



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

February 26, 2016

Mr. C. 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 (CAC NOS. MF6211 AND MF6212)

Dear Mr. Pierce:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 200 to Renewed Facility Operating License No. NPF-2 and Amendment No. 196 to Renewed Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant, Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated May 12, 2015, as supplemented on September 15, 2015, November 25, 2015; and January 28, 2016.

The changes revise and add Surveillance Requirements to verify that the system locations susceptible to gas accumulation are sufficiently filled with water and to provide allowances that permit performance of the verification. The changes are consistent with Technical Specifications Task Force (TSTF)-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation."

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. 200 to NPF-2
2. Amendment No. 196 to NPF-8
3. Safety Evaluation

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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

ALABAMA POWER COMPANY

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 200  
Renewed License No. NPF-2

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Joseph M. Farley Nuclear Plant, Unit 1, Renewed Facility Operating License No. NPF-2, filed by Southern Nuclear Operating Company, Inc. (the licensee), dated May 12, 2015, as supplemented by letters dated September 15, 2015, November 25, 2015; and January 28, 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.

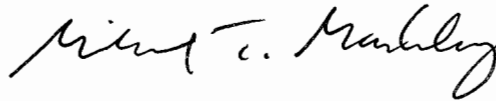
2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-2, is hereby amended to read as follows:

- (2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 200, 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 120 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  
And the Technical Specifications

Date of Issuance: February 26, 2016



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

ALABAMA POWER COMPANY

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 196  
Renewed License No. NPF-8

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Joseph M. Farley Nuclear Plant, Unit 2, Renewed Facility Operating License No. NPF-8, filed by Southern Nuclear Operating Company, Inc. (the licensee), dated May 12, 2015, as supplemented by letters dated September 15, 2015, November 25, 2015; and January 28, 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.

Enclosure 2

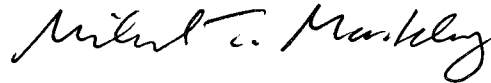
2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-8 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 196, 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 120 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  
And the Technical Specifications

Date of Issuance: February 26, 2016

ATTACHMENT TO  
LICENSE AMENDMENT NO. 200  
TO RENEWED FACILITY OPERATING LICENSE NO. NPF-2  
DOCKET NO. 50-348  
AND LICENSE AMENDMENT NO. 196  
TO RENEWED FACILITY OPERATING LICENSE NO. NPF-8  
DOCKET NO. 50-364

Replace the following pages of the Renewed Facility Operating License and Appendix "A" Technical Specifications (TSs) with the enclosed pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

License

NPF-2, page 4

NPF-8, page 3

TSs

3.4.6-3

3.4.7-3

3.4.8-2

3.5.2-2

3.5.2-3

3.5.3-2

3.6.6-2

3.6.6-3

3.9.4-3

3.9.5-3

Insert

License

NPF-2, page 4

NPF-8, page 3

TSs

3.4.6-3

3.4.7-3

3.4.8-2

3.5.2-2

3.5.2-3

3.5.3-2

3.6.6-2

3.6.6-3

3.9.4-3

3.9.5-3

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 200 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

- (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. 196 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



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.6.4</p> <p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Not required to be performed until 12 hours after entering MODE 4.</li> <li>2. An operating RHR loop will meet this requirement for the RHR loop running unless the RHR loop is in a low flow system operation.</li> </ol> <hr/> <p>Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.3	Verify correct breaker alignment and indicated power are available to the required RHR pump that is not in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.4	<p>-----NOTE-----</p> <p>An operating RHR loop will meet this requirement for the RHR loop running unless the RHR loop is in a low flow system operation.</p> <p>-----</p> <p>Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.</p>	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required RHR loops inoperable.  <u>OR</u>  No RHR loop in operation.	B.1 Suspend all operations involving reduction in RCS boron concentration.  <u>AND</u>  B.2 Initiate action to restore one RHR loop to OPERABLE status and operation.	Immediately           Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.8.1      Verify one RHR loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.8.2      Verify correct breaker alignment and indicated power are available to the required RHR pump that is not in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.8.3      -----NOTE----- An operating RHR loop will meet this requirement for the RHR loop running unless the RHR loop is in a low flow system operation.  Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE			FREQUENCY												
SR 3.5.2.1	<p>-----NOTE----- Only required to be performed for valves 8132A and 8132B when Centrifugal Charging Pump A is inoperable. -----</p> <p>Verify the following valves are in the listed position with power to the valve operator removed.</p> <table border="1"> <thead> <tr> <th><u>Number</u></th> <th><u>Position</u></th> <th><u>Function</u></th> </tr> </thead> <tbody> <tr> <td>8884, 8886</td> <td>Closed</td> <td>Centrifugal Charging Pump to RCS Hot Leg</td> </tr> <tr> <td>8132A, 8132B</td> <td>Open</td> <td>Centrifugal Charging Pump discharge isolation</td> </tr> <tr> <td>8889</td> <td>Closed</td> <td>RHR to RCS Hot Leg Injection</td> </tr> </tbody> </table>		<u>Number</u>	<u>Position</u>	<u>Function</u>	8884, 8886	Closed	Centrifugal Charging Pump to RCS Hot Leg	8132A, 8132B	Open	Centrifugal Charging Pump discharge isolation	8889	Closed	RHR to RCS Hot Leg Injection	In accordance with the Surveillance Frequency Control Program
<u>Number</u>	<u>Position</u>	<u>Function</u>													
8884, 8886	Closed	Centrifugal Charging Pump to RCS Hot Leg													
8132A, 8132B	Open	Centrifugal Charging Pump discharge isolation													
8889	Closed	RHR to RCS Hot Leg Injection													
SR 3.5.2.2	<p>-----NOTE----- Not required to be met for system vent flow paths opened under administrative control. -----</p> <p>Verify each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>		In accordance with the Surveillance Frequency Control Program												
SR 3.5.2.3	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.		In accordance with the Inservice Testing Program												
SR 3.5.2.4	Verify each ECCS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.		In accordance with the Surveillance Frequency Control Program												

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.5.2.5	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.6	Verify, for each ECCS throttle valve listed below, each position stop is in the correct position. <u>Valve Number</u> CVC-V-8991 A/B/C CVC-V-8989 A/B/C CVC-V-8996 A/B/C CVC-V-8994 A/B/C RHR-HV 603 A/B	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.7	Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet trash racks, screens, and inner cages are properly installed and show no evidence of structural distress or abnormal corrosion.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.8	Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

**ACTIONS**

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required ECCS centrifugal charging subsystem inoperable.	C.1 Restore required ECCS centrifugal charging subsystem to OPERABLE status.	1 hour
D. Required Action and associated Completion Time of Condition B or C not met.  <u>AND</u>  At least one RHR subsystem OPERABLE.	D.1 Be in MODE 5.	24 hours

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	The following SRs are applicable for all equipment required to be OPERABLE:  SR 3.5.2.2                      SR 3.5.2.6                      SR 3.5.2.8 SR 3.5.2.3                      SR 3.5.2.7	In accordance with applicable SRs

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two containment cooling trains inoperable.	D.1 Restore one containment cooling train to OPERABLE status.	72 hours
E. Required Action and associated Completion Time of Condition C or D not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours  36 hours
F. Two containment spray trains inoperable.  <u>OR</u>  Any combination of three or more trains inoperable.	F.1 Enter LCO 3.0.3.	Immediately

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.6.1 -----NOTE----- Not required to be met for system vent flow paths opened under administrative control. ----- Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.2 Operate each required containment cooling train fan unit for $\geq 15$ minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.3 Verify each containment cooling train cooling water flow rate is $\geq 1600$ gpm.	In accordance with the Surveillance Frequency Control Program

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.6.6.4	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.6.5	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.7	Verify each containment cooling train starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.8	Verify each spray nozzle is unobstructed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.9	Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program



**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
<p>SR 3.9.4.2</p> <p>-----NOTE-----</p> <p>An operating RHR loop will meet this requirement for the RHR loop running unless the RHR loop is in a low flow system operation.</p> <p>-----</p> <p>Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of $\geq 3000$ gpm.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.2	Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.3	<p>-----NOTE-----                      An operating RHR loop will meet this requirement for the RHR loop running unless the RHR loop is in a low flow system operation.</p> <p>-----                      Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water.</p>	In accordance with the Surveillance Frequency Control Program



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 200 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-2

AND

AMENDMENT NO. 196 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

By application dated May 12, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15132A722), as supplemented by letters dated September 15, 2015 (ADAMS Accession No. ML15258A535), November 25, 2015 (ADAMS Accession No. ML15329A249), and January 28, 2016, (ADAMS Accession No. ML16028A475) Southern Nuclear Operating Company (SNC, the licensee) submitted a request to change the Joseph M. Farley Nuclear Plant (FNP), Units 1 and 2, Technical Specifications (TSs). The supplements dated September 15, 2015, November 25, 2015, and January 28, 2016, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on June 23, 2015 (80 FR 35982).

Specifically, the licensee requested to adopt U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specifications Task Force (TSTF) Standard Technical Specifications (STS) Change Traveler TSTF-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation" (ADAMS Accession No. ML13053A075), dated February 21, 2013. The availability of this TS improvement was announced in the *Federal Register* on January 15, 2014 (79 FR 2700) as part of the consolidated line item improvement process (CLIIP). The proposed change would add new and revised existing surveillance requirements (SRs) related to gas accumulation for the emergency core cooling system (ECCS), residual heat removal (RHR) system, and containment spray (CS) system. TS Bases associated with these SRs would also be revised. The licensee stated that it has reviewed the information contained in the model safety evaluation dated December 23, 2013 (ADAMS Accession No. ML13255A169) and that the license amendment request (LAR) is consistent with NRC-approved TSTF 523.

Enclosed within this license amendment request, the licensee provided its TS Bases changes for the proposed changes to the TSs. These changes were presented for information only because these changes are controlled through TS 5.5.14, "Technical Specification Bases Control Program." The NRC staff reviewed the changes to verify that they are consistent with the changes in the TSTFs and are technically correct.

## 2.0 REGULATORY EVALUATION

### 2.1 Background

Gas accumulation in reactor systems can result in water hammer, pump cavitation, and pumping of non-condensable gas into the reactor vessel. These effects may result in the subject system being unable to perform its specified safety function. The NRC issued Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal [DHR], and Containment Spray Systems," in January 2008 to address the issue of gas accumulation in ECCS, DHR, and CS systems (ADAMS Accession No. ML072910759). The industry and NRC staff agreed that a change to the STS and plant-specific TSs would be necessary to address some issues discussed in GL 2008-01. TSTF-523 contains changes to the TS SRs and TS Bases to address some of the concerns in GL 2008-01. The licensee proposed amending the FNP TSs using a plant-specific adoption of the TSTF-523 changes.

### 2.2 Technical Specification Changes

Changes were proposed for SRs 3.5.2.2, 3.5.3.1, 3.6.6.1, as well as the addition of new SRs 3.4.6.4, 3.4.7.4, 3.4.8.3, 3.5.2.8, 3.6.6.9, 3.9.4.2, and 3.9.5.3 to TS 3.4.6, "RCS Loops MODE 4," TS 3.4.7, "RCS Loops - MODE 5, Loops Filled," TS 3.4.8, "RCS Loops MODE 5, Loops Not Filled," TS 3.5.2, "ECCS - Operating," TS 3.5.3, "ECCS - Shutdown," TS 3.6.6, "Containment Spray and Cooling Systems," TS 3.9.4, "RHR and Coolant Circulation - High Water Level," and TS 3.9.5, "RHR and Coolant Circulation - Low Water Level," respectively.

### 2.3 Regulatory Review

The regulations in Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 provide design requirements. Appendix B to 10 CFR Part 50, the TSs, and the licensee quality assurance programs provide operating requirements. The regulatory requirements of 10 CFR Part 50, Appendix A, that are applicable to gas management in the subject systems include: General Design Criteria (GDC) 1, 34, 35, 36, 37, 38, 39 and 40. GDC 1 requires that the subject systems be designed, fabricated, erected, and tested to quality standards. GDC 34 requires an RHR system designed to maintain specified acceptable fuel design limits and to meet design conditions that are not exceeded if a single failure occurs and specified electrical power systems fail. GDC 35, 36, and 37 require an ECCS design that meets performance, inspection, and testing requirements. Additionally, the regulations in 10 CFR 50.46 provide specified ECCS performance criteria. GDC 38, 39, and 40 require a containment heat removal system design that meets performance, inspection, and testing requirements.

Quality assurance criteria provided in 10 CFR Part 50, Appendix B, that apply to gas management in the subject systems include: Criteria III, V, XI, XVI, and XVII. Criteria III and V require measures to ensure that applicable regulatory requirements and the design basis, as

defined in 10 CFR 50.2, "Definitions," and as specified in the license application, are correctly translated into controlled specifications, drawings, procedures, and instructions. Criterion XI requires a test program to ensure that the subject systems will perform satisfactorily in service and requires that test results shall be documented and evaluated to ensure that test requirements have been satisfied. Criterion XVI requires measures to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances, are promptly identified and corrected, and that significant conditions adverse to quality are documented and reported to management. Criterion XVII requires maintenance of records of activities affecting quality.

The NRC's regulatory requirements related to the content of the TSs are contained in 10 CFR 50.36(c). The regulations at 10 CFR 50.36 require that the TSs include items in the following categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) limiting conditions for operation (LCO); (3) SRs; (4) design features; and (5) administrative controls. SRs are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met. Section 5 from the FNP TSs requires the licensee to establish, implement, and maintain written procedures covering the applicable procedures recommended in Appendix A to Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)." Appendix A to RG 1.33 identifies instructions for filling and venting the ECCS and DHR system, as well as for draining and refilling heat exchangers. STS include SRs to verify that at least some of the subject systems piping is filled with water.

The NRC's guidance for the format and content of licensee TSs can be found in NUREG-1431, "Standard Technical Specifications Westinghouse Plants."

Regulatory guidance for the NRC staff's review of containment heat removal systems, ECCS, and RHR systems is provided in the following revisions and sections of NUREG-0800, "Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition."

- Revision 5 of SRP, Section 6.2.2, "Containment Heat Removal Systems," dated March 2007 (ADAMS Accession No. ML070160661), provides the procedures concerning the review of containment heat removal under post-accident conditions to help ensure compliance with GDC 38, 39, and 40.
- Revision 3 of SRP, Section 6.3, "Emergency Core Cooling System," dated March 2007 (ADAMS Accession No. ML070550068), provides the procedures concerning the review of ECCS to help ensure compliance with GDC 35, 36, and 37.
- Revision 5 of SRP, Section 5.4.7, "Residual Heat Removal (RHR) System," dated May 2010 (ADAMS Accession Number ML100680577), provides the procedures concerning the review of the RHR system as it is used to cool the reactor coolant system (RCS) during and following shutdown to help ensure compliance with GDC 34.

### 3.0 TECHNICAL EVALUATION

The proposed change adopted the TS format and content, to the extent practicable, contained in the changes made to NUREG-1431, "Standard Technical Specifications Westinghouse Plants" by TSTF-523.

The deviations that were identified between the licensee's submittal and TSTF-523 are listed below along with how they were reconciled.

- (1) Numbering differences were identified between the FNP TSs and TSTF-523. These differences are administrative and do not affect the applicability of TSTF-523 to the FNP TSs.
- (2) TSTF-523 revised an existing SR in the STS for the ECCS system (i.e., SR 3.5.2.3), which did not exist in the FNP TSs. This SR was added to the FNP ECCS TS as SR 3.5.2.8. Also, SR 3.5.3.1 in the FNP TSs was revised to add the requirement that SR 3.5.2.8 be applied to the Operable ECCS train in Mode 4, which is in agreement with TSTF-523. Both of these changes to the FNP TSs are acceptable because they are in alignment with TSTF-523, and they improve safety by adding SRs that provide reasonable assurance gas accumulation does not render ECCS inoperable in Modes 1 through 4.
- (3) A note was added to the RHR SRs (i.e., 3.4.6.4, 3.4.7.4, 3.4.8.3, 3.9.4.2, and 3.9.5.3) to allow an operating RHR loop to be credited for meeting the SR. The evaluation of this deviation is provided below.

The NRC staff compared the proposed changes to the existing SRs, as well as the regulatory requirements of 10 CFR 50.36(c).

The licensee proposed the following TS changes:

- (1) Add SR 3.4.6.4, which states, "Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water" with two notes that state "Not required to be performed until 12 hours after entering MODE 4" and "An operating RHR loop will meet this requirement for the RHR loop running unless the RHR loop is in a low flow system operation." The stated frequency is "In accordance with the Surveillance Frequency Control Program."
- (2) Add SR 3.4.7.4, which states, "Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water" with a note that states, "An operating RHR loop will meet this requirement for the RHR loop running unless the RHR loop is in a low flow system operation" and a stated frequency of "In accordance with the Surveillance Frequency Control Program."
- (3) Add SR 3.4.8.3, which states "Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water" with a note that states, "An operating RHR loop will meet this requirement for the RHR loop running unless the RHR loop

is in a low flow system operation” and a stated frequency of “In accordance with the Surveillance Frequency Control Program.”

- (4) Add a note to SR 3.5.2.2, which states, “Not required to be met for system vent flow paths opened under administrative control.”
- (5) Add SR 3.5.2.8, which states, “Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water” with a stated frequency of “In accordance with the Surveillance Frequency Control Program.”
- (6) Revise SR 3.5.3.1 by adding “SR 3.5.2.8” to the list of referenced SRs.
- (7) Add a note to SR 3.6.6.1, which states, “Not required to be met for system vent flow paths opened under administrative control.”
- (8) Add SR 3.6.6.9, which states, “Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water” with a stated frequency of “In accordance with the Surveillance Frequency Control Program.”
- (9) Add SR 3.9.4.2, which states, “Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water” with a note that states, “An operating RHR loop will meet this requirement for the RHR loop running unless the RHR loop is in a low flow system operation” and a stated frequency of “In accordance with the Surveillance Frequency Control Program.”
- (10) Add SR 3.9.5.3, which states, “Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water” with a note that states, “An operating RHR loop will meet this requirement for the RHR loop running unless the RHR loop is in a low flow system operation” and a stated frequency of “In accordance with the Surveillance Frequency Control Program.”

The language for the new SRs was developed using licensee responses to GL 2008-01 and the NRC discussion contained in Task Interface Agreement (TIA) 2008-03, “Emergency Core Cooling System (ECCS) Voiding Relative To Compliance With Surveillance Requirements (SR) 3.5.1.1, 3.5.2.3, and 3.5.3.1” (ADAMS Accession No. ML082560209). Many of the GL 2008-01 responses stated that licensees identified system locations susceptible to gas accumulation. In the TIA, the NRC stated that the intent of existing TS SRs, which state “full of water,” may be met if the licensee can establish, through an Operability Determination, that there is a reasonable expectation that the system in question will perform its specified safety function. Therefore the phrase, “sufficiently filled with water” was recommended for the proposed TS changes. In the TSSs, “sufficiently filled with water” is understood to mean “sufficiently filled with water to support Operability.” The regulation at 10 CFR 50.36(c)(3) states that one of the purposes of the SR is to verify that the LCO is met. Therefore, the new SR language, “Verify the [system name] locations susceptible to gas accumulation are sufficiently filled with water,” is acceptable since this language will allow the licensee to make a conclusion as to whether or not a system is operable.

The first note for SR 3.4.6.4 states that the SR does not have to be performed until 12 hours after entering Mode 4. The staff finds that this note is acceptable because it provides a limited time to perform the surveillance after entering the applicability of the LCO. In addition, the note is acceptable because, under the STS usage rules (STS Section 1.4), the requirement to manage gas accumulation is not affected by the allowance provided by the note. The licensee must have confidence that the SR can be met or the LCO must be declared not met.

The licensee added notes to SRs 3.4.6.4, 3.4.7.4, 3.4.8.3, 3.9.4.2, and 3.9.5.3 that state, "An operating RHR loop will meet this requirement for the RHR loop running unless the RHR loop is in a low flow system operation." These notes allow the licensee to credit an RHR loop operating under normal conditions for meeting the SRs. The intent of the SRs associated with these notes is to verify gas accumulation in the RHR system has not increased to a point that would challenge its operability (i.e., the system is not sufficiently filled with water).

The staff reviewed the licensee's justification for crediting the SRs as being met and finds that it is acceptable. The licensee's justification in this circumstance is twofold. First, an RHR loop operating under normal conditions (i.e., not low flow system operation) is performing its specified safety function of removing decay heat from the reactor core and providing proper boron mixing. The operating system, therefore, provides evidence that it is currently "sufficiently filled with water." However, this alone is not sufficient justification for crediting the SR as being met because the system must be able to continue to operate for an extended period even if challenged by gradual gas accumulation, such as could occur during mid-loop operation. This is why the second part of the licensee's justification is important, which is the RHR loop operating under normal conditions will provide proper circulation (i.e., not low flow system operation). This will ensure that gas voids are transported through the system, thereby preventing gas accumulation. Also, acting as an additional safeguard while the RHR system is in operation, the plant operators monitor the RHR system parameters (e.g., pressure, flow rate, pump motor current). If gas voids are detected, then the plant staff will enter appropriate response procedures and will enter the issue into the FNP corrective action program and respond appropriately. Therefore, the staff finds that it is acceptable for the licensee to credit an operating RHR loop with high enough flow for proper circulation as meeting the associated SRs.

The licensee added notes that allow SRs 3.5.2.2 and 3.6.6.1 to not be met for system vent flow paths opened under administrative control. These notes are necessary to allow the licensee to credit administratively controlled manual action to close the system vent flow path in order to maintain system operability during system venting and performance of the proposed gas accumulation SR. The TS bases state that "The administrative control should be proceduralized and include stationing an individual who can rapidly close the system vent flow path if directed." Therefore, the staff finds that these notes are acceptable.

SR 3.5.2.8 was added to the list of referenced SRs in SR 3.5.3.1. The staff finds that this change is acceptable because it adds the requirement to verify gas accumulation is not affecting the single ECCS train that is required to be operable in Mode 4.

Based on its review as described above, the NRC staff found that the proposed SRs meet the regulatory requirements of 10 CFR 50.36 because they provide assurance that the necessary quality of systems and components will be maintained and that the LCO will be met. Therefore, the NRC staff finds the proposed amendment acceptable.



#### 4.0 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.

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. 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 (80 FR 35982, June 23, 2015). 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.

#### 6.0 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.

Principal Contributors: Williams Satterfield, NRR/DSS/STSB  
Warren Lyon, NRR/DSS/SRXB

Date: February 26, 2016

February 26, 2016

Mr. C. 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 (CAC NOS. MF6211 AND MF6212)

Dear Mr. Pierce:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 200 to Renewed Facility Operating License No. NPF-2 and Amendment No. 196 to Renewed Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant, Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated May 12, 2015, as supplemented on September 15, 2015, November 25, 2015; and January 28, 2016.

The changes revise and add Surveillance Requirements to verify that the system locations susceptible to gas accumulation are sufficiently filled with water and to provide allowances that permit performance of the verification. The changes are consistent with Technical Specifications Task Force (TSTF)-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation."

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. 200 to NPF-2
2. Amendment No. 196 to NPF-8
3. Safety Evaluation

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