



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

May 20, 2021

Mr. Tom Ray  
Site Vice President  
Duke Energy Carolinas, LLC  
McGuire Nuclear Station  
12700 Hagers Ferry Road  
Huntersville, NC 28078-8985

SUBJECT: MCGUIRE NUCLEAR STATION – TRIENNIAL FIRE PROTECTION  
INSPECTION REPORT 05000369/2021011 AND 05000370/2021011

Dear Mr. Ray:

On April 8, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at McGuire Nuclear Station and 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,

**/RA/**

Scott M. Shaeffer, Chief  
Engineering Branch 2  
Division of Reactor Safety

Docket Nos. 05000369 and 05000370  
License Nos. NPF-9 and NPF-17

Enclosure:  
As stated

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SUBJECT: MCGUIRE NUCLEAR STATION – TRIENNIAL FIRE PROTECTION  
INSPECTION REPORT 05000369/2021011 AND 05000370/2021011 - DATED  
May 20, 2021

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NAME	P. Braaten	L. Jones	M. Singletary	D. Strickland	E. Stamm	S. Shaeffer
DATE	5/13/2021	5/12/2021	5/12/2021	5/12/2021	5/13/2021	5/20/2021

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

Docket Numbers: 05000369 and 05000370

License Numbers: NPF-9 and NPF-17

Report Numbers: 05000369/2021011 and 05000370/2021011

Enterprise Identifier: I-2021-011-0022

Licensee: Duke Energy Carolinas, LLC

Facility: McGuire Nuclear Station

Location: Huntersville, NC

Inspection Dates: March 22, 2021 to April 09, 2021

Inspectors: P. Braaten, Senior Reactor Inspector  
L. Jones, Senior Reactor Inspector  
M. Singletary, Reactor Inspector  
D. Strickland, Reactor Inspector

Approved By: Scott M. Shaeffer, 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 triennial fire protection inspection at McGuire Nuclear Station, 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.

## 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 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) (4 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) • EVD/EPL - 125vDC Distribution System
  - (2) • RN - Nuclear Service Water System
  - (3) • Battery Room Common Suppression System, FA 13
  - (4) • Suppression at RN pumps, Auxiliary Building Elevation 716', FA 4

#### Fire Protection Program Administrative Controls (IP Section 03.02) (1 Sample)

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)        • Combustible Control 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)        • EC 0000109071 - Assured CA Suction for Extended SBO

#### **INSPECTION RESULTS**

No findings were identified.

#### **EXIT MEETINGS AND DEBRIEFS**

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

- On April 8, 2021, the inspectors presented the triennial fire protection inspection results to Tom Ray and other members of the licensee staff.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21N.05	Calculations	MCC-1223.42-00-0037	Evaluation of the Use of Non-Safety Water Sources for the Auxiliary Feedwater System	Rev. 12
		MCC-1435.00-00-0019	NFPA 805 Transition - Radiological Release Input to LAR Attachment E	Rev. 02
		MCC-1435.00-00-0021	NFPA 805 Transition NEI 04-02 B-2 Table - Nuclear Safety Capability Assessment Methodology Review	Rev. 05
		MCC-1435.00-00-0022	Fire Protection Manual Action Feasibility and Reliability Demonstration	Rev. 00
		MCC-1435.00-00-0023	NFPA 805 Expert Panel Report for Addressing Potential McGuire Multiple Spurious Operations	Rev. 04
		MCC-1435.00-00-0024	NFPA 805 Transition - NEI 04-02 B-3 Table Fire Area Transition	Rev. 06
		MCC-1435.00-00-0025	Nuclear Safety Capability Assessment (NSCA) for Fire Protection Safe Shutdown Analysis in Support of NFPA 805 Transition	Rev. 02
		MCC-1435.00-00-0028	NFPA 805 Transition B-1 Table/Report	Rev. 09
		MCC-1435.00-00-0041	NFPA 805 Transition Risk-Informed Performance-Based Fire Risk Evaluations	Rev. 04
		MCC-1435.00-00-0045	NFPA 805 Transition Recovery Action Feasibility Review	Rev. 02
		MCC-1435.00-00-0047	NFPA 13 Code Conformance Review Nuclear Service Water (RN) Pumps	Rev. 01
		MCC-1435.00-00-0049	NFPA 13 Code Conformance Review - Battery Rooms	Rev. 01
		MCC-1435.00-00-0065	Fire Watch Reduction Analysis	Rev. 01
		MCC-1535.00-00-0220	McGuire Nuclear Station Fire PRA Quantification Notebook	Rev. 01
		MCM-1206-07-0080	Sprinkler Hydraulic Calculation Nuclear Service Water Pumps	Rev. 00
		MCM-1206-07-	Sprinkler Hydraulic Calculation Battery Room Pipe Chase	Rev. 00

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		0091	Unit #2	
		MCM-2206-07-0024	Sprinkler Hydraulic Calculation Battery Room Pipe Chase Unit #1	Rev. 00
		MCS-1465.00-00-0008	Plant Design Basis Specification for Fire Protection	Rev. 24
	Corrective Action Documents	01587372		07/25/2002
		01632230		02/16/2009
		02235455		10/05/2018
	Corrective Action Documents Resulting from Inspection	02375636		03/25/2021
		02377639		04/08/2021
	Drawings	MC-1705-01.00	One Line Diagram 125 VDC/120VAC Vital Instr & Cont Power Sys	Rev. 124
		MC-1705-01.01	One Line Diagram 125VDC/120VAC Vital Instr and Control PWR Sys	Rev. 45
		MCEE-111-00.55-04	ELEMENTARY DIAGRAM SSF / 600V MCC SMXG COMPT F5A GROUP 1D/STANDBY SHUTDOWN PRESSURIZER HEATERS	Rev. 10
		MCFD-1574-01.00	Nuclear Service Water System (RN)	Rev. 33
		MCFD-1574-03.00	Nuclear Service Water System (RN)	Rev. 45
		MCFD-1574-05.00	Nuclear Service Water System (RN)	Rev. 07
		MCFD-1592-01.01	Auxiliary Feedwater System (CA)	Rev. 34
		MCFD-1599-01.0	Flow Diagram of Fire Protection System (RF,RY)	Rev. 19
		MCM-1206.07-0087.001	Battery Room Sprinkler Installation Plan	Rev. 00
		MCM-1376.00-0107.001	Fire Detection and Alarm System Auxiliary Building Units 1 and 2 - Floor 733+6 - Battery Room and Electrical Equipment Room	Rev. 00



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Engineering Changes	0000109071	Assured CA Suction For Extended SBO Per NRC Order EA-12-049	03/02/2015
	Engineering Evaluations	51-9235439-001	Appendix B: Safe Shutdown Equipment List (SSEL)	Rev. 02
		MCC -1381.05-00-0335	UNIT 1/2, NFPA 805 CIRCUIT BREAKER AND FUSE COORDINATION STUDY	Rev. 34
		MCEE- 111-00.55-04	E/D STANDBY SHUTDOWN FACILITY 600V MCC SMXG COMPT F5A GROUP ID/STANDBY SHUTDOWN PRESSURIZER HEATERS	Rev. 10
	Miscellaneous	DUKE-QAPD-001	Duke Energy Corporation Topical Report Quality Assurance Program Description Operating Fleet	Rev. 46
	Procedures	AP/0/A/5500/45	Plant Fire or Turbine BLDG Oil System Leak	Rev. 20
		AP/2/A/5500/24	Loss of Plant Control Due to Fire or Sabotage	Rev. 35
		PD-FP-ALL-1500	Fleet Fire Protection Program Manual	Rev. 00
		PT/0/A/4600/113	McGuire Time Critical Actions/Time Sensitive Actions	Rev. 29
	Work Orders	20119469	Operator Time Critical Task Verification	09/29/2016
		20257961	Engineered Safety Features Actuation Periodic Test Train B	03/23/2019
		20258353	CA System Train 1B Performance Test	02/25/2019
		20330859	CA System Train 2B Performance Test	04/10/2020
		20331141	CA System Train 2A Performance Test	03/23/2020
		20331172/06	Flushing of Unit 2 RN/RC Suction Lines to TD CA Pump (SSS/ELAP)	03/26/2020
		2036652	Engineered Safety Features Actuation Periodic Test Train A	09/21/2020
		20366718/01	CA System Train 1B Performance Test	10/09/2020