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

August 10, 2020

Ms. Cheryl A. Gayheart
Regulatory Affairs Director
Southern Nuclear Company
3535 Colonnade Parkway
Birmingham, AL 35243

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT – INTEGRATED INSPECTION REPORT 05000348/2020002 AND 05000364/2020002 AND INDEPENDENT SPENT FUEL STORAGE INSTALLATION REPORT 07200042/2020002

Dear Ms. Gayheart:

On June 30, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Joseph M. Farley Nuclear Plant. On July 21, 2020, the NRC inspectors discussed the results of this inspection with Mr. Delson Erb 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; and was determined to be Severity Level IV. 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 Joseph M. Farley 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 Joseph M. Farley 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,

/RA/

Alan J. Blamey, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos. 05000348, 05000364, and 07200042
License Nos. NPF-2 and NPF-8

Enclosure:
As stated

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SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT – INTEGRATED INSPECTION REPORT 05000348/2020002 AND 05000364/2020002 AND INDEPENDENT SPENT FUEL STORAGE INSTALLATION REPORT 07200042/2020002 DATED: AUGUST 10, 2020

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DATE	8/6/2020	8/6/2020	8/6/2020	8/5/2020	8/6/2020	8/10/2020

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000348, 05000364 and 07200042
License Numbers:	NPF-2 and NPF-8
Report Numbers:	05000348/2020002, 05000364/2020002 and 072200042/2020002
Enterprise Identifier:	I-2020-002-0054 and I-2020-002-0092
Licensee:	Southern Nuclear Company
Facility:	Joseph M. Farley Nuclear Plant
Location:	Columbia, AL
Inspection Dates:	April 01, 2020 to June 30, 2020
Inspectors:	D. Bacon, Senior Operations Engineer M. Kennard, Operations Engineer P. Meier, Senior Resident Inspector K. Miller, Resident Inspector J. Montgomery, Senior Reactor Inspector J. Viera, Operations Engineer
Approved By:	Alan J. Blamey, Chief Reactor Projects Branch 2 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 Joseph M. Farley 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

Halon System Documentation Issues			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000348,05000364/2020002-01 Open/Closed	[H.7] - Documentation	71111.12
The inspectors identified a Green finding and associated Severity Level IV Non-cited Violation (NCV) of Farley's Renewed Operating License Condition for Fire Protection (2.C.(4) for unit 1; 2.C.(6) for unit 2) and 10 CFR 50.48. More specifically, as required by NFPA 805, 2001 edition, the licensee did not maintain or develop the proper records to provide evidence that the Halon 1301 fixed suppression systems design were properly accomplished and the related documentation was not updated for the unit 1 and unit 2 control system cabinet (CRDM) room, communications room, and computer room, in accordance with the licensee's fire protection program design basis document and fire protection quality assurance program.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	05000364,05000348/2019002-02	Fire protection systems compliance issues of concern	71152	Closed

PLANT STATUS

Unit 1 began the report period at approximately 100 percent rated thermal power (RTP). On April 20, 2020, RTP was reduced to approximately 90 percent for planned turbine valve testing and restored to approximately 100 percent RTP on the same day. Following the testing, unit 1 remained at or near 100 percent RTP through the end of the report period.

Unit 2 began the report period at approximately 100 percent RTP. On April 14, 2020, RTP was reduced to approximately 60 percent for planned maintenance on the 'B' main feedwater pump. RTP was restored to 100 percent on April 17 upon completion of the maintenance. Following the maintenance, unit 2 remained at or near 100 percent RTP through the end of the report 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 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.

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), resident inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time the resident inspectors performed periodic site visits each week and during that time conducted plant status activities as described in IMC 2515, Appendix D; observed risk significant activities; and completed on site portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or 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

71111.01 - Adverse Weather Protection

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

(1) The inspectors reviewed readiness for seasonal extreme weather conditions prior to the onset of seasonal high temperatures for the following systems (NMP-GM-025):
- High voltage switch-yard
- Ultimate heat sink

Impending Severe Weather Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated the adequacy of the overall preparations to protect risk-significant systems from an impending severe thunderstorm on April 23, 2020 (FNP-0-AOP-21.0).

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (3 Samples)

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

(1) Unit 1 train 'A' component cooling water pump system just before and during a unit 1 train 'B' surveillance on May 5, 2020 (FNP-1-STP-23.1).
(2) Unit 1 'B' emergency diesel generator while 1-2 'A' emergency diesel generator was out of service for maintenance during the week of May 18, 2020 (FNP-0-SOP-38.0-1B).
(3) Unit 1 'A' residual heat removal system during the unit 1 'B' emergency diesel outage on June 1, 2020 (FNP-1-SOP-7.0).

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated system configurations during a complete walkdown of the unit 2 high head safety injection system on June 10, 2020 (FNP-2-SOP-8.1A).

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (5 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) Fire zone DGB-2C (Diesel Generator Room 2C) in June 2020 (Pre-Fire Plan FNP-0-FPP-2.0).
(2) Fire zone DGB-1B (Diesel Generator Room 1B) in June 2020 (Pre-Fire Plan FNP-0-FPP-2.0).
(3) Fire zone DGB-2B (Diesel Generator Room 2B) in June 2020 (Pre-Fire Plan FNP-0-FPP-2.0).
(4) Fire zone DGB-1C (Diesel Generator Room 1C) in June 2020 (Pre-Fire Plan FNP-0-FPP-2.0).
(5) Fire zone DGB-1-2A (Diesel Generator Room 1-2A) in June 2020 (Pre-Fire Plan FNP-0-FPP-2.0).

71111.07A - Heat Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

(1) Unit 1 'A' component cooling water heat exchanger (NMP-ES-012).

71111.11B - Licensed Operator Requalification Program and Licensed Operator Performance

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

(1) (Partial)
Biennial Requalification Written Examinations

The inspectors evaluated the quality of the licensed operator biennial requalification written examination administered on May 21, 2021.

Annual Requalification Operating Tests

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

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 based on record reviews of completed simulator performance tests.

Problem Identification and Resolution

The inspectors evaluated the licensee's ability to identify and resolve problems associated with licensed operator performance.

The inspectors have not completed observations of licensee administration of the annual operating test, licensee evaluation and grading of operator performance, licensee examination security practices, and actual simulator performance. These inspection items have not been completed because of pandemic related travel restrictions. Accomplishment of these inspection items will be evaluated for completion during the 2021 annual operating test.

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 unit 1 turbine valve testing which included a 10% downpower in

accordance with the test procedure on April 20, 2020. In addition, the inspectors observed unit 2 control room activities associated with emergency diesel generator testing, alarm response, maintaining reactor power, and managing scheduled field work activities affecting the unit on June 26, 2020.

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

(1) The inspectors observed and evaluated a licensed operator continuing training control room simulator scenario involving a large break LOCA on May 26, 2020 (F-LT-SG-20-04 S0401).

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) Unit 1 and 2 communications room and control rod drive mechanism room halon systems (FNP-0-SOP-0.4).
(2) Unit 2 pressurizer level control issue identified on June 14, 2020 (CR 10715491).

Quality Control (IP Section 03.02) (1 Sample)

The inspectors evaluated the effectiveness of maintenance and quality control activities to ensure the following SSC remains capable of performing its intended function:

(1) 1-2 'A' emergency diesel generator DC power auto-transfer switch replacement and equivalency determination issue identified on May 5, 2020 (CR10707100).

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (4 Samples)

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) Unit 2 turbine driven auxiliary feedwater pump maintenance outage performed April 6 -8, 2020 (WO SNC653373).
(2) Unit 1 residual heat removal pump maintenance outage on April 13, 2020 (WO SNC526078).
(3) 1-2 'A' emergency diesel generator planned maintenance outage during the week of May 18, 2020 (WO SNC709265).
(4) Unit 1 'B' emergency diesel generator outage during the week of June 1 - 5, 2020 (WO SNC950116).

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (6 Samples)

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

(1) Unit 1 reactor coolant system subcooling margin monitoring risk assessment in accordance with technical specifications surveillance requirement 3.0.3 due to a missed surveillance discovered on April 1, 2020 (CR10700285).
(2) Concern identified on April 30, 2020 with the results of vendor qualification testing of circuit breakers and potential impact to installed circuit breakers at Farley (CR 10706084).
(3) External corrosion identified on the unit 1 and unit 2 shared train 'A' service water recirculation header carbon steel piping on May 6, 2020 (CR 10707309).
(4) Unit 2 'A' containment spray pump to discharge header isolation valve (MOV8820A) failed to open during surveillance testing on May 15, 2020 (CR 10709132).
(5) Unit 2 'B' service water pump motor low cooling water flow identified on May 19, 2020 (CR10709940).
(6) 1-2 'A' emergency diesel generator crankcase high oil level discovered on June 14, 2020 (CR 10715441).

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

(1) Component cooling water chromate removal and corrosion inhibitor replacement project (WO SNC1093168; NMP-ES-095-002).

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the following post maintenance test activities to verify system operability and functionality:

(1) Unit 2 turbine driven auxiliary feedwater pump maintenance outage performed April 6 -8, 2020 (WO SNC653373).
(2) Unit 2 'B' main steam generator feed pump cooler replacement during the week of April 13, 2020 (WO SNC1065460).
(3) Unit 1 valve testing for the refueling water storage tank supply to the unit 1 'A' residual heat removal pump supply valve (MOV-8809A) performed April 13, 2020 (WO SNC526078).
(4) 1-2 'A' emergency diesel generator planned maintenance outage during the week of May 18, 2020 (WO SNC709265).
(5) Unit 2 'B' emergency diesel generator intercooler replacement during the planned maintenance outage from June 22 - 26, 2020 (WO SNC1023338).

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (3 Samples)

(1) Unit 1 'A' component cooling water pump surveillance on May 5, 2020 (FNP-1-STP-23.1).
(2) Unit 2 'A' motor driven auxiliary feedwater pump surveillance on June 16, 2020 (FNP-2-STP-22.1).
(3) Unit 2 'B' emergency diesel generator surveillance on June 26, 2020 (FNP-2-STP-80.1).

Inservice Testing (IP Section 03.01) (1 Sample)

(1) Unit 1 'B' containment spray pump surveillance on April 3, 2020 (FNP-1-STP-16.2).

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS09: Residual Heat Removal Systems (IP Section 02.08) (2 Samples)

(1) Unit 1 (April 1, 2019 - March 31, 2020).
(2) Unit 2 (April 1, 2019 - March 31, 2020).

MS10: Cooling Water Support Systems (IP Section 02.09) (2 Samples)

(1) Unit 1 (April 1, 2019 - March 31, 2020).
(2) Unit 2 (April 1, 2019 - March 31, 2020).

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (2 Samples)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

(1) Corrective actions associated with unsecured fire doors. This issue was selected to verify that the licensee was adequately addressing fire doors that had been found improperly secured. The licensee completed a Check-In Self-Assessment (CISA) and issued a site-wide communication email reminding all personnel of their responsibilities and expectations regarding the proper operation of fire doors. The licensee also issued work orders, as required, and promptly implemented corrective maintenance (CR10705147).
(2) A leak on the unit 1 'B' train service water piping that is tracked on the licensee's operable but degraded / non-conforming equipment list. This issue was selected to verify that the licensee was appropriately addressing carbon steel piping corrosion issues and implementing timely corrective actions (CR10675320).

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

41502 - Nuclear Power Plant Simulation Facilities

Nuclear Power Plant Simulation Facilities (1 Partial)

(1) (Partial)
The inspectors performed a partial inspection of the Unit 1 Plant Reference Simulator (PRS) "B" in accordance with Inspection Procedure (IP) 41502 "Nuclear Power Plant Simulation Facilities".

This inspection reviewed a partial sample of activities to ensure that Simulator "B" was being tested in accordance with ANSI/ANS-3.5-2009, "Nuclear Power Plant Simulators for Use in Operator Training and Examination" and appropriate approved plant procedures.

The inspectors reviewed testing to verify that the simulator utilizes models relating to nuclear and thermal-hydraulic characteristics replicating the most recent core load from cold shutdown to rated power plant conditions. Additionally, two transient tests, two steady state tests, five malfunction tests, two core performance tests and two Scenario Based Testing (SBT) scenarios were reviewed. Finally, inspectors reviewed a sample of simulator discrepancies to ensure that they were performed in accordance with appropriate approved plant procedures.

The inspectors have not completed a physical fidelity comparison of the simulator to the actual reference control room as required by IP 41502. This inspection portion has not been completed because of pandemic related travel restrictions. Accomplishment of this inspection portion is anticipated for completion during the third quarter of 2020.

60855.1 - Operation of an Independent Spent Fuel Storage Installation at Operating Plants

Operation of an Independent Spent Fuel Storage Installation at Operating Plants (1 Sample)

(1) The inspectors reviewed the licensee's activities related to long-term operation and monitoring of their independent spent fuel storage installation. The inspectors verified that routine activities are performed in accordance with approved procedures and surveillance activities have been conducted at the specified periods on June 17, 2020 (FNP-0-STP-63.7).

INSPECTION RESULTS

Halon System Documentation Issues			
Cornerstone	Significance/Severity	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green Severity Level IV NCV 05000348,05000364/2020002-01 Open/Closed	[H.7] - Documentation	71111.12
The inspectors identified a Green finding and associated Severity Level IV Non-cited Violation (NCV) of Farley's Renewed Operating License Condition for Fire Protection (2.C.(4) for unit 1; 2.C.(6) for unit 2) and 10 CFR 50.48. More specifically, as required by NFPA 805, 2001			

edition, the licensee did not maintain or develop the proper records to provide evidence that the Halon 1301 fixed suppression systems design were properly accomplished and the related documentation was not updated for the unit 1 and unit 2 control system cabinet (CRDM) room, communications room, and computer room, in accordance with the licensee's fire protection program design basis document and fire protection quality assurance program.

Description: Following NRC walkdown inspections of fire zones protected by halon in March of 2020 and subsequent inspections from April through June 2020, the inspectors noted a number of issues related to the system and the documentation of the system. The issues included a missing door seal for the unit 2 CRDM room, timing requirements related to the fire brigade response to fires in a halon protected room, inaccuracies in the licensee's Fire Protection Operability and LCO Requirements (FNP-0-SOP-0.4) related to the fire doors and dampers required to ensure halon functionality, and discrepancies with supporting procedures and drawings.

With regards to the missing door seal, the licensee declared the unit 2 CRDM room halon system non-functional because the field configuration did not meet the existing door schedule. The system was declared functional following the door (2223) seal replacement (CR 10698489). The NRC cannot determine the actual significance of the missing door seal due to the lack of design information. In particular, the licensee is unable to show the acceptable halon leakage rates in order to maintain the required 6% concentration. As part of the halon design requirement and in order to determine functionality, the licensee is required to account for halon leakage and the fire team response time. In the available documentation, this is not evident or clear. The licensee documented the concerns in their corrective action program (CR 10699153).

Related to the fire brigade response to fires in a halon protected room, the NRC identified a discrepancy of the assumed time requirements. The operations fire brigade team were training under the assumption to wait 20 minutes following halon initiation before entering one of the protected rooms. The licensee fire protection engineers assumed that the brigade team would enter as soon as possible and not to wait more than 10 minutes. Due to the lack of design basis documentation, the NRC is unable to determine the significance of the issue as the actual time requirement cannot be determined in order to meet the fire protection plan and halon functionality assumptions. The licensee corrected the operations lesson plan to instruct the fire brigade team to enter the rooms as soon as possible (CR 10708968).

The NRC also identified inaccuracies in the licensee's Fire Protection Operability and LCO Requirements procedure (FNP-0-SOP-0.4). This is a support document used to implement the requirements of NFPA 805. The inaccuracies concerned information for operators to consider when informing functionality decisions related to halon protected rooms. The identified inaccuracies were specifically related to the fire doors and dampers required to ensure halon functionality for the unit 1 and 2 CRDM room, communications room, and computer room. Halon is credited in the risk analysis for the CRDM and communications room and considered a high safety significant system for these rooms in accordance with the fire protection program. These inaccuracies had the potential for the licensee to misdiagnose proper functionality due to degraded conditions and to not implement the required mitigating actions for a non-functional high safety significant system. The identified issues associated with FNP-0-SOP-0.4 were corrected by the licensee (CRs 10699113 &10711112).

Additional documentation errors were identified by the NRC as well. These were discrepancies in various procedures and drawings used to implement the fire protection plan and associated with fire dampers required to ensure halon functionality. The documents are

used to support halon surveillances, maintenance, and troubleshooting. The licensee entered these concerns into the corrective action program and corrective actions are still in progress to address all the concerns (CRs 1069557, 10700275, 10701967, 10706079, 10715433, 10715435). There is no immediate safety concern as it does not represent an actual equipment issue and does not directly affect how the system is operated when required.

Corrective Actions: See description section

Corrective Action References: See description section

Performance Assessment:

Performance Deficiency: The licensee's failure to ensure the documentation requirements as required by the approved Fire Protection Program and NFPA 805 was determined to be a performance deficiency. Assumed leakage rates and fire brigade response times for the halon systems are not available or clear. In addition, the licensee Fire Protection Operability and LCO Requirements and various procedures and drawings related to the halon system were not accurately maintained.

Screening: The inspectors determined the performance deficiency was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. The performance deficiency has the potential to lead to a more significant safety concern related to the high safety significant halon suppression systems for the unit 1 and unit 2 CRDM and communication rooms in accordance with the fire protection program. Based on the more-than-minor example 3.g in 0612, Appendix E (1/1/2020), issues related to fire brigade response times and halon leakage cannot be appropriately resolved in a timely manner without accurate design information, procedures, and drawings. If the licensee is unaware of a non-functional system, the appropriate mitigating actions and corrective actions may not be taken to reduce the risk to the plant.

Significance: The inspectors assessed the significance of the finding using Appendix F, "Fire Protection and Post - Fire Safe Shutdown SDP." The inspectors used NRC Inspection Manual Chapter (IMC) 0609, Significance Determination Process (SDP), Attachment 4, "Initial Characterization of Findings," and determined the potential impact of the performance deficiency is related to the Mitigating Systems cornerstone to ensure availability, reliability, and capability of systems that respond to initiating events and the attribute for the protection against external factors such as fire. IMC 0609, Appendix F, "Fire Protection SDP" was reviewed along with IMC 0609, Appendix F, Attachment 2, "Degradation Rating Guidance," as the finding involved a fixed fire protection system. The inspectors determined the finding to be of very low safety significance (Green) based upon Step 1.3 of IMC 609, Appendix F, in that a low degradation criterion was met with a lack of test data for the gaseous based suppression system.

Cross-Cutting Aspect: H.7 - Documentation: The organization creates and maintains complete, accurate and up-to-date documentation.

Enforcement: The ROP's significance determination process does not specifically consider the regulatory process impact in its assessment of licensee performance. Therefore, it is necessary to address this violation which impedes the NRC's ability to regulate using traditional enforcement to adequately deter non-compliance.

Severity: The violation is characterized as a Severity Level IV NCV based on its similarity to the Severity Level IV example 6.1.d.1 in the NRC Enforcement Policy, dated January 15, 2020, due to the lack of up-to-date information regarding the halon systems.

Violation: The unit 1 license condition 2.C.(4) and unit 2 license condition 2.C.(6) for fire protection requires the licensee to implement and maintain the fire protection program in accordance with 10CFR50.48(a) and 10CFR50.48(c), which requires compliance with NFPA 805, 2001 addition. 10CFR50.48(a) requires the licensee to retain the fire protection plan and changes as a record until the reactor license is terminated. NFPA 805 sections 2.7.1 and 2.7.2 requires documentation and analyses performed to demonstrate compliance to be maintained for the life of the plant and configuration control of those documents.

Contrary to the above, the licensee failed to maintain the design basis or produce the design basis documentation for the halon systems required as part of the fire protection program. In addition, the licensee failed to maintain configuration control of supporting documents used to comply with the requirements of the fire protection program.

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

Unresolved Item (Closed)	Fire protection systems compliance issues of concern URI 05000364,05000348/2019002-02	71152

Description: This closes an Unresolved Item (URI), documented on August 8, 2019, related to concerns regarding various fire protection systems required as part of the licensee's fire protection program. Specifically, the inspectors questioned whether multiple systems met their committed NFPA code of record. The specific systems in question as part of this URI are as follows:

- Service Water Intake Structure (1SW-111) - Water Spray
- U1 & U2 auxiliary building, elevation 121' (1A-36; 2A-36) - Pre-action sprinkler
- U1 auxiliary building, elevation 100' (1A-118) - Pre-action sprinkler
- Service Water Intake Structure Battery Room - fire damper smoke release devices (SRDs)
- U1 & U2 Computer, CRDM, & Hot-shutdown panel rooms - fire damper SRDs

Inspectors evaluated licensing and design basis documents to verify the correct NFPA code of record applicable to each system. After verifying the code of record, inspectors verified that the system design and installation, either, met the committed code of record, or verified that the licensee had a valid evaluation to justify that the current system design and installation is adequate for the fire hazards present. Inspectors also reviewed corrective actions associated with similar issues that had been previously identified and documented in earlier inspection reports.

The NRC identified one minor violation associated with system 1SW-111 and two minor violations associated with system 1A-118.

- For water spray system 1SW-111, inspectors determined that the committed code of record for this system was NFPA 15-1973, "Water Spray Fixed Systems for Fire Protection." Additionally, because the system contained closed spray heads, the system was also partially evaluated against NFPA 13-1976, "Installation of Sprinkler Systems." For this system, inspectors determined that the licensee did not have a

proper hydraulic calculation documented to demonstrate that the water application rate met the density requirements of NFPA 15-1973.

- For pre-action sprinkler system 1A-118, inspectors determined that the committed code of record for this system was NFPA 13-1976. For this system, inspectors determined that the licensee did not have a proper hydraulic calculation documented to demonstrate that the water application rate met the density requirements of NFPA 13-1976.
- Inspectors determined that system 1A-118 had sprinkler heads that were located approximately 7-8 feet from the ceiling, which is not permitted by NFPA 13-1976. The inspectors also determined that the licensee did not have a valid evaluation to justify that the system, as designed and installed, was adequate for the fire hazards present.

For water spray system 1SW-111 and 1A-118, the licensee was able to perform and present a calculation for inspectors to review. With the new calculation, inspectors determined that the system did, in fact, meet the water density requirements of the code. Based on this, inspectors dispositioned this issue as a minor violation of Farley Unit 1 License Condition 2.C(4) for the failure to maintain design records to demonstrate proper hydraulic design requirements were met, in accordance with SNC Quality Assurance Topical Report Section 3.2.

For sprinkler system 1A-118, inspectors reviewed the licensee's fire probabilistic risk assessment (PRA) and determined that the PRA conservatively assumes a full-room burn and takes no credit for detection or suppression. Additionally, the fixed electrical ignition sources are well-sealed/robustly secured, which means the PRA would normally consider that these fires would not grow external to their enclosure to damage other targets. Finally, the licensee administratively controls transient combustibles in the area such that they are not allowed to be left unattended. Considering these facts, the team's assessment is that the sprinkler heads' placement will not adversely affect the cornerstone objective of suppressing a fire in this area. Based on this, inspectors dispositioned this issue as a minor violation of Farley Unit 1 License Condition 2.C(4) and NFPA 805 Section 3.9.1 for the system not being installed in accordance with NFPA 13-1976.

The NRC did not identify any new performance deficiencies associated with the 1A-36 and 2A-36 systems and the SRDs.

- For pre-action sprinkler systems 1A-36 and 2A-36, inspectors determined that questions regarding the systems' compliance with the applicable code of record, NFPA 13-1976, were addressed via the licensee's corrective actions taken for NCV 05000348/2016003-01, Failure to Comply with NFPA-13 for Pre-action Fire Suppression System 1A-36 and provide NRC Staff Complete and Accurate Information (ML16307A008). Additionally, for other aspects of the system that were found to not be in compliance with the committed code of record, NFPA 13-1976, inspectors verified that the licensee had a valid evaluation to justify that the system, as designed and installed, was adequate for the fire hazards present.
- For the SRDs located in the SWIS Battery Room, inspectors determined that questions regarding the components' compliance with the applicable code of record (NFPA 90A-1974, "Air Conditioning and Ventilating Systems") were addressed via the licensee's corrective actions taken for NCV 05000364/2018011-01 (ML18256A251). For the SRDs located in the U1 & U2 Computer, Control Rod Drive Mechanism, & Hot-shutdown panel rooms, inspectors did not identify any performance deficiencies.

Corrective Action Reference(s): CRs 10716194 and 10716195

EXIT MEETINGS AND DEBRIEFS

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

- On July 21, 2020, the inspectors presented the integrated inspection results to Mr. Delson Erb and other members of the licensee staff.
- On June 17, 2020, the inspectors presented the Fire Protection URI Exit inspection results to Delson Erb and other members of the licensee staff.
- On July 9, 2020, the inspectors presented the IP71111.11B inspection results to Mr. Delson Erb (Plant Manager) and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
41502	Miscellaneous	CTG 1.0	Start-Up of Unit from Cold Shutdown to Hot Standby (Simulator B)	4/30/2020
		CTG-1.1	Start-Up of Unit from Hot Standby to Minimum Load (Simulator B)	5/1/2020
		CTG-1.2	Power Operations – Minimum Load to 100% (Simulator B)	5/1/2020
		CTG-1.6	Core Performance Testing (Simulator B)	5/18/2018
		CTG-1.6	Core Performance Testing (Simulator B)	10/17/2019
		CTG-3.11	Maximum Design Load Rejection (Simulator B)	1/20/2019
		CTG-3.2	Simultaneous Trip of All Feedwater Pumps (Simulator B)	1/19/2019
		CTG-4.0	One-Hour Steady State Operations Test (Simulator B)	2/27/2019
		CTG-4.1	Steady State Plant Comparison to Reference Plant (Simulator B)	2/19/2019
		MAL-CRF3	Rods Fail to Move in Auto/Manual Mode (Simulator B)	4/27/2020
		MAL-CVC02	Letdown Line Break Inside Containment (Simulator B)	8/21/2018
		MAL-MSS1C	1C Steam Line Break Inside Containment (Simulator B)	10/16/2018
		MAL-RCS2C	Loop C LOCA (Simulator B)	10/18/2018
		MAL-RCS4C	1C SG Tube Rupture (Simulator B)	10/30/2018
		SBT Scenario	ILT Scenario 3 (Simulator B)	10/24/2019
		SBT Scenario	Week 8 ILT Reactivity Manipulation Scenario (Simulator B)	10/24/2019
71111.05	Corrective Action Documents	10178363	Dampers did not fire explosive device to close the dampers	02/05/2016
		266350	Address the NRC NCV - Fire Sprinkler non-compliance stated in CR 10293683	08/15/2016
	Corrective Action Documents Resulting from Inspection	10716194	NRC Minor Violation - Documentation	06/17/2020
		10716195	NRC Minor Violation - Sprinklers	06/17/2020
	Drawings	A-181805	NFPA 805 Fire Protection Program Design Basis Document	Version 1.0
	Engineering Evaluations	RER 819102	Determination of the Code of Record for NFPA 13	10/17/2016
		RER 971480	Evaluation of Smoke Release Devices (SRDs) on plant fire dampers	07/31/2019
		SM-C051326701-007	NFPA 805 Code Compliance Review	Revision 9

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		SM-SNC901326-002	Sprinkler System 2A-36 Hydraulic Calculation and NFPA 13 Evaluation	Revision 1.0
		SM-SNC901326-003	Sprinkler System 1SW-111 Hydraulic Calculation and NFPA 15 Evaluation	Revision 1.0
		SM-SNC901326-004	Sprinkler System 1A-118 Hydraulic Calculation and NFPA 13 Evaluation	Revision 1.0
	Miscellaneous		FNP letter to Nuclear Regulatory Commission, "Response to Request for Additional Information Regarding License Amendment - Request for Transition to 10 CFR 50.48(c) - NFPA 805 Performance Based Standard for Fire Protection for Light Water Reactor Generating Plants	09/16/2013
		NFPA 13	Installation of Sprinkler Systems	1975
		NFPA 15	Water Spray Fixed Systems for Fire Protection	1973
		NFPA-90A	Installation of Air Conditioning and Ventilating Systems	1975
		SNC-1	Quality Assurance Topical Report	Version 21.0