N.0 5
<p>The NRC identified a Green Non-Cited Violation (NCV) of Shearon Harris Nuclear Power Plant Unit 1 RFOL, 2.F, Fire Protection Program, for the licensee’s failure to complete required surveillance requirements (SRs) associated with required barriers. Specifically, the licensee failed to inspect 189 fire wraps and four thermal shields across 5 fire areas (FA) in the Reactor Auxiliary Building (RAB).</p> <p><u>Description:</u> When the inspection team was reviewing the licensee’s NFPA 805 Monitoring Program and spot checking the completion of required fire protection surveillance requirements (SRs), it was discovered that the licensee had not completed the required 18-month SRs for 189 fire wrap inspections and four thermal shield inspections in the Reactor Auxiliary Building since 08/29/2019.</p> <p>In 2020, a revision to this Fire Protection Test (FPT-3560 Surveillance) was issued which divided its Attachments 1 – 3 into five separate Attachments. The associated Preventive Maintenance Identification (PMID) was not updated to perform Attachments 4 and 5 as reflected with the change to the FPT. This led to the license not scheduling and completing the required fire wrap and thermal shield SRs. In review of the licensee’s NFPA 805 Monitoring Program, the inspectors requested the completed work-order packages for fire protection surveillance requirements associated with fire barrier inspections. In response, the</p>			

licensee discovered that the required 18-month SRs in the Reactor Auxiliary Building had not been completed since 08/29/2019. The inspectors verified the SRs grace period was expired given the observed period was greater than 3 cycles.

The inspectors questioned the population of fire areas and barriers represented by missing the surveillance. In review of the attachments associated with the surveillance it was determined the licensee failed to inspect 189 fire wraps and four thermal shields in the Reactor Auxiliary Building (RAB) populated across 5 Fire Areas (FA).

**Corrective Actions:**

- 1) Schedule and perform FPT-3560 Attachments 4 and 5 as soon as possible in order to complete the missed fire wrap and thermal shield SRs.
- 2) Perform extent of condition review to identify other editorial preventative maintenance (PM) revisions which may have resulted in a need to revise the PM to ensure SR completions.

**Corrective Action References:** This issue is being tracked in the licensee's CAP under NCR 2523456, HNP NRC 2024 Fire Protection Inspection: FPT-3560 Inspections Not Performed, 07/24/2024.

Performance Assessment:

**Performance Deficiency:** The licensee's failure to complete the surveillance requirements in FPP-013, Fire Protection – Minimum Requirements, Mitigating Actions and Surveillance Requirements was a performance deficiency (PD). Specifically, for greater than 3 cycles the licensee failed to inspect 189 fire wraps and four thermal shields in the Reactor Auxiliary Building (RAB) populated across 5 Fire Areas (FA).

**Screening:** The inspectors determined the performance deficiency (PD) was more-than-minor because if left uncorrected it would have the potential to lead to a more significant safety concern. Specifically, the surveillance requirements were not completed for greater than 3 cycles and the large volume of fire wraps unchecked increased the risk of a fire protection feature not meeting its SR acceptance criteria in turn validating its functionality. Additionally, IMC 0612, APP E, Examples of Minor Significance, Example 11.b supports dispositioning this PD as More-than-Minor.

**Significance:** The inspectors assessed the significance of the finding using IMC 0609 Appendix F, "Fire Protection and Post - Fire Safe Shutdown SDP." Using IMC 0609, Appendix F, Attachment 1, and after the licensee completed the missed fire wrap and thermal shield SRs, the inspectors determined the issue was of very low safety significance (GREEN). This was because the fire confinement finding continued to provide adequate fire endurance to prevent fire propagation through the fire confinement element, given the combustible loading and location of equipment important to safe shutdown in the fire area of concern (Question 1.4.4-A).

**Cross-Cutting Aspect: H.12 – Avoid Complacency:** Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Specifically, the licensee didn't recognize and plan for possible mistakes when the Preventive Maintenance Identification (PMID) was not updated to reflect the changes made in the FPT surveillance requirement revision.

Enforcement:



**Violation:** HNP license condition 2.F requires in part, that the licensee shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), NFPA Standard 805, 2001 Edition. NFPA 805, Section 3.2.3, Procedures, states *“Procedures shall be established for implementation of the fire protection program. In addition to procedures that could be required by other sections of the standard, the procedures to accomplish inspection, testing, and maintenance for fire protection systems and features credited by the fire protection program.”*

FPP-013, Fire Protection – Minimum Requirements, Mitigating Actions and Surveillance Requirements, Sections 6.6.3 and 6.7.3 state in part 18-month visual surveillance requirements were required for the 189 fire wraps and four thermal shields in the licensee’s RAB.

Contrary to the above, from 08/29/2019 until July 2024 (59 months) the license failed to perform the required FPT 18-month surveillance requirements for 189 fire wraps and four thermal shields in the Reactor Auxiliary Building (RAB).

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

## **EXIT MEETINGS AND DEBRIEFS**

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

- On August 14, 2024, the inspectors presented the NRC inspection results to David Hoffman, Plant Manager and other members of the licensee staff.

## **THIRD PARTY REVIEWS**

No third-party reviews were conducted during the inspection period.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21N.05	Calculations	HNP-E/ELEC-0003	Safe Shutdown Analysis Manual Action Feasibility	Rev. 10
		HNP-M/MECH-1127	NFPA 805 Transition - Fire Area 12-A-CR Fire Safety Analysis	Rev. 4
	Corrective Action Documents	PRR 734935	FPT-3560 Rev. 015	02/26/2015
	Corrective Action Documents Resulting from Inspection	AR 2524639	HNP NRC 2024 Fire Protection Inspection: Non-CPE Cables Routing Questions	08/05/2024
		NCR 2523456	HNP NRC 2024 Fire Protection Inspection: FPT-3560 Inspections Not Performed	07/24/2024
		NCR 2523606	HNP NRC 2024 Fire Protection Inspection: Trash Observation	07/25/2024
		NCR 2524890	Attach Fire Wrap Over B5245 SR4	08/07/2024
		PRR 2523212	FPP-013 Correct Editorial/Typographical Error	07/23/2024
		PRR 2523305	FPP-013 Definition of Safe Shutdown (SSD) to Reflect NFPA 805 Licensee Condition	07/23/2024
		PRR 2524907	AP-301 Procedure Clarification on Temporary Heaters	08/07/2024
		WR 20273290	ESW Pipe Tunnel Temporary Power Cables Clean-up	08/06/2024
		WR 20273313	Attach Fire Wrap Over B5245 SR4	08/07/2024
	Drawings	1364-95310	Fire Wrap Schematic 310	Rev. 1
		5-S-0547	Flow Diagram Circulating & Service Water Systems	Rev. 67
		5-S-0548	Flow Diagram Circulating & Service Water Systems	Rev. 74
		5-S-1324	Simplified Flow Diagram Residual Heat Removal System	Rev. 12
		6-SK-E-542 S17	Reactor Auxiliary Building Safe Shutdown Analysis in Case of Fire EL 286'	05/10/1983
	Fire Plans	A22-5-261-0606	Pre-Fire Plan RAB EL 261' FA 1-A-BAL	Rev. 4
	Miscellaneous	AOP-004-BD	Remote Shutdown - Basis Document	Rev. 34
		AOP-036-BD	Safe Shutdown Following a Fire - Basis Document	Rev. 20
		DBD-105	Residual Heat Removal System	Rev. 14
		DBD-128	Service Water System Traveling Screens and Screen Wash System Waste Processing Building Cooling Water System	6/14/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
		DBD-201	Emergency Diesel Generator System	12/13/2021	
		DBD-202	Plant Electrical Distribution System	5/9/2024	
		DBD-308	Main and Auxiliary Control Boards and Panels	6/21/2018	
		DBD-316	FIRE BARRIER SYSTEM	Rev. 10	
		DPS-1552.10-00-0006	Non-Controlled Plant Equipment (CPE) Cable	Rev. 5	
		ECA-0.0 Background	Loss of All AC Power	Rev. 3	
		HNP APT 2022	Annual Live Fire Training	Rev. 0	
		Self-Assessment 2499654	HNP NRC Fire Protection Team Inspection Readiness Assessment	04/02/2024	
		TTC1679-N (Initial) TTC1680-N (Requalification)	Duke Energy-Nuclear Training Scott SCBA	Rev. 0a	
		TTC1772-N	Emergency Action Levels	Rev. 1	
		TTC1982-N	SCOTT NIOSH AIR PAK SCBA Initial TTC1982-N, SCOTT NIOSH AIR PAK SCBA Requalification TTC1983-N	Rev. 0a	
		Procedures	AD-DC-ALL-0201	DEVELOPMENT AND MAINTENANCE OF CONTROLLED PROCEDURE MANUAL PROCEDURES	Rev. 25
			AD-EG-ALL-1503	FIRE PROTECTION PERFORMANCE MONITORING AND OTHER PROGRAM ELEMENTS	Rev. 5
	AD-HS-ALL-0101		INDUSTRIAL SAFETY	Rev. 16	
	AD-OP-HNP-0205		HNP Time Critical Actions/Time Sensitive Actions	Rev. 3	
	AD-TQ-ALL-0083		Self Contained Breathing Apparatus (SCBA) Training Program	Rev. 5	
	AD-TQ-ALL-0086		Fire Brigade and Hazmat Training	Rev. 6	
	AOP-004		Remote Shutdown	Rev. 71	
	AOP-036	Safe Shutdown Following a Fire	Rev. 55		
	AOP-036.01	Fire Area: 1-A-ACP	Rev. 17		
AOP-036.08	Fire Areas: 1-A-SWGRA and 1-A-SWGRB	Rev. 23			
EOP-E-0	Reactor Trip or Safety Injection	Rev. 15			

<b>Inspection Procedure</b>	<b>Type</b>	<b>Designation</b>	<b>Description or Title</b>	<b>Revision or Date</b>
		EOP-ECA-0.0	Loss of All AC Power	Rev. 11
		FPP-013	FIRE PROTECTION – MINIMUM REQUIREMENTS, MITIGATING ACTIONS AND SURVEILLANCE REQUIREMENTS	Rev. 116
		FPT-3001	MOTOR DRIVEN MAIN FIRE PUMP FUNCTIONALITY TEST MONTHLY INTERVAL	Rev. 15
		FPT-3006	FIRE MAIN FLOW TEST THREE YEAR INTERVAL MODES: ALL	Rev. 10
		FPT-3560	FIRE WRAP INSPECTION 18-MONTH INTERVAL	Rev. 14
		MPT-E0019	Diesel Fire Pump Battery Test	Rev. 9
		OPT-3303	MAIN DRAIN TEST TURBINE BUILDING 18 MONTH INTERVAL	Rev. 11
		OPT-3308	MAIN DRAIN TEST OUT LYING BUILDING 18 MONTH INTERVAL	Rev. 14
		PD-FP-ALL-1500	FLEET FIRE PROTECTION PROGRAM MANUAL	Rev. 3
		WO 20235147	FIRE WRAP INSPECTION 18-MONTH INTERVAL	08/29/2019
	WO 20272984	FIRE WRAP FOR 4-INCH CONDUIT 16267Z-SB HAS A SMALL TEAR	07/30/2024	
	WO 20571013	U2 EDG BLDG, INSTALLED EUH NOT OPERATING	11/28/2022	
	WO 20678555	FPP-013 INSPECTION OF FIRE WRAP AND THERMAL SHIELDS	07/30/2024	