



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

July 19, 2021

Mr. Charles Kharrl  
Site Vice President  
Southern Nuclear Operating Co., Inc.  
Joseph M. Farley Nuclear Plant  
7388 North State Highway 95  
Columbia, AL 36319-0470

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT – TRIENNIAL FIRE PROTECTION  
TEAM INSPECTION (FPTI) REPORT 05000348/2021012 AND  
05000364/2021012

Dear Mr. Kharrl:

On July 1, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Joseph M. Farley Nuclear Plant and discussed the results of this inspection with Robert Norris 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. 05000348 and 05000364  
License Nos. NPF-2 and NPF-8

Enclosure:  
As stated

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SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT – TRIENNIAL FIRE PROTECTION  
 TEAM INSPECTION (FPTI) REPORT 05000348/2021012 AND  
 05000364/2021012 – DATED July 19, 2021

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OFFICE	RII/DRS	RII/DRS	RII/DRS	RII/DRS	RII/DRS
NAME	J. Montgomery	J. Dymek	D. Strickland	W. Monk	S. Shaeffer
DATE	7/19/2021	7/19/2021	7/19/2021	7/19/2021	7/19/2021

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

Docket Numbers: 05000348 and 05000364

License Numbers: NPF-2 and NPF-8

Report Numbers: 05000348/2021012 and 05000364/2021012

Enterprise Identifier: I-2021-012-0007

Licensee: Southern Nuclear Operating Co., Inc.

Facility: Joseph M. Farley Nuclear Plant

Location: Columbia, AL

Inspection Dates: June 14, 2021 to July 02, 2021

Inspectors: J. Dymek, Reactor Inspector  
W. Monk, Senior Reactor Inspector (Team Lead)  
J. Montgomery, Senior 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 team inspection at Joseph M. Farley Nuclear Plant, in accordance with the Reactor Oversight Process (ROP). 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 industry standards.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), inspectors were directed to begin tele-work. In addition, regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on site. The inspections documented below met the objectives and requirements for completion of the IP.

## 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 systems will function as required to support the credited functions stated for each sample. Additional inspection considerations were located in the fire hazards analysis (FHA) or nuclear safety capability assessment (NSCA).

- (1) SSC #1 (Fire Prevention) - Combustible Controls and Hot Work Administrative Programs
- (2) SSC #2 (Detection/Suppression) - Deluge Fixed Spray Water Suppression Systems (Switchyard and Turbine Building)
- (3) SSC #3 (SSD) - Comprehensive Non-Power Operations Review of the RHR System
- (4) SSC #4 (SSD) - Comprehensive Safe and Stable Condition Review of the CCW System

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.

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 (CLB). 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) Fire Protection Administrative Program #1 - NFPA 805 Monitoring Program
- (2) Fire Protection Administrative Program #2 - Fire Brigade Drills and Training

Fire Protection Program Changes/Modifications (IP Section 03.03) (2 Samples)

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 Changes / Modification #1 - Design Change Package (DCPs) SNC  
1054443/1054444/1054445/1054446  
Unit 2 AUX & Turbine Building Class B Fire Protection Modifications
- (2) FPP Changes / Modification #2 - DCP SNC 968080  
Fire Protection Change Evaluation for DECP Install Line Stops on the Fire Pump Discharge Lines

## **INSPECTION RESULTS**

No findings of more than minor significance were identified.

## **EXIT MEETINGS AND DEBRIEFS**

The inspectors verified no proprietary information was retained nor documented in this report.

- On July 1, 2021, the inspectors presented the Fire Protection Team Inspection (FPTI) results to Robert Norris, Plant Manager and other members of the licensee staff during the Exit Meeting.

## **THIRD PARTY REVIEWS**

Inspectors reviewed ATC-Combustion Engineering Solutions Investigation of the Failure of a Section of Fire Protection Piping at Farley Nuclear Plant during the inspection period. No other third-party documentation was reviewed during the inspection.

**DOCUMENTS REVIEWED**

<b>Inspection Procedure</b>	<b>Type</b>	<b>Designation</b>	<b>Description or Title</b>	<b>Revision or Date</b>
71111.21N.05	Calculations	2380-1102-PGK-01	Evaluation of MOV Pressure Boundaries for IN 92-18 Hot-Short Events	0
		SE-C051326701	Farley Nuclear Power Plant Units 1 and 2 NFPA 805 Non-Power Operations	06/09/2020
		SE-C051326701-003	FNP NSEL and Safe and Stable Fault Trees	06/09/2020
		SE-C051326701-011	FNP Recovery Action Feasibility Evaluation	07/27/2012
		SE-C051326701-012	NFPA 805 Defense in Depth (DID) Recovery Actions Credited in Calculation SE-C051326701-008	09/05/2012
	Corrective Action Documents	CAR 266711	Attach manufacturer documentation with regards to 3-hour fire door rating	09/15/2016
	Corrective Action Documents Resulting from Inspection	CR 10805916	2T-12A SGFP Deluge Nozzles Partially Blocked by Installed Tarp/Catch Bag	06/15/2021
		CR 10806250	System 2A-27 Indicating Light Non-Functional	06/16/2021
		CR 10806253	Fire Brigade Ready Room Trash Can with Self-Extinguishing Lid was Full	06/16/2021
		CR 10806280	Lumber on U2 Turbine Deck with No Transient Combustible Permit	06/16/2021
		CR 10806305	FNP-1-AOP-28.1 Attachment 9 has Numbering and Formatting Issues with Response Obtained and RNO Steps	06/16/2021
		CR 10806350	Procedure Enhancement Suggestions - Hot Work Procedure	06/16/2021
		CR 10806359	Unsecured Ladder Found in Turbine Building (Personal Safety)	06/16/2021
		CR 10806366	Pressure Indicator Gauge Broken on Motor Driven Fire Pump	06/16/2021
		CR 10806369	#2 Fire Water Storage Tank Level Control Valve Cycling	06/16/2021
		CR 10806591	U2 TB Battery RM Louver Found Closed (H2 B/U Concern)	06/17/2021
CR 10806623	Corrosion Found on Pre-action Header in the U2	06/17/2021		



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			CCW Room	
		CR 10806654	U2 Turbine Building Damper out of Normal Position	06/17/2021
		CR 10806685	Fire Extinguishers in Equipment Room 115	06/17/2021
		CR 10807352	NRC Inspection Lessons Learned – Walkdowns / Assessments	06/21/2021
		CR 10809299	AOP-28.1 Version Update Needed	06/29/2021
		CR 10809409	Light Out on Cardox Panel	06/29/2021
		CR 10809789	Unsecured Nitrogen Dewars Found on U1 155	06/30/2021
		CR 10809791	Evaluate and revise FNP-ACP-35.3 Attachment 2	06/30/2021
		CR 10809794	(NRC Identified) Sound Powered Phone Jacks Degraded	06/30/2021
		CR 10809936	DDFP Overspeed Test Enhancement	07/01/2021
	Drawings	D 170347	Farley NPP Unit 1 Fire Protection Piping-Auxiliary Building Below El. 121'.	Revision 16
		D-200184	P&ID Fire Protection Main Transformers & Valve House	12/29/1978
		D-205002	P&ID for Component Cooling Water System	31.0
		D170345	Fire Protection Piping Diesel Engine Driven Pumps Fuel & Exhaust Piping	Revision 1
		D170366	Fire Protection P & ID Pump House & Yard Mains	Version 1.0
		D200-201 Sheet #1	Joseph M. Farley Nuclear Plant Unit #2 Cooling Tower Layout	Version 5.0
		D200-201 Sheet #2	Joseph M. Farley Nuclear Plant Cooling Tower Layout	Version 1.0
		D205041	P&ID for Residual Heat Removal System	20.0
		U160130	Fire Protection-Fuel System for Diesel Driven Fire Pumps	Revision 2
		U162363	Fire Protection-Sprinkler System for Main Power Transformer 1TR66	Version 1.0
	U262255	Fan Data-Turbine Building Battery room	12/29/1975	
	Engineering Changes	SNC 1054445	U2 Auxiliary & Turbine Building Class B Fire Protection Modifications	Revision 0
		SNC 1054444	U2 Auxiliary & Turbine Building Class B Fire Protection Modifications	Revision 0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		SNC 1054446	U2 Auxiliary & Turbine Building Class B Fire Protection Modifications	Revision 0
		SNC-1150857	1B RCP Seal Leak-Off Line Modification	4/6/2021
		SNC471156	NFPA 805: IN 92-18 U1 MOV Hot Short Failure MOD	03/19/2015
		SNC471157	NFPA 805: IN 92-18 U2 MOV Hot Short Failure MOD	11/06/2014
	Engineering Evaluations	CAR 278955LOE	Cause Determination Report Summary - Fire Protection Main Rupture	Revision 1
		DCP SNC1054443	Unit 2 AUX & TB Class B Fire Protection Modifications	08/06/2020
		SNC 1151384	Reactor Make-Up Water Storage Tank (RMWST) Cover Replacement	4/30/2021
		SNC 1154174	Modification for Leading Edge Flow Meter (LEFM) Transmitters	4/30/2021
		TE 1051647	Technical Evaluation-Focused Area Self Assessment-Fire Protection	10/5/2020
	Miscellaneous	A-181805	NFPA Fire Protection Program Design Basis Document-Joseph M. Farley Nuclear Plant	Version 8.0
		EPRI 30020222936/NUREG2169	Update Non-Suppression Curves 2015	
		F-021-2020	Fire Drill Package-Unit #1 Turbine Building Elevation 137'	3/05/2020
		F-022-2020	Fire Drill Package-Service Building Annex	3/12/2020
		F-2021-03	Fire Drill Package Unit #1 NRSAB Room 191/192	2/19/2021
		GN 500	Detail Specification for Fire Protection System Section System 1 Header and Riser System	05/03/1971
		NEIL	Nuclear Electric Insurance Limited-Joseph M. Farley Nuclear Plant Boiler and Machinery and Property Loss Control Evaluation	9/12/2019
		NFPA 10-1973	PORTABLE FIRE EXTINGUISHERS	Code of Record 1973
	NFPA 20-1974	Installation of Centrifugal Fire Pumps	Code of	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
				Record 1974
		NFPA 80-1973	Fire Doors and Fire Windows	Code of Record 1973
		S-FP-115	NFP-SNC-Course Completion Record Table Top Simulation Fire Drill	6/25/2020
		SM-C051326701-016	Master Scoping List Equipment Type-Extinguisher	
	Procedures	FNP--AOP-29.0	AOP for Plant Fire	53.0
		FNP-0-ACP-35.3	ADMINISTRATIVE CONTROL OF TOOLS AND EQUIPMENT LEFT UNATTENDED IN THE PLANT	Version 7.0
		FNP-0-EIP-16.0-F22	Checklist X Hot Shutdown Panels, Unit 1 (EP)	04/16/2021
		FNP-0-EIP-16.0-F22	Checklist X Hot Shutdown Panels, Unit 1 (EP)	01/13/2021
		FNP-0-EIP-16.0-F23	Checklist Y Hot Shutdown Panels, Unit 2 (EP)	04/16/2021
		FNP-0-EIP16.0-F23	Checklist Y Hot Shutdown Panels, Unit 2 (EP)	01/13/2021
		FNP-0-FSP 201.2	Diesel Driven Fire Pump #2 Functional Test	Version 20
		FNP-0-FSP-201.1	Diesel Driven Fire Pump #1 Functional Test	Version 22
		FNP-0-FSP-201.1	No. 1 Diesel Driven Fire Pump Functionality Test	Version 23.0
		FNP-0-FSP-201.3	Motor Driven Fire Pump Functional Test	Version 12
		FNP-0-FSP-35.0	Portable Extinguisher Monthly Inspection	Version 45.7
		FNP-0-FSP-400.0	Diesel Driven Fire Pump Inspection	Version 16.1
		FNP-0-FSP-44.0	Inspection of AFFF	Version 5.1
		FNP-0-FSP-62.0	Analysis of "A" Fire Diesel Fuel Storage Tank Contents	Version 10.1
		FNP-0-FSP-62.1	Fire Diesel Fuel Oil Bottom Sample Quality Appearance Test	Version 4.1
		FNP-0-GMP-100.0	Catch Bag Control Program	VERSION 6.1
		FNP-0-SOP-0.4	Fire Protection Program Administration and FP LCO Requirements	121.0
		FNP-0-SOP-61.0	Fire Protection-Pump House and Yard Main	Version 49.3
		FNP-0-UOP-4.0	General Outage Operations Guidance	64
		FNP-1-AOP-28.1	Farley Nuclear Plant AOP 28.1	39.0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		FNP-1-AOP-28.2	AOP for Fire in The Control Room	31.2
		FNP-1-ESP-1.1	SI Termination Operating Procedure	27.1
		FNP-1-FSP-39.1	Portable CO2 Fire Extinguishers-Annual Conductivity Test	Version 4.0
		FNP-1-FSP-9.0	Portable Extinguishers – Monthly	VERSION 44.4
		FNP-2-FPP-2.0	UNIT 2 TURBINE BUILDING PRE-FIRE PLAN	VERSION 2.0
		FNP-2-FSP-39.2	Portable CO2 Fire Extinguisher-Annual Conductivity Test	Version 4.0
		FNP-2-FSP-9.0	Portable Fire Extinguishers-Monthly Inspection	Version 27.2
		FNP-2-STP-23.1	2A COMPONENT COOLING WATER PUMP QUARTERLY INSERVICE TEST	05/26/2021
		FNP-2-STP-23.2	2B COMPONENT COOLING WATER PUMP QUARTERLY INSERVICE TEST	03/15/2021
		FNP-2-STP-23.3	2C COMPONENT COOLING WATER PUMP	04/17/2021
		NMP-ES-035-001	Fire Protection Program Implementation	VERSION 14.0
		NMP-ES-035-003	Fleet Hot Work Instruction	VERSION 10.0
		NMP-ES-035-003-F01	Hot Work Permit	VERSION 4.0
		NMP-ES-035-006	Fire Protection Program Impact Screen and Detailed Reviews	Version 13.0
		NMP-ES-035-007	Fleet Fire Watch Instruction	Version 10.0
		NMP-ES-035-014	Fleet Transient Combustible Controls	VERSION 5.0
		NMP-ES-035-018	NFPA 805 Monitoring Program	VERSION 1.1
		NMP-ES-035-018	NFPA 805 Monitoring Program	05/03/2021
		NMP-ES-036-001	Underground Pipe & Tank Monitoring Program Implementation	Version 11.1
		NMP-HP-501-005	Inspection, Repair and Storage of the MSA G1 SCBA	VERSION 2.1

<b>Inspection Procedure</b>	<b>Type</b>	<b>Designation</b>	<b>Description or Title</b>	<b>Revision or Date</b>
		NMP-MA-054	General Plant Housekeeping	Version 1.2
	Work Orders	SNC 1122664	Diesel Driven Fire Pump #1 Functional Test	4/25/2021
		SNC 1140263	Diesel Driven Fire Pump Inspection	2/11/2021
		SNC 553311	Fire Distribution System Flow Test	8/2/2018
		SNC 719295	Sprinkler System Piping NDE for Wall Thinning and Flow Blockage	9/15/2016
		SNC 731321	Sprinkler System Piping NDE for Wall Thinning and Flow Blockage	4/4/2020