



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 17, 2016

Mr. Charles R. Pierce
Regulatory Affairs Director
Southern Nuclear Operating Company, Inc.
P.O. Box 1295
Bin 038
Birmingham, AL 35201-1295

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2 – ISSUANCE OF
AMENDMENTS RELATED TO NFPA 805 SUPPLEMENT (CAC NOS. MF7617
AND MF7618)

Dear Mr. Pierce:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 205 to Renewed Facility Operating License (RFOL) No. NPF-2 and Amendment No. 201 to RFOL No. NPF-8 for the Joseph M. Farley Nuclear Plant, Units 1 and 2, respectively. The amendments consist of changes to the RFOLs in response to your application dated April 25, 2016.

The amendments update Attachments M, "License Condition Changes"; Attachment S, "Modification and Implementation Items"; and Attachment W, "Fire Probabilistic Risk Analysis Insights," of the previously approved National Fire Protection Association (NFPA) 805 amendment.

A copy of the Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

A handwritten signature in black ink that reads "Shawn Williams".

Shawn A. Williams, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

Enclosures:

1. Amendment No. 205 to NPF-2
2. Amendment No. 201 to NPF-8
3. Safety Evaluation

cc w/enclosures: Distribution via Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY

ALABAMA POWER COMPANY

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 205
Renewed License No. NPF-2

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Joseph M. Farley Nuclear Plant, Unit 1, (the facility), Renewed Facility Operating License No. NPF-2, filed by Southern Nuclear Operating Company, Inc. (the licensee), dated April 25, 2016, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

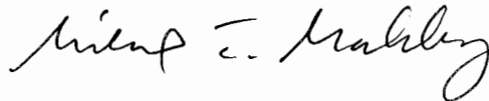
2. Accordingly, paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-2, is hereby amended to read as follows:

- (2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 205, are hereby incorporated in the renewed facility operating license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to License No. NPF-2

Date of Issuance: October 17, 2016



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY

ALABAMA POWER COMPANY

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 201
Renewed License No. NPF-8

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Joseph M. Farley Nuclear Plant, Unit 2 (the facility), Renewed Facility Operating License No. NPF-8, filed by Southern Nuclear Operating Company, Inc. (the licensee), dated April 25, 2016, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

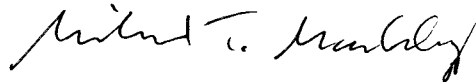
2. Accordingly, paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-8 is hereby amended to read as follows:

- (2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 201, are hereby incorporated in the renewed facility operating license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to License No. NPF-8

Date of Issuance: October 17, 2016

ATTACHMENT TO
JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2
LICENSE AMENDMENT NO. 205
TO RENEWED FACILITY OPERATING LICENSE NO. NPF-2
DOCKET NO. 50-348
AND LICENSE AMENDMENT NO. 201
TO RENEWED FACILITY OPERATING LICENSE NO. NPF-8
DOCKET NO. 50-364

Replace the following pages of the Renewed Facility Operating Licenses with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

License

NPF-2 – pages 4, 5, and 7
NPF-8 – pages 3, 4, 5, and 6

Insert

License

NPF-2 – pages 4, 5, and 7
NPF-8 – pages 3, 4, 5, and 6

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 205, are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications.

(3) Additional Conditions

The matters specified in the following conditions shall be completed to the satisfaction of the Commission within the stated time periods following the Issuance of the renewed license or within the operational restrictions indicated. The removal of these conditions shall be made by an amendment to the renewed license supported by a favorable evaluation by the Commission.

- a. Southern Nuclear shall not operate the reactor in Operational Modes 1 and 2 with less than three reactor coolant pumps in operation.
- b. Deleted per Amendment 13
- c. Deleted per Amendment 2
- d. Deleted per Amendment 2
- e. Deleted per Amendment 152
Deleted per Amendment 2
- f. Deleted per Amendment 158
- g. Southern Nuclear shall maintain a secondary water chemistry monitoring program to inhibit steam generator tube degradation. This program shall include:
 - 1) Identification of a sampling schedule for the critical parameters and control points for these parameters;
 - 2) Identification of the procedures used to quantify parameters that are critical to control points;
 - 3) Identification of process sampling points;
 - 4) A procedure for the recording and management of data;
 - 5) Procedures defining corrective actions for off control point chemistry conditions; and

6) A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events required to initiate corrective action.

h. The Additional Conditions contained in Appendix C, as revised through Amendment No. 146, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the additional conditions.

i. Deleted per Amendment 152

(4) Fire Protection

Southern Nuclear Operating Company 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), as specified in the licensee amendment requests dated September 25, 2012; April 25, 2016; and supplements dated December 20, 2012; September 16, 2013; October 30, 2013; November 12, 2013; April 23, 2014; May 23, 2014; July 3, 2014; August 11, 2014; August 29, 2014; October 13, 2014; January 16, 2015, and as approved in the safety evaluation reports dated March 10, 2015, and October 17, 2016. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

a. Risk-Informed Changes that May Be Made Without Prior NRC Approval

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at Farley. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

- “Fire Alarm and Detection Systems” (Section 3.8);
- “Automatic and Manual Water-Based Fire Suppression Systems” (Section 3.9);
- “Gaseous Fire Suppression Systems” (Section 3.10); and,
- “Passive Fire Protection Features” (Section 3.11).

This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

2) **Fire Protection Program Changes that Have No More than Minimal Risk Impact**

Prior NRC review and approval are not required for changes to the licensee’s fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in NRC safety evaluation reports dated March 10, 2015, and October 17, 2016, to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

c. Transition License Conditions

- 1) Before achieving full compliance with 10 CFR 50.48(c), as specified by 2) below, risk-informed changes to the licensee’s fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in 2) above.
- 2) The licensee shall implement the modifications to its facility, as described in Attachment S, Table S-2, “Plant Modifications Committed,” of SNC letter NL-15-2310, dated April 25, 2016, to complete the transition to full compliance with 10 CFR 50.48(c) by November 6, 2017. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.
- 3) The licensee shall implement the items as listed in Attachment S, Table S-3, “Implementation Items,” of SNC letter NL-14-1273, dated August 29, 2014, within 180 days after NRC approval, except for items 30 and 32. Items 30 and 32 shall be implemented by February 6, 2018.

- (2) Alabama Power Company, pursuant to Section 103 of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess but not operate the facility at the designated location in Houston County, Alabama in accordance with the procedures and limitations set forth in this renewed license.
- (3) Southern Nuclear, pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;
- (4) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (5) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproducts, source or special nuclear material without restriction to chemical or physical form for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (6) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporate below:

(1) Maximum Power Level

Southern Nuclear is authorized to operate the facility at reactor core power levels not in excess of 2775 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 201, are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications.

(3) Delete per Amendment 144

(4) Delete Per Amendment 149

(5) Delete per Amend 144

(6) Fire Protection

Southern Nuclear Operating Company 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), as specified in the licensee amendment requests dated September 25, 2012; April 25, 2016; and supplements dated December 20, 2012; September 16, 2013; October 30, 2013; November 12, 2013; April 23, 2014; May 23, 2014; July 3, 2014; August 11, 2014; August 29, 2014; October 13, 2014; January 16, 2015, and as approved in the safety evaluation reports dated March 10, 2015, and October 17, 2016. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

(a) Risk-Informed Changes that May Be Made Without Prior NRC Approval

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at Farley. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

1. Prior NRC review and approval is not required for changes that clearly result in a decrease in risk. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.
2. Prior NRC review and approval is not required for individual changes that result in a risk increase less than 1×10^{-7} /year (yr) for CDF and less than 1×10^{-8} /yr for LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

(b) Other Changes that May Be Made Without Prior NRC Approval

1. Changes to NFPA 805, Chapter 3, Fundamental Fire Protection Program

Prior NRC review and approval are not required for changes to the NFPA 805, Chapter 3, fundamental fire protection program elements and design requirements for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is functionally equivalent or adequate for the hazard. The licensee may use an engineering evaluation to demonstrate that a change to an NFPA 805, Chapter 3 element is functionally equivalent to the corresponding technical requirement. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement using a relevant technical requirement or standard.

The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3 elements are acceptable because the alternative is "adequate for the hazard." Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are:

- "Fire Alarm and Detection Systems" (Section 3.8);
- "Automatic and Manual Water-Based Fire Suppression Systems" (Section 3.9);
- "Gaseous Fire Suppression Systems" (Section 3.10);
- and,
- "Passive Fire Protection Features" (Section 3.11).

This License condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

2. Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in NRC safety evaluation reports dated March 10, 2015, and October 17, 2016.

to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense- in-depth and safety margins are maintained when changes are made to the fire protection program.

(c) Transition License Conditions

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by 2 below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in 2 above.
2. The licensee shall implement the modifications to its facility, as described in Attachment S, Table S-2, "Plant Modifications Committed," of SNC letter NL-15-2310, dated April 25, 2016, to complete the transition to full compliance with 10 CFR 50.48(c) by November 6, 2017. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.
3. The licensee shall implement the items as listed in Attachment S, Table S-3, "Implementation Items," of SNC letter NL-14-1273, dated August 29, 2014, within 180 days after NRC approval, except for items 30 and 32. Items 30 and 32 shall be implemented by February 6, 2018.

- (7) Deleted per Amendment 144
- (8) Deleted per Amendment 144
- (9) Deleted per Amendment 144
- (10) Deleted per Amendment 144
- (11) Deleted per Amendment 144
- (12) Deleted per Amendment 144
- (13) Deleted per Amendment 144
- (14) Deleted per Amendment 144
- (15) Deleted per Amendment 144
- (16) Deleted per Amendment 144
- (17) Deleted per Amendment 144
- (18) Deleted per Amendment 144
- (19) Deleted per Amendment 144
- (20) Deleted per Amendment 144
- (21) Deleted per Amendment 144

(22) Additional Conditions

The Additional conditions contained in Appendix C, as revised through Amendment No. 137, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the additional conditions.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO LICENSE AMENDMENT REQUEST TO REVISE CERTAIN PLANT
MODIFICATIONS RELATED TO THE RISK-INFORMED PERFORMANCE-BASED
FIRE PROTECTION PROGRAM IN ACCORDANCE WITH NFPA 805
AMENDMENT NO. 205 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-2
AND
AMENDMENT NO. 201 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-8
SOUTHERN NUCLEAR OPERATING COMPANY, INC.
JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2
DOCKET NOS. 50-348 AND 50-364

1.0 INTRODUCTION

1.1 Background

On September 25, 2011 (Reference 1), Southern Nuclear Operating Company (the licensee), requested to revise the Joseph M. Farley Nuclear Plant (FNP), Units 1 and 2, fire protection program (FPP) in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.48(c). On March 10, 2015 (Reference 2), the U.S. Nuclear Regulatory Commission (NRC or the Commission) issued Amendment No. 196 to Renewed Facility Operating License (RFOL) No. NPF-2 for FNP, Unit 1, and Amendment No. 192 to RFOL No. NPF-8 for FNP, Unit 2. The amendments consisted of changes to the operating licenses to transition the FNP FPP to a risk-informed, performance-based (RI/PB) program based on National Fire Protection Association (NFPA) 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants" (2001 Edition) (NFPA 805) (Reference 3), in accordance with 10 CFR 50.48(c). NFPA 805 allows the use of PB methods such as fire modeling (FM) and RI methods such as fire probabilistic risk assessment (FPRA) to demonstrate compliance with the nuclear safety performance criteria (NSPC).

Enclosure 3

1.2 Requested Licensing Action

By application dated April 25, 2016 (Reference 4), the licensee submitted a license amendment request (LAR) to change fire protection license condition 2.C(4) for Unit 1 and license condition 2.C(6) for Unit 2. Transition license condition 2.C(4)c.2) was included in Amendment No. 196, and transition license condition 2.C(6)c.2) was included in Amendment No. 192, which referenced Table S-2, "Plant Modifications Committed," of the licensee's letter dated August 29, 2014 (Reference 5). Table S-2 describes 12 plant modifications the licensee must complete by November 6, 2017.

In this LAR, the licensee is proposing to revise Table S-2 to:

- Delete Fire Area 1-041 from Modification 6;
- Change a cable and conduit for Fire Area 2-035 in Modification 6, and
- Revise Modification 11, which is related to a code-compliant fire detection system.

2.0 REGULATORY EVALUATION

Section 50.48, "Fire protection," of 10 CFR, provides the NRC requirements for nuclear power plant fire protection. The NRC regulations include specific requirements for requesting approval for an RI/PB FPP based on the provisions of NFPA 805. Paragraph 50.48(c)(3)(i) of 10 CFR states, in part, that:

A licensee may maintain a fire protection program that complies with NFPA 805 as an alternative to complying with [10 CFR 50.48(b)] for plants licensed to operate before January 1, 1979, or the fire protection license conditions for plants licensed to operate after January 1, 1979. The licensee shall submit a request to comply with NFPA 805 in the form of an application for license amendment under [10 CFR] 50.90. The application must identify any orders and license conditions that must be revised or superseded, and contain any necessary revisions to the plant's technical specifications and the bases thereof.

Pursuant to 10 CFR 50.90, whenever a holder of a license desires to amend the license or permit, application for an amendment must be filed with the Commission describing the changes desired, and following, as far as applicable, the form prescribed for original applications. Accordingly, a licensee who seeks to amend its NFPA 805 authorizations must file an amendment stating, as applicable, the desired changes to orders, license conditions, and technical specifications. Pursuant to 10 CFR 50.32, "Elimination of repetition," the licensee/applicant may incorporate by reference information contained in previous applications, statements or reports filed with the Commission, provided that such references are clear and specific.

In addition, 10 CFR 50.48(c)(3)(i) states, in part, that:

The Director of the Office of Nuclear Reactor Regulation, or a designee of the Director, may approve the application if the Director or designee determines that the licensee has identified orders, license conditions, and the technical specifications that must be revised or superseded, and that any necessary

revisions are adequate. Any approval by the Director or the designee must be in the form of a license amendment approving the use of NFPA 805 together with any necessary revisions to the technical specifications.

In addition, 10 CFR 50.48(c)(3)(ii) states that:

The licensee shall complete its implementation of the methodology in Chapter 2 of NFPA 805 (including all required evaluations and analyses) and, upon completion, modify the fire protection plan required by paragraph (a) of this section to reflect the licensee's decision to comply with NFPA 805, before changing its fire protection program or nuclear power plant as permitted by NFPA 805.

The intent of 10 CFR 50.48(c)(3)(ii) is given in the statement of considerations for the Final Rule, "Voluntary Fire Protection Requirements for Light Water Reactors; Adoption of NFPA 805 as a Risk-Informed, Performance-Based Alternative" (69 FR 33536 through 69 FR 33548; June 16, 2004), which states, in part, that:

This paragraph requires licensees to complete all of the Chapter 2 methodology (including evaluations and analyses) and to modify their fire protection plan before making changes to the fire protection program or to the plant configuration. This process ensures that the transition to an NFPA 805 configuration is conducted in a complete, controlled, integrated, and organized manner. This requirement also precludes licensees from implementing NFPA 805 on a partial or selective basis (e.g., in some Fire Areas and not others, or truncating the methodology within a given Fire Area).

Pursuant to 10 CFR 50.92(a), in determining whether an amendment to a license will be issued to the applicant, the Commission will be guided by the considerations which govern the issuance of initial licenses to the extent applicable and appropriate. Under 10 CFR 50.40, common standards for issuance of licenses include considerations of safety and satisfaction of the requirements of the National Environmental Policy Act of 1969 as implemented in 10 CFR Part 51. Under 10 CFR 50.57(a), to issue an operating license, the Commission must find, among other things, that (1) there is reasonable assurance that the activities authorized by the operating license can be conducted without endangering the health and safety of the public; (2) there is reasonable assurance that such activities will be conducted in compliance with the regulations in this chapter; and (3) the issuance of the license will not be inimical to the common defense and security or to the health and safety of the public. Additional findings required to issue amendments related to fire protection are provided in 10 CFR 50.48, as discussed below.

As stated, in part, in 10 CFR 50.48(c)(3)(i):

The Director of the Office of Nuclear Reactor Regulation, or a designee of the Director, may approve the application if the Director or designee determines that the licensee has identified orders, license conditions, and the technical specifications that must be revised or superseded, and that any necessary revisions are adequate.

The regulations also allow for flexibility that was not included in the NFPA 805 standard. Licensees who choose to adopt 10 CFR 50.48(c) but wish to use the PB methods permitted elsewhere in the standard to meet the fire protection requirements of NFPA 805, Chapter 3, "Fundamental Fire Protection Program and Design Elements," may do so by submitting an LAR in accordance with 10 CFR 50.48(c)(2)(vii). This regulation further provides that:

The Director of the Office of Nuclear Reactor Regulation, or a designee of the Director, may approve the application if the Director or designee determines that the performance-based approach;

- (A) Satisfies the performance goals, performance objectives, and performance criteria specified in NFPA 805 related to nuclear safety and radiological release;
- (B) Maintains safety margins; and
- (C) Maintains fire protection defense-in-depth (fire prevention, fire detection, fire suppression, mitigation, and post-fire safe shutdown capability).

Alternatively, licensees may choose to use RI or PB alternatives to comply with NFPA 805 by submitting an LAR in accordance with 10 CFR 50.48(c)(4), which states, in part.

The Director of the Office of Nuclear Reactor Regulation, or designee of the Director, may approve the application if the Director or designee determines that the proposed alternatives:

- (i) Satisfy the performance goals, performance objectives, and performance criteria specified in NFPA 805 related to nuclear safety and radiological release;
- (ii) Maintain safety margins; and
- (iii) Maintain fire protection defense-in-depth (fire prevention, fire detection, fire suppression, mitigation, and post-fire safe shutdown capability).

In addition to the conditions outlined by the rule that require licensees to submit an LAR for NRC review and approval in order to adopt an RI/PB FPP, a licensee may submit additional elements of its FPP for which it wishes to receive specific NRC review and approval, as set forth in Regulatory Position C.2.2.1 of Regulatory Guide (RG) 1.205 (Reference 6). Inclusion of these elements in the NFPA 805 LAR is meant to alleviate uncertainty in portions of the current FPP licensing bases as a result of the lack of specific NRC approval of these elements. Regulatory guides are not substitutes for regulations, and compliance with them is not required. Methods and solutions that differ from those set forth in RGs will be deemed acceptable if they provide a basis for the findings required for the issuance or continuance of a permit or license by the Commission. Accordingly, any submittal addressing these additional FPP elements needs to include sufficient detail to allow the NRC staff to assess whether the licensee's treatment of these elements meets the 10 CFR 50.48(c) requirements.

The purpose of the FPP established by NFPA 805 is to provide assurance, through a defense-in-depth (DID) philosophy, that the NRC's fire protection objectives are satisfied. NFPA 805 Section 1.2, "Defense-in-Depth," states the following:

Protecting the safety of the public, the environment, and plant personnel from a plant fire and its potential effect on safe reactor operations is paramount to this standard. The fire protection standard shall be based on the concept of defense-in-depth. Defense-in-depth shall be achieved when an adequate balance of each of the following elements is provided:

- (1) Preventing fires from starting;
- (2) Rapidly detecting fires and controlling and extinguishing promptly those fires that do occur, thereby limiting fire damage; and
- (3) Providing an adequate level of fire protection for structures, systems and components important to safety, so that a fire that is not promptly extinguished will not prevent essential plant safety functions from being performed.

In addition, in accordance with Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, General Design Criterion (GDC) 3, "Fire protection," fire detection and fighting systems must be designed such that their rupture or inadvertent operation does not significantly impair the ability of the structures, systems, and components important to safety to perform their intended safety functions.

In addition, 10 CFR 50.32 states, in part, that the applicant may incorporate by reference information contained in previous applications, statements or reports filed with the Commission, provided, that such references are clear and specific.

2.1 Applicable Regulations

The following GDC regulations address fire protection:

- FNP Criterion 3, "Fire Protection," states, in part, that:

Structures, systems, and components important to safety are designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions. Noncombustible and heat resistant materials are used wherever practical throughout the unit, particularly in locations such as the containment and control room. Fire detection and fighting systems of appropriate capacity and capability are provided and designed to minimize the adverse effects of fires on structures, systems, and components important to safety. Firefighting systems are designed to assure that their rupture or inadvertent operation does not significantly impair the safety capability of these structures, systems, and components.

- 10 CFR 50.48(a)(1) requires that each holder of an operating license have a fire protection plan that satisfies GDC 3 of Appendix A to 10 CFR 50.
- 10 CFR 50.48(c) incorporates NFPA 805 (2001 Edition) by reference, with certain exceptions, modifications, and supplementation. This regulation establishes the requirements for using an RI/PB FPP in conformance with NFPA 805 as an alternative to the requirements associated with 10 CFR 50.48(b) and Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," to 10 CFR 50, or the specific plant fire protection license condition.

2.2 Applicable Staff Guidance

The NRC staff review also relied on the following additional codes, RGs, and standards:

- RG 1.205, Revision 1, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," issued December 2009 (Reference 6), provides guidance for use in complying with the requirements that the NRC has promulgated for RI/PB FPPs that comply with 10 CFR 50.48 and the referenced 2001 Edition of the NFPA standard. RG 1.205 sets forth regulatory positions, emphasizes certain issues, clarifies the requirements of 10 CFR 50.48(c) and NFPA 805, clarifies the guidance in Nuclear Energy Institute (NEI) 04-02 (Reference 7), and provides exceptions to the NEI-04-02 guidance where required. Should a conflict occur between NEI 04-02 and this RG, the regulatory positions in RG 1.205 govern.
- RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," Revision 2, issued May 2011 (Reference 8), provides the NRC staff's recommendations for using risk information in support of licensee-initiated licensing basis changes to a nuclear power plant that require such review and approval.
- NUREG/CR-6850, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities," Volumes 1 and 2 and Supplement 1, September 2005 and September 2010, respectively (Reference 9), (Reference 10), and (Reference 11), presents a compendium of methods, data, and tools to perform an FPRA and develop associated insights.

3.0 TECHNICAL EVALUATION

3.1 Maintaining Defense-in-Depth and Safety Margins

NFPA 805, Section 4.2.4.2, requires that the "use of fire risk evaluation for the PB approach shall consist of an integrated assessment of the acceptability of risk, defense-in-depth, and safety margins."

3.1.1 Defense-in-Depth

As a supplement to the definition of DID provided in NFPA 805, Section 1.2, the NRC-endorsed guidance in NEI 04-02, Section 5.3.5.2, states that:

In general, the defense-in-depth requirement is satisfied if the proposed change does not result in a substantial imbalance in:

- Preventing fires from starting;
- Detecting fires quickly and extinguishing those that do occur, thereby limiting fire damage; and
- Providing adequate level of fire protection for structures, systems and components important to safety, so that a fire that is not promptly extinguished will not prevent essential plant safety functions [from] being performed.

3.1.2 Safety Margins

Although not a part of the requirements of NFPA 805, and thus not required under 10 CFR 50.48(c), NFPA 805, Appendix A, Section A.2.4.4.3, provides the following background related to the meaning of the term “safety margins”:

An example of maintaining sufficient safety margins occurs when the existing calculated margin between the analysis and the performance criteria compensates for the uncertainties associated with the analysis and data. Another way that safety margins are maintained is through the application of codes and standards. Consensus codes and standards are typically designed to ensure such margins exist.

NEI 04-02, Section 5.3.5.3, “Safety Margins,” lists two specific criteria that should be addressed when considering the impact of plant changes on safety margins:

- Codes and standards or their alternatives accepted for use by the NRC are met; and,
- Safety analysis acceptance criteria in the licensing basis (e.g., FSAR [Final Safety Analysis Report], supporting analyses, etc.) are met, or provides sufficient margin to account for analysis and data uncertainty.

3.2 Discussion

Amendment No. 196 to RFOL No. NPF-2 for FNP, Unit 1, and Amendment No. 192 to RFOL No. NPF-8 for FNP, Unit 2, implemented the licensee’s transition to an RI/PB FPP based on NFPA 805, in accordance with 10 CFR 50.48(c). As part of the transition license conditions 2.C(4)c.2) and 2.C(6)c.2), the licensee is to complete 12 plant modifications as listed

in Attachment S, Table S-2, of the licensee's letter dated August 29, 2014 (Reference 5), by November 6, 2017.

Subsequent to the issuance of the amendments, the licensee indicated that one modification could be deleted in one Fire Area, and two other modifications could be changed. The licensee requested to change the following proposed modifications:

1. Delete Fire Area 1-041 from Modification 6,
2. Revise Modification 11, and
3. Change cable and conduit in Fire Area 2-035 in Modification 6.

The licensee stated that all other modifications in Table S-2 of Attachment S have been, or will be, completed prior to November 6, 2017.

For FNP, the licensee stated that the plant modifications have been evaluated using the accepted FPRA methods and approaches as summarized in the safety evaluation (SE) dated March 10, 2015. Pursuant to 10 CFR 50.32, the NRC staff concludes that the LAR clearly and specifically references the methods and approaches as those used in support of Amendment No. 196 for FNP, Unit 1, and Amendment No. 192 for FNP, Unit 2, and, therefore, a description of methods and approaches need not be included in the licensee's April 25, 2016, application. Additionally, because the NRC staff has found these methods and approaches acceptable for evaluating changes to the FPP as described in the SE dated March 10, 2015, the NRC staff review in support of this proposed license amendment need not reevaluate the approved methods and approaches.

3.3 Delete Fire Area 1-041 from Modification 6

In the LAR dated September 25, 2012, to adopt NFPA 805, the licensee included Modification 6 to protect certain raceways with 1-hour fire-rated material in order to reduce risk due to fire-induced failure by protecting cables, thus preventing damage to associated components. For Fire Area 1-041, the licensee proposed to protect raceways 1VADD014, 1VAED051, 1VAED052, 1VAED085, 1VAHE26, 1VAHE-27, 1VAHJ010, 1VAHJ-19, and 1VAHJ011, with 1-hour fire-rated material to prevent fire damage due to fire at 4 kilovolt (kV) Bus 1B. This modification is required to be completed in accordance with the fire protection transition license conditions.

3.3.1 Risk Evaluation

In the LAR dated April 25, 2016 (Reference 4), the licensee proposed to delete Fire Area 1-041 from Modification 6, thereby not providing raceways 1VADD014, 1VAED051, 1VAED052, 1VAED085, 1VAHE26, 1VAHE-27, 1VAHJ010, 1VAHJ-19, and 1VAHJ011, with 1-hour fire-rated material to prevent fire damage due to fire at 4kV Bus 1B. As a result of this change, credit is removed for the 1-hour barrier to prevent fire damage due to fire at 4kV Bus 1B, a fire scenario in the Train A Switchgear Room 0343, which is a subsection of Fire Area 1-041.

The licensee stated that the risk evaluation of this modification was conducted with the FNP FPRA model discussed in its letter dated August 29, 2014 (Reference 5), which evaluated the probabilistic risk assessment (PRA) changes for the final integrated risk evaluation for the

NFPA 805 LAR, and upon which the March 10, 2015 SE (Reference 2) is based. The licensee reported that it used the same FPRA model that the NRC staff found acceptable for use to support the transition to NFPA 805 and, therefore, the NRC staff concludes that this FPRA model has sufficient quality to support these FPP changes.

The licensee provided an updated NFPA 805 LAR Attachment W that included updated pages of Table W-6, "FNP Fire Area Risk Summary," which identifies the changes in the risk values associated with Fire Area 1-041. The license stated that not crediting the modification has a minor impact on total plant risk and does not challenge the RG 1.174 risk acceptance guidelines. Review of the risk values in the updated LAR Attachment W indicate that the changes from the deleted modification are minor compared to the values reported in the NFPA 805 SE (Reference 2) and that the licensee continues to satisfy the acceptance guidelines in RG 1.205.

3.3.2 Defense-in-Depth/Safety Margins

The licensee stated it determined that removal of credit of these modifications has no impact on any of the DID echelons which are to: (1) prevent fires from starting, (2) rapidly detect, control, and extinguish promptly those fires that do occur thereby preventing fire damage, and (3) provide adequate level of fire protection for systems and structures so that a fire will not prevent essential safety functions from being performed.

The licensee stated that adequate safety margins are maintained because this change does not impact any codes and standards, or their alternatives accepted for use by the NRC, and this change does not impact any safety analysis acceptance criteria used in the licensing basis.

3.3.3 NRC Staff Evaluation

In accordance with 10 CFR 50.48(c)(3)(i), the licensee submitted a LAR to revise its NFPA 805 transition license conditions 2.C(4)c.2) and 2.C(6)c.2). The NRC staff reviewed the information provided by the licensee in its LAR that included discussions of the impact of the proposed change on risk, DID, and safety margins as required by NFPA 805, Section 4.2.4.2. In regard to risk, the NRC staff confirmed the proposed change does not challenge the RG 1.174 acceptance guidelines because the proposed change results in only a minor impact on total plant risk. The NRC staff also confirmed that the acceptance guidelines in RG 1.205 continue to be satisfied because the results of the proposed change for total plant risk and change in risk are minor when compared to the values reported in the NFPA 805 SE (Reference 2).

In regard to DID, the NRC staff confirmed the proposed change has no impact on any of the DID echelons because fire barriers are not considered as methods for preventing fires from starting, nor detecting or extinguishing fires, and because the risk evaluation concludes that an adequate level of fire protection will be provided for the identified raceways so that a fire will not prevent essential safety functions from being performed.

In regard to safety margins, the NRC staff confirmed that the proposed change continues to maintain adequate safety margins, in part, because the change does not impact any codes and standards, or their alternatives accepted for use by the NRC, and the change does not impact any safety analysis acceptance criteria used in the licensing basis.

3.3.4 Conclusion

Based on the above, the NRC staff concludes that the effect on the FPP of deleting Fire Area 1-041 from Modification 6 and, therefore, not installing the 1-hour fire-rated material to prevent fire damage due to fire at 4kV Bus 1B can be assessed using the methods and approaches accepted previously by the NRC staff. The NRC staff finds the proposed change acceptable because the licensee assessed the acceptability of risk, DID, and safety margin in accordance with NFPA 805, Section 4.2.4.2, and demonstrated that not crediting the modification has a minor impact on total plant risk and does not challenge the RG 1.174 risk acceptance guidelines, and because the licensee demonstrated that DID and safety margins, as developed in the original LAR, are maintained.

In addition, the NRC staff concludes that the licensee has identified the appropriate license condition that must be revised as a result of the proposed change and that the revision is adequate; therefore, it satisfies the requirements of 10 CFR 50.48(c)(3)(i).

3.4 Revise Modification 11

In its LAR to adopt NFPA 805 dated September 25, 2012 (Reference 1), the licensee included Modification 11 to install a new code-compliant fire detection system for those detector strings that do not currently meet code and provide a code-compliant evaluation to support the new system. This modification is required to be completed in accordance with the fire protection transition license conditions. In its LAR dated April 25, 2016 (Reference 4), the licensee indicated that it intends to replace an existing fire alarm panel (pyro panel) to meet this modification but that the entire pyro panel replacement cannot be completed by November 6, 2017. As an alternative to the current text, the licensee has proposed to revise Modification 11 to state the following:

Provide circuit supervision where required by the code of record but lacking in the existing fire detection system by modifying the existing system and/or moving the subject circuits to the newly installed fire alarm and detection system. Also, provide modifications to correct greater than minor deviations from the code of record regarding detector placement. This may be accomplished within the existing Pyrotronics system or at the same time the subject detector strings are moved to the newly installed fire alarm and detection system.

The licensee stated that a large portion of the proposed pyro panel modifications will be completed prior to November 6, 2017. The licensee further stated that the revision will ensure that the scope of the modifications needed to satisfy Modification 11 will be completed by the date necessary and future desired modifications that are not necessary for NFPA 805 can be completed after the final implementation date.

The licensee stated that the resulting minor code deviations will be addressed after November 6, 2017, and include:

- Detectors identified in the code evaluation as inaccessible, but continue to be accessed during surveillances.
- New spot detector locations additions in areas with no credible fire hazards.

- New spot detector locations required by the NFPA standard for the new system (NFPA 72 2007 Edition) but not required by the code of record.
- Relocation of spot detectors for ALARA [as low as reasonably achievable] purposes.
- Modifications in areas containing no equipment needed to keep the fuel safe and stable.
- Relocation of local annunciation devices since plant wide notification for fires is performed by Operations personnel.

3.4.1 Risk Evaluation

The licensee stated that the original system remains fully functional and the clarification of scope and schedule for the replacement does not impact the FPRA and the risk insights presented in the LAR. Therefore, since there is no change in risk, no new risk evaluation was performed.

3.4.2 Defense-In-Depth/Safety Margin

The licensee stated that the portions of the replacement project that are required to address greater than minor code compliance issues for NFPA 805 implementation continue to be within the modification commitment date of November 6, 2017, including noncompliances regarding circuit supervision and detector placement. The licensee further stated that the fire detection and alarm systems for both the newly installed fire alarm system and detection system and the original pyrotronics system will be code compliant by November 6, 2017, and that there is no reduction in DID and safety margin that need to be evaluated for not complying with the code.

The licensee stated that the remainder of the project to complete overall replacement of the obsolete equipment will continue beyond November 6, 2017. Future changes associated with the overall replacement will be evaluated using the licensee's accepted change evaluation process.

3.4.3 NRC Staff Evaluation

In accordance with 10 CFR 50.48(c)(3)(i), the licensee submitted an LAR to revise its NFPA 805 transition license conditions 2.C(4)c.2) and 2.C(6)c.2). The NRC staff reviewed the information provided by the licensee in its LAR that included discussions of the impact of the proposed change on risk, DID, and safety margins as required by NFPA 805, Section 4.2.4.2. In regard to risk, the NRC staff confirmed that the proposed change for the replacement does not impact the FPRA and the risk insights presented in the NFPA 805 LAR because the proposed change is being made for clarification and because the original system remains fully functional. The NRC staff also confirmed that the proposed change does not challenge the risk acceptance guidelines in RG 1.174 or RG 1.205 because the proposed change is considered a clarification and because the original system remains functional.

In regard to DID, the NRC staff confirmed the proposed change has no impact on any of the DID echelons because the original system will remain fully functional and because only minor modifications not necessary for NFPA 805 will not be completed by November 6, 2017. Fire

detection and alarm systems are not considered as methods for preventing fires from starting, controlling, or extinguishing fires. There is no apparent impact on the system's ability to detect fires nor on its ability to provide an adequate level of fire protection for systems and structures so that a fire will not prevent essential safety functions from being performed because the original system will remain fully functional.

In regard to safety margins, the NRC staff confirmed that the proposed change continues to maintain adequate safety margins, in part, because the change does not impact any codes and standards, or their alternatives accepted for use by the NRC, and the change does not impact any safety analysis acceptance criteria used in the licensing basis.

3.4.4 Conclusion

Based on the above, the NRC staff concludes that the effect on the FPP of revising the text in Modification 11 to address the extended completion time past November 6, 2017, can be assessed using the methods and approaches accepted previously by the NRC staff. The NRC staff finds the proposed change acceptable because the licensee assessed the acceptability of risk, DID, and safety margin in accordance with NFPA 805, Section 4.2.4.2, and because the licensee clarified that the change does not impact the FPRA, risk insights, and the DID and safety margin evaluation, and because future changes associated with the overall replacement will be evaluated using the licensee's accepted change evaluation process.

In addition, the NRC staff concludes that the licensee has identified the appropriate license condition that must be revised as a result of the proposed change, and that the revision is adequate, therefore satisfying the requirements of 10 CFR 50.48(c)(3)(i).

3.5 Change Cable and Conduit in Fire Area 2-035 in Modification 6

In LAR dated September 25, 2012, to adopt NFPA 805, the licensee included Modification 6 to protect certain raceways with 1-hour fire-rated material in order to reduce risk due to fire-induced failure by protecting cables preventing damage to associated components. For Fire Area 2-035, the licensee proposed to protect 2VCHAL07P cable in conduit 2VCHF260 with 1-hour fire-rated material to prevent fire damage. This modification is required to be completed in accordance with the fire protection transition license conditions.

In LAR dated April 25, 2016 (Reference 4), the licensee proposed to change the cable to 2VCFARK2P and the conduit to 2CVED261 because a subsequent design change designated the previously designated cable as a spare. The licensee stated that the portion of cable 2VCFARK2P that is inside Fire Area 2-035 will be protected with 1-hour fire-rated material and that the intent of the original proposed modification will not be changed. The licensee further indicated that the wording is being revised to reflect the actual plant configuration.

3.5.1 Risk Evaluation

The licensee stated that the cable protection is to prevent the damage of cable from the hot gas layer, and the new cable and conduit are run through the same Fire Area 2-035 as the existing cable and conduit and will be protected with 1-hour fire-rated material. Modification 3 requires no change to the PRA, since the new cable performing the function is still contained in a conduit

and 1-hour barrier in the hot gas layer in Fire Area 2-035, as is the existing conduit and 1-hour barrier. Thus proposed change does not impact the FPRA or the risk insights presented in the NFPA 805 LAR.

3.5.2 Defense-in-Depth/Safety Margins

The licensee stated that this change provides clarification on the identification of the cable, which is being provided with 1-hour fire-rated material and, therefore, this change does not result in a change in DID or represent a reduction in safety margin.

3.5.3 NRC Staff Evaluation

In accordance with 10 CFR 50.48(c)(3)(i), the licensee submitted a LAR to revise its NFPA 805 transition license conditions 2.C(4)c.2) and 2.C(6)c.2). The NRC staff reviewed the information provided by the licensee in LAR dated April 25, 2016, which included discussions of the impact of the proposed change on risk, DID, and safety margins as required by NFPA 805, Section 4.2.4.2. In regard to risk, the NRC staff confirmed that the proposed change does not impact the FPRA and risk insights presented in the NFPA 805 LAR because the intent of the original modification remains the same and because the proposed change only provides clarification on the identification of the cable that is being provided with 1-hour fire-rated material. The NRC staff also confirmed the proposed change does not challenge the risk acceptance guidelines in RG 1.174 or RG 1.205 because the intent of the original modification remains the same, and because the proposed change is considered a clarification.

In regard to DID, the NRC staff confirmed that the proposed change has no apparent impact on any of the DID echelons because the proposed change only provides a clarification on the identification of the cable that is provided with 1-hour fire-rated material. Fire barriers are not considered as methods for preventing fires from starting, detecting, controlling, or extinguishing fires. Because the intent of the original modification remains the same, the level of fire protection that will be provided for the cable so that a fire will not prevent essential safety functions from being performed is not changed.

In regard to safety margins, the NRC staff confirmed that the proposed change continues to maintain adequate safety margins, in part, because the change does not impact any codes and standards, or their alternatives accepted for use by the NRC, and the change does not impact any safety analysis acceptance criteria used in the licensing basis.

3.5.4 Conclusion

Based on the above, the NRC staff concludes that the effect on the FPP of changing cable and conduit labeling for Fire Area 2-035 to reflect the actual plant configuration can be assessed using the methods and approaches previously accepted by the NRC staff. The NRC staff finds the proposed change acceptable because the licensee assessed the acceptability of risk, DID, and safety margin in accordance with NFPA 805, Section 4.2.4.2, and demonstrated that the change does not impact the FPRA and risk insights and maintains DID and safety margins.

In addition, the NRC staff concludes that the licensee has identified the appropriate license condition that must be revised as a result of the proposed change and the revision is adequate and, therefore, satisfies the requirements of 10 CFR 50.48(c)(3)(i).

3.6 Conclusion Regarding Technical Evaluation

The NRC staff reviewed the licensee's application to revise three plant modifications related to the RI/PB FPP in accordance with the requirements of 10 CFR 50.48(c) and NFPA 805. The licensee's application identified revisions to license conditions in accordance with 10 CFR 50.48(c)(3)(i). The changes proposed by the licensee included a review of risk, DID, and safety margin, as required by NFPA 805, Section 4.2.4.2. The NRC staff concludes that the licensee's application provided the appropriate license conditions that must be revised as a result of the proposed changes, and that the revisions are sufficient, thereby satisfying the requirements of 10 CFR 50.48(c)(3)(i). In addition, the NRC staff concludes that the effect of the proposed changes on the FPP can be assessed using the methods and approaches previously approved by the NRC staff. The NRC staff concludes the proposed amendments include an assessment of risk, DID, and safety margin, thereby meeting the requirements of NFPA 805, Section 4.2.4.2.

The NRC staff concludes that the results of the licensee's evaluation in regard to risk, DID, and safety margin is acceptable because (1) the changes either do not impact the FPRA or have only a minor impact on total plant risk and change in risk with respect to the values reported in the NFPA 805 SE (Reference 2), and thus, do not challenge the RG 1.174 risk acceptance guidelines; (2) the licensee's process and result followed guidance approved by the NRC staff in its NFPA 805 SE dated March 10, 2015 (Reference 2); and (3) the results of the changes are consistent with guidance in NEI 04-02, Revision 2; RG 1.205, Revision 1; and RG 1.174, Revision 2.

Implementation of the RI/PB FPP under 10 CFR 50.48(c) must be in accordance with the fire protection license condition, which identifies the list of modifications and implementation items that must be completed in order to support the NRC staff's conclusion and establishes a date by which full compliance with 10 CFR 50.48(c) must be achieved. Before the licensee is able to fully implement the transition to an FPP based on NFPA 805 and apply the new fire protection license condition to its full extent, the modifications and implementation items must be completed within the timeframe specified.

4.0 FIRE PROTECTION LICENSE CONDITION

On March 10, 2015 (Reference 2), the NRC issued Amendment No. 196 to RFOL License No. NPF-2 for FNP, Unit 1, and Amendment No. 192 to RFOL No. NPF-8 for FNP, Unit 2, which revised the existing fire protection license conditions to ones that address the transition to a risk-informed, performance-based FPP under NFPA 805 in accordance with 10 CFR 50.48(c)(3)(i). The new license conditions adopted the guidelines of the standard fire protection license condition promulgated in RG 1.205, Revision 1, Regulatory Position C.3.1, as issued on December 18, 2009 (74 FR 67253). Plant-specific changes were made to the sample license condition; however, the plant-specific FPP license conditions are consistent with the standard fire protection license condition and incorporated all of the relevant features of the transition to NFPA 805 at FNP.

In the letter dated April 25, 2016 (Reference 4), the licensee submitted an LAR for license amendments to change fire protection license condition 2.C(4) for Unit 1 and license condition 2.C(6) for Unit 2. The changes made to the license conditions include adding the licensee's April 25, 2016, LAR and adding the issuance date of the SE. No other changes to the license conditions were requested by the licensee or identified by the NRC staff.

The following license condition is included in the revised license for FNP, Units 1 and 2, and will replace RFOL Nos. NPF-2 and NPF-8, Condition 2.C.(4) and Condition 2.C.(6):

Fire Protection

Southern Nuclear Operating Company 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), as specified in the licensee amendment requests dated September 25, 2012, and April 25, 2016; and supplements dated December 20, 2012; September 16, 2013; October 30, 2013; November 12, 2013; April 23, 2014; May 23, 2014; July 3, 2014; August 8, 2014; August 29, 2014; October 13, 2014; and January 16, 2015; and as approved in the safety evaluations dated March 10, 2015 and October 17, 2016. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

a. Risk-Informed Changes that May Be Made Without Prior NRC Approval

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at Farley. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

- 1) Prior NRC review and approval is not required for changes that clearly result in a decrease in risk. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

- 2) Prior NRC review and approval is not required for individual changes that result in a risk increase less than 1×10^{-7} /year (yr) for CDF and less than 1×10^{-8} /yr for LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

b. Other Changes that May Be Made Without Prior NRC Approval

- 1) Changes to NFPA 805, Chapter 3, Fundamental Fire Protection Program

Prior NRC review and approval are not required for changes to the NFPA 805, Chapter 3, fundamental fire protection program elements and design requirements for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is functionally equivalent or adequate for the hazard. The licensee may use an engineering evaluation to demonstrate that a change to an NFPA 805, Chapter 3, element is functionally equivalent to the corresponding technical requirement. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard.

The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3, elements are acceptable because the alternative is "adequate for the hazard." Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

- "Fire Alarm and Detection Systems" (Section 3.8);
- "Automatic and Manual Water-Based Fire Suppression Systems" (Section 3.9);
- "Gaseous Fire Suppression Systems" (Section 3.10); and
- "Passive Fire Protection Features" (Section 3.11).

This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

2) Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC safety evaluations dated March 10, 2015 and October 17, 2016, to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection DID and safety margins are maintained when changes are made to the fire protection program.

c. Transition License Conditions

- 1) Before achieving full compliance with 10 CFR 50.48(c), as specified by 2) below, risk-informed changes to SNC's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in 2) above.
- 2) The licensee shall implement the modifications to its facility, as described in Attachment S, Table S-2, "Plant Modifications Committed," of SNC letter NL-15-2310, dated April 25, 2016, to complete the transition to full compliance with 10 CFR 50.48(c) by November 6, 2017. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.
- 3) The licensee shall implement the items as listed in Attachment S, Table S-3, "Implementation Items," of SNC letter NL-15-2310, dated April 25, 2016, within 180 days after NRC approval, except for items 30 and 32. Items 30 and 32 shall be implemented by February 6, 2018.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of Alabama official was notified of the proposed issuance of the amendments. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no

significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on June 7, 2016 (81 FR 36623). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

8.0 REFERENCES

1. Ajluni, M. J., Southern Nuclear Operating Company, letter to U.S. Nuclear Regulatory Commission, "Joseph M. Farley Nuclear Plant License Amendment to Adopt NFPA-805 Performance Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition)," dated September 25, 2012 (ADAMS Accession No. ML12279A235).
2. Williams, Shawn, U.S. Nuclear Regulatory Commission, letter to Pierce, C. R., Southern Nuclear Operating Company, Inc., "Joseph M. Farley Nuclear Plant, Units 1 and 2, Issuance of Amendment Regarding Transition to a Risk-Informed Performance-Based Fire Protection Program in Accordance with 10 CFR 50.48(c) (TAC Nos. ME9741 and ME9742)," March 10, 2015 (ADAMS Accession No. ML14308A048).
3. National Fire Protection Association, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," Standard 805 (NFPA 805), 2001 Edition, Quincy, Massachusetts.
4. Pierce, Charles, R., Southern Nuclear Operating Company, Inc., letter to U.S. Nuclear Regulatory Commission, "Joseph M. Farley Nuclear Plant - Units 1 and 2 Supplemental License Amendment Request to Revise Existing Facility Operating License Commitments Regarding NFPA-805 Performance Based Standard for Fire Protection for Light Water Reactor Generating Plants," April 25, 2016 (ADAMS Accession No. ML16120A294).
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7. Nuclear Energy Institute, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)," Washington, DC, NEI 04-02, Revision 2, April 2008 (ADAMS Accession No. ML081130188).
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10. U.S. Nuclear Regulatory Commission, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities, Volume 2: Detailed Methodology," NUREG/CR-6850, September 2005 (ADAMS Accession No. ML052580118).
11. U.S. Nuclear Regulatory Commission, "Fire Probabilistic Risk Assessment Methods Enhancements," NUREG/CR-6850, Supplement 1, September 2010 (ADAMS Accession No. ML103090242).

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Date: October 17, 2016

October 17, 2016

Mr. Charles R. Pierce
Regulatory Affairs Director
Southern Nuclear Operating Company, Inc.
P.O. Box 1295
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SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2 – ISSUANCE OF
AMENDMENTS RELATED TO NFPA 805 SUPPLEMENT (CAC NOS. MF7617
AND MF7618)

Dear Mr. Pierce:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 205 to Renewed Facility Operating License (RFOL) No. NPF-2 and Amendment No. 201 to RFOL No. NPF-8 for the Joseph M. Farley Nuclear Plant, Units 1 and 2, respectively. The amendments consist of changes to the RFOLs in response to your application dated April 25, 2016.

The amendments update Attachments M, "License Condition Changes"; Attachment S, "Modification and Implementation Items"; and Attachment W, "Fire Probabilistic Risk Analysis Insights," of the previously approved National Fire Protection Association (NFPA) 805 amendment.

A copy of the Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,
/RA/
Shawn A. Williams, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

Enclosures:

- 1. Amendment No. 205 to NPF-2
- 2. Amendment No. 201 to NPF-8
- 3. Safety Evaluation

cc w/enclosures: Distribution via Listserv

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*by internal memo

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NAME	DRoth	MMarkley	SWilliams
DATE	09/28/2016	10/17/2016	10/17/16

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